FORM S-1

General form of registration statement for all companies including face-amount certificate companies

Filing Date: **2024-05-24**
SEC Accession No. 0001104659-24-065172

(HTML Version on secdatabase.com)

FILER

ACTUATE THERAPEUTICS, INC.
CIK:**1652935**| IRS No.: **473044785** | State of Incorp.:**DE** | Fiscal Year End: **1231**
Type: **S-1** | Act: **33** | File No.: **333-279734** | Film No.: **24985305**
SIC: **2834** Pharmaceutical preparations

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As filed with the Securities and Exchange Commission on May 24, 2024

Registration No. 333-

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM S-1

REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

Actuate Therapeutics, Inc.

(Exact name of registrant as specified in its charter)

Delaware	8731	47-3044785
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification Number)

1751 River Run, Suite 400
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(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

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(Name, address, including zip code, and telephone number, including area code, of agent for service)

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Approximate date of commencement of proposed sale to the public: As soon as practicable after this Registration Statement is declared effective.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933 check the following box: ☐

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☒	Smaller reporting company	☒
		Emerging growth company	☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act. ☐

The registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the Registration Statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

SUBJECT TO COMPLETION
PRELIMINARY PROSPECTUS, DATED MAY 24, 2024

Shares of Common Stock

This is the initial public offering of shares of common stock of Actuate Therapeutics, Inc. We are offering shares of our common stock. It is currently estimated that the initial public offering price per share of common stock will be between $ and $.

Prior to this offering, there has been no public market for our common stock.

We have applied to list our common stock on the Nasdaq Capital Market under the symbol "ACTU". We believe that upon the completion of this offering, we will meet the standards for listing on the Nasdaq Capital Market, and the closing of this offering is contingent upon such listing.

We are an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012 and have elected to comply with certain reduced public company reporting requirements in this prospectus and may elect to do so in future filings.

Investing in our common stock is highly speculative and involves a high degree of risk. See "Risk Factors" beginning on page 13.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

	Per Share	Total
Public offering price	$	$
Underwriting discounts and commissions[(1)]	$	$
Proceeds, before expenses, to us	$	$

(1) See "Underwriting" for additional disclosure regarding the underwriting discounts and commissions and estimated offering expenses, as well as a complete description of the compensation payable to the underwriters.

We have granted the underwriters an option for a period of 30 days to purchase up to an additional shares of our common stock at the initial public offering price, less the underwriting discounts and commissions solely to cover over-allotments, if any.

The underwriters expect to deliver the shares on or about , 2024.

Sole Bookrunner

Titan Partners Group

a division of American Capital Partners

Co-Manager

Newbridge Securities Corporation

The date of this prospectus is , 2024.

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You should rely only on the information contained in this prospectus. Neither we nor the underwriters have authorized anyone to provide you with different information and, if provided, such information or representations must not be relied upon as having been authorized by us or the underwriters. This prospectus shall not constitute an offer to sell or a solicitation of an offer to buy offered securities in any jurisdiction in which it is unlawful for such person to make such an offering or solicitation.

You should read this prospectus together with the additional information described below under the heading "Where You Can Find More Information." We may also provide a prospectus supplement or post-effective amendment to the Registration Statement to add information to, or update or change information contained in, this prospectus. The information contained in this prospectus, or any free writing prospectus is accurate only as of its date, regardless of its time of delivery or of any sale of shares of our common stock. Our business, financial condition, results of operations and prospects may have changed since that date. This prospectus does not contain all of the information included in the Registration Statement. For a more complete understanding of the offering of the securities, you should refer to the Registration Statement, including its exhibits.

This prospectus includes our trademarks, and trade names, including but not limited to Actuate and Actuate Therapeutics, which are protected under applicable intellectual property laws. This prospectus also may contain trademarks, service marks, trade names, and copyrights of other companies, which are the property of their respective owners. Solely for convenience, the trademarks, service marks, trade names, and copyrights referred to in this prospectus are listed without the TM, SM, ©, and ® symbols, but we will assert, to the fullest extent under applicable law, our rights or the rights of the applicable licensors, if any, to these trademarks, service marks, trade names, and copyrights.

PROSPECTUS SUMMARY

This summary contains basic information about us and our business but does not contain all of the information that is important to your investment decision, and is qualified in its entirety by the more detailed information and consolidated financial statements included elsewhere in this prospectus. You should carefully read this summary together with the more detailed information contained elsewhere in this prospectus before making an investment decision. Investors should carefully consider the information set forth under the caption "Risk Factors" appearing elsewhere in this prospectus. Unless the context requires otherwise, references in this prospectus to "Actuate," the "Company," "we," "us," and "our" refer to Actuate Therapeutics, Inc.

Overview

We are a clinical stage biopharmaceutical company focused on developing therapies for the treatment of high impact, difficult to treat cancers through the inhibition of glycogen synthase kinase-3 (GSK-3). We are developing elraglusib (formerly 9-ING-41), a small molecule that is designed to enter cancer cells and block the function of the enzyme GSK-3β, a master regulator of complex biological signaling cascades, including those mediated by oncogenes, that lead to tumor cell survival, growth, migration, and invasion. We believe that the blockade of GSK-3β signaling ultimately results in the death of the cancer cells and the regulation of anti-tumor immunity.

The enzyme GSK-3β, a serine/threonine protein kinase, is understood to be an essential positive regulator of nuclear factor kappa B (NF-kB) transcriptional activity. Studies have demonstrated that the inhibition of GSK-3β decreases cancer cell survival via suppression of the transcriptional activity of its downstream effector NF-kB. In light of these findings, we believe that the inhibition of GSK-3β may overcome and/or reverse NF-kB-mediated cancer cell survival and chemoresistance to conventional chemotherapeutic drugs in a range of human cancers. Research has also demonstrated that aberrant nuclear GSK-3β accumulation is limited to cancer cells, making GSK-3β a potential candidate for specific and targeted cancer therapy. Additionally, GSK-3 regulates the expression of immune modulators such as pro-inflammatory cytokines and checkpoint molecules in tumor and immune cells. We believe blocking GSK-3 in these cells leads to improved immune cell function, which can ultimately result in better, longer clinical responses in patients.

Our Lead Product Candidate

We have exclusively licensed a portfolio of GSK-3 inhibitors developed in a collaboration between the University of Illinois-Chicago (UIC) and Northwestern University (NU). The lead drug in our portfolio is called elraglusib (9-ING-41), which is being evaluated in a randomized Phase 2 trial in patients with metastatic pancreatic cancer, our most advanced clinical indication to date. Elraglusib represents a broad opportunity for us to potentially initiate and advance multiple drug development programs around our lead asset based on data emerging from completed or ongoing Phase 1/2 trials in pediatric and adult patients with advanced, refractory cancers. Many of the pathological processes that drive cancer are controlled by GSK-3β and thus, by targeting GSK-3β, we are pursuing the development of products designed to intervene in the progression of multiple cancer types. Animal tumor model data and Phase 1/2 clinical data have identified a number of areas of unmet clinical need in cancer where elraglusib may play an interventional role, including pancreatic, colon, lung, breast, renal, ovarian, leukemias and lymphomas, and melanoma, as well as some pediatric cancers including Ewing sarcoma, neuroblastoma and pediatric leukemias.

Our lead program, Elraglusib Injection, is an intravenous solution of elraglusib that we are evaluating for the treatment of metastatic pancreatic ductal adenocarcinoma (mPDAC). Elraglusib Injection has been evaluated in a Phase 1 dose escalation study (Actuate-1801 Part 1) in 238 adult patients with refractory advanced cancers when given as a single agent (n=67) or in combination with chemotherapy (n=171). The objective of this study was to establish the safety profile of elraglusib when used alone or in combination with chemotherapy and to identify either a maximum tolerated dose (MTD) or recommended phase 2 dose (RP2D) to then inform the design of exploratory efficacy studies in Phase 2. Subjects in this study were diagnosed with a variety of cancer types and most patients had received two or more previous lines of chemotherapy prior to enrollment in the study. Objective responses and durable disease control were observed in both the single agent and combination treatment arms of the study. The most common treatment-emergent adverse events (TEAEs) attributed to elraglusib were transient visual disturbance (patients

described lights as brighter and skin tones darker, which resolved spontaneously) and fatigue across both study parts. The majority (>99%) of TEAEs that occurred in ≥ 20% of patients were reported as Grade 1 or 2 (mild or moderate). In combination with chemotherapy, no new safety signals were observed. Based on the results of the Phase 1 study, which established 15 mg/kg as the RP2D when combined with chemotherapy, we initiated a single arm Phase 2 study (Actuate-1801 Part 2) in patients with previously untreated mPDAC. This study was originally designed as a single arm exploratory Simon two-stage trial (and therefore not designed or powered to demonstrate statistical significance), but after an analysis conducted following the completion of Stage 1, which showed a median overall survival (mOS) of 15.3 months in the efficacy evaluable (n=29) patient population, we amended and expanded the Stage 2 of the study to a randomized, controlled trial now powered for statistical significance (Actuate-1801 Part 3B) that would allow a comparison of the safety and efficacy of the combination of Elraglusib Injection plus gemcitabine/nab-paclitaxel (GnP) as compared to GnP alone. The primary endpoint for Actuate-1801 Phase 2 is overall survival (OS). Elraglusib is currently being evaluated as a weekly intravenous (IV) infusion in combination with the approved dosing regimen for GnP. This study completed enrollment four months faster than predicted and top line results are expected in the first quarter of 2025. In April 2024, we carried out a preliminary analysis of interim data from Actuate-1801 Part 3B in the pre-specified safety population. This preliminary analysis and overall results may change as the study continues through completion. For this preliminary analysis, we used data based on a cut-off date corresponding to the date when >50% of the patients in the GnP control group had progressed. As of this cut-off date, our preliminary analysis indicates that patients in the (i) GnP control group arm exceeded 50% death events (the outcome measure for survival analysis) at 53.8% and (ii) elraglusib/GnP combination therapy arm were below 50% death events at 34.2%. Based on this interim data, the Kaplan-Meier preliminary analysis demonstrates a mOS of 12.2 months in the elraglusib combination therapy arm versus 7.3 months in the GnP control group arm (HR=0.60; log-rank p=0.012). As with all preliminary analyses of interim data, this data should not be relied upon as a final analysis and is subject to change once full data analysis is complete.

Our Market Opportunity

According to the American Cancer Society, the annual incidence of pancreatic cancer is expected to exceed 66,000 patients in the United States this year and approximately 70% of these patients will present with metastatic disease. The mOS in patients with mPDAC is 9-11 months and the ability to extend survival by even a few months would be considered meaningful in this patient population. Elraglusib has been granted Fast Track and Orphan Drug Designations from the U.S. Food and Drug Administration (FDA) for pancreatic cancer in the United States. Based on our meetings with the FDA to discuss our development plan in pancreatic cancer, the current Phase 2 study design cannot be used to support accelerated approval. However, if the future mOS data is positive in favor of the elraglusib/GnP combination, we would initiate further conversations with the FDA to discuss possible registration.

Two additional exploratory, single arm Phase 2 studies are ongoing in patients with pancreatic cancer evaluating novel drug combinations with elraglusib: the combination of elraglusib/FOLFIRINOX/losartan in up to 65 patients with mPDAC and the combination of elraglusib/GnP/retinfanlimab in up to 32 patients with advanced PDAC. Both studies are academic investigator-initiated trials (IITs) that are exploring the addition of immunomodulatory drugs to an elraglusib/chemotherapy backbone. Enrollment in both of these investigator-initiated studies is continuing.

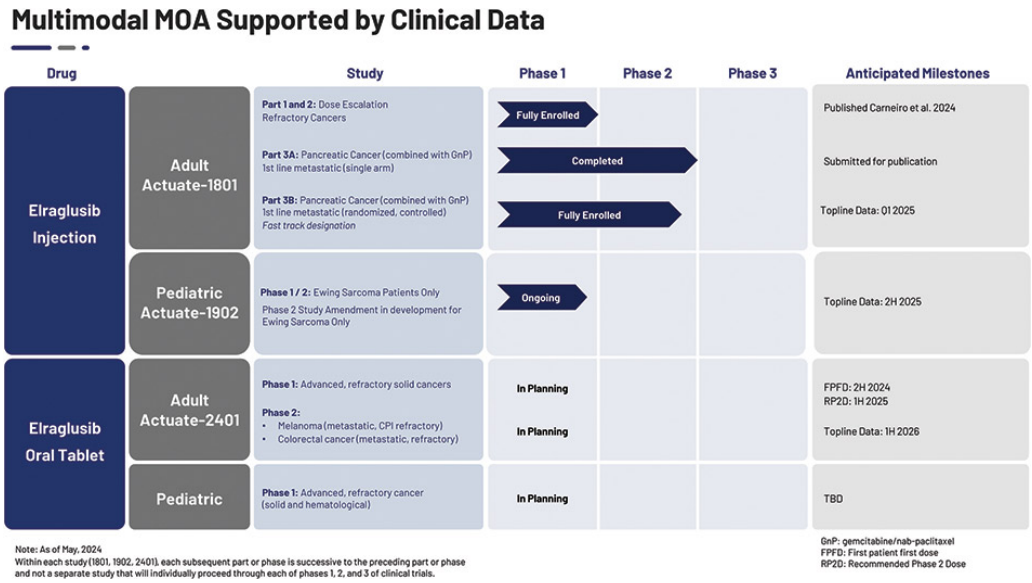
Elraglusib Injection has also been evaluated in pediatric cancer patients with recurrent/refractory solid cancers. This study, Actuate-1902, is a Phase 1/2 study that evaluated escalating doses of elraglusib as a single agent as well as in combination with irinotecan or cyclophosphamide/topotecan in the Phase 1 portion. This study was based off of the recommended Phase 2 dose (RP2D) from the Actuate-1801 adult cancer study using twice weekly dosing of elraglusib. Patients in this Actuate-1902 study also experienced a number of objective responses in the combination chemotherapy arms, and based on this data, we identified Ewing sarcoma as a potential second indication for further development of Elraglusib Injection. Currently, the Actuate-1902 study is open but only accruing patients with refractory Ewing sarcoma into the Phase 1 portion of the study. However, we plan to submit an amendment to the protocol and seek to focus the Phase 2 portion of this study to enroll only Ewing sarcoma patients to further investigate the activity of elraglusib in this patient population. We are also evaluating the potential for additional exploratory development of

Elraglusib Injection in other pediatric cancer indications, including leukemias, which we expect to explore through academic IITs.

We have developed several oral dosage forms of elraglusib, including an oral liquid (Elraglusib Oral Liquid) and several solid dosage forms including an Elraglusib Oral Tablet product candidate, which we believe will allow us to expand the number of cancer indications that we are able to target and allow us to further explore optimal dosing. A Phase 1 healthy volunteer study (Actuate-2203) was completed showing very favorable (>50%) bioavailability after a single dose of Elraglusib Oral Liquid. A clinical candidate tablet (Elraglusib Oral Tablet) has been developed and selected. Subject to our receipt of the proceeds of this offering as well as future funding, the Elraglusib Oral Tablet, manufactured under current Good Manufacturing Practices (cGMP), is expected to be released and available in the third quarter of 2024 and a first in human dose escalation study using Elraglusib Oral Tablet could begin in the fourth quarter of 2024. We are planning a Phase 1 study (Actuate-2401) to identify the MTD/ RP2D for Elraglusib Oral Tablet in patients with advanced, refractory adult cancers subject to our receipt of the proceeds of this offering and future funding will be required to complete this study. Several Phase 2 indications, including refractory, metastatic melanoma and refractory, metastatic colorectal cancer have been identified for further clinical development of Elraglusib Oral Tablet based on data from the Actuate-1801 study once the MTD/RP2D for the oral tablet has been established, and which will also require additional funds to initiate and complete the studies.

Pipeline and Development Timeline

Our current pipeline consists of a "pipeline in a molecule" for elraglusib, which is being evaluated in mPDAC and pediatric malignancies. We are currently focused on advancing our trials in pancreatic cancer with Elraglusib Injection. Our ability to advance our planned trials listed in the development table below will depend on our ability to raise sufficient capital to support those trials, as discussed under "Use of Proceeds" below.



Our Strategy

Subject to available financing, we intend to develop elraglusib in a broad list of advanced cancer indications, initially in patients with refractory disease and with an initial focus on metastatic pancreatic cancer. Our portfolio consists of two product candidates, Elraglusib Injection and Elraglusib Oral Tablet, which we believe will provide us with two different dosage forms of drug with different attributes that will allow us to tailor each dosage form to a specific cancer type to potentially improve outcomes and compliance. Key elements of our strategy to accomplish this objective include:

- ***Build a sustainable oncology company.*** Our goal is to build a leading oncology company with a sustainable pipeline of target indications revolving around a patented, active product candidate, elraglusib, that can be delivered in different ways to potentially treat a wide variety of cancers. To accomplish this, we are focused on rapid advancement of our currently active clinical trials while curating and preparing additional indications for future expansion of elraglusib development. This effort is led by Daniel Schmitt, our chief executive officer and founder, and Dr. Andrew Mazar, our scientific co-founder and chief operating officer, who have more than 60 years of combined experience in the management of biotechnology companies and healthcare investing. Mr. Schmitt has led and contributed to the successful development and launch of multiple pharmaceutical and health technology products and executed over approximately $1.0 billion in milestone value through licensing, acquisition, and development deals. Dr. Mazar has founded seven start-ups and is the co-founder and former chief scientific officer and director, of Monopar Therapeutics, Inc. (Nasdaq: MNPR) as well as the former chief scientific officer of Attenuon, LLC. Dr. Mazar has shepherded eleven drugs from discovery stage through Phase 2 and Phase 3 trials. Our board of directors, or Board, is comprised of experienced entrepreneurs, scientists, and investors in the biotechnology industry.
- ***Advance our lead product candidate, elraglusib, through clinical trials.*** We have generated clinical data from over 500 patients that have been dosed with elraglusib to date. Under the innovative seamless study design of our Actuate-1801 Phase 1/2 clinical trial, we have initiated a Phase 2 trial testing Elraglusib Injection in combination with chemotherapy in pancreatic cancer under this Master protocol (Actuate-1801 Part 3B). We are also advancing an opportunity in Ewing sarcoma as part of the Actuate-1902 Phase 1/2 study in pediatric refractory malignancies. Currently, the Phase 1 portion of the Actuate-1902 study is open but only accruing patients with refractory Ewing sarcoma into the Phase 1 portion of the study and we are working to amend the Phase 2 portion of this trial to focus on Ewing Sarcoma. We also intend to explore strategically identified IITs that may identify additional indications and standard of care products to combine with elraglusib in indications that go beyond those already identified in Actuate 1801-Part 1 and 2, which allows us to further leverage our pipeline in a molecule. By collaborating with our network of oncology Key Opinion Leaders (KOLs) we anticipate partnering to access non-dilutive funding for our IITs through both Federal (e.g. National Institute of Health (NIH)) and non-federal (e.g. cancer-specific foundations, pharma partners) sources. For example, Actuate collaborated with Dr. Colin Weekes to obtain Lustgarten Foundation grant support for the IIT currently being run at Massachusetts General Hospital (MGH). Actuate provides financial and resource support for IITs in exchange for rights to the trial data, but Actuate has no control over the design or conduct of an IIT.
- ***Advance our lead product candidate, elraglusib, by obtaining regulatory development incentives to accelerate path to approval.*** One of our strategic objectives is to obtain development incentives in the United States and in other countries that we believe may accelerate our path to drug approval: Orphan Drug Designation, Fast-Track designation and Breakthrough Therapy Designation (BTD) in the United States; Orphan and priority medicines (PRIME) designations in the European Union (EU); and Orphan designations in Japan and Australia. There is no guarantee that any such designation, if received, will actually lead to a faster development, regulatory review or approval process; or increase the likelihood that a product candidate will receive FDA approval.
- ***Explore strategic partnerships that can accelerate and maximize the potential of GSK-3 inhibitors.*** We will evaluate potential strategic (pharma) partnering opportunities which could further help us to accelerate development of elraglusib by providing expertise, guidance, and funding to expand the pipeline into different tumors and other diseases that could benefit from GSK-3 inhibitor therapy, as discussed above. We may also broaden the reach of our platform by selectively in-licensing technologies or novel product candidates. In addition, we will consider potentially out-licensing certain geographic rights to elraglusib or other product candidates in our target indications or for indications and industries that we are not currently pursuing ourselves.
- ***Leverage our academic and research partnerships.*** We are actively engaging with regulators, KOLs, advocates and other stakeholders early and throughout the development process in each cancer indication being considered for development to enhance the probability of technical success. We currently have clinical partnerships with investigators conducting IITs with elraglusib at MGH and

the Dana-Farber Cancer Institute (DFCI) and we expect to expand these pending additional funding to explore indications beyond pancreatic cancer. We also have a research and development collaboration with Lantern Pharma Inc. (Lantern Pharma) to leverage their artificial intelligence platform to further understand the effects of elraglusib and identify patient subtypes that are particularly susceptible to GSK-3 inhibition. We expect to continue to leverage these partnerships and establish others to hone and expand our research and development efforts.

Risk Factor Summary

Our business is subject to many significant risks, as more fully described in the section titled "Risk Factors" immediately following this prospectus summary. You should read and carefully consider these summary risks, together with the risks set forth under the section titled "Risk Factors" and all of the other information in this prospectus, including the financial statements and the related notes included elsewhere in this prospectus, before deciding whether to invest in our common stock. If any of the risks discussed in this prospectus actually occurs, our business, prospects, financial condition or operating results could be materially and adversely affected. In particular, our risks include, but are not limited to, the following:

- We have a limited operating history, have incurred significant operating losses since our inception and expect to incur significant operating losses for the foreseeable future. We have a high risk of never generating revenue or becoming profitable or, if we achieve profitability, we may not be able to sustain it.
- Our financial condition raises substantial doubt as to our ability to continue as a going concern.
- We do not have, and may never have, any approved products on the market. Our business is highly dependent upon receiving approvals from various U.S. and international governmental agencies and will be severely harmed if we are not granted approval to manufacture and sell our product candidates.
- We currently depend entirely on the success of elraglusib, which is our only product candidate. If we are unable to advance elraglusib in clinical development, obtain regulatory approval and ultimately commercialize elraglusib, or experience significant delays in doing so, our business will be materially harmed.
- Even if we complete all planned clinical trials including a Phase 3 trial in the future, there is no guarantee that at the time of submission the FDA will accept our new drug application (NDA).
- Clinical and preclinical drug development involves a lengthy and expensive process with uncertain timelines and outcomes, and results of prior preclinical studies and early clinical trials are not necessarily predictive of future results. Elraglusib or any future product candidates may not achieve favorable results in clinical trials or preclinical studies or receive regulatory approval on a timely basis, if at all.
- We may not be successful in our efforts to investigate elraglusib in additional indications. We may expend our limited resources to pursue a new product candidate or a particular indication for elraglusib and fail to capitalize on product candidates or indications that may be more profitable or for which there is a greater likelihood of success.
- Use of elraglusib or any future product candidates could be associated with side effects, adverse events or other properties or safety risks, which could delay or preclude regulatory approval, cause us to suspend or discontinue clinical trials, abandon elraglusib or any future product candidate, limit the commercial profile of an approved label or result in other significant negative consequences that could severely harm our business, financial condition, results of operations and prospects.
- The termination of third-party licenses could adversely affect our rights to important compounds or technologies.
- Our current elraglusib drug substance (DS) manufacturer is in China, and it is unknown how current or future geopolitical relationships with China may affect our ability to obtain DS; however, if they are negatively impacted, this could increase our DS manufacturing costs and adversely impact our financial condition.

- We rely on third parties to conduct our non-clinical studies and our clinical trials. If these third parties do not successfully carry out their contractual duties or meet expected deadlines, we may be unable to obtain regulatory approval for or commercialize our current product candidates or any future products and our financial condition will be adversely affected.
- We have a limited operating history and no products approved for commercial sale, which may make it difficult to evaluate our prospects and likelihood of success.
- If we experience delays or difficulties in the enrollment of subjects to our clinical trials, our receipt of necessary regulatory approvals could be delayed or otherwise adversely affected.
- If we and our third-party licensors do not obtain and preserve protection for our respective intellectual property rights, our competitors may be able to take advantage of our development efforts to develop competing drugs.
- If we lose key management leadership, and/or scientific personnel, and if we cannot recruit qualified employees or other significant personnel, we may experience program delays and increased compensation costs, and our business may be materially disrupted.
- We face significant competition from other biotechnology and pharmaceutical companies.
- Even if this offering is successful, we will require substantial additional capital to finance our operations and fund our clinical trials. We may not be able to obtain this necessary capital when needed on acceptable terms, or at all.
- Concentration of ownership by our principal stockholders, the Bios Equity Affiliated Funds (as defined below), which are affiliated with our Chairman, Aaron G.L. Fletcher, and our director, Les Kreis, Jr., limits the ability of others to influence the outcome of director elections and other transactions requiring stockholder approval, creates the potential for conflicts of interest, may negatively impact our stock price and may deter or prevent efforts by others to acquire us, which could prevent our stockholders from realizing a control premium.

Corporate History and Information

We were incorporated in Delaware on January 16, 2015, as Apotheca Therapeutics, Inc. and changed our name to Actuate Therapeutics, Inc. on October 1, 2015.

We were formed with seed capital from Bios Partners, LP, to commercialize the technology invented in the labs of Dr. Alan Kozikowski at UIC and developed under the scientific leadership of Dr. Andrew Mazar and Dr. Andrey Ugolkov, each at NU. Daniel Schmitt was hired as chief executive officer in April 2015 and led the negotiation of the exclusive license for the portfolio of GSK-3 inhibitors invented at UIC and developed in a collaboration with NU, providing the technology and know-how which is our foundational intellectual property.

Our principal executive offices are located at 1751 River Run, Suite 400, Fort Worth, Texas 76107. Our telephone number is (817) 887-8455. Our website address is www.actuatetherapeutics.com. Information contained on our website or connected thereto does not constitute part of, and is not incorporated by reference into, this prospectus or the Registration Statement of which it forms a part.

Implications of Being an Emerging Growth Company and a Smaller Reporting Company

We are an "emerging growth company," as defined in the Jumpstart Our Business Startups Act of 2012 (the JOBS Act). As an emerging growth company, we may take advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies. These include, but are not limited to:

- being permitted to provide only two years of audited financial statements, in addition to any required unaudited interim financial statements, with correspondingly reduced "Management's Discussion and Analysis of Financial Condition and Results of Operations" disclosure;
- not being required to comply with the auditor attestation requirements in the assessment of our internal control over financial reporting;

- not being required to comply with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditors' report providing additional information about the audit and the financial statements;
- reduced disclosure obligations regarding executive compensation; and
- exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved.

Additionally, under the JOBS Act, an emerging growth company can delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies. We irrevocably elected to avail ourselves of this exemption from new or revised accounting standards, and, therefore, are not subject to the same new or revised accounting standards as public companies who are not emerging growth companies. As a result, our consolidated financial statements may not be comparable to companies that comply with new or revised accounting pronouncements as of public company effective dates. We intend to rely on other exemptions provided by the JOBS Act, including without limitation, not being required to comply with the auditor attestation requirements of Section 404(b) of the Sarbanes-Oxley Act.

We will remain an emerging growth company until the earliest of (i) the last day of the fiscal year in which the market value of our common stock that is held by non-affiliates exceeds $700.0 million as of June 30th of that fiscal year, (ii) the last day of the fiscal year in which we have total annual gross revenue of $1.235 billion or more during such fiscal year (as indexed for inflation), (iii) the date on which we have issued more than $1 billion in non-convertible debt in the prior three-year period, and (iv) the last day of the fiscal year following the fifth anniversary of the date of the first sale of equity securities in our initial public offering, or December 31, 2029.

We are also a "smaller reporting company" as defined in the Exchange Act. We may continue to be a smaller reporting company even after we are no longer an emerging growth company. We may take advantage of certain of the scaled disclosures available to smaller reporting companies and will be able to take advantage of these scaled disclosures for so long as our voting and non-voting common stock held by non-affiliates is less than $250.0 million measured on the last business day of our second fiscal quarter, or our annual revenue is less than $100.0 million during the most recently completed fiscal year and our voting and non-voting common stock held by non-affiliates is less than $700.0 million measured on the last business day of our second fiscal quarter.

THE OFFERING

Common stock offered by us shares.

Assumed offering price per share of common stock

Option to purchase additional shares We have granted the underwriters an option for a period of 30 days to purchase from us up to an additional shares of common stock at the public offering price per share, to cover over-allotments, if any.

Common stock outstanding immediately after this offering shares (or shares if the underwriters exercise their over-allotment option to purchase additional shares in full).

Use of proceeds We estimate that we will receive net proceeds from this offering of approximately $, or approximately $ if the underwriters exercise their over-allotment option in full, based on a public offering price of $ per share (which is the midpoint of the price range set forth on the cover page of this prospectus), after deducting underwriting discounts and commissions and estimated offering expenses.

We intend to use the net proceeds from this offering, along with our existing cash and cash equivalents, for clinical trials and product development, research and development, clinical manufacturing as well as for working capital and other general corporate purposes. See the section titled "Use of Proceeds" in this prospectus for a more complete description of the intended use of proceeds from this offering.

Proposed Nasdaq listing We have applied to list our common stock on the Nasdaq Capital Market under the symbol "ACTU".

Lock-up agreements We, our successors, all of our directors, officers and holders of more than 1.0% of our outstanding common stock have agreed with the underwriters, subject to certain exceptions, not to sell, transfer or dispose of, directly or indirectly, any of our shares of common stock or securities convertible into or exercisable or exchangeable for our common stock for a period of 180 days after the date of this prospectus. See "Underwriting" for more information.

Representative's warrants Upon the closing of this offering, we have agreed to issue to Titan Partners Group LLC, a division of American Capital Partners, LLC, as representative of the underwriters, warrants that will be exercisable for the period commencing 180 days from the effective date of the registration statement of which this prospectus forms a part and expiring three years after such date, entitling the representative to purchase up to 5% of the number of shares of common stock sold in this offering (including any shares of common stock sold pursuant to the exercise of the underwriter's option), at an exercise price per share equal to 125% of the public offering price.

The registration statement of which this prospectus forms a part also covers the representative's warrants and the common stock issuable upon the exercise thereof.

For additional information regarding our arrangement with the underwriters, see the section titled "Underwriting."

Risk factors Investing in our common stock involves a high degree of risk. See the section titled "Risk Factors" and other information included in this prospectus for a discussion of factors you should consider before investing in our common stock.

Except as otherwise indicated, the information contained in this prospectus is based on shares of our common stock outstanding as of March 31, 2024 (which includes shares of common stock, which are unvested and subject to forfeiture), after giving effect to the following:

- the filing and effectiveness of our sixth amended and restated certificate of incorporation (the amended and restated certificate of incorporation) and the adoption of our amended and restated bylaws, each of which will occur immediately prior to the closing of this offering;
- the conversion of all outstanding shares of our redeemable convertible preferred stock into shares of our common stock immediately prior to the closing of this offering;
- shares of common stock issuable upon the conversion of our Series B-1 redeemable preferred stock to be issued upon the automatic net exercise of warrants outstanding as of March 31, 2024, with an exercise price of $ per share, immediately prior to the completion of this offering, based on an assumed initial public offering price of $ per share of common stock, the midpoint of the price range set forth on the cover of this prospectus;
- [shares of common stock issuable upon the conversion of our Series B-1 redeemable preferred stock to be issued upon the automatic net exercise of warrants outstanding as of March 31, 2024, with an exercise price of $ per share, immediately prior to the completion of this offering, based on an assumed initial public offering price of $ per share of common stock, the midpoint of the price range set forth on the cover of this prospectus;]
- [shares of our common stock issuable upon the conversion of our Series C redeemable preferred stock to be issued upon the automatic net exercise of warrants (the Series C Warrants) outstanding as of March 31, 2024, with an exercise price of $ per share, immediately prior to the completion of this offering, based on an assumed initial public offering price of $ per share of common stock, the midpoint of the price range set forth on the cover of this prospectus;]
- shares of our common stock issuable upon the automatic conversion of our convertible promissory notes issued in February through May 2024 (the Bridge Notes), based on an assumed initial public offering price of $ per share of common stock, the midpoint of the price range set forth on the cover of this prospectus;
- [no exercise of our warrants to purchase shares of redeemable preferred stock outstanding as of March 31, 2024, with an exercise price of $ per share, which will convert into warrants to purchase common stock with the same exercise price and have a term of two years following the completion of this offering, based on an assumed initial public offering price of $ per share of common stock, the midpoint of the price range set forth on the cover of this prospectus;]
- a -for- reverse stock split of our common stock, which we effected on , 2024;
- no exercise of the outstanding stock options described below; and
- no exercise by the underwriters of their over-allotment option to purchase up to additional shares of our common stock.

The number of shares of common stock outstanding does not include the shares issuable under our options outstanding and 2024 Stock Incentive Plan (the 2024 Plan), which will become effective in connection with this offering, as follows:

- shares of common stock issuable upon the exercise of stock options outstanding as of March 31, 2024, with a weighted-average exercise price of $ per share;

- shares of our common stock issuable under restricted stock units to be granted to our president and chief executive officer upon the closing of this offering to bring his total beneficial ownership to 5% of the number of shares outstanding following the initial closing of this offering, pursuant to his employment agreement, based on an assumed initial public offering price of $ per share of common stock, representing the midpoint of the price range set forth on the cover page of this prospectus;
- shares of common stock issuable upon the exercise of stock options to be granted to our chief financial officer upon the closing of this offering equal to 1.0% of our issued and outstanding common stock on a fully diluted basis as of the closing of this offering; and
- shares of common stock reserved for future issuance under our 2024 Plan (which number includes shares of common stock remaining reserved for issuance under our 2015 Stock Incentive Plan (the 2015 Plan) as of March 31, 2024, which shares will be added to the number of shares available for issuance under the 2024 Plan upon its effectiveness, and after giving effect to the restricted stock unit grant to our chief executive officer and stock option grant to our chief financial officer described above).

SUMMARY FINANCIAL DATA

The following tables set forth a summary of our historical financial data as of, and for the periods ended on, the dates indicated. We have derived the summary consolidated statements of operations for the years ended December 31, 2022 and 2023 from our audited consolidated financial statements included elsewhere in this prospectus. We have derived the summary consolidated statements of operations data for the three months ended March 31, 2023 and 2024 and the summary consolidated balance sheet data as of March 31, 2024 from our unaudited condensed consolidated financial statements included elsewhere in this prospectus. The unaudited condensed consolidated financial statements have been prepared on a basis consistent with our audited consolidated financial statements included in this prospectus and, in the opinion of management, reflect all adjustments, consisting only of normal recurring adjustments, necessary to fairly state the financial information in those statements. You should read these data together with our consolidated financial statements and related notes included elsewhere in this prospectus and the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations." Our historical results for any prior period are not necessarily indicative of our future results.

	Year Ended December 31,		Three Months Ended March 31,	
	2022	2023	2023	2024
			(unaudited)	
Consolidated Statements of Operations:				
Operating expenses:				
Research and development	$ 16,387,216	$ 21,708,332	$ 4,523,757	$ 6,860,430
General and administrative	3,819,591	3,265,497	774,799	912,824
Total operating expenses	20,206,807	24,973,829	5,298,556	7,773,254
Loss from operations	(20,206,807)	(24,973,829)	(5,298,556)	(7,773,254)
Other income (expense):				
Change in fair value of warrant liability	36,579	(79,822)	5,104	(32,515)
Loss on issuance of related party convertible notes payable at fair value	—	—	—	(200,000)
Change in estimated fair value of related party convertible notes payable	—	—	—	(300,000)
Interest expense	(16,200)	(43,641)	(28,454)	(5,076)
Interest income	27,027	352,672	51,651	14,786
Total other income (expense), net	47,406	229,209	28,301	(522,805)
Net loss	$(20,159,401)	$(24,744,620)	$(5,270,255)	$(8,296,059)
Net loss per share attributable to common stockholders, basic and diluted	$ (9.25)	$ (9.58)	$ (2.19)	$ (3.00)
Weighted-average shares of common stock outstanding, basic and diluted	2,179,037	2,582,876	2,411,455	2,763,243

	As of March 31, 2024		
	Actual	Pro Forma[1][3]	Pro Forma As Adjusted[2][3]
		(unaudited)	
Consolidated Balance Sheet Data:			
Cash and cash equivalents	$ 2,068,307	$	$
Working capital deficit[4]	(12,545,792)		
Total assets	2,698,583		
Total liabilities	16,294,545		
Redeemable convertible preferred stock	94,178,404		
Total stockholders' (deficit) equity	$(107,774,366)		

(1) Pro forma amounts give effect to the conversion of all outstanding shares of our redeemable convertible preferred stock into an aggregate of shares of our common stock, including the conversion of shares of our redeemable convertible preferred stock issuable upon the exercise of all outstanding in-the-money warrants to purchase redeemable convertible preferred stock (assuming an initial public offering price of $ per share of common stock, the midpoint of the price range set forth on the cover page of this prospectus), and the related reclassification of the carrying value of the redeemable convertible preferred stock to permanent equity immediately prior to the closing of this offering.

(2) Pro forma as adjusted amounts give effect to (i) the pro forma adjustments set forth in footnote (1) above, and (ii) the issuance and sale of shares of our common stock in this offering at an assumed initial public offering price of $ per share of common stock, the midpoint of the price range set forth on the cover page of this prospectus, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. Each $1.00 increase or decrease in the assumed initial public offering price of $ per share of common stock would increase or decrease, as applicable, the pro forma as adjusted amount of each of our cash, cash equivalents and marketable securities, working capital, total assets and total stockholders' (deficit) equity by approximately $, assuming that the number of shares of common stock offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. Each increase or decrease of 1.0 million shares in the number of shares offered by us at the assumed initial public offering price of $ per share of common stock would increase or decrease, as applicable, the pro forma as adjusted amounts of each of our cash, cash equivalents and marketable securities, working capital, total assets and total stockholders' (deficit) equity by approximately $, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

(3) The pro forma and pro forma as adjusted information discussed above is illustrative only and will be adjusted based on actual initial public offering price and other terms of this offering determined at pricing.

(4) We define working capital deficit as current assets less current liabilities. See our consolidated financial statements and the related notes included elsewhere in this prospectus for further details regarding our current assets and current liabilities.

RISK FACTORS

Investing in our common stock is speculative and involves a high degree of risk. You should consider carefully the risks described below, together with the other information contained in this prospectus, including our financial statements and the related notes included elsewhere in this prospectus and in the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" before deciding whether to invest in our common stock. If any of the following risks occur, our business, financial condition, results of operations and future growth prospects could be materially and adversely affected. Additional risks and uncertainties not presently known to us or that we currently deem immaterial also may impair our business operations. In these circumstances, the market price of our common stock could decline, and you may lose all or part of your investment. This prospectus also contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in the forward-looking statements as a result of a number of factors, including the risks described below. See the section titled "Special Note Regarding Forward-Looking Statements".

Risks Related to Our Limited Operating History, Financial Condition and Capital Requirements

We have a limited operating history, have incurred significant operating losses since our inception and expect to incur significant operating losses for the foreseeable future. We have a high risk of never generating revenue or becoming profitable or, if we achieve profitability, we may not be able to sustain it.

Biopharmaceutical product development is a highly speculative undertaking and involves a substantial degree of risk. We are a clinical-stage biopharmaceutical company with a relatively limited operating history upon which you can evaluate our business and prospects. We commenced operations in January 2015 and have not generated revenue from the sale of our products. Therefore, there is limited historical financial or operational information upon which to evaluate our performance. Our prospects must be considered in light of the uncertainties, risks, expenses, and difficulties frequently encountered by companies in their early stages of operations. Many if not most companies in our industry at our stage of development never become profitable and are acquired or go out of business before successfully developing any product that generates revenue from commercial sales or enables profitability.

From our inception in January 2015 through March 31, 2024, we have incurred losses of approximately $113.4 million. Substantially all of our losses have resulted from expenses incurred in connection with our research and development activities and from general and administrative costs associated with our operations. We expect to continue to incur substantial and increasing operating losses over the next several years as we continue the clinical development of, seek regulatory approval for and potentially commercialize elraglusib and any future product candidates, as well as operate as a public company.

The amount of future losses and when, if ever, we will become profitable are uncertain. We do not have any products that have generated any revenues from commercial sales, and do not expect to generate revenues from the commercial sale of products in the near future, if ever. If we are unable to successfully develop, obtain requisite approval for and commercialize elraglusib or any future product candidates, we may never generate revenue. Our ability to generate revenue and achieve profitability will depend on, among other things, successful completion of the development of our product candidates; obtaining necessary regulatory approvals from the FDA and international regulatory agencies; establishing manufacturing, sales, and marketing arrangements with third parties; obtaining adequate reimbursement by third-party payers; and raising sufficient funds to finance our activities. If we are unsuccessful at some or all of these undertakings, our business, financial condition, and results of operations are expected to be materially and adversely affected.

To become and remain profitable, we must succeed in developing, obtaining regulatory approvals for, and eventually commercializing products that generate significant revenue. This will require us to be successful in a range of challenging activities, including completing clinical trials and preclinical studies of elraglusib and any future product candidates, acquiring or developing additional product candidates, obtaining regulatory approval for elraglusib and any future product candidates, and manufacturing, marketing, and selling any products for which we may obtain regulatory approval. We are only in the preliminary stages of most of these activities. We may never succeed in these activities and, even if we do, may never generate revenue that is significant enough to achieve profitability. In addition, we have not yet demonstrated an

ability to successfully overcome many of the risks and uncertainties frequently encountered by companies in new and rapidly evolving fields, particularly in the biopharmaceutical industry. Because of the numerous risks and uncertainties associated with biopharmaceutical product development, we are unable to accurately predict the timing or amount of increased expenses or when, or if, we will be able to achieve profitability. Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to become and remain profitable may have an adverse effect on the value of our company and could impair our ability to raise capital, expand our business, maintain our research and development efforts, diversify our product candidates, achieve our strategic objectives or even continue our operations. A decline in the value of our company could also cause you to lose all or part of your investment.

Our financial condition raises substantial doubt as to our ability to continue as a going concern.

As of March 31, 2024, we had approximately $2.1 million in cash and cash equivalents and a working capital deficiency of approximately $12.5 million, and we have incurred and expect to continue to incur significant costs in pursuit of our sole drug candidate, elraglusib. Our consolidated financial statements have been prepared assuming that we will continue to operate as a going concern, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business. To date, we have not generated product revenues from our activities and have incurred substantial operating losses. We expect that we will continue to generate substantial operating losses for the foreseeable future until we complete development and approval of our product candidates. We will continue to fund our operations primarily through utilization of our current financial resources and additional raises of capital.

These conditions raise substantial doubt about our ability to continue as a going concern. Additionally, our independent registered public accounting firm included in its audit opinion for the year ended December 31, 2023 an explanatory paragraph that there is substantial doubt as to our ability to continue as a going concern. We plan to address these conditions by raising funds from this public offering, from subsequent public or private offerings of equity or debt securities and other funding sources. However, there can be no assurance that such funding will be available to us, will be obtained on terms favorable to us or will provide us with sufficient funds to meet our objectives. The reaction of investors to the inclusion of a going concern statement by our auditors and our potential inability to continue as a going concern may materially adversely affect our ability to raise new capital or enter into partnerships. If we become unable to continue as a going concern, we may have to liquidate our assets and the value we receive for our assets in liquidation or dissolution could be significantly lower than the value reflected in our consolidated financial statements.

Even if this offering is successful, we will require substantial additional capital to finance our operations, and a failure to obtain this necessary capital when needed on acceptable terms, or at all, could force us to delay, limit, reduce or terminate our development programs, commercialization efforts or other operations.

The development of biopharmaceutical product candidates, including conducting preclinical studies and clinical trials, is a very time-consuming, capital-intensive and uncertain process. Our operations have consumed substantial amounts of cash since inception. We expect our expenses to substantially increase in connection with our ongoing activities, particularly as we conduct our ongoing and planned clinical trials of elraglusib and potentially seek regulatory approval for elraglusib and any future product candidates we may develop. In addition, if we are able to progress elraglusib through development and commercialization, we expect to be required to make milestone and royalty payments pursuant to various license or collaboration agreements with third parties. If we obtain regulatory approval for elraglusib or any future product candidates, we also expect to incur significant commercialization expenses related to product manufacturing, marketing, sales, and distribution. Because the outcome of any clinical trial or preclinical study is highly uncertain, we cannot reliably estimate the actual amount of capital necessary to successfully complete the development and commercialization of elraglusib or any future product candidates. Furthermore, following the completion of this offering, we expect to incur additional costs associated with operating as a public company.

Based on our current operating plan, we believe that the net proceeds from this offering, together with our existing cash and cash equivalents, will be sufficient to fund our operations for at least the next months. In particular, we expect that the net proceeds from this offering and our existing cash and cash equivalents

will allow us to complete the ongoing Elraglusib Injection Phase 2 mPDAC trial (Actuate-1801 Part 3B); complete the existing pediatric refractory cancer Phase 1 dose escalation trial and continue exploring development opportunities and potentially initiate the Phase 2 portion of this study in patients with refractory Ewing sarcoma (Actutate-1902); and satisfy the Company's funding commitments for ongoing IIT studies for the use of Elraglusib Injection with other chemotherapy agents to treat mPDAC and a separate trial to treat recurrent salivary gland cancer. If we were to receive additional proceeds of at least $ million from this offering, or other funding, if and to the extent such funds are received, we anticipate that such funding would allow us to also (1) finalize development plans for and potentially initiate and complete a Phase 1 dose escalation study with Elraglusib Oral Tablet in patients with advanced, refractory solid cancer; and to finalize development plans for and potentially initiate a Phase 2 study with Elraglusib Oral Tablet in refractory metastatic melanoma, and (2) initiate a Phase 3 mPDAC trial and finalize development plans for an additional randomized Phase 2 trial in metastatic refractory colorectal cancer. See the section titled "Use of Proceeds" in this prospectus for a more complete description of the intended use of proceeds from this offering.

We have based these estimates on assumptions that may prove to be wrong, and we could use our capital resources sooner than we currently expect. Our operating plans and other demands on our cash resources may change as a result of many factors currently unknown to us, and we may need to seek additional funds sooner than planned.

The net proceeds of this offering, together with our existing capital, may not be sufficient to complete development of elraglusib in any form, or any future product candidates, and after this offering, we will require substantial capital in order to advance elraglusib and any future product candidates through clinical trials, regulatory approval and commercialization. Accordingly, we will need to obtain substantial additional funding in connection with our continuing operations. Our ability to raise additional funds may be adversely impacted by global economic conditions, disruptions to, and volatility in, the credit and financial markets in the United States and worldwide, and diminished liquidity and credit availability. If the equity and credit markets deteriorate, it may make any necessary debt or equity financing more difficult, more costly and more dilutive. If we are unable to raise capital when needed or on attractive terms, we could be forced to delay, reduce or eliminate our research and development programs or any future commercialization efforts, or even cease operations. We expect to finance our cash needs through public or private equity or debt financings or other capital sources, including potential collaborations, licenses, and other similar arrangements. In addition, we may seek additional capital due to favorable market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. Attempting to secure additional financing may divert our management from our day-to-day activities, which may adversely affect our ability to develop elraglusib or any future product candidates.

Our future capital requirements will depend on many factors, including without limitation:

- the initiation, type, number, scope, progress, expansions, results, costs and timing of clinical trials and preclinical studies of elraglusib and any future product candidates we may choose to pursue, including the costs of modification to clinical development plans (including an increase in the number, size, duration and/or complexity of a trial) based on feedback that we may receive from regulatory authorities and any third-party products used as combination agents in our clinical trials;
- the costs and timing of manufacturing for elraglusib or any future product candidate, including commercial manufacturing at sufficient scale and encountering higher than expected costs to manufacture our current and future active pharmaceutical ingredients, if any product candidate is approved, including as a result of inflation, any supply chain issues or component shortages;
- slower than expected progress in developing elraglusib or a future product candidate, including without limitation, additional costs caused by such program delays;
- the costs, timing and outcome of regulatory meetings and reviews of elraglusib and developing certain formulations of elraglusib or any future product candidates in any jurisdictions in which we or our current or any future collaborators may seek approval for elraglusib or any future product candidates;
- our efforts to enhance operational systems and hire additional personnel to satisfy our obligations as a public company, including enhanced internal control over financial reporting;

- the timing and payment of milestone, royalty or other payments we must make pursuant to our existing and potential future license or collaboration agreements with third parties;
- the costs and timing of establishing or securing sales and marketing capabilities and commercial compliance programs if elraglusib or any future product candidate is approved;
- higher than expected personnel, consulting or other costs, such as adding personnel or industry expert consultants or pursuing the licensing/acquisition of additional assets;
- higher than expected costs to obtain, maintain, enforce and protect our patents and other intellectual property and proprietary rights;
- our ability to achieve sufficient market acceptance, coverage and adequate reimbursement from third-party payors and adequate market share and revenue for any approved products;
- our ability and strategic decision to develop future product candidates other than elraglusib, and the timing of such development, if any;
- patients' willingness to pay out-of-pocket for any approved products in the absence of coverage and/or adequate reimbursement from third-party payors;
- the terms and timing of establishing and maintaining collaborations, licenses and other similar arrangements; and
- our ability to raise sufficient funds when, and if, required.

Conducting clinical trials and preclinical studies and potentially identifying future product candidates is a time-consuming, expensive and uncertain process that takes years to complete, and we may never generate the necessary data or results required to obtain regulatory approval and commercialize elraglusib or any future product candidates. If approved, elraglusib and any future product candidates may not achieve commercial success. We expect that our commercial revenue, if any, will initially be derived from sales of elraglusib, which we do not expect to be commercially available for several years, if at all. Commercial success in the United States may depend upon acceptance and coverage by federal healthcare program and third-party payors, and it can be time consuming and costly to demonstrate that any of our products should be covered.

Accordingly, we will need to continue to rely on additional financing to achieve our business objectives. Adequate additional financing may not be available to us on acceptable terms, or at all, including as a result of financial and credit market deterioration or instability, market-wide liquidity shortages, geopolitical events or otherwise.

Raising additional capital may cause dilution to our stockholders, including purchasers of common stock in this offering, restrict our operations or require us to relinquish rights to our technologies or product candidates. In addition, any capital obtained by us may be obtained on terms that are unfavorable to us, our investors, or both.

Until such time, if ever, as we can generate substantial product revenue, we expect to finance our cash needs through equity offerings, debt financings or other capital sources, including potential collaborations, licenses and other similar arrangements. We do not have any committed external source of funds. If we attempt to raise additional financing, there can be no assurance that we will be able to secure such additional financing in sufficient quantities or at all. We may be unable to raise additional capital for reasons including, without limitation, our operational and/or financial performance, investor confidence in us and the biopharmaceutical industry, credit availability from banks and other financial institutions, the status of current projects and our prospects for obtaining any necessary regulatory approvals. Potential investors' capital investments may have shifted to other opportunities with perceived greater returns and/or lower risk thereby reducing capital available to us, if available at all.

In addition, any additional financing might not be available, and even if available, may not be available on terms favorable to us or our then-existing investors. We may seek to raise funds through public or private equity offerings, debt financings, corporate collaboration or licensing arrangements, mergers, acquisitions, sales of intellectual property or other financing vehicles or arrangements. To the extent that we raise additional capital by issuing equity securities or other securities (including convertible debt), our then-existing

investors will experience dilution, and the terms of these securities may include liquidation or other preferences that adversely affect your rights as a common stockholder. If we raise funds through debt financings or bank loans, we may become subject to restrictive covenants, such as incurring additional debt, making capital expenditures or declaring dividends. Such restrictions could adversely impact our ability to conduct our operations and execute our business plan. Moreover, if we raise funds through debt financings or bank loans, our assets may be pledged as collateral for the debt, and the interests of our then-existing investors would be subordinated to the debt holders or banks. In addition, our use of and ability to exploit assets pledged as collateral for debt or loans may be restricted or forfeited. To the extent that we raise additional funds through collaboration or licensing arrangements, we may be required to relinquish valuable rights to our future revenue streams, product candidates, research programs, intellectual property or proprietary technology, or grant licenses on terms that are not favorable to us and/or that may reduce the value of our common stock. If we are not able to raise needed funding when needed under acceptable terms or at all, then we would be required to delay, limit, reduce, curtail, abandon or terminate our product development or future commercialization efforts, or grant rights to develop and market product candidates that we might otherwise prefer to develop and market ourselves, or on less favorable terms than we would otherwise choose, or sell assets, or cease operations entirely.

Risks Related to Clinical Development and Regulatory Approval

We do not have and may never have any approved products on the market. Our business is highly dependent upon receiving approvals from various U.S. and international governmental agencies and will be severely harmed if we are not granted approval to manufacture and sell our product candidates.

In order for us to commercialize elraglusib for the treatment of mPDAC or for any other disease indication, or any other product candidate, we must obtain regulatory approvals of such treatment for the applicable indication. Satisfying regulatory requirements is an expensive process that typically takes many years and involves extensive compliance with requirements covering research and development, testing, manufacturing, quality control, labeling, and promotion of drugs for human use. To obtain necessary regulatory approvals, we must, among other requirements, complete clinical trials demonstrating that our products are safe and effective for a particular indication. In addition, before we can initiate clinical development for any future preclinical product candidates, we must submit the results of preclinical studies to the FDA or comparable foreign regulatory authorities along with other information, including information about product candidate chemistry, manufacturing and controls and our proposed clinical trial protocol, as part of an IND or similar regulatory submission, and we are also required to submit comparable applications to foreign regulatory authorities for clinical trials outside of the United States. The FDA or comparable foreign regulatory authorities may require us to conduct additional preclinical studies for any future product candidates before it allows us to initiate clinical trials under any IND or similar regulatory submission, which may lead to delays or increase the costs of developing future product candidates. There can be no assurance that our products will prove to be safe and effective, that our preclinical or clinical trials will demonstrate the necessary safety and effectiveness of our product candidates, or that we will succeed in obtaining regulatory approval for any treatment we develop even if such safety and effectiveness are demonstrated.

Any delays or difficulties we encounter in our clinical trials may delay or preclude regulatory approval from the FDA or from international regulatory organizations. Any delay or preclusion of regulatory approval would be expected to delay or preclude the commercialization of our products. Examples of delays or difficulties that we may encounter in our clinical trials include without limitation the following:

- clinical trials may not yield sufficiently conclusive results for regulatory agencies to approve the use of our products;
- our products may fail to be more effective than current therapies, or to be effective at all;
- we may discover that our products have adverse side effects, which could cause our products to be delayed or precluded from receiving regulatory approval or otherwise expose us to significant commercial and legal risks;
- it may take longer than expected to determine whether or not a treatment is effective;

- patients involved in our clinical trials may suffer severe adverse side effects even up to death, whether as a result of treatment with our products, the withholding of such treatment, or other reasons (whether within or outside of our control);
- we may fail to be able to enroll a sufficient number of patients in our clinical trials;
- patients enrolled in our clinical trials may not have the characteristics necessary to obtain regulatory approval for a particular indication or patient population;
- we may be unable to produce sufficient quantities of product to complete the clinical trials;
- the sites who conduct our clinical trials may fail to follow the trial protocols correctly, or there may be concerns regarding data integrity from one or more sites, which could require us to exclude certain data from our results, which may prolong the length of our trials and delay submissions to regulatory authorities;
- even if we are successful in our clinical trials, any required governmental approvals may still not be obtained or, if obtained, may not be maintained;
- if approval for commercialization is granted, it is possible the authorized use will be more limited than is necessary for commercial success, or that approval may be conditioned on completion of further clinical trials or other activities, which will cause a substantial increase in costs and which we might not succeed in performing or completing; and
- if granted, approval may be withdrawn or limited if problems with our products emerge or are suggested by the data arising from their use or if there is a change in law or regulation.

Any success we may achieve at a given stage of our clinical trials does not guarantee that we will achieve success at any subsequent stage, including without limitation final FDA approval.

We may encounter delays or rejections in the regulatory approval process because of additional government regulation resulting from future legislation or administrative action, or from changes in the policies of the FDA or other regulatory bodies during the period of product development, clinical trials, or regulatory review. Failure to comply with applicable regulatory requirements may result in criminal prosecution, civil penalties, recall or seizure of products, total or partial suspension of production, or an injunction preventing certain activity, as well as other regulatory action against our product candidates or us. As a company, we have no experience in successfully obtaining regulatory approval for a product and thus may be poorly equipped to gauge, and may prove unable to manage, risks relating to obtaining such approval.

Outside the United States, our ability to market a product is contingent upon receiving clearances from appropriate non-U.S. regulatory authorities. Non-U.S. regulatory approval typically includes all of the risks associated with FDA clearance discussed above as well as geopolitical uncertainties and the additional uncertainties and potential prejudices faced by U.S. pharmaceutical companies conducting business abroad. In certain cases, pricing restrictions and practices can make achieving even limited profitability very difficult.

We currently depend entirely on the success of elraglusib, which is our only product candidate. If we are unable to advance elraglusib in clinical development, obtain regulatory approval and ultimately commercialize elraglusib, or experience significant delays in doing so, our business will be materially harmed.

We currently only have one product candidate, elraglusib, which is in Phase 2 clinical development. Our business presently depends entirely on our ability to successfully develop, obtain regulatory approval for, and commercialize elraglusib in a timely manner. This may make an investment in our company riskier than similar companies that have multiple product candidates in active development and may be able to better sustain the delay or failure of a lead product candidate. The success of elraglusib will depend on several factors, including the following:

- successful initiation and enrollment of clinical trials and completion of clinical trials with favorable results;

- acceptance of regulatory submissions by the FDA or comparable foreign regulatory authorities for the conduct of clinical trials of elraglusib and of our proposed designs of planned clinical trials of elraglusib;
- the frequency and severity of adverse events observed in clinical trials and preclinical studies;
- maintaining and establishing relationships with contract research organizations (CROs) and clinical sites for the clinical development of elraglusib, and ability of such CROs and clinical sites to comply with clinical trial protocols, Good Clinical Practices (GCPs) and other applicable requirements;
- demonstrating the safety, purity and potency (or efficacy) of elraglusib to the satisfaction of applicable regulatory authorities, including by establishing a safety database of a size satisfactory to regulatory authorities;
- receipt and maintenance of regulatory approvals from applicable regulatory authorities, including approvals of new drug applications (NDAs) from the FDA;
- maintaining relationships with our third-party manufacturers and their ability to comply with cGMPs as well as entering into agreements with our third-party manufacturers for, or establishing our own, commercial manufacturing capabilities at a cost and scale sufficient to support commercialization;
- establishing sales, marketing and distribution capabilities and launching commercial sales of elraglusib, if and when approved, whether alone or in collaboration with others;
- obtaining, maintaining, protecting and enforcing patent and any potential trade secret protection or regulatory exclusivity for elraglusib;
- maintaining an acceptable safety profile of elraglusib following regulatory approval, if any;
- maintaining and growing an organization of people who can develop and, if approved, commercialize, market and sell elraglusib; and
- acceptance and coverage of our products, if approved, by patients, the medical community and federal healthcare program and other third-party payors.

If we are unable to develop, obtain regulatory approval for, or if approved, successfully manufacture and commercialize elraglusib, or if we experience delays as a result of any of the above factors or otherwise, our business would be materially harmed.

Even if we complete all planned clinical trials including a Phase 3 trial in the future, there is no guarantee that at the time of submission the FDA will accept our NDA.

The regulation and control of new drugs in the United States is based on the NDA, and every new drug is the subject of an approved NDA before U.S. commercialization. Through the NDA application, the developer of a drug candidate formally proposes that the FDA approve a new pharmaceutical for sale and marketing in the United States. The data gathered during the animal studies and human clinical trials of an investigational new drug (IND) become part of the NDA.

Clinical trials must be conducted in accordance with the FDA and other applicable regulatory authorities' legal requirements, regulations or guidelines, and are subject to oversight by these governmental agencies and ethics committees (ECs) or one or more institutional review board (IRBs) at the medical institutions and clinical trial sites where the clinical trials are conducted. We could also encounter delays if a clinical trial is suspended or terminated by us, by the IRBs of the institutions in which such trials are being conducted, or by a data safety monitoring board for such trial or by the FDA or comparable foreign regulatory authorities. Such authorities may impose such a suspension, including a clinical hold, or termination due to a number of factors, including, among other reasons, failure to conduct the clinical trial in accordance with GCP and other regulatory requirements or our clinical protocols, inspection of the clinical trial operations or trial site, or investigation of principal or sub-investigators conducting our clinical trials, by the FDA or comparable foreign regulatory authorities resulting in the imposition of a clinical hold, unforeseen safety issues or adverse side effects, failure to demonstrate a benefit from using a drug, changes in governmental regulations or administrative actions or lack of adequate funding to continue the clinical trial. In addition,

changes in regulatory requirements and policies may occur, and we may need to amend clinical trial protocols to comply with these changes. Amendments may require us to resubmit our clinical trial protocols to IRBs for reexamination, which may impact the costs, timing or successful completion of a clinical trial.

Failure by us or any of our third-party vendors, manufacturers, or trial sites to comply with applicable regulatory requirements may result in criminal prosecution, civil penalties, recall or seizure of products, total or partial suspension of production, or an injunction preventing certain activity, as well as other regulatory action against our product candidates or us. As a company, we have no experience in successfully obtaining regulatory approval for a product and thus may be poorly equipped to gauge, and may prove unable to manage, risks relating to obtaining such approval.

Outside the United States, our ability to market a product is contingent upon receiving clearances from appropriate non-U.S. regulatory authorities. Non-U.S. regulatory approval typically includes all of the risks associated with FDA clearance discussed above as well as the failure of enrolled patients in foreign countries to adhere to clinical protocols as a result of differences in healthcare services or cultural customs, managing additional administrative burdens associated with foreign regulatory schemes, and political and economic risks, including war or embargoes, relevant to such foreign countries. In certain cases, pricing restrictions and practices can make achieving even limited profitability very difficult.

Clinical and preclinical drug development involves a lengthy and expensive process with uncertain timelines and outcomes, and the results of preclinical studies and early clinical trials are not necessarily predictive of future results. Elraglusib or any future product candidates may not achieve favorable results in clinical trials or preclinical studies or receive regulatory approval on a timely basis, if at all.

Drug development is expensive and can take many years to complete, and its outcome is inherently uncertain. We cannot guarantee that any clinical trials or preclinical studies will be conducted as planned, including whether we are able to meet expected timeframes for data readouts, or completed on schedule, if at all, and failure can occur at any time during the trial or study process, including due to factors that are beyond our control. Despite promising preclinical or clinical results, elraglusib or any other future product candidate can unexpectedly fail at any stage of clinical or preclinical development. The historical failure rate for product candidates in our industry is high.

The results from preclinical studies or clinical trials of elraglusib, any future product candidate, or a competitor's product candidate in the same class may not predict the results of later clinical trials of elraglusib or any future product candidate, and interim, topline or preliminary results of a clinical trial are not necessarily indicative of final results. Elraglusib or any future product candidate in later stages of clinical trials may fail to show the desired characteristics despite having progressed through preclinical studies and initial clinical trials. It is not uncommon to observe results in clinical trials that are unexpected based on preclinical studies and early clinical trials, and many product candidates fail in clinical trials despite very promising early results.

Moreover, preclinical and clinical data may be susceptible to varying interpretations and analyses. A number of companies in the biopharmaceutical and biotechnology industries have suffered significant setbacks in clinical development even after achieving promising results in earlier studies. Such setbacks have occurred and may occur for many reasons, including, but not limited to: clinical sites and investigators may deviate from clinical trial protocols, whether due to lack of training or otherwise, and we may fail to detect any such deviations in a timely manner; patients may fail to adhere to any required clinical trial procedures, including any requirements for post-treatment follow-up; our product candidates may fail to demonstrate safety, purity or potency (or efficacy) in certain patient subpopulations, which has not been observed in earlier trials due to limited sample size, lack of analysis or otherwise; or our clinical trials may not adequately represent the patient populations we intend to treat, whether due to limitations in our trial designs or otherwise, such as where one patient subgroup is overrepresented in the clinical trial. There can be no assurance that we will not suffer similar setbacks despite the data we observed in earlier or ongoing studies. Based upon negative or inconclusive results, we or any current or any future collaborator may decide, or regulators may require us, to conduct additional preclinical studies or clinical trials, which would cause us to incur additional operating expenses and delays and may not be sufficient to support regulatory approval on a timely basis or at all.

We may not be successful in our efforts to investigate elraglusib in additional indications. We may expend our limited resources to pursue a new product candidate or a particular indication for elraglusib and fail to capitalize on product candidates or indications that may be more profitable or for which there is a greater likelihood of success.

Because we have limited financial and managerial resources, we focus on the development of elraglusib for specific indications. We may fail to generate additional clinical development opportunities for elraglusib for a number of reasons, including that elraglusib may, in indications we are seeking or may seek in the future, be shown to have harmful side effects, limited to no efficacy or other characteristics that suggest it is unlikely to receive marketing approval and/or achieve market acceptance in such potential indications. Our resource allocation and other decisions may cause us to fail to identify and capitalize on viable potential product candidates or additional indications for elraglusib. Our spending on current and future research and development programs for new product candidates or additional indications for elraglusib may not yield any commercially viable product candidates or indications. If we do not accurately evaluate the commercial potential or target market for a particular indication or product candidate, we may fail to develop such product candidate or indication, or relinquish valuable rights to that product candidate through collaborations, license agreements and other similar arrangements in cases where it would have been more advantageous for us to retain sole development and commercialization rights to such indication or product candidate, or negotiate less advantageous terms for any such arrangements than is optimal.

Additionally, we may pursue additional in-licenses or acquisitions of development-stage assets or programs, which entails additional risk to us. Identifying, selecting and acquiring promising product candidates requires substantial technical, financial and human resources expertise. Efforts to do so may not result in the actual acquisition or license of a particular product candidate, potentially resulting in a diversion of our management's time and the expenditure of our resources with no resulting benefit. For example, if we are unable to identify programs that ultimately result in approved products, we may spend material amounts of our capital and other resources evaluating, acquiring and developing products that ultimately do not provide a return on our investment.

Use of elraglusib or any future product candidates could be associated with side effects, adverse events or other properties or safety risks, which could delay or preclude regulatory approval, cause us to suspend or discontinue clinical trials, abandon elraglusib or any future product candidate, limit the commercial profile of an approved label or result in other significant negative consequences that could severely harm our business, financial condition, results of operations and prospects.

As is the case with oncology drugs generally, it is likely that there may be side effects and adverse events associated with use of elraglusib or any future product candidates' use. Results of our, our collaborators' or any future collaborators' clinical trials could reveal a high and unacceptable severity and prevalence of expected or unexpected side effects or unexpected characteristics. Undesirable side effects caused by our product candidates when used alone or in combination with approved or investigational drugs could cause us or regulatory authorities to interrupt, delay or halt clinical trials and could result in a more restrictive label or lead to the delay or denial of regulatory approval by the FDA or comparable foreign regulatory authorities. The drug-related side effects could affect patient recruitment or the ability of enrolled patients to complete the trial or result in potential product liability claims. Any of these occurrences may harm our business, financial condition, results of operations and prospects significantly.

Moreover, if elraglusib or any future product candidates are associated with undesirable side effects in clinical trials or demonstrate characteristics that are unexpected, we may elect to abandon their development or limit their development to more narrow uses or subpopulations in which the undesirable side effects or other characteristics are less prevalent, less severe or more acceptable from a risk-benefit perspective, which may limit the commercial expectations for such product candidate if approved. Unacceptable enhancement of certain toxicities may be seen when elraglusib or any future product candidates are combined with standard of care therapies, or when they are used as single agents. We may also be required to modify our development and clinical trial plans based on findings in our ongoing clinical trials. Many compounds that initially showed promise in early-stage testing for treating cancer have later been found to cause side effects that prevented further development of the compounds.

It is possible that as we, our collaborators or any future collaborators test elraglusib or any future product candidates in larger, longer and more extensive clinical trials, including with different dosing regimens, or as the use of these product candidates becomes more widespread following any regulatory approval, more illnesses, injuries, discomforts and other adverse events than were observed in earlier trials, as well as new conditions that did not occur or went undetected in previous trials, may be discovered. If such side effects become known later in development or upon approval, if any, such findings may harm our business, financial condition, results of operations and prospects significantly.

With regard to our lead product candidate, elraglusib, unforeseen side effects from elraglusib could arise either during clinical development or, if approved, after elraglusib has been marketed. This could cause regulatory approvals for, or market acceptance of, elraglusib harder and costlier to obtain.

To date, elraglusib as a single agent and in combination with a variety of chemotherapy has been shown in a Phase 1 trial to be well-tolerated. However, these data were obtained in advanced cancer patients across many different cancer types and at different doses of elraglusib. The results of our planned or any future clinical trials in single cancer types may show that the side effects of elraglusib are unacceptable or intolerable, especially when compared with standard of care and in earlier stage patients, which could interrupt, delay or halt clinical trials. This could result in delay of, or failure to obtain, marketing approval from the FDA or EMA and other regulatory authorities or result in marketing approval from the FDA or EMA and other regulatory authorities with restrictive label warnings.

If elraglusib receives marketing approval and we or others later identify undesirable or unacceptable side effects caused by the use of elraglusib:

- regulatory authorities may withdraw their approval of the product, which would force us to remove elraglusib from the market;
- regulatory authorities may require the addition of labeling statements, specific warnings, a contraindication, or field alerts to physicians and pharmacies;
- we may be required to change instructions regarding the way the product is administered, conduct additional clinical trials or change the labeling of the product;
- we may be subject to limitations on how we may promote the product;
- sales of the product may decrease significantly;
- we may be subject to litigation or product liability claims; and
- our reputation may suffer.

Any of these events could prevent us or our potential future collaborators from achieving or maintaining market acceptance of elraglusib and/or could substantially increase commercialization costs and expenses, which in turn could delay or prevent us from generating significant revenues from the sale of elraglusib.

If we experience delays or difficulties in the enrollment of subjects to our clinical trials, our receipt of necessary regulatory approvals could be delayed or otherwise adversely affected, which could materially affect our financial condition.

Identifying, screening and enrolling patients to participate in clinical trials of our product candidates is critical to our success, and we may not be able to identify, recruit, enroll and dose a sufficient number of patients with the required or desired characteristics to complete our clinical trials in a timely manner. We may not be able to initiate or continue certain clinical trials for elraglusib or any future product candidates if we are unable to identify and enroll a sufficient number of eligible patients to participate in these trials as required by the FDA or similar regulatory authorities outside the United States. The timing of our clinical trials depends on our ability to recruit patients to participate as well as to subsequently dose these patients and complete required follow-up periods. Patient enrollment, a significant factor in the timing of clinical trials, is affected by many factors, including the size and characteristics of the patient population, the proximity of patients to clinical sites, the eligibility and exclusion criteria for the trial, the design of the clinical trial, the risk that enrolled patients will not complete a clinical trial, our ability to recruit clinical trial investigators with the appropriate competencies and experience, and competing clinical trials and clinicians' and patients'

perceptions as to the potential advantages and risks of the product candidates being studied in relation to other available therapies, including any new products that may be approved for the indications we are investigating as well as any product candidates under development. We will be required to identify and enroll a sufficient number of patients for each of our clinical trials and monitor such patients adequately during and after treatment. Potential patients for any planned clinical trials may not be adequately diagnosed or identified with the diseases which we are targeting, which could adversely impact the outcomes of our trials and could have safety concerns for the potential patients. Potential patients for any planned clinical trials may also not meet the entry criteria for such trials. In particular, because our planned clinical trials of elraglusib are focused on indications with relatively small patient populations, our ability to enroll eligible patients may be limited or may result in slower enrollment than we anticipate.

In addition, we may experience enrollment delays related to increased or unforeseen regulatory, legal and logistical requirements at certain clinical trial sites. These delays could be caused by reviews by regulatory authorities and contractual discussions with individual clinical trial sites. Any delays in enrolling and/or dosing patients in our planned clinical trials could result in increased costs, delays in advancing our product candidates, delays in testing the effectiveness of our product candidates or in termination of the clinical trials altogether.

We may not be able to fully enroll our clinical trials if other pharmaceutical companies with ongoing clinical trials for products with similar indications as our product candidates recruit from these patient populations. The timing of our clinical trials depends, in part, on the speed at which we can recruit patients to participate in our trials, as well as completion of required follow-up periods. Patient enrollment may also be affected by other factors, including:

- coordination with clinical research organizations to enroll and administer the clinical trials;
- coordination and recruitment of collaborators and investigators at individual sites;
- size of the patient population and process for identifying patients;
- design of the clinical trial protocol;
- eligibility and exclusion criteria;
- perceived risks and benefits of the product candidates under study;
- availability of competing commercially available therapies and other competing products' clinical trials;
- time of year in which the trials are initiated or conducted;
- severity of the diseases under investigation;
- ability to obtain and maintain subject consents;
- ability to enroll and treat patients in a timely manner;
- risk that enrolled subjects will drop out before completion of the trials;
- proximity and availability of clinical trial sites for prospective patients;
- ability to monitor subjects adequately during and after treatment; and
- patient referral practices of physicians.

If patients are unwilling or unable to participate in our trials for any reason, including the existence of concurrent clinical trials for similar target populations, the availability of approved therapies, or the fact that enrolling in our trials may prevent patients from taking a different product, or we otherwise have difficulty enrolling a sufficient number of patients, the timeline for recruiting patients, conducting trials and obtaining regulatory approval of elraglusib or any future product candidates may be delayed. Our inability to enroll a sufficient number of patients for clinical trials would result in significant delays and could require us to abandon one or more clinical trials altogether.

Enrollment delays in these clinical trials may result in increased time and development costs for our product candidates, which could materially affect our financial condition.

As a company, we have never completed a clinical trial and have limited experience in completing regulatory filings and any delays in regulatory filings could materially affect our financial condition.

We will need to successfully complete clinical trials in order to obtain FDA or comparable foreign regulatory approval to market elraglusib or any future product candidates. Carrying out clinical trials and the submission of a successful NDA or other comparable foreign regulatory submission is a complicated process. As a company, we have not yet completed any clinical trials of our product candidates, nor have we demonstrated the ability to obtain marketing approvals, manufacture product candidates at a commercial scale, or conduct sales and marketing activities necessary for the successful commercialization of a product. We may also choose to conduct a number of additional clinical trials of elraglusib in parallel over the next several years, which may be a difficult process to manage with our limited resources and which may divert attention of management. FDA or other regulatory authority could also require us to conduct additional trials which may further delay approval of our product. Consequently, we have no historical basis as a company by which you can evaluate or predict reliably our future success or viability.

We have limited experience with regulatory filings with agencies such as the FDA or EMA, and we have not yet completed any clinical trials for elraglusib or any other product candidate. We also have limited experience as a company in preparing and submitting marketing applications and have not previously submitted an NDA or other comparable foreign regulatory submission for any product candidate. In addition, we have had limited interactions with the FDA and cannot be certain how many additional clinical trials of elraglusib or any future product candidate will be required or how such additional trials should be designed. Consequently, we may be unable to successfully and efficiently execute and complete necessary clinical trials in a way that leads to submission of an NDA and regulatory approval of any of our product candidates. We may require more time and incur greater costs than our competitors and may not succeed in obtaining regulatory approvals of product candidates that we develop. Failure to commence or complete, or delays in, our ongoing or planned clinical trials could prevent us from or delay us in submitting NDAs or other comparable foreign regulatory submissions for and commercializing our product candidates. Any delay in our regulatory filings for our product candidates, and any adverse development or perceived adverse development with respect to the applicable regulatory authority's review of such filings, including, without limitation, the FDA's issuance of a "refuse to file" letter or a request for additional information, could materially affect our financial condition.

As a result, we cannot be certain that our ongoing and planned clinical trials or preclinical studies will be successful. Any safety concerns observed in any one of our clinical trials in our targeted indications could limit the prospects for regulatory approval of elraglusib in those and other indications, which could have a material adverse effect on our business, financial condition, results of operations and prospects.

Interim, topline, and preliminary data from our clinical trials that we announce or publish from time to time may change as more patient data become available and are subject to audit and verification procedures that could result in material changes in the final data.

From time to time, we may publicly disclose interim, topline, or preliminary data from our clinical trials, based on a preliminary analysis of then-available data, and the results and related findings and conclusions are subject to change following a more comprehensive review of the data related to the particular study or trial. We also make assumptions, estimations, calculations, and conclusions as part of our analyses of data, and we may not have received or had the opportunity to fully and carefully evaluate all data. As a result, the interim, topline, or preliminary results that we report may differ from future results of the same studies, or different conclusions or considerations may qualify such results once additional data have been received and fully evaluated. Interim, topline, and preliminary data also remain subject to audit and verification procedures that may result in the final data being materially different from the preliminary data we previously published. As a result, such data should be viewed with caution until the final data are available. From time to time, we may also disclose interim data from our clinical trials. Interim, topline, and preliminary data from clinical trials that we may complete are subject to the risk that one or more of the clinical outcomes may materially change as patient enrollment continues and more patient data become available. Adverse differences between preliminary, interim or topline data and final data could significantly harm our business prospects.

Further, others, including regulatory agencies, may not accept or agree with our assumptions, estimates, calculations, conclusions, or analyses or may interpret or weigh the importance of data differently, which could impact the value of the particular program, the approvability, or commercialization of the particular product candidate or product and our company in general. In addition, the information we choose to publicly disclose regarding a particular study or clinical trial is based on what is typically extensive information, and you or others may not agree with what we determine is the material or otherwise appropriate information to include in our disclosure, and any information we determine not to disclose may ultimately be deemed significant with respect to future decisions, conclusions, views, activities or otherwise regarding a particular product, product candidate, or our business. If the interim, topline, or preliminary data that we report differ from actual results, or if others, including regulatory authorities, disagree with the conclusions reached, our ability to obtain approval for, and commercialize elraglusib and any future product candidates may be harmed, which could harm our business, operating results, prospects, or financial condition.

Serious adverse events, undesirable side effects (including emergent drug-drug interactions between elraglusib and any of the other therapeutic agents given to the clinical trial subjects) or other unexpected properties of our current or future product candidates may be identified during development or after approval, which could halt their development or lead to the discontinuation of our clinical development programs, refusal by regulatory authorities to approve our product candidates or, if discovered following marketing approval, revocation of marketing authorizations or limitations on the use of our product candidates thereby limiting the commercial potential of such product candidate.

To date, elraglusib is the only product candidate we have tested in humans. As we continue our development of elraglusib and initiate clinical trials of any future product candidates, serious adverse events, undesirable side effects or unexpected characteristics may emerge or be reported, causing us to abandon these product candidates or limit their development to more narrow uses or subpopulations in which the serious adverse events, undesirable side effects or other characteristics are less prevalent, less severe or more acceptable from a risk-benefit perspective. Even if our product candidates initially show promise in early clinical trials, the side effects of therapies are frequently only detectable after they are tested in large, Phase 2 or Phase 3 clinical trials or, in some cases, after they are made available to patients on a commercial scale after approval. Sometimes, it can be difficult to determine if the serious adverse or unexpected side effects were caused by the product candidate or another factor, especially in oncology subjects who may suffer from other medical conditions and be taking other medications. If serious adverse or unexpected side effects are identified during development and are determined to be attributed to our product candidates, or the result of drug-drug interactions between our product candidate and any of the concomitant therapies given to the trial subjects, we, the FDA or comparable foreign regulatory authorities, or IRBs and other reviewing entities, could interrupt, delay, or halt clinical trials and could result in a more restrictive label, a Risk Evaluation and Mitigation Strategy (REMS) or the delay or denial of regulatory approval by the FDA or comparable foreign regulatory authorities. The FDA or comparable foreign regulatory authorities may also require, or we may voluntarily develop strategies for managing adverse events during clinical development, which could include restrictions on our enrollment criteria, the use of stopping criteria, adjustments to a study's design, or the monitoring of safety data by a data monitoring committee, among other strategies. Any requests from the FDA or comparable foreign regulatory authority for additional data or information could also result in substantial delays in the approval of our product candidates.

Drug-related side effects could also affect subject recruitment or the ability of enrolled subjects to complete the trial or result in potential product liability claims. Any of these occurrences may harm our business, financial condition and prospects significantly. In addition, if one or more of our product candidates receives marketing approval, and we or others later identify undesirable side effects caused by such products, a number of potentially significant negative consequences could result, including:

- regulatory authorities may withdraw approvals of such product;
- regulatory authorities may require additional warnings on the label;
- we may be required to create a medication guide outlining the risks of such side effects for distribution to patients;
- we may be forced to suspend marketing of that product, or decide to remove the product from the marketplace;

- we may be required to change the way the product is administered;
- we could be subject to fines, injunctions, or the imposition of criminal or civil penalties;
- we could be sued and held liable for harm caused to patients; and
- the product may become less competitive, and our reputation may suffer.

The therapeutic-related side effects could affect patient recruitment or the ability of enrolled patients to complete the trial or result in potential product liability claims. Any of these events could prevent us from achieving or maintaining market acceptance of the particular product candidate, if approved, and could significantly harm our business, financial condition, results of operations, stock price and prospects.

We anticipate that many of our product candidates may be tested and, if approved, used in combination with third-party drugs and/or devices, some of which may still be in development, and we have limited or no control over the supply, regulatory status or regulatory approval of such drugs and/or devices.

We anticipate developing our product candidates for use in combination with other oncology pharmaceutics, including chemotherapies and cellular and targeted therapies (e.g., immune checkpoint inhibitors). We cannot be certain that current or potential future commercial relationships will provide us with a steady supply of such drugs or devices on commercially reasonable terms or at all.

Any failure to maintain or enter into new successful commercial relationships, or the expense of purchasing platinum-based and other chemotherapies, or any other combination products, or any devices in the market, may delay our development timelines, increase our costs and jeopardize our ability to develop our product candidates as commercially viable therapies. If any of these occur, our business, financial condition, results of operations, stock price and prospects may be materially harmed. Moreover, the development of product candidates for use in combination with another product or product candidate may present challenges that are not faced for single agent product candidates. For our product candidates that may be used in combination with other chemotherapies, or any other combination products or any devices, the FDA may require us to use more complex clinical trial designs in order to evaluate the contribution of each product and product candidate to any observed effects. It is possible that the results of these trials could show that there are adverse events tied to the interaction of elraglusib with any of the other therapies, or that any positive previous trial results are attributable to the combination therapy and not our product candidates. Moreover, following product approval, the FDA may require that products or devices used in conjunction with each other be cross labeled for combined use. To the extent that we do not have rights to the other product or device, this may require us to work with a third party to satisfy such a requirement. The ability to obtain cooperation from the third party may impact our ability to respond to the FDA's requests which could impact our ability to achieve regulatory approval. Moreover, developments related to the other product or device may impact our clinical trials as well as our commercial prospects should we receive marketing approval. Such developments may include changes to the safety or efficacy profile of the other product or device, changes to the availability of the approved product or device, and changes to the standard of care.

In the event that any future collaborator or supplier of other chemotherapies, or any other products administered in combination, or any devices used, with our product candidates does not supply their products on commercially reasonable terms or in a timely fashion, we would need to identify alternatives for accessing these products. This could cause our clinical trials to be delayed and limit the commercial opportunities for our product candidates, in which case our business, financial condition, results of operations, stock price and prospects may be materially harmed.

We may seek additional Orphan Drug, Fast Track, Breakthrough or PRIME designations for one or more of our current and future product candidates, but we might not receive any such designation, and even if we do, such designation may not actually lead to a faster development or regulatory review or approval process.

Our lead product candidate, elraglusib, has been given Fast Track designation from the FDA for development in the treatment of pancreatic cancer, and we may seek Fast Track designations for other indications or future product candidates. The Fast Track program is intended to expedite or facilitate the process for reviewing product candidates that meet certain criteria. Specifically, biologics are eligible for Fast

Track designation if they are intended, alone or in combination with one or more drugs or biologics, to treat a serious or life-threatening disease or condition and demonstrate the potential to address unmet medical needs for the disease or condition. Fast Track designation applies to the combination of the product candidate and the specific indication for which it is being studied. The sponsor of a Fast Track product candidate has opportunities for more frequent interactions with the applicable FDA review team during product development and, once an NDA is submitted, the application may be eligible for priority review. An NDA submitted for a Fast Track product candidate may also be eligible for rolling review, where the FDA may consider for review sections of the NDA on a rolling basis before the complete application is submitted, if the sponsor provides a schedule for the submission of the sections of the NDA, the FDA agrees to accept sections of the NDA and determines that the schedule is acceptable, and the sponsor pays any required user fees upon submission of the first section of the NDA. Fast Track designation does not ensure that we will receive marketing approval or that approval will be granted within any particular timeframe or at all. We may not experience a faster development, regulatory review or approval process with Fast Track designation compared to conventional FDA procedures. Additionally, the FDA may withdraw Fast Track designation, for reasons such as it comes to believe a drug candidate no longer adequately addresses an unmet medical need or that the designation is no longer supported by data from our clinical development program. Fast Track designation alone does not guarantee qualification for the FDA's priority review procedures. If we seek Fast Track designation for other indications, or if we pursue breakthrough or PRIME designations from FDA or EMA, respectively, we may not receive such designations. Many product candidates that have received Fast Track designation have ultimately failed to obtain approval.

We, or any future collaborators, may not be able to obtain and maintain orphan drug exclusivity for our product candidates in the United States and Europe.

Elraglusib has been granted orphan drug designation for the treatment of pancreatic cancer, glioblastomas (GBM) and neuroblastoma (NB) in the United States. We may seek additional orphan drug designations or regulatory incentives for other indications, for the oral dosage form of elraglusib, or for future product candidates in the United States, EU, Japan or Australia. We may not be able to obtain such designations.

While elraglusib currently has been granted orphan drug designation from the FDA for limited indications, we may not be able to maintain this orphan drug exclusivity. Further, even if we obtain orphan drug designation for a future product candidate or for elraglusib with respect to a different indication, we may not be able to maintain orphan drug exclusivity for that drug or indication. For example, orphan drug designation may be removed if the prevalence of an indication increases beyond the patient number limit required to maintain designation. Generally, if a drug with an orphan drug designation subsequently receives the first marketing approval for the indication for which it has such designation, the drug is entitled to a period of marketing exclusivity, which precludes the EMA or the FDA from approving another marketing application for the same product in the same indication for that time period. Orphan drug exclusivity may be lost if the FDA or EMA determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the product to meet the needs of patients with the rare disease or condition. Moreover, even after an orphan drug is approved, the FDA can subsequently approve a different drug for the same condition if the FDA concludes that the later drug is clinically superior in that it is shown to be safer, more effective or makes a major contribution to patient care compared to our product.

The FDA may reevaluate the Orphan Drug Act and its regulations and policies, and similarly the EMA may reevaluate its policies and regulations. We do not know if, when, or how the FDA or EMA may change their orphan drug regulations and policies in the future, and it is uncertain how any changes might affect our business. Depending on what changes the FDA and/or EMA may make to their orphan drug regulations and policies, our business could be adversely impacted.

We rely on third parties for the manufacture and shipping of elraglusib for clinical development and expect to continue to do so for the foreseeable future. If we or our licensees, development collaborators, or suppliers are unable to manufacture our products in sufficient quantities or at defined quality specifications, or are unable to obtain regulatory approvals for the manufacturing facility, we may be unable to develop and/or meet demand for our products and lose time to market and potential revenues.

Completion of our clinical trials and commercialization of our product candidates require access to, or development of, facilities to manufacture a sufficient supply of our product candidates. We do not own or

operate manufacturing facilities and have no plans to develop our own clinical or commercial-scale manufacturing capabilities. We rely on a third-party manufacturer for the production of elraglusib and expect to continue to rely on third-party manufacturers for commercial manufacture if elraglusib or any future product candidates receive regulatory approval. The facilities used by third-party manufacturers to manufacture elraglusib or any future product candidate must be approved for the manufacture of such product candidate by the FDA and any comparable foreign regulatory authority pursuant to inspections that will be conducted after we submit an NDA to the FDA or any comparable submission to a foreign regulatory authority. We do not control the manufacturing process of, and are completely dependent on, third-party manufacturers for compliance with cGMP requirements for the manufacture of products. In addition, we have no control over the ability of third-party manufacturers to maintain adequate quality control, quality assurance and qualified personnel.

If the FDA or any comparable foreign regulatory authority does not approve these facilities for the manufacture of elraglusib or any future product candidates or if it withdraws any such approval in the future, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain regulatory approval for or market elraglusib or any future product candidates, if approved. Our failure, or the failure of our third-party manufacturers, to comply with applicable regulations could result in sanctions being imposed on us, including clinical holds, fines, injunctions, civil penalties, delays, suspension or withdrawal of approvals, seizures or recalls of elraglusib or any future product candidates, operating restrictions and criminal prosecutions, any of which could significantly and adversely affect supplies of elraglusib or any future product candidates. We may not be successful in identifying additional or replacement third-party manufacturers, or in negotiating acceptable terms with any we do identify. We may face competition for access to these manufacturers' facilities and may be subject to manufacturing delays if the manufacturers give other clients higher priority than they give to us. Even if we are able to identify an additional or replacement third-party manufacturer, the delays and costs associated with establishing and maintaining a relationship with such manufacturer may have a material adverse effect on us.

Before we can begin to commercially manufacture elraglusib or any other product candidate, we must obtain regulatory approval of the manufacturing facility and process by the FDA and any comparable foreign regulatory authority pursuant to inspections that will be conducted after we submit an NDA to the FDA or any comparable submission to a foreign regulatory authority. Manufacturing of drugs for clinical and commercial purposes must comply with cGMP. We do not control the manufacturing process of, and are completely dependent on, third-party manufacturers for compliance with cGMP requirements for the manufacture of products. If these third-party manufacturers cannot successfully manufacture material that conforms to our specifications and the strict regulatory requirements of the FDA or any comparable foreign regulatory authority, they will not be able to secure and/or maintain regulatory approval for their manufacturing facilities. The cGMP requirements govern quality control and documentation policies and procedures. Complying with cGMP and non-U.S. regulatory requirements will require that we expend time, money, and effort in production, recordkeeping, and quality control to ensure that the product meets applicable specifications and other requirements. We, or our contracted manufacturing facility, must also pass a pre-approval inspection prior to FDA approval. Failure to pass a pre-approval inspection may significantly delay or prevent FDA approval of our products. If we fail to comply with these requirements, we would be subject to possible regulatory action and may be limited in the jurisdictions in which we are permitted to sell our products and will lose time to market and potential revenues.

We depend on a third-party manufacturer for certain drug substances, drug products, raw materials, samples, components, and other materials used in our product candidates. We obtain our supplies on a purchase order basis and do not have any long-term supply agreements in place. If we are unable to source these supplies on a timely basis, or establish longer-term contracts with suppliers, we will not be able to complete our clinical trials or studies on time and the development of our product candidates may be delayed.

We depend on a third-party manufacturer for certain drug substances, drug products, raw materials, samples, components and other materials used in our product candidates. We obtain our supplies on a purchase order basis and do not currently have long-term supply contracts with our supplier, and our supplier is not obligated to supply drug products to us for any period, in any specified quantity or at any certain price beyond the delivery contemplated by the relevant purchase orders. As a result, our supplier could stop selling to us at commercially reasonable prices, or at all. While we intend to enter into long-term supply

agreements in the future as we advance our clinical trials or commercialization plans, we may not be successful in negotiating such agreements on favorable terms, or at all. If we do enter into such long-term supply agreements, we could be subject to binding long-term purchase obligations that are less favorable than purchasing on a purchase order basis, and which may be harmful to our business, including in the event that we do not conduct our trials on planned timelines or utilize the drug products that we are required to purchase. Any change in our relationship with our supplier or changes to our arrangement with our supplier could adversely affect our business, financial condition, results of operations and prospects.

Furthermore, our supplier could stop producing our supplies, cease operations or be acquired by, or enter into exclusive arrangements with, our competitors. Establishing additional or replacement suppliers for these supplies, and obtaining regulatory clearance or approvals that may result from adding or replacing suppliers, could take a substantial amount of time, result in increased costs and impair our ability to produce our products or conduct timely trials, which would adversely impact our business, financial condition, results of operations and prospects. Any such interruption or delay may force us to seek similar supplies from alternative sources, which may not be available at reasonable prices, or at all. Any interruption in the supply of source components for our product candidates would adversely affect our ability to meet scheduled timelines and budget for the development and commercialization of our product candidates, could result in higher expenses and would harm our business. Although we have not experienced any significant disruption as a result of our reliance on our supplier, we have a limited operating history and cannot assure you that we will not experience disruptions in our supply chain in the future as a result of such reliance or otherwise.

It is uncertain whether product liability insurance will be adequate to address product liability claims, or that insurance against such claims will be affordable or available on acceptable terms in the future.

Clinical research involves the testing of new drugs on human volunteers pursuant to a clinical trial protocol. Such testing involves a risk of liability for personal injury to or death of patients due to, among other causes, adverse side effects, improper administration of the new drug, or improper volunteer behavior. Claims may arise from patients, clinical trial volunteers, consumers, physicians, hospitals, companies, institutions, researchers, or others using, selling, or buying our products, as well as from governmental bodies. In addition, product liability and related risks are likely to increase over time, in particular upon the commercialization or marketing of any products by us or parties with which we enter into development, marketing, or distribution collaborations. Although we are contracting for general liability insurance in connection with our ongoing business, there can be no assurance that the amount and scope of such insurance coverage will be appropriate and sufficient in the event any claims arise, that we will be able to secure additional coverage should we attempt to do so, or that our insurers would not contest or refuse any attempt by us to collect on such insurance policies. Furthermore, there can be no assurance that suitable product liability insurance (at the clinical stage and/or commercial stage) will continue to be available on terms acceptable to us or at all, or that, if obtained, the insurance coverage will be appropriate and sufficient to cover any potential claims or liabilities.

If the market opportunities for our current and potential future drug candidates are smaller than we believe they are, our ability to generate product revenues may be adversely affected and our business may suffer.

The potential market opportunities for our product candidates are difficult to estimate and will depend in large part on the drugs with which our product candidates are co-administered and the success of competing therapies and therapeutic approaches. Our projections of both the number of people who have the cancers we are targeting, as well as the subset of people with these cancers in a position to receive therapy and who have the potential to benefit from treatment with elraglusib or any future product candidate are predicated on many assumptions, which may include industry knowledge and publications, third-party research reports, and other surveys. Although we believe that our internal assumptions are reasonable, these assumptions involve the exercise of significant judgment on the part of our management, are inherently uncertain, and their reasonableness has not been assessed by an independent source. These estimates may prove to be incorrect and new studies may change the estimated incidence or prevalence of these diseases. The number of patients in the United States, Europe, and elsewhere may turn out to be lower than expected, and patients may not be amenable to treatment with our product, or new patients may become increasingly difficult to identify or gain access to, all of which would adversely affect our business, financial condition,

results of operations and prospects. If any of the assumptions prove to be inaccurate, the actual markets for our product candidates could be smaller than our estimates of the potential market opportunities. Further, even if we obtain significant market share for elraglusib or any future product candidate, because some of our potential target populations are very small, we may never achieve profitability despite obtaining such significant market share.

Risks Related to Our Reliance on Third Parties

The termination of third-party licenses could adversely affect our rights to important compounds or technologies.

In connection with our efforts to expand our pipeline of product candidates, we may enter into certain licenses or other collaboration agreements in the future pertaining to the in-license of rights to additional candidates. Such agreements may impose various diligence, milestone payment, royalty, insurance or other obligations on us. If we fail to comply with these obligations, our licensor or collaboration partners may have the right to terminate the relevant agreement, in which event we would not be able to develop or market the products covered by such licensed intellectual property. Our existing licensing agreements with UIC and NU contain diligence obligations to maintain each license agreement.

Moreover, disputes may arise regarding intellectual property subject to a licensing agreement, including:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- the extent to which our product candidates, technology and processes infringe on intellectual property of the licensor that is not subject to the licensing agreement;
- the sublicensing of patent and other rights under our collaborative development relationships;
- our diligence obligations under the license agreement and what activities satisfy those diligence obligations;
- the inventorship and ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our licensors and us and our partners; and
- the priority of invention of patented technology.

In addition, the agreements under which we currently license intellectual property or technology from third parties are complex, and certain provisions in such agreements may be susceptible to multiple interpretations. The resolution of any contract interpretation disagreement that may arise could narrow what we believe to be the scope of our rights to the relevant intellectual property or technology or increase what we believe to be our consolidated financial or other obligations under the relevant agreement, either of which could have a material adverse effect on our business, financial condition, results of operations and prospects. Moreover, if disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on commercially acceptable terms, we may be unable to successfully develop and commercialize the affected product candidates, which could have a material adverse effect on our business, financial conditions, results of operations and prospects.

We may also have limited control over the maintenance and prosecution of these in-licensed patents and patent applications, or any other intellectual property that may be related to our in-licensed intellectual property. For example, we cannot be certain that such activities by any future licensors have been or will be conducted in compliance with applicable laws and regulations or will result in valid and enforceable patents and other intellectual property rights. We have limited control over the manner in which our licensors initiate an infringement proceeding against a third-party infringer of the intellectual property rights or defend certain of the intellectual property that is licensed to us. It is possible that the licensors' infringement proceeding or defense activities may be less vigorous than had we conducted them ourselves.

Our current elraglusib drug substance (DS) manufacturer is in China, and it is unknown how future geopolitical relationships with China may affect our ability to obtain DS; however, if they are negatively impacted, this could increase our DS manufacturing costs and adversely impact our financial condition.

We rely upon a single company located in China to manufacture the DS for our sole product candidate, elraglusib. This company manufactures DS under cGMP that is suitable for formulating into a therapeutic

used in humans, which manufacturing process is substantially completed in the United States. We do not have any exclusive contractual commitments for this company to manufacture for us in the future or to ever become a sole provider of DS and thus, we do have the ability to seek out other GMP manufacturers if needed. However, if we do not maintain this manufacturing and service relationship that is important to us and are not able to identify replacement suppliers, vendors and laboratories, our ability to obtain elraglusib for clinical trials and to regulatory approval could be impaired or delayed and our costs could substantially increase, adversely impacting our financial condition.

We may be unable to identify additional manufacturers with whom we might establish appropriate arrangements on acceptable terms, if at all. Even if we are able to find replacement manufacturers, suppliers, vendors and service providers when needed, we may not be able to enter into agreements with them on terms and conditions favorable to us or there could be a substantial delay before such manufacturer, vendor or supplier, or a related new facility is properly qualified and registered with the FDA or other foreign regulatory authorities. A new manufacturer currently not qualified with the FDA would have to be educated in, or develop substantially equivalent processes for, production of our approved products after receipt of FDA approval. To qualify and receive regulatory approval for a new manufacturer could take as long as two years. The process of changing a supplier could have an adverse impact on our current clinical development programs if supplies of DS or materials on hand are insufficient to satisfy demand. Such delays could have a material adverse effect on our development activities and our business. Adverse changes in the political and economic policies of the Chinese government could have a material adverse effect on the overall economic growth of China, which could adversely affect our ability to conduct business in China. We are unable to predict the frequency and scope of such policy changes, any of which could materially and adversely affect our liquidity, access to capital and our ability to conduct business in China. Any failure on our part to comply with changing government regulations and policies could result in the loss of our ability to manufacture and develop our product candidates in China.

We rely on third parties to conduct our non-clinical studies and our clinical trials. If these third parties do not successfully carry out their contractual duties or meet expected deadlines, we may be unable to obtain regulatory approval for or commercialize our current product candidates or any future products, on a timely basis or at all, and our financial condition will be adversely affected.

We do not have the ability to independently conduct non-clinical studies and clinical trials. We rely on medical institutions, clinical investigators, contract laboratories, collaborative partners and other third parties, such as contract research organizations or clinical research organizations, to conduct non-clinical studies and clinical trials on our product candidates. The third parties with whom we contract for execution of our non-clinical studies and clinical trials play a significant role in the conduct of these studies and trials and the subsequent collection and analysis of data. However, these third parties are not our employees, and except for contractual duties and obligations, we have limited ability to control the amount or timing of resources that they devote to our programs.

Although we rely on third parties to conduct our non-clinical studies and clinical trials, we remain responsible for ensuring that each of our non-clinical studies and clinical trials is conducted in accordance with its investigational plan and protocol. Moreover, the FDA, EMA and other foreign regulatory authorities require us to comply with regulations and standards, including regulations commonly referred to as good clinical practices (GCPs), for conducting, monitoring, recording and reporting the results of clinical trials to ensure that the data and results are scientifically credible and accurate, and that the trial subjects are adequately informed of the potential risks of participating in clinical trials.

In addition, the execution of non-clinical studies and clinical trials, and the subsequent compilation and analyses of the data produced, requires coordination among various parties. In order for these functions to be carried out effectively and efficiently, it is imperative that these parties communicate and coordinate with one another. Moreover, these third parties may also have relationships with other commercial entities, some of which may compete with us. Under certain circumstances, these third parties may be able to terminate their agreements with us upon short notice. If the third parties conducting our clinical trials do not perform their contractual duties or obligations, experience work stoppages, do not meet expected deadlines, terminate their agreements with us or need to be replaced, or if the quality or accuracy of the clinical data they obtain is compromised due to the failure to adhere to our clinical trial protocols or GCPs, or for any other reason,

we may need to enter into new arrangements with alternative third parties, which could be difficult, costly or impossible, and our clinical trials may be extended, delayed or terminated or may need to be repeated. If any of the foregoing were to occur, we may not be able to obtain, on a timely basis or at all, regulatory approval for or to commercialize the product candidate being tested in such trials, and as a result, our financial condition will be adversely affected.

Our reliance on third parties requires us to share our trade secrets, which increases the possibility that a competitor or other third party will discover them or that our trade secrets will be misappropriated or disclosed.

Because we currently rely on third parties to manufacture elraglusib and to perform quality testing, we must, at times, share our proprietary technology and confidential information, including trade secrets, with them. We seek to protect our proprietary technology, in part, by entering into confidentiality and non-disclosure agreements, and, if applicable, material transfer agreements, collaborative research agreements, consulting agreements or other similar agreements with our collaborators, advisors, employees and consultants prior to beginning research or disclosing proprietary information. These agreements typically limit the rights of the third parties to use or disclose our confidential information. Despite the contractual provisions employed when working with third parties, the need to share trade secrets and other confidential information increases the risk that such trade secrets become known by our competitors or other third parties, are intentionally or inadvertently incorporated into the technology of others or are disclosed or used in violation of these agreements. Given that our proprietary position is based, in part, on our know-how and trade secrets and despite our efforts to protect our trade secrets, a competitor's or other third party's discovery of our proprietary technology and confidential information or other unauthorized use or disclosure of such technology or information would impair our competitive position and may have a material adverse effect on our business, financial condition, results of operations and prospects.

Corporate, non-profit, and academic collaborators may take actions (including lack of effective actions) to delay, prevent, or undermine the success of our products. We may continue to seek new collaborations or alliances in the future with respect to elraglusib or any future product candidates, but we may be unable to do so or to realize the potential benefits of such transactions, which may cause us to alter or delay our development and commercialization plans.

Our operating and financial strategy for the development, clinical testing, manufacture, and commercialization of product candidates is heavily dependent on us entering into collaborations with corporations, non-profit organizations, academic institutions, licensors, licensees, and other parties. There can be no assurance that we will be successful in establishing such collaborations. Current and future collaborations are and may be terminable at the sole discretion of the collaborator. The activities of any collaborator will not be within our direct control and may not be in our power to influence. There can be no assurance that any collaborator will perform its obligations to our satisfaction or at all; that we will derive any revenue, profits, or benefit from such collaborations; or that any collaborator will not compete with us. If any collaboration is not pursued, we may require substantially greater capital to undertake development and commercialization of our proposed products, and we may not be able to develop and commercialize such products effectively, if at all. In addition, a lack of development and commercialization collaborations may lead to significant delays in introducing proposed products into certain markets and/or reduced sales of proposed products in such markets.

We also face significant competition in seeking appropriate strategic partners, and the negotiation process can be time-consuming, costly and complex. Even if we are successful in our efforts to establish or maintain such collaborations, the terms that we agree upon may not be favorable to us. As a result, we may need to relinquish valuable rights to our future revenue streams, research programs, intellectual property, elraglusib or any future product candidates, or grant licenses on terms that may not be favorable to us, as part of any such arrangement, and such arrangements may restrict us from entering into additional agreements with other potential collaborators. In addition, our current collaborations limit, and potential future collaborations may limit, our control over the amount and timing of resources that our collaborators will dedicate to the development or commercialization of elraglusib or any future product candidates. Our ability to generate revenue from these arrangements will depend on any current or future collaborators' abilities to successfully perform the functions assigned to them in these arrangements. We cannot be certain that, following a collaboration, license, or strategic transaction, we will achieve an economic benefit that justifies

such transaction, and such transaction may not yield additional development product candidates for our pipeline. Furthermore, we may not be able to maintain such collaborations if, for example, the development or approval of elraglusib or any future product candidate is delayed, the safety of any such product candidate is questioned, or the sales of elraglusib, if approved, or an approved future product candidate, are unsatisfactory.

In addition, our current collaborations are, and potential future collaborations may be, terminable by our strategic partners, and we may not be able to adequately protect our rights under these agreements. Furthermore, strategic partners may negotiate for certain rights to control decisions regarding the development and, if approved, commercialization of elraglusib or any future product candidates, and may not conduct those activities in the same manner as we do. Any termination of collaborations we enter into in the future, or any delay in entering into collaborations related to elraglusib or any future product candidates, could delay the development and, if approved, commercialization of such product candidates, and reduce their competitiveness if they reach the market, which could have a material adverse effect on our business, financial condition, results of operations and prospects.

Data provided by collaborators and other parties upon which we rely have not been independently verified and could turn out to be inaccurate, misleading, or incomplete.

We rely on third-party vendors, scientists, clinical trial investigators, and collaborators to provide us with significant data and other information related to our projects, clinical trials, and business. We do not independently verify or audit all of such data (including possibly material portions thereof). As a result, such data may be inaccurate, misleading, or incomplete.

In certain cases, we may need to rely on a single supplier for a particular manufacturing material or service, and any interruption in or termination of service by such supplier could delay or disrupt the commercialization of our products.

We rely on third-party suppliers for the materials used to manufacture our compounds. We currently have a sole source manufacturer for the DS for elraglusib, and, while we believe that a suitable alternative vendor would be available if needed, some of these materials may at times only be available from one supplier. Any interruption in or termination of service by such single source suppliers could result in a delay or disruption in manufacturing until we locate an alternative source of supply, which could, among other things, adversely impact our clinical trials and ability to obtain approval from the FDA for elraglusib or a future product candidate. There can be no assurance that we would be successful in locating an alternative source of supply or in negotiating acceptable terms with such prospective supplier.

We may also rely on certain third party vendors located in China or who are owned by or are associated with certain Chinese companies to assist in non-clinical or clinical trials or provide laboratory services. It is unknown how current or future geopolitical relationships with China or specific Chinese-owned or associated vendors may affect our ability to complete our non-clinical or clinical trials.

We do not currently, but may in the future, rely upon one or more companies located in China, or are owned or operated by Chinese companies to provide non-clinical or clinical trial support services. If so, the process of changing these vendors could have an adverse impact on our current clinical development programs if they were no longer permitted to provide services or products due to geopolitical pressures, including legislative activities or executive orders aimed at prohibiting certain Chinese or Chinese-owned biotechnology companies from engaging in biotechnology or biopharmaceutical research activities. We could experience delays in finding suitable replacement service providers located outside China or not otherwise owned by or associated with Chinese companies, which could have a material adverse effect on our development activities and our business. We are unable to predict whether or when proposed legislative or executive actions would be effective, and whether such changes would materially and adversely affect our liquidity, access to capital and our ability to conduct business. Any failure on our part to comply with changing government regulations and policies could result in the loss of our ability to manufacture and develop our product candidates.

Risks Related to Commercialization of Elraglusib and any Future Product Candidates

We have a limited operating history and no products approved for commercial sale, which may make it difficult to evaluate our prospects and likelihood of success.

We are a clinical-stage biopharmaceutical company with a limited operating history. We were originally incorporated in 2015, have no products approved for commercial sale and have not generated any revenue to date. Our operations to date have been limited to organizing and staffing our company, business planning, raising capital, establishing our intellectual property portfolio and performing clinical trials and research and development of our product candidates. Our approach to the research and development of product candidates is unproven, and we do not know whether we will be able to develop any products of commercial value. In addition, our lead product candidate, elraglusib, will require substantial additional development and clinical research time and resources before we would be able to apply for or receive regulatory approvals and begin generating revenue from product sales. We have not yet demonstrated the ability to progress any product candidate beyond Phase 2 clinical trials, obtain regulatory approvals, manufacture products at commercial scale or arrange for a third party to do so on our behalf, or conduct sales and marketing activities necessary for successful product commercialization.

Investment in biopharmaceutical product development is highly speculative because it entails substantial upfront capital expenditures and significant risk that any potential product candidate will fail to demonstrate adequate efficacy or an acceptable safety profile, gain regulatory approval and become commercially viable. In addition, as a business with a limited operating history, we may encounter unforeseen expenses, difficulties, complications, delays and other known and unknown factors and risks frequently experienced by early stage biopharmaceutical companies in rapidly evolving fields. Consequently, we have no meaningful history of operations upon which to evaluate our business, and predictions about our future success or viability may not be as accurate as they could be if we had a longer operating history or a history of successfully developing and commercializing drug products.

Even if we receive regulatory approval for elraglusib or any future product candidates, we will be subject to ongoing regulatory obligations and continued regulatory review, which may result in significant additional expense.

Any regulatory approvals that we may receive for elraglusib or any future product candidates will require the submission of reports to regulatory authorities, subject us to surveillance to monitor the safety and efficacy of the product, may contain significant limitations related to use restrictions for specified age groups, warnings, precautions or contraindications, and may include burdensome post-approval study or risk management requirements. For example, the FDA may require a REMS as a condition of approval of elraglusib or any future product candidates, which could include requirements for a medication guide, physician communication plans or additional elements to ensure safe use, such as restricted distribution methods, patient registries and other risk minimization tools.

In addition, if the FDA or a comparable foreign regulatory authority approves elraglusib or any future product candidates, the manufacturing processes, labeling, packaging, distribution, adverse event reporting, storage, advertising, promotion, import, export and recordkeeping for our products will be subject to extensive and ongoing regulatory requirements. These requirements include submissions of safety and other post-marketing information and reports, registration, as well as continued compliance with cGMPs and GCP requirements for any clinical trials that we conduct post-approval. Manufacturers of approved products and their facilities are subject to continual review and periodic, unannounced inspections by the FDA and other regulatory authorities for compliance with cGMP regulations and standards. Failure to comply with regulatory requirements or later discovery of previously unknown problems with our products, including adverse events of unanticipated severity or frequency, or with our third-party manufacturers or manufacturing processes, may result in, among other things:

- restrictions on the marketing or manufacturing of our products, withdrawal of the product from the market or voluntary or mandatory product recalls;
- restrictions on product distribution or use, or requirements to conduct post-marketing studies or clinical trials;

- restrictions on our ability to conduct clinical trials, including full or partial clinical holds on ongoing or planned trials;
- fines, restitutions, disgorgement of profits or revenue, warning letters, untitled letters, adverse publicity requirements or holds on clinical trials;
- refusal by the FDA or other regulatory authorities to approve pending applications or supplements to approved applications submitted by us or suspension or revocation of approvals;
- product seizure or detention, or refusal to permit the import or export of our products; and
- injunctions and the imposition of civil or criminal penalties.

The occurrence of any event or penalty described above may inhibit our ability to commercialize elraglusib or any future product candidates and generate revenue and could require us to expend significant time and resources in response and could generate negative publicity.

The FDA's and other regulatory authorities' policies may change and additional government regulations may be promulgated that could prevent, limit or delay marketing authorization of elraglusib or any future product candidates. We also cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action, either in the United States or abroad. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may be subject to enforcement action and we may not achieve or sustain profitability.

The FDA and other regulatory agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses.

The FDA and other regulatory agencies strictly regulate the promotional claims that may be made about prescription products, such as elraglusib or any future product candidates, if approved. In particular, a product may not be promoted for uses that are not approved by the FDA or such other regulatory agencies as reflected in the product's approved labeling. If we receive regulatory approval for elraglusib or any future product candidates, physicians may nevertheless prescribe it to their patients in a manner that is inconsistent with the approved label. If we are found to have promoted such off-label uses, we may become subject to significant liability. The U.S. federal government has levied large civil and criminal fines against companies for alleged improper promotion of off-label use and has enjoined several companies from engaging in off-label promotion. The government has also required companies to enter into consent decrees or imposed permanent injunctions under which specified promotional conduct is changed or curtailed. If we cannot successfully manage the promotion of elraglusib or any future product candidates, if approved, we could become subject to significant liability, which would materially adversely affect our business and financial condition.

Our business is highly dependent on the success of our lead product candidate, elraglusib, and any other future product candidates that we advance into clinical development. All of our product candidates will require significant additional clinical and preclinical development before we can seek regulatory approval for and launch a product commercially.

We currently have no products that are approved for commercial sale and may never be able to develop marketable products. We have one clinical product candidate, elraglusib, in clinical development. Because elraglusib is our only product candidate, if elraglusib encounters safety or efficacy problems, development delays, regulatory issues or other problems, our development plans and business would be significantly harmed. For each product candidate, we must demonstrate its safety and efficacy in humans, obtain regulatory approval in one or more jurisdictions, obtain manufacturing supply, capacity and expertise, and substantially invest in marketing efforts before we will be able to generate any revenue from such product candidate. These efforts will require substantial investment, and we may not have the financial resources to continue development of our product candidates.

We may experience setbacks that could delay or prevent regulatory approval of, or our ability to commercialize, our product candidates, including:

- negative or inconclusive results from our clinical trials or preclinical studies or the clinical trials or preclinical studies of others for product candidates similar to ours, leading to a decision or requirement to conduct additional clinical trials or preclinical studies or to abandon a program;

- drug-related side effects experienced by subjects in our clinical trials or by individuals using drugs or therapeutics similar to our product candidates;
- delays in submitting Investigational New Drug applications, or INDs, or comparable foreign regulatory applications or delays or failure in obtaining the necessary approvals from regulators to commence a clinical trial, or a suspension or termination of a clinical trial once commenced;
- conditions imposed by FDA or comparable foreign authorities regarding the scope or design of our clinical trials or our drug development strategy;
- delays in enrolling subjects in clinical trials;
- high drop-out rates of subjects from clinical trials;
- inadequate or delayed supply or quality of product candidates or other materials necessary for the conduct of our clinical trials;
- greater than anticipated clinical trial costs;
- inability to compete with other therapies;
- unfavorable FDA or other regulatory agency inspection and review of a clinical trial site;
- failure of our third-party manufacturers, contractors or investigators to comply with regulatory requirements or otherwise meet their contractual obligations in a timely manner, or at all;
- delays in obtaining any pre-market inspections required by FDA or other regulatory agencies;
- delays and changes in regulatory requirements, policy and guidelines, including the imposition of additional regulatory oversight around clinical testing generally or with respect to our technology in particular; or
- varying interpretations of data by FDA and similar foreign regulatory agencies.

We do not have complete control over many of these factors, including certain aspects of clinical development and the regulatory submission process, potential threats to our intellectual property rights and our manufacturing, marketing, distribution and sales efforts or that of any future collaborator.

Our product development efforts are at an early stage. We have not yet undertaken any marketing efforts, and there can be no assurance that future anticipated market testing and analyses will validate our marketing strategy. We may need to modify the products, or we may not be successful in either developing or marketing those products.

As a company, we have not completed the development or clinical trials of any product candidates and, accordingly, have not yet begun to market or generate revenue from the commercialization of any products. Obtaining approvals of these product candidates will require substantial additional research and development as well as costly clinical trials. There can be no assurance that we will successfully complete the development of our product candidates or successfully market them. We may encounter problems and delays relating to research and development, regulatory approval, intellectual property rights of product candidates, or other factors. There can be no assurance that our development programs will be successful, that our product candidates will prove to be safe and effective in or after clinical trials, that the necessary regulatory approvals for any product candidates will be obtained, or, even if obtained, will be as broad as sought or will be maintained for any period thereafter, that patents will issue on our patent applications, that any intellectual property protections we secure will be adequate, or that our collaboration arrangements will not diminish the value of our intellectual property through licensing or other arrangements.

Furthermore, elraglusib and any future product candidates may not be commercially successful. Even if elraglusib or any future product candidates receive regulatory approval, they may not gain market acceptance among physicians, patients, healthcare payors, or the medical community. The commercial success of elraglusib or any future product candidates will depend significantly on the broad adoption and use of the resulting product by these individuals and organizations for approved indications., and there can be no assurance that competitive products will not perform better and/or be marketed more successfully. Additionally, there can be no assurances that any future market testing and analyses will validate our

marketing strategies. We may need to seek to modify the product labels through additional studies in order to be able to market them successfully to reach their commercial potential. If elraglusib or any future product candidates is approved but does not achieve an adequate level of acceptance by physicians, hospitals, healthcare payors or patients, we may not generate sufficient revenue from that product and may not become or remain profitable. Our efforts to educate the medical community and third-party payors regarding the benefits of our products may require significant resources and may never be successful.

We currently have no marketing and sales organization and have no experience as a company in commercializing products, and we may need to invest significant resources to develop these capabilities. If we are unable to establish marketing and sales capabilities or enter into agreements with third parties to market, sell and distribute our products, we may not be able to generate product revenue.

We have no internal sales, marketing or distribution capabilities, nor have we ever commercialized a product. If elraglusib or any future product candidate ultimately receives regulatory approval, we must build a marketing and sales organization with technical expertise and supporting distribution capabilities to commercialize each such product in major markets, which will be expensive and time consuming, or collaborate with third parties that have direct sales forces and established distribution systems, either to augment our own sales force and distribution systems or in lieu of our own sales force and distribution systems. For example, if elraglusib is approved, we will need to scale up a cost-effective and reliable cold chain distribution and logistics network, which we may be unable to accomplish and which will require us to rely on third-party distributors. Failure to scale up our cold chain supply logistics, by us or third parties, could in the future lead to additional manufacturing costs and delays in our ability to supply required quantities for commercial supply.

We have no prior experience as a company with the marketing, sale or distribution of biopharmaceutical products and there are significant risks involved in the building and managing of a sales organization, including our ability to hire, retain and incentivize qualified individuals, generate sufficient sales leads, provide adequate training to and develop appropriate compliance programs for sales and marketing personnel and effectively manage a geographically dispersed sales and marketing team. Any failure or delay in the development of our internal sales, marketing and distribution capabilities would adversely impact the commercialization of these products. We may not be able to enter into collaborations or hire consultants or external service providers to assist us in sales, marketing and distribution functions on acceptable financial terms, or at all. In addition, our product revenue and our profitability, if any, may be lower if we rely on third parties for these functions than if we were to market, sell and distribute any products that we develop ourselves. We likely will have little control over such third parties, and any of them may fail to devote the necessary resources and attention to sell and market our products effectively. If we are not successful in commercializing our products, either on our own or through arrangements with one or more third parties, we may not be able to generate any future product revenue and we would incur significant additional losses.

If we are unable to establish relationships with licensees or collaborators to carry out sales, marketing, and distribution functions or to create effective marketing, sales, and distribution capabilities, we will be unable to market our products successfully.

Our business strategy may include selling product candidates, out-licensing product candidates to or collaborating with larger firms with experience in marketing and selling pharmaceutical products. There can be no assurance that we will successfully be able to establish marketing, sales, or distribution relationships with any third-party, that such relationships, if established, will be successful, or that we will be successful in gaining market acceptance for any products we might develop. To the extent that we enter into any marketing, sales, or distribution arrangements with third parties, our product revenues per unit sold are expected to be lower than if we marketed, sold, and distributed our products directly, and any revenues we receive will depend upon the efforts of such third parties.

The successful commercialization of elraglusib or any future product candidates, if approved, will depend in part on the extent to which governmental authorities and health insurers establish coverage, adequate reimbursement levels and favorable pricing policies. Failure to obtain or maintain coverage and adequate reimbursement for our products could limit our ability to market those products and decrease our ability to generate revenue.

The availability of coverage and the adequacy of reimbursement by governmental healthcare programs such as Medicare and Medicaid, private health insurers and other third-party payors are essential for most

patients to be able to afford prescription medications such as elraglusib or any future product candidates, if approved. Our ability to achieve coverage and acceptable levels of reimbursement for our products by third-party payors will have an effect on our ability to successfully commercialize those products. Accordingly, we will need to successfully implement a coverage and reimbursement strategy for any approved product candidate. Even if we obtain coverage for a given product by a third-party payor, the resulting reimbursement payment rates may not be adequate or may require co-payments that patients find unacceptably high.

If we participate in the Medicaid Drug Rebate Program or other governmental pricing programs, in certain circumstances, our products would be subject to ceiling prices set by such programs, which could reduce the revenue we may generate from any such products. Participation in such programs would also expose us to the risk of significant civil monetary penalties, sanctions and fines should we be found to be in violation of any applicable obligations thereunder.

Third-party payors increasingly are challenging prices charged for biopharmaceutical products and services, and many third-party payors may refuse to provide coverage and reimbursement for particular drugs when an equivalent generic drug or a less expensive therapy is available. It is possible that a third-party payor may consider our products as substitutable and offer to reimburse patients only for the less expensive product. Even if we are successful in demonstrating improved efficacy or improved convenience of administration with our products, pricing of existing drugs may limit the amount we will be able to charge for our products. These payors may deny or revoke the reimbursement status of a given product or establish prices for new or existing marketed products at levels that are too low to enable us to realize an appropriate return on our investment in product development. If reimbursement is not available or is available only at limited levels, we may not be able to successfully commercialize our products and may not be able to obtain a satisfactory financial return on products that we may develop.

There is significant uncertainty related to third-party payor coverage and reimbursement of newly approved products. In the United States, third-party payors, including private and governmental payors, such as the Medicare and Medicaid programs, play an important role in determining the extent to which new drugs will be covered. Some third-party payors may require pre-approval of coverage for new or innovative devices or drug therapies before they will reimburse healthcare providers who use such therapies. It is difficult to predict at this time what third-party payors will decide with respect to the coverage and reimbursement for elraglusib or any future product candidates.

Obtaining and maintaining reimbursement status is time-consuming, costly and uncertain. The Medicare and Medicaid programs increasingly are used as models for how private payors and other governmental payors develop their coverage and reimbursement policies for drugs. However, no uniform policy for coverage and reimbursement for products exists among third-party payors in the United States. Therefore, coverage and reimbursement for products can differ significantly from payor to payor. As a result, the coverage determination process is often a time consuming and costly process that will require us to provide scientific and clinical support for the use of our products to each payor separately, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained in the first instance. Furthermore, rules and regulations regarding reimbursement change frequently, and, in some cases, at short notice, and we believe that changes in these rules and regulations are likely. For products administered under the supervision of a physician, obtaining coverage and adequate reimbursement may be particularly difficult because of the higher prices often associated with such drugs. Additionally, separate reimbursement for the product itself or the treatment or procedure in which the product is used may not be available, which may impact physician utilization.

Outside the United States, international operations are generally subject to extensive governmental price controls and other market regulations, and we believe the increasing emphasis on cost-containment initiatives in Europe and other countries has and will continue to put pressure on the pricing and usage of elraglusib or any future product candidates, if approved in these jurisdictions. In many countries, the prices of medical products are subject to varying price control mechanisms as part of national health systems. Other countries allow companies to fix their own prices for medical products but monitor and control company profits. Additional foreign price controls or other changes in pricing regulation could restrict the amount that we are able to charge for our products. Accordingly, in markets outside the United States, the reimbursement for our products may be reduced compared with the United States and may be insufficient to generate commercially reasonable revenue and profits.

Moreover, increasing efforts by governmental and third-party payors in the United States and abroad to cap or reduce healthcare costs may cause such organizations to limit both coverage and the level of reimbursement for newly approved products and, as a result, they may not cover or provide adequate payment for our products. We expect to experience pricing pressures in connection with the sale of any of our products due to the trend toward managed healthcare, the increasing influence of health maintenance organizations and additional legislative changes. The downward pressure on healthcare costs in general, and prescription drugs, surgical procedures and other treatments in particular, has become very intense. As a result, increasingly high barriers are being erected to the entry of new products. See the section titled "*Risk Factors — Risks Related to Our Business Operations and Industry — Current and future healthcare reform legislation or regulation may increase the difficulty and cost for us to obtain coverage for and commercialize elraglusib or any future product candidates and may adversely affect the prices we may set*" for additional related information.

If we obtain FDA approval for any of our product candidates, we will be subject to various federal and state fraud and abuse laws; these laws may impact, among other things, our proposed sales, marketing and education programs. Fraud and abuse laws are expected to increase in breadth and in detail, which will likely increase our operating costs and the complexity of our programs to ensure compliance with such enhanced laws.

If we obtain FDA approval for any of our product candidates and begin commercializing those products in the United States, our operations may be directly, or indirectly through our customers, distributors, or other business partners, subject to various federal and state fraud and abuse laws, including, without limitation, anti-kickback statutes and false claims statutes which may increase our operating costs. These laws may impact, among other things, our proposed sales, marketing and education programs. In addition, we may be subject to data privacy and security regulation by both the federal government and the states in which we conduct business.

If our operations are found to be in violation of any of the federal and state fraud and abuse laws or any other governmental regulations that apply to us, we may be subject to criminal actions and significant civil monetary penalties, which would adversely affect our ability to operate our business and our results of operations.

If our operations are found to be in violation of any of the federal and state fraud and abuse laws, including, without limitation, anti-kickback statutes and false claims statutes or any other governmental regulations that apply to us, we may be subject to penalties, including criminal and significant civil monetary penalties, damages, fines, imprisonment, exclusion from participation in government healthcare programs, and the curtailment or restructuring of our operations, any of which could adversely affect our ability to operate our business and our results of operations. To the extent that any of our product candidates are ultimately sold in a foreign country, we may be subject to similar foreign laws and regulations, which may include, for instance, applicable post-marketing requirements, including safety surveillance, anti-fraud and abuse laws, and implementation of corporate compliance programs and reporting of payments or transfers of value to healthcare professionals.

Risks Related to Our Intellectual Property

If we and our third-party licensors do not obtain and preserve protection for our respective intellectual property rights, our competitors may be able to take advantage of our (and our licensors') development efforts to develop competing drugs.

We rely, and may in the future rely, upon a combination of patent, trade secret and trademark protection for elraglusib and any future product candidates and proprietary technologies to prevent third parties from exploiting our achievements, thus eroding our competitive position in our market. These legal measures afford only limited protection, and competitors or others may gain access to or use our intellectual property and proprietary information to our detriment. Our commercial success will depend in part on our ability to obtain, maintain, expand, enforce, and defend the scope, ownership or control, validity and enforceability of our intellectual property protection in the United States and other countries with respect to elraglusib and any future product candidates and other proprietary technologies we may develop. We may also seek to protect our proprietary position by acquiring or in-licensing relevant issued patents or pending patent applications from third parties. We have licensed patents on the original composition of matter patents

covering elraglusib from UIC. In addition, we own and have filed several new composition of matter patent applications that cover elraglusib polymorphs, which expire in 2038, with possibility for patent term extensions (PTEs).

The patent process is subject to numerous risks and uncertainties, and there can be no assurance that we will be successful in obtaining and defending patents. See "Business — Intellectual Property". These risks and uncertainties include without limitation the following:

- patents that may be issued or licensed may be challenged, invalidated, or circumvented; or may not provide any competitive advantage for other reasons;
- our licensors may terminate or breach our existing or future license agreements, thereby reducing or preventing our ability to exclude competition; termination of such license agreements may also subject us to risk of patent infringement of patents to which we no longer have a license;
- our competitors, many of whom have substantially greater resources than we do and have made significant investments in competing technologies, may seek, or may already have obtained, patents that will limit, interfere with, or eliminate our ability to make, use, and sell our potential products either in the United States or in international markets;
- intellectual property rights may subject to the risk of U.S. government 'march-in' rights under the Bayh-Dole Act. This legislation allows the federal government to intervene and grant licenses to third parties or take ownership of patents developed from federally funded research if it determines that such action is necessary to meet public health or safety needs, or if we fail to meet the requirements of the Act. Such government action could limit our exclusive rights, potentially reducing the commercial value of our potential products;
- as a matter of public policy regarding worldwide health concerns, there may be significant pressure on the U.S. government and other international governmental bodies to limit the scope of domestic and international patent protection for cancer treatments that prove successful; and
- countries other than the United States may have less restrictive patent laws than those upheld by the U.S. courts; therefore, non-U.S. competitors could exploit these laws to create, develop, and market competing products. In some countries, the legal compliance with pharmaceutical patents, patent applications and other intellectual property regulations is very weak or actively evaded in some cases with government aid.

In addition, the U.S. Patent and Trademark Office (USPTO) and patent offices in other jurisdictions have often required that patent applications concerning pharmaceutical and/or biotechnology-related inventions be limited or narrowed substantially to cover only the specific innovations exemplified in the patent application, thereby limiting their scope of protection against competitive challenges. Thus, even if we or our licensors are able to obtain patents, the patents may be substantially narrower than anticipated.

If we permit our patents to lapse or expire, we will not be protected and will have less of a competitive advantage. The value of our products may be greatly reduced if this occurs.

Our patents expire at different times and are subject to the laws of multiple countries. Some of our patents are currently near expiration and we may pursue PTEs for these where appropriate. See "Business — Intellectual Property".

In addition to patents, we also rely on trade secrets and proprietary know-how. While we take measures to protect this information by entering into confidentiality and invention agreements with our consultants and collaborators, we cannot provide any assurances that these agreements will be fully enforceable and will not be breached, that we will be able to protect ourselves from the harmful effects of disclosure if they are not fully enforceable or are breached, that any remedy for a breach will adequately compensate us, that these agreements will achieve their intended aims, or that our trade secrets will not otherwise become known or be independently discovered by competitors. If any of these events for which we cannot provide assurances occurs, or we otherwise lose protection for our trade secrets or proprietary know-how, the value of this information may be greatly reduced.

The patent protection we obtain and preserve for our product candidates may not be sufficient enough to provide us with any competitive advantage.

We may be subject to competition despite the existence of intellectual property we license or own. We can give no assurances that our intellectual property claims will be sufficient to prevent third parties from designing around patents we own or license and developing and commercializing competitive products. The existence of competitive products that avoid our intellectual property could materially adversely affect our operating results and financial condition. Furthermore, limitations, or perceived limitations, in our intellectual property may impact our ability to maintain a competitive edge in the market. While we hold patents and licenses, there's no guarantee that they will fully protect us from competitors who find ways to work around our intellectual property. If other companies create products that avoid infringing on our patents, it could significantly affect our financial performance.

Intellectual property disputes could require us to spend time and money to address such disputes and could limit our intellectual property rights.

The patent position of biopharmaceutical companies generally is highly uncertain, involves complex legal and factual questions, and has been the subject of much litigation in recent years. As a result, the issuance, scope, validity, enforceability, and commercial value of our patent rights are highly uncertain. Our current and future patent applications may not result in patents being issued. Any issued patents may not afford sufficient protection of elraglusib or any future product candidates or their intended uses against competitors, nor can there be any assurance that the issued patents will not be infringed, designed around, invalidated by third parties, or effectively prevent others from commercializing competitive technologies, products or elraglusib or any future product candidates. Further, even if these patents are granted, they may be difficult to enforce. Obtaining and maintaining our patent protection depends on compliance with various procedural, document submission, information disclosure, fee payment and other requirements imposed by governmental patent agencies, and our patent protection could be reduced or eliminated if we fail to comply with these requirements. In the event we experience noncompliance events that cannot be corrected, and we lose our patent rights, competitors could enter the market, which would have a material adverse effect on our business.

The biopharmaceutical industry has been characterized by extensive litigation regarding patents and other intellectual property rights, and companies have employed intellectual property litigation and USPTO post-grant proceedings to gain a competitive advantage. We may become subject to infringement claims or litigation arising out of patents and pending applications of our competitors, or additional interference proceedings declared by the USPTO to determine the priority and patentability of inventions. The defense and prosecution of intellectual property suits, USPTO proceedings, and related legal and administrative proceedings are costly and time-consuming to pursue, and their outcome is uncertain. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness, written description or non-enablement. In addition, patent validity challenges may, under certain circumstances, be based upon non-statutory obviousness-type double patenting, which, if successful, could result in a finding that the claims are invalid for obviousness-type double patenting or the loss of patent term, including a patent term adjustment granted by the USPTO. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld information material to patentability from the USPTO, or made a misleading statement, during prosecution. Litigation may be necessary to enforce our issued patents, to protect our trade secrets and know-how, or to determine the enforceability, scope, and validity of the proprietary rights of others. An adverse determination in litigation or USPTO post-grant and interference proceedings to which we may become a party could subject us to significant liabilities, require us to obtain licenses from third parties, or restrict or prevent us from selling our products in certain markets. Even if a given patent or intellectual property dispute were settled through licensing or similar arrangements, our costs associated with such arrangements may be substantial and could include the payment by us of large, fixed payments and ongoing royalties. Furthermore, the necessary licenses may not be available on satisfactory terms or at all. Even where we have meritorious claims or defenses, the costs of litigation may prevent us from pursuing these claims or defenses and/or may require extensive financial and personnel resources to pursue these claims or defenses. In addition, it is possible there may be defects of form in our current and future patents that could result in our

inability to defend the intended claims. Intellectual property disputes arising from the aforementioned factors, or other factors, may materially harm our business.

We may not be able to enforce our intellectual property rights throughout the world.

The laws of some foreign countries do not protect intellectual property rights to the same extent as the laws of the United States. Companies have encountered significant problems in protecting and defending intellectual property rights in certain foreign jurisdictions. The legal systems of some countries, particularly developing countries, do not favor the enforcement of patents and other intellectual property protection, especially those relating to life sciences. This could make it difficult for us to stop the infringement of our patents or the misappropriation of our other intellectual property rights. For example, many foreign countries have compulsory licensing laws under which a patent owner must grant licenses to third parties. In addition, many countries limit the enforceability of patents against third parties, including government agencies or government contractors. In these countries, patents may provide limited or no benefit.

Proceedings to enforce our patent rights in foreign jurisdictions, whether or not successful, could result in substantial costs and divert our efforts and attention from other aspects of our business. Furthermore, while we intend to protect our intellectual property rights in our expected significant markets, we cannot ensure that we will be able to initiate or maintain similar efforts in all jurisdictions in which we may wish to market elraglusib or any future products. Accordingly, our efforts to protect our intellectual property rights in such countries may be inadequate. In addition, changes in the law and legal decisions by courts in the United States and foreign countries may affect our ability to obtain and enforce adequate intellectual property protection for our products and technology.

If we are unable to protect the confidentiality of our trade secrets, our business and competitive position would be harmed.

In addition to seeking patent protection, we also rely on trade secrets, including unpatented know-how, technology and other proprietary information, to maintain our competitive position. We seek to protect these trade secrets, in part, by entering into non-disclosure and confidentiality agreements with parties who have access to them. Despite these efforts, these parties may breach the agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time-consuming, and the outcome is unpredictable. In addition, some courts inside and outside the United States, including in foreign jurisdictions, are less willing or unwilling to protect trade secrets. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor, we would have no right to prevent them from using that technology or information to compete with us. If any of our trade secrets were to be disclosed to or independently developed by a competitor, our competitive position would be harmed.

Changes to the patent law in the United States and other jurisdictions could diminish the value of patents in general, thereby impairing our ability to protect our product candidates.

As is the case with other biopharmaceutical companies, our success is heavily dependent on intellectual property, particularly patents. Changes in either the patent laws or their interpretation in the United States and other jurisdictions may diminish our ability to protect our intellectual property, obtain, maintain, expand, enforce and defend our intellectual property rights and, more generally, could affect the value of our intellectual property or narrow the scope of our protection. Obtaining and enforcing patents in the biopharmaceutical industry involves both technological and legal complexity. We cannot predict whether the patent applications we currently or may in the future pursue or may in-license will issue as patents in any particular jurisdiction, whether the claims of any issued patents will provide sufficient protection against competitors or other third parties, or if these patents are challenged by our competitors, whether the patents will be found to be invalid, unenforceable, or not infringed or not owned or controlled by us. The patent prosecution process is expensive, time-consuming, and complex, and we may not be able to file, prosecute, maintain, enforce, defend or license all necessary or desirable patent applications or patents at a reasonable cost or in a timely manner or in all jurisdictions. It is also possible that we will fail to identify patentable aspects of our research and development output in time to obtain patent protection. Therefore, obtaining

and enforcing biopharmaceutical patents is costly, time consuming and inherently uncertain. In addition, the United States has recently enacted and is currently implementing wide ranging patent reform legislation. The U.S. Supreme Court has ruled on several patent cases in recent years, either narrowing the scope of patent protection available in certain circumstances or weakening the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents once obtained. Depending on future actions by the U.S. Congress, the federal courts and the USPTO, as well as other jurisdictions around the world, the laws and regulations governing patents could change in unpredictable ways that would weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future.

Obtaining and maintaining our patent protection depends on compliance with various procedural, document submission, fee payment and other requirements imposed by governmental patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.

The USPTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other provisions during the patent process. There are situations in which noncompliance can result in abandonment or lapse of a patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, competitors might be able to enter the market earlier than would otherwise have been the case.

Patent terms may be inadequate to protect the competitive position of elraglusib or any future product candidates for an adequate amount of time.

Patents have a limited lifespan. In the United States, if all maintenance fees are timely paid, the natural expiration of a patent is generally 20 years from its earliest U.S. non-provisional or international patent application filing date. The patent term of a U.S. patent may be lengthened by patent term adjustment, which compensates a patentee for administrative delays by the USPTO in granting a patent, or may be shortened if a patent is terminally disclaimed over an earlier-filed patent.

Various extensions may be available, but the life of a patent, and the protection it affords, is limited. Even if patents covering elraglusib or any future product candidates are obtained, once the patent has expired, we may be vulnerable to competition from competitive products, including generics. Given the amount of time required for the development, testing and regulatory review of elraglusib or any future product candidates, patents protecting such product candidates might expire before or shortly after such product candidates are commercialized.

In the United States, the Drug Price Competition and Patent Term Restoration Act of 1984 permits a Patent Term Extension (PTE) of up to five years beyond the normal expiration of the patent to compensate patent owners for loss of enforceable patent term due to the lengthy regulatory approval process. A PTE grant cannot extend the remaining term of a patent beyond a total of 14 years from the date of the product approval. Further, PTE may only be applied once per product, and only with respect to an approved indication - in other words, only one patent (for example, covering the product itself, an approved use of said product, or a method of manufacturing said product) can be extended by PTE. We anticipate applying for PTE in the United States. Similar extensions may be available in other countries where we are prosecuting patents, and we likewise anticipate applying for such extensions.

The granting of such PTEs is not guaranteed and is subject to numerous requirements. We might not be granted an extension because of, for example, failure to apply within applicable periods, failure to apply prior to the expiration of relevant patents or otherwise failure to satisfy any of the numerous applicable requirements. In addition, to the extent we wish to pursue PTE based on a patent that we in-license from a third party, we would need the cooperation of that third party. Moreover, the applicable authorities, including the FDA and the USPTO in the United States, and any equivalent regulatory authority in other countries, may not agree with our assessment of whether such extensions are available, and may refuse to grant extensions to our patents, or may grant more limited extensions than we request. If this occurs, our competitors may be able to obtain approval of competing products following our patent expiration by referencing our clinical and preclinical data and launch their product earlier than might otherwise be the case. If this were to occur, it could have a material adverse effect on our ability to generate revenue.

If we fail to comply with our obligations under any license, collaboration or other intellectual property-related agreements, we may be required to pay damages and could lose intellectual property rights that may be necessary for developing, commercializing and protecting our current or future technologies or drug candidates or we could lose certain rights to grant sublicenses.

Any license, collaboration or other intellectual property-related agreements impose, and any future license, collaboration or other intellectual property-related agreements we enter into are likely to impose, various development, commercialization, funding, milestone, royalty, diligence, sublicensing, insurance, patent prosecution and enforcement or other obligations on us. If we breach any of these obligations, or use the intellectual property licensed to us in an unauthorized manner, we may be required to pay damages and the licensor may have the right to terminate the license. In spite of our best efforts, any of our future licensors might conclude that we have materially breached our license agreements and might therefore terminate the license agreements, thereby removing our ability to develop and commercialize products and technologies covered by these license agreements. Any license agreements we enter into may be complex, and certain provisions in such agreements may be susceptible to multiple interpretations. The resolution of any contract interpretation disagreement that may arise could narrow what we believe to be the scope our rights to the relevant intellectual property or technology, or increase what we believe to be our financial or other obligations under the relevant agreement, either of which could have a material adverse effect on our business, financial condition, results of operations, and prospects.

We may seek to obtain licenses from licensors in the future, however, we may be unable to obtain any such licenses at a reasonable cost or on reasonable terms, if at all. In addition, if any of our future licensors terminate any such license agreements, such license termination could result in our inability to develop, manufacture and sell products that are covered by the licensed technology or could enable a competitor to gain access to the licensed technology. Any of these events could have a material adverse effect on our competitive position, business, financial condition, results of operations, and ability to achieve profitability.

Furthermore, we may not have the right to control the preparation, filing, prosecution, maintenance, enforcement and defense of patents and patent applications that we license from third parties. Therefore, we cannot be certain that these patents and patent applications will be prepared, filed, prosecuted, maintained, enforced and defended in a manner consistent with the best interests of our business. If our future licensors fail to prosecute, maintain, enforce and defend patents we may in-license, or lose rights to licensed patents or patent applications, our license rights may be reduced or eliminated. In such circumstances, our right to develop and commercialize any of our products or drug candidates that is the subject of such licensed rights could be materially adversely affected. In certain circumstances, our licensed patent rights are subject to our reimbursing our licensors for their patent prosecution and maintenance costs.

Moreover, our licensors may own or control intellectual property that has not been licensed to us and, as a result, we may be subject to claims, regardless of their merit, that we are infringing, misappropriating or otherwise violating the licensor's intellectual property rights and the amount of any damages or future royalty obligations that would result, if any such claims were successful, would depend on the technology and intellectual property we use in products that we successfully develop and commercialize, if any. Therefore, even if we successfully develop and commercialize products, due to such obligations, we may be unable to achieve or maintain profitability.

We may be subject to claims challenging the inventorship or ownership of our patents and other intellectual property.

We may be subject to claims that former employees, consultants, licensees, collaborators or other third parties have an interest in our patent rights, trade secrets, or other intellectual property as an inventor, co-inventor or owner of trade secrets. For example, we may have inventorship or ownership disputes arise from conflicting obligations of consultants or others who are involved in developing elraglusib or any future product candidates and other proprietary technologies we may develop. Litigation may be necessary to defend against these and other claims challenging inventorship or ownership or our patent rights, trade secrets or other intellectual property. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights, such as ownership of, or the right to use intellectual property that is important to elraglusib or any future product candidates and other proprietary technologies we may develop. Even if we are successful in defending against such claims, litigation could result in

substantial costs and be a distraction to our management and other employees. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

Third parties may initiate legal proceedings alleging that we are infringing, misappropriating or otherwise violating their intellectual property rights, the outcome of which would be uncertain and could have a material adverse impact on the success of our business.

Our commercial success depends, in part, upon our ability or the ability of any of our future collaborators to develop, manufacture, market and sell our current or any future drug candidates and to use our proprietary technologies without infringing, misappropriating or otherwise violating the proprietary and intellectual property rights of third parties. The biotechnology and pharmaceutical industries are characterized by extensive and complex litigation regarding patents and other intellectual property rights.

We or any of our future licensors or strategic partners, may be party to, or be threatened with, adversarial proceedings or litigation regarding intellectual property rights with respect to our current or any potential future drug candidates and technologies, including derivation, reexamination, inter partes review, post-grant review or interference proceedings before the USPTO and similar proceedings in jurisdictions outside of the United States such as opposition proceedings. If we or our licensors or strategic partners are unsuccessful in any interference proceedings or other priority or validity disputes (including through any patent oppositions) to which we or they are subject, we may lose valuable intellectual property rights through the loss of one or more patents or our patent claims may be narrowed, invalidated, or held unenforceable. In some instances, we may be required to indemnify our licensors or strategic partners for the costs associated with any such adversarial proceedings or litigation. Third parties may also assert infringement, misappropriation or other claims against us, our licensors or our strategic partners based on existing patents or patents that may be granted in the future, as well as other intellectual property rights, regardless of their merit. There is a risk that third parties may choose to engage in litigation or other adversarial proceedings with us, our licensors or our strategic partners to enforce or otherwise assert their patent rights or other intellectual property rights. Even if we believe such claims are without merit, a court of competent jurisdiction could hold that these third-party patents and other intellectual property rights are valid, enforceable and infringed, which could have a material adverse impact on our ability to utilize our developed technologies or to commercialize our current or any future drug candidates deemed to be infringing. In order to successfully challenge the validity of any such U.S. patent in federal court, we would need to overcome a presumption of validity by presenting clear and convincing evidence of invalidity. There is no assurance that a court of competent jurisdiction, even if presented with evidence we believe to be clear and convincing, will agree with our position on the validity of any U.S. patent.

Intellectual property rights of third parties could adversely affect our ability to commercialize our current or future technologies or drug candidates, and we might be required to litigate or obtain licenses from third parties to develop or market our current or future technologies or drug candidates, which may not be available on commercially reasonable terms, or at all.

There are numerous companies that have pending patent applications and issued patents broadly covering small molecules directed against the same targets as, or targets similar to, those we are pursuing. Our competitive position may materially suffer if patents issued to third parties or other third-party intellectual property rights cover our current or future technologies, drug candidates or elements thereof, or our manufacture or uses relevant to our development plans. In such cases, we may not be in a position to develop or commercialize current or future technologies or drug candidates unless we successfully pursue litigation to nullify or invalidate the third-party intellectual property rights concerned, or enter into a license agreement with the intellectual property rights holder, if available on commercially reasonable terms. There may be issued patents of which we are not aware, held by third parties that, if found to be valid and enforceable, could be alleged to be infringed by our current or future technologies or drug candidates. There also may be pending patent applications of which we are not aware that may result in issued patents, which could be alleged to be infringed by our current or future technologies or drug candidates.

Should such an infringement claim be successfully brought, we may be required to pay substantial damages or be forced to abandon our current or future technologies or drug candidates or to seek a license from any patent holders. No assurances can be given that a license will be available on commercially reasonable terms, if at all.

Third-party intellectual property rights holders may also actively bring infringement, misappropriation or other claims alleging violations of intellectual property rights against us. We cannot guarantee that we will be able to successfully settle or otherwise resolve such claims. If we are unable to successfully settle future claims on terms acceptable to us, we may be required to engage in or to continue costly, unpredictable and time-consuming litigation and may be prevented from, or experience substantial delays in, marketing our drug candidates. If we fail in any such dispute, in addition to being forced to pay damages, we may be temporarily or permanently prohibited from commercializing any of our current or future technologies or drug candidates that are held to be infringing, misappropriating or otherwise violating third-party intellectual property rights. We might, if possible, also be forced to redesign current or future technologies or drug candidates so that we no longer infringe, misappropriate or violate the third-party intellectual property rights. Any of these events, even if we were ultimately to prevail, could require us to divert substantial financial and management resources that we would otherwise be able to devote to our business, which could have a material adverse effect on our financial condition and results of operations.

We may be subject to claims that our employees, consultants, or advisors have wrongfully used or disclosed alleged trade secrets of their current or former employers or claims asserting ownership of what we regard as our own intellectual property.

Some of our employees, consultants and advisors are currently or were previously employed at universities or other biotechnology or pharmaceutical companies, including our competitors or potential competitors. Although we try to ensure that our employees, consultants and advisors do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that we or these individuals have used or disclosed intellectual property, including trade secrets or other proprietary information, of any such individual's current or former employer. Litigation may be necessary to defend against these claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to our management.

In addition, while it is our policy to require our employees and contractors who may be involved in the conception or development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who, in fact, conceives or develops intellectual property that we regard as our own. The assignment of intellectual property rights may not be self-executing, or the assignment agreements may be breached, and we may be forced to bring claims against third parties, or defend claims that they may bring against us, to determine the ownership of what we regard as our intellectual property. Such claims could have a material adverse effect on our business, financial condition, results of operations and prospects.

Some intellectual property which we own or have licensed, or which may acquire or license in the future, may have been, or may be, discovered through government funded programs and thus may be subject to federal regulations such as "march-in" rights, certain reporting requirements, and a preference for United States industry. Compliance with such regulations may limit our exclusive rights, subject us to expenditure of resources with respect to reporting requirements and limit our ability to contract with non-U.S. manufacturers.

Some of the intellectual property rights we own or have licensed, or which we may acquire or license in the future, have been or may be generated using U.S. government funding and may therefore be subject to certain federal regulations. As a result, the U.S. government may have certain rights to intellectual property embodied in our current or future products and product candidates pursuant to the Bayh-Dole Act of 1980. These U.S. government rights in certain inventions developed under a government-funded program include a non-exclusive, non-transferable, irrevocable worldwide license to use inventions for any governmental purpose. In addition, the U.S. government has the right to require us to grant exclusive, partially exclusive, or non-exclusive licenses to any of these inventions to a third party if it determines that: (i) adequate steps have not been taken to commercialize the invention; (ii) government action is necessary to meet public health or safety needs; or (iii) government action is necessary to meet requirements for public use under federal regulations (also referred to as "march-in rights"). The U.S. government also has the right to take title to these inventions if we fail to disclose the invention to the government and fail to file an application to register the intellectual property within specified time limits. In addition, the U.S. government may acquire title to these inventions in any country in which a patent application is not filed within specified time

limits. Intellectual property generated under a government funded program is also subject to certain reporting requirements, compliance with which may require us to expend substantial resources. In addition, the U.S. government requires that any products embodying the subject invention or produced using the subject invention be manufactured substantially in the United States. The manufacturing preference requirement can be waived if the owner of the intellectual property can show that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the United States or that under the circumstances domestic manufacture is not commercially feasible. This preference for U.S. manufacturers may limit our ability to contract with non-U.S. product manufacturers for products covered by such intellectual property and such requirement may be subject to interpretation as to compliance with the notion that a product is "substantially" manufactured in the United States when components are sourced elsewhere and finally assembled or formulated within the United States. Any exercise by the government of any of the foregoing rights, or breach by us with respect to our obligations to comply with applicable requirements, could harm our competitive position, business, financial condition, results of operations and prospects.

Risks Related to Our Business Operations and Industry

If we lose key management leadership, and/or scientific personnel, and if we cannot recruit qualified employees, managers, directors, officers, or other significant personnel, we may experience program delays and increases in compensation costs, and our business may be materially disrupted.

Our future success is highly dependent on the continued service of principal members of our management, leadership, and scientific personnel, who are able to terminate their employment with us at any time and may be able to compete with us. The loss of any of our key management, leadership, or scientific personnel including, in particular, Daniel M, Schmitt, our President and CEO, and Andrew P. Mazar, our Chief Operating Officer, could materially disrupt our business and materially delay or prevent the successful product development and commercialization of our product candidates. We have employment agreements with Mr. Schmitt and Dr. Mazar which have no term but are for at-will employment, meaning the executives have the ability to terminate their employment at any time.

Our chief financial officer, Paul Lytle, was appointed in February 2024 and has been providing such services as a consultant rather than as a full-time employee, following his consulting engagement to assist with our finance and accounting matters from December 20, 2023. We have entered into an employment agreement with Mr. Lytle under which he will become a full-time employee effective June 1, 2024. In addition, Mr. Lytle is also co-founder of a private biopharmaceutical company, where he currently also serves as its chief financial officer, as well as a co-founder of a public development-stage biotechnology company, where he currently serves on its board of directors and as its executive vice president, chief financial officer. While we believe that Mr. Lytle will devote adequate time to our business to perform the role and duties of our chief financial officer, we cannot guarantee that he will continue to do so in the future. Additionally, while we do not believe that Mr. Lytle currently faces any conflicts of interest, including conflicts in allocating time to our business, Mr. Lytle may face conflicts of interest in the future. If Mr. Lytle cannot devote adequate time to us to fulfill his role and duties as chief financial officer or if any conflicts of interest arise, it could have a material adverse impact on our operations.

Our future success will also depend on our continuing ability to identify, hire, and retain highly skilled personnel for all areas of the organization. Competition in the biopharmaceutical industry for scientifically and technically qualified personnel is intense, and we may be unsuccessful in identifying, hiring, and retaining qualified personnel. Our continued requirement to identify, hire, and retain highly competent personnel may cause our compensation costs to increase materially. As of December 31, 2023, we had 5 full-time employees and as of March 31, 2024, we had 10 full-time employees. As our clinical development and commercialization plans and strategies develop, we will need to expand our managerial, clinical, regulatory, sales, marketing, financial, development, manufacturing and legal capabilities or contract with third parties to provide these capabilities for us. As our operations expand, we expect that we will need to manage additional relationships with various strategic collaborators, suppliers and other third parties. Our future growth would impose significant added responsibilities on members of management, including:

- identifying, recruiting, integrating, maintaining and motivating additional employees;

- managing our development and commercialization efforts effectively, while complying with our contractual obligations to contractors and other third parties; and
- improving our operational, financial and management controls, reporting systems and procedures.

Our ability to continue to develop and, if approved, commercialize our product candidates will depend, in part, on our ability to effectively manage any future growth. Our management may also have to divert a disproportionate amount of its attention away from day-to-day activities in order to devote a substantial amount of time to managing these growth activities.

We currently rely, and for the foreseeable future will continue to rely, in substantial part on certain independent organizations, advisors and consultants to provide certain services, including contract manufacturers and companies focused on research and development activities. There can be no assurance that the services of independent organizations, advisors and consultants will continue to be available to us on a timely basis when needed, or that we can find qualified replacements. In addition, if we are unable to effectively manage our outsourced activities or if the quality, accuracy or quantity of the services provided is compromised for any reason, our clinical trials may be extended, delayed or terminated, and we may not be able to obtain, or may be substantially delayed in obtaining, regulatory approval of our product candidates or otherwise advance our business.

We face significant competition from other biotechnology and pharmaceutical companies, and our operating results will suffer if we fail to compete effectively.

The development and commercialization of new drug products is highly competitive. We may face competition with respect to any product candidates that we seek to develop or commercialize in the future from major biopharmaceutical companies, specialty biopharmaceutical companies and biotechnology companies worldwide. Potential competitors also include academic institutions, government agencies, and other public and private research organizations that conduct research, seek patent protection and establish collaborative arrangements for research, development, manufacturing, and commercialization.

A highly effective treatment for cancer is a desirable target for the pharma industry. There is significant activity in this space as indicated by the partial listing of current products in clinical trials included elsewhere in this prospectus. Although none of the active pharmaceutical ingredients in current clinical trials are directed toward the mechanism of action of elraglusib, there can be no assurance that a large biopharmaceutical or biotechnology company will not pursue the commercialization or development of products competitive with elraglusib in the future. Many of these potential competitors, either alone or with their strategic partners, have significantly greater financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical trials, obtaining regulatory approvals, and marketing approved products than we do.

Mergers and acquisitions in the biopharmaceutical and biotechnology industries may result in even more resources being concentrated among a smaller number of our potential competitors. Smaller or early stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These competitors also compete with us in recruiting and retaining qualified scientific and management personnel and establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs. Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize products that are safer, more effective, more convenient, or less expensive than any products that we may develop. Our competitors also may obtain FDA or other regulatory approval for their products more rapidly than we may obtain approval for ours, which could result in our competitors establishing a strong market position before we are able to enter the market. Additionally, products or technologies developed by our competitors may render our potential product candidates uneconomical or obsolete and we may not be successful in marketing any product candidates we may develop against competitors. The availability of competitive products could limit the demand, and the price we are able to charge, for any products that we may develop and commercialize.

As a recently established entity, we have a limited operating history.

We have engaged exclusively in licensing rights to product candidates and entering into collaboration agreements with respect to key services or technologies for our drug product development, and have not

received any governmental approvals, brought any product to market, manufactured products in clinical or commercial quantities or sold any pharmaceutical products. As a company we have limited experience in negotiating, establishing, and maintaining strategic relationships, conducting clinical trials, and managing the regulatory approval process, all of which will be necessary if we are to be successful. Our lack of experience in these critical areas makes it difficult for a prospective investor to evaluate our abilities and increases the risk that we will fail to successfully execute our strategies.

Furthermore, if our business grows rapidly, our operational, managerial, legal, and financial resources will be strained. Our development will require continued improvement and expansion of our management team and our operational, managerial, legal, and financial systems and controls.

In the normal course of business, we have evaluated and expect to evaluate potential acquisitions and/or licenses of patents, compounds, and technologies that our management believes could complement or expand our business. We have a limited history of conducting acquisitions and negotiating and acquiring licenses. In the event that we identify an acquisition or license candidate we find attractive, there is no assurance that we will be successful in negotiating an agreement to acquire or license, or in financing or profitably exploiting, such patents, compounds, or technologies. Furthermore, such an acquisition or license could divert management time and resources away from other activities that would further our current business development.

We may be subject to various U.S. federal, state and foreign healthcare laws and regulations, which could increase compliance costs, and our failure to comply with these laws and regulations could harm our reputation, subject us to significant fines and liability or otherwise adversely affect our business.

Our business operations and current and future arrangements with investigators, healthcare professionals, consultants, third-party payors, patient organizations and customers expose us to broadly applicable foreign, federal and state fraud and abuse and other healthcare laws and regulations. These laws may constrain the business or financial arrangements and relationships through which we conduct our operations, including how we research, market, sell and distribute any products for which we obtain regulatory approval. Such laws include:

- the federal Anti-Kickback Statute, which prohibits, among other things, persons or entities from knowingly and willfully soliciting, offering, receiving or providing any remuneration (including any kickback, bribe or certain rebates), directly or indirectly, overtly or covertly, in cash or in kind, in return for, either the referral of an individual or the purchase, lease, or order, or arranging for or recommending the purchase, lease, or order of any good, facility, item or service, for which payment may be made, in whole or in part, under a federal healthcare program such as Medicare and Medicaid. A person or entity does not need to have actual knowledge of the federal Anti-Kickback Statute or specific intent to violate it in order to have committed a violation;
- the federal false claims laws, including the civil False Claims Act, and civil monetary penalties laws, which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, to the federal government, claims for payment or approval that are false or fraudulent, knowingly making, using or causing to be made or used, a false record or statement material to a false or fraudulent claim, or from knowingly making or causing to be made a false statement to avoid, decrease or conceal an obligation to pay money to the federal government. In addition, the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the civil False Claims Act;
- the federal Health Insurance Portability and Accountability Act of 1996 (HIPAA), which imposes criminal and civil liability for, among other things, knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program, or knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statement, in connection with the delivery of, or payment for, healthcare benefits, items or services. Similar to the federal Anti-Kickback Statute, a person or entity does not need to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation;
- the federal Physician Payments Sunshine Act, which requires certain manufacturers of drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or

the Children's Health Insurance Program (with certain exceptions) to report annually to the Centers for Medicare & Medicaid Services (CMS), information related to payments and other "transfers of value" made to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors), certain non-physician practitioners (physician assistants, nurse practitioners, clinical nurse specialists, certified nurse anesthetists, anesthesiology assistants and certified nurse-midwives), and teaching hospitals and other healthcare providers, as well as ownership and investment interests held by physicians and their immediate family members; and

- analogous state and foreign laws and regulations, such as state anti-kickback and false claims laws, which may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third-party payors, including private insurers; some state laws require biopharmaceutical companies to comply with the biopharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government and may require drug manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures; some state laws that require biopharmaceutical companies to report information on the pricing of certain drug products; and some state and local laws that require the registration or pharmaceutical sales representatives.

Efforts to ensure that our current and future business arrangements with third parties will comply with applicable healthcare and privacy laws and regulations will involve ongoing substantial costs. It is possible that governmental authorities will conclude that our business practices, including certain consulting agreements and advisory board agreements we have entered into with physicians who are paid, in part, in the form of stock or stock options, may not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. Due to the breadth of these laws, the narrowness of statutory exceptions and regulatory safe harbors available, and the range of interpretations to which they are subject, it is possible that some of our current or future practices might be challenged under one or more of these laws. If our operations are found to be in violation of any of these laws or any other governmental regulations that may apply to us, we may be subject to significant penalties, including civil, criminal and administrative penalties, damages, fines, disgorgement, imprisonment, exclusion from participation in government-funded healthcare programs, such as Medicare and Medicaid, integrity oversight and reporting obligations, contractual damages, reputational harm, diminished profits and future earnings and the curtailment or restructuring of our operations. Defending against any such actions can be costly and time-consuming and may require significant financial and personnel resources. Therefore, even if we are successful in defending against any such actions that may be brought against us, our business may be impaired. Further, if any of the physicians or other healthcare providers or entities with whom we expect to do business are found not to be in compliance with applicable laws or regulations, they may be subject to significant criminal, civil or administrative sanctions, including exclusions from government-funded healthcare programs.

We are an emerging growth company and a smaller reporting company, and the reduced disclosure requirements applicable to emerging growth companies and smaller reporting companies may make our common stock less attractive to investors.

We are an emerging growth company, as defined in the JOBS Act, and may remain an emerging growth company until the last day of the fiscal year following the fifth anniversary of the completion of this offering. However, if certain events occur prior to the end of such five-year period, including if we become a "large accelerated filer", as defined under the Securities and Exchange Act of 1934, as amended (the Exchange Act), our annual gross revenue exceeds $1.235 billion or we issue more than $1.0 billion of non-convertible debt in any three-year period, we will cease to be an emerging growth company prior to the end of such five-year period. For so long as we remain an emerging growth company, we are permitted and intend to rely on exemptions from certain disclosure requirements that are applicable to other public companies that are not emerging growth companies. These exemptions include:

- being permitted to provide only two years of audited financial statements, in addition to any required unaudited interim financial statements, with correspondingly reduced "Management's Discussion and Analysis of Financial Condition and Results of Operations" disclosure;

- not being required to comply with the auditor attestation requirements in the assessment of our internal control over financial reporting pursuant to the Sarbanes-Oxley Act of 2002 (Sarbanes-Oxley);
- not being required to comply with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor's report providing additional information about the audit and the financial statements, unless the Securities and Exchange Commission (SEC) determines the new rules are necessary for protecting the public;
- reduced disclosure obligations regarding executive compensation; and
- exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved.

We have taken advantage of reduced reporting burdens in this prospectus. In particular, in this prospectus, we have provided only two years of audited financial statements and have not included all of the executive compensation-related information that would be required if we were not an emerging growth company. We cannot predict whether investors will find our common stock less attractive if we rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be reduced or more volatile. In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This allows an emerging growth company to delay the adoption of these accounting standards until they would otherwise apply to private companies. We have irrevocably elected to avail ourselves of this exemption and, therefore, we may not be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies. We intend to rely on other exemptions provided by the JOBS Act, including without limitation, not being required to comply with the auditor attestation requirements of Section 404(b) of Sarbanes-Oxley.

We are also a smaller reporting company as defined in the Exchange Act. We may continue to be a smaller reporting company even after we are no longer an emerging growth company. We may take advantage of certain of the scaled disclosures available to smaller reporting companies and will be able to take advantage of these scaled disclosures for so long as our voting and non-voting common stock held by non-affiliates is less than $250.0 million measured on the last business day of our second fiscal quarter, or our annual revenue is less than $100.0 million during the most recently completed fiscal year and our voting and non-voting common stock held by non-affiliates is less than $700.0 million measured on the last business day of our second fiscal quarter.

Competition and technological change may make our product candidates less competitive or obsolete.

The biopharmaceutical industry is subject to rapid technological change. We have many potential competitors, including major drug and chemical companies, specialized biopharmaceutical firms, universities and other research institutions. These companies, firms, and other institutions may develop products that are more effective than our product candidates or that would make our product candidates less competitive or obsolete. Many of these companies, firms, and other institutions have greater financial resources than us and may be better able to withstand and respond to adverse market conditions within the biopharmaceutical industry, including without limitation the lengthy regulatory approval process for product candidates.

We may engage in strategic transactions that could impact our liquidity, increase our expenses and present significant distractions to our management.

From time to time, we may consider strategic transactions, such as acquisitions of companies, asset purchases, and out-licensing or in-licensing of products, product candidates or technologies. Additional potential transactions that we may consider include a variety of different business arrangements, including spin-offs, strategic partnerships, joint ventures, restructurings, divestitures, business combinations and investments. Any such transaction may require us to incur non-recurring or other charges, may increase our near- and long-term expenditures and may pose significant integration challenges or disrupt our

management or business, which could adversely affect our operations and financial results. For example, these transactions may entail numerous operational and financial risks, including:

- exposure to unknown liabilities;
- disruption of our business and diversion of our management's time and attention in order to develop acquired products, product candidates or technologies;
- incurrence of substantial debt or dilutive issuances of equity securities to pay for acquisitions;
- higher-than-expected acquisition and integration costs;
- write-downs of assets, goodwill or impairment charges;
- increased amortization expenses;
- difficulty and cost in combining the operations and personnel of any acquired businesses with our operations and personnel;
- impairment of relationships with key suppliers or customers of any acquired businesses due to changes in management and ownership; and
- inability to retain key employees of any acquired businesses.

Accordingly, although there can be no assurance that we will undertake or successfully complete any transactions of the nature described above, any transactions that we do complete may be subject to the foregoing or other risks, and could have a material adverse effect on our business, results of operations, financial condition and prospects.

If product liability lawsuits are brought against us, we may incur substantial costs to defend them and address any damages awarded, and demand for our products could be reduced as a result of such lawsuits.

The testing and marketing of medical products is subject to an inherent risk of product liability claims, including a possibility in some states for product liability claims being made based on generic copies of our drugs. While we do have liability insurance coverage, regardless of their merit or eventual outcome, product liability claims may result in:

- withdrawal of clinical trial volunteers;
- decreased demand for our products when approved;
- injury to our reputation and significant, adverse media attention; and
- potentially significant litigation costs, including without limitation, any damages awarded to the plaintiffs if we lose or settle claims.

Our information technology systems, or those of any of our service providers, may fail or suffer security incidents and other disruptions, which could result in a material disruption of our development programs, compromise sensitive information related to our business or prevent us from accessing critical information, potentially exposing us to liability or otherwise adversely affecting our business.

In the ordinary course of business, we collect, store and transmit confidential information (including but not limited to intellectual property, proprietary and confidential business information and personal information). Our information technology systems and those of our third-party service providers, strategic partners and other contractors or consultants are vulnerable to attack, damage and interruption from computer viruses and malware (e.g. ransomware), malicious code, natural disasters, terrorism, war, telecommunication and electrical failures, hacking, cyberattacks, phishing attacks and other social engineering schemes, employee theft or misuse, human error, fraud, denial or degradation of service attacks, sophisticated nation-state and nation-state-supported actors or unauthorized access or use by persons inside our organization, or persons with access to systems inside our organization. In addition, attacks upon information technology systems are increasing in their frequency, levels of persistence, sophistication and intensity, and are being conducted by sophisticated and organized groups and individuals with a wide range of motives and expertise. Furthermore, because the techniques used to obtain unauthorized access to, or

to sabotage, systems change frequently and often are not recognized until launched against a target, we may be unable to anticipate these techniques or implement adequate preventative measures. We may also experience security incidents that may remain undetected for an extended period. Even if identified, we may be unable to adequately investigate or remediate incidents or breaches due to attackers increasingly using tools and techniques that are designed to circumvent controls, to avoid detection, and to remove or obfuscate forensic evidence.

We and certain of our service providers are from time to time subject to cyberattacks and security incidents. While we do not believe that we have experienced any material system failure, accident or security breach to date, if any such event, whether actual or perceived, were to occur, it could impact our reputation and/or operations, cause us to incur significant costs, including legal expenses, harm customer confidence, hurt our expansion into new markets, cause us to incur remediation costs, or cause us to lose existing customers. For example, the loss of clinical trial data from clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. We also rely on a third party to manufacture elraglusib, and similar events relating to their computer systems could also have a material adverse effect on our business. To the extent that any actual or perceived disruption or security incident affects our systems (or those of our third-party collaborators, service providers, contractors or consultants) or were to result in a loss of or accidental, unlawful or unauthorized access to, use of, release of, or other processing of personally identifiable information, or damage to, our confidential or proprietary data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability, the further development and commercialization of elraglusib or any future product candidates could be delayed, and we could be subject to significant fines, penalties or liabilities for any noncompliance to certain privacy and security laws.

We have also outsourced elements of our information technology infrastructure, and as a result a number of third-party vendors may or could have access to our confidential information. If our third-party vendors fail to protect their information technology systems and our confidential and proprietary information, we may be vulnerable to disruptions in service and unauthorized access to our confidential or proprietary information and we could incur liability and reputational damage. If the information technology systems of our third-party vendors and other contractors and consultants become subject to disruptions or security breaches, we may have insufficient recourse against such third parties and we may have to expend significant resources to mitigate the impact of such an event, and to develop and implement protections to prevent future events of this nature from occurring. Some of the federal, state and foreign government requirements include obligations of companies to notify individuals of security breaches involving particular categories of personally identifiable information, which could result from incidents experienced by us or by our vendors, contractors, or organizations with which we have formed strategic relationships. Our contracts may not contain limitations of liability, and even where they do, there can be no assurance that limitations of liability in our contracts are sufficient to protect us from liabilities, damages, or claims related to our data privacy and security obligations. Although we currently hold cybersecurity insurance, the costs related to significant security breaches or disruptions could be material and cause us to incur significant expenses.

Failure to comply with health privacy and other data protection laws and regulations could lead to government enforcement actions (which could include civil or criminal penalties), private litigation or adverse publicity and could negatively affect our operating results and business.

We and our service providers maintain and will maintain a large quantity of sensitive and/or regulated information, including confidential business and patient health information, personal data about our employees and collaborators, and information relating to our clinical trials. The global data protection landscape is rapidly evolving, and we, our service providers and our collaborators may be affected by or subject to existing, amended, or new laws and regulations in the future, including as our operations continue to expand or if we operate in foreign jurisdictions. These laws and regulations may be subject to differing interpretations, thus creating potentially complex compliance issues for us and our service providers, strategic partners and future customers. The cost of compliance with these laws, regulations and standards is high and is likely to increase in the future. Any failure or perceived failure by us to comply with federal, state or foreign laws or regulations, our internal policies and procedures or our contracts governing our processing of personal information could result in negative publicity, government investigations and enforcement

actions, claims by third parties and damage to our reputation, any of which could have a material adverse effect on our business, financial condition, results of operations and prospects.

In the United States, numerous federal and state laws and regulations, including federal health information privacy laws (e.g., the Health Insurance Portability and Accountability Act (HIPAA), as amended by the Health Information Technology for Economic and Clinical Health Act (HITECH)), state data breach notification laws, state health information privacy laws and federal and state consumer protection laws (e.g., Section 5 of the Federal Trade Commission Act), that govern the collection, use, disclosure and protection of health-related and other personal information could apply to our operations or the operations of our collaborators. In addition, we may obtain health information from third parties (including research institutions from which we obtain clinical trial data) that are subject to privacy and security requirements under HIPAA, as amended by HITECH, or other privacy and data security laws. Depending on the facts and circumstances, we could be subject to criminal penalties if we knowingly obtain, use, or disclose individually identifiable health information maintained by a HIPAA-covered entity in a manner that is not authorized or permitted by HIPAA. State legislatures in Washington, Nevada, and Connecticut have recently enacted legislation to protect consumer health information that is not covered by HIPAA. In addition to detailed and specific requirements for the collection, use, disclosure, retention, and safeguarding of consumer health data, the Washington My Health My Data Act (MHMDA) (effective March 31, 2024) provides a private right of action to consumers for violations of the Act.

Our uses of personal data may also be subject to state comprehensive data privacy laws, including, without limitation, the California Consumer Privacy Act and regulations promulgated thereunder (CCPA), which came into effect in 2020. At the start of 2023, the CCPA was expanded in several ways, including by extending its application to employees, job applicants and business-to-business contacts in addition to consumers. The CCPA requires us to make disclosures about our data collection, use, and sharing practices with respect to personal information, and allows California residents to request access, deletion and correction of their personal data, as well as providing the right to opt out of certain data use and sharing practices. The CCPA is primarily enforced by the California Privacy Protection Agency and the California Attorney General, which have the power to seek penalties of up to $7,500 per violation. The CCPA also allows the recovery of statutory damages in the event of a data breach. Ongoing rulemaking by the California Privacy Protection Agency is likely to result in additional requirements, increasing the level of risk associated with CCPA compliance.

Several other U.S. states have also passed comprehensive data privacy laws, which are currently in effect or will take effect over the next few years. Generally, these laws apply to consumer personal data. For example, Virginia enacted the Virginia Consumer Data Protection Act (VCDPA), which came into effect on January 1, 2023; Colorado enacted the Colorado Privacy Act (CPA), which came into effect on July 1, 2023; Connecticut enacted the Connecticut Data Privacy Act (CTDPA), which came into effect on July 1, 2023; and Utah enacted the Utah Consumer Privacy Act (UCPA), which came into effect on December 31, 2023. Other states have enacted similar laws that will come into effect on future dates: Texas has enacted the Texas Data Privacy and Security Act (TDPSA) (effective July 1, 2024); Florida has enacted the Florida Digital Bill of Rights (FDBR) (effective July 1, 2024); Oregon has passed the Oregon Consumer Privacy Act (OCPA) (effective July 1, 2024); Montana has enacted the Montana Consumer Data Privacy Act (MCDPA) (effective October 1, 2024); Iowa has enacted the Iowa Consumer Data Protection Act (ICDPA) (effective January 1, 2025); the New Hampshire Legislature has passed the New Hampshire Privacy Act (NHPA) (effective January 1, 2025); Delaware has enacted the Delaware Personal Data Privacy Act (DPDPA) (effective January 1, 2025); New Jersey has enacted New Jersey S332/A1971 (effective January 15, 2025); Tennessee has enacted the Tennessee Information Protection Act (TIPA) (effective July 1, 2025); and Indiana has enacted the Indiana Consumer Data Protection Act (INCDPA) (effective January 1, 2026). Similar legislation is pending in several other states. At a high level, these comprehensive state privacy laws require us to make new disclosures about personal data collection, use, and sharing practices and to adjust or develop internal compliance measures, such as those related to personal data security, vendor contracting, personal data retention and privacy assessments. They grant certain privacy rights to consumers, including the rights to access, collect and delete personal data. Consumers also have opt-in and opt-out rights that vary based on the applicable state law and the type of personal data, but broadly include the ability to tell a company not to use personal data for targeted advertising or not to sell personal data, which can include sales for monetary

or other valuable consideration in most states. These state comprehensive privacy laws are generally enforced by state attorneys general, and typically provide for fines of up to $7,500 per violation, with higher penalties in some states.

In addition, several states and localities have enacted statutes restricting the collection and use of biometric information. For example, the Illinois Biometric Information Privacy Act (BIPA), Texas Biometric Privacy Act (TBPA), the Washington Biometric Privacy Law, and the Washington MHMDA regulate the collection, use, safeguarding, and storage of biometric information and provide for substantial penalties and statutory damages, with BIPA and MHMDA also creating a private right of action for violations. Since its enactment, BIPA has generated significant class action activity.

International data protection laws may also apply to health-related and other personal information we collect. In the EU, the collection, use, disclosure, transfer, and other processing of personal data is governed by the EU General Data Protection Regulation 2016/679 (EU GDPR), which came into effect in May 2018. The GDPR has also been implemented in the UK (UK GDPR, and together with the EU GDPR, the GDPR). The GDPR, among other things, imposes: (i) accountability and transparency requirements, which require controllers to demonstrate and record compliance with the GDPR and provide detailed information to data subjects regarding processing of personal data; (ii) requirements for obtaining valid consent; (iii) obligations to consider data protection as new products or services are developed and to limit the amount of personal data processed; (iv) obligations to comply with data protection rights of data subjects including a right of access to and rectification of personal data, a right to obtain restriction of processing or to object to processing of personal data, and a right to ask for a copy of personal data to be provided to a third party in a useable format and erasing personal data in certain circumstances; (v) obligations to implement appropriate technical and organizational security measures to safeguard personal data; and (vi) obligations to report certain personal data breaches to the relevant supervisory authority without undue delay (and no later than 72 hours where feasible). Both the EU GDPR and the UK GDPR prohibit the transfer of personal data to other countries that are not recognized as having “adequate” data protection laws. For personal data transfers from the EU or UK to the United States, additional safeguards such as adoption of standard contractual clauses (SCCs) or compliance with the Trans-Atlantic Data Privacy Framework (DPF) and the UK and Swiss extensions of the DPF are required. Data transfers from the EU to the US have been the subject or repeated legal challenges, including a July 2020 decision by the Court of Justice of the EU that invalidated a prior transfer mechanism known as Privacy Shield. The EU GDPR provides for fines for violations of up to the higher of 4% of annual worldwide turnover or €20,000,000 (and in respect of the UK GDPR, GBP17,500,000). The GDPR identifies a list of points to consider when determining the level of fines to impose (including the nature, gravity and duration of the infringement). Data subjects also have a right to compensation for financial or non-financial losses (e.g., distress).

Other countries in which we have or plan to do business have also enacted laws regulating the collection, use, disclosure, transfer and processing of personal data. For example, China has enacted the Personal Information Protection Law (PIPL) and Cybersecurity Law, Canada the Personal Information Protection and Electronic Documents Act (PIPEDA), Australia the Privacy Act 1988 (the Privacy Act), Japan the Act on the Protection of Personal Information (APPI), Brazil the General Data Protection Law (LGPD), and Mexico the Federal Law on the Protection of Personal Data held by Private Parties (FLPPDPP), all of which govern the collection, use, disclosure and transfer of personal data. Other countries have already enacted, or considering enacting, similar legislation. To the extent that the GDPR, PIPL, Chinese Cybersecurity Law, PIPEDA, Australian Privacy Act, APPI, LGPD, FLPPDPP, and similar laws apply or will in the future apply to us, complying with their requirements may require substantial amendments to our procedures and policies. The changes could adversely impact our business by increasing its operational and compliance costs, and further, there is a risk that the measures will not be implemented correctly or that individuals within the business will not be fully compliant with the new procedures.

The legal framework around privacy issues is rapidly evolving, as various federal, state and foreign government bodies are considering adopting new privacy laws and regulations and providing guidance on current laws and regulations, which could result in significant limitations on or changes to the ways in which we can collect, use, host, store, or transmit personal data. Compliance with U.S. and international data protection laws and regulations could require us to take on more onerous obligations in our contracts, restrict our ability to collect, use and disclose data, or in some cases, impact our ability to operate in certain

jurisdictions. Failure to comply with U.S. and international data protection laws and regulations could result in government enforcement actions (which could include civil or criminal penalties), private litigation or adverse publicity and could negatively affect our operating results and business.

If we do not comply with laws regulating the protection of the environment and health and human safety, our business could be adversely affected.

Our research and development and drug candidates and future commercial manufacturing may involve the use of hazardous materials and various chemicals. We currently do not maintain a research laboratory, but we engage third-party research organizations and manufacturers to conduct our preclinical studies, clinical trials and manufacturing. These third-party laboratories and manufacturers are subject to federal, state and local laws and regulations governing the use, manufacture, storage, handling and disposal of these hazardous materials. We must rely on the third parties' procedures for storing, handling and disposing of these materials in their facilities to comply with the relevant guidelines of the states in which they operate and the Occupational Safety and Health Administration of the U.S. Department of Labor. Although we believe that their safety procedures for handling and disposing of these materials comply with the standards mandated by applicable regulations, the risk of accidental contamination or injury from these materials cannot be eliminated. If an accident occurs, this could result in significant delays in our development. We are also subject to numerous environmental, health and workplace safety laws and regulations. Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees, this insurance may not provide adequate coverage against potential liabilities. Additional federal, state and local laws and regulations affecting our operations may be adopted in the future. We may incur substantial costs to comply with, and substantial fines or penalties if we violate, any of these laws or regulations.

Current and future healthcare reform legislation or regulation may increase the difficulty and cost for us to obtain coverage for and commercialize elraglusib or any future product candidates and may adversely affect the prices we may set.

In the United States and some foreign jurisdictions, there have been, and we expect there will continue to be, a number of legislative and regulatory changes to the healthcare system, including cost-containment measures that may reduce or limit coverage and reimbursement for newly approved drugs and affect our ability to profitably sell elraglusib or any future product candidates for which we obtain regulatory approval. In particular, there have been and continue to be a number of initiatives at the U.S. federal and state levels that seek to reduce healthcare costs and improve the quality of healthcare.

For example, in March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010 (ACA) was enacted in the United States. The ACA established an annual, nondeductible fee on any entity that manufactures or imports specified branded prescription drugs and biologic agents; extended manufacturers' Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations; expanded eligibility criteria for Medicaid programs; expanded the entities eligible for discounts under the 340B drug pricing program; increased the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program; established a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in and conduct comparative clinical effectiveness research, along with funding for such research; and established a Center for Medicare & Medicaid Innovation at CMS to test innovative payment and service delivery models to lower Medicare and Medicaid spending.

Since its enactment, there have been executive, judicial and Congressional challenges to certain aspects of the ACA. On June 17, 2021, the U.S. Supreme Court dismissed the most recent judicial challenge to the ACA brought by several states without specifically ruling on the constitutionality of the ACA.

In addition, other legislative changes have been proposed and adopted since the ACA was enacted. For example, beginning April 1, 2013, Medicare payments to providers were reduced under the sequestration required by the Budget Control Act of 2011, which will remain in effect until 2032, unless additional Congressional action is taken. Additionally, on January 2, 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, further reduced Medicare payments to several providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations

period for the government to recover overpayments to providers from three to five years. On March 11, 2021, the American Rescue Plan Act of 2021 was signed into law, which eliminates the statutory cap on the Medicaid drug rebate, beginning January 1, 2024. The rebate was previously capped at 100% of a drug's average manufacturer price. Further, there has been heightened governmental scrutiny in the United States of pharmaceutical pricing practices in light of the rising cost of prescription drugs. Such scrutiny has resulted in several recent congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient assistance programs, and reform government program reimbursement methodologies for products.

Most recently, on August 16, 2022, President Biden signed the Inflation Reduction Act of 2022 (IRA) into law. This statute marks the most significant action by Congress with respect to the pharmaceutical industry since adoption of the ACA in 2010. Among other things, the IRA (i) directs the U.S. Department of Health and Human Services (HHS) to negotiate the price of certain high-expenditure, single-source drugs and biologics covered under Medicare and (ii) imposes rebates under Medicare Part B and Medicare Part D to penalize price increases that outpace inflation. The IRA permits the Secretary of the HHS to implement many of these provisions through guidance, as opposed to regulation, for the initial years. HHS has and will continue to issue and update guidance as these programs are implemented. On August 29, 2023, HHS announced the list of the first ten drugs that will be subject to price negotiations, although the Medicare drug price negotiation program is currently subject to legal challenges. The impact of the IRA on the pharmaceutical industry cannot yet be fully determined but is likely to be significant. Additional drug pricing proposals could appear in future legislation.

At the state level, legislatures have increasingly passed legislation and implemented regulations designed to control pharmaceutical and biological product pricing, including price or reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. Legally mandated price controls on payment amounts by third-party payors or other restrictions could harm our business, financial condition, results of operations and prospects. In addition, regional healthcare authorities and individual hospitals are increasingly using bidding procedures to determine what pharmaceutical products and which suppliers will be included in their prescription drug and other healthcare programs. This could reduce the ultimate demand for elraglusib and any future product candidates, if approved, or put pressure on our product pricing, which could negatively affect our business, financial condition, results of operations and prospects.

We expect that these existing laws and other healthcare reform measures that may be adopted in the future may result in additional reductions in Medicare and other healthcare funding, more rigorous coverage criteria, new payment methodologies and additional downward pressure on the price that we receive for any approved product. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability or commercialize elraglusib or any future product candidates, if approved.

Even if we are able to commercialize any drug candidate, such drug candidate may become subject to unfavorable pricing regulations or third-party coverage and reimbursement policies, which would harm our business.

Our ability to commercialize any products successfully will depend, in part, on the extent to which coverage and adequate reimbursement for these products and related treatments will be available from third-party payors, such as government authorities, private healthcare insurers and health maintenance organizations. Patients who are prescribed medications for the treatment of their conditions generally rely on third-party payors to reimburse all or part of the costs associated with their prescription drugs. Coverage and adequate reimbursement from government healthcare programs, such as Medicare and Medicaid, and private healthcare insurers are critical to new product acceptance. Patients are unlikely to use our future products, if any, unless coverage is provided and reimbursement is adequate to cover a significant portion of the cost.

Cost-containment is a priority in the U.S. healthcare industry and elsewhere. As a result, government authorities and other third-party payors have attempted to control costs by limiting coverage and the amount

of reimbursement for particular medications. Increasingly, third-party payors are requiring that drug companies provide them with predetermined discounts from list prices and are challenging the prices charged for medical products. Third-party payors also may request additional clinical evidence beyond the data required to obtain marketing approval, requiring a company to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of its products.

Commercial third-party payors often rely upon Medicare coverage policy and payment limitations in setting their reimbursement rates, but also have their own methods and approval process apart from Medicare determinations. Therefore, coverage and reimbursement for pharmaceutical products in the United States can differ significantly from payor to payor. We cannot be sure that coverage and adequate reimbursement will be available for any product that we commercialize and, if reimbursement is available, that the level of reimbursement will be adequate. Coverage and reimbursement may impact the demand for, or the price of, any drug candidate for which we obtain marketing approval. If coverage and reimbursement are not available or are available only at limited levels, we may not be able to successfully commercialize any drug candidate for which we obtain marketing approval.

Additionally, the regulations that govern regulatory approvals, pricing and reimbursement for new drugs and therapeutic biologics vary widely from country to country. Some countries require approval of the sale price of a drug or therapeutic biologic before it can be marketed. In many countries, the pricing review period begins after marketing approval is granted. In some foreign markets, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. As a result, we might obtain regulatory approval for a product in a particular country, but then be subject to price regulations that delay our commercial launch of the product, possibly for lengthy time periods, and negatively impact the revenues we are able to generate from the sale of the product in that country. Adverse pricing limitations may hinder our ability to recoup our investment in one or more drug candidates, even if our drug candidates obtain regulatory approval.

Disruptions at the FDA and other government agencies caused by funding shortages or global health concerns could hinder their ability to hire, retain or deploy key leadership and other personnel, or otherwise prevent new or modified products from being developed, approved or commercialized in a timely manner or at all, which could negatively impact our business.

The ability of the FDA and other government agencies to review and approve new products can be affected by a variety of factors, including government budget and funding levels, statutory, regulatory and policy changes, a government agency's ability to hire and retain key personnel and accept the payment of user fees, and other events that may otherwise affect the government agency's ability to perform routine functions. Average review times at the FDA and other government agencies have fluctuated in recent years as a result. In addition, government funding of other government agencies that fund research and development activities is subject to the political process, which is inherently fluid and unpredictable. Disruptions at the FDA and other agencies may also slow the time necessary for new biologics or modifications to approved or licensed biologics to be reviewed and/or approved by necessary government agencies, which would adversely affect our business. For example, over the last several years, the U.S. government has shut down several times and certain regulatory agencies, such as the FDA, have had to furlough critical employees and stop critical activities.

Separately, in response to the COVID-19 pandemic, the FDA postponed most inspections of domestic and foreign manufacturing facilities at various points. Even though the FDA has since resumed standard inspection operations of domestic facilities where feasible, future pandemics may lead to similar inspectional or administrative delays. If any future prolonged government shutdown occurs, or if global health concerns prevent the FDA or other regulatory authorities from conducting their regular inspections, reviews, or other regulatory activities, it could significantly impact the ability of the FDA or other regulatory authorities to timely review and process our regulatory submissions, which could have a material adverse effect on our business.

Our business is subject to risks arising from pandemics and epidemic diseases.

The COVID-19 worldwide pandemic presented substantial public health and economic challenges and affected our employees, patients, physicians and other healthcare providers, communities and business

operations, as well as the U.S. and global economies and financial markets. Any future pandemic or epidemic disease outbreaks could disrupt the supply chain and the manufacture or shipment of drug substances and finished drug products for elraglusib or any future product candidates for use in our, our collaborators' or any future collaborators' clinical trials and research and preclinical studies and, delay, limit or prevent our employees and CROs from continuing research and development activities, impede our clinical trial initiation and recruitment and the ability of patients to continue in clinical trials, alter the results of the clinical trial based on participants contracting the disease or otherwise increasing the number of observed adverse events, impede testing, monitoring, data collection and analysis and other related activities, any of which could delay our preclinical studies and clinical trials and increase our development costs, and have a material adverse effect on our business, financial condition, results of operations and prospects. Any future pandemic or epidemic disease outbreak could also potentially further affect the business of the FDA, EMA or other regulatory authorities, which could result in delays in meetings related to our planned clinical trials, as well have an adverse impact on global economic conditions which could have an adverse effect on our business and financial condition, including impairing our ability to raise capital when needed.

Effective collaboration with the FDA's Center for Drug Evaluation and Research (CDER) for the approval of drug candidates is a highly demanding process which can result in increased time and expense to gain approvals.

Our lead drug development program, elraglusib, will be reviewed by CDER. Efficient and professional collaboration with the FDA's CDER is essential for the timely clinical testing, test evaluations, analysis and approval of our drug candidates. CDER has an outstanding record of drug approvals and substantial funds to operate a highly professional organization but is also very demanding as to the quality of clinical research and applications for marketing approvals for drug candidates.

We do not have in-house expertise and experience in the management of drug approvals, though members of our management team have gained certain drug-approval expertise and experience in their prior roles at other companies. We may also rely on qualified consultants and drug research organizations to aid in our drug approval process; however, there is a meaningful risk that discussions and interactions inherent in the drug approval process and future developments or new improvements will result in delays, added expenses and new scientific/medical requirements which will cause adverse financial results and will likely impact the price of our stock.

Our ability to use net operating loss carryforwards and other tax attributes may be limited in connection with this offering or other ownership changes.

We have incurred substantial losses during our history, do not expect to become profitable in the near future and may never achieve profitability. As of December 31, 2023, we had net operating loss (NOL) carryforwards, which may be available to offset our future taxable income, if any. Our NOL carryforwards and other tax attributes are subject to review and possible adjustment by the Internal Revenue Service (IRS) and state tax authorities.

In addition, under Section 382 of the U.S. Internal Revenue Code of 1986, as amended (the Code), our federal NOL carryforwards may be or become subject to an annual limitation in the event we have had or have in the future an "ownership change." For these purposes, an "ownership change" generally occurs if one or more stockholders or groups of stockholders who own at least 5% of a company's stock increase their ownership by more than 50 percentage points over their lowest ownership percentage within a rolling three-year period. The amount of the annual limitation is determined based on the Company's value immediately prior to the ownership change. Similar rules may apply under state tax laws. Although we believe there have been one or more ownership changes resulting from past transactions, we have not determined the amount of the cumulative change in our ownership resulting from this offering or other transactions, or any resulting limitations on our ability to utilize our NOL carryforwards and other tax attributes. However, we believe that our ability to utilize our NOL carryforwards and other tax attributes to offset future taxable income or tax liabilities may be limited as a result of ownership changes, including potential changes in connection with this offering. If we earn taxable income, such limitations could result in increased future income tax liability to us and our future cash flows could be adversely affected.

We have recorded a full valuation allowance related to our NOL carryforwards and other deferred tax assets due to the uncertainty of the ultimate realization of the future benefits of those assets.

Foreign currency exchange rates may adversely affect our consolidated financial statements.

Our primary operations are transacted in U.S. Dollars, but certain service agreements with third parties are denominated in currencies other than the U.S. Dollar, primarily the British pound and the Euro. All of our employees and operations are currently located in the United States and our expenses are generally denominated in U.S. Dollars. As we continue to develop our business, our results of operations and cash flows will likely be more affected by fluctuations in foreign currency exchange rates, including the British pound, Euro and other currencies, which could adversely affect our results of operations. Sales and purchases in currencies other than the U.S. Dollar expose us to fluctuations in foreign currencies relative to the U.S. Dollar and may adversely affect our consolidated financial statements. Increased strength of the U.S. Dollar increases the effective price of our future drug products sold in U.S. Dollars into other countries, which may require us to lower our prices or adversely affect sales to the extent we do not increase local currency prices. Decreased strength of the U.S. Dollar could adversely affect the cost of materials, products and services we purchase overseas. Sales and expenses of our non-U.S. businesses are also translated into U.S. Dollars for reporting purposes and the strengthening or weakening of the U.S. Dollar could result in unfavorable foreign currency translation and transaction effects. In addition, certain of our businesses may in the future invoice customers in a currency other than the business' functional currency, and movements in the invoiced currency relative to the functional currency could also result in unfavorable foreign currency translation and transaction effects. We also face exchange rate risk from our investments in subsidiaries owned and operated in foreign countries.

Our anticipated operating expenses and capital expenditures over the next year are based upon our management's estimates of possible future events. Actual amounts could differ materially from those estimated by our management.

Development of pharmaceuticals and cancer drugs is extremely risky and unpredictable. We have estimated operating expenses and capital expenditures over the next year based on certain assumptions. Any change in the assumptions could and will cause the actual results to vary substantially from the anticipated expenses and expenditures and could result in material differences in actual versus forecasted expenses or expenditures. Furthermore, all of the factors are subject to the effect of unforeseeable future events. The estimates of capital expenditures and operating expenses represent forward-looking statements within the meaning of the federal securities laws. Prospective investors are cautioned that any such forward-looking statements are not guarantees of future performance and involve risks and uncertainties. Actual events or results may differ materially from those discussed in the forward-looking statements as a result of various factors, including the risk factors set forth under this "Risk Factors" section in this prospectus. In view of the foregoing, investors should not rely on these estimates in making a decision to invest in us.

Our present and potential future international operations may expose us to business, political, operational, and financial risks associated with doing business outside of the United States.

Our business is subject to risks associated with conducting business internationally. Some of our suppliers and clinical research organizations and clinical trial sites are located outside of the United States. Furthermore, if we or any future collaborator succeeds in developing any products, we anticipate marketing them in the EU and other jurisdictions in addition to the United States. If approved, we or our collaborator may hire sales representatives and conduct physician and patient association outreach activities outside of the United States. Doing business internationally involves a number of risks, including but not limited to:

- multiple, conflicting and changing laws and regulations such as privacy regulations, tax laws, export and import restrictions, employment laws, regulatory requirements, and other governmental approvals, permits and licenses;
- failure by us to obtain and maintain regulatory approvals for the use of our products in various countries;
- rejection or qualification of foreign clinical trial data by the competent authorities of other countries;
- additional potentially relevant third-party patent and other intellectual property rights that may be necessary to develop and commercialize our products and drug candidates;

- complexities and difficulties in obtaining, maintaining, enforcing and defending our patent and other intellectual property rights;
- difficulties in staffing and managing foreign operations;
- complexities associated with managing multiple payor reimbursement regimes, government payors or patient self-pay systems;
- limits in our ability to penetrate international markets;
- financial risks, such as longer payment cycles, difficulty collecting accounts receivable, the impact of local and regional financial crises on demand and payment for our products and exposure to foreign currency exchange rate fluctuations;
- natural disasters, political and economic instability, including wars, terrorism and political unrest, outbreak of disease, boycotts, curtailment of trade and other business restrictions, implementation of tariffs;
- certain expenses including, among others, expenses for travel, translation and insurance; and
- regulatory and compliance risks that relate to anti-corruption compliance and record-keeping that may fall within the purview of the U.S. Foreign Corrupt Practices Act, its accounting provisions or its anti-bribery provisions or provisions of anti-corruption or anti-bribery laws in other countries.

Any of these factors could harm our ongoing international clinical operations and supply chain, as well as any future international expansion and operations and, consequently, our business, financial condition, prospects and results of operations.

Our future growth may depend, in part, on our ability to operate in foreign markets, where we would be subject to additional regulatory burdens and other risks and uncertainties.

Our future growth may depend, in part, on our ability to develop and commercialize elraglusib or any future drug candidates in foreign markets for which we may rely on partnering with third parties. We will not be permitted to market or promote elraglusib or any future drug candidate before we receive regulatory approval from the applicable regulatory authority in a foreign market, and we may never receive such regulatory approval for elraglusib or any future drug candidate. To obtain separate regulatory approval in foreign countries, we generally must comply with numerous and varying regulatory requirements of such countries regarding safety and efficacy and governing, among other things, clinical trials and commercial sales, pricing and distribution of elraglusib or any future drug candidate, and we cannot predict success in these jurisdictions. Approval procedures may be more onerous than those in the United States and may require that we conduct additional preclinical studies or clinical trials. If we obtain approval of any of our current or potential future drug candidates and ultimately commercialize any such drug candidate in foreign markets, we would be subject to risks and uncertainties, including the burden of complying with complex and changing foreign regulatory, tax, accounting and legal requirements, foreign reimbursement, pricing, and insurance regimes, workforce uncertainty in countries where labor unrest is common, production shortages resulting from any events affecting raw material supply or manufacturing capabilities abroad, business interruptions resulting from geopolitical actions, including war and terrorism, public health pandemics or epidemics, or natural disasters including earthquakes, typhoons, floods and fires, and the reduced protection of intellectual property rights in some foreign countries.

Risks Associated to our Common Stock and this Offering

Concentration of ownership by our principal stockholder limits the ability of others to influence the outcome of director elections and other transactions requiring stockholder approval, creates the potential for conflicts of interest, may negatively impact our stock price and may deter or prevent efforts by others to acquire us, which could prevent our stockholders from realizing a control premium.

A majority percentage of our outstanding stock is currently held by the Bios Equity Affiliated Funds, which are affiliated with our chairman, Aaron G.L. Fletcher, and our director, Les Kreis, Jr., and, after giving effect to the offering, we expect that the Bios Equity Affiliated Funds will still beneficially own

approximately % of our common stock outstanding as of the date of this offering. As a result, the Bios Equity Affiliated Funds have control over corporate actions requiring stockholder approval, including the following actions:

- to elect or defeat the election of our directors;
- to amend or prevent amendment of our certificate of incorporation or bylaws;
- to effect or prevent a merger, sale of assets or other corporate transaction; and
- to control the outcome of any other matter submitted to our stockholders for vote.

The Bios Equity Affiliated Funds' controlling interest in us also creates the potential for conflicts of interest which may be viewed unfavorably by minority stockholders, thereby hurting our stock price. In addition, the Bios Equity Affiliated Funds are not subject to any contractual restrictions on their ability to acquire additional shares of common stock, and any such purchases, including purchases of equity securities in connection with any rights offerings or any alternative equity or equity-linked offering that we may conduct, could result in them continuing to maintain beneficial ownership of a majority of our common stock. As a result of the Bios Equity Affiliated Funds' controlling ownership and Messr. Fletcher's and Kreis' position as our Chairman and a director, respectively, others may be less inclined to pursue an acquisition of us and therefore we may not have the opportunity to be acquired in a transaction that stockholders might otherwise deem favorable, including transactions in which our stockholders might realize a substantial premium for their shares.

Existing and new investors will experience dilution as a result of future sales or issuances of our common stock and future option exercises or other award grants under our stock incentive plan.

Our directors, employees, and certain of our consultants have been and will be issued equity and/or granted options that vest with the passage of time. Up to a total of shares of our common stock may be issued pursuant to new awards granted under the 2024 Plan, and stock options for the purchase of up to shares of our common stock have already been granted (stock options are exercisable) and are outstanding under our 2015 Plan as of March 31, 2024. From the pool authorized under the 2024 Plan, upon the closing of this offering, (i) our chief executive officer is entitled to receive restricted stock units for approximately shares of our common stock pursuant to his employment agreement, which grant will bring his overall beneficial ownership to 5% of shares then outstanding and such restricted stock units will vest in tranches through mid- 2026 and (ii) our chief financial officer is entitled to receive stock options exercisable for approximately shares pursuant to his employment agreement, which is equal to 1.0% of our issued and outstanding common stock on a fully diluted basis as of the closing of this offering, and will vest over a four-year period (in each case, assuming an initial public offering price of $ per share of common stock, the midpoint of the price range set forth on the cover page of this prospectus).

Our existing and our new investors will likely also experience substantial dilution resulting from the issuance by us of equity securities in connection with certain transactions, including without limitation, future offering of shares, intellectual property licensing, acquisition, or commercialization arrangements.

Our ability to list on Nasdaq will require raising significant capital; failure to qualify to trade on Nasdaq will make it more difficult to raise capital.

We anticipate that our common stock will be listed on the Nasdaq Capital Market, a national securities exchange, upon consummation of this offering. We may need to raise significant funds in the months to continue our clinical development plans and we believe that if our stock is trading on the Nasdaq Capital Market it will enable better access to capital.

Nasdaq has listing requirements for inclusion of securities for trading on the Nasdaq Capital Market, including stockholders' equity of $4 million (market value standard) or $5 million (equity standard), market value of publicly held shares of $15 million, an operating history of two years under the equity standard or a market value of listed securities of $50 million under the market value standard, one million publicly held shares, 300 shareholders, three market makers and a $4 bid price or a closing price of $3 (equity standard) or $2 (market value standard). If we are unable to list on Nasdaq, it could make it harder for us to raise capital in both the immediate time frame and in the long-term. If we are unable to raise capital when needed in

the future, we may have to cease or reduce operations. There can be no assurance that we will be successful in including our common stock for trading on Nasdaq or that a market will develop for our common stock.

If our shares become subject to the penny stock rules, it would become more difficult to trade our shares.

The SEC has adopted rules that regulate broker-dealer practices in connection with transactions in penny stocks. Penny stocks are generally equity securities with a price of less than $5.00 per share, other than securities registered on certain national securities exchanges or authorized for quotation on certain automated quotation systems, provided that current price and volume information with respect to transactions in such securities is provided by the exchange or system. If we do not obtain or retain a listing on the Nasdaq Capital Market and if the price of our common stock is less than $5.00 per share, our common stock will be deemed a penny stock. The penny stock rules require a broker-dealer, before a transaction in a penny stock not otherwise exempt from those rules, to deliver a standardized risk disclosure document containing specified information. In addition, the penny stock rules require that before effecting any transaction in a penny stock not otherwise exempt from those rules, a broker-dealer must make a special written determination that the penny stock is a suitable investment for the purchaser and receive (i) the purchaser's written acknowledgment of the receipt of a risk disclosure statement; (ii) a written agreement to transactions involving penny stocks; and (iii) a signed and dated copy of a written suitability statement. These disclosure requirements may have the effect of reducing the trading activity in the secondary market for our common stock.

There has been no prior public market for our common stock. An active, liquid and orderly market for our common stock may not develop, or we may in the future fail to satisfy the continued listing requirements of Nasdaq, and you may not be able to resell your shares at or above the initial public offering price or at all.

There has been no public market for our common stock prior to this offering. Although we have applied to list our common stock on the Nasdaq Capital Market, an active trading market for our common stock may never develop or may not be sustained following this offering. The initial public offering price for our common stock will be determined through negotiations between the underwriters and us and may vary from the market price of our common stock following this offering. This price does not necessarily reflect the price at which investors in the market will be willing to buy and sell our shares following this offering. If you purchase shares of our common stock in this offering, you may not be able to resell those shares at or above the initial public offering price or at all. In addition, an active trading market may not develop following the completion of this offering or, if it is developed, may not be sustained. The lack of an active market may impair your ability to sell your shares at the time you wish to sell them or at a price that you consider reasonable. An inactive market may also impair our ability to raise capital by selling shares and may impair our ability to acquire other businesses or technologies using our shares as consideration, which, in turn, could materially adversely affect our business.

If, after listing, we fail to satisfy the continued listing requirements of Nasdaq, such as the corporate governance requirements or the minimum closing bid price requirement, Nasdaq may take steps to delist our common stock. Such a delisting would likely have a negative effect on the price of our common stock and would impair your ability to sell or purchase our common stock when you wish to do so. In the event of a delisting, we can provide no assurance that any action taken by us to restore compliance with listing requirements would allow our common stock to become listed again, stabilize the market price or improve the liquidity of our common stock, prevent our common stock from dropping below the Nasdaq minimum bid price requirement or prevent future non-compliance with the listing requirements of Nasdaq.

The trading price of the shares of our common stock could be highly volatile regardless of our operating performance, and purchasers of our common stock could incur substantial losses.

Our stock price is likely to be volatile. The stock market in general and the market for securities of biotechnology and pharmaceutical companies in particular have historically been highly volatile, and the market has from time to time experienced significant price and volume fluctuations that are unrelated to the

operating performance of particular companies. As a result of this volatility, investors may not be able to sell their common stock at or above the initial public offering price.

The market price of our common stock is likely to be highly volatile and may fluctuate substantially due to many factors, including:

- results of our clinical trials and preclinical studies, and the results of trials of our competitors or those of other companies in our market sector;
- our ability to obtain and maintain regulatory approval of elraglusib or any future product candidates or additional indications thereof, or limitations to specific label indications or patient populations for its use, or changes or delays in the regulatory review process;
- announcements concerning the progress and success of our clinical trials, our ability to obtain regulatory approval for and commercialize elraglusib or any of our future product candidates, including any requests we receive from the FDA for additional studies or data that result in delays in obtaining regulatory approval or launching elraglusib or any of our future product candidates, if approved;
- market conditions in the pharmaceutical and biotechnology sectors or the economy as a whole;
- announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures, or capital commitments;
- price and volume fluctuations in the overall stock market;
- our ability to enroll patients in future clinical studies;
- the failure of elraglusib or any of our future product candidates, if approved, to achieve commercial success;
- achievement of expected product sales and profitability;
- announcements of the introduction of new products by us or our competitors;
- developments concerning product development results or intellectual property rights of others;
- litigation or public concern about the safety of elraglusib of any of our future potential products;
- actual fluctuations in our quarterly operating results, and concerns by investors that such fluctuations may occur in the future;
- deviations in our operating results from the estimates of securities analysts or other analyst comments;
- additions or departures of key personnel;
- sales of our stock by us, our insiders or our stockholders, as well as the anticipation of lock-up releases or expiration of market stand-off or lock-up agreements;
- healthcare reform legislation, including measures directed at controlling the pricing of pharmaceutical products, and third-party coverage and reimbursement policies;
- developments concerning current or future strategic collaborations; and
- discussion of us or our stock price by the financial and scientific press and in online investor communities.

In addition, in the past, stockholders have initiated class action lawsuits against biopharmaceutical companies following periods of volatility in the market prices of these companies' stock. Such litigation, if instituted against us, could cause us to incur substantial costs, divert our management's attention and resources and damage our reputation, which could have a material adverse effect on our business, financial condition, results of operations and prospects.

Investors in this offering will suffer immediate and substantial dilution of their investment.

If you purchase shares of our common stock in this offering, you will pay substantially more for your shares than our as adjusted net tangible book value per share. Based upon an assumed initial public offering

price of $ per share of common stock, the midpoint of the price range on the cover page of this prospectus, you will incur immediate and substantial dilution of $ per share, representing the difference between our assumed initial public offering price and our as adjusted net tangible book value per share. In the past, we issued options to acquire common stock at prices significantly below the midpoint of the range for this initial public offering price. To the extent these outstanding options are ultimately exercised, investors purchasing common stock in this offering will sustain further dilution. For a further description of the dilution that you will experience immediately after this offering, see the section titled "Dilution."

After this offering, our executive officers, directors, and principal stockholders, if they choose to act together, will continue to have the ability to significantly influence all matters submitted to stockholders for approval.

Following the completion of this offering, our executive officers, directors and greater than 5% stockholders, in the aggregate, will own approximately % of our outstanding common stock (assuming no exercise of the underwriters' over-allotment option and no exercise of outstanding options and without giving effect to any potential purchases by such persons in this offering). As a result, such persons, acting together, will have the ability to significantly influence all matters submitted to our board of directors or stockholders for approval, including the appointment of our management, the election and removal of directors and approval of any significant transaction, as well as our management and business affairs. This concentration of ownership may have the effect of delaying, deferring or preventing a change in control, impeding a merger, consolidation, takeover or other business combination involving us, or discouraging a potential acquiror from making a tender offer or otherwise attempting to obtain control of our business, even if such a transaction would benefit other stockholders.

The grant of registration rights to our existing stockholders may adversely affect the market price of our shares of common stock and make it more difficult to complete a strategic transaction.

Our existing stockholders hold demand and piggyback registration rights for a total of shares. These stockholders and their permitted transferees can demand that we register their shares in accordance with certain conditions, including with respect to the timing of demand, aggregate sales price of shares being registered, and form of registration statement available. We will bear the cost of registering these securities. The registration and availability of such a significant number of securities for trading in the public market may have an adverse effect on the market price of our shares of common stock. In addition, the existence of the registration rights may make our ability to execute a strategic transaction, such as a merger, more costly or difficult to conclude.

Substantial amounts of our outstanding shares may be sold into the market when lock-up or market standoff periods end. If there are substantial sales of shares of our common stock, the price of our common stock could decline.

Sales of a substantial number of shares of our common stock in the public market or the perception that these sales might occur could significantly reduce the market price of our common stock and impair our ability to raise adequate capital through the sale of additional equity or equity-linked securities. After this offering, we will have outstanding shares of our common stock, based on the number of shares outstanding as of March 31, 2024, assuming no exercise of the underwriters' over-allotment option sold in this offering and no exercise of outstanding options. Of these shares, only the shares of common stock sold in this offering by us, plus any shares sold upon exercise of the underwriters' over-allotment option, will be freely tradable, without restriction, in the public market immediately following this offering, unless they are purchased by one of our affiliates.

Our directors and executive officers and our securityholders holding have entered into lock-up agreements with the representatives pursuant to which they may not, with limited exceptions, for a period of 180 days from the date of this prospectus, offer, sell or otherwise transfer or dispose of any of our securities, without the prior written consent of the representative of the underwriters. Sales of these shares, or perceptions that they will be sold, could cause the trading price of our common stock to decline. After the lock-up agreements expire, up to an additional shares of common stock will be eligible for sale in the public market, of which shares will be held by directors, executive officers and other affiliates and will be subject to volume limitations under Rule 144 under the Securities Act of 1933, as amended (the Securities

Act), in each case based on shares of common stock outstanding as of March 31, 2024, and without giving effect to any potential purchases by such persons in this offering.

In addition, as of March 31, 2024, shares of common stock that are subject to outstanding options under our employee benefit plans became eligible for sale in the public market to the extent permitted by the provisions of various vesting schedules, the lock-up agreements and Rule 144 and Rule 701 under the Securities Act. If these additional shares of common stock are sold, or if it is perceived that they will be sold, in the public market, the trading price of our common stock could decline.

After this offering, the holders of shares of our outstanding common stock, or approximately % of our total outstanding common stock based on shares outstanding as of March 31, 2024, will be entitled to rights with respect to the registration of their shares of common stock (and the shares of common stock underlying certain securities convertible or exercisable into shares of our common stock) under the Securities Act, subject to vesting and the 180-day lock-up agreements described above. See the section titled "Description of Capital Stock — Registration Rights." Registration of these shares under the Securities Act would result in the shares becoming freely tradable without restriction under the Securities Act, except for shares held by affiliates, as defined in Rule 144 under the Securities Act. Any sales of securities by these stockholders could have a material adverse effect on the trading price of our common stock.

We have broad discretion in the use of the net proceeds from this offering, and our use of those proceeds may not yield a favorable return on your investment.

Our management will have broad discretion in the application of the net proceeds from this offering, including for any of the purposes described in the section titled "Use of Proceeds." Because of the number and variability of factors that will determine our use of the net proceeds from this offering, their ultimate use may vary substantially from their currently intended use. We intend to use the remaining net proceeds from the sale of the shares in the offering, along with available cash, for general corporate purposes, which may include advancing our other pipeline programs, supporting the requirements of being a public company, including legal, audit, investor relations and board fees and providing competitive salaries and benefits to attract and retain highly qualified employees. We have not specifically allocated the amount of net proceeds that will be used for these purposes, and our management will have broad discretion over how these proceeds are used and could spend the proceeds in ways with which you may not agree. In addition, we may not use the proceeds of this offering effectively or in a manner that increases our market value or enhances our profitability. We have not established a timetable for the effective deployment of the proceeds, and we cannot predict how long it will take to deploy the proceeds.

We do not intend to pay dividends in the foreseeable future and, as a result, your ability to achieve a return on your investment will depend on appreciation in the price of our common stock.

We have never declared or paid any cash dividends on our capital stock and we do not intend to pay any cash dividends in the foreseeable future. We currently anticipate that we will retain future earnings for the development, operation, and expansion of our business and do not anticipate declaring or paying any cash dividends for the foreseeable future. In addition, any future debt agreements may preclude us from paying dividends. Any determination to pay dividends in the future will be at the discretion of our Board. Accordingly, investors must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize any future gains as a return on their investments.

There can be no assurance that we will ever provide liquidity to our investors through a sale of our Company.

While acquisitions of pharmaceutical companies like ours are not uncommon, potential investors are cautioned that no assurances can be given that any form of merger, combination, or sale of our company will take place or that any merger, combination, or sale, even if consummated, would provide liquidity or a profit for our investors. You should not invest in our company with the expectation that we will be able to sell the business in order to provide liquidity or a profit for our investors.

Delaware law and provisions in our amended and restated bylaws could make a merger, tender offer or proxy contest difficult, thereby depressing the potential trading price of our common stock.

Our amended and restated certificate of incorporation and amended and restated bylaws that will be in effect immediately prior to the completion of this offering will contain provisions that could significantly

reduce the value of our shares to a potential acquiror or delay or prevent changes in control or changes in our management without the consent of our board of directors. The provisions in our charter documents will include the following:

- a classified board of directors with three-year staggered terms, which may delay the ability of stockholders to change the membership of a majority of our board of directors;
- no cumulative voting in the election of directors, which limits the ability of minority stockholders to elect director candidates;
- the exclusive right of our board of directors, unless the board of directors grants such right to the stockholders, to elect a director to fill a vacancy created by the expansion of the board of directors or the resignation, death or removal of a director, which prevents stockholders from being able to fill vacancies on our board of directors;
- the required approval of at least 66-2/3% of the shares entitled to vote to remove a director for cause, and the prohibition on removal of directors without cause;
- the ability of our board of directors to authorize the issuance of shares of preferred stock and to determine the price and other terms of those shares, including preferences and voting rights, without stockholder approval, which could be used to significantly dilute the ownership of a hostile acquiror;
- the ability of our board of directors to alter our amended and restated bylaws without obtaining stockholder approval;
- the required approval of at least 66-2/3% of the shares entitled to vote to adopt, amend or repeal our amended and restated bylaws or repeal the provisions of our amended and restated certificate of incorporation regarding the election and removal of directors;
- a prohibition on stockholder action by written consent, which forces stockholder action to be taken at an annual or special meeting of our stockholders;
- an exclusive forum provision providing that the Court of Chancery of the State of Delaware will be the exclusive forum for certain actions and proceedings;
- the requirement that a special meeting of stockholders may be called only by the board of directors, which may delay the ability of our stockholders to force consideration of a proposal or to take action, including the removal of directors; and
- advance notice procedures that stockholders must comply with in order to nominate candidates to our board of directors or to propose matters to be acted upon at a stockholders' meeting, which may discourage or deter a potential acquiror from conducting a solicitation of proxies to elect the acquiror's own slate of directors or otherwise attempting to obtain control of us.

We are also subject to the anti-takeover provisions contained in Section 203 of the Delaware General Corporation Law. Under Section 203, a corporation may not, in general, engage in a business combination with any holder of 15% or more of its capital stock unless the holder has held the stock for three years or, among other exceptions, the board of directors has approved the transaction.

Our amended and restated certificate of incorporation will provide that the Court of Chancery of the State of Delaware will be the exclusive forum for substantially all disputes between us and our stockholders and that the federal district courts shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees or the underwriters of any offering giving rise to such claim.

Our amended and restated certificate of incorporation that will be in effect immediately prior to the completion of this offering will provide that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware (the Court of Chancery) (or, in the event the Court of Chancery does not have jurisdiction, the federal district court for the District of Delaware or other state courts of the State of Delaware) will be the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory or common law: (i) any derivative action or proceeding brought on our

behalf; (ii) any action asserting a claim of breach of a fiduciary duty by any of our directors, officers or stockholders; (iii) any action asserting a claim against us arising pursuant to any provision of the Delaware General Corporation Law or our amended and restated certificate of incorporation or amended and restated bylaws; or (iv) any action asserting a claim governed by the internal affairs doctrine, in all cases to the fullest extent permitted by law; provided, that, this provision would not apply to suits brought to enforce a duty or liability created by the Exchange Act. or any other claim for which the federal courts have exclusive jurisdiction. Furthermore, our amended and restated certificate of incorporation will also provide that unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act, including all causes of action asserted against any defendant to such complaint. These choice of forum provisions may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers and other employees and result in increased costs for investors to bring a claim. By agreeing to this provision, however, stockholders will not be deemed to have waived our compliance with the federal securities laws and the rules and regulations thereunder. Furthermore, the enforceability of similar choice of forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that a court could find these types of provisions to be inapplicable or unenforceable. If a court were to find the choice of forum provisions in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could adversely affect our business and financial condition.

General Risk Factors

Unstable market and economic conditions may have serious adverse consequences on our ability to raise funds, which may cause us to cease or delay our operations.

From time to time, the global credit and financial markets have experienced extreme volatility and disruptions, including severely diminished liquidity and credit availability, declines in consumer confidence, declines in economic growth, increases in unemployment rates and uncertainty about economic stability. The financial markets and the global economy may also be adversely affected by the current or anticipated impact of military conflict, including the conflicts between Russia and Ukraine and in the Middle East, terrorism or other geopolitical events. Sanctions imposed by the United States and other countries in response to such conflicts, including the one in Ukraine, may also adversely impact the financial markets and the global economy, and any economic countermeasures by the affected countries or others could exacerbate market and economic instability. In addition, in 2023 the closures of financial institutions and their placement into receivership with the FDIC created bank-specific and broader financial institution liquidity risk and concerns. Future adverse developments with respect to specific financial institutions or the broader financial services industry may lead to market-wide liquidity shortages, impair the ability of companies to access near-term working capital needs, and create additional market and economic uncertainty. There can be no assurance that future credit and financial market instability and a deterioration in confidence in economic conditions will not occur. Our general business strategy may be adversely affected by any such economic downturn, liquidity shortages, volatile business environment or continued unpredictable and unstable market conditions. If the equity and credit markets deteriorate, or if adverse developments are experienced by financial institutions, it may cause short-term liquidity risk and also make any necessary debt or equity financing more difficult, more costly, more onerous with respect to financial and operating covenants and more dilutive. Failure to secure any necessary financing in a timely manner and on favorable terms could have a material adverse effect on our growth strategy, financial performance and stock price and could require us to delay, limit, reduce or abandon product development or future commercialization efforts or grant rights to develop and market our product candidates even if we would otherwise prefer to develop and market such product candidates ourselves. In addition, there is a risk that one or more of our current service providers, financial institutions, manufacturers and other partners may be adversely affected by the foregoing risks, which could directly affect our ability to attain our operating goals on schedule and on budget.

We will incur increased costs as a result of operating as a public company, and our management will be required to devote substantial time to new compliance initiatives and corporate governance practices.

As a public company, we will incur significant legal, accounting and other expenses that we did not incur as a private company. The Sarbanes-Oxley Act, the Dodd-Frank Wall Street Reform and Consumer Protection Act, the listing requirements of the Nasdaq Capital Market and other applicable securities rules and regulations impose various requirements on public companies, including establishment and maintenance of effective disclosure and financial controls and corporate governance practices. Our management and other personnel will need to devote a substantial amount of time to these compliance initiatives. Moreover, these rules and regulations will increase our legal and financial compliance costs and will make some activities more time-consuming and costly. For example, we expect that these rules and regulations may make it more difficult and more expensive for us to obtain director and officer liability insurance, which in turn could make it more difficult for us to attract and retain qualified members of our board of directors. However, these rules and regulations are often subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices.

We are subject to U.S. and foreign anti-corruption and anti-money laundering laws with respect to our operations and non-compliance with such laws can subject us to criminal or civil liability and harm our business.

We are subject to export control and import laws and regulations, including the U.S. Export Administration Regulations, U.S. Customs regulations, and various economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Controls and anti-corruption and anti-money laundering laws and regulations, including the U.S. Foreign Corrupt Practices Act of 1977, as amended, the U.S. domestic bribery statute contained in 18 U.S.C. § 201, the U.S. Travel Act, the USA PATRIOT Act and other state and national anti-bribery and anti-money laundering laws in the countries in which we conduct activities. Anti-corruption laws are interpreted broadly and prohibit companies and their employees, agents, CROs, contractors and other collaborators and partners from authorizing, promising, offering, providing, soliciting or receiving, directly or indirectly, improper payments or anything else of value to or from recipients in the public or private sector. We may engage third parties for clinical trials outside of the United States, to sell our products abroad if and when we enter a commercialization phase, and/or to obtain necessary permits, licenses, patent registrations and other regulatory approvals. We have direct or indirect interactions with officials and employees of government agencies or government-affiliated hospitals, universities and other organizations. We can be held liable for the corrupt or other illegal activities of our employees, agents, CROs, contractors and other collaborators and partners, even if we do not explicitly authorize or have actual knowledge of such activities, and any training or compliance programs or other initiatives we undertake to prevent such activities may not be effective.

Any violations of the laws and regulations described above may result in substantial civil and criminal fines and penalties, imprisonment, the loss of export or import privileges, debarment, tax reassessments, breach of contract and fraud litigation, reputational harm and other consequences.

Furthermore, U.S. export control laws and economic sanctions prohibit the provision of certain products and services to countries, governments, and persons targeted by U.S. sanctions. U.S. sanctions that have been or may be imposed may impact our ability to continue activities at future clinical trial sites within regions covered by such sanctions. If we fail to comply with export and import regulations and such economic sanctions, penalties could be imposed, including fines and/or denial of certain export privileges. These export and import controls and economic sanctions could also adversely affect our supply chain.

Changes in tax law may materially adversely affect our financial condition, results of operations and cash flows, or adversely impact the value of an investment in our common stock.

New income, sales, use or other tax laws, statutes, rules, regulations or ordinances could be enacted at any time, or interpreted, changed, modified or applied adversely to us, any of which could adversely affect our business operations and financial performance.

If securities or industry analysts do not publish research or reports or publish unfavorable research or reports about our business, our stock price and trading volume could decline.

The trading market for our common stock will depend in part on the research and reports that securities or industry analysts publish about us, our business, our market or our competitors. We do not currently have and may never obtain research coverage by securities and industry analysts. If no securities or industry analysts commence coverage of our company, the trading price for our stock would be negatively impacted. In the event we obtain securities or industry analyst coverage, if one or more of the analysts who covers us downgrades our stock, or if we fail to meet the expectations of one or more of these analysts, our stock price would likely decline. If one or more of these analysts ceases to cover us or fails to regularly publish reports on us, interest in our stock could decrease, which could cause our stock price or trading volume to decline.

If we fail to maintain proper and effective internal control over financial reporting, our ability to produce accurate and timely financial statements could be impaired, investors may lose confidence in our financial reporting and the trading price of our common stock may decline.

Pursuant to Section 404 of Sarbanes-Oxley, our management will be required to report upon the effectiveness of our internal control over financial reporting beginning with the second annual report following the completion of this offering. When we lose our status as an "emerging growth company" and do not otherwise qualify as a "smaller reporting company" with less than $100.0 million in annual revenue, our independent registered public accounting firm will be required to attest to the effectiveness of our internal control over financial reporting. The rules governing the standards that must be met for our management to assess our internal control over financial reporting are complex and require significant documentation, testing and possible remediation. To comply with the requirements of being a reporting company under the Exchange Act, we may need to upgrade our information technology systems; implement additional financial and management controls, reporting systems and procedures; and hire additional accounting and finance staff. If we or, if required, our auditors are unable to conclude that our internal control over financial reporting is effective, investors may lose confidence in our financial reporting and the trading price of our common stock may decline.

As of December 31, 2023, we identified a material weakness in internal control over financial reporting as a result of an inadequate review of our CRO accrual analysis that resulted in improper accruals of expenses. A material weakness is a deficiency or combination of deficiencies in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of our consolidated financial statements would not be prevented or detected on a timely basis. In order to remediate the material weakness, management will be implementing additional processes to properly review and monitor clinical research organization accrual analysis at the end of each period.

We cannot assure you that there will not be further material weaknesses or significant deficiencies in our internal control over financial reporting in the future. Any failure to maintain internal control over financial reporting could severely inhibit our ability to accurately report our financial condition, results of operations or cash flows. If we are unable to conclude that our internal control over financial reporting is effective, or if our independent registered public accounting firm determines we have a material weakness or significant deficiency in our internal control over financial reporting once that firm begins its Section 404 reviews, investors may lose confidence in the accuracy and completeness of our financial reports, the market price of our common stock could decline, and we could be subject to sanctions or investigations by Nasdaq, the SEC or other regulatory authorities. Failure to remedy any material weakness in our internal control over financial reporting, or to implement or maintain other effective control systems required of public companies, could also restrict our future access to the capital markets.

We could be subject to securities class action litigation.

In the past, securities class action litigation has often been brought against a company following a decline in the market price of its securities. This risk is especially relevant for us because biotechnology and biopharmaceutical companies have experienced significant stock price volatility in recent years. If we face such litigation, even if ultimately decided in our favor, it could result in substantial costs and a diversion of our management's attention and resources, which could harm our business.

INDUSTRY AND MARKET DATA

Certain market, industry and competitive data included in this prospectus were obtained from our own internal estimates and research, as well as from publicly available information, reports of governmental agencies and industry publications and surveys in addition to research, surveys and studies conducted by third parties. The content of these third-party sources, except to the extent specifically set forth in this prospectus, does not constitute a portion of this prospectus and is not incorporated herein. Internal estimates are derived from publicly available information released by industry analysts and third-party sources, our internal research and our industry experience, and are based on assumptions made by us based on such data and our knowledge of our industry and market, which we believe to be reasonable. In some cases, we do not expressly refer to the sources from which this data is derived. In that regard, when we refer to one or more sources of this type of data in any paragraph, you should assume that other data of this type appearing in the same paragraph is derived from the same sources, unless otherwise expressly stated or the context otherwise requires.

In addition, while we are responsible for all of the disclosure contained in this prospectus and we believe the industry, market and competitive position data included in this prospectus is reliable and based on reasonable assumptions, such data involve risks and uncertainties and are subject to change based on various factors, including those discussed in the sections titled “Risk Factors” and “Special Note Regarding Forward-Looking Statements.” These and other factors could cause results to differ materially from those expressed in the estimates made by the independent parties and by us.

USE OF PROCEEDS

We estimate that the net proceeds to us from the issuance and the sale of shares of our common stock will be approximately $ million (or approximately $ million if the underwriters exercise in full their over-allotment option to purchase additional shares), based on the assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) the net proceeds to us from this offering, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us, by approximately $ million, assuming that the number of shares of common stock offered by us, as set forth on the cover page of this prospectus, remains the same. We may also increase or decrease the number of shares of common stock we are offering. An increase (decrease) of 1,000,000 in the number of shares of common stock we are offering would increase (decrease) the net proceeds to us from this offering, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us, by approximately $ million, assuming the initial public offering price stays the same. The information discussed above is illustrative only and will adjust based on the actual initial public offering price and other terms of this offering determined at pricing.

The principal purposes of this offering are to obtain additional capital to support our operations, to create a public market for our common stock and to facilitate our future access to the public equity markets.

We currently intend to use the net proceeds from this offering, together with our existing cash and cash equivalents, to fund the research and development of elraglusib, including certain manufacturing activities, and the remainder, if any, for working capital and other general corporate purposes. We expect the following uses, in order of priority, of the net proceeds from this offering and our existing cash and cash equivalents will allow us to complete:

- the ongoing Elraglusib Injection Phase 2 mPDAC trial (Actuate-1801 Part 3B) (approximately $ to $ million);
- fund the existing pediatric refractory cancer Phase 1 dose escalation trial and continue exploring development opportunities and potentially initiate the Phase 2 portion of this study in patients with refractory Ewing sarcoma (Actuate-1902) (approximately $ to $ million);
- satisfy the company's funding commitments for ongoing IIT studies for the use of Elraglusib Injection with other chemotherapy agents to treat mPDAC and a separate trial to treat recurrent salivary gland cancer (approximately $ to $ million); and
- to the extent any proceeds remain available, fund initial planning steps for the studies described below and additional general and administrative operations.

If we were to receive additional proceeds of at least $ million from this offering, or other funding, if and to the extent such funds are received, we anticipate that such funding would allow us to also (1) finalize development plans and to potentially initiate and complete a Phase 1 dose escalation study in patients with advanced, refractory solid cancer and finalize development plans for and potentially initiate a Phase 2 study in refractory metastatic melanoma (Actuate-2401), and (2) initiate a Phase 3 mPDAC trial and finalize development plans for an additional randomized Phase 2 trial in patients with metastatic refractory colorectal cancer.

We believe, based on our current operating plan, that the net proceeds from this offering and our existing cash, cash equivalents and short-term investments, together with interest thereon, will be sufficient to fund our operations through at least months following the date of this prospectus, although there can be no assurance in that regard.

We have based these estimates on assumptions that may prove to be wrong, and we could use our capital resources sooner than we currently expect. Additionally, our expected use of existing cash, cash equivalents and marketable securities and our net proceeds from this offering represent our intentions based

upon our current plans and business conditions, which could change in the future as our plans and business conditions evolve. The amounts and timing of our actual expenditures may vary significantly depending on numerous factors, including the progress and costs of our development activities, the status of and results from clinical trials, the amount of cash used in our operations and any unforeseen cash needs as well as other factors described in the sections titled "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Special Note Regarding Forward-Looking Statements." The net proceeds from this offering, together with our existing cash, cash equivalents, and marketable securities will not be sufficient to complete development in all potential indications of elraglusib and any future product candidates, and after this offering, we will require substantial capital in order to advance elraglusib and any future product candidates through clinical trials, regulatory approval and commercialization. Until such time, if ever, as we can generate substantial product revenue, we expect to finance our cash needs through equity offerings, debt financings, or other capital sources, including potential collaborations, licenses and other similar arrangements. However, we may be unable to raise additional funds or enter into such other arrangements when needed on favorable terms or at all.

Our management will have broad discretion in the application of the net proceeds from this offering, and investors will be relying on the judgment of our management regarding the application of those net proceeds. Pending the uses described above, we plan to invest the net proceeds in a variety of capital preservation instruments, including short-term, interest-bearing obligations, investment-grade instruments, certificates of deposit and direct or guaranteed obligations of the United States government.

DIVIDEND POLICY

We have not declared or paid any cash dividends on our common stock to date. We may retain future earnings, if any, for future operations, expansion and debt repayment and have no current plans to pay cash dividends for the foreseeable future. Any decision to declare and pay dividends in the future will be made at the discretion of our board of directors and will depend on, among other things, our results of operations, financial condition, cash requirements, contractual restrictions and other factors that the board may deem relevant and subject to applicable laws and the restrictions contained in any future financing instruments. We do not anticipate declaring any cash dividends to holders of the common stock in the foreseeable future.

CAPITALIZATION

The following table sets forth our cash, cash equivalents and investment securities and our capitalization as of March 31, 2024:

- on an actual basis;
- on a pro forma basis to give effect to
  - the conversion of all outstanding shares of our redeemable convertible preferred stock as of March 31, 2024 into an aggregate of shares of our common stock immediately prior to the closing of this offering;
  - shares of common stock issuable upon the conversion of our Series B-1 redeemable preferred stock to be issued upon the automatic net exercise of the Series B Warrants outstanding as of March 31, 2024, with an exercise price of $ per share, immediately prior to the completion of this offering, based on an assumed initial public offering price of $ per share of common stock, the midpoint of the price range set forth on the cover of this prospectus;
  - [shares of common stock issuable upon the conversion of our Series B redeemable preferred stock to be issued upon the automatic net exercise of the Series B Warrants outstanding as of March 31, 2024, with an exercise price of $ per share, immediately prior to the completion of this offering, based on an assumed initial public offering price of $ per share of common stock, the midpoint of the price range set forth on the cover of this prospectus;]
  - [shares of our common stock issuable upon the conversion of our Series C redeemable preferred stock to be issued upon the automatic net exercise of Series C Warrants outstanding as of March 31, 2024, with an exercise price of $ per share, immediately prior to the completion of this offering, based on an assumed initial public offering price of $ per share of common stock, the midpoint of the price range set forth on the cover of this prospectus];
  - shares of our common stock issuable upon conversion of the Bridge Notes issued in February through May 2024 in the aggregate original principal amount of $5.5 million, which will occur immediately prior to the closing of the offering;
  - the filing and effectiveness of our amended and restated certificate of incorporation immediately prior to the closing of this offering, and
  - a -for- reverse stock split of our common stock, which we effected on , 2024; and
- on a pro forma as adjusted basis to give further effect to our sale of shares of our common stock in this offering at the assumed initial public offering price of $ per share of common stock (the midpoint of the price range set forth on the cover page of this prospectus), after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

This pro forma and pro forma as adjusted information is illustrative only and will depend on the actual initial public offering price and other terms of this offering determined at pricing. The following table should be read together with the sections of this prospectus titled “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” and our financial statements and the related notes included elsewhere in this prospectus.

	As of March 31, 2024		
	Actual	Pro Forma	Pro Forma As Adjusted[1][2]
		(unaudited)	
	(in thousands, except share and per share amounts)		
Cash and cash equivalents	$ 2,068,307	$	$
Redeemable convertible preferred stock, $0.000001 par value; 33,463,018 shares authorized, 24,678,355 shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	$ 94,178,404	$	$
Stockholders' (deficit) equity:			
Common stock, $0.000001 par value; 38,108,584 shares authorized, 3,043,309 shares issued and outstanding[3], actual; shares authorized, shares issued and outstanding, pro forma; shares authorized, shares issued and outstanding, pro forma as adjusted	3		
Additional paid-in capital	5,616,211		
Accumulated deficit	(113,390,580)		
Total stockholders' (deficit) equity	$(107,774,366)		

(1) Each $1.00 increase or decrease in the assumed initial public offering price of $ per share of common stock (the midpoint of the price range set forth on the cover page of this prospectus) would increase or decrease, as applicable, the pro forma as adjusted amounts of each of our cash, cash equivalents and investment securities, common stock and additional paid-in capital, total stockholders' (deficit) equity, and total capitalization by approximately $ million, assuming the number of shares of common stock offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. Similarly, each increase or decrease of 1.0 million shares in the number of shares of common stock offered by us would increase or decrease, as applicable, the pro forma as adjusted amounts of each of our cash, cash equivalents and investment securities, common stock, and additional paid-in capital, total stockholders' (deficit) equity and total capitalization by approximately $ million, assuming the assumed initial public offering price remains the same, and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

(2) This pro forma as adjusted information is illustrative only and will depend on the actual initial public offering price and other terms of this offering determined at pricing.

(3) The number of shares of common stock actually issued and outstanding excludes 249,097 shares outstanding that are unvested and subject to forfeiture as of March 31, 2024 and which are therefore not considered outstanding for accounting purposes.

If the underwriters' over-allotment option to purchase additional shares of our common stock is exercised in full, our pro forma as adjusted cash, cash equivalents and marketable securities, additional paid-in capital, total stockholders' (deficit) equity, and total capitalization as of March 31, 2024, would be $ million, $ million, $ million, and $ million, respectively.

The number of shares of our common stock to be outstanding after this offering is based on shares of common stock outstanding as of March 31, 2024 after giving effect to the pro forma adjustments described above (after giving effect to the conversion of all of our shares of redeemable convertible preferred stock outstanding as of March 31, 2024), and excludes:

- shares of common stock issuable upon the exercise of stock options outstanding as of March 31, 2024, with a weighted-average exercise price of $ per share;

- shares of common stock reserved for future issuance under the 2024 Plan which will become effective in connection with this offering (which number includes shares of common stock reserved for issuance under the 2015 Plan as of March 31, 2024, which shares will be added to the number of shares available for issuance under the 2024 Plan upon its effectiveness)[; and]
- [shares of our common stock issuable upon exercise of our warrants to purchase shares of redeemable preferred stock as of March 31, 2024, with an exercise price of $ per share, which will convert into warrants to purchase common stock with the same exercise price and have a term of two years following the completion of this offering, based on an assumed initial public offering price of $ per share of common stock, the midpoint of the price range set forth on the cover of this prospectus.]

DILUTION

If you invest in our common stock in this offering, your interest will be immediately diluted to the extent of the difference between the public offering price per share of our common stock in this offering and the as adjusted net tangible book value per share of our common stock immediately after the completion of this offering.

As of March 31, 2024, our historical net tangible book value was $ million, or $ per share of our common stock. Our historical net tangible book value per share represents total tangible assets less total liabilities and redeemable convertible preferred stock, which is not included within permanent equity, divided by the number of shares of our common stock outstanding on March 31, 2024.

On a pro forma basis, after giving effect to the conversion of all outstanding shares of our redeemable convertible preferred stock into shares of our common stock and the related reclassification of the carrying value of the redeemable convertible preferred stock to permanent equity immediately prior to the closing of this offering, our pro forma net tangible book value (deficit) as of March 31, 2024 would have been approximately $ million, or approximately $ per share of our common stock.

Our as adjusted net tangible book value represents our historical net tangible book value as adjusted to give effect to the sale of shares of our common stock in this offering at an assumed initial public offering price of $ per share of common stock, which is the midpoint of the price range set forth on the cover page of this prospectus, and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. We determine dilution per share to investors participating in this offering by subtracting as adjusted net tangible book value per share after this offering from the assumed initial public offering price per share of common stock paid by investors participating in this offering.

The following table illustrates this per share dilution:

Assumed initial public offering price per share of common stock	$
Historical net tangible book value (deficit) per share as of March 31, 2024	$
Pro forma increase in historical net tangible book value per share as of March 31, 2024 attributable to the pro forma adjustments described above	
Pro forma net tangible book value per share as of March 31, 2024	
Increase in as adjusted net tangible book value per share attributable to new investors participating in this offering	
Pro forma as adjusted net tangible book value per share after this offering	
Dilution per share to new investors participating in this offering	$

Each $1.00 increase or decrease in the assumed initial public offering price of $ per share of common stock, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase or decrease, as applicable, our as adjusted net tangible book value as of March 31, 2024 after this offering by $ million, or $ per share, and would increase or decrease dilution to investors in this offering by $ per share, assuming that the number of shares of common stock offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us. We may also increase or decrease the number of shares of common stock we are offering. Each increase of 1.0 million shares in the number of shares of common stock we are offering would increase our as adjusted net tangible book value as of March 31, 2024 after this offering by $ million, or $ per share and would decrease dilution of investors in this offering by $ per share assuming the assumed initial public offering price of $ per share of common stock remains the same, and after deducting the underwriting discount and commissions and estimated offering expenses payable by us. Each decrease of 1.0 million shares in the number of shares of common stock we are offering would decrease our as adjusted net tangible book value as of March 31, 2024 after this offering by $ million, or $ per share and would increase dilution of investors in this offering by $ per share assuming the assumed initial public offering price of $ per share of common stock remains the same, and after deducting the underwriting discount and commissions and estimated offering expenses payable by us.

If the underwriters fully exercise their over-allotment option to purchase additional shares of our common stock, as adjusted net tangible book value after this offering would be $ per share, the increase in as adjusted net tangible book value per share to existing stockholders would be $ per share, and the decrease in dilution to investors in this offering would be $ per share, in each case assuming an initial public offering price of $ per share of common stock, which is the midpoint of the price range set forth on the cover page of this prospectus.

The dilution information above is for illustration purposes only. Our pro forma as adjusted net tangible book value following the closing of this offering will depend on the actual initial public offering price and other terms of this offering determined at pricing.

The following table summarizes, on the pro forma as adjusted basis described above, the differences between the number of shares of common stock purchased from us, the total consideration paid to us and the average price per share paid by existing stockholders and by new investors purchasing shares of common stock in this offering. The calculation below is based on an assumed initial public offering price of $ per share of common stock (the midpoint of the price range set forth on the cover page of this prospectus), before deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us:

	Shares Purchased		Total Consideration		Weighted-Average Price
	Number	Percent	Amount	Percent	Per Share
Existing stockholders before this offering		%	$	%	$
Investors purchasing securities in this offering		%	$	%	$
Total		100.0%	$	100.0%	$

Each $1.00 increase or decrease in the assumed initial public offering price of $ per share (the midpoint of the price range set forth on the cover page of this prospectus) would increase or decrease, as applicable, the total consideration paid by new investors by $ million and, in the case of an increase, would increase the percentage of total consideration paid by new investors by percentage points and, in the case of a decrease, would decrease the percentage of total consideration paid by new investors by percentage points, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same. Similarly, each increase or decrease of 1.0 million shares in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase or decrease, as applicable, the total consideration paid by new investors by $ million and, in the case of an increase, would increase the percentage of total consideration paid by new investors by percentage points and, in the case of a decrease, would decrease the percentage of total consideration paid by new investors by percentage points, assuming that the assumed initial public offering price remains the same.

The foregoing tables and calculations (other than the historical net tangible book value calculation) are based on shares of our common stock outstanding as of March 31, 2024, after giving effect to the conversion of all outstanding shares of our redeemable convertible preferred stock into shares of our common stock immediately prior to the closing of this offering, after giving effect to the following:

- shares of common stock issuable upon the conversion of our Series B-1 redeemable preferred stock to be issued upon the automatic net exercise of the Series B Warrants outstanding as of March 31, 2024, with an exercise price of $ per share, immediately prior to the completion of this offering, based on an assumed initial public offering price of $ per share of common stock, the midpoint of the price range set forth on the cover of this prospectus;
- [shares of common stock issuable upon the conversion of our Series B-1 redeemable preferred stock to be issued upon the automatic net exercise of the Series B Warrants outstanding as of March 31, 2024, with an exercise price of $ per share, immediately prior to the completion of this offering, based on an assumed initial public offering price of $ per share of common stock, the midpoint of the price range set forth on the cover of this prospectus;]

- [shares of our common stock issuable upon the conversion of our Series C redeemable preferred stock to be issued upon the automatic net exercise of Series C Warrants outstanding as of March 31, 2024, with an exercise price of $ per share, immediately prior to the completion of this offering, based on an assumed initial public offering price of $ per share of common stock, the midpoint of the price range set forth on the cover of this prospectus];
- shares of our common stock issuable upon conversion of the Bridge Notes issued in February through May 2024 in the aggregate original principal amount of $5.5 million, which will occur immediately prior to the closing of the offering; and
- the filing and effectiveness of our amended and restated certificate of incorporation immediately prior to the closing of this offering, and
- a -for- reverse stock split of our common stock, which we effected on , 2024.

The number of shares of common stock outstanding does not include the shares issuable under our options outstanding as follows:

- shares of common stock issuable upon the exercise of stock options outstanding as of March 31, 2024, with a weighted-average exercise price of $ per share;
- shares of common stock reserved for future issuance under the 2024 Plan which will become effective in connection with this offering (which number includes shares of common stock reserved for issuance under the 2015 Plan as of March 31, 2024, which shares will be added to the 2024 Plan upon its effectiveness);[; and]
- [shares of our common stock issuable upon exercise of our warrants to purchase shares of redeemable preferred stock as of March 31, 2024, with an exercise price of $ per share, which will convert into warrants to purchase common stock with the same exercise price and have a term of two years following the completion of this offering, based on an assumed initial public offering price of $ per share of common stock, the midpoint of the price range set forth on the cover of this prospectus.]

To the extent that outstanding options or warrants are exercised, new options or other securities are issued under our equity incentive plans, or we issue additional shares of our common stock in the future, there will be further dilution to investors participating in this offering. In addition, we may choose to raise additional capital because of market conditions or strategic considerations, even if we believe that we have sufficient funds for our current or future operating plans. If we raise additional capital through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements about us and our industry. In addition, from time to time we or our representatives have made or will make forward-looking statements. The forward-looking statements involve substantial risks and uncertainties. All statements, other than statements related to present facts or current conditions or of historical facts, contained in this prospectus, including statements regarding our strategy, future operations, future financial position, future revenues, and projected costs, prospects, plans and objectives of management, research and development plans, the anticipated timing, costs, design and conduct of our ongoing and planned clinical trials and preclinical studies for elraglusib and any future product candidates, the timing and likelihood of regulatory filings and approvals for elraglusib and any future product candidates, our ability to commercialize elraglusib and any future product candidates, if approved, the pricing and reimbursement of elraglusib and any future product candidates, if approved, the potential to develop future product candidates, the potential benefits of strategic collaborations and potential to enter into any future strategic arrangements, the timing and likelihood of success, plans and objectives of management for future operations, and future results of anticipated product development efforts, are forward-looking statements. Accordingly, these statements involve estimates, assumptions and uncertainties which could cause actual results to differ materially from those expressed in them. The words “anticipate,” “believe,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “might,” “ongoing,” “plan,” “potential,” “predict,” “project,” “should,” “target,” “will,” “would,” or the negative of these terms or other comparable terminology are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Any forward-looking statements are qualified in their entirety by reference to the factors discussed under the heading “Risk Factors” in this prospectus or in any related free writing prospectus.

You should assume that the information appearing in this prospectus or any related free writing prospectus is accurate as of its date only. Because the risk factors referred to above could cause actual results or outcomes to differ materially from those expressed in any forward-looking statements made by us or on our behalf, you should not place undue reliance on any forward-looking statements. Further, any forward-looking statement speaks only as of the date on which it is made. New factors emerge from time to time, and it is not possible for us to predict which factors will arise. In addition, we cannot assess the impact of each factor on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements. All written or oral forward-looking statements attributable to us or any person acting on our behalf made after the date of this prospectus are expressly qualified in their entirety by the risk factors and cautionary statements contained in this prospectus. Unless legally required, we do not undertake any obligation to release publicly any revisions to such forward-looking statements to reflect events or circumstances after the date of this prospectus or to reflect the occurrence of unanticipated events.

In addition, statements that “we believe” and similarly qualified statements reflect our beliefs and opinions on the relevant subject. These statements are based upon information available to us as of the date of this prospectus, and while we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate that we have conducted an exhaustive inquiry into, or review of, all potentially available relevant information. These statements are inherently uncertain and you are cautioned not to rely unduly upon them.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis of the financial condition and results of our operations should be read in combination with our consolidated financial statements and the notes to those statements appearing elsewhere in this prospectus. This discussion and analysis contains forward-looking statements reflecting our management's current expectations that involve risks, uncertainties and assumptions. See the section entitled "Special Note Regarding Forward-Looking Statements." Our actual results and the timing of events may differ materially from those described in or implied by these forward-looking statements due to a number of factors, including those discussed below and elsewhere in this prospectus, particularly those set forth under "Risk Factors."

Overview

We are a clinical stage biopharmaceutical company focused on developing therapies for the treatment of high impact, difficult to treat cancers through the inhibition of glycogen synthase kinase-3 (GSK-3). We are developing elraglusib (formerly 9-ING-41), a small molecule that is designed to enter cancer cells and block the function of the enzyme GSK-3β, a master regulator of complex biological signaling cascades, including those mediated by oncogenes, that lead to tumor cell survival, growth, migration, and invasion. We believe that the blockade of GSK-3β signaling ultimately results in the death of the cancer cells and the regulation of anti-tumor immunity. Our lead program, Elraglusib Injection, is an intravenous injection solution of elraglusib that we are evaluating for the treatment of mPDAC (Actuate-1801). Elraglusib Injection has also been evaluated in pediatric cancer patients with recurrent/refractory solid cancers and the data from this study, Actuate-1902, also identified Ewing sarcoma as a potential second indication for further development of Elraglusib Injection. We are currently advancing a Phase 2 clinical trial for the treatment of mPDAC and a Phase 1/2 clinical trial in refractory pediatric malignancies. We are also evaluating the potential for additional exploratory development of Elraglusib Injection in other pediatric cancer indications, including neuroblastoma and leukemias, which we expect to explore through academic IITs.

We have developed several oral dosage forms of elraglusib, which we believe will allow us to expand the number of cancer indications that we are able to target and allow us to further explore optimal dosing. A clinical candidate tablet (Elraglusib Oral Tablet) has been selected for further development and the Company is planning a Phase 1 study (Actuate-2401) to identify the MTD/ RP2D for Elraglusib Oral Tablet in patients with advanced, refractory adult cancers subject to our receipt of the proceeds of this offering as well as future funding. Several Phase 2 indications, including refractory, metastatic melanoma and refractory, metastatic colorectal cancer have been identified for further clinical development of Elraglusib Oral Tablet based on data from the Actuate-1801 study once the RP2D has been identified, and which will also require additional funds to initiate and complete the studies.

Since our inception in 2015, we have focused substantially all of our resources on organizing and staffing our company, business planning, raising capital, establishing and maintaining our intellectual property portfolio, conducting research, preclinical studies, and clinical trials, establishing arrangements with third parties for the manufacture of elraglusib, and providing general and administrative support for these operations. We do not have any products approved for sale and have not generated any revenue from product sales.

We have incurred significant operating losses and negative cash flows from operations since our inception. Our net losses were approximately $24.7 million and $20.2 million for the years ended December 31, 2023 and 2022, respectively, and $8.3 million and $5.3 million for the three months ended March 31, 2024 and 2023, respectively. As of March 31, 2024, we had an accumulated deficit of approximately $113.4 million. Substantially all of our net losses have resulted from costs incurred in connection with our research and development programs and, to a lesser extent, from general and administrative costs associated with our operations. We expect to continue to incur significant expenses and operating losses in the foreseeable future, and we anticipate these losses will increase substantially as we continue our development of, seek regulatory approval for, and potentially commercialize elraglusib, and potentially seek to discover and develop additional product candidates, utilize third parties to manufacture elraglusib, hire additional personnel, expand and protect our intellectual property, and incur additional costs associated with being a public company. If we obtain regulatory approval for elraglusib, we expect to incur significant expenses related to developing our commercialization capability to support product sales, marketing and distribution.

Because of the numerous risks and uncertainties associated with pharmaceutical product development, we are unable to accurately predict the timing or amount of increased expenses or when, or if, we will be able to achieve or maintain profitability. Even if we are able to generate product sales, we may not become profitable. If we do not become profitable or are unable to sustain profitability on a continuing basis, then we may be unable to continue our operations at planned levels and may be forced to reduce or terminate our operations.

To date, we have primarily funded our operations with proceeds from the sale of shares of our redeemable convertible preferred stock, issuance of convertible notes that were converted into redeemable convertible preferred stock, and the issuance of related party convertible notes payable (referred to as Related Party Convertible Notes or Bridge Notes below and elsewhere in this prospectus). Through March 31, 2024, we have received aggregate net proceeds of approximately $98.7 million from the sale of shares of our redeemable convertible preferred stock, the issuance of convertible notes that were converted into redeemable convertible preferred stock, and issuance of Bridge Notes. As of March 31, 2024, we had cash and cash equivalents of approximately $2.1 million. During February and March 2024, we received aggregate net proceeds of $4.5 million from the issuance of Related Party Convertible Notes (see Note 5 to our unaudited condensed consolidated financial statements for the three months ended March 31, 2024 included elsewhere in this prospectus). Our ability to generate any product revenue and, in particular, our ability to generate product revenue sufficient to achieve profitability, will depend on the successful development and eventual commercialization of elraglusib and any future product candidates.

Based on our current operating plan, we estimate that our existing cash and cash equivalents as of the date of this prospectus, together with the estimated net proceeds from this offering, will be sufficient to fund our projected operating expenses and capital expenditure requirements through at least . See the section titled “Use of Proceeds” in this prospectus for a more complete description of the intended use of proceeds from this offering. However, we have based this estimate on assumptions that may prove to be wrong, and our operating plan may change as a result of many factors currently unknown to us. In addition, we could utilize our available capital resources sooner than we expect.

We will not generate revenue from product sales unless and until we successfully complete clinical development and obtain regulatory approval for elraglusib or any future product candidates, which we expect will take a number of years and may never occur. As a result, we will need substantial additional funding in addition to the net proceeds from this offering to support our continuing operations and pursue our growth strategy. Until such time as we can generate significant revenue from product sales, if ever, we expect to finance our operations through equity offerings, debt financings, or other capital sources, including potential future collaborations, licenses, and other similar arrangements and non-dilutive arrangements to the extent available through licensing partner funding, foundations and grants. However, we may be unable to raise additional funds or enter into such other agreements or arrangements when needed on favorable terms, or at all. If we fail to raise capital or enter into such agreements or arrangements as, and when needed, we may delay, limit, reduce or terminate our product development or future commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves, or even cease operations.

We do not own or operate, and currently have no plans to establish, any manufacturing facilities. We rely, and expect to continue to rely, on third parties for the manufacture of elraglusib for clinical testing, as well as for commercial manufacture if we obtain marketing approval. In addition, we rely on third parties to package, label, store, and distribute elraglusib, and we intend to rely on third parties for our commercial products if marketing approval is obtained. We believe that this strategy allows us to maintain a more efficient infrastructure by eliminating the need for us to invest in our own manufacturing facilities, equipment, and personnel while also enabling us to focus our expertise and resources on the development of elraglusib.

Components of Our Results of Operations

Our operating expenses consist of (i) research and development expenses and (ii) general and administrative expenses.

Research and Development Expenses

Research and development expenses consist primarily of external and internal costs incurred in performing clinical and preclinical development activities. Our external research and development costs primarily consists of the cost incurred under agreements with hospitals to treat and monitor patients enrolled in our clinical trials, contract manufacturers, consultants and other third parties to conduct and support our clinical trials and preclinical studies. Our internal research and development costs primarily include research and development personnel-related expenses such as salaries, employer taxes, group insurance benefits, and stock-based compensation.

We expense research and development costs as incurred. We currently only have one product candidate, elraglusib. Therefore, since our inception, substantially all of our research and development costs were related to the development of elraglusib. We track research and development expenses on an aggregate basis and not on an indication-by-indication or treatment setting-by-treatment setting basis.

Although research and development activities are central to our business model, the successful development of elraglusib and any future product candidates is highly uncertain. There are numerous factors associated with the successful development of any product candidate such as elraglusib, including future trial design and various regulatory requirements, many of which cannot be determined with accuracy at this time based on our stage of development. In addition, future regulatory factors beyond our control may impact our clinical development programs. Product candidates in later stages of clinical development generally have higher development costs than those in earlier stages of clinical development, primarily due to the increased patient size and duration of later-stage clinical trials. As a result, we expect our research and development expenses will increase substantially in connection with our ongoing and planned clinical and preclinical development activities in the near term and in the future. At this time, we cannot accurately estimate or know the nature, timing and costs of the efforts that will be necessary to complete the preclinical and clinical development of elraglusib and any future product candidates. Our future research and development expenses may vary significantly based on a wide variety of factors such as:

- the results of our clinical trials and preclinical studies of elraglusib and any future product candidates we may choose to pursue, including any modifications to clinical development plans based on feedback that we may receive from regulatory authorities;
- per patient trial costs;
- the number of trials required for approval;
- the number of sites included in the trials and the number of countries in which the trials are conducted;
- the number of patients that participate in the trials, the drop-out or discontinuation rates of patients, and the length of time required to enroll eligible patients;
- the number of doses that patients receive;
- the potential additional safety monitoring requested by regulatory agencies;
- the duration of patient participation in the trials and follow-up;
- the cost and timing of manufacturing elraglusib and any future product candidates;
- the costs, if any, of obtaining third-party drugs for use in our combination trials;
- the extent of changes in government regulation and regulatory guidance;
- the efficacy and safety profile of elraglusib and any future product candidates;
- the timing, receipt, and terms of any approvals from applicable regulatory authorities; and
- the extent to which we establish additional collaboration, license, or other arrangements.

A change in the outcome of any of these variables with respect to the development of elraglusib or any future product candidates could significantly change the costs and timing associated with the development of that product candidate. We may never succeed in obtaining regulatory approval for any product candidate.

General and Administrative Expenses

General and administrative expenses consist primarily of personnel-related expenses such as salaries, benefits, and stock-based compensation, for our personnel in executive and other administrative functions. General and administrative expenses also include legal fees relating to patent and corporate matters and professional fees paid for accounting, auditing, consulting and tax services, as well as other costs such as insurance costs, investor and public relations, and travel expenses.

We anticipate our general and administrative expenses will increase substantially in the future as we expand our operations, including increasing our headcount to support our continued research and development activities and preparing for later-stage clinical trials and potential commercialization of elraglusib. We also anticipate we will incur increased accounting, audit, legal, regulatory, compliance, director and officer insurance, and investor and public relations expenses associated with operating as a public company.

Other Income (Expense)

Change in Fair Value of Warrant Liability

On June 30, 2023, in connection with the issuance of the Series C redeemable convertible preferred stock, we issued the placement agent warrants to purchase up to 32,796 shares of Series C redeemable convertible preferred stock at an exercise price of $5.23 per share. The initial estimated fair value of these warrants of $93,863 was calculated using the Black-Scholes valuation model and recorded as a reduction to redeemable convertible preferred stock and a corresponding increase in the warrant liability.

In 2018, in connection with convertible promissory note payable agreements, we issued the noteholders warrants to purchase shares of Series B-1 redeemable convertible preferred stock, of which, warrants to purchase up to 137,465 shares of Series B redeemable convertible preferred stock were issued at an exercise price of $2.93 per share and warrants to purchase up to 137,465 shares of Series B redeemable convertible preferred stock were issued at an exercise price of $5.86 per share.

The redeemable convertible preferred stock warrants require liability classification as the underlying redeemable convertible preferred stock is considered contingently redeemable and may obligate us to transfer assets to the holders at a future date upon occurrence of a deemed liquidation event. The warrants are recorded at fair value upon issuance and are subject to remeasurement to fair value at each balance sheet date, with any changes in fair value recognized in other income (expense), net. We will continue to adjust the warrant liability for changes in fair value until the earlier of (i) the exercise or expiration of the redeemable convertible preferred stock warrants, (ii) the occurrence of a deemed liquidation event or (iii) the conversion of redeemable convertible preferred stock into common stock.

Loss on Issuance of Related Party Convertible Notes Payable

Upon issuance of the Related Party Convertible Notes Payable, we elected to apply the fair value option to the Related Party Convertible Notes Payable in accordance with ASC 825, *Financial Instruments*. In certain circumstances, the estimated fair value at issuance may be greater than the principal amount at issuance. The loss on issuance of the Related Party Convertible Notes Payable represents the difference between the estimated fair value of the Related Party Convertible Notes Payable on the issuance date and the gross proceeds received on the issuance date based on the valuation assumptions, including but not limited to, the proximity in time to this offering, the discount on conversion of the Related Party Convertible Notes Payable upon a financing or initial public offering (or IPO), and the increased probability weighted IPO scenario on the issuance date.

Change in Estimated Fair Value of Related Party Convertible Notes Payable

The Related Party Convertible Notes Payable are measured at fair value on their issuance date and remeasured at estimated fair value at the end of each reporting period with changes in fair value recognized as a component of other income (expense).

Interest Expense

Interest expense represents interest owed to UIC under our license agreement with UIC, whereby UIC agreed to defer amounts owed to UIC under a former sublicense agreement in the amount of $404,991.

Interest Income

Interest income represents interest earned on our cash and cash equivalents at the then prevailing market rates.

Results of Operations

Comparison of the Three Months Ended March 31, 2024 and 2023

The following table summarizes our results of operations for the three months ended March 31, 2024 and 2023:

	Three Months Ended March 31,		
	2024	2023	Change
	(unaudited)		
Operating expenses:			
Research and development	$ 6,860,430	$ 4,523,757	$ 2,336,673
General and administrative	912,824	774,799	138,025
Total operating expenses	7,773,254	5,298,556	2,474,698
Loss from operations	(7,773,254)	(5,298,556)	(2,474,698)
Other income (expense):			
Change in fair value of warrant liability	(32,915)	5,104	(37,619)
Loss on issuance of related party convertible notes payable at fair value	(200,000)	—	(200,000)
Change in estimated fair value of related party convertible notes payable	(300,000)	—	(300,000)
Interest expense	(5,076)	(28,454)	23,378
Interest income	14,786	51,651	(36,865)
Total other income (expense), net	(522,805)	28,301	(551,106)
Net loss	$(8,296,059)	$(5,270,255)	(3,025,804)

Research and Development Expenses

The following table summarizes our research and development expenses for the three months ended March 31, 2024 and 2023:

	Three Months Ended March 31,		
	2024	2023	Change
External clinical trial expenses	$5,098,162	$2,581,882	$ 2,516,280
Personnel and consulting expenses	868,974	1,044,081	(175,107)
Preclinical and biomarker research	304,788	86,961	217,827
CMC related costs	588,506	810,833	(222,327)
Total research and development expenses	$6,860,430	$4,523,757	$ 2,336,673

The increase in research and development expenses of approximately $2.3 million for the three months ended March 31, 2024 compared to the same prior year period was primarily due to an increase of

approximately $2.5 million in external clinical trial expenses mostly related to increased patient enrollment and the number of patients on study in the randomized Phase 2 mPDAC trial (Actuate-1801 Part 3B) during the current period, combined with an increase of approximately $0.2 million in preclinical and biomarker research primarily related to the current period increase in biomarker research associated with higher patient enrollment, which amounts were offset by a decrease in personnel and consulting fees of approximately $0.2 million primarily due to a decrease in consulting fees in the current period as certain consultants transitioned to full-time employment at an overall lower cost to the Company combined with a decrease of approximately $0.2 million in CMC related costs primarily due to a decrease in manufacturing costs of elraglusib in the current period due to the timing of drug substance manufacturing to support the randomized Phase 2 mPDAC trial (Actuate-1801 Part 3B) and other ongoing trials.

General and Administrative Expenses

The following table summarizes our general and administrative expenses for the three months ended March 31, 2024 and 2023:

	Three Months Ended March 31,		Change	
	2024	2023		
Personnel-related expenses	$400,300	$478,969	$)	(78,669
Professional and consulting fees	500,356	200,290		300,066
Other expenses	12,168	95,540	)	(83,372
Total general and administrative expenses	$912,824	$774,799	$	138,025

The increase in general and administrative expenses of approximately $0.1 million for the three months ended March 31, 2024 compared to the same prior year period was primarily due to an increase in professional and consulting fees of approximately $0.3 million primarily related to an increase in (i) audit and related support fees as the Company prepares for this offering, (ii) valuation services to support the estimated fair market value of the Company's common stock and other financial instruments, and (iii) intellectual property fees associated with patent administrative matters, which amount was offset by a decrease in personnel-related expenses of approximately $0.1 million primarily related to one fewer headcount in the current year, combined with a decrease in other expenses of approximately $0.1 million primarily due to lower corporate insurance costs and information technology costs in the current year.

Other Income (Expense)

Other income (expense), net, for the three months ended March 31, 2024 and 2023 is comprised of the following:

- *Change in fair value of warrant liability* — During 2018 and June 2023, we issued warrants to purchase shares of redeemable convertible preferred stock. The redeemable convertible preferred stock warrants require liability classification as the underlying redeemable convertible preferred stock is considered contingently redeemable and may obligate us to transfer assets to the holders at a future date upon occurrence of a deemed liquidation event. The warrants are recorded at fair value upon issuance and are subject to remeasurement to fair value at each balance sheet date, with any changes in fair value recognized in other income (expense), net. The following table represents the change in fair value of the redeemable convertible preferred stock warrants using the Black-Scholes valuation model, which amounts are included in other income (expense) in the accompanying unaudited condensed consolidated financial statements for the three months ended March 31, 2024 and 2023:

	Redeemable Convertible Preferred Stock Warrant Liability
Fair value as of December 31, 2022	$ 814,364
Change in fair value	(5,104)
Fair value as of March 31, 2023	$ 809,260
Fair value as of December 31, 2023	988,049
Change in fair value	32,515
Fair value as of March 31, 2024	$ 1,020,564

- *Loss on issuance of related party convertible notes payable at fair value* — The loss on issuance of the Related Party Convertible Notes Payable of $200,000 for the three months ended March 31, 2024 represents the difference between the estimated fair value of the Related Party Convertible Notes Payable on the issuance date and the principal amount on the issuance date based on the valuation assumptions, including but not limited to, the proximity in time to this offering, the discount on conversion of the Related Party Convertible Notes Payable upon a financing or IPO, and the increased probability weighted IPO scenario on the issuance date.
- *Change in estimated fair value of related party convertible notes payable* — The change in the estimated fair value of the Related Party Convertible Notes Payable of $300,000 for the three months ended March 31, 2024 represents the difference between the estimated fair value at issuance and the estimated fair value at March 31, 2024 based on the valuation assumptions, including but not limited to, the proximity in time to this offering, the discount on conversion of the Related Party Convertible Notes Payable upon a financing or IPO, and the increased probability weighted IPO scenario as of March 31, 2024.
- *Interest expense* — Interest expense for the three months ended March 31, 2024 and 2023 represents interest accrued on amounts owed under a license agreement with UIC, whereby UIC agreed to defer amounts payable to UIC under a former sublicense agreement in the amount of $404,991 in exchange for an interest-bearing license payable.
- *Interest income* — Interest income for the three months ended March 31, 2024 and 2023 represents interest earned on cash and cash equivalents based on the prevailing market rates. The decrease in interest income for the three months ended March 31, 2024 compared to the same prior year period is primarily due to a lower cash balance on hand compared to the same prior year period.

Comparison of the Years Ended December 31, 2023 and 2022

The following table summarizes our results of operations for the years ended December 31, 2023 and 2022:

	Year Ended December 31,		Change
	2023	2022	
Operating expenses:			
Research and development	$ 21,708,332	$ 16,387,216	$ 5,321,116
General and administrative	3,265,497	3,819,591	(554,094
Total operating expenses	24,973,829	20,206,807	4,767,022
Loss from operations	(24,973,829)	(20,206,807)	(4,767,022
Other income (expense):			
Change in fair value of warrant liability	(79,822	36,579	(116,401
Interest expense	(43,641	(16,200	(27,441
Interest income	352,672	27,027	325,645
Total other income, net	229,209	47,406	181,803
Net loss	$(24,744,620)	$(20,159,401)	$ (4,585,219

Research and Development Expenses

The following table summarizes our research and development expenses for the years ended December 31, 2023 and 2022:

	Year Ended December 31,		Change
	2023	2022	
External clinical trial expenses	$13,986,355	$10,513,275	$ 3,473,080
Personnel and consulting expenses	3,675,373	2,028,258	1,647,115
Preclinical and biomarker research	1,800,324	1,934,217	(133,893
CMC related costs	2,246,280	1,911,466	334,814
Total research and development expenses	$21,708,332	$16,387,216	$ 5,321,116

The increase in research and development expenses of approximately $5.3 million for the year ended December 31, 2023 compared to the same prior year period was primarily due to an increase of approximately $3.5 million in clinical trial expenses related to increased patient enrollment, an increase of approximately $1.6 million in personnel and consulting expenses to support increased enrollment and other clinical, regulatory, and Chemistry, Manufacturing and Control (CMC) activities, and an increase of approximately $0.3 million in CMC expenses due to an increase in formulation and stability studies to support the oral formulation of elraglusib. These were partially offset by a decrease in preclinical and biomarker research CMC expenses of $0.1 million primarily due to fewer toxicology and preclinical experiments completed in 2023 as compared to 2022.

General and Administrative Expenses

The following table summarizes our general and administrative expenses for the years ended December 31, 2023 and 2022:

	Year Ended December 31,		Change	
	2023	2022		
Personnel-related expenses	$1,827,250	$2,579,222	$)	(751,972
Professional and consulting fees	1,083,243	945,845		137,398
Other expenses	355,004	294,524		60,480
Total general and administrative expenses	$3,265,497	$3,819,591	$)	(554,094

The decrease in general and administrative expenses of approximately $0.6 million for the year ended December 31, 2023 compared to the same prior year period was primarily due to a decrease in personnel-related expenses of approximately $0.8 million resulting from lower stock-based compensation expense in the current period as fewer awards were subject to vesting as compared to the same prior year period combined with a decrease in payroll costs due to a temporary decline in executive roles in the current year, which amount was offset with an increase in professional and consulting fees of approximately $0.1 million primarily related to fees associated with maintaining our intellectual property and an increase in other expenses of approximately $0.1 million primarily due to an increase in travel and related expenses to support investor and public relations.

Other Income (Expense)

Other income (expense), net, for the years ended December 31, 2023 and 2022 is comprised of the following:

- *Change in fair value of warrant liability* — During 2018 and June 2023, we issued warrants to purchase shares of redeemable convertible preferred stock. The redeemable convertible preferred stock warrants require liability classification as the underlying redeemable convertible preferred stock is considered contingently redeemable and may obligate us to transfer assets to the holders at a future date upon occurrence of a deemed liquidation event. The warrants are recorded at fair value upon issuance and are subject to remeasurement to fair value at each balance sheet date, with any changes in fair value recognized in other income (expense), net. The following table represents the change in fair value of the redeemable convertible preferred stock warrants using the Black-Scholes valuation model, which amounts are included in other income (expense) in the accompanying consolidated financial statements for the years ended December 31, 2023 and 2022:

	Redeemable Convertible Preferred Stock Warrant Liability
Fair value as of January 1, 2022	$ 850,943
Change in fair value	(36,579
Fair value as of December 31, 2022	814,364
Estimated fair market value of warrants issued to placement agent in connection with issuance of redeemable convertible preferred stock	93,863
Change in fair value	79,822
Fair value as of December 31, 2023	$ 988,049

- *Interest expense* — Interest expense for the years ended December 31, 2023 and 2022 represents interest accrued on amounts owed under a license agreement with UIC, whereby UIC agreed to defer amounts payable to UIC under a former sublicense agreement in the amount of $404,991 in exchange for an interest-bearing license payable (see Note 6 to the accompanying consolidated financial statements) for the years ended December 31, 2023 and 2022 and Note 7 to our unaudited

condensed consolidated financial statements for the three months ended March 31, 2024 included elsewhere in this prospectus.

- *Interest income* — Interest income for the years ended December 31, 2023 and 2022 represents interest earned on cash and cash equivalents based on the prevailing market rates. The increase in interest income in 2023 compared to the same prior year period is primarily due to higher rates of interest earned on money market funds during the current year period as compared to the prior year.

Liquidity and Capital Resources

Sources of Liquidity

Since our inception, we have not generated any revenue from product sales and have incurred significant operating losses and negative cash flows from operations. We expect to incur significant expenses and operating losses in the foreseeable future as we advance the clinical development of elraglusib and any future product candidates. To date, we have primarily funded our operations with proceeds from the sale of shares of our redeemable convertible preferred stock, the issuance of convertible notes that were converted into redeemable convertible preferred stock, and the issuance of the Related Party Convertible Notes or Bridge Notes. Through March 31, 2024, we have received aggregate net proceeds of approximately $98.7 million from the sale of shares of our redeemable convertible preferred stock, the issuance of convertible notes that were converted into redeemable convertible preferred stock, and issuance of Bridge Notes. As of March 31, 2024, we had cash and cash equivalents of approximately $2.1 million. During February and March 2024, we received aggregate net proceeds of $4.5 million from the issuance of Related Party Convertible Notes (see Note 5 to our unaudited condensed consolidated financial statements for the three months ended March 31, 2024 included elsewhere in this prospectus).

Future Funding Requirements

We expect our expenses to increase substantially in connection with our ongoing activities, particularly as we continue our development of, seek regulatory approval for, and potentially commercialize elraglusib and potentially seek to discover and develop additional product candidates, conduct our ongoing and planned clinical trials and preclinical studies, continue our research and development activities, utilize third parties to manufacture elraglusib, hire additional personnel, expand and protect our intellectual property, and incur additional costs associated with being a public company.

Cash used to fund our operating expenses is impacted by the timing of when we pay these expenses, as reflected in the change in our outstanding prepaid expenses, accounts payable, and other accrued expenses. The timing and amount of our funding requirements will depend on many factors, including:

- the costs and timing of clinical trials and preclinical studies of elraglusib and any future product candidates we may choose to pursue, including the costs of modification to clinical development plans based on feedback that we may receive from regulatory authorities and any third-party products used as combination agents in our clinical trials;
- the costs, timing and outcome of regulatory meetings and reviews of elraglusib or any future product candidates, including requirements of regulatory authorities in any additional jurisdictions in which we may seek approval for elraglusib and any future product candidates;
- the costs of obtaining, maintaining, enforcing and protecting our patents and other intellectual property and proprietary rights;
- our efforts to enhance operational systems and hire additional personnel to satisfy our obligations as a public company, including enhanced internal control over financial reporting;
- the costs associated with hiring additional personnel and consultants as our business grows, including additional executive officers and clinical development, regulatory, CMC quality and commercial personnel;
- the timing and payment of milestone, royalty or other payments we must make pursuant to our existing and potential future license or collaboration agreements with third parties;

- the costs and timing of establishing or securing sales and marketing capabilities if elraglusib or any future product candidate is approved;
- our ability to achieve sufficient market acceptance, coverage, and adequate reimbursement from third-party payors and adequate market share and revenue for any approved products;
- our ability and strategic decision to develop future product candidates other than elraglusib, and the timing of such development, if any;
- the terms and timing of establishing and maintaining collaborations, licenses and other similar arrangements; and
- costs associated with any products or technologies that we may in-license or acquire.

Based upon our current operating plan, we estimate that our existing cash and cash equivalents as of the date of this prospectus, together with the estimated net proceeds from this offering, will be sufficient to fund our projected operating expenses and capital expenditure requirements for at least months. However, we have based this estimate on assumptions that may prove to be wrong, and our operating plan may change as a result of many factors currently unknown to us.

We have no other committed sources of capital. Until such time, if ever, as we can generate substantial product revenue, we expect to finance our operations through equity offerings, debt financings, or other capital sources, including current or potential future collaborations, licenses, and other similar arrangements. However, we may be unable to raise additional funds or enter into such other arrangements when needed on favorable terms or at all. To the extent we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect your rights as a common stockholder. Debt financing and preferred equity financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making acquisitions, engaging in acquisition, merger or collaboration transactions, selling or licensing our assets, making capital expenditures, redeeming our stock, making certain investments or declaring dividends. If we raise additional funds through collaborations or license agreements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or product candidates, or grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce or terminate our product development or future commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves, or even cease operations.

Material Cash Requirements for Known Contractual and Other Obligations

Research and Development Costs

We are continuing to invest in our elraglusib clinical trials and have entered into contractual obligations with each clinical trial site. Each contract shall continue until the completion of the trial at that site. Our clinical trial costs are dependent on, among other things, the size, number and length of our clinical trials.

Other Capital Requirements and Additional Royalty Obligations.

We enter into agreements in the normal course of business with various vendors, which are generally cancellable upon notice. Payments due upon cancellation typically consist only of payments for services provided or expenses incurred, including non-cancellable obligations of service providers, up to the date of cancellation.

Cash Flows

The following table provides information regarding our cash flows for the three months ended March 31, 2024 and 2023:

	Three Months Ended March 31,	
	2024	2023
Net cash used in operating activities	$(5,247,582)	$(5,358,841)
Net cash provided by financing activities	4,357,230	2,463,431
Net change in cash and cash equivalents	$ (890,352)	$(2,895,410)

The following table provides information regarding our cash flows for the years ended December 31, 2023 and 2022:

	Year Ended December 31,	
	2023	2022
Net cash used in operating activities	$(21,625,167)	$(17,794,093)
Net cash provided by financing activities	4,134,516	19,255,569
Net change in cash and cash equivalents	$(17,490,651)	$ 1,461,476

Operating Activities

Three Months Ended March 31, 2024 — Net cash used in operating activities for the three months ended March 31, 2024 consisted of our net loss of $8,296,059, which amount was offset by (i) non-cash stock-based compensation expense of $148,206, (ii) a non-cash increase in the fair value of our warrant liability of $32,515, (iii) a loss on issuance of related party convertible notes payable at fair value of $200,000, (iv) the change in estimated fair value of related party convertible notes payable of $300,000 at March 31, 2024, (v) an increase in accrued interest on license payable of $5,076, and (vi) cash provided by a net change in operating assets and liabilities of $2,362,680.

Three Months Ended March 31, 2023 — Net cash used in operating activities for the three months ended March 31, 2023 consisted of our net loss of $5,270,255 combined with a non-cash decrease in the estimated fair value of our warrant liability of $5,104 and cash used by a net change in operating assets and liabilities of $185,067, which amounts were offset by (i) non-cash stock-based compensation expense of $73,131 and (ii) an increase in accrued interest on license payable of $28,454.

Year Ended December 31, 2023 — Net cash used in operating activities for the year ended December 31, 2023 consisted of our net loss of $24,744,620, which amount was offset by (i) non-cash stock-based compensation expense of $423,539, (ii) a non-cash increase in the fair value of our warrant liability of $79,822, (iii) an increase in accrued interest on license payable of $43,641, and (iv) cash provided by a net change in operating assets and liabilities of $2,572,451.

Year Ended December 31, 2022 — Net cash used in operating activities for the year ended December 31, 2022 consisted of our net loss of $20,159,401 combined with a non-cash decrease in the fair value of our warrant liability of $36,579, which amounts were offset by (i) non-cash stock-based compensation expense of $654,066, (ii) an increase in accrued interest on license payable of $16,200, and (iii) cash provided by a net change in operating assets and liabilities of $1,731,621.

Financing Activities

Three Months Ended March 31, 2024 — During the three months ended March 31, 2024, net cash provided by financing activities consisted of net proceeds received from the issuance of the Related Party Convertible Notes Payable of $4,500,000, which amount was offset by deferred offering costs paid during the period in the amount of $142,770 associated with this offering. The deferred offering costs will be offset against the proceeds upon the consummation of this offering.

Three Months Ended March 31, 2023 — During the three months ended March 31, 2023, net cash provided by financing activities consisted of net proceeds of $2,313,431 related to the issuance of Series C redeemable convertible preferred stock combined with advanced proceeds of $150,000 received prior to the issuance of Series C redeemable convertible preferred stock.

Year Ended December 31, 2023 and 2022 — During the years ended December 31, 2023 and 2022, net cash provided by financing activities of $4,134,516 and $19,255,569, respectively, was related to net proceeds received from the issuance of Series C redeemable convertible preferred stock.

Critical Accounting Policies and Significant Judgments and Estimates

Our financial statements are prepared in accordance with generally accepted accounting principles in the United States (U.S. GAAP). The preparation of our financial statements and related disclosures requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, costs and expenses, and the disclosure of contingent assets and liabilities in our financial statements. We base our estimates on historical experience, known trends and events, and various other factors we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. We evaluate our estimates and assumptions on an ongoing basis. Our actual results may differ from these estimates under different assumptions or conditions.

While our significant accounting policies are described in more detail in Note 2 to the accompanying consolidated financial statements included elsewhere in this prospectus, we believe the following accounting policies are those most critical to the judgments and estimates used in the preparation of our financial statements.

Research and Development Expenses and Related Accrued Expenses

As part of the process of preparing our consolidated financial statements, we are required to estimate our research and development expenses as of each balance sheet date. This process involves reviewing open contracts, including clinical site contracts, and communicating with our personnel to identify services that have been performed on our behalf, and estimating the level of service performed and the associated cost incurred for the service when we have not yet been invoiced or otherwise notified of the actual cost. We make estimates of our research and development expenses as of each balance sheet date based on facts and circumstances known to us at that time. The significant estimates in our research and development expenses include the costs incurred for services performed by our vendors in connection with services for which we have not yet been invoiced. We base our expenses related to research and development activities on our estimates of the services received and efforts expended pursuant to quotes and contracts with contractors and vendors that conduct research and development on our behalf. The financial terms of these agreements are subject to negotiation, vary from contract to contract, and may result in uneven payment flows. Advance payments for goods and services that will be used in future research and development activities are expensed when the activity has been performed or when the goods have been received rather than when the payment is made.

Although we do not expect our estimates to be materially different from amounts actually incurred, if our estimates of the status and timing of services performed differ from the actual status and timing of services performed, it could result in us reporting amounts that are too high or too low in any particular period. To date, there have been no material differences between our estimates of such expenses and the amounts actually incurred.

Stock-Based Compensation

We periodically grant equity-based awards in the form of restricted common stock awards (RSAs) and, beginning in 2023, options to purchase common stock, to employees, directors and non-employees and record stock-based compensation expense for awards of stock-based payments based on their estimated fair value at the grant date. We recognize stock-based compensation expense for all equity-based payments. The fair value of service-based RSAs is measured at the grant date based on the fair market value of our common stock on the date of grant (see the subsection titled "— Determination of Fair Value of Our Common Stock"

below) and is recognized as expense over the requisite service period, which is generally the awards' vesting period. The fair value of performance-based RSAs is measured at the grant date, based on the fair value of shares expected to be earned at the end of the performance period, and is recognized as expense ratably over the performance period based upon the probable number of shares expected to vest. RSAs are subject to forfeiture if the requisite service period is not completed or the performance obligation is not achieved and are recognized as a reduction of stock-based compensation expense as they occur. We classify stock-based compensation expense in the consolidated statements of operations in the same manner in which the recipient's services are classified. We expect to continue to grant equity-based awards in the future, and to the extent that we do, our stock-based compensation expense recognized in future periods will likely increase.

Determination of Fair Value of Our Common Stock

As there has been no public market for our common stock to date, the estimated fair value of our common stock has been determined by our board of directors as of the date of grant of each option or restricted common stock award, with input from management, considering our most recently available third-party valuations of common stock and our board of directors' assessment of additional objective and subjective factors that it believed were relevant and which may have changed from the date of the most recent valuation through the date of the grant. These third-party valuations were performed in accordance with the guidance outlined in the American Institute of Certified Public Accountants' Accounting and Valuation Guide, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*. Our common stock valuations were prepared using either an option pricing method (OPM) or a hybrid method, both of which used market approaches to estimate our enterprise value. The OPM treats common stock and preferred stock as call options on the total equity value of a company, with exercise prices based on the value thresholds at which the allocation among the various holders of a company's securities changes. Under this method, the common stock has value only if the funds available for distribution to stockholders exceed the value of the preferred stock liquidation preferences at the time of the liquidity event, such as a strategic sale or a merger. The hybrid method is a probability-weighted expected return method (PWERM) where the equity value in one or more of the scenarios is calculated using an OPM. The PWERM is a scenario-based methodology that estimates the fair value of common stock based upon an analysis of future values for us, assuming various outcomes. In addition to considering the results of these third-party valuations, our board of directors considered various objective and subjective factors to determine the fair value of our common stock as of each grant date, including:

- the prices at which we sold shares of preferred stock and the superior rights and preferences of the preferred stock relative to our common stock at the time of each grant;
- the progress of our research and development programs, including the status of preclinical studies and clinical trials for our product candidates;
- our stage of development and business strategy;
- external market conditions affecting the biotechnology industry and trends within the biotechnology industry;
- our financial position, including cash on hand, and our historical and forecasted performance and operating results;
- the lack of an active public market for our common stock and our preferred stock;
- the likelihood of achieving a liquidity event, such as an initial public offering, or IPO, or sale of our company in light of prevailing market conditions; and
- the analysis of IPOs and subsequent market performance of similar companies in the biotechnology industry.
- The assumptions underlying these valuations represented management's best estimate, which involved inherent uncertainties and the application of management's judgment. As a result, if we had used significantly different assumptions or estimates, the fair value of our common stock and our stock-based compensation expense could have been materially different.

There are significant judgments and estimates inherent in the determination of the fair value of our common stock. These judgments and estimates include assumptions regarding our future operating performance, the time to complete an IPO or other liquidity event, and the determination of the appropriate valuation methods.

Based on our early stage of development, the difficulty in predicting the range of specific outcomes (and their likelihood), and other relevant factors, the market approach was considered most appropriate for valuations prior to December 2023. The recent transactions method was utilized to determine the value of the equity and the OPM allocated the equity value to the respective share classes. In determining the estimated fair value of our common stock, our board of directors also considered the fact that our stockholders could not freely trade our common stock in the public markets. Accordingly, we applied discounts to reflect the lack of marketability of our common stock based on the weighted-average expected time to liquidity.

Once a public trading market for our common stock has been established in connection with the completion of this offering, it will no longer be necessary for our board of directors to estimate the fair value of our common stock in connection with our accounting for granted equity-based awards or for any other such awards we may grant, as the fair value of our common stock will be determined based on the closing price of our common stock as reported on the date of grant on the primary stock exchange on which our common stock is traded.

Fair Value of Financial Instruments

Authoritative guidance requires disclosure of the fair value of financial instruments. The carrying amount of certain of our financial instruments, including cash and cash equivalents, accounts payable and accrued liabilities, approximate their estimated fair values primarily due to the short-term nature of the instruments or based on information obtained from market sources and management estimates. The redeemable convertible preferred stock warrant liability is carried at fair value based on unobservable market inputs. We measure the fair value of certain of its financial liabilities on a recurring basis. A fair value hierarchy is used to rank the quality and reliability of the information used to determine fair values. Financial assets and liabilities carried at fair value which is not equivalent to cost will be classified and disclosed in one of the following three categories:

- Level 1 — Quoted prices (unadjusted) in active markets for identical assets and liabilities;
- Level 2 — Inputs other than Level 1 that are observable, either directly or indirectly, such as unadjusted quoted prices for similar assets and liabilities, unadjusted quoted prices in the markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities; and
- Level 3 — Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

The redeemable convertible preferred stock warrant liability is valued using the Black-Scholes model, which requires the use of highly subjective assumptions to determine the appropriate fair value of each warrant, including:

- *Fair Value of Common Stock* — See the subsection titled "— Determination of Fair Value of Our Common Stock" above.
- *Expected Volatility* — Since we are not yet a public company and do not have any trading history for our common stock, the expected volatility was estimated based on the historical volatilities of common stock of comparable publicly traded companies, for a look-back period commensurate with the expected term of the warrant. The comparable companies were chosen based on their size, stage of their life cycle or area of specialty. We will continue to apply this process until enough historical information regarding the volatility of our stock price becomes available.
- *Risk-Free Interest Rate* — The risk-free interest rate used is based on the published U.S. Department of Treasury interest rates in effect at each measurement date for zero coupon U.S. Treasury notes with maturities approximating the expected remaining term of each warrant.

- *Expected Dividend Yield* — The expected dividend yield is zero as we have not paid dividends and do not anticipate paying a cash dividend in the foreseeable future.
- *Expected Term* — The expected term of each warrant represents the remaining contractual term of the underlying warrant.

Fair Value Option of Accounting for Related Party Convertible Notes Payable

When financial instruments contain various embedded derivatives which may require bifurcation and separate accounting of those derivatives apart from the entire host instrument, if eligible, ASC 825, Financial Instruments ("ASC 825") allows issuers to elect the fair value option ("FVO") of accounting for those instruments. The FVO may be elected on an instrument-by-instrument basis and is irrevocable unless a new election date occurs. The FVO allows the issuer to account for the entire financial instrument at fair value with subsequent remeasurements of that fair value recorded through the statements of operations at each reporting date. A financial instrument is generally eligible for the FVO if, amongst other factors, no part of the convertible, or contingently convertible, instrument is classified in stockholder's equity and the instrument does not contain a beneficial conversion feature at issuance, provided if a contingent beneficial conversion feature, if any, is not separately recognized within stockholders' equity at the issuance date, a convertible debt instrument with a contingent beneficial conversion feature would be eligible for the FVO if all other criteria are met.

Based on the eligibility assessment discussed above, the Company concluded that its Related Party Convertible Notes Payable are eligible for the FVO and accordingly elected to apply the FVO to its Related Party Convertible Notes Payable in accordance with ASC 825. Accordingly, the Related Party Convertible Notes Payable are measured at fair value on their issuance dates and remeasured at estimated fair value at the end of each reporting period with changes in fair value recognized as a component of other income (expense) in the unaudited condensed consolidated statements of operations. The primary reason for electing the FVO was to address simplification and cost-benefit considerations that result from accounting for hybrid financial instruments at fair value in their entirety versus bifurcation of the embedded derivatives from the debt hosts.

The estimated fair values of the Related Party Convertible Notes Payable are determined using valuation models that incorporate assumptions and estimates. The Company assesses these assumptions and estimates at each financial reporting period as additional information impacting the assumptions is obtained. Assumptions in the models include but are not limited to equity value, volatility, time to a conversion event, risk-free rate and scenario weightings. The fair value measurements of the Related Party Convertible Notes Payable are based on significant inputs that are not observable in the market and represent a Level 3 measurement. The change in fair value related to accrued interest is also included within the single line of change in fair value of Related Party Convertible Notes Payable in the unaudited condensed consolidated statements of operations.

Off-Balance Sheet Arrangements

We did not have, during the periods presented, and we do not currently have, any off-balance sheet arrangements, as defined in the rules and regulations of the SEC.

Recent Accounting Pronouncements

A description of recently issued accounting standards that may potentially impact our financial position, results of operations, and cash flows is included in Note 2 to our consolidated financial statements for the year ended December 31, 2023 and in Note 2 to our unaudited condensed consolidated financial statements for the three months ended March 31, 2024, included elsewhere in this prospectus.

Emerging Growth Company Status and Smaller Reporting Company Status

We are an emerging growth company, as defined in the JOBS Act. The JOBS Act permits an emerging growth company such as us to take advantage of an extended transition period to comply with new or revised accounting standards. We have elected to avail ourselves of such extended transition period, which means

that when a standard is issued or revised and it has different application dates for public or private companies, we can adopt the new or revised standard at the time private companies adopt the new or revised standard and may do so until such time that we either (i) irrevocably elect to opt out of such extended transition period or (ii) no longer qualify as an emerging growth company. We may choose to early adopt any new or revised accounting standards whenever such early adoption is permitted for private companies. We will continue to remain an emerging growth company until the earliest of the following: (1) the last day of the fiscal year following the fifth anniversary of the date of the completion of this offering; (2) the last day of the fiscal year in which our total annual gross revenue is equal to or more than $1.235 billion; (3) the date on which we have issued more than $1.0 billion in nonconvertible debt during the previous three years; or (4) the date on which we are deemed to be a large accelerated filer under the rules of the SEC.

We are also a smaller reporting company as defined in the Exchange Act. We may continue to be a smaller reporting company even after we are no longer an emerging growth company. We may take advantage of certain of the scaled disclosures available to smaller reporting companies and will be able to take advantage of these scaled disclosures for so long as our voting and non-voting common stock held by non-affiliates is less than $250.0 million measured on the last business day of our second fiscal quarter, or our annual revenue is less than $100.0 million during the most recently completed fiscal year and our voting and non-voting common stock held by non-affiliates is less than $700.0 million measured on the last business day of our second fiscal quarter.

Quantitative and Qualitative Disclosures about Market Risks

Interest Rate Risk

Our cash and cash equivalents consist of cash held in readily available checking and money market accounts. Our primary exposure to market risk is interest rate sensitivity, which is affected by changes in the general level of U.S. interest rates. However, because of the short-term nature of the instruments in our portfolio, a sudden change in market interest rates would not be expected to have a material impact on our financial condition or results of operations.

Under our investment policy, we invest in highly rated securities, issued by the U.S. government or liquid money market funds. We do not invest in financial instruments for trading or speculative purposes, nor do we use leveraged financial instruments. A hypothetical 10% change in interest rates would not have a material impact on the value of our cash, cash equivalents, marketable securities and cash flows.

Foreign Currency Exchange Risk

We are not currently exposed to significant market risk related to changes in foreign currency exchange rates. As we continue to develop our business, our results of operations and cash flows will likely be more affected by fluctuations in foreign currency exchange rates, including the Euro and other currencies, which could adversely affect our results of operations. All of our employees and operations are currently located in the United States and our expenses are generally denominated in U.S. Dollar. To date, we have not entered into any foreign currency hedging contracts to mitigate our exposure to foreign currency exchange risk. We do not believe that a hypothetical 10% increase or decrease in exchange rates during any of the periods presented would have had a material impact on our financial statements included elsewhere in this prospectus.

Effects of Inflation

Inflation could affect us by increasing our cost of labor and research and development costs. We do not believe inflation has had a material effect on our business, financial condition or results of operations, or on our financial statements included elsewhere in this prospectus.

BUSINESS

Overview

We are a clinical stage biopharmaceutical company focused on developing therapies for the treatment of high impact, difficult to treat cancers through the inhibition of glycogen synthase kinase-3 (GSK-3). We are developing elraglusib (formerly 9-ING-41), a small molecule that is designed to enter cancer cells and block the function of the enzyme GSK-3β, a master regulator of complex biological signaling cascades, including those mediated by oncogenes, that lead to tumor cell survival, growth, migration, and invasion. We believe that the blockade of GSK-3β signaling ultimately results in the death of the cancer cells and the regulation of anti-tumor immunity.

The enzyme GSK-3β, a serine/threonine protein kinase, is understood to be an essential positive regulator of nuclear factor kappa B (NF-kB) transcriptional activity. Studies have demonstrated that the inhibition of GSK-3β decreases cancer cell survival via suppression of the transcriptional activity of its downstream effector NF-kB. In light of these findings, we believe that the inhibition of GSK-3β may overcome and/or reverse NF-kB-mediated cancer cell survival and chemoresistance to conventional chemotherapeutic drugs in a range of human cancers. Research has also demonstrated that aberrant nuclear GSK-3β accumulation is limited to cancer cells, making GSK-3β a potential candidate for specific and targeted cancer therapy. Additionally, GSK-3 regulates the expression of immune modulators such as pro-inflammatory cytokines and checkpoint molecules in tumor and immune cells. We believe blocking GSK-3 in these cells leads to improved immune cell function, which can ultimately result in better, longer clinical responses in patients.

Our Lead Product Candidate

We have exclusively licensed a portfolio of GSK-3 inhibitors developed in a collaboration between UIC and NU. The lead drug in our portfolio is called elraglusib (9-ING-41), which is being evaluated in a randomized Phase 2 trial in patients with metastatic pancreatic cancer, our most advanced clinical indication to date. Elraglusib represents a broad opportunity for us to potentially initiate and advance multiple drug development programs around our lead asset based on data emerging from completed or ongoing Phase 1/2 trials in pediatric and adult patients with advanced, refractory cancers. Many of the pathological processes that drive cancer are controlled by GSK-3β and thus, by targeting GSK-3β, we are pursuing the development of products designed to intervene in the progression of multiple cancer types. Animal tumor model data and Phase 1/2 clinical data have identified a number of areas of unmet clinical need in cancer where elraglusib may play an interventional role, including pancreatic, colon, lung, breast, renal, ovarian, leukemias and lymphomas, and melanoma as well as some pediatric cancers including Ewing sarcoma, neuroblastoma and pediatric leukemias.

Our lead program, Elraglusib Injection, is an intravenous solution of elraglusib for the treatment of mPDAC. Elraglusib Injection has been evaluated in a Phase 1 dose escalation study (Actuate-1801 Part 1) in 238 adult patients with refractory advanced cancers when given as a single agent (n=67) or in combination with chemotherapy (n=171). The objective of this study was to establish the safety profile of elraglusib when used alone or in combination with chemotherapy and to identify either an MTD or RP2D to then inform the design of exploratory efficacy studies in Phase 2. Subjects in this study were diagnosed with a variety of cancer types and most patients had received two or more previous lines of chemotherapy prior to enrollment in the study. Objective responses and durable disease control were observed in both the single agent and combination treatment arms of the study. The most common treatment-emergent adverse events (TEAEs) attributed to elraglusib were transient visual disturbance (patients described lights as brighter and skin tones darker, which resolved spontaneously) and fatigue across both study parts. The majority (>99%) of TEAEs that occurred in ≥ 20% of patients were reported as Grade 1 or 2 (mild or moderate). In combination with chemotherapy, no new safety signals were observed. Based on the results of the Phase 1 study, which established 15 mg/kg as the RP2D when combined with chemotherapy, we initiated a single arm Phase 2 study (Actuate-1801 Part 2) in patients with previously untreated mPDAC. This study was originally designed as a single arm exploratory Simon two-stage trial (and therefore not designed or powered to demonstrate statistical significance), but after an analysis conducted following the completion of Stage 1, which showed a median overall survival (mOS) of 15.3 months in the efficacy evaluable (n=29) patient

population, we amended and expanded the Stage 2 of the study to a randomized, controlled trial now powered for statistical significance (Actuate-1801 Part 3B) that would allow a comparison of the safety and efficacy of the combination of Elraglusib Injection plus gemcitabine/nab-paclitaxel (GnP) as compared to GnP alone. Elraglusib is currently being evaluated as a weekly intravenous (IV) infusion in combination with the approved dosing regimen for GnP. This study completed enrollment four months faster than predicted and top line results are expected in the first quarter of 2025. The primary endpoint is overall survival (OS).

Our Market Opportunity

According to the American Cancer Society, the annual incidence of pancreatic cancer is expected to exceed 66,000 patients in the United States this year and approximately 70% of these patients will present with metastatic disease. The mOS in patients with mPDAC is 9-11 months and the ability to extend survival by even a few months would be considered meaningful in this patient population. Elraglusib has been granted Fast Track and Orphan Drug Designations from the U.S. Food and Drug Administration (FDA) for pancreatic cancer in the United States. Based on our meetings with the FDA to discuss our development plan in pancreatic cancer, the current Phase 2 study design cannot be used to support accelerated approval. However, if the future mOS data is positive in favor of the elraglusib/GnP combination, we would initiate further conversations with the FDA to discuss possible registration.

Two additional exploratory, single arm Phase 2 studies are ongoing in patients with pancreatic cancer evaluating novel drug combinations with elraglusib: the combination of elraglusib/FOLFIRINOX/losartan in up to 32 patients with mPDAC and the combination of elraglusib/GnP/retinfanlimab in up to 65 patients with advanced PDAC. Both studies are academic IITs that are exploring the addition of immunomodulatory drugs to an elraglusib/chemotherapy backbone. Enrollment in both of these investigator-initiated studies is continuing.

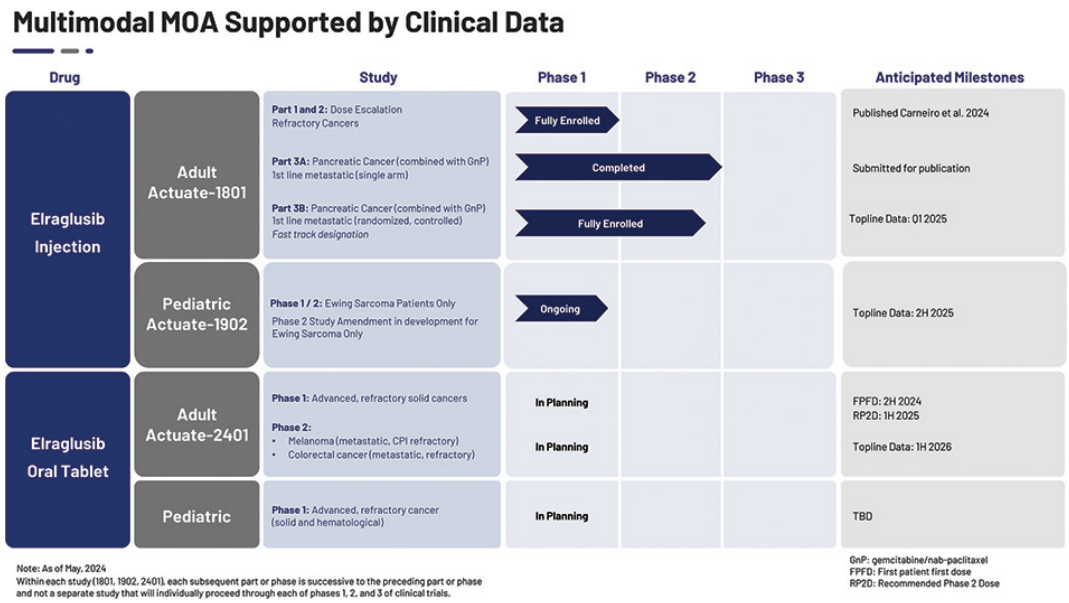
Elraglusib Injection has also been evaluated in pediatric cancer patients with recurrent/refractory solid cancers. This study, Actuate-1902, is a Phase 1/2 study that evaluated escalating doses of elraglusib as a single agent as well as in combination with irinotecan or cyclophosphamide/topotecan in the Phase 1 portion. This study was based off the recommended Phase 2 dose (RP2D) from the Actuate-1801 adult cancer study using twice weekly dosing of elraglusib. Patients in this Actuate-1902 study also experienced a number of objective responses in the combination chemotherapy arms, and based on this data, we identified Ewing sarcoma as a potential second indication for further development of Elraglusib Injection. Currently, the Actuate-1902 study is open but only accruing patients with refractory Ewing sarcoma into the Phase 1 portion of the study. We plan to submit an amendment to the protocol and seek to focus the Phase 2 portion of this study to enroll only Ewing sarcoma patients to further investigate the activity of elraglusib in this patient population. We are also evaluating the potential for additional exploratory development of Elraglusib Injection in other pediatric cancer indications, including leukemias, which we expect to explore through academic IITs.

We have developed several oral dosage forms of elraglusib, including an oral liquid (Elraglusib Oral Liquid) and several solid dosage forms including an Elraglusib Oral Tablet product candidate, which we believe will allow us to expand the number of cancer indications that we are able to target and allow us to further explore optimal dosing. A Phase 1 healthy volunteer study (Actuate-2203) was completed showing very favorable (>50%) bioavailability after a single dose of Elraglusib Oral Liquid. A clinical candidate tablet (Elraglusib Oral Tablet) has been developed and selected. Subject to our receipt of the proceeds of this offering as well as future funding, the Elraglusib Oral Tablet, manufactured under current Good Manufacturing Practices (cGMP), is expected to be released and available in the third quarter of 2024 and a first in human dose escalation study using Elraglusib Oral Tablet could begin in the fourth quarter of 2024. We are planning a Phase 1 study (Actuate-2401) to identify the MTD/ RP2D for Elraglusib Oral Tablet in patients with advanced, refractory adult cancers subject to our receipt of the proceeds of this offering and future funding will be required to complete this study. Several Phase 2 indications, including refractory, metastatic melanoma and refractory, metastatic colorectal cancer have been identified for further clinical development of Elraglusib Oral Tablet based on data from the Actuate-1801 study once the MTD/RP2D for the oral tablet has been established, and which will also require additional funds to initiate and complete the studies.

Our Pipeline and Development Timeline

Our initial focus is on the development of GSK-3 inhibitors for the treatment of cancers with ineffective treatment options and poor survival. Given our ability to formulate elraglusib for both intravenous (IV) and oral administration if adequate funding is secured, and given the potential to use it in different ways depending on the cancer type, we believe that elraglusib represents a pipeline in a molecule, as shown in the figure below. We are currently focused on advancing our trials in pancreatic cancer with Elraglusib Injection. Our ability to advance our planned trials listed in Figure 1 below will depend on our ability to raise sufficient capital to support those trials, as discussed under "Use of Proceeds" above.

Figure 1. *Development Pipeline.*



Our initial focus is on advanced cancer indications with high unmet medical need where 1 and 2 year OS are currently low. We are developing two dosage forms of its GSK-3 inhibitor, elraglusib, the continuation and completion of which depends on the amount of funding we are able to secure through this offering or otherwise, as discussed under "Use of Proceeds." Details and milestones are shown in Figure 1.

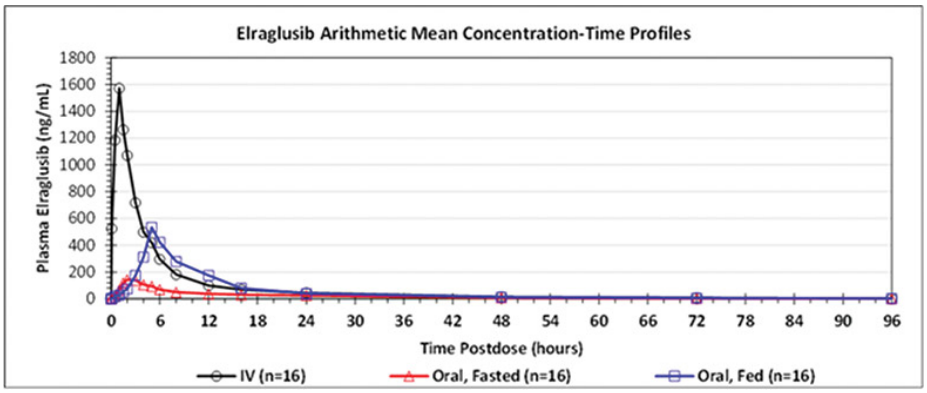
- *Elraglusib Injection (IV), mPDAC.* Our lead program is developing Elraglusib Injection mPDAC, an intravenous injection solution of elraglusib for the treatment of mPDAC. mPDAC remains one of the highest unmet needs in oncology as the 5-year survival rate for PDAC (<10%) is one of the lowest of any cancer type. We received Fast Track designation for elraglusib in PDAC by the FDA in 2021. We also received Orphan Drug Designation for elraglusib in PDAC from the FDA in 2023. A single arm Phase 2 study in patients with mPDAC has been completed and a randomized, controlled Phase 2 trial in the same patient population has finished accrual (Q1, 2024) (Actuate-1801). Several patients still remain on treatment and are being followed for OS. These are discussed in detail below.
- *Elraglusib (IV), Ewing sarcoma*. We plan to amend the Actuate-1902 protocol to modify the Phase 2 portion to focus on only those patients with Ewing or Ewing-like sarcoma, with an initial objective response readout in approximately 12-18 months from commencement. We are in the process of engaging with the pediatric sarcoma community to discuss potential registration trials in the United States and the EU if Phase 2 is positive. We believe that pursuing this development could be an efficient and rapid path to registration in the United States and Marketing Authorization in the EU.
- *Elraglusib (IV), IITs.* We have several exploratory investigator-initiated studies with elraglusib that are ongoing using several different drug combinations in patients with advanced and mPDAC and a trial in recurrent salivary gland cancer. These are summarized in Figure 21. We have also engaged in additional IIT discussions regarding pediatric leukemia and neuroblastoma and regarding biliary

tract cancer, malignant brain cancer and lung cancer in adults. These studies are exploratory and not considered critical path for us at this stage and will not be discussed further beyond the summary of ongoing IITs in Figure 21. However, data from these studies could inform future company sponsored trials, be presented at scientific meetings and present the potential for positive news flow.

- *Elraglusib Oral Tablet (FIH dose escalation).* Several oral formulations of elraglusib have been manufactured. An oral liquid was evaluated for bioavailability in a Phase 1 healthy volunteer study (Actuate-2203). This is discussed briefly below. In addition, oral tablet dosage forms have also been developed and show even higher bioavailability than the oral liquid in dogs. An oral tablet dosage form has been chosen as the development candidate and has been advanced into cGMP manufacturing of clinical investigational drug product. Assuming the proceeds of this offering are secured, we expect that these tablets will be evaluated in a Phase 1 study (Actuate-2401) in patients with advanced cancer. As shown above, this trial could begin in the second half of 2024, assuming receipt of the proceeds of this offering as well as additional funding. We have accumulated clinical pharmacology (e.g., anticancer activity and exposure-effect relationships) from the Actuate-1801 Phase 1 trial to guide the development of the oral tablet dosage form. Based on data obtained with the IV in the Actuate-1801 study (Figure B and C, Table 4), we believe that investigating Elraglusib Oral Tablet in patients with metastatic melanoma and colorectal cancer (CRC) once the MTD/RP2D for the tablet are identified would be justified based on data from Actuate-1801 Part 1 and Part 2. These studies will require additional funds to initiate and complete. A solid tablet dosage form of elraglusib is expected to broaden the application of elraglusib in additional cancers and other diseases where standard of care therapy is taken orally and IV administration is less desirable.

    - Actuate-2203 investigated the oral bioavailability of a liquid formulation of elraglusib at a single dose of drug using a cross-over design such that each subject on the study received IV, oral liquid after fasting and oral liquid with food. Elraglusib oral liquid was approximately 50% bioavailable when given with food and was very well tolerated by healthy volunteers (Figure 2). The oral liquid and several oral tablets formulations were also evaluated for bioavailability in dogs and a candidate oral tablet was identified that was essentially 100% orally bioavailable when given with food (Figure 3). This oral tablet (Elraglusib Oral Tablet) was further evaluated in a 28 day repeat daily dose toxicology study in dogs (Study 23-1471). This simulated the expected daily dosing that we plan to use in our FIH Phase 1 study. For the first time, an MTD was identified with any formulation or schedule of elraglusib. In the past, elraglusib had been given up to 3 times a week in animal toxicology studies to cover twice weekly and once weekly dosing of Elraglusib Injection in the Actuate-1801 and Actuate-1902 studies, but never daily. Daily dosing of Elraglusib Oral Tablets identified 25 mg/kg (one 250 mg tablet) daily as the MTD as a number of clinical and pathological signs of toxicity were observed at the next highest doses of 50 mg/kg. The 25 mg/kg daily dose in dogs corresponds to approximately the 9.3 mg/kg weekly dose currently being used in the Actuate-1801 Part 3B study when scaled from dog to man. Based on these observations, we expect to also reach MTD in the Elraglusib Oral Tablet Phase 1 study in patients with refractory advanced cancer.

Figure 2. Bioavailability of Elraglusib Oral Liquid in Phase 1 Human Healthy Volunteer Study.



- *Elraglusib Oral Tablet, Phase 2.* Once an MTD and RP2D dose are identified for the Elraglusib Oral Tablet and adequate proceeds of this offering or other funding is secured, Phase 2 studies will be initiated in patients with refractory metastatic colorectal cancer, refractory metastatic melanoma and possibly other indications. Management believes that the initial rationale for these indications is supported by the Actuate-1801 Parts 1 and 2 trial as discussed above and in Figures 9-12.

Figure 3. Bioavailability of Elraglusib Oral Tablet in Dog Exploratory Toxicology Study 23-1471

Route	Potency	Dose Number	Target Dose (mg/kg)	Actual Dose (mg/kg)	Half-life (hr)	T_{max} (hr)	C_{max} (ng/mL)	AUC_{last} (hr*ng/mL)	Dose-limiting Toxicity
IV	N/A	1	10	10	2.63	0.0830	6,560	22,300	No
Oral	250 mg	2	25	24.5	3.01	4.50	6,090	77,000	No (MTD)
Oral	500 mg	3	50	49.9	7.63	6.00	9,230	137,000	Yes

Elraglusib (9-ING-41)

There are no approved high-affinity inhibitors of GSK-3β and we believe our lead drug, elraglusib, is one of the most advanced GSK-3β inhibitors in clinical development. Elraglusib was originally known as 9-ING-41 but was granted the elraglusib International Nonproprietary Names (INN) and United States Adopted Names (USAN) generic name in 2021. The known major mechanisms of action of elraglusib are summarized in Figure 4 and emphasize the therapeutic potential of this drug in multiple cancer types. For these reasons, elraglusib represents a "pipeline in a molecule" depending on the dosage form and how it is used in a particular cancer type. Our lead development program is seeking to treat mPDAC in combination with gemcitabine/nab-paclitaxel GnP. Our clinical data to date and the development plan are also discussed below.

Elraglusib may exert anticancer activity through a variety of mechanisms that may be context and cancer type specific. For example, GSK-3β mediates signaling of oncogenic PI-3K but if this oncogene is not expressed in a particular tumor, this would not be a pathway that could be targeted by elraglusib in that tumor. Potential antitumor activity through GSK-3β inhibition may occur through the following six mechanisms of action (Figure 4, below):

(1) Immune modulation

(2) Inhibiting cell proliferation

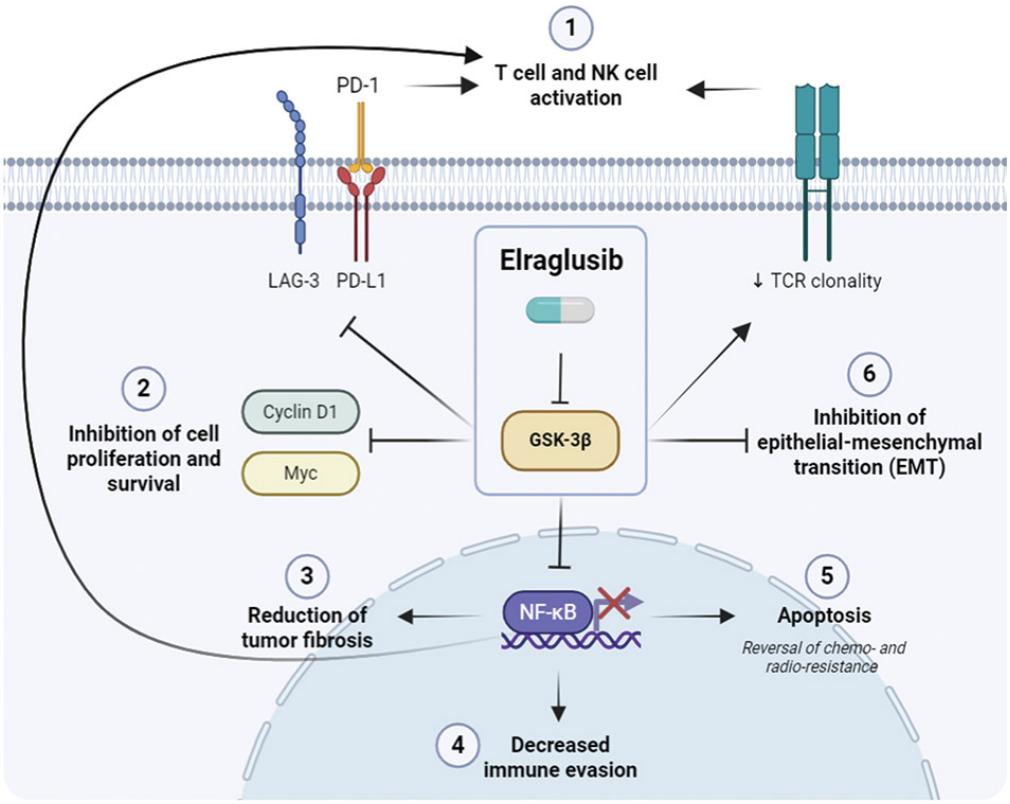
(3) Reducing tumor fibrosis

(4) Decreasing immune evasion

(5) Increasing apoptosis and disrupting DNA damage repair

(6) Inhibition of epithelial-mesenchymal transitions (EMT)

Figure 4: *Elraglusib mechanism of action*



(1) Immune modulation and inhibition of immune evasion

GSK-3β plays an important role in immune cell function, as inhibition of GSK-3β can facilitate immune cell expansion, differentiation and activation including T and natural killer (NK) cells. GSK-3β inhibition increases the ability of effector T cells to kill tumors in vivo through the induction of effector proteins granzyme B and FasL in gastric cancer models. Additionally, inhibition of GSK-3, with both small molecules and small interfering RNA (siRNA), downregulates programmed cell death protein 1 (PD-1) expression in CD8 and cytolytic T cells and enhances their function. GSK-3β inhibition also lowers PD-1 expression and promotes long-term survival and generation of memory CAR-T cells in vivo. These memory T-cells enabled 100% clearance of cancer cells after rechallenging during tumor remission. Recently, inhibition of GSK-3β with small molecules was shown to reduce the expression of T cell immunoreceptor with immunoglobulin and ITIM domain (TIGIT) and lymphocyte activation gene-3 (LAG-3), additional immune system suppressing molecules that work in concert with PDL-1 to reduce antitumor surveillance by the system. another inhibitory receptor, LAG-3. Combining GSK-3β inhibition and LAG-3 blockade significantly enhanced clearance of melanoma tumors compared to either treatment alone. LAG-3 was recently validated as a cancer therapeutic target when the first anti-LAG-3 antibody relatlimab was approved in March 2022 by the FDA for treatment of patients with unresectable or metastatic melanoma.

Blocking GSK-3 in NK cells leads to enrichment of mature NK cells and primes them for enhanced cytokine production and anti-tumor function in vivo. GSK-3β expression was increased in the NK cells of patients with acute myeloid leukemia (AML) and inhibition of GSK-3β led to increased cell directed cytotoxicity in these patient-derived samples. Inhibition of GSK-3 also decreased LAG-3 expression on NK cells.

GSK-3β activity has also been tied to transforming growth factor β (TGFβ) expression. TGFβ released by cancer cells, stromal fibroblasts and other cells in the tumor microenvironment further promotes

cancer progression by shaping the architecture of the tumor and by suppressing the antitumor activities of immune cells, thus generating an immunosuppressive environment that prevents or attenuates the efficacy of anticancer immunotherapies. Therefore, blocking GSK-3β may reduce TGFβ-mediated immunosuppression.

Elraglusib has now been demonstrated to decrease expression of PD-1, TIGIT and LAG-3 and to enhance the anti-tumor effects of anti-PD-1 checkpoint inhibition in animal tumor models. Thus, elraglusib blockade of GSK-3β activity may improve immune response to tumors by augmenting the responsiveness of a patient's immune system in addition to the direct anti-tumor effects of elraglusib within the cancer cells themselves.

(2) Inhibiting cell proliferation

Inhibition of GSK-3β leads to inhibition of tumor cell proliferation. This has been shown in multiple tumor model systems using elraglusib. A number of pathways have been implicated in the inhibition of cell proliferation mediated by GSK-3 inhibitors including MYC, Cyclin D1, TGFα, epidermal growth factor receptor, Ras, PI3K/Akt, and NF-κB. Given GSK-3's role as an adapter of multiple signaling pathways, elraglusib may exert its antiproliferative effects through the inhibition of one or more of these pathways.

(3) Reducing tumor fibrosis and (4) decreased immune evasion

A chronic inflammatory microenvironment is conducive to tumorigenesis (e.g., pancreatitis patients are known to have increased risk of pancreatic cancer) and tumors can undergo epithelial to mesenchymal transition (EMT), leading to increased metastasis, under inflammatory conditions. Moreover, several profibrotic cytokines (e.g., TGF-β, TNF-α and IL-1) secreted by inflammatory and tumor cells converge to activate pathways that regulate EMT. Further, GSK-3 has also been demonstrated to be a mediator of epithelial-mesenchymal transitions. Therefore, the inflammatory response designed to fight tumor progression also ends up promoting metastasis and tumor-associated fibrosis. Tumor fibrosis presents multiple challenges to drug delivery and tumor immune recognition and contributes to drug resistance by presenting physical barriers in the tumor microenvironment to drug and immune cell access. Elraglusib has been shown to reduce the inflammation and signaling that contribute to immune system evasion in multiple animal models, including lung and liver, of fibrosis suggesting another mechanism through which elraglusib may interfere in cancer growth.

(5) Increasing apoptosis

GSK-3 inhibits apoptosis pathways. A number of studies have suggested that the primary mechanism of GSK-3-mediated apoptosis is through the NF-κB pathway. Apoptosis is a mechanism of cell death that is often suppressed in cancer cells leading to cancer cell survival and resistance even after treatment with chemotherapeutic drugs or radiation. Studies have shown that eliminating or inhibiting GSK-3β in cancer cells is able to restore apoptosis to cells, leading to tumor cell death. These findings support GSK-3β as a potential therapeutic target to potentiate apoptosis in cancer cells.

In addition to GSK-3β's role in regulating NF-κB activity, it has also been shown to modulate DNA damage repair (DDR) pathways. DDR pathways are integral in both normal and cancer cells to maintain genomic integrity by sensing and responding to DNA damage. In normal cells, DDR helps to identify and repair mutations or breaks in DNA and restore the normal, intact sequence. If the cell is unable to repair a DNA lesion, these DDR pathways can then initiate cell death signaling to prevent neoplastic growth. In cancer, DNA repair has been subverted to protect tumor cells from repairing DNA damage that would otherwise lead to spontaneous apoptosis. Cancers will often have mutations in at least one DNA repair pathways leading to dysregulated cell growth and replication. Our collaborators have shown that elraglusib inhibition of GSK-3β sensitizes pancreatic cancer cells to gemcitabine by disrupting TopBP1/ATR mediated cell-cycle arrest and DNA repair. GSK-3β's emerging role in regulating DDR pathways supports its use in combination with DNA damaging chemotherapy.

Inhibition of DDR pathways have also been shown to enhance tumor immune recognition by immune checkpoint inhibitors such as anti-PD-1, creating neoantigens in tumors that lead to recruitment of tumor infiltrating immune cells, decreased immune evasion and increased anti-tumor immune response. This provides the link that couples the various elraglusib-related mechanisms of action through the targeting of GSK-3.

(6) Inhibition of epithelial-mesenchymal transition (EMT)

GSK-3β has been shown to be a mediator of a number of signaling pathways that regulate the transition of tumor cells from an epithelial to mesenchymal phenotype potentially contributing to tumor progression, a process known as epithelial-mesenchymal transition (EMT). Signaling through Wnt, Notch, TGF-β and Snail are known mediators of EMT and their signaling is regulated through GSK-3β. Several toolkit GSK-3β inhibitors have been shown to inhibit EMT in tumor models suggesting that this is a class effect and highlighting a similar mechanism for elraglusib.

Elraglusib Clinical Development

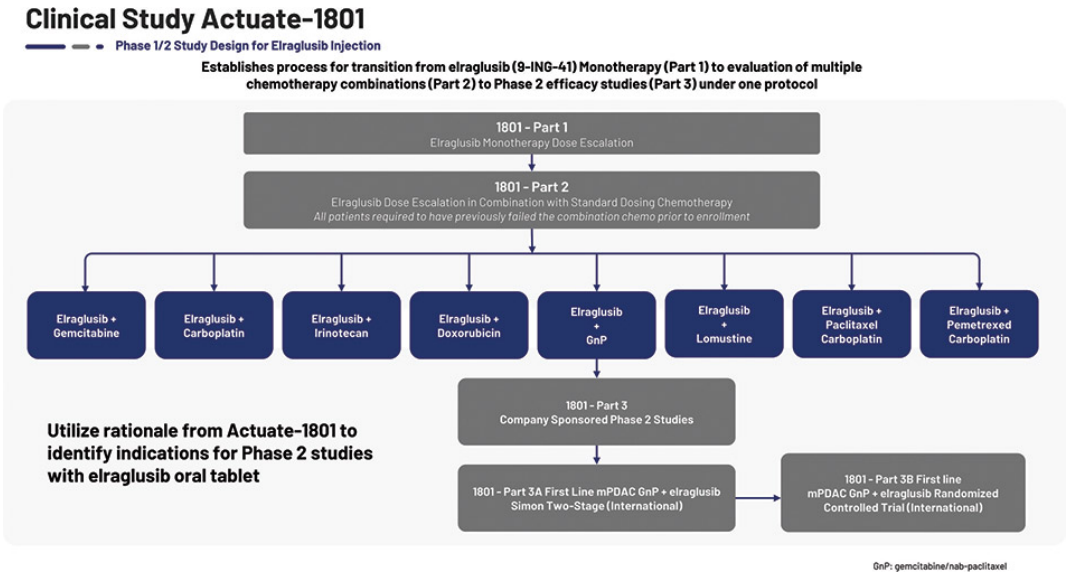
Elraglusib has been dosed in over 500 patients to date both as a single agent and in combination. The first adult study, Actuate-1801 was designed as a multiphase seamless design trial that allowed us to dose-escalate elraglusib as a single agent and in combination with chemotherapy in tandem in Phase 1 in patients with advanced, refractory cancers and then moving to single cancer types Phase 2 trials all under a single protocol. The objective of these studies was to evaluate safety and look for initial evidence of anti-tumor activity of elraglusib. Once the highest well-tolerated dose was identified (the recommended Phase 2 dose, RP2D), elraglusib was then moved into single cancer Phase 2 to begin to look for efficacy. In contrast to many Phase 1 trials, no MTD was identified for elraglusib when it was given twice per week and thus an RP2D was advanced into Phase 2 studies. We also opened two other studies once we had safety data, a Phase 1/2 study in pediatric patients with refractory malignancies (NCT04239092) and a Phase 2 study in myelofibrosis (NCT04218071). The pediatric study has provided a rationale for developing elraglusib in patients with refractory Ewing sarcoma and possible neuroblastoma that are discussed further as part of our development pipeline. Additional work in myelofibrosis has been deferred pending the availability of an oral dosage form.

Actuate-1801 Phase 1/2 Clinical Study

We developed an innovative Phase 1/2 adaptive design “basket” clinical study, the Actuate-1801 trials, to efficiently evaluate elraglusib safety and initial anti-tumor activity across multiple tumor types. This trial design (called a “basket” study because many different types of cancer are enrolled in the study) facilitated the rapid advancement of elraglusib through dose escalation and safety cohorts while later establishing a process for transition into Phase 2 efficacy studies in patient populations that showed evidence of antitumor activity during the safety portion of the study. We began recruitment and treated the first patient in Part 1 of Actuate-1801 in January 2019.

The study design is shown in Figure 5 below and consists of three parts. Part 1 and Part 2 consist of the evaluation of the safety and tolerability of elraglusib to determine the MTD and the recommended Phase 2 dose (RP2D) as both a monotherapy (Part 1; n=67) and in combination with various chemotherapy regimens (Part 2; n=171). Part 1 and 2 involve dose escalation of elraglusib to identify either the MTD or RP2D if an MTD cannot be achieved. These are discussed together because they were run in tandem and interdigitated. Initial dose escalation was performed using single agent elraglusib (Part 1) but once Part 1 opened the fourth dose level, Part 2 was allowed to open at the third dose level in combination with one of the chemotherapy backbones shown in Figure 3. Dose escalation was then continued for Part 1 and 2 in tandem until MTD or RP2D were identified, with Part 2 always being one dose level behind Part 1. A key design element of Part 2 is that all subjects enrolled in a chemotherapy basket must have previously failed that chemotherapy such that each patient is re-challenged by a drug to which they are resistant. Thus, each patient acts as their own control since any disease control must be due to the combination. Part 3 is designed to assess the clinical benefit of elraglusib at the RP2D from Part 2 in combination with chemotherapy in specific cancer populations.

Figure 5: *Actuate-1801 Master Protocol Study Design.*



Between January 2019 and August 2021, patients participating in the Actuate-1801 study received at least one dose of elraglusib as monotherapy (n=67; Part 1) or in combination with chemotherapy (n=171; Part 2). In Part 1, eight dose levels were evaluated. Of the 67 total patients enrolled, 35 were treated at the three highest dose levels (9.3, 12.4, 15 mg/kg) based on initial analysis of pharmacokinetics (PK) that showed that these three dose levels showed the longest plasma exposure of elraglusib after a single administration that exceeded the in vitro IC_{50} for inducing tumor cell apoptosis for 24 hours or more. Patients enrolled in this study had advanced disease and were heavily pre-treated (e.g. had already received multiple chemotherapy regimens). Patients had received a mean of three prior systemic chemotherapy regimens in Part 1 and four prior systemic chemotherapy regimens in Part 2. Twenty-one different cancer types were enrolled in Part 1 (see Figure 6, below) and 26 in Part 2 (see Figure 7, below). On average, patients had received and failed at least three previous lines of chemotherapy regimens (Figure 6).

In Part 2, six dose levels of elraglusib were evaluated across eight different chemotherapy baskets (Figure 5, above). It is important to note that the vast majority of patients in Part 2 (89%) were treated with elraglusib in combination with a chemotherapy regimen that the patient had previously received and had not benefited from, had failed treatment, or had disease progression during treatment prior to enrolment in the Actuate-1801 study. For example, patients included in the irinotecan basked in Actuate-1801 Part 2 had previously received a regimen that had included irinotecan and were then re-challenged with irinotecan plus elraglusib on the Actuate-1801 study. Thus, each patient served as their own control after chemotherapy re-challenge and no response or clinical benefit would have been expected.

Parts 1 and 2 comprised the Phase 1 portion of the Actuate-1801 trial and the results of this study were recently published in *Clinical Cancer Research. (Carneiro et. al 2024).* No dose-limiting toxicities (DLTs) related to elraglusib occurred in either Part 1 or Part 2. Since the MTD was not reached in either part of the study, 15 mg/kg, the pre-specified highest dose evaluated in both Actuate-1801 Part 1 and 2, was named the recommended Phase 2 dose (RP2D).

Figure 6. *Actuate-1801 Part 1 tumor types and prior lines of treatment.*

Histology	Number of Subjects (n)	Average number of prior lines of treatment (range)
Amelosblastoma	1	0
Anal	1	3 (3)
Appendix	4	1 (1 – 2)
Bile Duct	1	4 (4)
CNS	4	0 (0 – 1)
Colorectal	14	5 (0 – 13)
Endometrial	1	0 (0)
Esophageal	2	4 (3 – 5)
Head and Neck	1	3 (3)
Kidney	2	2 (0 – 3)
Leukemia	1	0 (0)
Liver	1	7 (7)
Lung	4	2 (2 – 3)
Lymphoma	2	2 (0 – 3)
Melanoma	13	3 (0 – 6)
Other	1	0 (0)
Pancreatic	7	2 (0 – 7)
Prostate	2	9 (8 – 9)
Sarcoma	2	6 (4 – 8)
Skin, non-melanoma	1	1 (1)
Uterine	2	6 (4 – 7)

Figure 7. *Part 2 Tumor Types by dose level*

	Number of Patients (%) by Elraglusib Dose Level (mg/kg)						
Tumor Type	3.3 (N=21)	5.0 (N=39)	7.0 (N=38)	9.3 (N=11)	12.4 (N=2)	15.0 (N=60)	Total (N=171)
Adrenal Gland	0	1	0	0	0	0	1
Anaplastic oligodendroglioma	0	1	0	0	0	0	1
Astrocytoma	0	1	0	0	0	0	1
Biliary Tract	0	1	1	0	0	0	2
Breast	3	2	2	0	1	0	8
Cervix/Uterus/Endometrium	0	1	2	1	0	3	7
CNS	1	3	0	0	0	2	6
Colorectal	1	3	10	0	1	9	24
Endometrial	0	0	1	0	0	0	1
Esophageal	1	1	1	0	0	2	5
Fallopian Tube	0	0	0	0	0	1	1
Gallbladder	0	0	1	0	0	1	2
Glioblastoma	0	1	0	0	0	4	5
Gliosarcoma	0	1	0	0	0	0	1
H&N	1	2	1	0	0	0	4

Tumor Type	Number of Patients (%) by Elraglusib Dose Level (mg/kg)						Total (N=171)
	3.3 (N=21)	5.0 (N=39)	7.0 (N=38)	9.3 (N=11)	12.4 (N=2)	15.0 (N=60)	
Liposarcoma	0	0	1	0	0	0	1
Liver	0	1	0	1	0	3	5
Lung	1	2	4	2	0	2	11
Melanoma	1	1	0	0	0	0	2
Merkel Cell	1	0	0	0	0	0	1
Mesothelioma	0	0	0	0	0	2	2
Other	0	1	1	1	0	0	3
Ovarian	2	0	1	2	0	5	10
Pancreas	7	16	12	4	0	19	58
Sarcoma	1	0	0	0	0	6	7
Unknown	1	0	0	0	0	1	2

Despite the fact that the patients enrolled on the Actuate-1801 study had already received and failed multiple chemotherapy regimens, the mOS was 7.7 months (95% CI, 5.1-9.7) for elraglusib monotherapy (Part 1) and 6.9 months (95% CI, 5.7-8.9) for the combination of elraglusib and chemotherapy across all the different chemotherapy baskets (Figure 8). The mOS of 7.7 months in Part 1 benchmarks favorably with mOS 8-10 months for other active single agents evaluated in Phase 1. A summary of best overall response (BOR) observed in Actuate-1801 Part(s) 1 and 2 is also presented (Figure 6). Complete response (CR), partial response (PR) and stable disease (SD) were determined using RECIST 1.1. Only evaluable patients as defined per the Actuate-1801 Master Protocol experiencing stable disease ≥4 cycles of treatment are counted as "stable." Our management believes that 51.6% of patients in Actuate-1801 Part 1 and 49.3% in Actuate-1801 Part 2 with a response or stable disease that are able to stay on for at least four cycles of treatment is encouraging given the advanced and treatment-refractory nature of their cancers.

Figure 8. *Best overall response of elraglusib as monotherapy (Part 1) and in combination with chemotherapy (Part 2) in Study Actuate-1801*

Outcome	Elraglusib monotherapy Part 1 (N=62)	Elraglusib with chemotherapy Part 2 (N=138)
OS, median (95% CI), month[(a)]	7.7 (5.1, 9.7)	6.9 (5.7, 8.4)
PFS, median (95% CI), month[(a)]	1.6 (1.3, 2.2)	2.1 (2.0, 2.6)
Best overall response, n (%)		
Complete response	1 (1.6)	0 (0.0)
Partial response	1 (1.6)	7 (5.1)
Stable disease	24 (38.7)	57 (41.3)
Progressive disease	30 (48.4)	70 (50.7)
Not reported	6 (9.7)	4 (2.9)

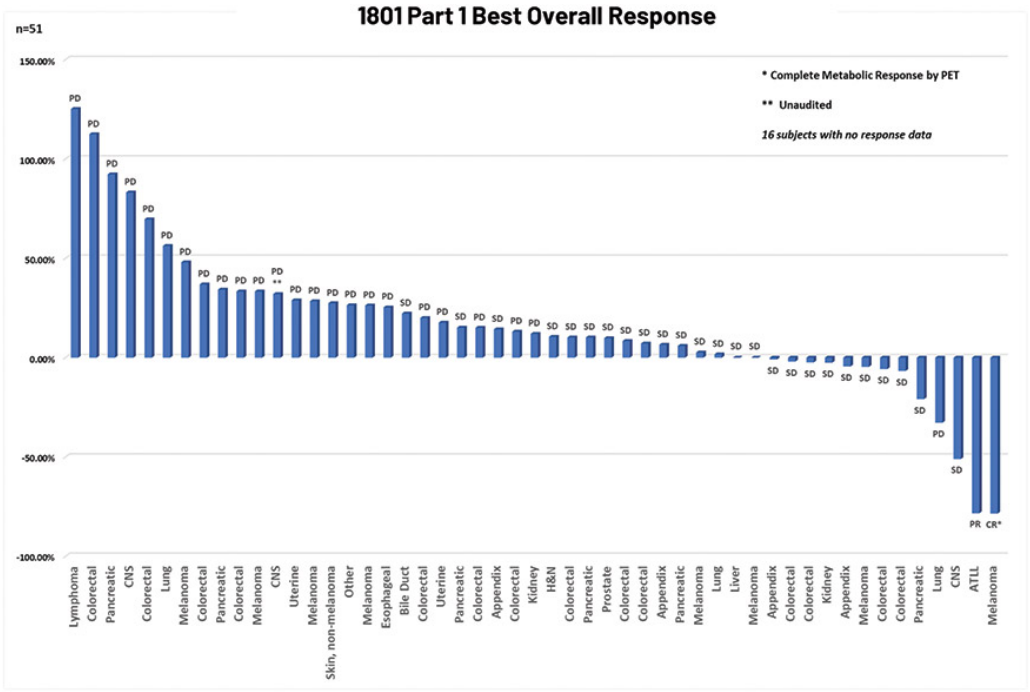
Abbreviations: CI, confidence interval; OS, overall survival; PFS, progression-free survival

(a) Using Kaplan-Meier method

To further demonstrate that elraglusib shows single agent anti-tumor activity, the maximal amount of tumor size reduction is shown by subject enrolled in Figure 9, below. 15/51 patients evaluated for response demonstrated tumor size reduction even if they did not reach a level of reduction associated with a RECIST response. Our management believes that the reason for this response is the administration of elraglusib since it is the only anticancer drug given in this part of the trial. Of the enrolled patients in Part 1, sixteen patients had rapid clinical deterioration related to their disease. These patients were unable to stay on treatment long enough to reach their first tumor assessment and are therefore not included in the Part 1 analyses as per the protocol. Several tumor types are represented with clinical data in Part 1 including melanoma,

colorectal, appendix, and lung, providing initial rationale for future studies in these cancer types. Management believes that any benefit in this part of the trial may be due to elraglusib, as it was only cancer drug administered.

Figure 9. *Best overall response in Actuate-1801 Part 1.*



Best Overall Response by Cancer Histology in Part 1

CR=complete response; PR=partial response; SD-stable disease; all response assessments per RECIST 1.1.

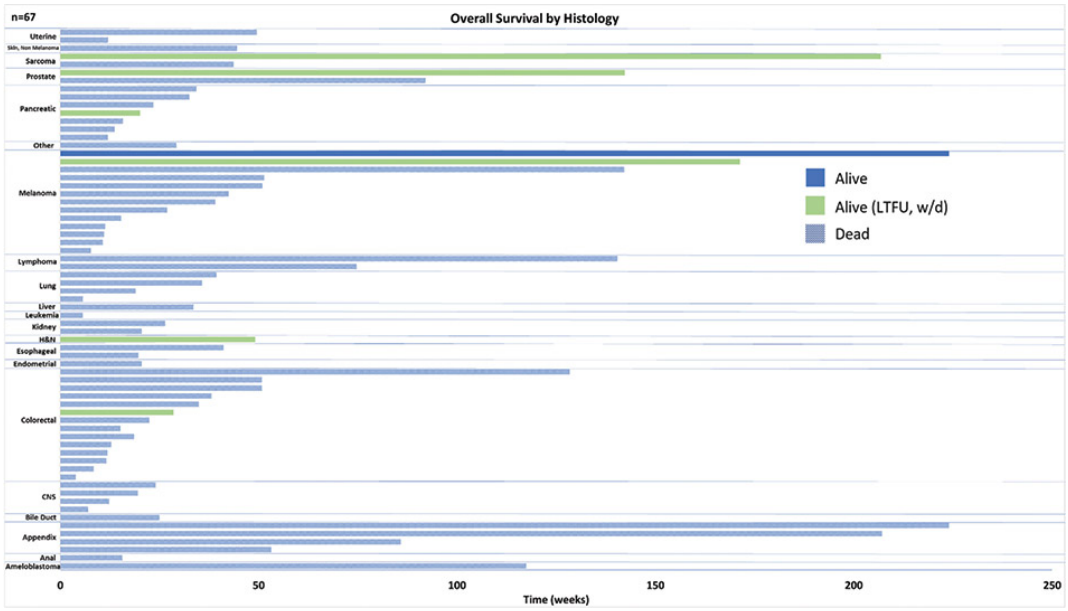
Tumor tissues from both Actuate-1801 Part 1 and Part 2 were analyzed for the expression (presence) of GSK-3β using a validated immunohistochemical method. Archival and fresh pre-dose samples of tumor tissue were analyzed with 59.4% of tumor samples in Part 1 and >80% of samples in Part 2 immunostaining positive for GSK-3β, demonstrating that the target for elraglusib is present in a large portion of tumors across all the cancer types enrolled in this study. Our management believes that this broad expression of GSK-3β supports the development of elraglusib in several different cancer types.

As the Actuate-1801 study was ongoing, studies in pre-clinical tumor models from several collaborating laboratories that were evaluating elraglusib reported that elraglusib was also able to regulate expression of immune checkpoints such as PD-1/PD-L1, LAG-3 and TIGIT. The data further credentialed GSK-3β as a novel target for mediating anti-tumor immunity, which had been reported by a number of groups over the past decade, and demonstrated the potential for immune checkpoint modulatory activity for elraglusib. These were novel observations for elraglusib in addition to previously described roles in attenuating anti-apoptotic activity, NF-κB and DDR mediated drug resistance and enhancing chemotherapy and suggested that elraglusib may inhibit tumor progression through multiple mechanisms of action.

Circulating tumor cells isolated from a patient with adult T-cell leukemia/lymphoma (ATLL) in the Actuate-1801 study (Part 1) who experienced a durable PR (406 days) while on single agent elraglusib also exhibited robust cytokine changes when treated with elraglusib *ex vivo.* Further, Huntington et al showed that plasma from elraglusib-treated patients in the Actuate-1801 Part 1 clinical study demonstrated reduced VEGF and BAFF and elevated IL-1β, CCL22, and CCL4 concentrations that correlated with longer survival. Using paired tumor biopsies from patients in the Actuate-1801 study, Huntington et al also showed that tumor-infiltrating immune cells had reduced expression of inhibitory immune checkpoints (VISTA, PD-1, PD-L2) and elevated expression of T-cell activation markers (CTLA-4, OX40L) after elraglusib treatment.

Taken together, our management believes that these early studies further support elraglusib's multimodal mechanism of action including immune modulation and inhibition of immune evasion. Given that a number of recent reports have highlighted that drugs that modulate anti-tumor immune response may improve mOS with little or no effect on ORR, we re-analyzed all the Actuate-1801 Part 1 and 2 data with respect to OS. In addition to simply looking at mOS (Figure 8), patient level OS evaluated by cancer type in Actuate-1801 Part 1 is shown in Figure 10.

Figure 10. *Actuate-1801 Part 1 OS by cancer type.*



Green bar = lost to follow up, last known alive date used to determine OS; dark blue bar: patient still on treatment; light blue bar: patient deceased.

Safety in Actuate-1801 Part 1 and 2

In both Part(s) 1 and 2, all patients experienced treatment-emergent adverse events (TEAEs). TEAE broadly encompass all adverse events observed while a patient is on study and could be due to the drug or drugs (if used in combination), the disease or something specific to a particular patient such as other diseases or illness. It is then up to individual clinical investigator to decide which toxicities are due to elraglusib. The most common TEAEs attributed to elraglusib were transient visual disturbance and fatigue across both study parts, and the majority of TEAEs that occurred in ≥ 20% of patients were reported as Grade 1 or 2 (Figure 11). Visual disturbance affected 50.7% of patients (n=34/67) receiving elraglusib monotherapy and 60.8% of patients (n=104/171) receiving elraglusib with chemotherapy. Commonly reported symptoms were darkened vision, where patients described lights as brighter and skin tones darker. Greater than 99% of visual disturbance cases were reported as mild or moderate (Grade 1 or 2). These visual disturbances were considered dose-dependent, occurring more frequently and lasting longer at higher doses. All cases of visual disturbance were transient, resolved completely, and lacked any associated retinal, ocular, or systemic toxicity. Fatigue, while also observed in ≥ 20% of patients, was also reported as mild or moderate (Grade 1 or 2) and did not interfere with daily life.

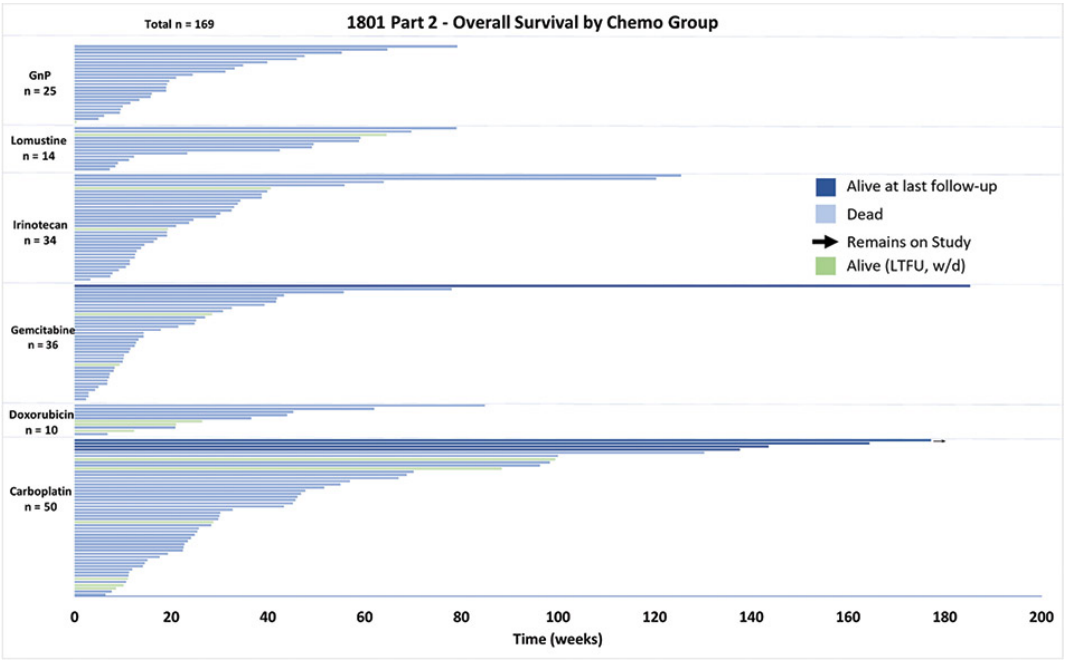
Figure 11. *Treatment-Emergent Adverse Events of Any Grade Reported in >20% of Patients Treated with Elraglusib in Actuate 1801 Part 1 and 2.*

Patients, n (%)				
Adverse event	**Elraglusib monotherapy Part 1 (N=67)**		**Elraglusib with chemotherapy Part 2 (N=171)**	
	Any Grade	**Grade ≥3**	**Any Grade**	**Grade ≥3**
Any TEAE	67 (100)	37 (55.2)	171 (100)	124 (72.5)
Serious TEAE	29 (43.3)	26 (38.8)	72 (42.1)	67 (39.2)
Leading to treatment discontinuation	6 (9)	4 (6)	36 (21.1)	30 (17.5)
Leading to death	5 (7.5)	5 (7.5)	18 (10.5)	18 (10.5)
TEAEs of any Grade in ≥20% of Patients				
Visual impairment	34 (50.7)	0	104 (60.8)	1 (0.6)
Fatigue	32 (47.8)	2 (3)	86 (50.3)	8 (4.7)
Nausea	25 (37.3)	1 (1.5)	77 (45)	3 (1.8)
Diarrhea	21 (31.3)	3 (4.5)	52 (30.4)	6 (3.5)
Anemia	17 (25.4)	4 (6)	80 (46.8)	43 (25.2)
Vomiting	17 (25.4)	1 (1.5)	47 (27.5)	5 (2.9)
Headache	16 (23.9)	0	36 (21.1)	1 (0.6)
Abdominal pain	12 (17.9)	3 (4.5)	38 (22.2)	6 (3.5)
Neutrophil count decrease	2 (3)	2 (3)	45 (26.3)	36 (21.1)
Platelet count decrease	1 (1.5)	0	50 (29.2)	27 (15.8)
White blood cell count decrease	Not reported	Not reported	42 (24.6)	28 (16.3)

Development Rationale Based on Actuate-1801 Part 1 and 2

Most of the patients enrolled in Part 1 had advanced disease and >75% were heavily pre-treated (Figure 6). Our management believes that the number of patients with OS ≥ 8 months (approximately 35 weeks and close to Part 1 mOS of 7.7. months) is noteworthy when taking into account that, like most Phase 1 trials, the inclusion criteria for this study only required a life expectancy of ≥3 months (Figure 10). Several meta-analyses have shown that active cancer agents used in the setting of heavily pre-treated Phase 1 patients show mOS of 8-10 months depending on the study and agent. Similarly, an analysis of the Actuate-1801 Part 2 data for OS shows many subjects with OS ≥ 8 months (Figure 12) including several mOS that are close to or exceed this benchmark (Figure 13). While it is difficult to make broad conclusions across multiple cancer types, our management believes that an evaluation of each cancer type that was analyzed as shown in Figure 10 and Figures 12 and 13 will allow us to prioritize further development of elraglusib based on the Actuate 1801-Part 1 and 2 outcomes. For example, the pancreatic patients in Actuate 1801 Part 2 were all pancreatic cancer patients that had previously failed GnP and had a dismal prognosis but nevertheless had good outcomes for this patient population when rechallenged with the elraglusib plus gemcitabine/nab-paclitaxel (GnP) combination (mPFS =3.1 months; mOS=5.6 months; Figure 13). Given that elraglusib plus GnP was well-tolerated in these pre-treated patients, the Company decided that moving the elraglusib plus gemcitabine/nab-paclitaxel (GnP) combination into 1st line metastatic pancreatic cancer was justified. Thus, previously untreated metastatic pancreatic cancer was chosen as a lead indication based on the Part 2 outcome.

Figure 12. *Actuate-1801 Part 2 OS by chemotherapy basket*



Green bar = lost to follow up, last known alive date used to determine OS; dark blue bar: patient still on treatment; light blue bar: patient deceased.

Figure 13. *Actuate-1801 Part 2 PFS and OS by chemotherapy basket.*

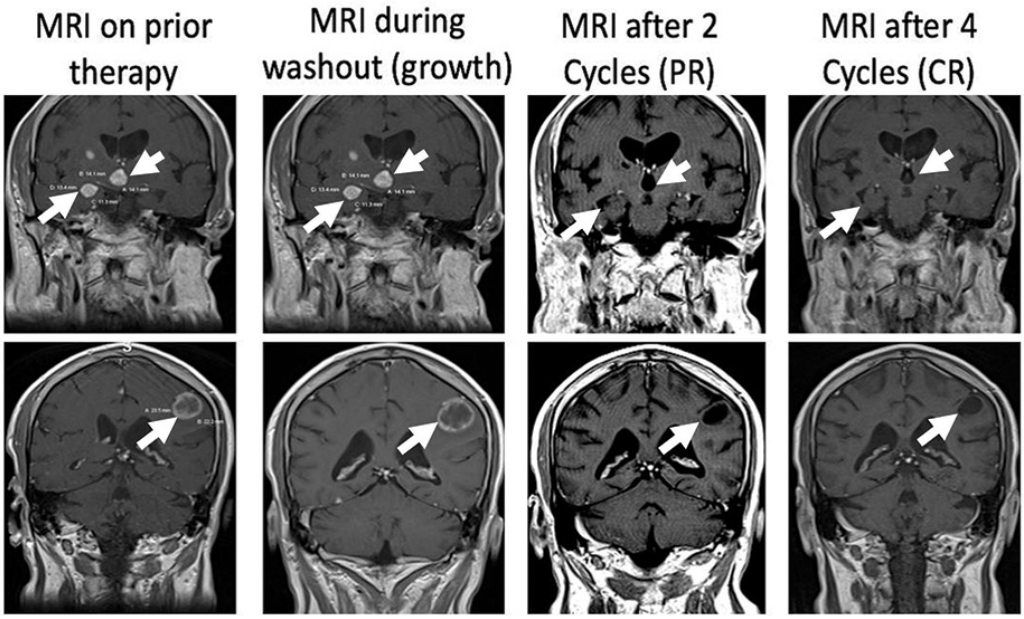
Chemotherapy backbone/Cancer Types	mPFS (months)	mOS (months)
Doxorubicin (N=10) Sarcoma – 5 Ovarian – 2 Breast – 1 Adrenal gland – 1 Esophageal – 1	2.4	10.4
Irinotecan (N=34) Colorectal – 20 Pancreas – 11 Gastric – 2 Gallbladder – 1	2.1	6.9
Any carboplatin group (N=50) Lung – 10 Ovarian – 7 Esophageal – 4 Head and Neck – 4 Uterine – 3 Liver – 3 Colorectal – 3 Breast – 2 Cervix – 2 Endometrial – 2 Mesothelioma – 2 Unknown – 2 Melanoma – 2 Gallbladder – 1 Merkel Cell – 1 Pancreas – 1 Fallopian tube – 1	2.1	7.6
GnP (N=27) Pancreas – 26 Osteosarcoma – 1	3.1	5.6
Lomustine (N=14) CNS – 6 Glioblastoma – 5 Astrocytoma – 1 Gliosarcoma – 1 Anaplastic oligodendroglioma – 1	5.3	11.4

Support for planned Phase 2 indications is provided by data extracted from Actuate-1801 Part 1 in patients with metastatic melanoma. Actuate-1801 Part 1 enrolled 11 patients with metastatic melanoma who received only single agent elraglusib and demonstrated an mOS of 9.1 months, which compares favorably to the mOS of 6.9 months for salvage chemotherapy in a similar patient population. Our management believes that we have potentially identified a method for enriching patients diagnosed with metastatic melanoma that are refractory to checkpoint inhibitors but will benefit from elraglusib. Patient selection and enrichment could improve the probability of success in a future Phase 2 trial in melanoma.

These 11 Actuate-1801 Part 1 patients were refractory to several lines of treatment including immune checkpoint inhibitors and would typically be candidates for chemotherapy salvage with an expected mOS of 6.9 months based on a meta-analysis of many different chemotherapy regimens tested in the salvage setting in this patient population. In Actuate-1801 Part 1, one metastatic melanoma patient with widely metastatic disease to the brain, lungs, bones, muscles, stomach, lymph nodes, pancreas and adrenal glands

received Elraglusib Injection as a single agent. This patient was refractory to all FDA-approved standard therapies, including several checkpoint inhibitors and a BRAF/MEK inhibitor. This patient reported a partial response at 6 weeks and after 12 weeks on elraglusib, the patient's brain MRI showed complete response (CR) by RANO criteria and a PET scan showed complete metabolic response ("CMR") for other lesions. This patient continues to have a durable CMR ongoing (>5.0 years as of 2/1/2024) and continues to receive the drug. A second melanoma patient who received single agent elraglusib has ongoing stable disease (SD; 3.1 years as of last documented alive date). This patient also failed all FDA-approved standard therapies including immune checkpoint inhibitors and several experimental treatments. This is an extraordinary result and should not be considered representative of all patients or all outcomes.

Figure 14. 12 weeks (4 cycles) on elraglusib leads to Complete Metabolic Response by PET-MRI. Cystic lesions were observed in place of prior tumor.



Similarly, Actuate-1801 Part 2 data in the irinotecan chemotherapy basket identified metastatic colorectal (in combination with irinotecan) (Figure 13) as another potential Phase 2 indication for elraglusib based on mOS=6.9 months for patients that were heavily pre-treated and refractory to chemotherapy. This compares favorably with mOS <3 months for this same patient population treated with salvage chemotherapy or best supportive care.

Elraglusib Oral Tablet Development in Metastatic Melanoma, Colorectal Cancer and Other Promising Indications Identified In 1801 Parts 1 and 2. We have been developing several oral dosage forms of elraglusib in addition to Elraglusib Injection that will potentially allow for further exploration of dose and potentially allow us to evaluate elraglusib as a single agent and in combination with additional chemotherapy backbones. We believe that we will be able to administer the Elraglusib Oral Tablet daily, which may allow the drug to achieve steady state levels in plasma in patients that will allow for continuous inhibition of the target GSK-3 in tumor and tumor-associated cells. Pre-clinical studies have shown that persistent exposure of tumor cells (>12 hours but longer exposures work better) is required to observe induction of apoptosis in these tumor cell line models. A comparison of plasma exposure at different doses of elraglusib in patients in 1801 Part 1 (Figure 15) shows that exposures of elraglusib that surpass the target of 1 µM (the *in vitro* IC_{50} in cell viability assays needs to exceeded for at least 12 hours to induce apoptosis in tumor cells) are dose dependent and that 24 hour inhibition would only be expected at doses of 9.3 mg/kg and higher, whereas at 5 mg/kg, target levels are exceeded for approximately 12 hours and at 3.3 mg/kg, for 4-6 hours. Thus, the active dose range of Elraglusib Injection is hypothesized to be ≥5 mg/kg. Our management believes that this is consistent with the clinical data for Part 1 (Figure 16) where a trend to longer OS is observed at higher

doses. As shown in Figure 2 and 3, both the liquid and solid oral dosage forms of elraglusib are highly bioavailable. However, we have chosen to advance the Elraglusib Oral Tablet into clinical development based on an assessment of potential compliance, convenience of use and taste that favor the Oral Tablet. GMP investigational product has already been manufactured and we are planning a First in Human (FIH) Phase 1 clinical trial (Actuate-2401). We plan to initiate a dose escalation Phase 1 trial in patients with advanced solid cancer to identify the MTD/RP2D for the Elraglusib Oral Tablet. Our development plan would then be to pursue Phase 2 indications such as metastatic melanoma and metastatic colorectal cancer using the oral tablet, which will require additional funds to initiate and complete the studies.

Figure 15. Elraglusib Injection Achieves Sufficient Plasma Exposure for Prolonged Inhibition of the GSK-3 Target as a Function of Dose

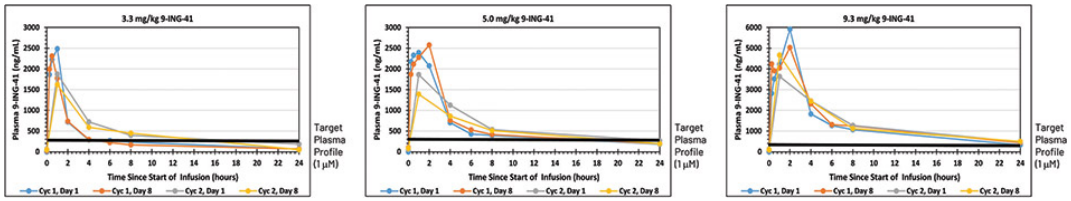
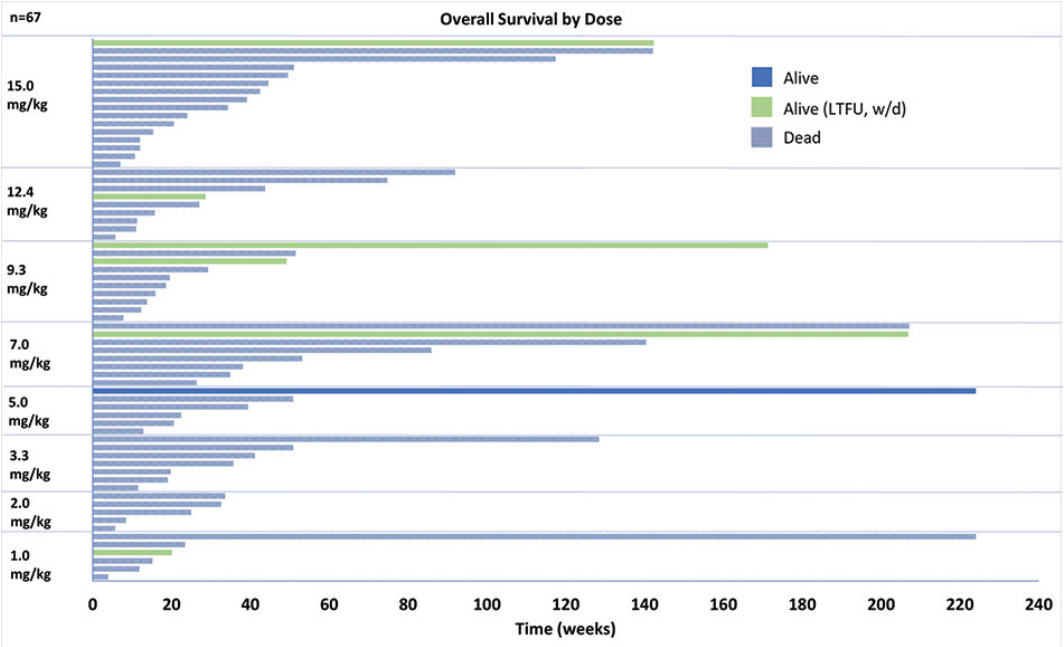


Figure 16. Overall survival by elraglusib dose level in part 1.



Our management believes that there is sufficient clinical pharmacology data to support moving Elraglusib Oral Tablet into FIH studies. The plasma exposure (AUC24) of elraglusib when given IV is 62,376 ng•h/mL at the highest dose of Elraglusib Injection administered in Part 1. Given IV, elraglusib plasma levels fall below active levels of drug after 24 hours.

In a dog toxicology study, the oral drug has an AUC24 of 77,000 ng•h/mL after a single 250 mg oral tablet and 137,000 ng•h/mL after oral administration of 500 mg (2 x 250 mg tablets) (Figure 3). The 500 mg dose was toxic and not tolerated by dogs but the 250 mg dose was well-tolerated when given daily for 28 days in this exploratory study. Our management expects that steady state exposures of 77,000 ng•h/mL or greater will be possible with the Elraglusib Oral Tablet at well-tolerated doses in humans. We believe that this will allow for additional opportunity to explore the antitumor activity of elraglusib with the oral

tablet that could not be achieved with Elraglusib Injection. The injection pairs well with GnP since both are given once per week but the oral tablet may be more amenable to use with other, less convenient chemotherapies as well as a single agent.

Our Business Strategies

Subject to available financing, we intend to develop elraglusib in a broad list of advanced cancer indications, initially in patients with refractory disease and with an initial focus on metastatic pancreatic cancer. Our portfolio consists of two product candidates, Elraglusib Injection and Elraglusib Oral Tablet, which we believe will provide us with two different dosage forms of drug with different attributes that will allow us to tailor each dosage form to a specific cancer type to potentially improve outcomes and compliance. Key elements of our strategy to accomplish this objective include:

- ***Build a sustainable oncology company.*** Our goal is to build a leading oncology company with a sustainable pipeline of target indications revolving around a patented, active product candidate, elraglusib, that can be delivered in different ways to potentially treat a wide variety of cancers. To accomplish this, we are focused on rapid advancement of our currently active clinical trials while curating and preparing additional indications for future expansion of elraglusib development. This effort is led by Daniel Schmitt, our chief executive officer and founder, and Dr. Andrew Mazar, our scientific co-founder and chief operating officer, who have more than 60 years of combined experience in the management of biotechnology companies and healthcare investing. Mr. Schmitt has led and contributed to the successful development and launch of multiple pharmaceutical and health technology products and executed over approximately $1.0 billion in milestone value through licensing, acquisition, and development deals. Dr. Mazar has founded seven start-ups and is the co-founder and former chief scientific officer and director, of Monopar Therapeutics, Inc. (Nasdaq: MNPR) as well as the former chief scientific officer of Attenuon, LLC. Dr. Mazar has shepherded eleven drugs from discovery stage through Phase 2 and Phase 3 trials. Our board of directors, or Board, is comprised of experienced entrepreneurs, scientists, and investors in the biotechnology industry**.**
- ***Advance our lead product candidate, elraglusib, through clinical trials.*** We have generated clinical data from over 500 patients that have been dosed with elraglusib to date. Under the innovative seamless study design of our Actuate-1801 Phase 1/2 clinical trial (***Figure 5:*** *Actuate-1801 Master Protocol study design*), we have initiated a Phase 2 trial testing Elraglusib Injection in combination with chemotherapy in pancreatic cancer under this Master protocol (Actuate-1801 Part 3B). We are also advancing an opportunity in Ewing sarcoma as part of the Actuate-1902 Phase 1/2 study in pediatric refractory malignancies. Currently, the Phase 1 portion of the Actuate-1902 study is open but only accruing patients with refractory Ewing sarcoma into the Phase 1 portion of the study and we are working to amend the Phase 2 portion of this trial to focus on Ewing Sarcoma. We also intend to explore strategically identified investigator-initiated trials (IIT) that may identify additional indications and standard of care products to combine with elraglusib in indications that go beyond those already identified in Actuate 1801-Part 1 and 2, which allows us to further leverage our pipeline in a molecule. By collaborating with our network of oncology KOLs we anticipate partnering to access non-dilutive funding for our IITs through both Federal (e.g. NIH) and non-federal (e.g. cancer-specific foundations, pharma partners) sources. For example, Actuate collaborated with Dr. Colin Weekes to obtain Lustgarten Foundation grant support for the IIT currently being run at MGH. Actuate provides financial and resource support for IITs in exchange for rights to the trial data, but Actuate has no control over the design or conduct of an IIT.
- ***Advance our lead product candidate, elraglusib, by obtaining regulatory development incentives to accelerate path to approval.*** One of our strategic objectives is to obtain development incentives in the United States and in other countries that we believe may accelerate our path to drug approval: Orphan Drug Designation, Fast-Track designation and Breakthrough Therapy Designation (BTD) in the United States; Orphan and priority medicines (PRIME) designations in the EU; and Orphan designations in Japan and Australia. There is no guarantee that any such designation, if received, will actually lead to a faster development, regulatory review or approval process; or increase the likelihood that a product candidate will receive FDA approval.
- ***Explore strategic partnerships that can accelerate and maximize the potential of GSK-3 inhibitors.*** We will evaluate potential strategic (pharma) partnering opportunities which could further help us to

accelerate development of elraglusib by providing expertise, guidance, and funding to expand the pipeline into different tumors and other diseases areas that could benefit from GSK-3 inhibitor therapy, as discussed above. We may also broaden the reach of our platform by selectively in-licensing technologies or novel product candidates. In addition, we will consider potentially out-licensing certain geographic rights to elraglusib or other product candidates in our target indications or for indications and industries that we are not currently pursuing ourselves.

- ***Leverage our academic and research partnerships.*** We are actively engaging with regulators, KOLs, advocates and other stakeholders early and throughout the development process in each cancer indication being considered for development to enhance the probability of technical success. We currently have clinical partnerships with investigators conducting IITs with elraglusib at MGH and DFCI. The trials are partially financially supported by grants from us in amounts ranging from $500,000 to $700,000 depending on the study, to be paid on an enrollment milestone basis, with the balance of study funds provided by the institutions or with grants from government or research institutions. We also provide elraglusib for the study and input into study design. We retain the rights to any preexisting intellectual property and the right for exclusively licensing any joint inventions resulting from the studies. The studies may be terminated by either party with 30 days notice (subject to appropriate offboarding and follow up care for enrolled patients). We expect to expand these pending additional funding to explore indications beyond pancreatic cancer. We also have a research and development collaboration with Lantern Pharma to leverage their artificial intelligence platform to further understand the effects of elraglusib and identify patient subtypes that are particularly susceptible to GSK-3 inhibition. We expect to continue to leverage these partnerships and establish others to hone and expand our research and development efforts.

Developing Elraglusib for the Treatment of mPDAC

A Phase 2 trial was initiated in patients with mPDAC that had not previously been treated with any systemic chemotherapy including GnP (first line study) building on the results of Actuate-1801 Part 2 as described above. By moving our development into the first line setting, we increase our ability to deliver the elraglusib plus GnP combination to many more patients since more than 70% of patients with mPDAC never go on to a second treatment once they have progression on first line treatment. In addition, our management believes that the safety profile of elraglusib/GnP provides a strong basis for testing this combination in first line patients. We also received a number of commercialization incentives (e.g. orphan-drug designation, Fast-Track) through registration for mPDAC.

Actuate-1801 Part 3A

The first Phase 2 study (Actuate-1801 Part 3A) was initiated under the Actuate-1801 Master Protocol in patients with metastatic pancreatic cancer that had not previously received systemic treatment for their metastatic disease (first line setting). This was a single arm exploratory study using disease control rate (DCR), defined as the proportions of patients achieving stable disease ≥16 weeks, confirmed CR, or confirmed PR according to RECIST v1.1 criteria, as the primary endpoint for the study. Secondary endpoints consisted of OS, TEAEs, and other endpoints of response typical for Phase 2 cancer trials (NCT03678883). Several analysis populations were also defined for the study. The modified intention to treat (mITT) population consisted of patients who received at least one dose of elraglusib, gemcitabine, or nab-paclitaxel. The efficacy evaluable (EE) population consisted of patients who had at least 1 post-baseline efficacy assessment while receiving study treatment. Patients who discontinued due to disease progression or elraglusib-related toxicity prior to having an efficacy assessment were also included. In Part 3A, the EE was pre-defined as the efficacy analysis population and the mITT was the safety population. The elraglusib dose was started at the RP2D evaluated in Part 2 (15 mg/kg, two times per week).

The original study design proposed to enroll 23 consecutively evaluable patients that met the definition for the EE. These patients could be replaced at the discretion of the data monitoring committee (IDMC). Consequently, six patients were replaced such that the EE=29 patients. No new safety signals were observed with the elraglusib/GnP combination, but investigators observed that GnP toxicities may have occurred earlier and may have been more intense in some patients than would be anticipated for GnP alone. For these reasons, the dose of elraglusib was proactively reduced near the end of the study to 9.3 mg/kg 2X/week, with the final four patients enrolled being treated at this dose.

Figure 17. *Response of patients with mPDAC treated with elraglusib in combination with gemcitabine and nab-paclitaxel in Part 3A (data cut 3/2023).*

Response	EE population (N=29)
CR, n (%)	2 (6.9)
PR, n (%)	9 (31)
SD ≥16 weeks, n (%)	4 (13.8)
SD <16 weeks, n (%)	11 (37.9)
Progressive disease, n (%)	3 (10.1)
Disease control rate (CR+PR+SD ≥16 weeks), n (%)	15 (51.7) 95% CI: (32.5, 70.6)
mPFS	5.4 months (4.9 months ITT)
mOS	15.3 months (11.9 months ITT)

Abbreviations: CI, confidence interval; EE, efficacy evaluable

Tumor responses for Part 3A (which met the Simon's Stage 1 threshold of DCR≥50%) are shown in Figure 17. The mOS for the EE and ITT were 15.3 months and 11.9 months, respectively. These compare favorably with the mOS for GnP alone of 8.5 months in the MPACT trial or more recently 9.2 months in NAPOLI-3, which evaluated irinotecan liposomal injection (Onivyde) compared to GnP, in the first line mPDAC setting. The elraglusib mOS of 11.9 months for the ITT also compares favorably with the mOS of 11.2 months for FOLFIRINOX, the other first line regimen used for patients with mPDAC or more recently with irinotecan liposomal injection (Onivyde) (mOS=11.1 months). The FDA recently approved irinotecan liposomal injection (Onivyde) for the treatment of mPDAC based on the mOS=11.1 months in the NAPOLI-3 trial.

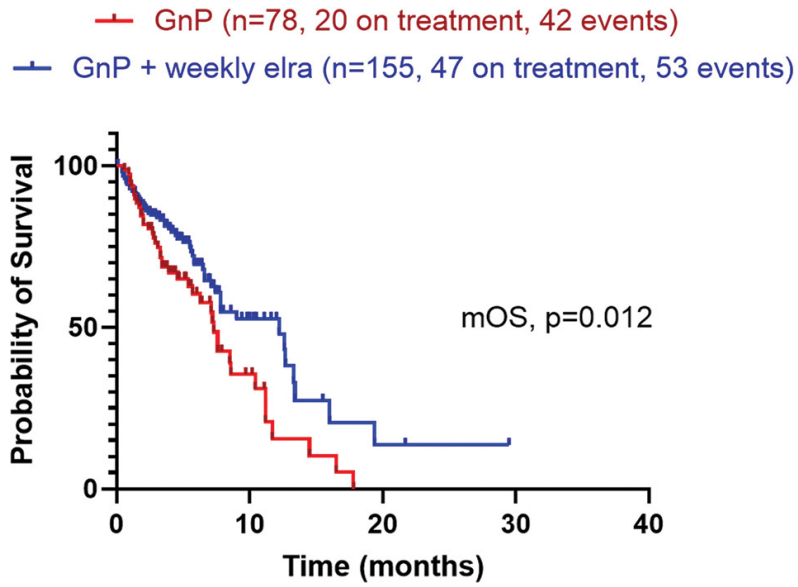
Actuate-1801 Part 3B

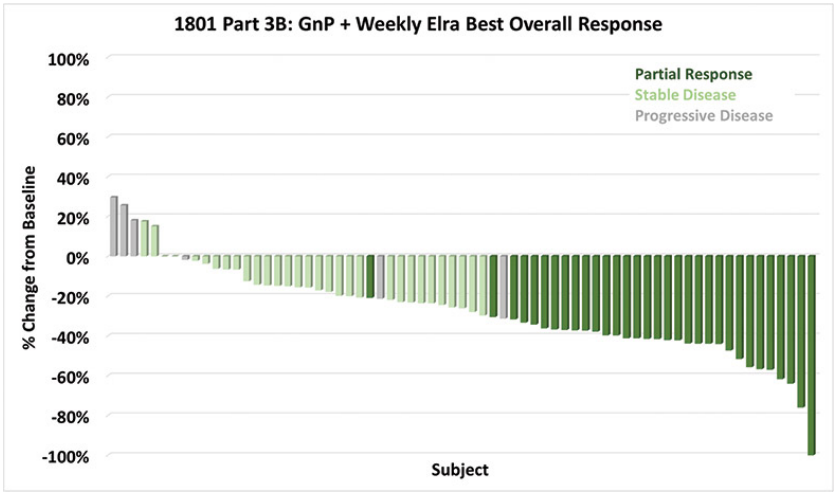
Similar to Actuate-1801 Part 3A, Actuate-1801 Part 3B was also initiated under the Actuate-1801 Master Protocol in patients with mPDAC that had not previously received systemic treatment for their metastatic disease. This study was designed as a randomized, controlled study with a run-in to explore dosing schedule by comparing two different schedules of elraglusib/GnP (once weekly vs. twice weekly) in the hope of potentially providing clinical support for moving to a more convenient, commercially viable elraglusib schedule. Pharmacokinetics were also included in this study to address the potential for drug-drug interactions (DDI) between elraglusib and gemcitabine or nab-paclitaxel. Management believes that confirmation of the Actuate-1801 Part 3A result in an adequately powered, randomized study, would compare favorably with the recently approved irinotecan liposomal injection and would complement the other first line regimens currently used to treat mPDAC and provide a basis for approval for use in patients with mPDAC that had not previously received systemic treatment for their metastatic disease.

Actuate-1801 Part 3B enrolled its first patients in October 2021 and the run-in part of the trial demonstrated the weekly elraglusib was equivalent to twice weekly elraglusib. All patients randomized to the elraglusib/GnP arm now receive weekly elraglusib in addition to GnP. The trial accrued more readily than projected and enrollment was completed in January 2024. A preliminary analysis of interim data was recently completed when we exceeded 50% of events in the GnP control arm. These data are shown in Figures 18-20. We anticipate a second preliminary analysis of the interim data when we exceed 70% of events in the control group. The primary endpoint was recently changed to OS from a 1-year OS landmark but the analysis is unchanged (Kaplan-Meier). OS was previously a secondary endpoint and it has now been promoted to primary to simplify regulatory discussions. The sample size calculation was based on the 1-year survival rate of 55% from the Actuate-1801 Part 3A study compared to a 35% historical one-year survival. The sample size needed to show this difference at a two-sided alpha of 0.05 is 232 patients with 80% power. However, the formal hypothesis testing was always planned to compare the overall survival between elraglusib/GnP to GnP alone and will be based on a nonparametric log-rank test.

Part 3B has now completed accrual and due to interest in the study and a rapid increase in accrual from November 2023 through January 2024, has accrued 285 patients. In April 2024, we carried out a preliminary analysis of the interim data from Actuate-1801 Part 3B in the pre-specified safety population. This preliminary analysis and overall results may change as the study continues through completion. For this interim analysis, we used data based on a cut-off date corresponding to the date when >50% of the patients in the GnP control group had progressed. As of this cut-off date, our preliminary analysis indicates that patients in the (i) GnP control group arm exceeded 50% death events (the outcome measure for survival analysis) at 53.8% and (ii) elraglusib/GnP combination therapy arm were below 50% death events at 34.2%. Based on this interim data, the Kaplan-Meier preliminary analysis demonstrates a mOS of 12.2 months in the elraglusib combination therapy arm versus 7.3 months in the GnP control group arm (HR=0.60; log-rank p=0.012) (Figure 18). Figure 19 summarizes secondary endpoints and patients remaining on study for each treatment arm as well as landmark OS endpoints of 12, 18 and 24 months. A large number of patients are still on treatment with 49% still remaining on the elraglusib/GnP arm (51% progressed) versus 35.9% still remaining on the GnP only arm (64.1% progressed). Interim safety data is shown in Figure 20. As with all interim data, this data should not be relied upon as a final analysis and is subject to change once full data analysis is complete.

Figure 18. *Actuate-1801 Part 3B Interim Kaplan-Meier Analysis for OS*





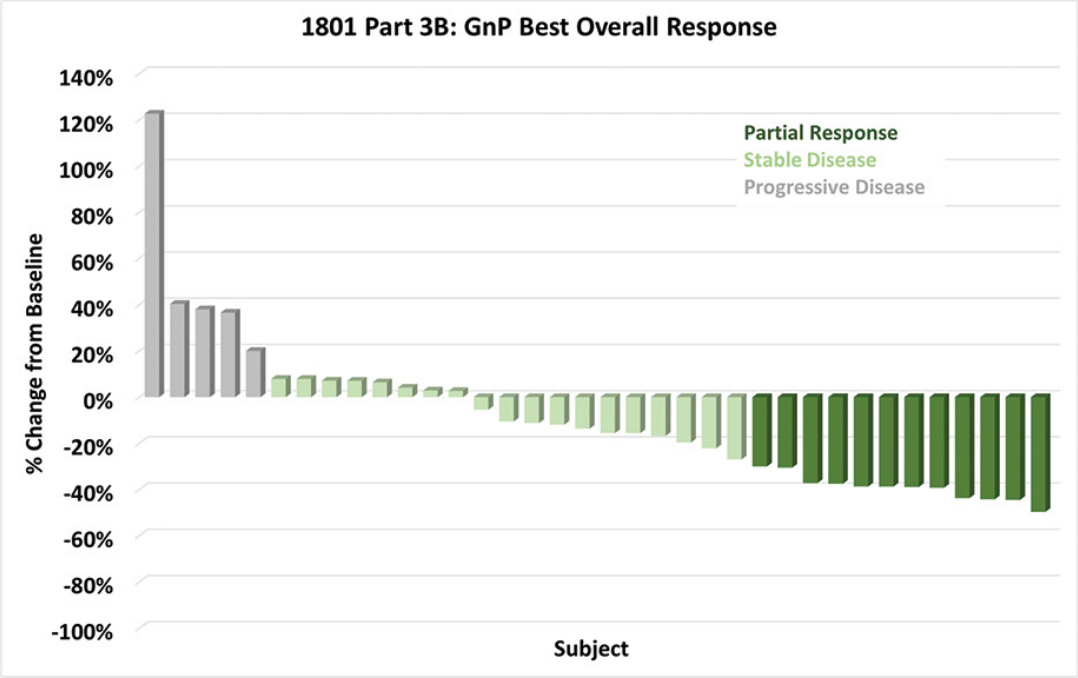


Figure 19. *Actuate-1801 Part 3B Response Assessments Interim Analysis*

	GnP (78)	Elraglusib/GnP (155)	
OS			
mOS (months)	7.3	12.2	HR=0.60; log-rank p=0.012
Events (% events)	42 (53.8%)	53 (34.2%)	
12-month OS (%)	15.5	52.5	
18-month OS (%)	0	20.5	
24 month OS (%)	0	13.6	
PFS			
mPFS (months)	4.6	4.8	HR=0.90; P=NS
Events (% events)	50 (64.1%)	79 (51%)	
ORR			
n (%)	12 (24%)	32 (30.8%)	Evaluable for response

[1]RCT: randomized, controlled trial; PDAC: pancreatic ductal adenocarcinoma; OS: overall survival; ORR: overall response rate; DOR: duration of response; PFS: progression-free survival

Figure 20. *Treatment-Emergent Adverse Events of Any Grade Reported in >20% of Patients Treated with Elraglusib (31Dec2023) in Actuate 1801 Part 3B (ongoing)*

Patients, n (%)				
Adverse event	**Elraglusib with Nab-Paclitaxel + Gemcitabine (N=139)**		**Nab-Paclitaxel + Gemcitabine (N=62)**	
	Any Grade	**Grade ≥3**	**Any Grade**	**Grade ≥3**
Any TEAE	128 (92.1)	105 (75.5)	54 (87.1)	33 (53.2)
Serious TEAE	63 (45.3)	60 (43.2)	25 (40.3)	23 (37.1)
Leading to Stoppage of Any Study Drug	19 (13.7)	16 (11.5)	8 (12.9)	8 (12.9)
Leading to death	13 (9.4)	13 (9.4)	8 (12.9)	8 (12.9)
TEAEs of any Grade in ≥20% of Patients				
Visual impairment	80 (57.6)	0	3 (4.8)	0
Neutropenia[1]	67 (48.2)	63 (45.3)	17 (27.4)	11 (17.7)
Fatigue	64 (46)	15 (10.8)	18 (29)	1 (1.6)
Nausea	61 (43.9)	10 (7.2)	19 (30.6)	1 (1.6)
Diarrhea	57 (41)	11 (7.9)	19 (30.6)	2 (3.2)
Anemia[2]	45 (32.4)	25 (18)	14 (22.6)	8 (12.9)
Alopecia	43 (30.9)	1 (0.7)	18 (29)	0
Decreased appetite	41 (29.5)	5 (3.6)	9 (14.5)	2 (3.2)
Thrombocytopenia[3]	38 (27.3)	11 (7.9)	12 (19.4)	2 (3.2)
Vomiting	36 (25.9)	2 (1.4)	15 (24.2)	1 (1.6)
Constipation	36 (25.9)	2 (1.4)	14 (22.6)	1 (1.6)

(1) Includes PT terms neutropenia and neutrophil count decreased; (2) Includes PT terms anemia and hemoglobin decreased; (3) Includes PT terms thrombocytopenia and platelet count decreased

This is an open-label study and we and our collaborators have viewed the patient data throughout the study, which means the study could not be used to support accelerated approval based on surrogate endpoints. Interim and preliminary data is presented in Figures 18 and 19. We anticipate performing another preliminary analysis which will occur in the fourth quarter of 2024 when events in the GnP control group are projected to exceed 70%. Management expects that topline data will then be available in the first quarter of 2025 based on enrollment of the last patients in the study in February 2024. We plan to disclose the results of these studies as they become available.

Summary of Investigator-Initiated Trials

In addition to the company sponsored trials referenced above, elraglusib is currently being evaluated in three IITs. We track patient accrual and serious adverse events (SAEs) in these trials and report these to our IND. These trials are listed here (Figure 21) for awareness only and the IIT investigators have not yet shared data from these studies. However, we will receive all final data from these studies, which are considered exploratory and may inform future development of elraglusib.

Figure 21. *Elraglusib studies to date-studies conducted under investigator INDs*

IND#	Phase	NCT # / Sponsor	Study Title	Dosing Regimen	Study Population	FVFP[1]	Planned Enrolment	Number of Patients / Study Status
156280	2	NCT05010629 Glenn J. Hanna, MD	Phase 2 Study of 9-ING-41, a Glycogen Synthase Kinase 3 Beta (GSK 3β) Inhibitor, Plus Carboplatin in Patients With Advanced, Metastatic Salivary Gland Carcinoma	9-ING-41 is administered by intravenous infusion twice weekly in combination with carboplatin administered once every 21 days	Adults with incurable, recurrent or metastatic salivary gland carcinomas	Sep 2021	35 subjects	Total: 35 / Enrollment Complete Treatment is ongoing
157852	2	NCT05239182 Anwar Saeed, MD	A Phase 2 Study of 9-ING-41, a Glycogen Synthase Kinase 3-beta (GSK-3β) Inhibitor, Combined With Retifanlimab, a PD-1 Inhibitor, Plus Gemcitabine/ Nab-Paclitaxel as Frontline Therapy for Patients With Advanced Pancreatic Adenocarcinoma (RiLEY)	9-ING-41 is administered by intravenous infusion twice weekly in combination with GnP on Days 1, 8 and 15 and with retifanlimab on Day 1 of a 28-day cycle.	Adults with pancreatic cancer who have not received any prior systemic therapy for advanced disease	Feb 2022	32 subjects	Total: 7
157435	2	NCT05077800 Colin D. Weekes, MD	A Phase 2 Study of FOLFIRINOX Combined With the Glycogen Synthase Kinase-3 Beta (GSK-3 β) Inhibitor 9-ING-41 and the Transforming Growth Factor-β (TGF-β) Inhibitor Losartan in Patients With Untreated Metastatic Adenocarcinoma	9-ING-41 is administered by intravenous infusion twice weekly in combination with FOLFIRINOX administered once every 14 days and daily losartan	Adults with untreated metastatic pancreatic adenocarcinoma	Apr 2022	70 subjects	Total: 35 / enrolment and treatment is ongoing

(1) FVFP=First Visit First Patient

Metastatic Pancreatic Ductal Adenocarcinoma (mPDAC)

The annual incidence of pancreatic cancer is expected to exceed 66,000 patients in the United States this year. Approximately 70% of these patients will present with mPDAC. The mOS in patients with mPDAC is 9-11 months and our management believes that the ability to extend survival by even a few months would be considered meaningful in this patient population. Elraglusib has been granted Fast Track and orphan drug designations from the FDA for pancreatic cancer in the United States. Based on our meetings with the FDA to discuss our development plan in pancreatic cancer, the current Phase 2 study design cannot be used to support accelerated approval. However, if the future OS data is positive in favor of the elraglusib/GnP combination we would initiate further discussion with the FDA to discuss registration for accelerated approval.

Two additional exploratory single arm Phase 2 studies are ongoing, subject to receipt of the proceeds of this offering, in patients with pancreatic cancer evaluating novel drug combinations with elraglusib: the combination of elraglusib/FOLFIRINOX/losartan in patients with mPDAC and the combination of elraglusib/GnP/retinfanlimab in patients with advanced PDAC. Both studies are academic IITs that are exploring the addition of immunomodulatory drugs to an elraglusib/chemotherapy backbone.

We are developing elraglusib in patients with mPDAC that have not previously received systemic treatment for their metastatic disease. Due to lack of early symptoms, approximately 80-90% of all patients with pancreatic cancer are unresectable and not able to be able to be treated with surgery, and present with advanced or metastatic disease. 80-90% of PDAC cases do not have a high mutational burden. However, frequent mutations in KRAS and TP53 confer a survival benefit on pancreatic tumors, making PDAC chemo-resistant and often refractory to chemotherapy.

Current first-line therapies for mPDAC consist of FOLFIRINOX, GnP or irinotecan liposomal injection given with oxaliplatin, fluorouracil, and leucovorin (NALIRIFOX). NALIRIFOX was recently approved (February 13, 2024) and may provide an alternative to FOLFIRINOX with a better safety profile. FOLFIRINOX is a combination of four drugs: folinic acid, fluorouracil, irinotecan, and oxaliplatin. Fluorouracil (5-FU) is a nucleoside analog that prevents the replication of DNA, which is essential for dividing cells. Folinic acid enhances 5-FU activity. Irinotecan and oxaliplatin inhibit DNA uncoiling and repair, respectively. Gemcitabine is also a nucleoside analog with a similar mechanism to 5-FU. Paclitaxel interferes with the normal dynamics of the cellular cytoskeleton, which interferes with DNA segregation and cell division.

The mOS in mPDAC patients is 11.1 months for NALIRIFOX, 11.2 months with FOLFIRINOX and 8.5-9.2 months with GnP respectively in the first-line setting. NALIRIFOX demonstrated superiority to GnP in the NAPOLI-3 trial (mOS 11. 1 vs 9.2 months). However, safety profiles between these three chemotherapy backbones are quite different: FOLFIRINOX leads to higher rates of neutropenia and nausea, NALIRIFOX has more gastrointestinal and constitutional toxicity such as nausea, diarrhea and fatigue, and GnP treatment leads to increased myelosuppression and neurotoxicity. An analysis of an insurance claims database indicated that first line treatment from 2014-2018 was split between FOLFIRINOX and GnP. Our management believes it is too early to predict how NALIRIFOX will fit into clinical use in patients with mPDAC.

Development Plan for Elraglusib Injection in mPDAC

At the conclusion of Actuate-1801 Part 3B, we expect to have survival data on the elraglusib plus GnP combination in patients with mPDAC that had not previously received systemic treatment for their metastatic disease. At the completion of this study, we plan to meet with FDA and discuss the design and execution of a Phase 3 registration study, if justified by the results of Actuate-1801 Part 3B. In addition, we plan to discuss the use of the Actuate-1801 Part 3B data for regulatory support and to support registration if the study achieves its primary endpoint of showing improved survival over GnP alone. We have also been granted a parallel EMA-HTAb scientific advice meeting in October 2024 to discuss a priority medicine (PRIME) designation and conditional approval in the EU. Figure 20 also shows increased TEAEs in the Actuate-1801 Part 3B arm receiving elraglusib. While the elraglusib/GnP combination appears to be well-tolerated and well-managed in the clinic, we do not yet know whether any increase in the number or severity of toxicities will be attributable to elraglusib and thus the elraglusib/GnP combination will have its own safety profile that will need to be evaluated and discussed with regulators.

Developing Elraglusib for the Treatment of Ewing Sarcoma

The Actuate-1902 Pediatric Cancer Phase 1/2 Study

An estimated 9,620 children (ages 0-14 years) and 5,280 adolescents (ages 15-19 years) are expected to be diagnosed with cancer in the United States in 2024. It is also estimated that 1,040 children and 550 adolescents will die from the disease in the United States in 2024. While death rates for pediatric and adolescent cancers have declined by more than 50% over the last five decades due to improved treatment options, there is still room for improvement. Despite the improved survival offered by current therapies, approximately 40% of childhood cancer survivors have severe, life-threatening or fatal complications within

30 years of diagnosis and up to 90% of survivors will have a chronic health condition by the age of 45. These long-term effects are related to the type of treatment used such as chemotherapy and radiation which can have a material adverse impact on developing organs. Work is ongoing to determine how to more effectively identify underlying mechanisms of pediatric cancers in an effort to develop and administer more targeted, more effective and less toxic treatments.

Based on extensive preclinical work in pediatric malignancies showing excellent synergy between elraglusib and standard of care chemotherapy in neuroblastoma, sarcoma, glioma and others, we initiated a Phase 1 study to determine the safety of elraglusib +/- chemotherapy in pediatric patients with refractory malignancies in 2020. The dose escalation part of the study assigned patients to elraglusib alone, elraglusib/irinotecan or elraglusib/cyclophosphamide and topotecan (CT). The RP2D was confirmed as 15 mg/kg twice weekly and additional patients were added to the elraglusib/irinotecan or elraglusib/CT to explore initial signals of anticancer activity. As of February 2, 2024, 36 patients had been enrolled and received at least one dose of elraglusib. No serious adverse events were observed with elraglusib monotherapy at the first two dose levels. One patient treated with elraglusib in combination with chemotherapy showed a Grade 4 hypotension/infusion reaction. Six patients (26.1%) achieved stable disease and a patient with refractory, metastatic Ewing sarcoma had a radiographic and pathologic CR after 3 cycles of elraglusib/CT. Recently, a second CR was observed in a 5-year-old boy with treatment resistant neuroblastoma that has completed 9 cycles of elraglusib in combination with CT. Upon determination of RP2D for monotherapy and combinations, we had originally intended to initiate a Phase 2 study in neuroblastoma. However, recently approved anti-GD2 antibodies have shown considerable improvement of response rate, PFS, and survival making development in this population much more challenging. Based on the response from the Ewing sarcoma patient, six additional patients with metastatic, refractory Ewing and Ewing-like sarcoma were enrolled in the elraglusib/CT arm.

All seven Ewing patients enrolled in our Actuate-1902 trial appear to have metastatic disease and had disease progression prior to joining the study despite previous chemotherapy and radiation (4/7 patients had received two or more previous chemotherapy regimens). There are currently no known treatment regimens that meaningfully extend life in Ewing sarcoma patients with metastatic, refractory disease. All patients received the combination of elraglusib and cyclophosphamide/topotecan. The Ewing patient with the CR described above stopped all treatments after 4 months to return to school and continues to be in complete remission with no evidence of disease almost 2 years after termination of treatment. A second Ewing patient had a CMR (Complete Metabolic Response) with no detectable lesions by FDG-PET, and a third patient has a partial response with 52% reduction in tumor. Two additional Ewing patients have stable disease as the best overall response, one patient had progressive disease, and one patient withdrew from treatment prior to evaluation of response. Four (4/7) patients remain alive and three continue on treatment.

Development Plan in Ewing Sarcoma

The five years survival rate for patients that have recurrent (relapsed) disease is <30%. Patients that are refractory and have metastasis and disease progression despite two or more chemotherapy regimens have very short survival of 3-8 months. There are currently no treatment regimens that meaningfully extend life in Ewing sarcoma patients with metastatic, refractory disease. We believe that this exploratory Ewing sarcoma data is sufficiently positive in this orphan pediatric cancer indication to consider additional development in Ewing sarcoma. The Actuate-1902 Phase 1 arm of the study is open to accrual, focusing on recruitment of patients with refractory Ewing sarcoma.

If we have sufficient funding from the proceeds of this offering, we plan to amend the Phase 2 portion of the Actuate-1902 protocol to focus on Ewing sarcoma. Once amended, the protocol will be submitted as applicable for central/local IRB review and approval and to the FDA for its information as an update to the IND (targeted in the third quarter of 2024). Any revisions to the protocol may require additional input from the FDA and/or our central IRB, which may impact our time frames for expected enrollment, potential addition of trial sites, study completion, database lock, and interim and final data readouts. Once the FDA has had an opportunity to review and comment on the amendment, and the amendment is approved by the central IRB, sites currently participating in the Phase 1 portion of the trial are expected to be able to begin recruiting in the Phase 2 portion. The estimated timeline for opening enrollment in the Phase 2 is the fourth quarter of 2024, subject to the funding and approvals outlined above.

The proposed primary endpoint would be overall response rate (ORR), with an initial efficacy readout in approximately 12-18 months from commencement. We anticipate enrolling up to 15 patients with Ewing sarcoma in the Phase 2 portion of the trial. This design is based on the objective responses seen in the small cohort of Ewing patients enrolled in Actuate-1902 and will be benchmarked against the recently published ORR in the rEECur phase 3 trial of 21% for CT to establish a success threshold for our study. We are in the process of engaging with the pediatric sarcoma community to discuss potential registration trials in the United States and the EU if Phase 2 is positive. Given that Ewing sarcoma is a very rare pediatric cancer, an international consortium of investigators and sites will be needed to advance this program to registration. In addition, we plan to pursue a number of development incentives including orphan drug, Fast-track, a pediatric rare disease waiver in the United States and parallel programs in the EU. The ability to engage in further development in pediatric cancers will depend on our ability to raise sufficient capital through this offering or otherwise to support this path. We believe that pursuing this development could be an efficient and rapid path to registration in the United States and Marketing Authorization in the EU.

License Agreements

Northwestern University License Agreement

The exclusive worldwide rights to materials and non-exclusive rights to certain know-how relating to the use for therapeutic, diagnostic and commercial research purposes of elraglusib and related compounds in cancer and combination therapies are licensed to us by NU pursuant to that certain royalty-free license agreement between us and NU, dated March 31, 2015, as amended on April 29, 2019 (as amended, the NU License Agreement).

Pursuant to the NU License Agreement, NU granted us (i) a nonexclusive license to certain technical information developed in the laboratory of Dr. Mazar, and (ii) an exclusive license to all results obtained by Dr. Mazar and his collaborators at NU on the use of the GSK-3β inhibitor 9-ING-41 and related compounds used for the treatment of cancer and combination therapies. The term of the NU License Agreement continues in effect until the expiration of the last to expire of patent rights covering 9-ING-41 and related GSK-3 inhibitors (see the discussion under *Intellectual Property* below for a discussion of our expected patent terms), unless earlier terminated by NU due to our making a general assignment for the benefit of creditors, initiation of bankruptcy proceedings by or against us or the appointment of a receiver or trustee to take possession of our property, or by either party following 90 days' notice of a material breach of the NU License Agreement that is not then cured. The NU License Agreement terms are subject to the provisions of the Bayh-Dole Act, including requiring us to substantially manufacture products related to the license in the United States, unless waived. While the DS for elraglusib is manufactured by a supplier in China, the end drug product is substantially manufactured in the United States.

In consideration of the license granted by NU, we issued 50,000 shares of our common stock to NU, which represented 5% of our then-outstanding fully-diluted shares and agreed to customary confidentiality and progress update obligations and to indemnify NU for any claims arising from our use of the licensed rights under the NU License Agreement.

University of Illinois-Chicago Exclusive License Agreement with Equity

The exclusive rights to Patent Rights (as defined in the UIC License Agreement and described further below) and Technical Information (as defined in the UIC License Agreement) surrounding GSK-3 inhibitors for Neurodegenerative Disorders were licensed through an Exclusive License Agreement with Equity between us and UIC, dated April 6, 2015, as amended on April 24, 2019 (as amended, the UIC License Agreement). Under the UIC License Agreement, the Patent Rights relate to certain patents relating to 3-Benzofuranyl-4-Indolyl Maleimides, the last of which is scheduled to expire on March 16, 2028, not including any PTE, which we may apply for under Title II of the Drug Price Competition and Patent Term Restoration Act of 1984 ("Hatch-Waxman"), 35 U.S.C. §156. The following summarizes the key terms set forth in the UIC License Agreement.

Pursuant to the UIC License Agreement, UIC granted us (i) an exclusive, nontransferable license, with the right to sublicense under UIC's rights in the Patent Rights, and (ii) a non-exclusive, non-transferable license, with the right to sublicense, to use UIC's rights in the Technical Information within the specified

territory (which is where the Patent Rights exist for such rights and worldwide for the Technical Information) for all uses other than rights reserved by UIC for non-commercial purposes, including teaching, research and public service and publishing information included in the Patent Rights and the Technical Information. The term of the UIC License Agreement continues in effect until the later of (x) expiration of the last to expire of the Patent Rights, (y) notice from us that the use of the Technical Information has ceased, and (z) the expiration of the last form of market exclusivity for products using the licensed technology. The UIC License Agreement may also be earlier terminated by UIC in the event of certain breaches of its terms that are not cured following a notice period or initiation of bankruptcy proceedings by or against us or the imposition of any lien or encumbrance on the licensed technology. We may also terminate the UIC License Agreement for any reason following 90 days' notice.

In consideration of the license granted under the UIC License Agreement, we issued 83,750 shares of our common stock to UIC, which represented 5% of our capital stock on a fully diluted basis as defined in the UIC License Agreement, and agreed to pay UIC (i) development milestones of up to $1.3 million, of which, up to $0.3 million is due upon the progress of clinical trials and $1.0 million is due upon the initiation of commercial sales (ii) annual minimum royalty payments of $5,000 beginning on the three-year anniversary of the UIC License Agreement and increasing to $15,000 in year four, $35,000 in year five, and $50,000 in year six and thereafter, (iii) royalty on net sales for product covered under the Patent Rights in the low single digits with a 50% reduction in royalties for products solely utilizing Technical Information, (iv) a declining percentage of sublicensing revenue based on the escalating stage of development upon a sublicensing event, and (v) the reimbursement of all patent and related expenses incurred by UIC covering the Patent Rights. We also agreed to customary confidentiality and progress update obligations, to indemnify UIC for any claims arising from our use of the licensed rights under the UIC License Agreement and to certain co-sale and piggy-back registration rights with respect to the shares of our common stock issued to UIC.

The UIC License Agreement obligates us or a sublicensee to commercialize the licensed technology, including to achieve the development events specified in the agreement, including progress through clinical trials and achieving commercialization. UIC may also identify feasible uses of the licensed technology and, unless we demonstrate that we are pursuing such development or such development is not feasible within a specified period, UIC may terminate the UIC License Agreement or the exclusivity of the licensed rights. As of the date hereof, we have met all existing milestones as provided for in the UIC License Agreement. We are also responsible for the prosecution and maintenance of the licensed patents, at our expense and using commercially reasonable efforts. We have the sole right to enforce the licensed patents, at our expense. The UIC License Agreement terms are subject to the provisions of the Bayh-Dole Act, including requiring us to substantially manufacture products related to the license in the United States, unless waived. While the DS for elraglusib is manufactured by a supplier in China, the end drug product is substantially manufactured in the United States.

In addition, the Company has an obligation to UIC related to a sub-license and collaboration agreement dated August 28, 2017 with an unrelated entity, which agreement was later terminated on January 31, 2018. Under the agreement, the Company initially paid UIC a portion of the sublicense fees in the amount of $44,999 with the remaining unpaid balance due and payable to UIC in two installments with 50% due and payable on the one-year anniversary from the first commercial sale and the remaining balance is due on the second-year anniversary from the first commercial sale. The unpaid balance of $404,991 as of December 31, 2023 and 2022 continues to accrue interest at a rate of 5% per annum, representing the prime rate as of the date of the agreement plus 1%. Interest payable to UIC was $130,041 and $86,400 as of December 31, 2023 and 2022, respectively, and is included in the accompanying consolidated balance sheets.

Collaboration Agreement

We entered into a Collaboration Agreement with Lantern Pharma in 2021 under which the parties are collaborating on utilization of Lantern Pharma's platform to develop novel biomarker derived signatures for use with our product candidates. As part of the collaboration, Lantern Pharma received 25,000 restricted shares of our common stock, which vest upon meeting certain conditions of the collaboration, as well as the potential to receive additional shares if results from the collaboration are utilized in future development efforts. Our current director, Les Kreis, Jr., was a director of Lantern Pharma until June 8, 2022. Certain

affiliates of the Bios Equity Affiliated Funds, which is our largest stockholder, beneficially owned greater than 10% of Lantern Pharma's common stock as of March 31, 2024. Through December 31, 2023, no revenue has been recognized by either party under this agreement. Mr. Kreis was not involved in the negotiation of this agreement and the negotiations were conducted at arm's length.

Intellectual Property

As of December 31, 2023, we own or have licensed 7 issued patents and pending patent applications worldwide, two pending international Patent Cooperation Treaty (PCT) patent applications and one U.S. provisional patent application, which are material to the programs described below. Three of the issued patents worldwide and no pending patent applications are owned by UIC, which has granted us exclusive license rights to the technology. Our policy is to file patent applications to protect technology, inventions and improvements to inventions that are commercially important to the development of our business. We seek U.S. and foreign patent protection for a variety of technologies. We also intend to seek patent protection or rely upon trade secret rights to protect other technologies that may be used to discover and validate targets and identify and develop novel products. We seek protection, in part, through confidentiality and proprietary information agreements. We are a party to various other license agreements that give us rights to use specific technologies in our research and development.

We hold an exclusive license for the portfolio of GSK-3β inhibitors developed in a collaboration between UIC and NU. This intellectual property portfolio is exclusively licensed through two licensing agreements between us and each of UIC and NU, as described above.

In particular, as discussed below, we rely on the patents as critical to our development.

With respect to our elraglusib program, as of March 31, 2024, we own or exclusively in-license one patent family focused on the elraglusib molecule and/or related compounds. The exclusively in-licensed patent family for elraglusib and related compounds (the original patent in-licensed from UIC) includes one granted U.S. patent, one granted European patent and one granted Canadian patent, which are directed to 3-Benzofuranyl-4-Indolyl Maleimides compounds. The U.S. patent is expected to expire in 2028.

Actuate subsequently discovered that elraglusib exists as one of only two polymorphs and filed composition of matter patents covering both polymorphs. The patent family covering "Polymorph I" is based on PCT/US2018/046203 9-ING-41 Polymorph I Composition of Matter and includes one granted U.S. patent (US 11,136,334), one granted patent in each of Australia, Europe (with validation in 19 countries), Japan, and Mexico, one non-provisional U.S. patent application, an expired PCT patent application, and pending patent applications in Australia, Brazil, Canada, China, Israel, Japan, Mexico, South Korea and South Africa, which are directed to a polymorph of a GSK-3β inhibitor, compounds, pharmaceutical compositions, methods of preparing and uses for treating cancers. The U.S. patent is expected to expire in 2038.

The patent family we own that covers elraglusib "Polymorph II" is based on PCT/US2018/056083 9-ING-41 Polymorph II Composition of Matter and includes one granted U.S. patent (US 11,407,759), one granted patent in each of China, Mexico and Macao, one non-provisional U.S. patent application, an expired PCT patent application and pending patent applications in Australia, Brazil, Canada, European Patent Office, Israel, Japan, Mexico, South Korea and South Africa, which are directed to a polymorph of a GSK-3β inhibitor, compounds, pharmaceutical compositions, methods of preparing and uses for treating cancers. The U.S. patent is expected to expire in 2040.

We intend to file additional patent applications for the liquid and solid formulations of these elraglusib compositions covering the liquid and solid oral dosage forms of elraglusib that we expect to develop.

The term of individual patents depends upon the legal term of the patents in the countries in which they are obtained. In the United States, the patent term is 20 years from the earliest date of filing a non-provisional patent application. In the United States, a patent's term may be shortened if a patent is terminally disclaimed over another patent or as a result of delays in patent prosecution by the patentee, and a patent's term may be lengthened by patent term adjustment, which compensates a patentee for administrative delays by the USPTO in granting a patent. Patent term may also be extended up to five years due to regulatory delay (Patent Term Extension or PTE). We may apply for PTE under Title II of the Hatch-Waxman Act for

any one of the U.S. Patents, however there is no guarantee that PTE would be granted for any patent. This is discussed further below under the sub-heading *Patent Term Restoration and Marketing Exclusivity.*

We intend to continue to regularly assess opportunities for seeking patent protection for those aspects of our discoveries in the clinic, technology, designs and methodologies that we believe provide a meaningful competitive advantage. However, because patent filings can be time-consuming and expensive, our ability to do so may be limited until such time as we are able to generate cash flow from operations or otherwise raise sufficient capital to continue to invest in our intellectual property. For example, maintaining patents in the United States and other countries requires the payment of maintenance fees which, if we are unable to pay, may result in loss of our patent rights. If we are unable to do so, our ability to protect our intellectual property or prevent others from infringing our proprietary rights may be impaired.

Manufacturing

We work with third-party suppliers and manufacturers, Pharmaron (which supplies the DS for elraglusib), University of Iowa Pharmaceuticals, and PCI Pharma Services, to support the manufacturing of elraglusib for clinical studies and our research activities and, if we receive regulatory approval, we intend to rely on such third parties for commercial manufacture. We do not own or operate, and currently have no plans to establish, any manufacturing facilities. We currently obtain our supplies from these manufacturers on a purchase order basis and do not have any long-term supply agreements in place. In order to de-risk our supply chain, and as we advance toward potential commercialization, we may enter into long-term supply agreements as well as evaluate additional product manufacturing sources.

Competition

Elraglusib in Actuate-1801 Part 1 and 2 has shown the ability to combine with components of GnP, and FOLFIRINOX/NALIRIFOX (irinotecan, platinums). We are presently developing elraglusib combined with GnP for first line mPDAC but the ongoing IIT (Figure 13) will provide exploratory data on the elraglusib/ FOLFIRINOX combination which would also provide a rationale for combining elraglusib with NALIRIFOX in the clinic. mPDAC patients either have primary resistance to these chemotherapy backbones (e.g., do not respond at all when treated to these chemotherapy backbones) or develop resistance quickly (responses with GnP, FOLFIRINOX and NALRIFOX are transient and not very durable). Our management believes that elraglusib may improve outcomes in first line mPDAC regardless of the chemotherapy backbone used, although the clinical data does not yet support this hypothesis. Nevertheless, as either GnP or FOLFIRINOX are used to treat >90% of patients with mPDAC and there is potential for combining elraglusib with either of these chemotherapy backbones based on Actuate-1801 Parts 1 and 2, our management believes that elraglusib has the potential to treat a large segment of patients diagnosed with mPDAC. Thus, our plan is to develop elraglusib in combination with the present first line chemotherapy regimens used in the treatment of mPDAC, as exemplified by its lead program of elraglusib/GnP and later moving to combinations with either FOLFIRINOX or NALIRIFOX pending results of the IITs. If shown to be clinically active, elraglusib chemotherapy combinations could eventually be used to treat a large segment of mPDAC patients.

Several other targeted therapies are also being evaluated in mPDAC but these are all being tested for the treatment of small subpopulations of mPDAC. There are many studies combining immune checkpoint inhibitors, PARP inhibitors, various chemotherapies and certain RAS inhibitors in patients with mPDAC. However, other targeted agents besides elraglusib are only able to target a low percentage of mPDAC patients. Ongoing studies with other targeted agents in mPDAC are generally non-randomized at one or a limited number of sites, are too early to assess for commercial potential and would not be considered as a competitor to elraglusib because of their lack of broad suitability for most mPDAC patients. For example, the PARP inhibitor Lynparza (olaparib) was recently approved as a maintenance therapy as it has been shown to significantly improve PFS and duration of response in patients with BRCA-mutated mPDAC that have not progressed following first-line platinum-based chemotherapy. However, BRCA mutations are only present in 4-7% of all PDAC patients. Olaparib is currently being evaluated as a therapeutic intervention in combination with a checkpoint inhibitor, pembrolizumab, in patients with mPDAC in BRCA1 mutated patients. Similarly, the RAS mutation targeted by clinical RAS inhibitors is only present in a low percentage

of all PDAC and thus, of the current PDAC inhibitors available in the clinic, few PDAC patients would be expected to benefit from their treatment.

Thus, the vast majority of mPDAC patients still do not have an approved targeted therapy that can treat their tumor. If successful, we believe the elraglusib/chemotherapy combination would introduce the first broadly targeted agent, elraglusib, as a treatment option for patients with mPDAC and would have the potential to treat the majority (80-90%) of patients with mPDAC. A review of clinicaltrials.gov reveals that there are very few randomized studies for any novel drug or drug combination (not just targeted) in previously untreated patients with mPDAC:

- Onivyde (Ipsen Pharmaceuticals)-Recently approved for 1st line mPDAC when used as part of the NAIRIFOX regimen based on a survival improvement of 1.9 months (NALRIFOX 11.1 months vs GNP 9.2 months).
- SBP-101 (Panbela Therapeutics, Inc.)-A randomized, double-blind, placebo-controlled, multicenter study of standard treatment with nab-paclitaxel and gemcitabine with or without SBP-101 in subjects previously untreated for mPDAC.
- Zolbetuximab (IMAB362)-A phase 2, open-label, randomized study to assess the efficacy and safety of zolbetuximab (imab362) in combination with nab-paclitaxel and gemcitabine as first line treatment in subjects with claudin 18.2 (cldn18.2) positive, metastatic pancreatic adenocarcinoma.

There are very few drugs in late stage clinical development for mPDAC and this may reflect the rapid accrual experienced in Actuate-1801 Part 3B, which accrued ahead of schedule.

There are several treatments in development for locally advanced or mPDAC. The tables below focus on select first line treatments that are in clinical trials in mPDAC. Quite a few of these are very early stage and therefore little information is available on clinical activity to date. With the initial success of biomarker driven and targeted therapies, there is an effort to test additional targeted agents in mPDAC patients to determine if there is any synergy with standard chemotherapy regimens in the first line setting. For instance, KRAS is mutated in over 90% of PDAC patients and there are several KRAS targeted agents in development; however, several agents are specifically targeting the G12C mutation which only accounts for 1-2% of KRAS mutations in PDAC. Other agents are being tested in KRAS mutant cancers more broadly by targeting other MAPK pathway members such as MEK and ERK1/2, though treatment-related toxicity has been reported with these agents. Additionally, these MAPK targeted agents are currently being evaluated in second-line and later settings. In the future, targeted/ immunotherapy agents may be able to be combined or used in series to provide a more flexible and tailored therapeutic approach for each individual patient. Additionally, the multifaceted and differentiated mechanism of action of elraglusib is likely to be synergistic with both cytotoxic and immunomodulatory therapeutics that may be approved in the future. Our management believes that this potential for combining elraglusib with future multi-therapy regimens is also feasible given elraglusib's favorable safety profile as a single agent. Mechanistically, some of the targets inhibited by competitors e.g., KRAS intersect with the GSK-3 pathways and provide a rationale for potentially prioritizing these combinations with elraglusib.

Human Capital Resources

As of December 31, 2023, we had five regular full-time employees, four of whom were engaged in research and development activities, and seven contract workers, four of whom were engaged in research and development activities. We currently have ten full-time employees that manage and oversee all aspects of our pre-clinical and clinical development. In addition, we currently work with numerous highly experienced consultants and contractors that provide management and oversight in manufacturing, analytical, clinical supply chain, regulatory, pharmacovigilance and safety, clinical operations, data management, statistics, non-clinical toxicology, nonclinical and clinical pharmacology, and medical affairs. Thus, we currently operate as a semi-virtual pharmaceutical company with expertise in numerous aspects of preclinical and clinical development. Many of our consultants and contractors have extensive experience specifically in the development of cancer drugs.

None of our employees are represented by a labor union, and we believe we maintain good relations with our employees.

Our human capital resources objectives include, as applicable, identifying, recruiting, retaining, incentivizing and integrating our existing and new employees, advisors and consultants. The principal purposes of our equity and cash incentive plans are to attract, retain and reward personnel through the granting of stock-based and cash-based compensation awards, in order to increase stockholder value and the success of our company by motivating such individuals to perform to the best of their abilities and achieve our objectives.

Facilities

Our principal executive offices are located in Fort Worth, Texas, utilizing space made available by our largest investor for administrative purposes. We are working on entering into a lease for office space to establish a new headquarters in the Chicago, Illinois area. We believe that our current arrangement and plans to establish our new headquarters location are sufficient to meet our needs for the foreseeable future and that any additional space we may require will be available on commercially reasonable terms. All research and development activities are undertaken at CROs or with academic collaborators.

Government Regulation and Product Approval

Government authorities in the United States, at the federal, state and local level, and other countries extensively regulate, among other things, the research, development, testing, manufacture, quality control, approval, labeling, packaging, storage, record-keeping, promotion, advertising, distribution, post-approval monitoring and reporting, marketing and export and import of products such as those we are developing. The pharmaceutical product candidates that we develop must be approved by the U.S. Food and Drug Administration (FDA) before they may be legally marketed in the United States. See “Risk Factors — Risks Related to Clinical Development and Regulatory Approval”.

U.S. Pharmaceutical Product Development Process

In the United States, the FDA regulates pharmaceutical products under the Federal Food, Drug and Cosmetic Act (FDCA) and implementing regulations. Pharmaceutical products are also subject to other federal, state and local statutes and regulations. The process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state, local and foreign statutes and regulations require the expenditure of substantial time and financial resources. Failure to comply with the applicable U.S. requirements at any time during the product development process, approval process or after approval, may subject an applicant to administrative or judicial enforcement. FDA noncompliance enforcement could include a refusal to review and or approve pending applications, withdrawal of an approval, a clinical study hold, warning letters, product recalls, product seizures, total or partial suspension of production or distribution injunctions, fines, refusals of government contracts, restitution, disgorgement or civil or criminal penalties. Any regulatory enforcement action could have a material adverse effect on us. The process required by the FDA before a non-biological pharmaceutical product may be marketed in the United States generally involves the following:

- Completion of preclinical laboratory tests, animal studies and formulation studies according to Good Laboratory Practices (GLP), and other applicable regulations;
- Submission of an Investigational New Drug application (IND), which must become effective before human clinical studies may begin;
- Conduct of adequate and well-controlled human clinical studies according to current Good Clinical Practices (GCP), to establish the safety and efficacy of the proposed pharmaceutical product for its intended use;
- Submission to the FDA of an NDA for a new pharmaceutical product;
- Satisfactory completion of an FDA inspection of the manufacturing facility or facilities where the pharmaceutical product is produced to assess compliance with current Good Manufacturing Practice standards (cGMP), to assure that the facilities, methods and controls are adequate to preserve the pharmaceutical product’s identity, strength, quality and purity;

- Potential FDA inspection of the preclinical and clinical study sites that generated the data in support of the NDA; and
- FDA review and approval of the NDA.

The lengthy process of seeking required approvals and the continuing need for compliance with applicable statutes and regulations require the expenditure of substantial resources and approvals are inherently uncertain.

Before testing any pharmaceutical product with potential therapeutic value in humans, the pharmaceutical product candidate enters the preclinical testing stage. Preclinical tests include laboratory evaluations of product chemistry, toxicity and formulation, as well as animal studies to assess the potential safety and activity of the pharmaceutical product candidate. These early studies are conducted using sound scientific procedures and require thorough documentation. The conduct of a single and repeat dose toxicology and toxicokinetic studies in animals must comply with federal regulations and requirements including GLP. The pharmaceutical product sponsor must submit the results of the preclinical tests, together with manufacturing information, analytical data, any available clinical data or literature and a proposed clinical protocol, to the FDA as part of the IND. The IND becomes effective 30 days after receipt by the FDA, unless the FDA has concerns and notifies the sponsor. In such a case, the IND sponsor must resolve any outstanding concerns before the clinical study can begin. If resolution cannot be reached within the 30-day review period, the FDA can place the IND on clinical hold or the sponsor may withdraw the application. The FDA may also impose clinical holds on a pharmaceutical product candidate at any time before or during clinical studies due to safety concerns or regulatory non-compliance. Accordingly, it is not certain that submission of an IND will result in the FDA allowing clinical studies to begin, or that, once begun, issues will not arise that can lead to suspension or termination of such clinical studies.

During the development of a new drug, sponsors are given opportunities to meet with the FDA to discuss progress. These meetings may occur prior to submission of an IND, at the end of Phase 2 clinical development, and before an NDA is submitted. Meetings at other times may be requested. These meetings can provide an opportunity for the sponsor to share information about the data gathered to date, for the sponsor to ask specific questions of the FDA, for the FDA to provide advice, and for the sponsor and FDA to reach agreement on the next phase of development. Sponsors typically use the end of Phase 2 meeting to discuss their Phase 2 clinical results and present their plans for the pivotal Phase 3 clinical (registration) trial(s) that they believe will support approval of the new drug. A sponsor may be able to request a Special Protocol Assessment (SPA), the purpose of which is to reach agreement with the FDA on the Phase 3 clinical trial protocol design and analyses that will form the primary basis of an efficacy claim.

Conducting Clinical Studies

Clinical studies are voluntary research studies involving the administration of the pharmaceutical product candidate to healthy volunteers or patients under the supervision of qualified investigators, typically physicians independent of the clinical study sponsor's control. Clinical studies are conducted according to protocols detailing, among other things, the objectives of the clinical study, dosing procedures, subject selection and exclusion criteria, how the results will be analyzed and presented and the parameters to be used to monitor subject safety. Each protocol must be submitted to the FDA as part of the IND. Clinical studies must be conducted in accordance with GCP requirements. Further, each clinical study must be reviewed and approved by an independent institutional review board (IRB), at, or servicing, each institution at which the clinical study will be conducted. An IRB is charged with protecting the welfare and rights of study participants and is tasked with considering such items as whether the safety risks to individuals participating in the clinical studies are minimized and are reasonable in relation to anticipated benefits. The IRB approves the informed consent that must be provided to each clinical study subject or his or her legal representative and will also monitor the clinical study to ensure patient safety until completed.

Human clinical studies are typically conducted in three sequential phases that may overlap or be combined:

- Phase 1. The pharmaceutical product is initially administered to healthy volunteers and tested for safety, dosage tolerance, absorption, metabolism, distribution and excretion.

- Phase 2. The pharmaceutical product is studied in a limited patient population with the disease or condition to evaluate its effectiveness for a particular indication or indications and to determine the common short-term side effects and risks associated with the product.
- Phase 3. Clinical studies are undertaken to further evaluate dosage, clinical efficacy and safety in an expanded patient population at geographically dispersed clinical study sites. These clinical studies are intended to establish the overall risk/benefit of the product and provide an adequate basis for product labeling. The studies must be well- controlled and usually include a control arm for comparison. One or two Phase 3 studies may be required by the FDA for an NDA, depending on the disease severity and other available treatment options.
- Post-approval studies, or Phase 4 clinical studies, may be conducted after initial marketing approval. These studies are used to gain additional experience from the treatment of patients in the intended therapeutic indication.
- Progress reports detailing the results of the clinical studies must be submitted at least annually to the FDA and written IND safety reports must be submitted to the FDA and the investigators for serious and unexpected adverse events or any finding from tests in laboratory animals that suggests a significant risk for human subjects. Phase 1, Phase 2 and Phase 3 clinical studies may not be completed successfully within any specified period, if at all. The FDA or the sponsor or its data safety monitoring board may suspend a clinical study at any time on various grounds, including a finding that the research subjects or patients are being exposed to an unacceptable health risk. Similarly, an IRB can suspend or terminate approval of a clinical study at its institution if the clinical study is not being conducted in accordance with the IRB's requirements or if the pharmaceutical product has been associated with unexpected serious harm to patients.

Concurrent with clinical studies, companies usually complete additional animal studies and must also develop additional information about the chemistry and physical characteristics of the pharmaceutical product as well as finalize a process for manufacturing the product in commercial quantities in accordance with cGMP requirements. The manufacturing process must be capable of consistently producing quality batches of the pharmaceutical product candidate and, among other things, must include methods for testing the identity, strength, quality and purity of the final pharmaceutical product. Additionally, appropriate packaging must be selected and tested and stability studies must be conducted to demonstrate that the pharmaceutical product candidate does not undergo unacceptable deterioration over its shelf life.

U.S. Review and Approval Processes

The results of product development, preclinical studies and clinical studies, along with descriptions of the manufacturing process, analytical tests conducted on the chemistry of the pharmaceutical product, proposed labeling and other relevant information are submitted to the FDA as part of an NDA requesting approval to market the product. The submission of an NDA is subject to the payment of substantial user fees; a waiver of such fees may be obtained under certain limited circumstances.

In addition, under the Pediatric Research Equity Act (PREA), an NDA or a supplement thereof must contain data to assess the safety and effectiveness of the pharmaceutical product for the claimed indications in all relevant pediatric subpopulations and to support dosing and administration for each pediatric subpopulation for which the product is safe and effective. The FDA may grant deferrals for submission of data or full or partial waivers. Unless otherwise required by regulation, PREA does not apply to any pharmaceutical product for an indication for which orphan designation has been granted. The FDA reviews all NDAs submitted before it accepts them for filing and may request additional information rather than accepting an NDA for filing. Once the submission is accepted for filing, the FDA begins an in-depth review of the NDA. Under the goals and policies agreed to by the FDA under the Prescription Drug User Fee Act (PDUFA), the FDA has 10 months in which to complete its initial review of a standard NDA and respond to the applicant, and six months for a priority NDA. The FDA does not always meet its PDUFA goal dates for standard and priority NDAs. The review process and the PDUFA goal date may be extended by three months if the FDA requests or if the NDA sponsor otherwise provides additional information or clarification regarding information already provided in the submission within the last three months before the PDUFA goal date.

After the NDA submission is accepted for filing, the FDA reviews the NDA application to determine, among other things, whether the proposed product is safe and effective for its intended use, and whether the product is being manufactured in accordance with cGMP to assure and preserve the product's identity, strength, quality and purity. The FDA may refer applications for novel pharmaceutical products or pharmaceutical products which present difficult questions of safety or efficacy to an advisory committee, typically a panel that includes clinicians and other experts, for review, evaluation and a recommendation as to whether the application should be approved and under what conditions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions. During the pharmaceutical product approval process, the FDA also will determine whether a risk evaluation and mitigation strategy (REMS), is necessary to assure the safe use of the pharmaceutical product. If the FDA concludes that a REMS is needed, the sponsor of the NDA must submit a proposed REMS; the FDA will not approve the NDA without a REMS, if required.

Before approving an NDA, the FDA will inspect the facilities at which the product is manufactured. The FDA will not approve the product unless it determines that the manufacturing processes and facilities are in compliance with cGMP requirements and adequate to assure consistent production of the product within required specifications.

Additionally, before approving an NDA, the FDA will typically inspect one or more clinical study sites to assure compliance with GCPs. If the FDA determines the application, manufacturing process or manufacturing facilities, or clinical study sites are not acceptable, it will outline the deficiencies in the submission and often will request additional testing or information. In addition, the FDA will require the review and approval of product labeling.

The NDA review and approval process is lengthy and involved and the FDA may refuse to approve an NDA if the applicable regulatory criteria are not satisfied or may require additional clinical data or other data and information. Even if such data and information are submitted, the FDA may ultimately decide that the NDA does not satisfy the criteria for approval. Data obtained from clinical studies are not always conclusive and the FDA may interpret data differently than the sponsor interprets the same data. The FDA will issue a complete response letter if the agency decides not to approve the NDA. The complete response letter usually describes all of the specific deficiencies in the NDA identified by the FDA. The deficiencies identified may be minor, for example, requiring labeling changes, or major, for example, requiring additional clinical studies.

Additionally, the complete response letter may include recommended actions that the applicant might take to place the application in a condition for approval. If a complete response letter is issued, the applicant may either resubmit the NDA, addressing all of the deficiencies identified in the letter, or withdraw the application.

If a product receives regulatory approval, the approval may be significantly limited to specific diseases and dosages or the indications for use may otherwise be limited, which could restrict the commercial value of the product. Further, the FDA may require that certain contraindications, warnings or precautions be included in the product labeling. In addition, the FDA may require Phase 4 testing which involves clinical studies designed to further assess pharmaceutical product safety and effectiveness and may require testing and surveillance programs to monitor the safety of approved products that have been commercialized.

Expedited Development and Review Programs

The FDA has a Fast Track program that is intended to expedite or facilitate the process for reviewing new pharmaceutical products that meet certain criteria. Specifically, new pharmaceutical products are eligible for Fast Track designation if they are intended to treat a serious or life-threatening condition and demonstrate the potential to address unmet medical needs for the condition. The Fast Track designation must be requested by the sponsor. Fast Track designation applies to the combination of the product and the specific indication for which it is being studied. With a Fast Track designated product, the FDA may consider for review sections of the NDA on a rolling basis before the complete application is submitted, if the sponsor provides a schedule for the submission of the sections of the NDA, if the FDA agrees to accept sections of the NDA and determines that the schedule is acceptable and if the sponsor pays any required user fees upon submission of the first section of the NDA.

Any product submitted to the FDA for marketing approval, including a Fast Track program, may also be eligible for other types of FDA programs intended to expedite development and review, such as priority review and accelerated approval. Any product is eligible for priority review if it has the potential to provide safe and effective therapy where no satisfactory alternative therapy exists or a significant improvement in the treatment, diagnosis or prevention of a disease compared to marketed products. The FDA will attempt to direct additional resources to the evaluation of an application for a new pharmaceutical product designated for priority review in an effort to facilitate the review. Additionally, a product may be eligible for accelerated approval. Pharmaceutical products studied for their safety and effectiveness in treating serious or life-threatening illnesses and that provide meaningful therapeutic benefit over existing treatments may receive accelerated approval, which means that the products may be approved on the basis of adequate and well-controlled clinical studies establishing that the product has an effect on a surrogate endpoint that is reasonably likely to predict a clinical benefit, or on the basis of an effect on a clinical endpoint other than survival or irreversible morbidity. As a condition of approval, the FDA may require that a sponsor of a pharmaceutical product receiving accelerated approval perform adequate and well-controlled post-marketing clinical studies. In addition, the FDA currently requires as a condition for accelerated approval pre-approval of promotional materials, which could adversely impact the timing of the commercial launch of the product. Fast Track designation, priority review and accelerated approval do not change the standards for approval but may expedite the development or approval process.

Breakthrough Therapy Designation

The FDA is also required to expedite the development and review of the application for approval of drugs that are intended to treat a serious or life-threatening disease or condition where preliminary clinical evidence indicates that the drug may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints. Under the breakthrough therapy program, the sponsor of a new product candidate may request that the FDA designate the product candidate for a specific indication as a breakthrough therapy concurrent with, or after, the filing of the IND for the product candidate. The FDA must determine if the product candidate qualifies for breakthrough therapy designation within 60 days of receipt of the sponsor's request. Elraglusib IV and elraglusib oral dosage forms may all be eligible for breakthrough therapy designation depending on the indication and pending additional data.

Orphan Drug Designation

Under the Orphan Drug Act, the FDA may grant orphan designation to a drug intended to treat a rare disease or condition affecting fewer than 200,000 individuals in the United States, or in other limited cases. Orphan drug designation (ODD) provides for seven years of market exclusivity, independent of patent protection, to the company with ODD that brings a particular product to market. In addition, companies developing orphan drugs are eligible for certain incentives, including tax credits for qualified clinical testing.

To gain exclusivity, if a product that has ODD subsequently receives the first FDA approval for the disease or condition for which it has such designation, the product is entitled to the orphan drug exclusivity, which means that the FDA may not approve any other applications to market the same active moiety for the same indication for seven years, except in limited circumstances, such as another drug's showing of clinical superiority over the drug with orphan exclusivity. In addition, doctors may prescribe products for off-label uses and undermine our exclusivity. Orphan drug exclusivity could block the approval of one of our product candidates for seven years if a competitor obtains approval for the same active moiety for the same indication before we do, unless we are able to demonstrate that our product is clinically superior.

A sponsor may request ODD of a previously unapproved product or new orphan indication for an already marketed product. In addition, a sponsor of a product that is otherwise the same product as an already approved orphan drug may seek and obtain ODD for the subsequent product for the same rare disease or condition if it can present a plausible hypothesis that its product may be clinically superior to the first, approved product. More than one sponsor may receive ODD for the same product for the same rare disease or condition, but each sponsor seeking ODD must file a complete request for designation, and only the first sponsor that obtains approval for that drug for the orphan indication will obtain market exclusivity, effectively preventing the FDA from approving products under development by competitors for the same drug and same indication, unless the competitor is able to demonstrate that the product under development is

clinically superior to the approved product or the approved product is not available in sufficient quantities. To permit the FDA to end another manufacturer's orphan exclusivity period, the FDA must determine that the manufacturer has demonstrated clinical superiority by showing the later drug is safer, more effective, or otherwise makes a major contribution to patient care.

The period of exclusivity begins on the date that the marketing application is approved by the FDA and applies only to the indication for which the product has been designated. The FDA may approve a second application for the same product for a different use or a subsequent application for a different drug for the same indication. ODD neither shortens the development time or regulatory review time of a drug nor gives the drug any advantage in the regulatory review or approval process.

We may plan to pursue ODD and exclusivity for some of our product candidates in the United States, the EU, and other geographies of interest for specific products. We cannot guarantee that we will obtain ODD for any products in any jurisdiction. Even if we are able to ODD for a product, we cannot be sure that such product will be approved, that we will be able to obtain orphan drug exclusivity upon approval, if ever, or that we will be able to maintain any exclusivity that is granted.

Regulation Outside the United States

In order to market a pharmaceutical product outside of the United States, a company must also comply with numerous and varying regulatory requirements of other countries and jurisdictions regarding quality, safety and efficacy that govern, among other things, clinical trials, marketing authorization, commercial sales and distribution. Whether or not we obtain FDA approval for a pharmaceutical product, we would need to obtain the necessary approvals by the comparable non-U.S. regulatory authorities before it can commence clinical trials or marketing of the product in those countries or jurisdictions. The approval process ultimately varies between countries and jurisdictions and can involve additional product testing and additional administrative review periods. The time required to obtain approval in other countries and jurisdictions might differ from and be longer than that required to obtain FDA approval. Regulatory approval in one country or jurisdiction does not ensure regulatory approval in another, but a failure or delay in obtaining regulatory approval in one country or jurisdiction may negatively impact the regulatory process in others.

Regulation and Marketing Authorization in the EU

The European Medicines Agency (EMA) is the scientific agency of the EU that coordinates the evaluation and monitoring of new and approved medicinal products such as drugs and biologics. It is responsible for the scientific evaluation of applications for EU marketing authorizations, as well as the development of technical guidance and the provision of scientific advice to sponsors.

The process regarding approval of medicinal products in the EU follows roughly the same lines as in the United States and likewise generally involves satisfactorily completing each of the following:

- preclinical laboratory tests, animal studies and formulation studies all performed in accordance with the applicable EU Good Laboratory Practice regulations;
- submission to the relevant regulatory agencies in EU member states, or national authorities, of a clinical trial application (CTA) for each clinical trial, which must be approved before human clinical trials may begin;
- performance of adequate and well-controlled clinical trials to establish the safety and efficacy of the product for each proposed indication;
- submission to the relevant national authorities of a Marketing Authorization Application, (MAA), which includes the data supporting safety and efficacy as well as detailed information on the manufacture and composition of the product in clinical development and proposed labeling;
- satisfactory completion of an inspection by the relevant national authorities of the manufacturing facility or facilities, including those of third parties, at which the product is produced to assess compliance with cGMP;

- potential audits of the non-clinical and clinical trial sites that generated the data in support of the MAA; and
- review and approval by the relevant national authority of the MAA before any commercial marketing, sale or shipment of the product.

Preclinical Studies

Preclinical tests include laboratory evaluations of product chemistry, formulation and stability, as well as studies to evaluate the potential efficacy and toxicity in animals. The conduct of the preclinical tests and formulation of the compounds for testing must comply with the relevant EU regulations and requirements. The results of the preclinical tests, together with relevant manufacturing information and analytical data, are submitted as part of the CTA when seeking approval to start a clinical trial, and with the MAA when seeking marketing authorization.

Clinical Trial Approval

Requirements for the conduct of clinical trials in the EU including GCP, are implemented in the currently Clinical Trials Directive 2001/20/EC and the GCP Directive 2005/28/EC. Pursuant to Directive 2001/20/EC and Directive 2005/28/EC, as amended, a system for the approval of clinical trials in the EU has been implemented through national legislation of the EU member states. Under this system, approval must be obtained from the competent national authority in which a trial is planned to be conducted, or in multiple member states if the clinical trial is to be conducted in a number of member states. To this end, a CTA is submitted, which must be supported by an investigational medicinal product dossier (IMPD) and further supporting information prescribed by Directive 2001/20/EC and Directive 2005/28/EC and other applicable guidance documents. Furthermore, a clinical trial may only be started after a competent ethics committee has issued a favorable opinion on the clinical trial application in that country.

On January 31, 2022, the Clinical Trials Regulation (EU) No. 536/2014 repealed the Clinical Trials Directive 2001/20/EC. To ensure that the rules for clinical trials are identical throughout the EU, the Clinical Trials Regulation (EU) No. 536/2014 was passed as a regulation which is directly applicable in all EU member states. The Clinical Trials Directive 2001/20/EC will, however, still apply three years from the date of entry into application of the Clinical Trials Regulation to (i) clinical trials applications submitted before the entry into application and (ii) clinical trials applications submitted within one year after the entry into application if the sponsor opts for the old system.

Regulation (EU) No 536/2014 aims to simplify and streamline the approval of clinical trial in the EU. The main characteristics of the regulation include:

- a streamlined application procedure via a single entry point, known as the Clinical Trials Information System;
- a single set of documents to be prepared and submitted for the application as well as simplified reporting procedures which will spare sponsors from submitting broadly identical information separately to various and different national authorities;
- harmonized procedure for the assessment of applications for clinical trials, which is divided in two parts;
- strictly defined deadlines for the assessment of clinical trial application; and
- the involvement of the ethics committees in the assessment procedure in accordance with the national law of the member state concerned but within the overall timelines defined by the Regulation (EU) No 536/2014.

Marketing Authorization

Authorization to market a product in the member states of the EU proceeds under one of four procedures: a centralized procedure, a mutual recognition procedure, a decentralized procedure or a national procedure.

Centralized Procedure

The centralized procedure enables applicants to obtain a marketing authorization that is valid in all EU member states based on a single application. Certain medicinal products, including products developed by means of biotechnological processes must undergo the centralized authorization procedure for marketing authorization, which, if granted by the European Commission, based on the opinion of the EMA, is automatically valid in all EU member states. Sponsors may elect to file an MAA through the centralized procedures for other classes of products.

The centralized procedure is mandatory for certain types of products such as, medicines derived from biotechnology processes such as genetic engineering, advanced-therapy medicines such as gene-therapy or tissue engineered medicine, orphan medicines, and medicinal products containing a new active substance indicated for the treatment of HIV, AIDS, cancer, diabetes, neurodegenerative disorders, autoimmune and other immune dysfunctions, and viral diseases.

The centralized authorization procedure is optional for other medicinal products if they contain a new active substance, if the applicant shows that the medicinal product concerned constitutes a significant therapeutic, scientific or technical innovation, or that the granting of authorization is in the public interest of the EU.

Administration Procedure

Under the centralized procedure, the EMA's Committee for Human Medicinal Products (CHMP) serves as the scientific committee that renders opinions about the safety, efficacy and quality of medicinal products for human use on behalf of the EMA. The CHMP is composed of experts nominated by each member state's national authority for medicinal products, with one of them appointed to act as Rapporteur for the co-ordination of the evaluation with the possible assistance of a further member of the Committee acting as a Co-Rapporteur. After approval, the Rapporteur(s) continue to monitor the product throughout its life cycle. The CHMP has 210 active days, to adopt an opinion as to whether a marketing authorization should be granted. The process usually takes longer in case additional information is requested, which triggers clock-stops in the procedural timelines. The process is complex and involves extensive consultation with the regulatory authorities of member states and a number of experts. When an application is submitted for a marketing authorization in respect of a drug which is of major interest from the point of view of public health and in particular from the viewpoint of therapeutic innovation, the applicant may, pursuant to Article 14(9) Regulation (EC) No 726/2004, request an accelerated assessment procedure. If the CHMP accepts such request, the time-limit of 210 days will be reduced to 150 days, but it is possible that the CHMP can revert to the standard time-limit for the centralized procedure if it considers that it is no longer appropriate to conduct an accelerated assessment. Once the procedure is completed, a European Public Assessment Report (EPAR) is produced. If the opinion is negative, information is given as to the grounds on which this conclusion was reached. After the adoption of the CHMP opinion, a decision on the MAA must be adopted by the European Commission, after consulting the EU member states, which in total can take more than 60 days. After a drug has been authorized and launched, it is a condition of maintaining the marketing authorization that all aspects relating to its quality, safety and efficacy must be kept under review.

Conditional Approval

In specific circumstances, EU legislation (Article 14(7) Regulation (EC) No. 726/2004 and Regulation (EC) No. 507/2006 on Conditional Marketing Authorizations for Medicinal Products for Human Use) enables applicants to obtain a conditional marketing authorization prior to obtaining the comprehensive clinical data required for an application for a full marketing authorization. Such conditional approvals may be granted for products (including medicines designated as orphan medicinal products), if (1) the risk-benefit balance of the product is positive, (2) it is likely that the applicant will be in a position to provide the required comprehensive clinical trial data, (3) the product fulfills unmet medical needs, and (4) the benefit to public health of the immediate availability on the market of the medicinal product concerned outweighs the risk inherent in the fact that additional data are still required. A conditional marketing authorization may contain specific obligations to be fulfilled by the marketing authorization holder, including obligations with respect to the completion of ongoing or new studies, and with respect to the collection of pharmacovigilance data. Conditional marketing authorizations are valid for one year, and may be renewed

annually, if the risk-benefit balance remains positive, and after an assessment of the need for additional or modified conditions and/or specific obligations. The timelines for the centralized procedure described above also apply with respect to the review by the CHMP of applications for a conditional marketing authorization.

Marketing Authorization Under Exceptional Circumstances

As per Article 14(8) Regulation (EC) No 726/2004, products for which the applicant can demonstrate that comprehensive data (in line with the requirements laid down in Annex I of Directive 2001/83/EC, as amended) cannot be provided (due to specific reasons foreseen in the legislation) might be eligible for marketing authorization under exceptional circumstances. This type of authorization is reviewed annually to reassess the risk-benefit balance. The fulfillment of any specific procedures/obligations imposed as part of the marketing authorization under exceptional circumstances is aimed at the provision of information on the safe and effective use of the product and will normally not lead to the completion of a full dossier/approval.

Pediatric Studies

Prior to obtaining a marketing authorization in the EU, applicants have to demonstrate compliance with all measures included in an EMA-approved Pediatric Investigation Plan (PIP) covering all subsets of the pediatric population, unless the EMA has granted (1) a product-specific waiver, (2) a class waiver, or (3) a deferral for one or more of the measures included in the PIP. The respective requirements for all marketing authorization procedures are laid down in Regulation (EC) No 1901/2006, the so-called Pediatric Regulation. This requirement also applies when a company wants to add a new indication, pharmaceutical form or route of administration for a medicine that is already authorized. The Pediatric Committee of the EMA (PDCO) may grant deferrals for some medicines, allowing a company to delay development of the medicine in children until there is enough information to demonstrate its effectiveness and safety in adults. The PDCO may also grant waivers when development of a medicine in children is not needed or is not appropriate, such as for diseases that only affect the elderly population.

Before a marketing authorization application can be filed, or an existing marketing authorization can be amended, the EMA determines that companies actually comply with the agreed studies and measures listed in each relevant PIP.

Period of Authorization and Renewals

A marketing authorization will be valid for five years in principle, and the marketing authorization may be renewed after five years on the basis of a re-evaluation of the risk-benefit balance by the EMA or by a national authority. To this end, the marketing authorization holder must provide the EMA or the competent authority with a consolidated version of the file in respect of quality, safety and efficacy, including all variations introduced since the marketing authorization was granted, at least nine months before the marketing authorization ceases to be valid. Once renewed, the marketing authorization will be valid for an unlimited period, unless the European Commission or the national authority decides on justified grounds relating to pharmacovigilance, to proceed with one additional five-year renewal. Any authorization that is not followed by the actual placing of the drug on the EU market (in case of centralized procedure) or on the market of the authorizing member state within three years after authorization will cease to be valid, the so-called “sunset clause.”

Orphan Drug Designation and Exclusivity

The European Commission can grant orphan medicinal product designation to products for which the sponsor can establish that it is intended for the diagnosis, prevention, or treatment of (1) a life-threatening or chronically debilitating condition affecting not more than five in 10,000 people in the EU, or (2) a life threatening, seriously debilitating or serious and chronic condition in the EU and that without incentives it is unlikely that sales of the drug in the EU would generate a sufficient return to justify the necessary investment. In addition, the sponsor must establish that there is no other satisfactory method approved in the EU of diagnosing, preventing or treating the condition, or if such a method exists, the proposed orphan drug will be of significant benefit to patients.

ODD provides a number of benefits, including fee reductions, regulatory assistance, and the possibility to apply for a centralized EU marketing authorization, as well as 10 years of market exclusivity following a marketing authorization. During this market exclusivity period, neither the EMA, nor the European Commission nor the Member States can accept an application or grant a marketing authorization for a medicinal product containing a similar active substance or substances as contained in an authorized orphan medicinal product, and which is intended for the same therapeutic indication. The market exclusivity period for the authorized therapeutic indication may be reduced to six years if, at the end of the fifth year, it is established that the ODD criteria are no longer met, including where it is shown that the product is sufficiently profitable not to justify maintenance of market exclusivity. In addition, a competing similar medicinal product may be authorized prior to the expiration of the market exclusivity period, including if it is shown to be safer, more effective or otherwise clinically superior to the already approved orphan drug or if the holder of the marketing authorization for the already approved orphan drug is unable to supply sufficient quantities of the product.

If the MAA of a medicinal product designated as an orphan drug includes the results of all studies conducted in compliance with an agreed PIP, and a corresponding statement is subsequently included in the marketing authorization granted, the ten-year period of market exclusivity will be extended to twelve years.

Regulatory Data Protection

EU legislation also provides for a system of regulatory data and market exclusivity. Upon receiving marketing authorization, new chemical entities approved on the basis of complete independent data package benefit from eight years of data exclusivity and an additional two years of market exclusivity. Data exclusivity prevents regulatory authorities in the EU from referencing the innovator's data to assess a generic or biosimilar (abbreviated) application. During the additional two-year period of market exclusivity, a generic or biosimilar marketing authorization can be submitted, and the innovator's data may be referenced, but no generic or biosimilar medicinal product can be marketed until the expiration of the market exclusivity. The overall ten-year period will be extended to a maximum of eleven years if, during the first eight years of those 10 years, the marketing authorization holder (MAH) obtains an authorization for one or more new therapeutic indications which, during the scientific evaluation prior to their authorization, are held to bring a significant clinical benefit in comparison with existing therapies. Even if a compound is considered to be a new chemical entity and the innovator is able to gain the period of data exclusivity, another company nevertheless could also market another version of the drug if such company obtained marketing authorization based on an MAA with a complete independent data package of pharmaceutical test, preclinical tests and clinical trials. However, products designated as orphan medicinal products enjoy, upon receiving marketing authorization, a period of 10 years of orphan market exclusivity. Depending upon the timing and duration of the EU marketing authorization process, products may be eligible for up to five years' supplementary protection certificates (SPCs). Such SPCs extend the rights under the basic patent for the drug.

Regulatory Requirements After a Marketing Authorization Has Been Obtained

If we obtain authorization for a medicinal product in the EU, we will be required to comply with a range of requirements applicable to the manufacturing, marketing, promotion and sale of medicinal products.

We will, for example, have to comply with the EU's stringent pharmacovigilance or safety reporting rules, pursuant to which post-authorization studies and additional monitoring obligations can be imposed.

Other requirements relate to, for example, the manufacturing of products and active pharmaceutical ingredients in accordance with good manufacturing practice standards. EU regulators may conduct inspections to verify our compliance with applicable requirements, and we will have to continue to expend time, money and effort to remain compliant. Non-compliance with EU requirements regarding safety monitoring or pharmacovigilance, and with requirements related to the development of products for the pediatric population, can also result in significant financial penalties in the EU. Similarly, failure to comply with the EU's requirements regarding the protection of individual personal data can also lead to significant penalties and sanctions. Individual EU member states may also impose various sanctions and penalties in case we do not comply with locally applicable requirements.

The manufacturing of authorized drugs, for which a separate manufacturer's license is mandatory, must be conducted in compliance with the EMA's cGMP requirements and comparable requirements of other national authorities, which mandate the methods, facilities and controls used in manufacturing, processing and packing of drugs to assure their safety and identity. The EMA enforces its cGMP requirements through mandatory registration of facilities and inspections of those facilities. The EMA may have a coordinating role for these inspections while the responsibility for carrying them out rests with the member states competent authority under whose responsibility the manufacturer falls. Failure to comply with these requirements could interrupt supply and result in delays, unanticipated costs and lost revenues, and could subject the applicant to potential legal or regulatory action, including but not limited to warning letters, suspension of manufacturing, seizure of product, injunctive action or possible civil and criminal penalties.

The marketing and promotion of authorized drugs, including industry-sponsored continuing medical education and advertising directed toward the prescribers of drugs and/or the general public, are strictly regulated in the EU. The applicable regulations aim to ensure that information provided by holders of marketing authorizations regarding their products is truthful, balanced and accurately reflects the safety and efficacy claims authorized by the EMA or by the national authority of the authorizing member state. Failure to comply with these requirements can result in adverse publicity, warning letters, corrective advertising and potential civil and criminal penalties.

Other Healthcare Laws

In addition to FDA restrictions on marketing of pharmaceutical products, several other types of state and federal laws have been applied to restrict certain business practices in the biopharmaceutical industry.

Anti-Kickback Statute of 1972

The federal Anti-Kickback Statute prohibits, among other things, knowingly and willfully offering, paying, soliciting, or receiving remuneration to induce or in return for purchasing, leasing, ordering, or arranging for the purchase, lease, or order of any healthcare item or service reimbursable under Medicare, Medicaid, or other federally financed healthcare programs. The term "remuneration" has been broadly interpreted to include anything of value, including for example, gifts, discounts, the furnishing of supplies or equipment, credit arrangements, payments of cash, waivers of payment, ownership interests and providing anything at less than its fair market value. The Anti-Kickback Statute has been interpreted to apply to arrangements between pharmaceutical manufacturers on one hand and prescribers, purchasers, and formulary managers on the other. Although there are a number of statutory exemptions and regulatory safe harbors protecting certain common activities from prosecution, the exemptions and safe harbors are drawn narrowly, and a company's practices may not in all cases meet all of the criteria for statutory exemptions or safe harbor protection. Practices that involve remuneration that may be alleged to be intended to induce prescribing, purchases, or recommendations may be subject to scrutiny if they do not qualify for an exemption or safe harbor. Several courts have interpreted the statute's intent requirement to mean that if any one purpose of an arrangement involving remuneration is to induce referrals of federal healthcare covered business, the statute has been violated. The reach of the Anti-Kickback Statute was also broadened by the Patient Protection and Affordable Care Act (PPACA), which, among other things, amends the intent requirement of the federal Anti-Kickback Statute. Pursuant to the statutory amendment, a person or entity no longer needs to have actual knowledge of this statute or specific intent to violate it in order to have committed a violation. In addition, the PPACA provides that the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the civil False Claims Act (discussed below) or the civil monetary penalties statute, which imposes penalties against any person who is determined to have presented or caused to be presented a claim to a federal health program that the person knows or should know is for an item or service that was not provided as claimed or is false or fraudulent.

False Claims Act of 1986

The federal False Claims Act prohibits any person from knowingly presenting, or causing to be presented, a false claim for payment to the federal government. Recently, several pharmaceutical and other healthcare companies have been prosecuted under these laws for allegedly providing free product to customers

with the expectation that the customers would bill federal programs for the product. Other companies have been prosecuted for causing false claims to be submitted because of the companies' marketing of the product for unapproved, and thus non-reimbursable, uses. Many states also have statutes or regulations similar to the federal Anti-Kickback Statute and False Claims Act, which state laws apply to items and services reimbursed under Medicaid and other state programs, or, in several states, apply regardless of the payer.

Health Insurance Portability and Accountability Act of 1996

HIPAA created new federal criminal statutes that prohibit knowingly and willfully executing a scheme to defraud any healthcare benefit program, including private third-party payers and knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items or services. Because of the breadth of these laws and the narrowness of the federal Anti-Kickback Statute's safe harbors, it is possible that some of a company's business activities could be subject to challenge under one or more of such laws. Such a challenge could have a material adverse effect on a company's business, financial condition and results of operations. See "Risk Factors — Risks Related to Commercialization of Our Product Candidates".

Health Information Technology for Economic and Clinical Health Act of 2009

HIPAA, as amended by HITECH and its implementing regulations, imposes certain requirements relating to the privacy, security and transmission of individually identifiable health information. Among other things, HITECH makes HIPAA's privacy and security standards directly applicable to "business associates" — independent contractors or agents of covered entities that receive or obtain protected health information in connection with providing a service on behalf of a covered entity. HITECH also increased the civil and criminal penalties that may be imposed against covered entities, business associates and possibly other persons, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce the federal HIPAA laws and seek attorney's fees and costs associated with pursuing federal civil actions. In addition, state laws govern the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and may not have the same effect, complicating compliance efforts. See "Risk Factors — Risks Related to Commercialization of Our Product Candidates".

The Medicare Prescription Drug, Improvement and Modernization Act of 2003 (MMA)

In the United States and foreign jurisdictions, there have been a number of legislative and regulatory changes to the healthcare system, in particular, there have been and continue to be a number of initiatives at the U.S. federal and state levels that seek to reduce healthcare costs. The MMA, imposed new requirements for the distribution and pricing of prescription drugs for Medicare beneficiaries. Under Part D, Medicare beneficiaries may enroll in prescription drug plans offered by private entities, which will provide coverage of outpatient prescription drugs. Part D plans include both stand-alone prescription drug benefit plans and prescription drug coverage as a supplement to Medicare Advantage plans. Unlike Medicare Part A and B, Part D coverage is not standardized. Part D prescription drug plan sponsors are not required to pay for all covered Part D drugs, and each drug plan can develop its own drug formulary that identifies which drugs it will cover and at what tier or level. However, Part D prescription drug formularies must include drugs within each therapeutic category and class of covered Part D drugs, though not necessarily all the drugs in each category or class. Any formulary used by a Part D prescription drug plan must be developed and reviewed by a pharmacy and therapeutic committee. Moreover, while the MMA applies only to drug benefits for Medicare beneficiaries, private payers often follow Medicare coverage policy and payment limitations in setting their own payment rates. Any reduction in payment that results from Medicare Part D may result in a similar reduction in payments from non-governmental payers.

The American Recovery and Reinvestment Act of 2009

The American Recovery and Reinvestment Act of 2009 provides funding for the federal government to compare the effectiveness of different treatments for the same illness. A plan for the research will be developed by the Department of Health and Human Services, the Agency for Healthcare Research and Quality and

the National Institutes for Health, and periodic reports on the status of the research and related expenditures will be made to Congress. Although the results of the comparative effectiveness studies are not intended to mandate coverage policies for public or private payers, it is not clear what effect, if any, the research will have on the sales of any product, if any such product or the condition that it is intended to treat is the subject of a study.

Physician Payments Sunshine Act of 2010

The federal Physician Payments Sunshine Act requires certain manufacturers of drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program, with specific exceptions, to report annually to the Centers for Medicare & Medicaid Services (CMS) information related to payments or other transfers of value made to physicians and teaching hospitals, and applicable manufacturers and applicable group purchasing organizations to report annually to CMS ownership and investment interests held by the physicians and their immediate family members.

Patent Protection and Affordable Care Act of 2010

In March 2010, the PPACA was enacted, which includes measures to significantly change the way healthcare is financed by both governmental and private insurers. Among the provisions of the PPACA of importance to the pharmaceutical and biotechnology industry are the following:

- extension of manufacturers' Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations;
- expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to additional individuals and by adding new mandatory eligibility categories for certain individuals with income at or below 133% of the Federal Poverty Level beginning in 2014, thereby potentially increasing manufacturers' Medicaid rebate liability;
- expansion of the entities eligible for discounts under the Public Health Service pharmaceutical pricing program;
- new requirements under the federal Open Payments program, created under Section 6002 of the PPACA and its implementing regulations, that manufacturers of drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program (with certain exceptions) report annually to the U.S. Department of Health and Human Services (HHS), information related to "payments or other transfers of value" made or distributed to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors) and teaching hospitals, and that applicable manufacturers and applicable group purchasing organizations report annually to HHS ownership and investment interests held by physicians (as defined above) and their immediate family members, with data collection required beginning August 1, 2013 and reporting to CMS, required by March 31, 2014 and by the 90th day of each subsequent calendar year;
- a requirement to annually report drug samples that manufacturers and distributors provide to physicians, effective April 1, 2012;
- expansion of health care fraud and abuse laws, including the False Claims Act and the Anti-Kickback Statute, new government investigative powers, and enhanced penalties for noncompliance;
- a licensure framework for follow-on biologic products;
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research;
- creation of the Independent Payment Advisory Board which, beginning in 2014, will have authority to recommend certain changes to the Medicare program that could result in reduced payments for prescription drugs and those recommendations could have the effect of law even if Congress does not act on the recommendations; and
- establishment of a Center for Medicare Innovation at CMS to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription drug spending that began on January 1, 2011.

Budget Control Act of 2011

In August 2011, the President signed into law the Budget Control Act of 2011, which, among other things, created the Joint Select Committee on Deficit Reduction, or joint committee, to recommend proposals in spending reductions to Congress. The joint committee did not achieve its targeted deficit reduction of at least $1.2 trillion for the years 2013 through 2021, triggering automatic reductions to several government programs. These reductions include aggregate reductions to Medicare payments to providers of up to 2% per fiscal year, starting in 2013.

American Taxpayer Relief Act of 2012

In January 2013, the President signed into law the American Taxpayer Relief Act of 2012, which, among other things, reduced Medicare payments to several providers and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. These new laws may result in additional reductions in Medicare and other healthcare funding.

Patent Term Restoration and Marketing Exclusivity

Depending upon the timing, duration and specifics of the FDA approval of the use of our pharmaceutical product candidates, some of our products to be licensed under U.S. patents may be eligible for limited patent term extension under the Drug Price Competition and Patent Term Restoration Act of 1984, commonly referred to as the Hatch-Waxman Amendments. The Hatch-Waxman Amendments permits a patent restoration term of up to five years as compensation for patent term lost during product development and the FDA regulatory review process. However, patent term restoration cannot extend the remaining term of a patent beyond a total of 14 years from the product's approval date. The patent term restoration period is generally one-half the time between the effective date of an IND and the submission date of an NDA or Biologics License Application (BLA) plus the time between the submission date of an NDA or BLA and the approval of that application. Only one patent applicable to an approved pharmaceutical product is eligible for the extension and the application for the extension must be submitted prior to the expiration of the patent. The U.S. Patent and Trademark Office (USPTO), in consultation with the FDA, reviews and approves the application for any PTE or restoration. Market exclusivity provisions under the U.S. Food, Drug, and Cosmetic Act can also delay the submission or the approval of certain applications of other companies seeking to reference another company's NDA or BLA.

The Biologics Price Competition and Innovation Act (BPCI Act)

The Biologics Price Competition and Innovation Act (BPCI Act) authorizes the FDA to license a biological product that is biosimilar to an FDA-licensed biologic through an abbreviated pathway. The BPCI Act establishes criteria for determining that a product is biosimilar to an already-licensed biologic, or reference product, and establishes a process by which an abbreviated BLA for a biosimilar product is submitted, reviewed and approved. The BPCI Act provides periods of exclusivity that protect a reference product from biosimilars competition. Under the BPCI Act, the FDA may not accept a biosimilar application for review until four years after the date of first licensure of the reference product, and the biosimilar may not be licensed until at least 12 years after the reference product's approval. Additionally, the BPCI Act establishes procedures by which the biosimilar applicant provides information about its application and product to the reference product sponsor, and by which information about potentially relevant patents may be shared and litigation over patents may proceed in advance of approval. The BPCI Act also provides a period of exclusivity for the first biosimilar determined by the FDA to be interchangeable with the reference product.

We anticipate that the contours of the BPCI Act will continue to be defined as the statute is implemented over a period of years. This likely will be accomplished by a variety of means, including decisions related to the statute by the relevant federal courts, FDA issuance of guidance documents, and FDA decisions in the course of considering specific applications. The FDA has to date issued various guidance documents and other materials indicating the agency's thinking regarding a number of issues implicated by the BPCI Act. Additionally, the FDA's approval of several biosimilar applications in recent years has helped define the agency's approach to certain issues.

Coverage and Reimbursement

Sales of our product candidates in the United States may depend, in part, on the extent to which the costs of the product candidates may be covered by third-party payers, such as government health programs, commercial insurance and managed health care organizations. These third-party payers are increasingly challenging the prices charged for medical products and services. Additionally, the containment of health care costs has become a priority of federal and state governments, and the prices of drugs have been a focus in this effort. The United States government, state legislatures and foreign governments have shown significant interest in implementing cost-containment programs, including price controls, restrictions on reimbursement and requirements for substitution of generic products. Adoption of price controls and cost-containment measures, and adoption of more restrictive policies in jurisdictions with existing controls and measures, could further limit our net revenue and results. If these third-party payers do not consider our product candidates to be cost-effective compared to other available therapies, they may not cover our product candidates after approval as a benefit under their plans or, if they do, the level of payment may not be sufficient to allow us to sell our product candidates on a profitable basis.

In order to secure coverage and reimbursement for any product that might be approved for sale, we may need to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of the product, in addition to the costs required to obtain FDA, EMA or other comparable regulatory approvals. Our product candidates may not be considered medically necessary or cost-effective. A payer's decision to provide coverage for a drug product does not imply that an adequate reimbursement rate will be approved. Third-party reimbursement may not be sufficient to enable us to maintain price levels high enough to realize an appropriate return on our investment in product development.

Pricing and reimbursement schemes vary widely from country to country. Some countries provide that drug products may be marketed only after a reimbursement price has been agreed. Some countries may require the completion of additional studies that compare the cost-effectiveness of a particular product candidate to currently available therapies. The conduct of such studies could be expensive and result in delays in our commercializing efforts. The EU provides options for its member states to restrict the range of drug products for which their national health insurance systems provide reimbursement and to control the prices of medicinal products for human use. EU member states may approve a specific price for a drug product or may instead adopt a system of direct or indirect controls on the profitability of the company placing the drug product on the market. Other member states allow companies to fix their own prices for drug products but monitor and control company profits. The downward pressure on health care costs in general, particularly prescription drugs, has become very intense. As a result, increasingly high barriers are being erected to the entry of new products. In addition, in some countries, cross-border imports from low-priced markets exert competitive pressure that may reduce pricing within a country. There can be no assurance that any country that has price controls or reimbursement limitations for drug products will allow favorable reimbursement and pricing arrangements for any of our products.

The marketability of any products for which we receive regulatory approval for commercial sale may suffer if the government and third-party payors fail to provide adequate coverage and reimbursement. In addition, emphasis on managed care in the United States has increased and we expect will continue to increase the pressure on drug pricing. Coverage policies, third-party reimbursement rates and drug pricing regulation may change at any time. Even if favorable coverage and reimbursement status is attained for one or more products for which we receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

U.S. Healthcare Reform

In the United States, there have been and continue to be a number of significant legislative initiatives to contain healthcare costs. The PPACA contains provisions that may reduce the profitability of drug products, including, for example, increased rebates for drugs subject to the Medicaid Drug Rebate Program, extension of Medicaid rebates to Medicaid managed care plans, mandatory discounts for certain Medicare Part D beneficiaries and annual fees based on pharmaceutical companies' share of sales to federal health care programs.

Since its enactment, there have been executive, judicial and Congressional challenges to certain aspects of the PPACA. On June 17, 2021, the U.S. Supreme Court dismissed the most recent judicial challenge to the PPACA brought by several states without specifically ruling on the constitutionality of the PPACA.

In addition, other legislative changes have been proposed and adopted since PPACA was enacted. On March 11, 2021, President Biden signed the American Rescue Plan Act of 2021 into law, which eliminates the statutory Medicaid drug rebate cap, for single source and innovator multiple source drugs, beginning January 1, 2024. The rebate was previously capped at 100% of a drug's average manufacturer price. Additionally, there has been heightened governmental scrutiny in the United States of pharmaceutical pricing practices in light of the rising cost of prescription drugs and biologics. Such scrutiny has resulted in several recent Congressional inquiries, presidential executive orders and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for products. Additional changes included aggregate reductions to Medicare payments to providers of 2% per fiscal year, effective April 1, 2013 and, due to subsequent legislative amendments to the statute, will stay in effect through 2027, unless additional Congressional action is taken; however, pursuant to the Coronavirus Aid, Relief, and Economic Security Act (CARES Act) and subsequent legislation. In January 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, reduced Medicare payments to several providers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. These new laws may result in additional reductions in Medicare and other healthcare funding, which could have a material adverse effect on customers for our drugs, if approved, and, accordingly, our financial operations.

Moreover, recently there has been heightened governmental scrutiny over the manner in which manufacturers set prices for their commercial products. There have been several recent U.S. Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to drug pricing, review the relationship between pricing and manufacturer patient programs, reduce the cost of drugs under Medicare, and reform government program reimbursement methodologies for drugs. The FDA published a final rule on October 1, 2020, effective November 30, 2020, providing guidance for states to build and submit importation plans for drugs from Canada. Further, on November 20, 2020, the HHS finalized a regulation removing safe harbor protection for price reductions from pharmaceutical manufacturers to plan sponsors under Part D, either directly or through pharmacy benefit managers, unless the price reduction is required by law. The rule also creates a new safe harbor for price reductions reflected at the point-of-sale, as well as a safe harbor for certain fixed fee arrangements between pharmacy benefit managers and manufacturers. At the state level, legislatures have increasingly passed legislation and implemented regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing.

Most recently, on August 16, 2022, the Inflation Reduction Act of 2022 (the IRA) was signed into law. Among other things, the IRA directs the HHS to negotiate the price of certain high-expenditure, single-source drugs and biologics covered under Medicare. The negotiated prices, which will first become effective in 2026, will be capped at a statutory ceiling price representing a significant discount from average prices to wholesalers and direct purchasers. The law will also, beginning in 2023, penalize drug manufacturers that increase prices of Medicare Part B and Part D drugs at a rate greater than the rate of inflation. Further, the IRA eliminates the "donut hole" under the Medicare Part D program beginning in 2025 by significantly lowering the beneficiary maximum out-of-pocket cost and creating a new manufacturer discount program. The IRA permits the Secretary of the HHS, to implement many of these provisions through guidance, as opposed to regulation, for the initial years. HHS has and will continue to issue and update guidance as these programs are implemented, although the IRA may be subject to legal challenges. It is currently unclear how the IRA will be implemented but is likely to have a significant impact on the pharmaceutical industry In addition, in response to the Biden administration's October 2022 executive order, on February 14, 2023, HHS released a report outlining three new models for testing by the Center for Medicare and Medicaid Innovation which will be evaluated on their ability to lower the cost of drugs, promote accessibility, and improve quality of care. It is unclear whether the models will be utilized in any health reform measures in the future.

Although a number of these, and other proposed measures may require authorization through additional legislation to become effective, Congress has indicated that it will continue to seek new legislative measures to control drug costs.

CMS issued a final rule, effective on July 9, 2019, that requires direct-to-consumer advertisements of prescription drugs and biological products, for which payment is available through or under Medicare or Medicaid, to include in the advertisement the Wholesale Acquisition Cost, or list price, of that drug or biological product if it is equal to or greater than $35 for a monthly supply or usual course of treatment. Prescription drugs and biological products that are in violation of these requirements will be included on a public list.

Any adopted health reform measure could reduce the ultimate demand for our products, if approved, or put pressure on our product pricing. Individual states in the United States have also become increasingly active in passing legislation and implementing regulations designed to control pharmaceutical product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. In addition, regional healthcare authorities and individual hospitals are increasingly using bidding procedures to determine what pharmaceutical products and which suppliers will be included in their prescription drug and other healthcare programs. We expect that additional state and federal healthcare reform measures will be adopted in the future.

We expect that additional state and federal healthcare reform measures, as well as legal changes by foreign governments, will be adopted in the future, any of which could limit the amounts that governments will pay for healthcare products and services, which could result in reduced demand for our product candidates or additional pricing pressures.

Corporate History

We are a Delaware corporation. Our principal executive offices are located at 1751 River Run, Suite 400, Fort Worth, Texas 76107, and our telephone number is (817) 887-8455. We were formed on January 16, 2015 as Apotheca Therapeutics, Inc. and changed our name to Actuate Therapeutics, Inc. on October 1, 2015.

Legal Proceedings

From time to time, we may be involved in legal proceedings or subject to claims incident to the ordinary course of business. We are not party to or aware of any proceedings that we believe will have, individually or in the aggregate, a material adverse effect on our business, financial condition or results of operations. Regardless of the outcome, such proceedings or claims can have an adverse impact on our business because of defense and settlement costs, diversion of resources and other factors.

MANAGEMENT

Executive Officers and Directors

The table below lists the name, age and position of each of our executive officers, directors and director nominees as of March 31, 2024.

Name	Age	Position
Executive Officers:		
Daniel M. Schmitt	62	President, Chief Executive Officer and Director
Andrew P. Mazar, Ph.D.	62	Chief Operating Officer
Paul Lytle	56	Chief Financial Officer
Non-Employee Directors and Director Nominees:		
Aaron G.L. Fletcher, Ph.D.	43	Chairperson and Director[(1)]
Les Kreis, Jr.[(2)]	52	Director
Todd Thomson	63	Director[(1)]
Dan Zabrowski, Ph.D.	64	Director[(1)(3)]
Jason Keyes[(4)]	53	Director Nominee[(5)]
Roger Sawhney[(4)]	54	Director Nominee[(3)(5)]
Amy Ronneberg[(4)]	50	Director Nominee[(3)(5)]

(1) Member of the nominating and corporate governance committee.

(2) Mr. Kreis has resigned from the Board effective immediately prior to the closing of this offering.

(3) Member of the compensation committee upon joining the Board, as applicable.

(4) Each of Mr. Keyes, Dr. Sawhney and Ms. Ronneberg have been appointed to serve as members of our Board effective upon the closing of this offering.

(5) Member of the audit committee upon joining the Board.

Background of Directors, Director Nominees and Executive Officers

Daniel M. Schmitt. Mr. Schmitt has served as our Chief Executive Officer and President since March 2015 and our director since April 2015. He previously served as Chief Operating Officer of Genus Oncology LLC, a clinical stage company, from 2009 to 2014. Prior to that, he served as Senior Vice President, Licensing and Commercial Development of Immtech Pharmaceuticals, Inc., a pharmaceutical company, from 2004 to 2009; General Manager, Academic and Government Institution Markets of First Genetic Trust, a genomic technology company, from 2001 to 2004; and previously held positions with G.D. Searle Inc., a pharmaceutical company, ILEX Oncology, Inc., a pharmaceutical company, Fujisawa USA, Inc., a pharmaceutical company, and Burroughs Wellcome Co., a pharmaceutical company. Mr. Schmitt has also held research positions affiliated with the National Foundation for Cancer Research in 1984 and the University of North Carolina School of Medicine from 1987 to 1988. He also served as an Entrepreneur-In-Residence at Northwestern University in 2014 and as an external expert consultant for both the University of Chicago and the University of Illinois — Chicago from 2011 to 2014. Mr. Schmitt is also a founding member of Chicago Innovation Mentors. He earned his MBA and a BS in Chemistry with a concentration in Theoretical Mathematics from West Virginia University. Mr. Schmitt is well qualified to serve as a director due to his pharmaceutical and biotechnology experience, including his experience in operations management, new product development and business development.

Andrew P. Mazar, Ph.D. Dr. Mazar has served as our Chief Operating Officer since June 2022, and prior to joining the Company, he served as an independent consultant from January 2022 to June 2022. Previously, Dr. Mazar was the Co-Founder, Chief Scientific Officer and a director of Monopar Therapeutics, Inc., a public clinical-stage biopharmaceutical company, from September 2016 to April 2022. Dr. Mazar is

also a founder and managing member of Tactic Pharma, LLC, where he developed WTX-101/ALXN1840, a drug he co-invented for the treatment of Wilson's disease. WTX-101/ALXN1840 was acquired by Alexion Pharmaceuticals for more than $800 million in 2018. Prior to Monopar, Dr. Mazar was a Professor of Pharmacology at the Feinberg School of Medicine at Northwestern University, where he also served as the Director of the Center for Developmental Therapeutics and Entrepreneur-in-Residence from September 2009 to September 2016. During his tenure at Northwestern University, Dr, Mazar served as the Co-chair of the Animal Model Working Group for the NCI Nanotechnology Alliance; was a charter member of the Developmental Therapeutics (DT) study section at the NIH Center for Scientific review; and was a member of the editorial board of Clinical Cancer Research where he continues to serve. Prior to that, Dr. Mazar served as the Chief Scientific Officer at Attenuon, LLC, a private clinical-stage biopharmaceutical company, from February 2000 to July 2009. Dr. Mazar earned his BS in Chemistry from the University of Wisconsin, Parkside and his Ph.D. in Biochemistry from the University of Illinois College of Medicine, Chicago, Illinois.

Paul Lytle. Mr. Lytle has served as our Interim Chief Financial Officer since February 2024, and will serve as our Chief Financial Officer beginning in June 2024. Mr. Lytle is the Co-Founder of Thendor Therapeutics, LLC, a private biopharmaceutical company, and he has served as its Chief Financial Officer since September 2023. Mr. Lytle is also the Co-Founder of Mosaic ImmunoEngineering, Inc., a public development-stage biotechnology company, and he has served on its board of directors and as its Executive Vice President, Chief Financial Officer since August 2020. Previously, Mr. Lytle served as Executive Vice President, Chief Financial Officer of Breathe Technologies, Inc., a private medical device company acquired by Hillrom Holdings, Inc. in August 2019, from September 2018 to December 2019. Prior to that, Mr. Lytle served as Chief Financial Officer of Avid Bioservices, Inc. (Nasdaq: CDMO), a publicly traded biologics development company initially focused on developing immunotherapies for the treatment of cancer while building a new biologics contract development and manufacturing organization, from March 1997 to May 2018. Mr. Lytle received his B.S. in Business with an emphasis in Accounting from California State University at Long Beach and is a Certified Public Accountant (inactive).

Aaron G.L. Fletcher, Ph.D. Dr. Fletcher has served as our director since April 2015. Dr. Fletcher is the Founder and has served as the President of Bios Research, a financial services firm, since 2012. Dr. Fletcher has also served as an independent consultant in the biotechnology and healthcare equity industry for over 10 years, and a visiting professor at Dallas Baptist University since 2008, where he teaches Biochemistry, Bioethics and Cell Biology. Dr. Fletcher has served on the board of directors and as a member of the compensation committee of Cognition Therapeutics, Inc., a public neuroscience company, since July 2015. Previously, he served on the board of directors and as a member of the compensation committee and nominating and governance committee of TFF Pharmaceuticals, Inc., a public biopharmaceutical company, from March 2018 to November 2023, the board of directors and as a member of the compensation committee and pricing committee of Cue Biopharma, a public biopharmaceutical company, from October 2019 to October 2023, the board of directors and compensation committee of Lung Therapeutics, Inc., a biopharmaceutical company, from August 2014 to October 2023, the board of directors and as a member of the compensation committee of AbiliTech Medical, Inc., a medical equipment manufacturer, from November 2016 to January 2023, and the board of directors and as a member of the audit committee of SWK Holdings Corporation, a public finance company focused on global healthcare, from August 2019 to December 2021. Dr. Fletcher earned his PhD in Biochemistry from Colorado State University. Dr. Fletcher is well qualified to serve as a director due to his extensive experience in the healthcare industry, particularly in the biotech and med-tech sub-sectors.

Jason Keyes. Mr. Keyes has been appointed to serve as our director, effective upon the completion of this offering. Mr. Keyes currently serves as the Chief Financial Officer of Equillium, Inc., a clinical-stage biotechnology company, since March 2018, and as a director of its Australian subsidiary since January 2019. Prior to this, he served in various roles at Orexigen Therapeutics, Inc., a public pharmaceutical company which filed a voluntary petition for Chapter 11 bankruptcy in March 2018 that concluded with the bankruptcy court confirming a plan of liquidation in May 2019 following a sale of substantially all of its assets in June 2018, including as Executive Vice President and Chief Financial Officer, from January 2013 to February 2018. Previously, Mr. Keyes served in various roles at Amylin Pharmaceuticals, Inc., a public biopharmaceutical company, including as Senior Director of Finance, from August 2007 to January 2013. Mr. Keyes also held leadership positions in finance and corporate strategy at Amgen, Inc., a public biopharmaceutical

company, and Baxter Healthcare Corporation, a public healthcare company. Mr. Keyes formerly served on the board of directors, including as chair of the audit committee and as a member of the compensation committee, of Sesen Bio, Inc., a public biopharmaceutical company, from 2020 to 2023. Mr. Keyes received his B.S. and M.S. degrees in Civil Engineering from Stanford University and an M.B.A. from the Anderson School at the University of California, Los Angeles. Mr. Keyes is well qualified to serve as a director due to his extensive experience in finance and in the biotechnology and biopharmaceutical industries.

Les Kreis, Jr. Mr. Kreis has served as our director since March 2015 and his term will end upon the closing of this offering. Mr. Kreis has served as the Managing Principal of Steelhead Capital Management, a single-family office, since 2008. He is also a Co-Founder and has served as the Managing Partner of Bios Partners, a venture capital firm focused on early-stage biotechnology investments, since 2013. Mr. Kreis has served as a founding member of Cowtown Angels, an angel investment network, since 2012. Previously, Mr. Kreis was a Vice President of HBK Investments, a private multi-strategy global hedge fund, from 1994 to 2005, and served on the board of directors of Lantern Pharma Inc., a public biotechnology company, from November 2019 to June 2022. Mr. Kreis earned a BBA in Finance from Texas Christian University in 1994.

Amy Ronneberg. Ms. Ronneberg has been appointed to serve as our director, effective upon the completion of this offering. Ms. Ronneberg currently serves as the Chief Executive Officer of NMDP (f/k/a Be The Match), a nonprofit organization that facilitates bone marrow transplantation, since March 2020, and served as its Chief Financial Officer from July 2013 to March 2020. Ms. Ronneberg also served as the President at NMDP BioTherapies, LLC, a start-up company within NMDP, and as its Chief of Staff from February 2018 to February 2020. Prior to that, Ms. Ronneberg served in various roles at Capella Education Company, a public online postsecondary education services company, including as Chief Accounting Officer and Vice President of Operations, from 2000 to 2012. She also served as an Audit Manager of Ernst & Young, a professional services partnership, from 1995 to 2000. Ms. Ronneberg has served as a director and member of the finance committee (Vice Chair) for Allina Health, a nonprofit healthcare company, since November 2020, and previously served as a director of Magenta Therapeutics, Inc., a clinical stage biotechnology company, from June 2018 to August 2023, a director and executive committee member of Medical Alley Association, a healthcare industry network, from December 2020 to present, an executive committee member of the World Marrow Donor Association, an international healthcare organization, from January 2017 to January 2020, and chairman of the board of directors of Twin Cities in Motion, Minneapolis, a nonprofit running event organization, from January 2012 to January 2014. Ms. Ronneberg earned a Master's in Business Administration from Capella University, Minneapolis, Minnesota, and a B.B.A. in Accounting from University of Wisconsin-Eau Claire. Ms. Ronneberg is well qualified to serve as a director due to her extensive financial expertise and leadership in the biotechnology and biopharmaceutical industries.

Roger Sawhney. Dr. Sawhney has been appointed to serve as our director, effective upon the completion of this offering. Dr. Sawhney previously served as the Chief Financial Officer of Garuda Therapeutics, Inc., a biotechnology company, from September 2022 to December 2023. Prior to this, Dr. Sawhney served as the Chief Business Officer of Omega Therapeutics, Inc., a clinical-stage biotechnology company, from May 2022 to September 2022, and its Chief Financial Officer from May 2020 to May 2022. He served at KKR & Co., a global investment firm, as Director of its healthcare investment platform, from September 2018 to February 2020. Dr. Sawhney also served as Senior Vice President and Head of Global Corporate Strategy for Novartis AG, a public pharmaceutical company, from August 2009 to August 2012, Senior Vice President of Corporate Strategy and Business Development for Outcome Health, a healthcare technology company, from February 2017 to February 2018, a Partner with Bain & Company, a management consulting firm, from August 2012 to February 2017, and Partner and Managing Director with the Boston Consulting Group, a management consulting firm, from September 1996 to July 2009. He has served as a director of SIRPant Immunotherapeutics, Inc., a clinical-stage immuno-oncology company, since January 2024, and previously served as a director of Alimera Sciences, Inc., a pharmaceutical company, from February 2023 to March 2023. Dr. Sawhney earned an M.D. from Harvard Medical School and a BA in Economics from Stanford University. Dr. Sawhney is well qualified to serve as a director due to his extensive financial and strategic expertise in the biotechnology and biopharmaceutical industries.

Todd Thomson. Mr. Thomson has served as our director since September 2022. Mr. Thomson has served as the Chief Operating and Financial Officer of Kairos Ventures, a venture capital firm, since August 2019. Previously, he co-founded and served as Chairman of Dynasty Financial Partners, an investment and technology platform, from November 2010 to August 2019, and currently serves on the board of directors. Prior to that, Mr. Thomson served as CEO of the Wealth Management Division of Citigroup and previously Chief Financial Officer of Citigroup Inc., an investment bank and financial services corporation, from 1998 to 2007. Mr. Thomson has served on the board of directors and as a member of the audit committee of Sivers Semiconductors, a public technology company, since January 2022, the board of directors of Dragonfly Energy Holdings Corp., a public battery manufacturer, from August 2021 to October 2022, the board of directors of Cyren Ltd., a public cybersecurity company, from November 2011 to July 2021, the board of directors of Cordia Bancorp Inc., a bank holding company, from 2010 to May 2016, and the board of directors and as a member of the Investment Committee for the Davidson College and World Resources Institute Endowments. He earned his MBA with Distinction in Finance and Strategy from the Wharton School of Business and his BA in Economics from Davidson College. Mr. Thomson is well qualified to serve as a director due to his extensive investing experience and years of executive leadership, financial leadership, and experience in mergers and acquisitions and business strategy.

Dan Zabrowski, Ph.D. Dr. Zabrowski has served as our director since March 2021. Dr. Zabrowski has served as a Venture Partner of Decheng Capital, a private investment firm, since July 2016. Prior to that, Dr. Zabrowski served in a number of roles for Roche, a healthcare company, from 1994 to 2016, including Global Head of Regulatory Affairs, Global Head of Development Operations, Global Head of Roche Pharma Partnering, President of Ventana Medical Systems and President of the Roche Sequencing Unit. Dr. Zabrowski also previously held positions with Syntex, Fujisawa (now Astellas), a pharmaceutical company, and G.D. Searle, LLC, a pharmaceutical company, and served as Adjunct Assistant Professor at the School of Pharmacy, University of Illinois — Chicago. He also served on the board of directors of Apexigen, Inc., a public biopharmaceutical company, from February 2021 to August 2023, including serving as Chairman of its compensation committee and member of its audit committee, BeyondSpring Inc., a public biopharmaceutical company, from January 2020 to June 2022, including serving as a member of its compensation committee, Nimble Therapeutics, Inc., a private biotechnology company, since 2019, Ariagen, Inc., a private biotechnology company, since 2018, Endogena Therapeutics, Inc., a private biotechnology company, since 2018, and AccuraGen, Inc., a private biotechnology company, since 2013, and also as a board observer for Encodia, Inc., a private biotechnology company, since 2018. Dr. Zabrowski earned his PhD in Organic Chemistry from Indiana University, Bloomington and his BA degree in Chemistry from Saint Louis University. Dr. Zabrowski is well qualified to serve as a director due to his extensive experience on a variety of public and private boards in the biotechnology and biopharmaceutical industries.

Family Relationships

There are no familial relationships among our directors and executive officers.

Board Composition

Our business and affairs are organized under the direction of the Board. The Board currently consists of five members and will be increased to seven members upon the closing of this offering. The primary responsibilities of the Board are to provide oversight, strategic guidance, counseling, and direction to our management. The Board will meet on a regular basis and additionally as required.

Pursuant to our fourth amended and restated voting agreement, or the voting agreement, which will terminate upon the closing of this offering, the holders of the Series A Preferred Stock, voting as a separate class, were entitled to elect one member of the Board, with the initial director being Dr. Fletcher, the holders of the Series B Preferred Stock, voting as a separate class, were entitled to elect two members of the Board, with the initial directors being Messrs. Kreis, Jr. and Thomson, and the holders of the Series C Preferred Stock, voting as a separate class, were entitled to elect one member of the Board (no director was selected by such holders to fill this seat). The holders of common stock, voting as a separate class, were entitled to elect one member of the Board, with the initial director being Mr. Schmitt. The holders of the Preferred Stock and the common stock voting together as a single class on an as-converted basis were also

entitled to elect one additional "independent" director, as such term is defined in the Exchange Act, with the initial director being Dr. Zabrowski. Upon the closing of the offering, Mr. Kreis will resign from the Board and the appointment of Ms. Ronneberg, Mr. Keyes and Dr. Sawhney will become effective.

Dr. Fletcher currently serves as our Chairperson of the Board. This structure ensures a greater role for non-management directors in the oversight of our Company and active participation of these directors in setting agendas and establishing priorities and procedures for the work of the Board. In addition, this structure allows the Chief Executive Officer to focus his attention on implementing our strategic plans, while a separate Chairperson can devote full attention to Board leadership functions. The Board will continue to periodically review our leadership structure and may make such changes in the future as it deems appropriate and in the best interests of us and our stockholders. While the Board does not have a lead independent director, the independent directors meet in executive session regularly without the presence of management.

Director Independence

We are seeking the listing of our common stock on the Nasdaq Capital Market and will utilize the Nasdaq listing rules in determining whether a director is independent. The Nasdaq rules generally define an "independent director" as a person, other than an executive officer of a company or any other individual having a relationship which, in the opinion of the issuer's board of directors, would interfere with the exercise of independent judgment in carrying out the responsibilities of a director.

Mr. Schmitt is not considered to be independent due to his role as an executive officer of the Company. The Board has determined that each of Dr. Fletcher, Mr. Thomson, Mr. Kreis, Jr., Dr. Zabrowski, Mr. Keyes, Dr. Sawhney and Ms. Ronneberg qualifies as an independent director, and that the Board consists of a majority of independent directors, as such term is defined under the Nasdaq rules. In making this determination, our Board considered the current and prior relationships, as applicable, that each of Dr. Fletcher, Mr. Thomson, Mr. Kreis, Jr., Dr. Zabrowski, Mr. Keyes, Dr. Sawhney and Ms. Ronneberg has with our Company and all other facts and circumstances our Board deemed relevant in determining their independence, including their beneficial ownership of our capital stock. In addition, we are subject to the rules of the SEC and Nasdaq relating to the membership, qualifications, and operations of the audit committee, the compensation committee, and the nominating and corporate governance committee, as discussed below.

Classified Board of Directors

In accordance with the terms of our amended and restated certificate of incorporation that will go into effect immediately prior to the closing of this offering, our board of directors will be divided into three classes with staggered, three-year terms. At each annual meeting of stockholders, the directors whose terms then expire will be eligible for reelection until the third annual meeting following reelection. Effective upon the closing of this offering, our directors will be divided among the three classes as follows:

- the Class I directors will be Todd Thomson, Daniel Zabrowski and Roger Sawhney and their terms will expire at our first annual meeting of stockholders following this offering;
- the Class II directors will be Aaron G.L. Fletcher and Jason Keyes and their terms will expire at our second annual meeting of stockholders following this offering; and
- the Class III directors will be Daniel Schmitt and Amy Ronneberg and their terms will expire at our third annual meeting of stockholders following this offering.

Our amended and restated certificate of incorporation that will go into effect immediately prior to the closing of this offering will provide that the authorized number of directors may be changed only by resolution of the board of directors. Any additional directorships resulting from an increase in the number of directors will be distributed among the three classes so that, as nearly as possible, each class will consist of one-third of the directors. The division of our board of directors into three classes with staggered three-year terms may delay or prevent a change of our board of directors or a change in control of our Company. Our directors may be removed only for cause by the affirmative vote of the holders of at least two-thirds of our outstanding voting stock then entitled to vote in an election of directors.

Board Meetings and Committees

During the fiscal year ended December 31, 2023, the Board met four times. All of our directors attended 75% or more of the aggregate number of meetings of the Board and committees on which they served. The directors are strongly encouraged to attend future meetings of stockholders.

The Board has established a standing audit committee, compensation committee, and nominating and corporate governance committee effective as of the completion of this offering. The Board adopted a charter for each of these committees, which complies with the applicable Nasdaq rules. Copies of the charters for each committee will be publicly available upon the closing of the offering on our website at www.actuatetherapeutics.com.

Audit Committee

Effective as of the completion of this offering, the audit committee will consist of Mr. Keyes (chairperson), Dr. Sawhney and Ms. Ronneberg. The Board has determined that each member of the audit committee is an independent director as defined by Nasdaq rules applicable to members of an audit committee, including that each member meets the criteria for independence set forth in Rule 10A-3(b)(1) under the Exchange Act. In addition, as required by Nasdaq rules, each member of the audit committee is able to read and understand fundamental financial statements, including a company's balance sheet, income statement, and statement of cash flows.

The audit committee will meet on at least a quarterly basis. Both our independent registered public accounting firm and management will periodically meet privately with the audit committee. The audit committee will assist the Board in monitoring the integrity of our financial statements, our compliance with legal and regulatory requirements, and the independence and performance of our internal and external auditors. The audit committee's duties, which are specified in our audit committee charter, include, but are not limited to:

- selecting and retaining an independent registered public accounting firm to act as our independent auditors, and evaluating the qualifications, performance and independence of the independent auditor;
- selecting, retaining, overseeing and terminating, if necessary, any other registered public accounting firm engaged for the purpose of preparing or issuing an audit report or performing other audit, review or attest services for us;
- approving the fees to be paid to the independent auditor for audit services and approving the retention of independent auditors for non-audit services and all fees for such services;
- reviewing periodic reports from the independent auditor regarding, among other things the auditor's independence, including discussion of such reports with the auditor;
- meeting with the independent auditor prior to the audit to review the scope, planning, and staffing of the audit;
- discussing with management and the independent auditor, as appropriate, our critical accounting policies and practices;
- reviewing and discussing with management and the independent auditor the annual audit report, the annual financial statements and related notes and management's discussion and analysis of financial condition and results of operations proposed to be included in our annual report, and recommending to the Board whether the audited financial statements and related notes and management's discussion and analysis of financial condition and results of operations should be included in our annual report;
- producing the report of the audit committee, as required by the rules of the SEC;
- reviewing and discussing with management and the independent auditor our quarterly financial statements prior to the filing of each quarterly report and management's discussion and analysis of financial condition and results of operations proposed to be included in such quarterly report;

- reviewing and discussing with management and the independent auditor our major financial risk exposures and the steps management has taken to monitor and control such exposures, including our risk assessment and risk management policies;
- reviewing with management and our independent auditors the adequacy and effectiveness of our financial reporting process, internal control over financial reporting and disclosure controls and procedures;
- developing and recommending to the Board for approval a Company code of conduct, and monitoring, investigating and enforcing the provisions of such code against any alleged violations; and
- reviewing and approving all related-party transactions.

Financial Experts on Audit Committee

The Board determined that Mr. Keyes qualifies as an audit committee financial expert within the meaning of the rules and regulations of the SEC. In making this determination, the Board considered Mr. Keyes' formal education and previous experience in financial roles. In addition, as required by Nasdaq rules, we have at least one member who has past employment experience in finance or accounting, requisite professional certification in accounting, or other comparable experience or background that results in the individual's financial sophistication. The Board determined Mr. Keyes qualifies as financially sophisticated under the Nasdaq rules.

Compensation Committee

The compensation committee currently consists of Dr. Zabrowski and Messrs. Kreis and Thomson, and, following the completion of the offering, the compensation committee will consist of Dr. Zabrowski (chairperson), Dr. Sawhney and Ms. Ronneberg. The Board has determined that each member of the compensation committee is an independent director as defined by the Nasdaq rules applicable to members of a compensation committee. The compensation committee meets from time to time to consider matters for which approval by the committee is desirable or is required by law. During the fiscal year ended December 31, 2023, the compensation committee met two times.

The compensation committee's duties, which are specified in our compensation committee charter, include, but are not limited to:

- reviewing and making recommendations to the Board regarding the corporate goals and objectives relevant to compensation of our Chief Executive Officer and other executive officers, annually evaluate such officers' performance in light of those goals and objectives and, based on this evaluation, make recommendations to the Board regarding such officers' compensation level;
- reviewing and making recommendations to the Board with respect to the adoption of, and amendments to, incentive compensation and equity-based plans, and where appropriate or required, recommending for approval by our stockholders, which includes the ability to adopt, amend and terminate such plans;
- administering our incentive and equity-based compensation plans, including designation of the employees to whom the awards are to be granted, the amount of the award or equity to be granted and the terms and conditions applicable to each award or grant, subject to the provisions of each plan;
- if required under Regulation S-K, reviewing our compensation discussion and analysis, discussing it with our management, and determining whether to recommend it for inclusion in the our annual report or proxy statement and producing the report of the compensation committee;
- reviewing and making recommendations to the Board regarding any employment agreements and any severance arrangements or plans, including any benefits to be provided in connection with a change in control, for the CEO and other executive officers, which includes the ability to adopt, amend and terminate such agreements, arrangements or plans;
- reviewing our incentive compensation arrangements to determine whether they encourage excessive risk-taking, reviewing and discussing at least annually the relationship between risk management

policies and practices and compensation, and evaluating compensation policies and practices that could mitigate any such risk; and

- reviewing all director compensation and benefits for service on the Board and committees thereof and recommending any changes to the Board, as necessary.

The compensation committee will consider the recommendations of the Chief Executive Officer when determining compensation for the other executive officers. Executive officers do not determine any element or component of their own pay package or total compensation amount. The Chief Executive Officer is not present for any discussions regarding his own compensation. The compensation committee retains sole authority to engage compensation consultants, including determining the nature and scope of services and approving the amount of compensation for those services, and legal counsel or other advisors. The compensation committee assesses the independence of any consultants pursuant to the rules and regulations of the SEC and Nasdaq rules. We will provide for appropriate funding, as determined by the compensation committee, for payment of any such investigations or studies and the compensation to any consulting firm, legal counsel or other advisors retained by the compensation committee.

Nominating and Corporate Governance Committee

Effective as of the completion of this offering, the nominating and corporate governance committee will consist of Dr. Fletcher (chairperson), Dr. Zabrowski and Mr. Thomson. The Board has determined that each member of the nominating and corporate governance committee is an independent director as defined by the Nasdaq rules.

The nominating and corporate governance committee will meet from time to time to consider matters for which approval by the committee is desirable or is required by law. The nominating and corporate governance committee's duties, which are specified in our nominating and corporate governance committee charter, include, but are not limited to:

- periodically reviewing the size of the Board and assessing its ability to function effectively, and reviewing its committee structure, committee chairs and membership and making recommendations to the Board with respect to any changes thereto;
- determining the qualifications, qualities, skills and other expertise required to be a director, and developing and recommending to the Board for its approval, criteria to be considered in selecting nominees for director;
- identifying, evaluating and making recommendations to the Board regarding nominees for election to the Board and its committees;
- developing and recommending to the Board for approval any director independence standards that are deemed appropriate in addition to those required by Nasdaq Rules and making recommendations to the Board with respect to whether a director has a relationship with the Company that would impair such director's independence;
- developing and recommending to the Board a set of corporate governance guidelines, and reviewing these guidelines annually;
- overseeing the Company's corporate governance policies, practices and procedures, including identifying best practices and reviewing and recommending to the Board for approval any changes to the documents, policies and procedures in the Company's corporate governance framework;
- reviewing directorships in other public companies held by or offered to a director, and retirements or other changes to a director's principal occupation or business association, to determine whether they adversely affect his or her service on the Board and making recommendations to the Board with respect thereto; and
- developing, subject to approval by the Board, a process for an annual evaluation of the performance of the Board and its committees, and overseeing such evaluation.

Guidelines for Selecting Director Nominees

The nominating and corporate governance committee will consider persons identified by its stockholders, management, investment bankers and others. The nominating and corporate governance committee will consider a number of qualifications relating to management and leadership experience, background and integrity and professionalism in evaluating a person's candidacy for membership on the Board. The nominating and corporate governance committee may require certain skills or attributes, such as financial or accounting experience, to meet specific board needs that arise from time to time and will also consider the overall experience and makeup of its members to obtain a broad and diverse mix of board members. The nominating and corporate governance committee does not distinguish among nominees recommended by stockholders and other persons.

The Board's objective is that its membership be comprised of a diverse group of experienced and dedicated individuals. Though the nominating and corporate governance committee does not have specific guidelines on diversity, it is one of many criteria considered by the nominating and corporate governance committee when evaluating candidates. The nominating and corporate governance committee does not have a written policy or formal procedural requirements for stockholders to submit recommendations for director nominations. However, the nominating and corporate governance committee will consider properly submitted recommendations for candidates to the Board from stockholders in accordance with our amended and restated bylaws. Stockholders should communicate nominee suggestions directly to the nominating and corporate governance committee and accompany the recommendation with biographical details and a statement of support for the nominee. The suggested nominee must also provide a statement of consent to being considered for nomination. There have been no material changes to the procedures by which stockholders may recommend nominees to the Board.

Board Oversight of Risk

The Board's primary function is one of oversight. The Board as a whole works with our management team to promote and cultivate a corporate environment that incorporates enterprise-wide risk management into strategy and operations. Management periodically reports to the Board about the identification, assessment and management of critical risks and management's risk mitigation strategies. Each committee of the Board is responsible for the evaluation of elements of risk management based on the committee's expertise and applicable regulatory requirements. In evaluating risk, the Board and its committees consider whether our programs adequately identify material risks in a timely manner and implement appropriately responsive risk management strategies throughout the organization. The audit committee focuses on assessing and mitigating financial risk, including risk related to internal controls and compliance. In setting compensation, the compensation committee strives to create incentives that encourage behavior consistent with our business strategy, without encouraging undue risk-taking. The nominating and corporate governance committee considers areas of potential risk within corporate governance. Each of the committees reports to the Board as a whole as to their findings with respect to the risks they are charged with assessing.

Code of Ethics

We adopted a code of ethics that applies to all of our directors, officers and employees. A copy of the code of ethics will be publicly available upon the closing of this offering on our website at www.actuatetherapeutics.com. We also intend to disclose future amendments to, or waivers of, our code of ethics, as and to the extent required by SEC regulations, on our website.

Stockholder and Interested Party Communications

Stockholders and interested parties may communicate with the Board, any committee or committee chairperson or the independent directors as a group by writing to the Board, committee, committee chairperson or independent directors in care of the Chairman of the Board at Actuate Therapeutics, Inc., 1751 River Run, Suite 400, Fort Worth, Texas 76107. Each communication will be forwarded, depending on the subject matter, to the Board, the appropriate committee or committee chairperson or all independent directors.

Limitation on Liability and Indemnification of Directors and Officers

The Delaware General Corporation Law authorizes corporations to limit or eliminate, subject to certain conditions, the personal liability of directors to corporations and their stockholders for monetary damages for breach of their fiduciary duties. Our amended and restated certificate of incorporation limits the liability of our directors and officers to the fullest extent permitted by Delaware law.

We have director and officer liability insurance to cover liabilities our directors and officers may incur in connection with their services to us, including matters arising under the Securities Act. Our amended and restated certificate of incorporation and bylaws also provide that we will indemnify our directors and officers to the fullest extent permitted by Delaware law. Our bylaws further provide that we will indemnify any other person whom we have the power to indemnify under Delaware law. In addition, we have entered into customary indemnification agreements with each of our officers and directors.

There is no pending litigation or proceeding involving any of our directors, officers, employees or agents in which indemnification will be required or permitted. We are not aware of any threatened litigation or proceedings that may result in a claim for such indemnification.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, executive officers or persons controlling us, in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

EXECUTIVE COMPENSATION

Executive Compensation

Our executive officers for the year ended December 31, 2023, whom we refer to in this prospectus as our named executive officers, were:

- Daniel M. Schmitt, our President and Chief Executive Officer
- Andrew P. Mazar, Ph.D., our Chief Operating Officer

Paul Lytle, our Chief Financial Officer, was appointed in February 2024.

Summary Compensation Table

The following table sets forth information concerning the compensation of the named executive officers for the years ended December 31, 2023 and 2022.

Name	Year	Salary	Bonus	Stock Award[1]	Option Awards[1]	All Other Compensation	Total
Daniel M. Schmitt[2]	2023	$ 400,000	$ 120,000	$ —	$ —	$ —	$ 520,000
President and Chief Executive Officer	2022	$ 400,000	$ 44,489	$ —	$ —	$ —	$ 444,489
Andrew P. Mazar, Ph.D.[3]	2023	$ 450,000	$ 157,500	$ —	$ 58,612	$ —	$ 666,112
Chief Operating Officer	2022	$ 377,500	$ 287,544	$ 85,071	$ —	$ —	$ 750,115

(1) The dollar amounts listed reflect the value of the award as of the grant date calculated in accordance with ASC Topic 718 based upon the fair-market value of our common stock on the date of the grant and, therefore, do not necessarily reflect the actual value received by the individuals. The assumptions made in computing the estimated fair value of such awards are disclosed in Note 9 to our consolidated financial statements included in this prospectus for the fiscal year ended December 31, 2023.

(2) The terms of Mr. Schmitt's compensation are set forth in his employment agreement. See "Employment Agreements — Chief Executive Officer."

(3) Dr. Mazar began consulting for the Company in January 2022, for which he received $15,000 per month. Dr. Mazar then assumed the role of Chief Operating Officer on April 1, 2022 as a consultant and became our employee on June 1, 2022. Pursuant to the COO Consulting Agreement (defined below), he received $35,000 per month for serving in that role and the COO Employment Agreement (defined below) provides for a base salary equal to $450,000 per year, the ability to earn a bonus of up to 50% of his base salary upon achievement of certain milestones mutually agreed to between us. Upon signing the COO Employment Agreement in 2022, Dr. Mazar received a signing bonus equal to $200,000 and 72,710 shares of restricted common stock, 25% of which vested on the first anniversary of the grant date and the remaining 75% of which vest in equal monthly installments during the 36 months following the first anniversary of the grant date. See "Employment Agreements — Chief Operating Officer" below. Dr. Mazar was granted 67,273 stocks options based on performance on October 23, 2023, of which, 25% vested on the grant date and the remaining 75% vest in equal installments on a monthly basis during the 36 months following the grant date.

Narrative Disclosure to Summary Compensation Table

For 2023 and 2022, the compensation program for our named executive officers consisted of base salary and incentive compensation delivered in the form of cash bonuses and equity awards. Base salary was set at a level that was commensurate with the executive's duties and authorities, contributions, prior experience and sustained performance. Cash bonuses and equity awards were also set at a level that was commensurate with the executive's duties and authorities, contributions, prior experience and sustained performance, in accordance with the employment or similar agreement with the executive. We provide benefits to our named executive officers on the same basis as we provide them to all of its employees, including health, dental and vision insurance.

Employment Agreements

Chief Executive Officer

On April 15, 2015, we entered into an employment agreement with Mr. Schmitt, which was amended on each of February 5, 2016, September 28, 2017, September 23, 2018, January 29, 2019, September 3, 2019, August 1, 2022, January 27, 2023, December 12, 2023 and May 9, 2024 (the CEO Employment Agreement), that provides a base salary equal to $400,000 per year, and the ability to earn an annual bonus of up to 50% of his base salary, 70% of which shall be payable upon achievement of certain milestones mutually agreed to between the Company and Mr. Schmitt and 30% of which shall be payable at the discretion of the Board.

In the event the Company is sold on or before December 31, 2026 for cash in a transaction valued at or above $29.56 per share, immediately prior to the consummation of such transaction, Mr. Schmitt will also be (i) granted shares of common stock under the stock incentive plan of the Company that is then in effect equal to that number of shares that would bring his total ownership (including the shares he owned prior to calculation of the shares to be granted in the sale transaction) to 8.0% of the issued and outstanding shares of common stock immediately prior to the closing of such transaction on a fully diluted basis, and (ii) entitled to receive a cash bonus equal to 100% of his base salary. Further, in the event on or before December 31, 2026 the Company receives between $10,000,000 – 100,000,000 or more in gross revenue pursuant to certain licensing arrangements between the Company and any third party or another non-dilutive capital transaction, Mr. Schmitt will be (i) granted shares of common stock under the stock incentive plan of the Company that is then in effect equal to that number of shares that would bring his total ownership (including the shares he owned prior to calculation of the shares to be granted in the transaction) to 5.0 – 6.0% (depending on the geographic location from which such gross revenue is derived) of the issued and outstanding shares of common stock on a fully diluted basis, and (ii) entitled to receive a cash bonus equal to 25 – 50% of his base salary (depending on the geographic location from which such gross revenue is derived). If the Company closes a transaction or series of related transactions occurring on or before December 31, 2026 pursuant to which the Company issues and sells shares of its common or preferred equity securities in exchange for aggregate gross proceeds of more than $10,000,000, excluding any gross proceeds attributable to sales to Bios Partners L.P. or its affiliates, (a Qualified Financing), Mr. Schmitt will be granted shares of common stock under the stock incentive plan of the Company that is then in effect equal to that number of shares that would bring his total ownership (including the shares he owned prior to calculation of the shares to be granted in the transaction) to 4.25 – 5.0% of the issued and outstanding shares of common stock on a fully diluted basis, depending on the per share price of the shares sold in such Qualified Financing. The shares issued to Mr. Schmitt in such transactions will vest as follows: (i) 50% will vest on the first anniversary of the closing of such transaction, and (ii) 50% will vest on the second anniversary of the closing of such transaction. In addition, such shares will vest immediately upon: (i) a change in control, (ii) termination of Mr. Schmitt's employment by us without ''cause," (iii) termination of employment by Mr. Schmitt for ''good reason," or (iv) death or disability.

The severance amount payable to Mr. Schmitt upon his termination by the Company for any reason (other than Mr. Schmitt's death, disability or for "cause"), or termination by Mr. Schmitt for "good reason," is equal to one times his then current base salary (the CEO Standard Severance Benefits). Upon termination upon a change in control, and if Mr. Schmitt's employment is terminated by the Company for any reason other than Mr. Schmitt's death, disability or for "cause," or termination by Mr. Schmitt for "good reason," in any such case within the six months immediately preceding or the twelve months immediately following such change in control, Mr. Schmitt is entitled to a payment equal to one and one-half times his then current base salary reduced by the CEO Standard Severance Benefits to which he would be entitled.

Chief Operating Officer

Dr. Mazar assumed the role of Chief Operating Officer on April 1, 2022 pursuant to a consulting agreement, dated March 25, 2022 (the COO Consulting Agreement), which entitled him to compensation equal to $35,000 per month for serving in that role. On June 1, 2022, the COO Consulting Agreement was superseded by an employment agreement (the COO Employment Agreement) that provides for a base salary equal to $450,000 per year, the ability to earn an annual bonus of up to 50% of his base salary upon

achievement of certain milestones mutually agreed to between the Company and Dr. Mazar, and a signing bonus equal to $200,000. Upon execution of the COO Employment Agreement, the Company granted to Dr. Mazar 72,710 shares of restricted common stock, 25% of which vested on the first anniversary of the grant date and the remaining 75% of which vest in equal monthly installments during the 36 months following the first anniversary of the grant date. In the event the Company is sold on or before March 31, 2024 for cash in a transaction valued at or above $29.56 per share, immediately prior to the consummation of such transaction, Dr. Mazar will also be granted shares of common stock under the stock incentive plan of the Company that is then in effect equal to that number of shares that would bring his total ownership (including the shares he owned prior to calculation of the shares to be granted in the sale transaction) to 2.0% of the issued and outstanding shares of common stock on the day immediately prior to the closing of such transaction on a fully diluted basis. The shares issued to Dr. Mazar in such transaction will be fully vested as of the date of grant. The severance amount payable to Dr. Mazar upon termination by the Company for any reason (other than Dr. Mazar's death, disability or for "cause"), or termination by Dr. Mazar for "good reason," is equal to 100% of his then current base salary plus reimbursement of the cost associated with his premiums for elected COBRA coverage up to $25,000 (the COO Standard Severance Benefits). Upon termination upon a change in control, and if Dr. Mazar's employment is terminated by the Company for any reason (other than Dr. Mazar's death, disability or for "cause"), or termination by Dr. Mazar for "good reason," in any such case within the six months immediately preceding or the twelve months immediately following such change in control, Dr. Mazar is entitled to a payment equal to one times his then current base salary reduced by the COO Standard Severance Benefits to which he would be entitled.

Chief Financial Officer

On February 17, 2024, we entered into a consulting agreement with Mr. Lytle (the Interim CFO Agreement), that provided for a consulting fee equal to $20,000 per month for services of at least 20 hours per week. The Interim CFO Agreement was superseded by an employment agreement (the CFO Employment Agreement) effective June 1, 2024 that provides for a base salary equal to $360,000 per year, and the ability for Mr. Lytle to earn an annual bonus of up to 40% of his base salary upon achievement of certain milestones mutually agreed to between the Company and Mr. Lytle. Upon the closing of this offering, the Company will grant Mr. Lytle options to purchase that number of shares of common stock equal to 1.0% of the Company's issued and outstanding capital stock on a fully diluted basis as of such date, 25% of which vest on June 1, 2025 and the remaining 75% of which vest in equal monthly installments during the 36 months following June 1, 2025. The CFO Employment Agreement may be terminated by the Company or Mr. Lytle at any time, upon 30 days' prior written notice thereof to the other party. The severance amount payable to Mr. Lytle upon termination by the Company for any reason (other than Mr. Lytle's death, disability or for "cause"), or termination by Mr. Lytle for "good reason," is equal to 50% of his then current base salary (the CFO Standard Severance Benefits). Upon termination upon a change in control, and if Mr. Lytle's employment is terminated by the Company for any reason (other than Mr. Lytle's death, disability or for "cause"), or termination by Mr. Lytle for "good reason," in any such case within the six months immediately preceding or the twelve months immediately following such change in control, Mr. Lytle is entitled to a payment equal to 50% of his then current base salary reduced by the CFO Standard Severance Benefits to which he would be entitled.

Outstanding Equity Awards at Year End

The following table presents information regarding the outstanding stock options and restricted common stock awards held by the Company's named executive officers at December 31, 2023.

	Option Awards					Stock Awards			
Name	Grant Date	Number of Securities Underlying Unexercised Options Exercisable	Number of Securities Underlying Unexercised Options Unexercisable	Option Exercise Price ($)	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested	Market Value of Shares of Units of Stock That Have Not Vested	Equity Incentive plan awards: number of unearned shares, units or other rights that have not vested	Equity incentive plan awards: market or payout value of unearned shares, units or other rights that have not vested[1]
Daniel M. Schmitt[2]	2/5/16[3]	—	—	—	—	—	—	21,107	$ 44,114
	2/22/21[4]	—	—	—	—	—	—	193,892	$405,234
	2/22/21[5]	—	—	—	—	—	—	14,584	$ 30,481
Andrew P. Mazar, Ph.D.[2]	7/7/22[6]	—	—	—	—	—	—	46,959	$ 98,144
	10/23/23[7]	—	67,273	1.19	10/23/33	—	—	—	—

(1) The market value of the restricted stock as of December 31, 2023 is calculated by multiplying the number of unvested shares outstanding under the award by $2.09 per share, which is the fair value we used for financial reporting purposes as of such date.

(2) Each of Mr. Schmitt and Dr. Mazar are also entitled to receive shares of common stock following the consummation of certain transactions, including this offering with respect to Mr. Schmitt. See "Employment Agreements — Chief Executive Officer" and "— Chief Operating Officer" above.

(3) 84,428 restricted common stock awards were granted on February 5, 2016, of which, (i) 21,107 shares vested on the grant date, (ii) 21,107 shares vested on September 18, 2017 upon the hiring of the Company's Chief Medical Officer, (iii) 21,107 shares vested on January 11, 2018 upon the filing of the Company's "Investigation of New Drug" application with the FDA, and (iv) 21,107 shares will vest upon the achievement of strategic partnership or licensing transaction with anticipated gross proceeds of at least $25 million.

(4) 664,771 restricted common stock awards were granted on February 22, 2021, of which, 25% vested on the first anniversary of the grant date and the remaining 75% vests in equal monthly installments during the 36 months following the first anniversary of the grant date.

(5) 50,000 restricted common stock awards were granted on February 22, 2021, of which, 25% vested on the first anniversary of the grant date and the remaining 75% vests in equal monthly installments during the 36 months following the first anniversary of the grant date.

(6) 72,710 restricted common stock awards were granted on July 7, 2022, of which, 25% vested on the first anniversary of the grant date and the remaining 75% vests in equal monthly installments during the 36 months following the first anniversary of the grant date.

(7) 67,273 non-qualified stock option awards were granted on October 23, 2023, of which, 25% of the option vests on the first anniversary of the grant date and the remaining 75% vests in equal monthly installments during the 36 months following the first anniversary of the grant date.

Potential Payments upon Termination or Change in Control

Our named executive officers each have employment agreements with us, pursuant to which they are entitled to receive certain benefits upon qualifying termination. See the section "Employment Agreements" above for additional information regarding these benefits.

Clawback Policy

We intend to adopt a clawback policy that is compliant with the Nasdaq rules, as required by the Dodd-Frank Act, to be effective upon the closing of this offering, the form of which is filed as an exhibit to the registration statement of which this prospectus is a part.

Director Compensation

Prior to this offering, we have provided annual grants of restricted stock or stock options to our non-employee directors for their service on the Board. On April 30, 2023, each of our non-employee directors were granted options to purchase 28,695 shares of common stock. The options have an exercise price of $1.19 per share, the fair market value on the date of grant as determined by our board of directors based on an independent third-party valuation. The options vest as to 50% on the award date, and the remaining 50% vest on the first anniversary of the award date, subject to such director's continued service. We also had a policy of reimbursing all of our non-employee directors for their reasonable out-of-pocket expenses in connection with attending Board and committee meetings.

The following table sets forth compensation earned during the year ended December 31, 2023 by each director who is not a named executive officer and served during the year ended December 31, 2023.

Name	Stock Awards	Option Awards[1]	All Other Compensation	Total
Aaron G.L. Fletcher, Ph.D.[2]	$ —	$ 23,288	$ —	$ 23,288
Les Kreis, Jr.[2][3]	$ —	$ 23,288	$ —	$ 23,288
Todd Thomson[4]	$ —	$ 23,288	$ —	$ 23,288
Dan Zabrowski, Ph.D.[5]	$ —	$ 23,288	$ —	$ 23,288

(1) Represents an annual grant on April 30, 2023 of an option to purchase 28,695 shares of common stock with an exercise price of $1.19 per share. The dollar amounts listed reflect the value of the underlying shares as of the grant date calculated in accordance with ASC Topic 718 based upon the fair-market value of our common stock on the date of the grant and, therefore, do not necessarily reflect the actual value received by the individuals. The assumptions made in computing the estimated fair value of such awards are disclosed in Note 9 to our consolidated financial statements included in this prospectus for the fiscal year ended December 31, 2023.

(2) At December 31, 2023, 14,437 stock options remained outstanding. The stock options granted to each of Dr. Fletcher and Mr. Kreis are held by BP Directors, LP., which is a fund in which Dr. Fletcher and Mr. Kreis are general partners and that is not otherwise affiliated with Bios Partners.

(3) Mr. Kreis has resigned from the Board effective as immediately prior to the closing of this offering.

(4) At December 31, 2023, 14,437 stock options remained outstanding. The stock options granted to Mr. Thomson are held by Kairos Venture Partners II, L.P., which is a fund affiliated with the Kairos Venture Affiliated Funds.

(5) At December 31, 2023, 14,437 stock options remained outstanding. The stock options granted to Dr. Zabrowski are held by the Catharine A. Zabrowski Irrevocable Trust, of which Catherine A. Zabrowski, the wife of Dr. Zabrowski, is the trustee and has sole voting and investment power over such options. Dr. Zabrowski may be deemed to have or share such voting and/or investment power due to the trustee's status as his spouse. Dr. Zabrowski disclaims beneficial ownership of such shares other than to the extent he may have a pecuniary interest therein.

In connection with this offering, the Board has established, based upon the recommendation of the compensation committee, a compensation program for the non-employee members of the Board. The compensation program is designed to align the directors' compensation with our business objectives and the creation of stockholder value. The compensation committee and the Board expect to review non-employee director compensation periodically to ensure that such compensation remains competitive and enables us to recruit and retain qualified directors.

Under the non-employee directors' compensation program, beginning upon the effectiveness of the registration statement for this offering, each non-employee director will receive an annual cash retainer and will receive cash fees for serving as chair or as a member of the audit, compensation or nominating and corporate governance committees, as follows:

	Amount
Annual Director Compensation Cash Retainer	$40,000
Annual Chair of the Board or Lead Independent Director Compensation Cash Retainer (in lieu of Annual Director Compensation Cash Retainer)	$70,000
Additional Annual Compensation for Committee Chairs	
Audit Committee	$19,000
Compensation Committee	$12,000
Nominating and Corporate Governance Committee	$ 8,000
Additional Annual Compensation for Committee Members (Other than Chairs)	
Audit Committee	$ 9,000
Compensation Committee	$ 6,500
Nominating and Corporate Governance Committee	$ 4,000

In addition, each non-employee director, upon their initial appointment or election, and on an annual basis, will receive a grant of stock options under our 2024 Plan exercisable for 30,000 and 15,000 shares, respectively, with the initial grant vesting in three equal installments on the first, second, and third anniversary of the grant date, and with the annual grants vesting in full on the first anniversary of the grant date.

Employee Benefit Plans

Stock Incentive Plans

The principal features of our stock incentive plans are summarized below. These summaries are qualified in their entirety by reference to the actual text of the plans, which are filed as exhibits to the registration statement of which this prospectus is a part.

2024 Equity Incentive Plan

In connection with this offering, our board of directors has adopted and our stockholders have approved our 2024 Stock Incentive Plan, or the 2024 Plan, which becomes effective upon the closing of this offering. Under the 2024 Plan, we may grant cash and equity incentive awards to eligible service providers in order to attract, motivate and retain the talent for which we compete. The material terms of the 2024 Plan are summarized below.

Eligibility and administration. Our employees, consultants and directors, and employees and consultants of any subsidiary, will be eligible to receive awards under the 2024 Plan. Following this offering, the 2024 Plan will generally be administered by our Board with respect to awards to non-employee directors and by our compensation committee with respect to other participants, each of which may delegate its duties and responsibilities to committees of our directors and/or officers (referred to collectively as the plan administrator below), subject to certain limitations that may be imposed under the 2024 Plan, Section 16 of the Exchange Act and/or stock exchange rules, as applicable. The plan administrator will have the authority to make all determinations and interpretations under, prescribe all forms for use with, and adopt rules for the administration of, the 2024 Plan, subject to its express terms and conditions. The plan administrator will also set the terms and conditions of all awards under the 2024 Plan, including any vesting and vesting acceleration conditions.

Limitation on awards and shares available. The number of shares initially available for issuance under awards granted pursuant to the 2024 Plan will be the sum of (1) 12% of the number of "pricing date fully-diluted shares" (as defined below), plus (2) any shares of our common stock which, as of the effective date of the 2024 Plan, remain available for issuance under the 2015 Plan, (3) any shares subject to outstanding awards under the 2015 Plan as of the effective date of the 2024 Plan that become available for issuance under the 2024 Plan thereafter in accordance with its terms, and (4) an annual increase on the first day of each calendar year beginning January 1, 2025 and ending on and including January 1, 2034, equal to the lesser of (A) 5% of the aggregate number of shares of common stock outstanding on the final day of the immediately preceding calendar year and (B) such smaller number of shares as is determined by the administrator. The

entirety of the overall share limit shall be available for awards of incentive stock options. Shares issued under the 2024 Plan may be authorized but unissued shares, shares purchased on the open market or treasury shares. For purposes of the 2024 Plan, the "pricing date fully-diluted shares" means, as of the date on which the registration statement of which this prospectus forms a part is declared effective, the sum of (1) the shares of our common stock outstanding on such date (calculated on an as-converted basis after giving effect to the conversion of our outstanding securities into shares in connection with the initial public offering and after giving effect to the issuance of the shares to be sold in this initial public offering and assuming the exercise in full of the underwriters' over-allotment option in such initial public offering), (2) the shares of our common stock subject to compensatory equity awards (including stock options) outstanding on such date (with the number of shares subject to performance-based compensatory equity awards calculated at the "maximum" level of performance), and (3) all shares of common stock available for future issuance under the 2024 Plan as of such date.

If an award under the 2024 Plan or the 2015 Plan expires, lapses or is terminated, exchanged for or settled in cash, surrendered, repurchased, cancelled without having been fully exercised or forfeited, in any case, in a manner that results in us acquiring shares covered by the award at a price not greater than the price paid by the participant for such shares or not issuing any shares covered by the award, any shares subject to such award will, as applicable, become or again be available for new grants under the 2024 Plan. Awards granted under the 2024 Plan upon the assumption of, or in substitution for, awards authorized or outstanding under a qualifying equity plan maintained by an entity with which we enter into a merger or similar corporate transaction will not reduce the shares available for grant under the 2024 Plan.

Awards. The 2024 Plan provides for the grant of stock options, including incentive stock options (ISOs) within the meaning of Section 422 of the Code, and nonqualified stock options (NSOs); restricted stock; dividend equivalents; restricted stock units (RSUs); stock appreciation rights (SARs); and other stock or cash-based awards. Certain awards under the 2024 Plan may constitute or provide for a deferral of compensation, subject to Section 409A of the Code, which may impose additional requirements on the terms and conditions of such awards. All awards under the 2024 Plan will be set forth in award agreements, which will detail the terms and conditions of the awards, including any applicable vesting and payment terms and post-termination exercise limitations. Awards other than cash awards generally will be settled in shares of our common stock, but the plan administrator may provide for cash settlement of any award. A brief description of each award type follows:

- *Stock Options.* Stock options provide for the purchase of shares of our common stock in the future at an exercise price set on the grant date. ISOs, by contrast to NSOs, may provide tax deferral beyond exercise and favorable capital gains tax treatment to their holders if certain holding period and other requirements of the Code are satisfied. The exercise price of a stock option will not be less than 100% of the fair market value of the underlying share on the date of grant (or 110% in the case of ISOs granted to certain significant stockholders), except with respect to certain substitute options granted in connection with a corporate transaction. The term of a stock option may not be longer than ten years (or five years in the case of ISOs granted to certain significant stockholders). Vesting conditions determined by the plan administrator may apply to stock options and may include continued service, performance and/or other conditions. ISOs generally may be granted only to our employees and employees of any subsidiary.
- *SARs.* SARs entitle their holder, upon exercise, to receive from us an amount equal to the appreciation of the shares subject to the award between the grant date and the exercise date. The exercise price of a SAR will not be less than 100% of the fair market value of the underlying share on the date of grant (except with respect to certain substitute SARs granted in connection with a corporate transaction), and the term of a SAR may not be longer than ten years. Vesting conditions determined by the plan administrator may apply to SARs and may include continued service, performance and/or other conditions.
- *Restricted Stock and RSUs.* Restricted stock is an award of nontransferable shares of our common stock that remain forfeitable unless and until specified conditions are met, and which may be subject to a purchase price. RSUs are contractual promises to deliver shares of our common stock in the future, which may also remain forfeitable unless and until specified conditions are met. Delivery of the shares underlying RSUs may be deferred under the terms of the award or at the election of the

participant, if the plan administrator permits such a deferral. Conditions applicable to restricted stock and RSUs may be based on continuing service, the attainment of performance goals and/or such other conditions as the plan administrator may determine.

- *Other Stock or Cash-Based Awards.* Other stock or cash-based awards are awards of cash, fully vested shares of our common stock and other awards valued wholly or partially by referring to, or otherwise based on, shares of our common stock. Other stock or cash-based awards may be granted to participants and may also be available as a payment form in the settlement of other awards, as standalone payments and as payment in lieu of base salary, bonus, fees, or other cash compensation otherwise payable to any individual who is eligible to receive awards. The plan administrator will determine the terms and conditions of other stock or cash-based awards, which may include vesting conditions based on continued service, performance and/or other conditions.
- *Dividend Equivalents.* RSUs or other stock and cash-based awards may be accompanied by the right to receive the equivalent value of dividends paid on shares of our common stock prior to the delivery of the underlying shares. Such dividend equivalents will only be paid out to the extent that any vesting conditions are subsequently satisfied, unless otherwise determined by the plan administrator. No dividend equivalents will be payable on stock options or SARs.

Performance Awards. Performance awards include any of the foregoing awards that are granted subject to vesting and/or payment based on the attainment of specified performance goals or other criteria the plan administrator may determine, which may or may not be objectively determinable. Performance criteria upon which performance goals are established by the plan administrator may include: net earnings or losses (either before or after one or more of interest, taxes, depreciation, amortization and non-cash equity-based compensation expense); gross or net sales or revenue or sales or revenue growth; net income (either before or after taxes) or adjusted net income; profits (including, but not limited to, gross profits, net profits, profit growth, net operation profit or economic profit), profit return ratios or operating margin; budget or operating earnings (either before or after taxes or before or after allocation of corporate overhead and bonus); cash flow (including operating cash flow and free cash flow or cash flow return on capital); return on assets; return on capital or invested capital; cost of capital; return on stockholders' equity; total stockholder return; return on sales; costs, reductions in costs and cost control measures; expenses; working capital; earnings or loss per share; adjusted earnings or loss per share; price per share or dividends per share (or appreciation in or maintenance of such price or dividends); regulatory achievements or compliance; implementation, completion or attainment of objectives relating to research, development, regulatory, commercial or strategic milestones or developments; market share; economic value or economic value added models; division, group or corporate financial goals; customer satisfaction/growth; customer service; employee satisfaction; recruitment and maintenance of personnel; human capital management (including diversity and inclusion); supervision of litigation and other legal matters; strategic partnerships and transactions; financial ratios (including those measuring liquidity, activity, profitability or leverage); debt levels or reductions; sales-related goals; financing and other capital raising transactions; cash on hand; acquisition activity; investment sourcing activity; and marketing initiatives, any of which may be measured in absolute terms or as compared to any incremental increase or decrease. Such performance goals also may be based solely by reference to our performance or the performance of a subsidiary, division, business segment or business unit, or based upon performance relative to performance of other companies or upon comparisons of any of the indicators of performance relative to performance of other companies.

Director Compensation. The 2024 Plan provides that the plan administrator may establish compensation for non-employee directors from time to time subject to the 2024 Plan's limitations. The initial terms of our non-employee director compensation program is described below under the subsection titled "— Director Compensation."

Certain Transactions. In connection with certain transactions and events affecting our common stock, including a change in control (as defined below), or change in any applicable laws or accounting principles, the plan administrator has broad discretion to act under the 2024 Plan to prevent the dilution or enlargement of intended benefits, facilitate such transaction or event, or give effect to such change in applicable laws or accounting principles. This includes canceling awards in exchange for either an amount in cash or other property with a value equal to the amount that would have been obtained upon exercise or settlement of the vested portion of such award or realization of the participant's rights under the vested

portion of such award, accelerating the vesting of awards, providing for the assumption or substitution of awards by a successor entity, adjusting the number and type of shares available, replacing awards with other rights or property or terminating awards under the 2024 Plan. In the event of a change in control where the acquirer does not assume awards granted under the 2024 Plan, the plan administrator may provide that awards issued under the 2024 Plan be subject to accelerated vesting such that 100% of the awards will become vested and exercisable or payable, as applicable. In addition, in the event of certain non-reciprocal transactions with our stockholders (an equity restructuring) the plan administrator will make equitable adjustments to the 2024 Plan and outstanding awards as it deems appropriate to reflect the equity restructuring.

For purposes of the 2024 Plan, a "change in control" means the occurrence of (i) a sale, lease or other disposition of all or substantially all of our assets, (ii) a merger or consolidation in which we are not the surviving corporation (except for a merger or consolidation with an entity controlled by our stockholders), (iii) a reverse merger in which we are the surviving corporation but the Shares outstanding immediately preceding the merger are converted by virtue of the merger into other property, whether in the form of securities, cash or otherwise or (iv) the adoption of a plan of our dissolution or liquidation.

Foreign Participants, Clawback Provisions, Transferability, and Participant Payments. With respect to foreign participants, the plan administrator may modify award terms, establish subplans and/or adjust other terms and conditions of awards, subject to the share limits described above. All awards will be subject to the provisions of any clawback policy implemented by us and to the extent set forth in such clawback policy or in the applicable award agreement. With limited exceptions for estate planning, domestic relations orders, certain beneficiary designations and the laws of descent and distribution, awards under the 2024 Plan are generally nontransferable prior to vesting and are exercisable only by the participant. With regard to tax withholding obligations arising in connection with awards under the 2024 Plan and exercise price obligations arising in connection with the exercise of stock options under the 2024 Plan, the plan administrator may, in its discretion, accept cash, wire transfer, or check, shares of our common stock that meet specified conditions (a market sell order) or such other consideration as it deems suitable or any combination of the foregoing.

Plan amendment and termination. Our board of directors may amend, suspend, or terminate the 2024 Plan at any time; however, except in connection with certain changes in our capital structure, stockholder approval will be required for any amendment that increases the number of shares available under the 2024 Plan. No award may be granted pursuant to the 2024 Plan after the tenth anniversary of the date on which our board of directors adopted the 2024 Plan.

2015 Stock Incentive Plan

In April 2015, the Board and our stockholders approved the 2015 Plan. The 2015 Plan will be terminated prior to the completion of this offering, and thereafter we will not grant any additional awards under our 2015 Plan. However, our 2015 Plan will continue to govern the terms and conditions of the outstanding awards previously granted thereunder.

Eligibility and Administration. Our employees, consultants and directors are eligible to receive awards under the 2015 Plan. The Board or a committee or an officer delegated by the Board administers our 2015 Plan. Subject to the terms of our 2015 Plan, the administrator has the power to, among other things, select the persons to whom awards may be granted, determine the type of award to be granted to any person, determine the number and type of shares to be covered by each award, establish the terms and conditions of each award agreement, determine whether and under what circumstances an option may be exercised without a payment of cash, and determine whether and to what extent and under what circumstances shares and other amounts payable with respect to an award may be deferred.

Limitation on Awards and Shares Available. Subject to certain capitalization adjustments, the aggregate number of shares of our common stock that may be issued pursuant to awards under our 2015 Plan is 3,670,566 shares. No more than 3,670,566 shares of common stock may be issued upon the exercise of incentive stock options under the 2015 Plan. The shares issued pursuant to the 2015 Plan may be authorized but unissued shares or may be shares issued pursuant to the 2015 Plan that have been reacquired by us. Shares subject to stock awards granted under our 2015 Plan that expire or terminate without being exercised

or otherwise issued in full or that are paid out in cash rather than in shares and shares withheld under a stock award to satisfy the exercise, strike or purchase price of a stock award or to satisfy a tax withholding obligation do not reduce the number of shares available for issuance under our 2015 Plan. If any shares of our common stock issued pursuant to a stock award are forfeited back to or repurchased or reacquired by us, such shares revert to and again become available for issuance under the 2015 Plan.

Awards. The 2015 Plan provides for the grant of ISOs, NSOs and restricted common stock. All our employees and any subsidiary employees (including officers and directors who are also employees), as well as all of our non-employee directors and other consultants, advisors and other persons who provide services to us are eligible to receive incentive awards under the 2015 Plan. All awards under the 2015 Plan will be set forth in award agreements, which will detail the terms and conditions of the awards, including any applicable vesting and payment terms and post-termination exercise limitations. Awards generally will be settled in shares of our common stock, but the plan administrator may provide for cash settlement of any award. A brief description of each award type follows.

- *Stock Options*. ISOs and NSOs are granted pursuant to stock option agreements adopted by the administrator. ISOs may be granted only to our employees and our subsidiary corporations' employees. All other awards may be granted to employees, directors and consultants of ours and to any of our subsidiary corporations' employees or consultants. The administrator determines the exercise price for a stock option, provided that the exercise price of a stock option generally cannot be less than 100% of the fair market value of our common stock on the date of grant. Options granted under our 2015 Plan vest at the rate specified by the administrator. The administrator determines the term of stock options granted under our 2015 Plan, up to a maximum of 10 years. Unless the terms of an optionholder's stock option agreement provide otherwise, if an optionholder's service relationship with us, or any of our affiliates, ceases for any reason other than disability, death or cause, the optionholder may generally exercise any vested options for a period of 90 days following the cessation of service. If an optionholder's service relationship with us or any of our affiliates ceases due to disability or death, or an optionholder dies within a certain period following cessation of service, the optionholder or a beneficiary may generally exercise any vested options for a period of one year. In the event of a termination for cause, options generally terminate immediately upon the termination of the individual for cause. In no event may an option be exercised beyond the expiration of its term. Acceptable consideration for the purchase of our common stock issued upon the exercise of a stock option will be determined by the administrator and set forth in the award agreement and may include (1) cash, certified check, bank draft and wire transfer, (2) a cashless exercise, (3) the tender of shares of our common stock previously owned by the optionholder, (4) promissory note and shares pledged as collateral by the optionholder and (5) other legal consideration approved by the administrator.

  The aggregate fair market value, determined at the time of grant, of our common stock with respect to ISOs that are exercisable for the first time by an optionholder during any calendar year under all of our stock plans may not exceed $100,000. Options or portions thereof that exceed such limit will generally be treated as NSOs. No ISO may be granted to any person who, at the time of the grant, owns or is deemed to own stock possessing more than 10% of our total combined voting power or that of any of our affiliates unless (1) the option exercise price is at least 110% of the fair market value of the stock subject to the option on the date of grant and (2) the term of the ISO does not exceed five years from the date of grant.

- *Restricted Stock Awards*. Restricted stock awards are granted pursuant to restricted stock award agreements adopted by the administrator. Restricted stock awards may be granted for such consideration as may be determined by the administrator and set forth in the award agreement and may include (1) cash, certified check, bank draft and wire transfer, (2) a cashless exercise, (3) the tender of shares of our common stock previously owned by the award holder, (4) promissory note and shares pledged as collateral by the award holder and (5) other legal consideration approved by the administrator. Common stock acquired under a restricted stock award are subject to repurchase by us in accordance with the terms of any applicable stockholders' agreement and such other conditions as set forth in the applicable award agreement. A restricted stock award may be transferred only upon such terms and conditions as set by the administrator. Except as otherwise provided in the

applicable award agreement, restricted stock awards that have not vested may be forfeited or repurchased by us upon the participant's cessation of continuous service for any reason.

As of December 31, 2023, stock options covering 478,001 shares of our common stock with a weighted-average exercise price of $1.19 per share were outstanding, restricted stock awards covering 304,251 shares of our common stock were unvested and outstanding, and 1,124,246 shares of our common stock remained available for the future grant of awards under our 2015 Plan. Any shares subject to options that expire or terminate prior to exercise or are withheld to satisfy tax withholding obligations related to an option or the exercise price of an option will be added to the number of shares then available for issuance under our 2024 Plan.

Certain Transactions. In the event there is a specified type of change in our capital structure not involving receipt of consideration (such as through a merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, stock split or reverse stock split), appropriate adjustments will be made to the number of shares available for issuance under our 2015 Plan and the number of shares covered by and, as applicable, the exercise price of each outstanding award granted under our 2015 Plan.

For purposes of the 2015 Plan, a "change of control" means the occurrence of (i) a sale, lease or other disposition of all or substantially all of our assets, (ii) a merger or consolidation in which we are not the surviving corporation (except for a merger or consolidation with an entity controlled by our stockholders), (iii) a reverse merger in which we are the surviving corporation but the shares of our common stock outstanding immediately preceding the merger are converted by virtue of the merger into other property, whether in the form of securities, cash or otherwise or (iv) the adoption of a plan of our dissolution or liquidation.

In the event of a "change of control", unless the administrator determines otherwise, then the following actions will occur with respect to outstanding awards:

- The vesting of all of awards will accelerate as of the change in control date;
- The surviving or acquiring corporation will assume or continue such awards, or to substitute a similar stock award for such outstanding awards;
- The administrator may instead provide that awards are cancelled in exchange for cash or other consideration and/or provide a limited period for the exercise of stock options before they will terminate.

The administrator need not take the same action or actions with respect to all stock awards or portions thereof or with respect to all participants or with respect to the vested or unvested portion of such stock awards.

Transferability and Participants Payments. With limited exceptions for estate planning, domestic relations orders, certain beneficiary designations and the laws of descent and distribution, awards under the 2015 Plan are generally nontransferable prior to vesting and are exercisable only by the participant. With regard to tax withholding obligations arising in connection with awards under the 2015 Plan and exercise price obligations arising in connection with the exercise of stock options under the 2015 Plan, the plan administrator may, in its discretion, accept cash, wire transfer, or check, shares of our common stock that meet specified conditions (a market sell order) or such other consideration as it deems suitable or any combination of the foregoing.

Plan Amendment or Termination. The Board may amend, modify or terminate our 2015 Plan at any time, provided that (1) such action cannot impair the rights of holders of outstanding awards unless the majority of the impaired holders provide consent and (2) any increase in the shares available for issuance, change in employees eligible to receive ISOs, or change in the identity of the granting entity issuing ISOs or shares upon exercise thereof requires approval of our stockholders within 12 months thereafter. Unless terminated sooner by the Board, the 2015 Plan will automatically terminate on August 21, 2032. As discussed above, we will terminate our 2015 Plan prior to the completion of this offering and no new awards will be granted thereunder following such termination.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

The following includes a summary of transactions since January 1, 2021 and any currently proposed transactions, to which we were or are to be a participant, in which (i) the amount involved exceeded or will exceed the lesser of $120,000 or one percent of the average of our total assets at year-end for the last two completed fiscal years; and (ii) any of our directors, executive officers or holders of more than 5% of our capital stock, or any affiliate or member of the immediate family of the foregoing persons, had or will have a direct or indirect material interest, other than compensation and other arrangements that are described under the section of this prospectus titled "Executive and Director Compensation."

Convertible Promissory Note, Preferred Stock and Warrant Financings

From September 2015 to October 2019, we issued shares of Series A redeemable convertible preferred stock, shares of Series B-1 redeemable convertible preferred stock and warrants to purchase 137,465 shares of our Series B-1 redeemable convertible preferred stock at an exercise price of $2.93 per share and warrants to purchase 137,465 shares of our Series B-1 redeemable convertible preferred stock at an exercise price of $5.86 per share (collectively referred to as the Series B Warrants). The Series B Warrants will automatically be net exercised and the shares of Series B-1 redeemable convertible preferred stock to be received upon exercise will automatically convert into shares of common stock if the exercise price is less than the offering price in this offering or become exercisable for common stock for a period of two years after the closing of this offering.

In April 2019, we entered into a Series B preferred stock purchase agreement with various investors, pursuant to which we issued and sold in an initial closing and subsequent closings in May 2019, October 2019 and December 2020 an aggregate of 9,808,101 shares of our Series B-1, B-2, B-3 and B-4 redeemable convertible preferred stock. The Series B-1 per share purchase price was $3.66, the Series B-2 per share purchase price was $3.83, the Series B-3 per share purchase price was $4.00 and the Series B-4 per share purchase price was $4.18, and we received aggregate gross proceeds of approximately $38.6 million.

From August 2022 to June 2023, we entered into a Series C preferred stock purchase agreement with various investors, pursuant to which, in seven separate tranches, we issued and sold an aggregate of 5,570,200 shares of our Series C redeemable convertible preferred stock at a price per share of $4.36 for aggregate net proceeds of $23.4 million. In connection with the Series C financing, we also issued warrants to the placement agent to purchase 32,796 shares of our Series C redeemable convertible preferred stock at an exercise price of $5.23 per share (the Series C Warrants). The Series C Warrants will automatically be net exercised and the shares of Series C redeemable convertible preferred stock to be received upon exercise will automatically convert into shares of common stock if the exercise price is less than the offering price in this offering or become exercisable for common stock for a period of two years after the closing of this offering.

In February, March and May 2024, we issued to Bios Clinical Opportunity Fund, LP, which is a fund affiliated with the Bios Equity Affiliated Funds, the Bridge Notes in the principal amount of $3,000,000, $1,500,000 and $1,000,000, respectively. The Bridge Notes accrue interest at a rate of 7% per annum and are due and payable on June 30, 2024, subject to their earlier conversion as described below. The Bridge Notes will automatically convert into (i) in the case of a qualified financing (as defined in the Bridge Notes), that number of shares of capital stock issued in such qualified financing equal to the quotient obtained by dividing the outstanding principal amount of a Bridge Note plus all accrued and unpaid interest thereon by the price of shares to be sold in the qualified financing multiplied by 0.80, and (ii) in the case of this offering, such number of shares of common stock equal to the principal amount and the accrued but unpaid interest thereon, divided by 80% of the offering price, or shares of common stock, at an assumed initial public offering price of $ per share of common stock, the midpoint of the price range set forth on the cover page of this prospectus. If a qualified financing or this offering is not consummated prior to June 30, 2024, the holder of a Bridge Note may elect to convert such Bridge Note into such number of shares of Series C redeemable convertible preferred stock equal to the principal amount plus the accrued and unpaid interest thereon divided by $4.36, rounded down to the nearest share, or elect that such Bridge Note become fully due and payable in cash. In May 2024, we agreed to amend the terms of the

Series B and Series C Warrants to provide that they will remain exercisable for common stock for a period of two years after the closing of this offering if they are not in the money based on the initial offering price in this offering.

The table below sets forth the number of shares of our Series A, B and C redeemable convertible preferred stock, Series B and Series C Warrants and the Bridge Notes held by holders of more than 5% of our capital stock and their affiliated entities, Bios Equity Affiliated Funds and Kairos Venture Affiliated Funds, as of December 31, 2023. As of March 31, 2024, assuming (i) the conversion of all outstanding shares of our redeemable convertible preferred stock into an aggregate of shares of our common stock in connection with the closing of this offering; (ii) the conversion of our redeemable preferred stock into an aggregate of shares of our common stock upon the net exercise of outstanding Series B Warrants and Series C Warrants, assuming an initial offering price of $ per share, and the conversion of any such warrants containing an exercise price greater than the initial offering price per share of common stock into warrants to purchase common stock that will remain exercisable for two years after the closing of the offering, in each case, immediately prior to the closing of this offering, (iii) the conversion of the Bridge Notes into an aggregate of shares of our common stock upon the closing of this offering, (iv) no exercise of the underwriters' over-allotment option to purchase additional shares of common stock; and (v) no exercise of outstanding options or vesting of restricted stock units, we will have outstanding an aggregate of approximately shares of common stock and the Bios Equity Affiliated Funds will beneficially hold approximately % of our outstanding shares and the Kairos Venture Affiliated Funds will beneficially own approximately % of our outstanding shares.

Dr. Fletcher, who has served as our director and chairperson of the board since April 2015, has served as the President of Bios Research since 2012. Mr. Kreis, who has served as our director since March 2015, is also a Co-Founder and has served as the Managing Partner of Bios Partners since 2013. Dr. Fletcher and Mr. Kreis are each deemed to beneficially own the shares and warrants held by the Bios Equity Affiliated Funds. Mr. Thomson, our director since September 2022, has served as the Chief Operating and Financial Officer of Kairos Ventures since August 2019. Mr. Thompson is deemed to beneficially own the shares and warrants held by the Kairos Venture Affiliated Funds. In connection with this offering, holders of a majority of the outstanding shares of each series of convertible preferred stock have agreed to cause the conversion of all outstanding shares of convertible preferred stock into common stock immediately prior to the closing of the offering.

Name of Greater than 5% stockholders[1]	Series A Redeemable Convertible Preferred Stock (#)	Series B-1 Redeemable Convertible Preferred Stock (#)	Series B-2 Redeemable Convertible Preferred Stock (#)	Series B-3 Redeemable Convertible Preferred Stock (#)	Series B-4 Redeemable Convertible Preferred Stock (#)	Series B Warrants (#)	Series C Redeemable Convertible Preferred Stock (#)	Series C Warrants (#)	Principal Amount of Bridge Notes ($)
Bios Equity Affiliated Funds	1,500,000	1,474,352	722,167	862,785	8,555,060	136,620	2,178,894	—	$ 5,500,000
Kairos Venture Affiliated Funds	—	1,904,972	1,307,093	639,365	654,306	102,468	133,417	—	—

(1) Additional details regarding these stockholders and their equity holdings are provided in "Principal Securityholders."

Investors' Rights, Voting and Right of First Refusal and Co-Sale Agreements

The Bios Equity Affiliated Funds and Kairos Ventures Affiliated Funds are parties to the following agreements entered into in connection with the investments described above.

Investor Rights Agreement

We entered into a fourth amended and restated investor rights agreement in November 2022 (the Investor Rights Agreement) with the holders of our redeemable convertible preferred stock, or the preferred stockholders. The Investor Rights Agreement provides for certain customary demand and "piggy-back"

registration rights for a period of three years following our initial public offering, with respect to the shares of common stock underlying the redeemable convertible preferred stock owned by the preferred stockholders. All expenses incurred in connection with registrations, filings or qualifications, including (without limitation) all registration, filing and qualification fees, printer's fees, accounting fees and fees and disbursements of our counsel and the reasonable fees and disbursements of one counsel for the selling holders not to exceed $30,000 per registration, but excluding underwriting discounts and commissions relating to registrable securities, will be borne by us.

The preferred stockholders also agreed, pursuant to the Investor Rights Agreement, subject to certain exceptions, not to sell any registrable securities for a period of at least 180 days following the date of a final prospectus relating to the registration by us of shares of our common stock or any other equity securities under the Securities Act on a registration statement on Form S-1 or Form S-3, subject to certain exceptions.

In addition, pursuant to the Investor Rights Agreement, we granted each of the preferred stockholders that, individually or together with such preferred stockholder affiliates, holds at least 683,122 shares of registrable securities, a pro rata right, based on their respective percentage equity ownership in us (assuming the conversion of all outstanding preferred stock into common stock and the exercise of all options outstanding under our stock plans), to participate in subsequent issuances of our equity securities, not including exempted securities (as defined in the fifth amended and restated certificate of incorporation) or shares of common stock issued in our initial public offering. Such rights terminate immediately before the closing of this offering.

Voting Agreement

We entered into a fourth amended and restated voting agreement in November 2022 (the Voting Agreement) with the preferred stockholders. Through the date of this offering, our Board consisted of five members. The holders of the Series A Preferred Stock, voting as a separate class, were entitled to elect one member of the Board, with the initial director being Dr. Fletcher, the holders of the Series B Preferred Stock, voting as a separate class, were entitled to elect two members of the Board, with the initial directors being Messrs. Kreis, Jr. and Thomson, and the holders of the Series C Preferred Stock, voting as a separate class, were entitled to elect one member of the Board. No director was elected by the holders of the Series C Preferred Stock. The holders of common stock, voting as a separate class, were entitled to elect one member of the Board, with the initial director being Mr. Schmitt. The holders of the Preferred Stock and the common stock voting together as a single class on an as-converted basis were also entitled to elect one additional "independent" director, as such term is defined in the Exchange Act, with the initial director being Dr. Zabrowski.

The Voting Agreement will terminate upon the closing of this offering, and members previously elected to the Board pursuant to the Voting Agreement will continue to serve as directors until they resign, are removed or their successors are duly elected by holders of our common stock. The composition of the Board is described in more detail in the section titled "Management."

Right of First Refusal and Co-Sale Agreement

We entered into a fourth amended and restated right of first refusal and co-sale agreement in November 2022 (the ROFR and Co-Sale Agreement) with Mr. Schmitt, Dr. Mazar and Dr. Francis Giles, each referred to in the ROFR and Co-Sale Agreement as a key holder, and certain holders of our preferred stock that individually or together with their respective affiliates, hold at least 683,122 shares of common stock, which holders are referred to in the ROFR and Co-Sale Agreement as major investors. Pursuant to the ROFR and Co-Sale Agreement, the major investors have a right of first refusal on certain transfers of our shares by the key holders, and if any shares proposed to be transferred by a key holder is not purchased pursuant to the major investors' right of first refusal and is to be sold to a prospective transferee, the major investors have a right of co-sale in respect of such transfers. The ROFR and Co-Sale Agreement will terminate upon the closing of this offering.

Indemnification Agreements

We have entered into indemnification agreements with certain of our current directors and executive officers, and intend to enter into new indemnification agreements with each of our current directors and

executive officers before the completion of this offering. Our amended and restated certificate of incorporation and our amended and restated bylaws will provide that we will indemnify our directors and officers to the fullest extent permitted by applicable law. See the section of this prospectus titled "Management — Limitation on Liability and Indemnification Matters."

Policies and Procedures for Related Party Transactions

We intend to adopt a written related-person transactions policy prior to the completion of this offering that sets forth our policies and procedures regarding the identification, review, consideration and oversight of "related-person transactions." For purposes of our policy only, a "related-person transaction" is a transaction, arrangement or relationship (or any series of similar transactions, arrangements or relationships) in which we and any "related person" are participants involving an amount that exceeds $120,000. Transactions involving compensation for services provided to us as an employee, consultant or director are not considered related-person transactions under this policy. A related person is any executive officer, director, nominee to become a director or a holder of more than five percent of our common stock, including any of their immediate family members and affiliates, including entities owned or controlled by such persons.

Under the policy, where a transaction has been identified as a related-person transaction, management must present information regarding the proposed related-person transaction to our audit committee (or, where review by our audit committee would be inappropriate, to another independent body of our board of directors) for review. The presentation must include a description of, among other things, all of the parties thereto, the direct and indirect interests of the related persons, the purpose of the transaction, the material facts, the benefits of the transaction to us and whether any alternative transactions are available, an assessment of whether the terms are comparable to the terms available from unrelated third parties and management's recommendation. To identify related-person transactions in advance, we rely on information supplied by our executive officers, directors and certain significant stockholders. In considering related-person transactions, our audit committee or another independent body of our board of directors takes into account the relevant available facts and circumstances including, but not limited to:

- the risks, costs and benefits to us;
- the impact on a director's independence in the event the related person is a director, immediate family member of a director or an entity with which a director is affiliated;
- the terms of the transaction;
- the availability of other sources for comparable services or products; and
- the terms available to or from, as the case may be, unrelated third parties.

In the event a director has an interest in the proposed transaction, the director must recuse himself or herself from the deliberations and approval.

PRINCIPAL SECURITYHOLDERS

The following table sets forth information regarding the actual beneficial ownership of our common stock as of May 1, 2024 by:

- each person or group of affiliated persons known by us to be the beneficial owner of more than 5% of the outstanding shares of our common stock;
- each of our named executive officers, directors and director nominees; and
- all of our executive officers, directors and director nominees as a group.

Beneficial ownership is determined according to the rules of the SEC, which generally provide that a person has beneficial ownership of a security if he, she or it possesses sole or shared voting or investment power over that security, including options and warrants that are currently exercisable or exercisable within 60 days.

Applicable percentage ownership is based on shares of common stock outstanding on , 2024, which gives effect to:

- the filing and effectiveness of our amended and restated certificate of incorporation, which will occur immediately prior to the closing of this offering;
- the conversion of all outstanding shares of our redeemable convertible preferred stock into shares of our common stock immediately prior to the closing of this offering;
- shares of common stock issuable upon the conversion of our Series B-1 redeemable preferred stock to be issued upon the automatic net exercise of warrants outstanding as of December 31, 2023, with an exercise price of $ per share, immediately prior to the completion of this offering, based on an assumed initial public offering price of $ per share of common stock, the midpoint of the price range set forth on the cover of this prospectus;
- [shares of common stock issuable upon the conversion of our Series B-1 redeemable preferred stock to be issued upon the automatic net exercise of warrants outstanding as of December 31, 2023, with an exercise price of $ per share, immediately prior to the completion of this offering, based on an assumed initial public offering price of $ per share of common stock, the midpoint of the price range set forth on the cover of this prospectus;]
- [shares of our common stock issuable upon the conversion of our redeemable preferred stock to be issued upon the automatic net exercise of Series C Warrants outstanding as of December 31, 2023, with an exercise price of $ per share, immediately prior to the completion of this offering, based on an assumed initial public offering price of $ per share of common stock, the midpoint of the price range set forth on the cover of this prospectus;]
- shares of our common stock issuable upon the automatic conversion of the Bridge Notes, based on an assumed initial public offering price of $ per share of common stock, the midpoint of the price range set forth on the cover of this prospectus; and
- a -for- reverse stock split of our common stock, which we effected on , 2024.

Unless otherwise indicated, we believe that all persons named in the table have sole voting and investment power with respect to all our common stock beneficially owned by them.

Name and Address of Beneficial Owner	Number of Shares Beneficially Owned	Percentage of Shares Beneficially Owned	
		Before Offering	After Offering
Directors, Director Nominees and Named Executive Officers		%	%
Daniel M. Schmitt[(1)]	1,003,421	%	%
Andrew Mazar[(2)]	184,354	%	%
Paul Lytle	—	—	—
Aaron G.L. Fletcher[(3)(4)]	15,778,865	%	%
Todd Thomson[(5)]	4,855,488	%	%
Les Kreis, Jr.[(4)(6)]	15,764,990	%	%
Daniel Zabrowski[(7)]	166,120	—	—
Jason Keyes	—	—	—
Amy Ronneberg	—	—	—
Roger Sawhney	–	–	–
All directors, director nominees and executive officers (10 individuals)[(8)]	22,113,123	%	%
5% Beneficial Holders			
Bios Equity Affiliated Funds[(4)]	15,429,878	%	%
Kairos Venture Affiliated Funds[(5)]	4,855,488	%	%

* Represents beneficial ownership less than 1%.

(1) Includes (i) 40,000 shares of common stock held by The Andrew Schmitt Irrevocable Trust, dated December 31, 2019, of which Mr. Schmitt is trustee, (ii) 40,000 shares of common stock held by The Anna Schmitt Irrevocable Trust, dated December 31, 2019, of which Mr. Schmitt is trustee, (iii) 40,000 shares of common stock held by The Edward Schmitt Irrevocable Trust, dated December 31, 2019, of which Mr. Schmitt is trustee, (iv) 855,723 shares of common stock held by The Schmitt Family Irrevocable Trust, dated December 31, 2019, of which Mr. Schmitt is trustee, and (v) 27,698 shares of restricted common stock that vest within 60 days.

(2) Includes 5,113 shares of restricted common stock that vest within 60 days.

(3) Includes (i) 109,750 shares of common stock held by Dr. Fletcher directly, (ii) 152,846 shares of common stock and 57,391 shares of common stock underlying options that are or will be exercisable within 60 days held by BP Directors, LP, of which Dr. Fletcher is the general partner, (iii) 14,500 shares of common stock held by the KF Legacy Trust U/A/D December 7, 2016, of which Dr. Fletcher is the trustee, and (iv) 14,500 shares of common stock held by the MF Legacy Trust U/A/D December 7, 2016, of which Dr. Fletcher is the trustee.

(4) Includes (i) 276,663 shares of common stock issuable upon the conversion of 276,663 shares of Series B-1 Preferred Stock and 264,684 shares of common stock issuable upon the conversion of 264,684 shares of Series B-2 Preferred Stock held by Bios Actuate Co-Invest I, LP, (ii) 3,770,368 shares of common stock issuable upon the conversion of 3,770,368 shares of Series C Preferred Stock held by Bios Actuate Co-Invest II, LP, (iii) 1,032,108 shares of common stock issuable upon the conversion of 1,032,108 shares of Series C Preferred Stock held by Bios Actuate Co-Invest III, LP, (iv) 553,567 shares of common stock issuable upon the conversion of 553,567 shares of Series A Preferred Stock held by Bios Fund I QP, LP, (v) 946,433 shares of common stock issuable upon the conversion of 946,433 shares of Series A Preferred Stock held by Bios Fund I, LP, (vi) 111,340 shares of common stock issuable upon the conversion of 111,340 shares of Series B-1 Preferred Stock, 42,529 shares of common stock issuable upon the conversion of 42,529 shares of Series B-2 Preferred Stock, 80,206 shares of common stock issuable upon the conversion of 80,206 shares of Series B-3 Preferred Stock, and 12,700 shares

of common stock issuable upon the exercise and conversion of securities underlying Series B Warrants held by Bios Fund II NT, LP, (vii) 831,729 shares of common stock issuable upon the conversion of 831,729 shares of Series B-1 Preferred Stock, 317,697 shares of common stock issuable upon the conversion of 317,697 shares of Series B-2 Preferred Stock, 599,159 shares of common stock issuable upon the conversion of 599,159 shares of Series B-3 Preferred Stock, and 94,876 shares of common stock issuable upon the exercise and conversion of 94,876 shares of securities underlying Series B Warrants held by Bios Fund II QP, LP, (viii) 254,620 shares of common stock issuable upon the conversion of 254,620 shares of Series B-1 Preferred Stock, 97,257 shares of common stock issuable upon the conversion of 97,257 shares of Series B-2 Preferred Stock, 183,420 shares of common stock issuable upon the conversion of 183,420 shares of Series B-3 Preferred Stock, and 29,044 shares of common stock issuable upon the exercise and conversion of securities underlying Series B Warrants held by Bios Fund II, LP, (ix) 587,784 shares of common stock issuable upon the conversion of 587,784 shares of Series B-4 Preferred Stock and 140,878 shares of common stock issuable upon the conversion of 140,878 shares of Series C Preferred Stock held by Bios Fund III NT, LP, (x) 3,639,650 shares of common stock issuable upon the conversion of 3,639,650 shares of Series B-4 Preferred Stock and 872,346 shares of common stock issuable upon the conversion of 872,346 shares of Series C Preferred Stock held by Bios Fund III QP, LP, and (xi) 557,258 shares of common stock issuable upon the conversion of 557,258 shares of Series B-4 Preferred Stock and 133,562 shares of common stock issuable upon the conversion of 133,562 shares of Series C Preferred Stock held by Bios Fund III, LP. Bios Equity Partners, LP is the general partner of Bios Actuate Co-Invest I, LP; Bios Equity Partners III, LP is the general partner of Bios Actuate Co-Invest II, LP, Bios Actuate Co-Invest III, LP, Bios Fund III NT, LP, Bios Fund III QP, LP, Bios Fund III, LP; Bios Equity Partners, LP is the general partner of Bios Fund I QP, LP and Bios Fund I, LP; and Bios Equity Partners II, LP is the general partner of Bios Fund II NT, LP, Bios Fund II QP, LP and Bios Fund II, LP (collectively, the Bios Equity Affiliated Funds). Cavu Management, LP, an entity managed and controlled by Mr. Kreis, Jr., and Bios Capital Management, LP, an entity managed and controlled by Dr. Fletcher, are the general partners of Bios Equity Partners, LP, Bios Equity Partners II, LP and Bios Equity Partners III, LP. Cavu Advisors LLC, an entity that is managed and controlled by Mr. Kreis, Jr., is the general partner of Cavu Management LP. Bios Advisors GP, LLC, an entity that is managed and controlled by Dr. Fletcher, is the general partner of Bios Capital Management, LP. The shares owned by Bios Equity Affiliated Funds are aggregated for purposes of reporting share ownership information. Mr. Kreis, Jr. and Dr. Fletcher share voting and investment control with respect to shares held by the Bios Equity Affiliated Funds. The address for Bios Equity Affiliated Funds is 1751 River Run, Suite 400, Fort Worth, Texas 76107.

(5) Includes (i) 250,000 shares of common stock issuable upon the conversion of 250,000 shares of Series B-3 Preferred Stock, 239,234 shares of common stock issuable upon the conversion of 239,234 shares of Series B-4 Preferred Stock, and 89,970 shares of common stock issuable upon the conversion of 89,970 shares of Series C Preferred Stock held by Kairos SPV Fund LLC, (ii) 1,307,093 shares of common stock issuable upon the conversion of 1,307,093 shares of Series B-2 Preferred Stock and 264,365 shares of common stock issuable upon the conversion of 264,365 shares of Series B-3 Preferred Stock held by Kairos Venture Opportunities I, L.P., (iii) 85,172 shares of common stock issuable upon the conversion of 85,172 shares of common stock held directly, 1,904,972 shares of common stock issuable upon the conversion of 1,904,972 shares of Series B-1 Preferred Stock, 125,000 shares of common stock issuable upon the conversion of 125,000 shares of Series B-3 Preferred Stock, 102,468 shares of common stock issuable upon the exercise and conversion of securities underlying Series B Warrants, and 28,695 shares of common stock underlying options that are or will be exercisable within 60 days held by Kairos Venture Partners II, L.P., and (iv) 415,072 shares of common stock issuable upon the conversion of 415,072 shares of Series B-4 Preferred Stock and 43,447 shares of common stock issuable upon the conversion of 43,447 shares of Series C Preferred Stock held by Kairos-Actuate SPV L.P. Kairos Venture Investments, LLC is the manager of Kairos SPV Fund LLC; Kairos Venture Opportunities GP I, LLC is the general partner of Kairos Venture Opportunities I, L.P.; and Kairos Venture Partners GP II, LLC is the general partner of Kairos-Actuate SPV L.P. and Kairos Venture Partners II, L.P. (collectively, the Kairos Venture Affiliated Funds). The shares owned by Kairos Venture Affiliated Funds are aggregated for purposes of reporting share ownership information. Mr. Thomson shares voting and investment control with James Demetriades, CEO of Kairos Ventures, with respect to shares held by the Kairos Venture Affiliated Funds. The address for Kairos Venture Affiliated Funds is 9440 S. Santa Monica Blvd., Ste. 710, Beverly Hills, CA 90210.

(6) Includes (i) 152,846 shares of common stock held by BP Directors, LP, of which Mr. Kreis, Jr. is the general partner, (ii) 124,875 shares held by Circle K Invesco, LP, of which Mr. Kreis is the sole beneficiary and sole manager of Circle K Invesco GP, LLC, the manager of Circle K Invesco, LP, and (iii) 57,391 shares of common stock underlying options held by BP Directors, LP, of which Mr. Kreis, Jr. is the general partner, that are or will be exercisable within 60 days.

(7) Includes 137,425 shares of common stock and 28,695 shares of common stock underlying options that are exercisable within 60 days held by the Catharine A. Zabrowski Irrevocable Trust, of which Catherine A. Zabrowski, the wife of Dr. Zabrowski, is the trustee and has sole voting and investment power over such shares and options. Dr. Zabrowski may be deemed to have or share such investment and/or voting power due to the trustee's status as his spouse. Dr. Zabrowski disclaims beneficial ownership of such shares other than to the extent he may have a pecuniary interest therein.

(8) Includes 114,781 shares of common stock underlying options that are or will be exercisable within 60 days and 32,811 shares of restricted common stock that will be vested within 60 days.

DESCRIPTION OF CAPITAL STOCK

General

The following description summarizes some of the terms of our amended and restated certificate of incorporation and our amended and restated bylaws, which will become effective immediately prior to the completion of this offering, the amended and restated investors' rights agreement to which we and certain of our stockholders are parties and of the Delaware General Corporation Law. Because it is only a summary, it does not contain all the information that may be important to you. For a complete description, you should refer to our amended and restated certificate of incorporation, amended and restated bylaws and amended and restated investors' rights agreement, copies of which have been filed as exhibits to the registration statement of which this prospectus is part.

Upon the closing of this offering and the filing of our amended and restated certificate of incorporation, our authorized capital stock will consist of 200,000,000 shares of common stock, par value of $0.000001 per share, and 10,000,000 shares of preferred stock, par value $0.000001 per share.

Common Stock

Outstanding Shares

As of March 31, 2024, there were shares of our common stock outstanding, including shares subject to forfeiture, held of record by stockholders, assuming the conversion of all of our outstanding shares of redeemable convertible preferred stock into shares of common stock immediately prior to the completion of this offering. The number of shares of common stock outstanding does not include the shares issuable under our warrants, options, equity awards and plans, and other contractual rights to acquire common stock, as described below.

Voting Rights

Holders of our common stock are entitled to one vote for each share held on all matters submitted to a vote of stockholders, including the election of directors, and do not have cumulative voting rights. Accordingly, the holders of a majority of the outstanding shares of common stock entitled to vote in any election of directors can elect all of the directors standing for election, if they so choose, other than any directors that holders of any preferred stock we may issue may be entitled to elect. Subject to the supermajority votes for some matters, other matters shall be decided by the affirmative vote of our stockholders having a majority in voting power of the votes cast by the stockholders present or represented and voting on such matter. Our amended and restated certificate of incorporation also provides that our directors may be removed only for cause and only by the affirmative vote of the holders of at least two-thirds in voting power of the outstanding shares of capital stock entitled to vote thereon. In addition, the affirmative vote of the holders of at least two-thirds in voting power of the outstanding shares of capital stock entitled to vote thereon is required to amend or repeal, or to adopt any provision inconsistent with, several of the provisions of our amended and restated certificate of incorporation. See the subsection titled "— Anti-Takeover Effects of Delaware Law and Our Certificate of Incorporation and Bylaws-Amendment of Charter Provisions" below.

Dividends

Subject to preferences that may apply to any outstanding preferred stock, the holders of our common stock are entitled to receive dividends, if and when declared by our board of directors out of funds legally available therefor.

Liquidation

In the event of a liquidation, dissolution or winding up, our stockholders will be entitled to share ratably in all assets remaining available for distribution to them after payment of liabilities and after provision is made for each class of stock, if any, having preference over the common stock.

Rights, Preferences and Privileges

Holders of our common stock have no conversion, preemptive or other subscription rights, and there are no sinking fund or redemption provisions applicable to our common stock. The rights, preferences and privileges of the holders of our common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of our preferred stock that we may designate and issue in the future.

Fully Paid and Nonassessable

All of our outstanding shares of common stock are fully paid and nonassessable.

Preferred Stock

Upon the completion of this offering, all of our currently outstanding shares of redeemable convertible preferred stock will convert into common stock and we will not have any shares of preferred stock outstanding. Immediately prior to the completion of this offering, our amended and restated certificate of incorporation will be amended and restated to delete all references to such shares of preferred stock. Our amended and restated certificate grants our board of directors the authority, without further stockholder authorization, to issue from time to time up to 10,000,000 shares of preferred stock in one or more series and to fix the terms, limitations, voting rights, relative rights and preferences and variations of each series. Although we have no present plans to issue any shares of preferred stock, the issuance of shares of preferred stock, or the issuance of rights to purchase such shares, could decrease the amount of earnings and assets available for distribution to the holders of our common stock, could adversely affect the rights and powers, including voting rights, of the common stock and could have the effect of delaying, deterring or preventing a change of control of our company or an unsolicited acquisition proposal.

Warrants

Series B-1 Preferred Stock Warrants or Common Stock Warrants

As of March 31, 2024, there were outstanding warrants to purchase an aggregate of 274,930 shares of our Series B-1 redeemable convertible preferred stock, consisting of warrants to purchase 137,465 shares of our Series B-1 redeemable convertible preferred stock at an exercise price of $2.93 per share and warrants to purchase 137,465 shares of our Series B-1 redeemable convertible preferred stock at an exercise price of $ per share, in each case subject to adjustment as set forth in the warrants (collectively, the Series B Warrants). The Series B Warrants provide that to the extent such warrant is not previously exercised, it will be deemed to have been automatically converted pursuant to the net exercise provision of the Series B Warrants as of immediately before its expiration, involuntary termination or cancellation if the then-fair market value of a share issuable under the warrant exceeds the exercise price, as adjusted. The Series B Warrants also include a cashless exercise feature allowing the holder to receive shares underlying the applicable Series B Warrant in an amount reduced by the aggregate of the exercise price that would have been payable upon exercise of the applicable Series B Warrant for such shares. In the event the Series B Warrants are not exercised prior to the closing of this offering, and provided that such Series B Warrants' exercise price per share is less than the initial public offering price per share of common stock in this offering, such warrants will be automatically exercised for and converted into shares of our Series B-1 redeemable convertible preferred stock, and such shares of Series B-1 redeemable convertible preferred stock shall subsequently be converted into shares of our common stock upon the closing of this offering, based on the assumed initial public offering price of $ per share of common stock, which is the midpoint of the price range set forth on the cover page of this prospectus. In the event the Series B Warrants are not exercised prior to the closing of this offering and such Series B Warrants' exercise price per share exceeds the initial public offering price per share of common stock, such Series B Warrants will become exercisable for shares of common stock for a period of two years after the closing of this offering. Upon exercise or conversion, the shares underlying the Series B Warrants will be entitled to the registration rights set forth in our amended and restated investors' rights agreement. See "— Registration Rights" for additional information.

Series C Preferred Stock Warrants

As of March 31, 2024, there were outstanding warrants to purchase an aggregate of 32,796 shares of our Series C redeemable convertible preferred stock at an exercise price of $5.23 per share, subject to adjustment as set forth in the warrants (the Series C Warrants). The Series C Warrants provide that to the extent such warrant is not previously exercised, it will be deemed to have been automatically converted pursuant to the net exercise provision of the Series C Warrants as of immediately before its expiration, involuntary termination or cancellation if the then-fair market value of a share issuable under the warrant exceeds the exercise price, as adjusted. The Series C Warrants also include a cashless exercise feature allowing the holder to receive shares underlying the applicable Series C Warrant in an amount reduced by the aggregate of the exercise price that would have been payable upon exercise of the applicable Series C Warrant for such shares. In the event the Series C Warrants are not exercised prior to the closing of this offering, and provided that the Series C Warrants' exercise price per share is less than the initial public offering price per share of common stock in this offering, such warrants will be automatically exercise for and converted into shares of our Series C redeemable convertible preferred stock, and such shares of Series C redeemable convertible preferred stock shall subsequently be converted into shares of our common stock upon the closing of this offering, based on the assumed initial public offering price of $ per share of common stock, which is the midpoint of the price range set forth on the cover page of this prospectus. In the event the Series C Warrants are not exercised prior to the closing of this offering and such Series C Warrants' exercise price per share exceeds the initial public offering price per share of common stock, such Series C Warrants will become exercisable for shares of common stock for a period of two years after the closing of this offering. Upon exercise or conversion, the shares underlying the Series C Warrants will be entitled to the registration rights set forth in our amended and restated investors' rights agreement. See "— Registration Rights" for additional information.

Equity Awards

As of March 31, 2024, under our 2015 Plan, we have outstanding stock options to purchase approximately shares of common stock, which have an average remaining life of approximately years and a weighted average exercise price of approximately $ per share and, since March 31, 2024, we have issued stock options that remain outstanding to purchase approximately shares of common stock, which have an average remaining life of approximately years and a weighted average exercise price of approximately $ per share. As of the closing, the 2024 Plan will replace the 2015 Plan and provide for shares to be initially available for grants under such plan after the closing, plus any remaining shares available under the 2015 Plan as of such date and any shares under awards under the 2015 that are subsequently cancelled, forfeited or expire will become available for grant under the 2024 Plan.

Registration Rights

Upon the completion of this offering and subject to the lock-up agreements entered into in connection with this offering and federal securities laws, certain holders of shares of our common stock, including those shares of our common stock that will be issued upon the conversion of our redeemable convertible preferred stock and the exercise of our outstanding preferred stock warrants in connection with this offering, will initially be entitled to certain rights with respect to registration of such shares under the Securities Act. These shares are referred to as registrable securities. The holders of these registrable securities possess registration rights pursuant to the terms of our investors' rights agreement and are described in additional detail below. The registration of shares of our common stock pursuant to the exercise of the registration rights described below would enable the holders to trade these shares without restriction under the Securities Act when the applicable registration statement is declared effective. We will pay the registration expenses, other than underwriting discounts, selling commissions and stock transfer taxes, of the shares registered pursuant to the demand, piggyback and Form S-3 registrations described below.

Generally, in an underwritten offering, the managing underwriter, if any, has the right, subject to specified conditions and limitations, to limit the number of shares the holders may include. The demand, piggyback and Form S-3 registration rights described below will terminate upon the earliest of (i) with respect to each stockholder, such date, on or after the closing of this offering, on which all registrable shares held by such stockholder may immediately be sold during any 90-day period pursuant to Rule 144 of the Securities

Act, or Rule 144 and (ii) the occurrence of a deemed liquidation event, as defined in our amended and restated certificate of incorporation, as currently in effect.

Demand Registration Rights

Upon the completion of this offering, holders of approximately shares of our common stock issuable upon conversion of outstanding redeemable convertible preferred stock and the exercise and subsequent conversion of outstanding warrants to purchase our redeemable convertible preferred stock will be entitled to certain demand registration rights. Beginning 180 days following the effectiveness of the registration statement of which this prospectus is a part, certain investors holding, collectively, holding at least 50% of registrable securities may, on not more than two occasions, request that we register all or a portion of their shares, subject to certain specified exceptions. If any of these holders exercises its demand registration rights, then holders of approximately shares of our common stock issuable upon conversion of the shares of our redeemable convertible preferred stock and the exercise and subsequent conversion of outstanding warrants to purchase redeemable convertible preferred stock in connection with this offering will be entitled to register their shares, subject to specified conditions and limitations in the corresponding offering. Such request for registration must cover shares with an anticipated offering price of at least $18.40 per share and an anticipated aggregate offering price of at least $60.0 million, net of selling expenses.

Piggyback Registration Rights

In connection with this offering, holders of approximately shares of our common stock issuable upon conversion of outstanding redeemable convertible preferred stock and the exercise and subsequent conversion of outstanding warrants to purchase redeemable convertible preferred stock are entitled to their rights to notice of this offering and to include their shares of registrable securities in this offering. The requisite percentage of these stockholders are expected to waive all such stockholders' rights to notice of this offering and to include their shares of registrable securities in this offering. In the event that we propose to register any of our securities under the Securities Act in another offering, either for our own account or for the account of other security holders, the holders of registrable securities will be entitled to certain "piggyback" registration rights allowing them to include their shares in such registration, subject to specified conditions and limitations.

S-3 Registration Rights

Upon the closing of this offering, the holders of approximately registrable securities will initially be entitled to certain Form S-3 registration rights. The holders of at least 25% of the shares entitled to certain Form S-3 registration rights may, on not more than two registrations on Form S-3 within any 12-month period, request that we register all or a portion of their shares on Form S-3 if we are qualified to file a registration statement on Form S-3, subject to specified exceptions. Such request for registration on Form S-3 must cover securities with an aggregate offering price which equals at least $1.0 million, net of selling expenses. The right to have such shares registered on Form S-3 is further subject to other specified conditions and limitations.

Indemnification

Our investors' rights agreement contains customary cross indemnification provisions, under which we are obligated to indemnify holders of registrable securities in the event of material misstatements or omissions in a registration statement attributable to us, and they are obligated to indemnify us for material misstatements or omissions attributable to them.

Certain Anti-Takeover Provisions of Delaware Law

Some provisions of Delaware law, our amended and restated certificate of incorporation and our amended and restated bylaws contain provisions that could make the following transactions more difficult: an acquisition of us by means of a tender offer; an acquisition of us by means of a proxy contest or otherwise; or the removal of our incumbent officers and directors. It is possible that these provisions could make it

more difficult to accomplish or could deter transactions that stockholders may otherwise consider to be in their best interest or in our best interests, including transactions that provide for payment of a premium over the market price for our shares.

These provisions, summarized below, are intended to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of us to first negotiate with our board of directors. We believe that the benefits of the increased protection of our potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure us outweigh the disadvantages of discouraging these proposals because negotiation of these proposals could result in an improvement of their terms.

Undesignated Preferred Stock

The ability of our board of directors, without action by the stockholders, to issue up to shares of undesignated preferred stock with voting or other rights or preferences as designated by our board of directors could impede the success of any attempt to change control of us. These and other provisions may have the effect of deferring hostile takeovers or delaying changes in control or management of our company.

Stockholder Meetings

Our amended and restated certificate of incorporation and our amended and restated bylaws provide that a special meeting of stockholders may be called only by our board of directors, chairman of the board of directors, chief executive officer or president, or by a resolution adopted by a majority of our board of directors.

Requirements for Advance Notification of Stockholder Nominations and Proposals

Our amended and restated bylaws establish advance notice procedures with respect to stockholder proposals to be brought before a stockholder meeting and the nomination of candidates for election as directors, other than nominations made by or at the direction of the board of directors or a committee of the board of directors.

Elimination of Stockholder Action by Written Consent

Our amended and restated certificate of incorporation eliminates the right of stockholders to act by written consent without a meeting.

Staggered Board of Directors

Our amended and restated certificate of incorporation provide that our board of directors will be divided into three classes. The directors in each class will serve for a three-year term, with one class being elected each year by our stockholders. For more information on the classified board of directors, see the section titled “Management — Classified Board of Directors.” This system of electing directors may tend to discourage a third party from attempting to obtain control of us, because it generally makes it more difficult for stockholders to replace a majority of the directors.

Removal of Directors

Our amended and restated certificate of incorporation provides that no member of our board of directors may be removed from office except for cause and, in addition to any other vote required by law, upon the approval of not less than two thirds of the total voting power of all of our outstanding voting stock then entitled to vote in the election of directors.

Stockholders Not Entitled to Cumulative Voting

Our amended and restated certificate of incorporation does not permit stockholders to cumulate their votes in the election of directors. Accordingly, the holders of a majority of the outstanding shares of our

common stock entitled to vote in any election of directors can elect all of the directors standing for election, if they choose, other than any directors that holders of our preferred stock may be entitled to elect.

Delaware Anti-Takeover Statute

We are subject to Section 203 of the Delaware General Corporation Law, which prohibits persons deemed to be "interested stockholders" from engaging in a "business combination" with a publicly held Delaware corporation for three years following the date these persons become interested stockholders unless the business combination is, or the transaction in which the person became an interested stockholder was, approved in a prescribed manner or another prescribed exception applies. Generally, an "interested stockholder" is a person who, together with affiliates and associates, owns, or within three years prior to the determination of interested stockholder status did own, 15% or more of a corporation's voting stock. Generally, a "business combination" includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. The existence of this provision may have an anti-takeover effect with respect to transactions not approved in advance by the board of directors.

Choice of Forum

Our amended and restated certificate of incorporation provides that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware (the Court of Chancery) (or, in the event the Court of Chancery does not have jurisdiction, the federal district court for the District of Delaware or other state courts of the State of Delaware) will be the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory or common law: (i) any derivative action or proceeding brought on our behalf; (ii) any action asserting a claim of breach of a fiduciary duty by any of our directors, officers or stockholders to us or our stockholders; (iii) any action asserting a claim against us arising pursuant to any provision of the Delaware General Corporation Law or our amended and restated certificate of incorporation or amended and restated bylaws; or (iv) any action asserting a claim governed by the internal affairs doctrine, in all cases to the fullest extent permitted by law. The provision would not apply to suits brought to enforce a duty or liability created by the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction. Furthermore, our amended and restated certificate of incorporation will also provide that unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act, including all causes of action asserted against any defendant to such complaint. For the avoidance of doubt, this provision is intended to benefit and may be enforced by us, our officers and directors, the underwriters to any offering giving rise to such complaint, and any other professional entity whose profession gives authority to a statement made by that person or entity and who has prepared or certified any part of the documents underlying the offering. In any case, stockholders will not be deemed to have waived our compliance with the federal securities laws and the rules and regulations thereunder. The enforceability of similar choice of forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that a court could find these types of provisions to be inapplicable or unenforceable. Our amended and restated certificate of incorporation also provides that any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock will be deemed to have notice of and to have consented to this choice of forum provision.

Amendment of Charter Provisions

The amendment of any of the above provisions, except for the provision making it possible for our board of directors to issue preferred stock, would require approval by holders of at least two thirds of the total voting power of all of our outstanding voting stock.

The provisions of Delaware law, our amended and restated certificate of incorporation and our amended and restated bylaws could have the effect of discouraging others from attempting hostile takeovers and, as a consequence, they may also inhibit temporary fluctuations in the market price of our common stock that often result from actual or rumored hostile takeover attempts. These provisions may also have the effect of preventing changes in the composition of our board of directors and management. It is possible

that these provisions could make it more difficult to accomplish transactions that stockholders may otherwise deem to be in their best interests.

Limitation on Liability and Indemnification of Directors and Officers

See "Management — Limitation on Liability and Indemnification of Directors and Officers."

Transfer Agent

Upon the closing of this offering, the transfer agent and registrar for our common stock will be . The transfer agent's address is .

Listing

We have applied to list our common stock on the Nasdaq Capital Market under the trading symbol "ACTU".

SHARES ELIGIBLE FOR FUTURE SALE

Prior to this offering, there has been no public market for our common stock, and a liquid trading market for our common stock may not develop or be sustained after this offering. Future sales of our common stock, including shares issued upon the exercise of outstanding options, in the public market after the completion of this offering, or the perception that those sales may occur, could adversely affect the prevailing market price for our common stock from time to time or impair our ability to raise equity capital in the future. As described below, only a limited number of shares of our common stock will be available for sale in the public market for a period of several months after the completion of this offering due to contractual and legal restrictions on resale described below. Future sales of our common stock in the public market either before or after restrictions lapse, or the perception that those sales may occur, could adversely affect the prevailing market price of our common stock at such time and our ability to raise equity capital at a time and price we deem appropriate.

Sale of Restricted Shares

Based on the number of shares of our common stock outstanding as of March 31, 2024, upon the closing of this offering and assuming (i) the conversion of all outstanding shares of our redeemable convertible preferred stock into an aggregate of shares of our common stock in connection with the closing of this offering; (ii) the conversion of our redeemable preferred stock into an aggregate of shares of our common stock upon the net exercise of outstanding Series B Warrants and Series C Warrants, assuming an initial offering price of $ per share, and the termination of such warrants containing an exercise price greater than the initial offering price per share of common stock, immediately prior to the closing of this offering, (iii) the conversion of the Bridge Notes into an aggregate of shares of our common stock upon the closing of this offering, (iv) no exercise of the underwriters' over-allotment option to purchase additional shares of common stock; and (v) no exercise of outstanding options or restricted stock units, we will have outstanding an aggregate of approximately shares of common stock.

Of these shares, all shares of common stock to be sold in this offering will be freely tradable in the public market without restriction or further registration under the Securities Act, unless the shares are held by any of our "affiliates" as such term is defined in Rule 144 or subject to lock-up agreements.

All remaining shares of common stock held by existing stockholders immediately prior to the consummation of this offering will be "restricted securities," as such term is defined in Rule 144. These restricted securities were issued and sold by us in private transactions and are eligible for public sale only if registered under the Securities Act or if they qualify for an exemption from registration under the Securities Act, including the exemptions provided by Rule 144 or Rule 701, which rules are summarized below.

As a result of the lock-up agreements referred to below and the provisions of Rule 144 and Rule 701 under the Securities Act, based on the number of shares of our common stock outstanding (calculated as of March 31, 2024 on the basis of the assumptions described above and assuming no exercise of the underwriters' option to purchase additional shares, if any, and no exercise of outstanding options), the shares of our common stock (excluding the shares sold in this offering) that will be available for sale in the public market are as follows:

Approximate Number of Shares	First Date Available For Sale Into Public Market
shares	181 days after the date of this prospectus, upon expiration of the lock-up agreements referred to below, subject in some cases to applicable volume, manner of sale and other limitations under Rule 144 and Rule 701.

We may issue shares of common stock from time to time as consideration for future acquisitions, investments or other corporate purposes. In the event that any such acquisition, investment or other transaction is significant, the number of shares of common stock that we may issue may in turn be significant. We may also grant registration rights covering those shares of common stock issued in connection with any such acquisition and investment.

In addition, the shares of common stock reserved for future issuance under our 2024 Plan will become eligible for sale in the public market to the extent permitted by the provisions of various vesting schedules,

the lock-up agreements, a registration statement under the Securities Act or an exemption from registration, including Rule 144 and Rule 701.

Rule 144

In general, persons who have beneficially owned restricted shares of our common stock for at least six months, and any affiliate of the company who owns shares of our common stock, are entitled to sell their securities without registration with the SEC under an exemption from registration provided by Rule 144.

Under Rule 144, as currently in effect, once we have been subject to the public company reporting requirements of the Exchange Act for at least 90 days, and we are current in our Exchange Act reporting at the time of sale, a person (or persons whose shares are required to be aggregated) who is not deemed to have been one of our "affiliates" for purposes of Rule 144 at any time during the 90 days preceding a sale and who has beneficially owned restricted securities within the meaning of Rule 144 for at least six months, including the holding period of any prior owner other than one of our "affiliates," is entitled to sell those shares in the public market (subject to the lock-up agreement referred to below, if applicable) without complying with the manner of sale, volume limitations or notice provisions of Rule 144, but subject to compliance with the public information requirements of Rule 144. If such a person has beneficially owned the shares proposed to be sold for at least 12 months, including the holding period of any prior owner other than "affiliates," then such person is entitled to sell such shares in the public market without complying with any of the requirements of Rule 144 (subject to the lock-up agreement referred to above, if applicable).

In general, under Rule 144, as currently in effect, once we have been subject to the public company reporting requirements of the Exchange Act for at least 90 days, our "affiliates," as defined in Rule 144, who have beneficially owned the shares proposed to be sold for at least six months, are entitled to sell in the public market, upon expiration of any applicable lock-up agreements and within any three-month period, a number of those shares of our common stock that does not exceed the greater of:

- 1% of the number of shares of common stock then outstanding, which will equal approximately shares of common stock immediately upon the closing of this offering (calculated as of March 31, 2024 on the basis of the assumptions described above and assuming no exercise of the underwriters' over-allotment option, if any, and no exercise of outstanding options); or
- the average weekly trading volume of our common stock on the Nasdaq Capital Market during the four calendar weeks preceding the filing of a notice on Form 144 with respect to such sale

Such sales under Rule 144 by our "affiliates" or persons selling shares on behalf of our "affiliates" are also subject to certain manner of sale provisions, notice requirements and to the availability of current public information about us. Notwithstanding the availability of Rule 144, the holders of substantially all of our restricted securities have entered into lock-up agreements as referenced above and their restricted securities will become eligible for sale (subject to the above limitations under Rule 144) upon the expiration of the restrictions set forth in those agreements.

Rule 701

In general, under Rule 701 as currently in effect, any of our employees, directors, officers, consultants or advisors who acquired common stock from us in connection with a written compensatory stock or option plan or other written agreement in compliance with Rule 701 before the effective date of the registration statement of which this prospectus is a part (to the extent such common stock is not subject to a lock-up agreement) and who are not our "affiliates" as defined in Rule 144 during the immediately preceding 90 days, is entitled to rely on Rule 701 to resell such shares beginning 90 days after the date of this prospectus in reliance on Rule 144, but without complying with the notice, manner of sale, public information requirements or volume limitation provisions of Rule 144. Persons who are our "affiliates" may resell those shares beginning 90 days after the date of this prospectus without compliance with minimum holding period requirements under Rule 144 (subject to the terms of the lock-up agreement referred to below, if applicable).

Lock-Up Agreements

In connection with this offering, we, our directors, our executive officers and holders of more than 1.0% of our of our other outstanding shares of common stock or securities convertible into or exchangeable

for shares of our common stock outstanding upon the closing of this offering, have agreed, subject to certain limited exceptions, with the underwriters not to directly or indirectly offer, sell, contract to sell, pledge, grant any option to purchase, make any short sale or otherwise dispose of or hedge any shares of our common stock or any options to purchase shares of our common stock, or any securities convertible into or exchangeable for shares of common stock during the period from the date of the lock-up agreement continuing through and including the date 180 days after the date of this prospectus, except with the prior written consent of the representatives of the underwriters, and certain other limited exceptions. These agreements are described in the section of this prospectus titled "Underwriting."

In addition to the restrictions contained in the lock-up agreements described above, we have entered into agreements with certain security holders, including the amended and restated investors' rights agreement and stock restriction agreements, that contain market stand-off provisions imposing restrictions on the ability of such security holders to offer, sell or transfer our equity securities for a period of 180 days following the date of this prospectus.

Registration Rights

Upon the closing of this offering, the holders of an aggregate of shares of our common stock will have rights, subject to certain conditions, to require us to file registration statements covering their shares or to include their shares in registration statements that we may file for ourselves or other stockholders. After registration pursuant to these rights, these shares will become freely tradable without restriction under the Securities Act. See the section of this prospectus titled "Description of Capital Stock — Registration Rights" for additional information regarding these registration rights.

Equity Incentive Plans

We intend to file with the SEC a registration statement on Form S-8 under the Securities Act covering the shares of common stock reserved for issuance under outstanding options under the 2015 Plan and reserved for issuance under the 2024 Plan. The registration statement is expected to be filed and become effective as soon as practicable after the completion of this offering. Accordingly, shares registered under the registration statement will be available for sale in the open market following its effective date, subject to Rule 144 volume limitations and the lock-up agreements described above, if applicable.

MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES TO NON-U.S. HOLDERS

The following is a summary of the material U.S. federal income tax consequences to non-U.S. holders (as defined below) of the acquisition, ownership and disposition of our common stock issued pursuant to this offering. This discussion is not a complete analysis of all potential U.S. federal income tax consequences relating thereto, does not address the potential application of the Medicare contribution tax on net investment income, and does not address any estate or gift tax consequences or any tax consequences arising under any state, local or foreign tax laws, or any other U.S. federal tax laws. This discussion is based on the Internal Revenue Code of 1986, as amended (the Code), and applicable Treasury Regulations promulgated thereunder, judicial decisions and published rulings and administrative pronouncements of the Internal Revenue Service (IRS), all as in effect as of the date hereof. These authorities are subject to differing interpretations and may change, possibly retroactively, resulting in U.S. federal income tax consequences different from those discussed below. We have not requested a ruling from the IRS with respect to the statements made and the conclusions reached in the following summary, and there can be no assurance that the IRS or a court will agree with such statements and conclusions.

This discussion is limited to non-U.S. holders who purchase our common stock pursuant to this offering and who hold our common stock as a "capital asset" within the meaning of Section 1221 of the Code (generally, property held for investment). This discussion does not address all of the U.S. federal income tax consequences that may be relevant to a particular holder in light of such holder's circumstances. This discussion also does not consider any specific facts or circumstances that may be relevant to holders subject to special rules under the U.S. federal income tax laws, including:

- certain former citizens or long-term residents of the United States;
- partnerships or other pass-through entities (and investors therein);
- "controlled foreign corporations;"
- "passive foreign investment companies;"
- corporations that accumulate earnings to avoid U.S. federal income tax;
- banks, financial institutions, investment funds, insurance companies, brokers, dealers or traders in securities;
- tax-exempt organizations and governmental organizations;
- tax-qualified retirement plans;
- "qualified foreign pension funds" as defined in Section 897(l)(2) of the Code and entities all of the interests of which are held by qualified foreign pension funds
- persons subject to the alternative minimum tax;
- persons that own, or have owned, actually or constructively, more than 5% of our common stock at any time;
- accrual-method taxpayers subject to special tax accounting rules under Section 451(b) of the Code; and
- persons holding our common stock as part of a hedging or conversion transaction, straddle, synthetic security, constructive sale, or other risk reduction strategy or integrated investment.

If an entity or arrangement that is classified as a partnership for U.S. federal income tax purposes holds our common stock, the U.S. federal income tax treatment of a partner in the partnership will generally depend on the status of the partner, the activities of the partnership and certain determinations made at the partner level. Partnerships holding our common stock and the partners in such partnerships are urged to consult their tax advisors about the particular U.S. federal income tax consequences to them of holding and disposing of our common stock.

THIS DISCUSSION IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT TAX ADVICE. PROSPECTIVE INVESTORS SHOULD CONSULT THEIR TAX ADVISORS REGARDING THE PARTICULAR U.S. FEDERAL INCOME TAX CONSEQUENCES TO THEM OF ACQUIRING,

OWNING AND DISPOSING OF OUR COMMON STOCK, AS WELL AS ANY TAX CONSEQUENCES ARISING UNDER ANY STATE, LOCAL OR FOREIGN TAX LAWS AND ANY OTHER U.S. FEDERAL TAX LAWS.

Definition of Non-U.S. Holder

For purposes of this discussion, a non-U.S. holder is any beneficial owner of our common stock that is not a "U.S. person" or a partnership (including any entity or arrangement treated as a partnership) for U.S. federal income tax purposes. A U.S. person is any person that, for U.S. federal income tax purposes, is or is treated as any of the following:

- an individual who is a citizen or resident of the United States;
- a corporation (or entity treated as a corporation for U.S. federal income tax purposes) created or organized in or under the laws of the United States, any state thereof or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income tax regardless of its source; or
- a trust (i) whose administration is subject to the primary supervision of a U.S. court and which has one or more U.S. persons who have the authority to control all substantial decisions of the trust or (ii) that has a valid election in effect under applicable Treasury Regulations to be treated as a U.S. person.

Distributions on Common Stock

We have never declared or paid any cash dividends on our capital stock and we do not currently intend to pay any cash dividends on our capital stock in the foreseeable future. However, if we do make cash or other property distributions on our common stock, such distributions will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. Amounts not treated as dividends for U.S. federal income tax purposes will constitute a return of capital and will first be applied against and reduce a holder's tax basis in our common stock, but not below zero. Any excess will be treated as gain realized on the sale or other disposition of our common stock and will be treated as described under the section titled "Gain on Disposition of Our Common Stock" below.

Subject to the discussions below regarding effectively connected income, backup withholding and Sections 1471 through 1474 of the Code (commonly referred to as FATCA), dividends paid to a non-U.S. holder of our common stock generally will be subject to U.S. federal withholding tax at a rate of 30% of the gross amount of the dividends or such lower rate specified by an applicable income tax treaty. To receive the benefit of a reduced treaty rate, a non-U.S. holder must furnish us or our paying agent with a valid IRS Form W-8BEN or IRS Form W-8BEN-E (or applicable successor form) and satisfy applicable certification and other requirements. This certification must be provided to us or our paying agent before the payment of dividends and must be updated periodically. If the non-U.S. holder holds the stock through a financial institution or other agent acting on the non-U.S. holder's behalf, the non-U.S. holder will be required to provide appropriate documentation to the agent, which then will be required to provide certification to us or our paying agent, either directly or through other intermediaries. Prospective investors should consult their tax advisors concerning whether they may benefit from an applicable income tax treaty.

Non-U.S. holders that do not provide the required certification on a timely basis, but that qualify for a reduced treaty rate, may obtain a refund of any excess amounts withheld by timely filing an appropriate claim for refund with the IRS.

If a non-U.S. holder holds our common stock in connection with the conduct of a trade or business in the United States, and dividends paid on our common stock are effectively connected with such holder's U.S. trade or business (and are attributable to such holder's permanent establishment in the United States if required by an applicable tax treaty), the non-U.S. holder will be exempt from U.S. federal withholding tax. To claim the exemption, the non-U.S. holder must generally furnish a valid IRS Form W-8ECI (or applicable successor form) to the applicable withholding agent.

However, any such effectively connected dividends paid on our common stock generally will be subject to U.S. federal income tax on a net income basis at the regular U.S. federal income tax rates in the same manner as if such holder were a resident of the United States. A non-U.S. holder that is a foreign corporation also may be subject to an additional branch profits tax equal to 30% (or such lower rate specified by an applicable income tax treaty) of its effectively connected earnings and profits for the taxable year, as adjusted for certain items. Non-U.S. holders should consult their tax advisors regarding any applicable income tax treaties that may provide for different rules.

Gain on Disposition of Our Common Stock

Subject to the discussions below regarding backup withholding and FATCA, a non-U.S. holder generally will not be subject to U.S. federal income tax on any gain realized on the sale or other disposition of our common stock, unless:

- the gain is effectively connected with the non-U.S. holder's conduct of a trade or business in the United States, and if required by an applicable income tax treaty, is attributable to a permanent establishment maintained by the non-U.S. holder in the United States;
- the non-U.S. holder is a nonresident alien individual present in the United States for 183 days or more during the taxable year of the disposition, and certain other requirements are met; or
- our common stock constitutes a "United States real property interest" by reason of our status as a United States real property holding corporation (USRPHC) for U.S. federal income tax purposes at any time within the shorter of the five-year period preceding the disposition or the non-U.S. holder's holding period for our common stock, and our common stock is not "regularly traded" on an established securities market (as defined by applicable Treasury Regulations).

Determining whether we are a USRPHC depends on the fair market value of our U.S. real property interests relative to the fair market value of our other trade or business assets and our foreign real property interests. We believe that we are not currently and do not anticipate becoming a USRPHC for U.S. federal income tax purposes, although there can be no assurance we will not in the future become a USRPHC. If we are or become a USRPHC and the "regularly traded" exception noted above does not apply to the disposition, a non-U.S. holder will generally be taxed on any gain in the same manner as gain that is effectively connected with the conduct of a U.S. trade or business, except that the branch profits tax generally will not apply. Prospective investors are encouraged to consult their own tax advisors regarding the possible consequences to them if we are, or were to become, a USRPHC.

Gain described in the first bullet point above generally will be subject to U.S. federal income tax on a net income basis at the regular U.S. federal income tax rates in the same manner as if such holder were a resident of the United States. A non-U.S. holder that is a foreign corporation also may be subject to an additional branch profits tax equal to 30% (or such lower rate specified by an applicable income tax treaty) of its effectively connected earnings and profits for the taxable year, as adjusted for certain items. A non-U.S. holder described in the second bullet point above will be subject to U.S. federal income tax at a flat 30% rate (or such lower rate specified by an applicable income tax treaty) on gain realized upon the sale or other taxable disposition of our common stock, but may be offset by certain U.S.-source capital losses (even though the individual is not considered a resident of the United States), provided that the non-U.S. holder has timely filed U.S. federal income tax returns with respect to such losses. Non-U.S. holders should consult their tax advisors regarding any applicable income tax treaties that may provide for different rules.

Information Reporting and Backup Withholding

Annual reports are required to be filed with the IRS and provided to each non-U.S. holder indicating the amount of distributions on our common stock paid to such holder and the amount of any tax withheld with respect to those distributions. These information reporting requirements apply even if no withholding was required because the distributions were effectively connected with the holder's conduct of a U.S. trade or business, or withholding was reduced or eliminated by an applicable income tax treaty. This information also may be made available under a specific treaty or agreement with the tax authorities in the country in which the non-U.S. holder resides or is established. Backup withholding, currently at a 24% rate, generally will not apply to payments to a non-U.S. holder of dividends on or the gross proceeds of a disposition of our

common stock provided the non-U.S. holder furnishes the required certification for its non-U.S. status, such as by providing a valid IRS Form W-8BEN, W-8BEN-E or W-8ECI, or certain other requirements are met. Backup withholding may apply if the payor has actual knowledge, or reason to know, that the holder is a U.S. person.

Backup withholding is not an additional tax. If any amount is withheld under the backup withholding rules, the non-U.S. holder should consult with a U.S. tax advisor regarding the possibility of and procedure for obtaining a refund or a credit against the non-U.S. holder's U.S. federal income tax liability, if any.

Withholding on Foreign Entities

FATCA imposes a U.S. federal withholding tax of 30% on certain payments made to a "foreign financial institution" (as specially defined under these rules) unless such institution enters into an agreement with the U.S. government to withhold on certain payments and to collect and provide to the U.S. tax authorities certain information regarding certain U.S. account holders of such institution (which includes certain equity and debt holders of such institution, as well as certain account holders that are foreign entities with U.S. owners) or an exemption applies. FATCA also generally imposes a U.S. federal withholding tax of 30% on certain payments made to a non-financial foreign entity unless such entity provides the withholding agent a certification identifying certain direct and indirect U.S. owners of the entity or an exemption applies. An intergovernmental agreement between the United States and an applicable foreign country may modify these requirements. FATCA currently applies to dividends paid on our common stock. Under certain circumstances, a non-U.S. holder might be eligible for refunds or credits of such taxes.

Prospective investors are encouraged to consult with their own tax advisors regarding the potential implications of FATCA on their investment in our common stock.

The preceding discussion of U.S. federal tax considerations is for general information only. It is not tax advice. Each prospective investor should consult its tax advisor regarding the particular U.S. federal, state and local and non-U.S. tax consequences of purchasing, holding and disposing of our common stock, including the consequences of any proposed change in applicable laws.

UNDERWRITING

Titan Partners Group LLC, a division of American Capital Partners, LLC, is acting as the representative of the underwriters of the offering (herein referred to as the "Representative"). We have entered into an underwriting agreement dated , 2024 with the Representative. Subject to the terms and conditions of the underwriting agreement, we have agreed to sell to each underwriter named below and each underwriter named below has severally and not jointly agreed to purchase from us, at the public offering price per share of common stock, less the underwriting discounts set forth on the cover page of this prospectus, the number of shares of common stock listed next to its name in the following table:

Underwriter	Number of Shares
Titan Partners Group LLC, a division of American Capital Partners, LLC	
Newbridge Securities Corporation	
Total	

The underwriters are committed to purchase all the shares of common stock offered by us other than those covered by the over-allotment option described below, if any, are purchased. The underwriting agreement also provides that if an underwriter defaults, the purchase commitments of non-defaulting underwriters may be increased, or the offering may be terminated. The underwriters are not obligated to purchase the securities covered by the underwriters' over-allotment option described below. The underwriters are offering the shares of common stock, subject to prior sale, when, as and if issued to and accepted by them, subject to approval of legal matters by their counsel, and other conditions contained in the underwriting agreement, such as the receipt by the underwriters of officer's certificates and legal opinions. The underwriters reserve the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

Over-Allotment Option

We have granted to the Representative an option, exercisable one or more times in whole or in part, not later than 30 days after the date of this prospectus, to purchase from us up to an additional shares of our common stock at the public a price of $ per share (which equals 15% of the shares of common stock initially sold in this offering, based on the midpoint of the price range set forth on the cover of this prospectus), less the underwriting discounts and commissions set forth on the cover of this prospectus to cover over-allotments, if any. To the extent that the Representative exercises this option, each of the underwriters will become obligated, subject to conditions, to purchase approximately the same percentage of these additional shares of common stock as the number of shares of common stock to be purchased by it in the above table bears to the total number of shares of common stock offered by this prospectus. We will be obligated, pursuant to the option, to sell these additional shares of common stock to the underwriters to the extent the option is exercised. If any additional shares of common stock are purchased, the underwriters will offer the additional shares of common stock on the same terms as those on which the other shares of common stock are being offered hereunder. If this option is exercised in full, the total offering price to the public will be $ and the total net proceeds, before expenses and after the credit to the underwriting commissions described below, to us will be $ (based on an assumed initial offering price of $ per share, which is the midpoint of the price range set forth on the cover of this prospectus).

Discounts and Commissions; Expenses

The following table shows the public offering price, underwriting discount and proceeds, before expenses, to us. The information assumes either no exercise or full exercise by the Representative of the over-allotment option.

	Per Share	Total Without Over-allotment Option	Total With Full Over-allotment Option
Public offering price	$	$	$
Underwriting discounts and commissions (7.0%)	$	$	$
Proceeds, before expenses, to us	$	$	$

We have also paid an advance of $50,000 to the Representative, which will be applied against the accountable expenses that will be paid by us to the Representative in connection with this offering, or the Advance. The Advance will be returned to us to the extent not actually incurred by the Representative in accordance with Financial Industry Regulation Authority ("FINRA") Rule 5110(g)(4)(A).

The underwriters propose to offer the shares of common stock offered by us to the public at the public offering price per share of common stock set forth on the cover of this prospectus. In addition, the underwriters may offer some of the shares of common stock to other securities dealers at such price less a concession of $ per share of common stock. After the initial public offering, the public offering price and concession to dealers may be changed.

We have also agreed to reimburse the Representative for reasonable and accountable out-of-pocket expenses not to exceed $200,000 in the aggregate (up to $150,000 for legal fees, costs and expenses and up to $50,000 of the underwriters' non-legal expenses). We estimate that total expenses payable by us in connection with this offering, other than the underwriting discount, will be approximately $.

Discretionary Accounts

The underwriters do not intend to confirm sales of the shares of common stock offered hereby to any accounts over which they have discretionary authority.

Indemnification

We have agreed to indemnify the underwriters against specified liabilities, including liabilities under the Securities Act, and to contribute to payments the underwriters may be required to make in respect thereof.

Lock-Up Agreements

We and our officers and directors, and the holders of 1.0% or more of the outstanding shares of our common stock as of the effective date of the registration statement of which this prospectus is a part, have agreed, subject to limited exceptions, for a period of one hundred eighty (180) days with respect to us, and for a period of one (1) year with respect to our officers, directors, and holders of 1.0% or more of the outstanding shares of our common stock, after the closing of this offering, not to offer, sell, contract to sell, pledge, grant any option to purchase, make any short sale or otherwise dispose of, directly or indirectly any shares of our common stock or any securities convertible into or exchangeable for our common stock either owned as of the date of the underwriting agreement or thereafter acquired without the prior written consent of the Representative. The Representative may, in its sole discretion and at any time or from time to time before the termination of the lock-up period, without notice, release all or any portion of the securities subject to lock-up agreements.

Pricing of this Offering; Market Information

Prior to this offering, there has been no public market for our common stock. The initial public offering price was determined through negotiations between us and the Representative. In addition to prevailing market conditions, the factors considered in determining the initial public offering price included the following:

- the information included in this prospectus and otherwise available to the Representative;
- the valuation multiples of publicly-traded companies that the Representative believes to be comparable to us;
- our financial information;
- our prospects and the history and the prospects of the industry in which we compete;
- an assessment of our management, its past and present operations, and the prospects for, and timing of, our future revenues;
- the present state of our development; and

- the above factors in relation to market values and various valuation measures of other companies engaged in activities similar to ours.

An active trading market for our common stock may not develop. It is also possible that after the offering our common stock will not trade in the public market at or above the public offering price.

Representative's Warrants

We have agreed to issue to the Representative (or its permitted designees) warrants to purchase up to a total of shares of common stock (5.0% of the shares of common stock issued in this offering, including the over-allotment, if any). The warrants are exercisable at a per share price equal to $ per share, or 125% of the initial public offering price per share of common stock issued in this offering (based on the assumed initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus), and become exercisable on a cashless basis after 15 months from issuance. The warrants have been deemed compensation by FINRA and are therefore subject to a 180-day lock-up pursuant to Rule 5110(e)(1)(A) of FINRA. The Representative (or permitted assignees under Rule 5110(e)(2)) will not sell, transfer, assign, pledge, or hypothecate these warrants or the securities underlying these warrants, nor will they engage in any hedging, short sale, derivative, put, or call transaction that would result in the effective economic disposition of the warrants or the underlying securities for a period commencing 180 days from the commencement of sales of the common stock in this offering. The warrants will expire three years from the commencement of sales of common stock in this offering. The exercise price and number of shares issuable upon exercise of the warrants may be adjusted in certain circumstances including in the event of a stock dividend, extraordinary cash dividend or our recapitalization, reorganization, merger, or consolidation.

Right of First Refusal

We have granted the Representative, subject to certain exceptions, for a period of 18 months after the closing of the offering, a right of first refusal to act as sole underwriter, sole book-runner and/or sole placement agent for any and all future public or private equity and debt (excluding commercial bank debt and other customary exceptions) offerings undertaken during such period by us, or any of our successors or subsidiaries.

Nasdaq Capital Market Listing

We have applied to have our common stock listed on the Nasdaq Capital Market under the symbol "ACTU". No assurance can be given that our listing application will be approved by the Nasdaq Capital Market.

Transfer Agent and Registrar

The transfer agent and registrar of our common stock is .

Price Stabilization, Short Positions and Penalty Bids

In connection with this offering the underwriters may engage in stabilizing transactions, over-allotment transactions, syndicate covering transactions and penalty bids in accordance with Regulation M under the Exchange Act:

- Stabilizing transactions permit bids to purchase securities so long as the stabilizing bids do not exceed a specified maximum.
- Over-allotment involves sales by the underwriters of securities in excess of the number of securities the underwriters are obligated to purchase, which creates a syndicate short position. The short position may be either a covered short position or a naked short position. In a covered short position, the number of securities over-allotted by the underwriters is not greater than the number of securities that they may purchase in the over-allotment option. In a naked short position, the number of securities involved is greater than the number of securities in the over-allotment option. The underwriters may

close out any covered short position by either exercising their over-allotment option and/or purchasing securities in the open market.

- Syndicate covering transactions involve purchases of the securities in the open market after the distribution has been completed in order to cover syndicate short positions. In determining the source of securities to close out the short position, the underwriters will consider, among other things, the price of securities available for purchase in the open market as compared to the price at which they may purchase securities through the over-allotment option. A naked short position occurs if the underwriters sell more securities than could be covered by the over-allotment option. This position can only be closed out by buying securities in the open market. A naked short position is more likely to be created if the underwriters are concerned that there could be downward pressure on the price of the securities in the open market after pricing that could adversely affect investors who purchase in this offering.
- Penalty bids permit the underwriters to reclaim a selling concession from a syndicate member when securities originally sold by the syndicate member is purchased in a stabilizing or syndicate covering transaction to cover syndicate short positions.

These stabilizing transactions, syndicate covering transactions and penalty bids may have the effect of raising or maintaining the market price of our securities or preventing or retarding a decline in the market price of the securities. As a result, the price of our shares of common stock may be higher than the price that might otherwise exist in the open market. These transactions may be discontinued at any time.

Neither we nor the underwriters make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of our shares of common stock. In addition, neither we nor the underwriters make any representation that the underwriters will engage in these transactions or that any transaction, if commenced, will not be discontinued without notice.

Passive Market Making

In connection with this offering, the underwriters and selling group members may also engage in passive market making transactions in our common stock. Passive market making consists of displaying bids limited by the prices of independent market makers and effecting purchases limited by those prices in response to order flow. Rule 103 of Regulation M promulgated by the SEC limits the amount of net purchases that each passive market maker may make and the displayed size of each bid. Passive market making may stabilize the market price of the shares of common stock at a level above that which might otherwise prevail in the open market and, if commenced, may be discontinued at any time.

Electronic Distribution

This prospectus in electronic format may be made available on websites or through other online services maintained by the underwriters, or by their affiliates. Other than this prospectus in electronic format, the information on the underwriters' websites and any information contained in any other websites maintained by the underwriters is not part of this prospectus or the registration statement of which this prospectus forms a part, has not been approved and/or endorsed by us or the underwriters in their capacity as underwriters, and should not be relied upon by investors.

Other

From time to time, the underwriters and/or their affiliates have provided, and may in the future provide, various investment banking and other financial services for us for which services it has received and, may in the future receive, customary fees. Except for the services provided in connection with this offering and other than as described below, the underwriters have not provided any investment banking or other financial services during the 180-day period preceding the date of this prospectus.

Offer Restrictions Outside the United States

Other than in the United States, no action has been taken by us or the underwriters that would permit a public offering of the securities offered by this prospectus in any jurisdiction where action for that purpose

is required. The securities offered by this prospectus may not be offered or sold, directly or indirectly, nor may this prospectus or any other offering material or advertisements in connection with the offer and sale of any such securities be distributed or published in any jurisdiction, except under circumstances that will result in compliance with the applicable rules and regulations of that jurisdiction. Persons into whose possession this prospectus comes are advised to inform themselves about and to observe any restrictions relating to the offering and the distribution of this prospectus. This prospectus does not constitute an offer to sell or a solicitation of an offer to buy any securities offered by this prospectus in any jurisdiction in which such an offer or a solicitation is unlawful.

Australia

This prospectus is not a disclosure document under Chapter 6D of the Australian Corporations Act, has not been lodged with the Australian Securities and Investments Commission and does not purport to include the information required of a disclosure document under Chapter 6D of the Australian Corporations Act. Accordingly, (i) the offer of the securities under this prospectus is only made to persons to whom it is lawful to offer the securities without disclosure under Chapter 6D of the Australian Corporations Act under one or more exemptions set out in section 708 of the Australian Corporations Act, (ii) this prospectus is made available in Australia only to those persons as set forth in clause (i) above, and (iii) the offeree must be sent a notice stating in substance that by accepting this offer, the offeree represents that the offeree is such a person as set forth in clause (i) above, and, unless permitted under the Australian Corporations Act, agrees not to sell or offer for sale within Australia any of the securities sold to the offeree within 12 months after its transfer to the offeree under this prospectus.

Canada

The securities may be sold in Canada only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 Prospectus Exemptions or subsection 73.3(1) of the Securities Act (Ontario), and are permitted clients, as defined in National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations. Any resale of the securities must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws. Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this prospectus (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor. Pursuant to section 3A.3 of National Instrument 33-105 Underwriting Conflicts (NI 33-105), the underwriters are not required to comply with the disclosure requirements of NI33-105 regarding underwriter conflicts of interest in connection with this offering.

Cayman Islands

No invitation, whether directly or indirectly, may be made to the public in the Cayman Islands to subscribe for our securities.

European Economic Area — Belgium, Germany, Luxembourg and Netherlands

The information in this document has been prepared on the basis that all offers of securities will be made pursuant to an exemption under the Directive 2003/71/EC ("Prospectus Directive"), as implemented in Member States of the European Economic Area (each, a "Relevant Member State"), from the requirement to produce a prospectus for offers of securities.

An offer to the public of securities has not been made, and may not be made, in a Relevant Member State except pursuant to one of the following exemptions under the Prospectus Directive as implemented in that Relevant Member State:

- to legal entities that are authorized or regulated to operate in the financial markets or, if not so authorized or regulated, whose corporate purpose is solely to invest in securities;

- to any legal entity that has two or more of (i) an average of at least 250 employees during its last fiscal year; (ii) a total balance sheet of more than €43,000,000 (as shown on its last annual unconsolidated or consolidated financial statements) and (iii) an annual net turnover of more than €50,000,000 (as shown on its last annual unconsolidated or consolidated financial statements);
- to fewer than 100 natural or legal persons (other than qualified investors within the meaning of Article 2(1)(e) of the Prospectus Directive) subject to obtaining the prior consent of the Company or any underwriter for any such offer; or
- in any other circumstances falling within Article 3(2) of the Prospectus Directive, provided that no such offer of securities shall result in a requirement for the publication by the Company of a prospectus pursuant to Article 3 of the Prospectus Directive.

France

This document is not being distributed in the context of a public offering of financial securities (offre au public de titres financiers) in France within the meaning of Article L.411-1 of the French Monetary and Financial Code (Code Monétaire et Financier) and Articles 211-1 et seq. of the General Regulation of the French Autorité des marchés financiers ("AMF"). The securities have not been offered or sold and will not be offered or sold, directly or indirectly, to the public in France.

This document and any other offering material relating to the securities have not been, and will not be, submitted to the AMF for approval in France and, accordingly, may not be distributed or caused to distributed, directly or indirectly, to the public in France.

Such offers, sales and distributions have been and shall only be made in France to (i) qualified investors (investisseurs qualifiés) acting for their own account, as defined in and in accordance with Articles L.411-2-II-2° and D.411-1 to D.411-3, D.744-1, D.754-1 ;and D.764-1 of the French Monetary and Financial Code and any implementing regulation and/or (ii) a restricted number of non-qualified investors (cercle restreint d'investisseurs) acting for their own account, as defined in and in accordance with Articles L.411-2-II-2° and D.411-4, D.744-1, D.754-1; and D.764-1 of the French Monetary and Financial Code and any implementing regulation.

Pursuant to Article 211-3 of the General Regulation of the AMF, investors in France are informed that the securities cannot be distributed (directly or indirectly) to the public by the investors otherwise than in accordance with Articles L.411-1, L.411-2, L.412-1 and L.621-8 to L.621-8-3 of the French Monetary and Financial Code.

Ireland

The information in this document does not constitute a prospectus under any Irish laws or regulations and this document has not been filed with or approved by any Irish regulatory authority as the information has not been prepared in the context of a public offering of securities in Ireland within the meaning of the Irish Prospectus (Directive 2003/71/EC) Regulations 2005 (the "Prospectus Regulations"). The securities have not been offered or sold, and will not be offered, sold or delivered directly or indirectly in Ireland by way of a public offering, except to (i) qualified investors as defined in Regulation 2(l) of the Prospectus Regulations and (ii) fewer than 100 natural or legal persons who are not qualified investors.

Israel

The securities offered by this prospectus have not been approved or disapproved by the Israeli Securities Authority (the ISA), or ISA, nor have such securities been registered for sale in Israel. The shares may not be offered or sold, directly or indirectly, to the public in Israel, absent the publication of a prospectus. The ISA has not issued permits, approvals or licenses in connection with the offering or publishing the prospectus; nor has it authenticated the details included herein, confirmed their reliability or completeness, or rendered an opinion as to the quality of the securities being offered. Any resale in Israel, directly or indirectly, to the public of the securities offered by this prospectus is subject to restrictions on transferability and must be effected only in compliance with the Israeli securities laws and regulations.

Italy

The offering of the securities in the Republic of Italy has not been authorized by the Italian Securities and Exchange Commission (Commissione Nazionale per le Società e la Borsa, "CONSOB" pursuant to the Italian securities legislation and, accordingly, no offering material relating to the securities may be distributed in Italy and such securities may not be offered or sold in Italy in a public offer within the meaning of Article 1.1(t) of Legislative Decree No. 58 of 24 February 1998 ("Decree No. 58"), other than:

- to Italian qualified investors, as defined in Article 100 of Decree no.58 by reference to Article 34-ter of CONSOB Regulation no. 11971 of 14 May 1999 ("Regulation no. 1197l") as amended ("Qualified Investors"); and
- in other circumstances that are exempt from the rules on public offer pursuant to Article 100 of Decree No. 58 and Article 34-ter of Regulation No. 11971 as amended.

Any offer, sale or delivery of the securities or distribution of any offer document relating to the securities in Italy (excluding placements where a Qualified Investor solicits an offer from the issuer) under the paragraphs above must be:

- made by investment firms, banks or financial intermediaries permitted to conduct such activities in Italy in accordance with Legislative Decree No. 385 of 1 September 1993 (as amended), Decree No. 58, CONSOB Regulation No. 16190 of 29 October 2007 and any other applicable laws; and
- in compliance with all relevant Italian securities, tax and exchange controls and any other applicable laws.

Any subsequent distribution of the securities in Italy must be made in compliance with the public offer and prospectus requirement rules provided under Decree No. 58 and the Regulation No. 11971 as amended, unless an exception from those rules applies. Failure to comply with such rules may result in the sale of such securities being declared null and void and in the liability of the entity transferring the securities for any damages suffered by the investors.

Japan

The securities have not been and will not be registered under Article 4, paragraph 1 of the Financial Instruments and Exchange Law of Japan (Law No. 25 of 1948), as amended (the "FIEL") pursuant to an exemption from the registration requirements applicable to a private placement of securities to Qualified Institutional Investors (as defined in and in accordance with Article 2, paragraph 3 of the FIEL and the regulations promulgated thereunder). Accordingly, the securities may not be offered or sold, directly or indirectly, in Japan or to, or for the benefit of, any resident of Japan other than Qualified Institutional Investors. Any Qualified Institutional Investor who acquires securities may not resell them to any person in Japan that is not a Qualified Institutional Investor, and acquisition by any such person of securities is conditional upon the execution of an agreement to that effect.

Portugal

This document is not being distributed in the context of a public offer of financial securities (oferta pública de valores mobiliários) in Portugal, within the meaning of Article 109 of the Portuguese Securities Code (Código dos Valores Mobiliários). The securities have not been offered or sold and will not be offered or sold, directly or indirectly, to the public in Portugal. This document and any other offering material relating to the securities have not been, and will not be, submitted to the Portuguese Securities Market Commission (Comissão do Mercado de Valores Mobiliários) for approval in Portugal and, accordingly, may not be distributed or caused to distributed, directly or indirectly, to the public in Portugal, other than under circumstances that are deemed not to qualify as a public offer under the Portuguese Securities Code. Such offers, sales and distributions of securities in Portugal are limited to persons who are "qualified investors" (as defined in the Portuguese Securities Code). Only such investors may receive this document and they may not distribute it or the information contained in it to any other person.

Sweden

This document has not been, and will not be, registered with or approved by Finansinspektionen (the Swedish Financial Supervisory Authority). Accordingly, this document may not be made available, nor may the securities be offered for sale in Sweden, other than under circumstances that are deemed not to require a prospectus under the

Swedish Financial Instruments Trading Act (1991:980) (Sw. lag (1991:980) om handel med finansiella instrument). Any offering of securities in Sweden is limited to persons who are "qualified investors" (as defined in the Financial Instruments Trading Act). Only such investors may receive this document and they may not distribute it or the information contained in it to any other person.

Switzerland

The securities may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange ("SIX") or on any other stock exchange or regulated trading facility in Switzerland. This document has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this document nor any other offering material relating to the securities may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this document nor any other offering material relating to the securities have been or will be filed with or approved by any Swiss regulatory authority. In particular, this document will not be filed with, and the offer of securities will not be supervised by, the Swiss Financial Market Supervisory Authority (FINMA).

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United Arab Emirates

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United Kingdom

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In the United Kingdom, this document is being distributed only to, and is directed at, persons (i) who have professional experience in matters relating to investments falling within Article 19(5) (investment professionals) of the Financial Services and Markets Act 2000 (Financial Promotions) Order 2005 ("FPO"), (ii) who fall within the categories of persons referred to in Article 49(2)(a) to (d) (high net worth companies, unincorporated associations, etc.) of the FPO or (iii) to whom it may otherwise be lawfully communicated (together "relevant persons"). The investments to which this document relates are available only to, and any invitation, offer or agreement to purchase will be engaged in only with, relevant persons. Any person who is not a relevant person should not act or rely on this document or any of its contents.

LEGAL MATTERS

The validity of the securities offered by this prospectus will be passed upon for us by Baker & Hostetler LLP, Cleveland, Ohio. McGuireWoods LLP, New York, New York is representing the underwriters.

EXPERTS

The consolidated financial statements of Actuate Therapeutics, Inc. as of December 31, 2023 and 2022, and for each of the two years in the period ended December 31, 2023, included in this Prospectus and Registration Statement on Form S-1 have been audited by KMJ Corbin & Company LLP, an independent registered public accounting firm, as stated in their report (which contains an explanatory paragraph relating to the Company's ability to continue as a going concern), which is included herein. Such consolidated financial statements have been so included in reliance upon the report of such firm given upon their authority as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-1, including exhibits and schedules, under the Securities Act, with respect to the shares of common stock being offered by this prospectus. This prospectus, which constitutes part of the registration statement, does not contain all of the information in the registration statement and its exhibits. For further information with respect to us and the common stock offered by this prospectus, we refer you to the registration statement and its exhibits. Statements contained in this prospectus as to the contents of any contract or any other document referred to are not necessarily complete, and in each instance, we refer you to the copy of the contract or other document filed as an exhibit to the registration statement. Each of these statements is qualified in all respects by this reference.

You may read our SEC filings, including this registration statement, over the Internet at the SEC's website at www.sec.gov. Upon the closing of this offering, we will be subject to the information reporting requirements of the Exchange Act and we will file reports, proxy statements and other information with the SEC. These reports, proxy statements and other information will be available for review on the web site of the SEC referred to above. We also maintain a website at www.actuatetherapeutics.com, at which, following the completion of this offering, you may access these materials free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. Information contained on or accessible through our website is not a part of this prospectus or the registration statement of which it forms a part, and the inclusion of our website address in this prospectus is an inactive textual reference only.

ACTUATE THERAPEUTICS, INC.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of
Actuate Therapeutics, Inc.

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Actuate Therapeutics, Inc. and subsidiary (the "Company") as of December 31, 2023 and 2022, the related consolidated statements of operations, redeemable convertible preferred stock and stockholders' deficit and cash flows for each of the two years in the period ended December 31, 2023, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2023, in conformity with accounting principles generally accepted in the United States of America.

Going Concern

The accompanying consolidated financial statements have been prepared assuming the Company will continue as a going concern. As discussed in Note 1 to the consolidated financial statements, the Company has incurred recurring operating losses, has had negative operating cash flows and has not recognized any revenues since its inception. In addition, the Company has an accumulated deficit of $105,094,521 as of December 31, 2023 and is dependent on its ability to raise capital. These matters raise substantial doubt about the Company's ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 1. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ KMJ Corbin & Company LLP

We have served as the Company's auditor since 2021.

Irvine, California
February 29, 2024

ACTUATE THERAPEUTICS, INC.

CONSOLIDATED BALANCE SHEETS
AS OF DECEMBER 31, 2023 AND 2022

	December 31, 2023	December 31, 2022
ASSETS		
Current assets:		
Cash and cash equivalents	$ 2,958,659	$ 20,449,310
Prepaid assets and other current assets	36,907	33,746
Total current assets	2,995,566	20,483,056
Total assets	$ 2,995,566	$ 20,483,056
LIABILITIES, REDEEMABLE CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT		
Current liabilities:		
Accounts payable	$ 3,421,840	$ 2,130,847
Accrued compensation	277,500	132,033
Other accrued expenses	3,221,254	2,082,102
Total current liabilities	6,920,594	4,344,982
Long term liabilities:		
Accrued interest	130,041	86,400
Warrant liability	988,049	814,364
License payable	404,991	404,991
Total long-term liabilities	1,523,081	1,305,755
Total liabilities	8,443,675	5,650,737
Commitments and contingencies (Note 5)		
Redeemable convertible preferred stock $0.000001 par value, 33,463,018 shares authorized; 24,678,355 and 23,656,337 shares issued and outstanding as of December 31, 2023 and 2022, respectively; liquidation value of $121,033,336 and $108,936,156 as of December 31, 2023 and 2022, respectively.	94,178,404	90,137,751
Stockholders' deficit:		
Common stock: $0.000001 par value, 38,108,584 shares authorized; 3,043,309 shares issued and outstanding	3	3
Additional paid-in capital	5,468,005	5,044,466
Accumulated deficit	(105,094,521)	(80,349,901)
Total stockholders' deficit	(99,626,513)	(75,305,432)
Total liabilities, redeemable convertible preferred stock and stockholders' deficit	$ 2,995,566	$ 20,483,056

The accompanying notes are an integral part of these consolidated financial statements.

ACTUATE THERAPEUTICS, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS
FOR THE YEARS ENDED DECEMBER 31, 2023 AND 2022

	Year Ended December 31, 2023	Year Ended December 31, 2022
Operating expenses:		
Research and development	$ 21,708,332	$ 16,387,216
General and administrative	3,265,497	3,819,591
Total operating expenses	24,973,829	20,206,807
Loss from operations	(24,973,829)	(20,206,807)
Other income (expense):		
Change in estimated fair value of warrant liability	(79,822)	36,579
Interest expense	(43,641)	(16,200)
Interest income	352,672	27,027
Total other income, net	229,209	47,406
Net loss	$ (24,744,620)	$ (20,159,401)
Weighted-average shares of common stock outstanding, basic and diluted	2,582,876	2,179,037
Net loss per share attributable to common stockholders, basic and diluted	$ (9.58)	$ (9.25)

The accompanying notes are an integral part of these consolidated financial statements.

ACTUATE THERAPEUTICS, INC.

CONSOLIDATED STATEMENTS OF REDEEMABLE CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT
FOR THE YEARS ENDED DECEMBER 31, 2023 AND 2022

	Redeemable Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount			
Balances, January 1, 2022	19,108,155	$70,882,182	3,092,858	$ 3	$ 4,390,400	$ (60,190,500)	$ (55,800,097)
Issuance of restricted stock awards	—	—	187,231	—	—	—	—
Cancellation of nonvested restricted stock awards	—	—	(236,780)	—	—	—	—
Stock-based compensation expense	—	—	—	—	654,066	—	654,066
Proceeds from issuances of redeemable convertible preferred stock, net of issuance costs	4,548,182	19,255,569	—	—	—	—	—
Net loss	—	—	—	—	—	(20,159,401)	(20,159,401)
Balances, December 31, 2022	23,656,337	90,137,751	3,043,309	3	5,044,466	(80,349,901)	(75,305,432)
Stock-based compensation expense	—	—	—	—	423,539	—	423,539
Proceeds from issuances of redeemable convertible preferred stock, net of issuance costs	1,022,018	4,134,516	—	—	—	—	—
Estimated fair market value of warrants issued to placement agent in connection with issuance of redeemable convertible preferred stock	—	(93,863)	—	—	—	—	—
Net loss	—	—	—	—	—	(24,744,620)	(24,744,620)
Balances, December 31, 2023	24,678,355	$94,178,404	3,043,309	$ 3	$ 5,468,005	$ (105,094,521)	$ (99,626,513)

The accompanying notes are an integral part of these consolidated financial statements.

ACTUATE THERAPEUTICS, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS
FOR THE YEARS ENDED DECEMBER 31, 2023 AND 2022

	Year Ended December 31, 2023	Year Ended December 31, 2022
Operating Activities:		
Net loss	$ (24,744,620)	$ (20,159,401)
Adjustment to reconcile net loss to net cash used in operating activities:		
Stock-based compensation expense	423,539	654,066
Change in estimated fair value of warrant liability	79,822	(36,579)
Interest accrued on license payable	43,641	16,200
Changes in operating assets and liabilities:		
Prepaid assets and other current assets	(3,161)	(25,304)
Accounts payable	1,290,993	586,259
Accrued compensation	145,467	43,283
Other accrued expenses	1,139,152	1,127,383
Net cash used in operating activities	(21,625,167)	(17,794,093)
Financing Activities:		
Proceeds from issuances of redeemable convertible preferred stock, net	4,134,516	19,255,569
Net cash provided by financing activities	4,134,516	19,255,569
Net change in cash and cash equivalents	(17,490,651)	1,461,476
Cash and cash equivalents, beginning of year	20,449,310	18,987,834
Cash and cash equivalents, end of year	$ 2,958,659	$ 20,449,310
Supplemental disclosure of cash flow information:		
Cash paid for interest	$ —	$ —
Cash paid for income taxes	$ —	$ —
Supplemental disclosure of non-cash financing activities:		
Estimated fair market value of warrants issued to placement agent in connection with issuance of redeemable convertible preferred stock	$ 93,863	$ —

The accompanying notes are an integral part of these consolidated financial statements.

ACTUATE THERAPEUTICS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
For The Years Ended December 31, 2023 and 2022

1. DESCRIPTION OF BUSINESS AND BASIS OF PRESENTATION

Actuate Therapeutics, Inc. (the "Company") was incorporated in the State of Delaware on January 16, 2015. The Company is a clinical-stage biopharmaceutical company focused on developing novel therapies for the treatment of cancers through the inhibition of glycogen synthase kinase-3 ("GSK-3"). The Company's lead investigational product, elraglusib (formerly 9-ING-41), is a small molecule that is designed to enter cancer cells and block the function of the enzyme GSK-3β, thereby causing the death of the cancer cells and the regulation of anti-tumor immunity.

The Company has a 100%-owned Irish subsidiary, Actuate Therapeutics Limited, that is currently dormant.

The Company operates as a semi-virtual biopharmaceutical company with expertise in all aspects of preclinical and clinical development. In addition, the Company contracts with highly experienced development, manufacturing, regulatory, and clinical consultants located in offices throughout the United States of America ("U.S."), Europe and Canada.

Basis of Presentation

The Company's consolidated financial statements are presented in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP") and reflect the financial position, results of operations and cash flows for all periods presented.

Going Concern and Management's Plans

The accompanying consolidated financial statements have been prepared assuming the Company will continue as a going concern. As of December 31, 2023, the Company had cash and cash equivalents of $2,958,659 and a working capital deficit of $3,925,028. The Company has not generated revenues since inception and has incurred recurring operating losses since inception. The Company expects to continue to incur losses for the foreseeable future and therefore, the Company's ability to continue its operations is highly dependent on its ability to raise additional capital to fund its future operations.

During 2023, the Company completed a private placement and issued 1,022,018 shares of its Series C redeemable convertible preferred stock (see Note 7) at a purchase price of $4.36 per share, for aggregate net proceeds of $4,134,516 after deducting placement agent and other offering expenses paid in the amount of $321,500. On February 20, 2024, the Company issued a convertible promissory note in the amount of $3,000,000 to a related party (the "Related Party Convertible Promissory Note"), which accrues interest at a rate of 7% per annum and matures on June 30, 2024 ("Maturity Date") in exchange for gross proceeds of $3,000,000 (see Note 13).

During 2023, the Company's research and development expenses continued to increase as it hired additional professional and scientific staff, advanced its clinical pipeline, and continued to execute its manufacturing plans. Management expects to incur substantial additional expenditures in 2024 and beyond for the development and potential commercialization of its product candidates, provided the Company is able to raise sufficient capital. If the Company encounters unforeseen delays or expenses, management will have the ability to curtail its presently planned level of operations. Management anticipates, based on currently proposed plans and assumptions, that our cash and cash equivalents on hand will not satisfy the Company's operational and capital requirements through twelve months from the issuance date of these consolidated financial statements. Additionally, in view of the Company's expectation to incur significant losses for the foreseeable future, it will be required to raise additional capital resources in order to fund its operations, although the availability of, and the Company's access to such resources, is not assured. The above matters raise substantial doubt regarding the Company's ability to continue as a going concern.

ACTUATE THERAPEUTICS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
For The Years Ended December 31, 2023 and 2022

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Principles of Consolidation

The consolidated financial statements include the accounts of Actuate Therapeutics, Inc. and its wholly owned subsidiary, Actuate Therapeutics Limited. All material intercompany accounts and transactions have been eliminated in the consolidated financial statements.

Reclassifications

Certain reclassification of prior period amounts has been made to conform to the 2023 presentation. These reclassifications had no effect on net loss or net loss share attributable to common stockholders.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates, assumptions, and judgements that affect the reported amounts of assets, liabilities, expenses, and related disclosures in the accompanying notes. The Company bases its estimates, assumptions and judgements on historical experience when available and on various factors that it believes to be reasonable under the circumstances as of the date of the accompanying consolidated financial statements including the fair value of common stock, fair value of the warrant liability, stock-based compensation expense, accrued expenses (including accrued expenses related to research and development ("R&D") as described below), and the recoverability of the Company's net deferred tax assets and related valuation allowance. In addition, other factors may affect estimates, including the expected business and operational changes, the sensitivity and volatility associated with the assumptions used in developing estimates, and whether historical trends are expected to be representative of future trends. The estimation process often may yield a range of potentially reasonable estimates of the ultimate future outcomes, and management must select an amount that falls within that range of reasonable estimates. Actual results could differ materially from the estimates and assumptions used in the preparation of the accompanying consolidated financial statements under different assumptions or conditions.

Accrued Expenses Related to R&D Expenses

As part of the process of preparing our consolidated financial statements, we are required to estimate our R&D expenses as of each balance sheet date. This process involves reviewing open contracts, including clinical site contracts, and communicating with our personnel to identify services that have been performed on our behalf, and estimating the level of service performed and the associated cost incurred for the service when we have not yet been invoiced or otherwise notified of the actual cost. We make estimates of our R&D expenses as of each balance sheet date based on facts and circumstances known to us at that time. The significant estimates in our R&D expenses include the costs incurred for services performed by our vendors in connection with services for which we have not yet been invoiced. We base our expenses related to R&D activities on our estimates of the services received and efforts expended pursuant to quotes and contracts with contractors and vendors that conduct R&D on our behalf. The financial terms of these agreements are subject to negotiation, vary from contract to contract, and may result in uneven payment flows. Advance payments for goods and services that will be used in future R&D activities are expensed when the activity has been performed or when the goods have been received rather than when the payment is made. Although we do not expect our estimates to be materially different from amounts actually incurred, if our estimates of the status and timing of services performed differ from the actual status and timing of services performed, it could result in us reporting amounts that are too high or too low in any particular period. To date, there have been no material differences between our estimates of such expenses and the amounts actually incurred.

ACTUATE THERAPEUTICS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
For The Years Ended December 31, 2023 and 2022

Segment Reporting and Geographic Concentrations

The Company manages its operations as a single operating segment for the purposes of assessing performance and making operating decisions. The Company conducts business in the U.S. As Actuate Therapeutics Limited is a dormant entity, there are no assets, liabilities or operations in any foreign countries.

Cash and Cash Equivalents

The Company considers all highly liquid investments acquired with a maturity of three months or less from the purchase date that can be liquidated without prior notice or penalty to be cash equivalents.

Concentrations of Credit Risk

Financial instruments that potentially subject the Company to significant concentrations of credit risk consist primarily of cash and cash equivalents. The Company deposits cash and cash equivalents with high credit quality financial institutions in the U.S. These deposits are held in checking and money market accounts and may, from time to time, exceed the federally insured amounts. The Company has not experienced any losses in such accounts. The Company believes it is not exposed to any significant risk in its cash and cash equivalents. The primary objectives of the Company's investment portfolio are the preservation of capital and maintenance of liquidity.

The Company is subject to risks common to companies in the biopharmaceutical industry, including, but not limited to, risks related to the successful development and commercialization of product candidates, fluctuations in operating results and financial risks, the ability to successfully raise additional funds when needed, protection of proprietary rights and patent risks, patent litigation, compliance with government regulations, dependence on key personnel and collaboration partners, and competition from competing products in the marketplace.

Fair Value of Financial Instruments

Authoritative guidance requires disclosure of the fair value of financial instruments. The Company applies fair value measurements to record fair value adjustments to certain assets and liabilities and to determine fair value disclosures. The carrying amount of certain of the Company's financial instruments, including cash and cash equivalents, accounts payable and accrued liabilities, approximate their estimated fair values primarily due to the short-term nature of the instruments or based on information obtained from market sources and management estimates. The redeemable convertible preferred stock warrant liability is carried at fair value based on unobservable market inputs (see Note 3). The Company measures the fair value of certain of its financial liabilities on a recurring basis. A fair value hierarchy is used to rank the quality and reliability of the information used to determine fair values. Financial assets and liabilities carried at fair value which is not equivalent to cost will be classified and disclosed in one of the following three categories:

- Level 1 — Quoted prices (unadjusted) in active markets for identical assets and liabilities;
- Level 2 — Inputs other than Level 1 that are observable, either directly or indirectly, such as unadjusted quoted prices for similar assets and liabilities, unadjusted quoted prices in the markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities; and
- Level 3 — Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities. Level 3 assets and liabilities include those whose fair value measurements are determined using pricing models, discounted cash flow methodologies or similar valuation techniques and significant management judgment or estimation.

Comprehensive Loss

There were no differences between net loss and comprehensive loss presented in the consolidated statements of operations for the years ended December 31, 2023 and 2022.

ACTUATE THERAPEUTICS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
For The Years Ended December 31, 2023 and 2022

Research and Development Expenses

In accordance with authoritative guidance, the Company charges research and development costs to operations as incurred. Research and development expenses consist primarily of personnel and related costs, external costs of outside vendors engaged clinical trials, contract manufacturers, consultants and other third parties to conduct and support our clinical trials and preclinical studies.

Patent Costs

Patent fees and patent related costs in connection with filing and prosecuting patent applications are expensed as incurred and are classified as general and administrative expenses in the accompanying consolidated statements of operations.

Redeemable Convertible Preferred Stock

The Company records all shares of redeemable convertible preferred stock at their respective fair values on the dates of issuance, net of issuance costs. Redeemable convertible preferred stock is recorded outside of permanent equity because while it is not mandatorily redeemable, in certain events considered not solely within the Company's control, such as a merger, acquisition, or sale of all or substantially all of the Company's assets, each referred to as a "deemed liquidation event," the redeemable convertible preferred stock will become redeemable at the option of the holders of at least a majority of the then outstanding preferred shares. The Company has not adjusted the carrying value of the redeemable convertible preferred stock to its liquidation preference because a deemed liquidation event obligating the Company to pay the liquidation preference to holders of shares of redeemable convertible preferred stock is not probable of occurring as of the issuance date of these consolidated financial statements. Subsequent adjustments to the carrying values to the liquidation preference will be made only if it becomes probable that such a deemed liquidation event will occur.

Redeemable Convertible Preferred Stock Warrants

The Company's redeemable convertible preferred stock warrants require liability classification and accounting as the underlying redeemable convertible preferred stock is considered contingently redeemable and may obligate the Company to transfer assets to the holders at a future date upon occurrence of a deemed liquidation event. The warrants are recorded at their estimated fair value upon issuance and are subject to remeasurement to estimated fair value at each balance sheet date, with changes in the estimated fair value recognized as a component of other income (expense) in the accompanying consolidated statements of operations. The Company will continue to adjust the warrant liability for changes in estimated fair value until the earlier of the exercise or expiration of the redeemable convertible preferred stock warrants, the occurrence of a deemed liquidation event or the conversion of redeemable convertible preferred stock into common stock.

Stock-Based Compensation

In April 2015, the Company's Board of Directors ("Board") approved its 2015 Stock Incentive Plan ("2015 Plan"). The Company periodically grants equity-based payment awards under the 2015 Plan in the form of restricted common stock awards ("RSAs") and stock options to employees, directors and non-employees and records stock-based compensation expenses for awards of stock-based payments based on their estimated fair value at the grant date.

The estimated fair value of service-based RSAs is measured at the grant date based on the estimated fair market value of the Company's common stock on the date of grant and is recognized as expense over the requisite service period, which is generally the awards' vesting period. The estimated fair value of performance-based RSAs is measured at the grant date based on the estimated fair value of shares expected

to be earned at the end of the performance period, and is recognized as expense ratably over the performance period based upon the probable number of shares expected to vest.

The Company accounts for the grant of stock options based on the estimated fair value of the underlying option using the Black-Scholes valuation model on the date of grant and are recognized as expense in the consolidated statement of operations on a straight-line basis over the requisite service period, which is the vesting period. The Black-Scholes valuation model requires the input of subjective assumptions, including expected volatility, expected dividend yield, expected term, risk-free rate of return and the estimated fair value of the underlying common stock on the date of grant.

We classify stock-based compensation expense in the consolidated statements of operations in the same manner in which the award recipients' payroll costs are classified or in which the award recipients' service payments are classified.

The Company recognizes forfeitures related to stock-based compensation awards as they occur.

Net Loss Per Share Attributable to Common Stockholders

Basic net loss per common share is calculated by dividing the net loss attributable to common stockholders by the weighted-average number of shares of common stock outstanding during the period, without consideration of potentially dilutive securities. Diluted net loss per share is computed by dividing the net loss attributable to common stockholders by the weighted-average number of shares of common stock and potentially dilutive securities outstanding for the period. For purposes of the diluted net loss per share calculation, the redeemable convertible preferred stock, warrants to purchase redeemable convertible preferred stock, unvested RSAs, and outstanding stock options are considered to be potentially dilutive securities (see Note 10).

Basic and diluted net loss attributable to common stockholders per share is presented in conformity with the two-class method required for participating securities as the redeemable convertible preferred stock and common stock subject to repurchase are considered participating securities. The redeemable convertible preferred stock does not have a contractual obligation to share in the Company's losses, and unvested RSAs subject to forfeiture is considered an unvested stock-based compensation award for accounting purposes. As such, the net loss is attributed entirely to common stockholders. Because the Company has reported a net loss for the reporting periods presented, the diluted net loss per common share is the same as basic net loss per common share for those periods.

Income Taxes

The Company accounts for income taxes in accordance with Accounting Standards Codification ("ASC") 740, "Income Taxes" ("ASC 740"). In accordance with authoritative guidance, deferred tax assets and liabilities are recorded for temporary differences between the financial reporting and tax bases of assets and liabilities using the current enacted tax rate expected to be in effect when the differences are expected to reverse. A valuation allowance is recorded on deferred tax assets unless realization is considered more likely than not.

The Company evaluates its tax positions taken or expected to be taken in the course of preparing the Company's tax returns to determine whether the tax positions are "more-likely-than-not" of being sustained by the applicable tax authority. Tax positions not deemed to meet the "more-likely-than-not" threshold are not recorded as a tax benefit or expense in the current year. The Company recognizes interest and penalties, if any, related to uncertain tax positions in interest expense. No interest and penalties related to uncertain tax positions were accrued at either December 31, 2023 or 2022.

The Company follows authoritative guidance which requires the evaluation of existing tax positions. The Company files in the federal and various state jurisdictions. Management has analyzed all open tax years,

as defined by the statute of limitations, for all major jurisdictions. Open tax years are those that are open for examination by taxing authorities. Tax years covering the years from 2020 to 2023 are the only open years for the Company as of the issuance date of these consolidated financial statements.

The Company also has elected to utilize research credits against the employer portion of payroll tax as it is considered a qualified small business under the Internal Revenue code. Due to the uncertainty of utilizing the research credits, the Company accounts for the credits against research and development expenses in the accompanying consolidated financial statements when the related expense is incurred.

Recently Issued Accounting Standards

Accounting standards not listed below were assessed and determined not to be applicable or are expected to have minimal impact on the Company's financial statements.

In December 2019, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Updates ("ASU") 2019-12, *Simplifying the Accounting for Income Taxes*. The guidance eliminates certain exceptions related to the approach for intra-period tax allocation, the methodology for calculating income taxes in an interim period and the recognition of deferred tax liabilities for outside basis differences. It also clarifies and simplifies other aspects of the accounting for income taxes. The guidance was effective for fiscal years beginning after December 15, 2021, and interim periods within fiscal years beginning after December 15, 2022. Early adoption was permitted. The adoption of the guidance did not have a material impact on the Company's consolidated financial statements.

In August 2020, the FASB issued ASU 2020-06, *Debt — Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging — Contracts in Entity's Own Equity (Subtopic 815-40)*. The guidance simplifies the accounting for certain financial instruments, eliminates the current models that require separation of beneficial conversion and cash conversion features from convertible instruments, and simplifies the derivative scope exception guidance pertaining to equity classification of contracts in an entity's own equity. It also introduces additional disclosures for convertible debt and freestanding instruments that are indexed to and settled in an entity's own equity and amends the diluted earnings per share guidance, including the requirement to use the if-converted method for all convertible instruments. The guidance is effective for public business entities that meet the definition of a Securities and Exchange Commission filer, excluding entities eligible to be smaller reporting companies as defined by the Securities and Exchange Commission, for fiscal years beginning after December 15, 2021, including interim periods within those fiscal years. For all other entities, the guidance is effective for fiscal years beginning after December 15, 2023, including interim periods within those fiscal years. Early adoption is permitted, but no earlier than fiscal years beginning after December 15, 2020, including interim periods within those fiscal years. The Company adopted the guidance as of January 1, 2024. The adoption of the guidance is not expected to have a material impact on the Company's financial statements.

3. FAIR VALUE MEASUREMENTS

The following table summarizes the Company's liabilities measured at fair value as of December 31, 2023 and 2022:

		Fair Value Measurements at December 31, 2023 Using		
	Fair Value at December 31, 2023	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Liabilities:				
Redeemable convertible preferred stock warrant liability	$988,049	$ —	$ —	$988,049
Total liabilities	$988,049	$ —	$ —	$988,049

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	Fair Value Measurements at December 31, 2022 Using			
	Fair Value at December 31, 2022	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Liabilities:				
Redeemable convertible preferred stock warrant liability	$814,364	$ —	$ —	$814,364
Total liabilities	$814,364	$ —	$ —	$814,364

The following table sets forth the changes in the fair value of the Company's Level 3 financial instruments:

	Series B Redeemable Convertible Preferred Stock Warrant Liability	Series C Redeemable Convertible Preferred Stock Warrant Liability	Total
Fair value as of January 1, 2022	$ 850,943	$ —	$ 850,943
Change in fair value	(36,579)	—	(36,579)
Fair value as of December 31, 2022	814,364	—	814,364
Estimated fair market value of warrants issued to placement agent in connection with issuance of redeemable convertible preferred stock	—	93,863	93,863
Change in fair value	76,691	3,131	79,822
Fair value as of December 31, 2023	$ 891,055	$ 96,994	$ 988,049

The Series B redeemable convertible preferred stock warrant liability was valued using the following assumptions using the Black-Scholes valuation model:

	December 31, 2023	December 31, 2022
Stock price	$ 4.78	$ 4.18
Expected term (in years)	4.7	5.7
Expected volatility	%80.68	%82.53
Weighted average risk-free interest rate	% 4.48	% 3.99
Dividend yield	% 0.00	% 0.00

The Series C redeemable convertible preferred stock warrant liability was valued using the following assumptions using the Black-Scholes valuation model as of December 31, 2023 and June 30, 2023 (Date of Grant):

	December 31, 2023	Date of Grant
Stock price	$ 4.72	$ 4.36
Expected term (in years)	4.5	5.0
Expected volatility	%80.68	83.00

Weighted average risk-free interest rate	% 4.48	% 4.80
Dividend yield	% 0.00	% 0.00

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4. OTHER ACCRUED EXPENSES

Other accrued expenses as of December 31, 2023 and 2022 consisted of the following:

	December 31, 2023	December 31, 2022
Accrued clinical trial costs	$ 3,207,785	$ 1,895,313
Other accrued expenses	13,469	186,789
Total other accrued expenses	$ 3,221,254	$ 2,082,102

5. COMMITMENTS AND CONTINGENCIES

Legal

The Company may be involved, from time to time, in legal proceedings and claims arising in the ordinary course of its business. Such matters are subject to many uncertainties and outcomes and are not predictable with assurance. While management believes that such matters are currently insignificant, matters arising in the ordinary course of business for which the Company is or could become involved in litigation may have a material adverse effect on its business and financial condition. To the Company's knowledge, the Company is not subject to any pending legal proceedings.

Indemnities and Guarantees

We have made certain indemnities and guarantees, under which we may be required to make payments to a guaranteed or indemnified party, in relation to certain transactions. We indemnify our officers and directors to the maximum extent permitted under the laws of the State of Delaware. The duration of these indemnities and guarantees varies and, in certain cases, is indefinite. These indemnities and guarantees do not provide for any limitation of the maximum potential future payments we could be obligated to make. Historically, we have not been obligated to make any payments for these obligations and no liabilities have been recorded for these indemnities and guarantees in the accompanying consolidated balance sheets.

6. LICENSES AND AGREEMENTS

Northwestern License Agreement

On March 31, 2015, the Company entered into an Exclusive License Agreement with Equity (the "Northwestern License Agreement") with Northwestern University ("Northwestern"). Pursuant to the Northwestern License Agreement, Northwestern granted the Company (a) a nonexclusive license to certain technical information developed in the laboratory of Andrew Mazar, and (b) an exclusive license to all results obtained by Andrew Mazar and his collaborators at Northwestern on the use of the GSK-3β (formerly 9-ING-41) and related compounds used for the treatment of cancer and combination therapies. In consideration of the license granted pursuant to the Northwestern License Agreement, the Company granted Northwestern 50,000 shares of the Company's common stock, representing 5% of the Company's capital stock on a fully diluted basis on the date of grant. In addition, the Company granted Northwestern the right to participate in future offerings of the Company's capital securities on the same terms as offered to those participating in the offering. In 2019, Northwestern's right to participate in future offerings expired.

UIC License Agreement

On April 6, 2015, the Company entered into an Exclusive License Agreement with Equity (the "UIC License Agreement") with The Board of Trustees of the University of Illinois ("UIC"), whereby, UIC granted the Company (a) an exclusive, nontransferable license, with the right to sublicense under UIC's rights in the Patent Rights (as defined in the UIC License Agreement), and (b) a non-exclusive, non-transferable

license, with the right to sublicense, to use UIC's rights in the Technical Information (as defined in the UIC License Agreement) within the Territory and the Field as each such term is defined in the UIC License Agreement. In consideration of the license granted under the UIC License Agreement, the Company issued 83,750 shares of the Company's common stock to UIC, which represented 5% of the Company's capital stock on a fully diluted basis, as defined in the UIC License Agreement, and agreed to pay UIC (i) development milestones of up to $1.3 million, of which, up to $0.3 million is due upon the progress of clinical trials and $1.0 million is due upon the initiation of commercial sales (ii) annual minimum royalty payments of $5,000 beginning on the third anniversary year of the UIC License Agreement and increasing to $15,000 in year four, $35,000 in year five, and $50,000 in year six and thereafter, (iii) royalty on net sales for product covered under the Patent Rights in the low single digits with a 50% reduction in royalties for products solely utilizing Technical Information, (iv) a declining percentage of sublicensing revenue based on the escalating stage of development upon a sublicensing event, and (v) the reimbursement of all patent and related expenses incurred by UIC covering the Patent Rights. For the years ended December 31, 2023 and 2022, the Company incurred minimum royalties and reimbursable patent expenses to UIC in the aggregate amount of $64,711 and $50,000, respectively, which amounts were included in general and administrative expenses in the accompanying consolidated statements of operations.

In addition, the Company has an obligation to UIC related to a sub-license and collaboration agreement dated August 28, 2017 with an unrelated entity, which agreement was later terminated on January 31, 2018. Under the agreement, the Company initially paid UIC a portion of the sublicense fees in the amount of $44,999 with the remaining unpaid balance of $404,991 due and payable to UIC in two installments with 50% due and payable on the one-year anniversary from the first commercial sale and the remaining balance is due on the second-year anniversary from the first commercial sale. The unpaid balance of $404,991 as of December 31, 2023 and 2022 continues to accrue interest at a rate of 5% per annum, representing the prime rate as of the date of the agreement plus 1%. Interest payable to UIC was $130,041 and $86,400 as of December 31, 2023 and 2022, respectively, and is included in the accompanying consolidated balance sheets.

7. STOCKHOLDERS' DEFICIT

The Company authorized capital as of December 31, 2023 consists of 38,108,584 shares of common stock, $0.000001 par value per share ("Common Stock") and 33,463,018 shares of preferred stock, $0.000001 par value per share, of which, the Company has designated multiple series of redeemable convertible preferred stock ("Preferred Stock").

Redeemable Convertible Preferred Stock

During 2023, the Company completed a private placement and issued 1,022,018 shares of its Series C redeemable convertible preferred stock at a purchase price of $4.36 per share, for net proceeds to the Company of $4,134,516 after deducting placement agent and other offering expenses paid in the amount of $321,500.

During 2022, the Company completed a private placement and issued 4,548,182 shares of its Series C redeemable convertible preferred stock at a purchase price of $4.36 per share, for net proceeds to the Company of $19,255,569 after deducting placement agent and other offering expenses of $574,645.

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As of December 31, 2023, the redeemable convertible preferred stock is comprised of the following:

	Number of Shares Authorized	Number of Shares Issued and Outstanding	Face Amount	Liquidation Value	Original Issue Price
Series A	1,983,663	1,983,663	$ 3,967,333	$ 6,123,812	$2.00000
Series B-1	4,133,477	3,858,547	14,121,012	19,401,105	$3.65967
Series B-2	2,307,017	2,307,017	8,824,986	12,046,258	$3.82528
Series B-3	1,625,000	1,625,000	6,500,000	8,694,252	$4.00000
Series B-4	11,961,721	9,333,928	39,015,819	48,356,709	$4.18000
Series C	11,452,140	5,570,200	24,286,072	26,411,200	$4.36000
	33,463,018	24,678,355	$96,715,222	$121,033,336	

As of December 31, 2022, the redeemable convertible preferred stock is comprised of the following:

	Number of Shares Authorized	Number of Shares Issued and Outstanding	Face Amount	Liquidation Value	Original Issue Price
Series A	1,983,663	1,983,663	$ 3,967,333	$ 5,806,426	$2.00000
Series B-1	4,133,477	3,858,547	14,121,012	18,271,425	$3.65967
Series B-2	2,307,017	2,307,017	8,824,986	11,340,259	$3.82528
Series B-3	1,625,000	1,625,000	6,500,000	8,174,252	$4.00000
Series B-4	11,961,721	9,333,928	39,015,819	45,235,444	$4.18000
Series C	11,452,140	4,548,182	19,830,214	20,108,350	$4.36000
	33,463,018	23,656,337	$92,259,364	$108,936,156	

The rights, preferences, privileges and restrictions granted to or imposed on the Company's redeemable convertible preferred stock or the holders thereof are as follows:

Dividends

The holders of redeemable convertible preferred stock shall be entitled to receive dividends, out of any assets legally available therefore, prior and in preference to any declaration or payment of any dividend to the common stockholders, at the rate of 8.0% per annum on each of the Series A, Series B-1, Series B-2, Series B-3, Series B-4, and Series C original issue prices, payable when, and if declared by the Board. Such dividends shall be cumulative and if less than the full amount of dividends payable on the redeemable convertible preferred stock if declared and paid, any such payments shall be made ratably among the holders of the redeemable convertible preferred stock in proportion to the total amount each holder would be entitled to receive if the full amount of dividends payable on the redeemable convertible preferred stock had been declared. As of December 31, 2023 and 2022, no dividends had been declared or paid.

Liquidation

In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Company or deemed liquidation event (as defined in the certificate of incorporation), the holders of shares of Preferred Stock then outstanding shall be entitled to be paid out of the assets of the Company available for distribution to its stockholders before any payment shall be made to the holders of Common Stock by reason of their ownership thereof, an amount per share equal to one times the original issue price, plus any dividends declared

but unpaid thereon. If upon any such liquidation, dissolution or winding up of the Company or deemed liquidation event, the assets of the Company available for distribution to its stockholders shall be insufficient to pay the holders of shares of Preferred Stock the full amount to which they shall be entitled, the holders of shares of Preferred Stock shall share ratable in any distribution of the assets available for distribution in proportion to the respective amounts which would otherwise be payable in respect of the shares held by them upon such distribution if all amounts payable on or with respect to such shares were paid in full.

Conversion

Each share of redeemable convertible preferred stock is convertible at the option of the holder at any time into a share of fully paid and non-assessable share of Common Stock. Each share of convertible preferred stock is convertible into that number of common shares as is determined by dividing the applicable initial purchase price (the "Initial Purchase Price") of such share by the applicable conversion price. The conversion rates for each series of redeemable convertible preferred stock as of December 31, 2023 were as follows: Series A — $2.00; Series B-1 — $3.65967; Series B-2 — $3.82528; Series B-3 — $4.00; Series B-4 — $4.18; and Series C — $4.36.

The conversion price is subject to adjustment upon the occurrence of certain events, including issuances of shares of Common Stock at a price, exercise price, or conversion price lower than the conversion prices of the Preferred Stock, unless waived by a majority of the holders of the series of redeemable convertible preferred stock.

Upon the closing of the sale of shares of common stock to the public resulting in at least $100 million in gross proceeds, all outstanding shares of Preferred Stock shall automatically be converted into shares of Common Stock at the then effective conversion rate.

Voting Rights

The holders of redeemable convertible preferred stock shall have the right to one vote for each whole share of Common Stock into which such redeemable convertible preferred stock could then be converted. With respect to such vote, the holder shall have full voting rights and powers equal to the voting rights and powers of the holders of Common Stock, shall be entitled to notice of any stockholders' meeting in accordance with the bylaws of the Company, and shall be entitled to vote, together with holders of Common Stock, with respect to any matter upon which holders of Common Stock have the right to vote.

Redemption and Balance Sheet Classification

The redeemable convertible preferred stock is recorded within temporary equity because, while it is not mandatorily redeemable, it will become redeemable at the option of the holders upon the occurrence of certain deemed liquidation events that are considered not solely within the Company's control.

Common Stock

As of December 31, 2023, there were 38,108,584 shares of Common Stock authorized, of which, 3,043,309 shares were issued and outstanding as of December 31, 2023 and 2022.

The voting, dividend, and liquidation rights of the holders of Common Stock are subject to and qualified by the rights, powers and preferences of the holders of the Preferred Stock.

Reserved Shares

As of December 31, 2023, the Company reserved the following shares of Common Stock for issuance upon the (i) conversion of the outstanding redeemable convertible preferred stock, (ii) exercise of outstanding

redeemable convertible preferred stock warrants, (iii) exercise of issued and outstanding stock options, and (iv) to reserve the remaining shares available for grant under the 2015 Plan:

	December 31, 2023
Conversion of redeemable convertible preferred stock	24,678,355
Exercise of Series C redeemable convertible preferred stock warrants	32,796
Exercise of Series B redeemable convertible preferred stock warrants	274,930
Stock options outstanding	478,011
Shares reserved for issuance under the 2015 Plan	1,124,246
Total	26,588,338

8. WARRANTS

Redeemable Convertible Preferred Stock Warrant Liability

On June 30, 2023, in connection with issuance of the Series C redeemable convertible preferred stock, the Company issued the placement agent warrants to purchase 32,796 shares of Series C redeemable convertible preferred stock at an exercise price of $5.23 per share. The warrants terminate at the earlier of (i) five (5) years from the issuance date, (ii) the consummation of a change of control, or (iii) upon the first closing of an initial public offering of the Company's common stock. The warrants have a net exercise provision under which the holders could, in lieu of payment of the exercise price in cash, surrender the warrant and receive a net amount of shares based on the fair market value of the Company's stock at the time of exercise of the warrants after deduction of the aggregate exercise price. The warrants contain provisions for adjustment of the exercise price and number of shares issuable upon the exercise of warrants in the event of certain stock dividends, stock splits, reorganizations, reclassifications, and consolidations. The initial estimated fair value of the warrants of $93,863 was calculated using the Black-Scholes valuation model (see Note 3) and recorded as a reduction to redeemable convertible preferred stock and a corresponding increase in the warrant liability.

On September 7, 2018, in connection with convertible promissory note payable agreements, the Company agreed to issue the noteholders warrants to purchase shares of Series B-1 redeemable convertible preferred stock. Warrants to purchase 137,465 shares of Series B-1 redeemable convertible preferred stock were issued at an exercise price of $2.93 per share and warrants to purchase 137,465 shares of Series B-1 redeemable convertible preferred stock were issued at an exercise price of $5.86 per share. The warrants terminate at the earlier of (i) ten (10) years from the issuance date, (ii) the consummation of a change of control, or (iii) upon the first closing of an initial public offering of the Company's common stock. The warrants have a net exercise provision under which the holders could, in lieu of payment of the exercise price in cash, surrender the warrant and receive a net amount of shares based on the fair market value of the Company's stock at the time of exercise of the warrants after deduction of the aggregate exercise price. The warrants contain provisions for adjustment of the exercise price and number of shares issuable upon the exercise of warrants in the event of certain stock dividends, stock splits, reorganizations, reclassifications, and consolidations. The initial estimated fair value of the warrants of $805,292 was recorded on the closing date of a private placement in April 2019, representing the initial date the warrants could be measured.

The Series B-1 and Series C warrants had an aggregate fair value of $988,049 and $814,364 as of December 31, 2023 and 2022, respectively (see Note 3). Changes in the estimated fair value of the warrant liability were recognized as a component of other income (expense) in the accompanying consolidated statements of operations.

9. STOCK-BASED COMPENSATION

The 2015 Plan provides for the grant of incentive stock options, non-qualified stock options and restricted common stock awards. As of December 31, 2023, there were 3,670,566 shares authorized under

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the 2015 Plan, of which, 1,124,246 shares remained available for grant. All the Company's employees, as well as all of the Company's non-employee directors and other consultants, advisors and other persons who provide services to the Company are eligible to receive incentive awards under the 2015 Plan.

Restricted Common Stock Awards ("RSAs")

The Company did not grant RSAs during the year ended December 31, 2023. During the year ended December 31, 2022, the Company granted 187,231 RSAs. As of December 31, 2023, the total estimated unrecognized compensation cost related to non-vested RSAs was approximately $367,000. This cost is expected to be recognized over the remaining weighted average vesting period of 1.22 years.

Restricted common stock activity for the two years ended December 31, 2023 is as follows:

	Restricted Common Stock Award Shares	Weighted Average Grant Fair Date Value
Unvested balance at January 1, 2022	1,424,342	$ 1.32
Granted	187,231	$ 1.17
Vested	(718,658)	$ 1.28
Forfeited	(236,780)	$ 1.27
Unvested balance at December 31, 2022	656,135	$ 1.24
Granted	—	$ —
Vested	(351,884)	$ 1.24
Forfeited	—	$ —
Unvested balance at December 31, 2023	304,251	$ 1.23

Stock Options

There were no stock options granted during the year ended December 31, 2022. The following table provides the assumptions used in determining the estimated fair value of stock option awards for the year ended December 31, 2023:

	Year Ended December 31, 2023
Expected volatility	82.02% to 86.46%
Risk-free interest rate	3.90 to 4.84%
Expected dividend yield	0.00%
Expected term (in years)	5.00 to 5.85

The weighted-average grant-date fair value of the options granted was $0.84 for the year ended December 31, 2023. The estimated fair value of shares vested during the year ended December 31, 2023 was $0.81.

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The following table summarizes stock option activity for the year ended December 31, 2023:

	Number of Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value
Outstanding at December 31, 2022	—	$ —	—	$ —
Options granted	478,011	$ 1.19		
Options exercised	—	$ —		
Options canceled and forfeited	—	$ —		
Outstanding at December 31, 2023	478,011	$ 1.19	9.31	$ 430,210
Vested and expected to vest at December 31, 2023	478,011	$ 1.19	9.31	$ 430,210
Exercisable at December 31, 2023	85,336	$ 1.19	9.31	$ 76,802

As of December 31, 2023, total unrecognized stock-based compensation cost related to stock options was approximately $252,000. This cost is expected to be recognized over the remaining weighted average vesting period of 1.89 years. The aggregate intrinsic value is calculated as the difference between the option exercise price and the estimated fair value of the underlying Common Stock.

The following table summarizes the stock-based compensation expense recorded in the accompanying consolidated statements of operations during the years ended December 31, 2023 and 2022:

	Year Ended December 31, 2023	Year Ended December 31, 2022
Research and development	$ 129,642	$ 102,853
General and administrative	293,897	551,213
Total	$ 423,539	$ 654,066

The Company has not recognized and does not expect to recognize in the near future, any tax benefit related to employee stock-based compensation expense as a result of the full valuation allowance related to its net deferred tax assets.

10. NET LOSS PER SHARE ATTRIBUTABLE TO COMMON STOCKHOLDERS

The following table sets forth the computation of basic and diluted net loss per share attributable to common stockholders:

	Year Ended December 31,	
	2023	2022
Numerator:		
Net loss	$(24,744,620)	$(20,159,401)
Denominator:		
Weighted-average shares of common stock outstanding, basic and diluted	2,582,876	2,179,037
Net loss per share attributable to common stockholders, basic and diluted	$) (9.58	$) (9.25

The potential dilutive effect of redeemable convertible preferred stock outstanding during the period is calculated using the if-converted method assuming the conversion of redeemable convertible preferred stock

as of the earliest period reported or at the date of issuance, if later, but are excluded if their effect is anti-dilutive. The potential dilutive effect of options, unvested RSAs, and warrants outstanding during the period are calculated in accordance with the treasury stock method, but are excluded if their effect is anti-dilutive.

The potential shares of Common Stock that were excluded from the computation of diluted net loss per share attributable to common stockholders for the periods presented because including them would have had an antidilutive effect were as follows:

	As of December 31,	
	2023	2022
Redeemable convertible preferred stock	24,678,355	23,656,337
Options issued and outstanding	478,011	—
Unvested restricted common stock awards ("RSAs")	304,251	656,135
Warrants to purchase redeemable convertible preferred stock	307,726	274,930
Total	25,768,343	24,587,402

11. INCOME TAXES

The Company had no income tax expense due to operating losses incurred for the years ended December 31, 2023 and 2022. The Company accounts for income taxes in accordance with ASC 740, "Income Taxes" ("ASC 740"), which requires that the tax benefit of net operating losses, temporary differences and credit carryforwards be recorded as an asset to the extent that management assesses that realization is "more likely than not." Realization of the future tax benefits is dependent on the Company's ability to generate sufficient taxable income within the carryforward period. Because of the Company's recent history of operating losses, management believes that recognition of the deferred tax assets arising from the above-mentioned future tax benefits is currently not likely to be realized and, accordingly, has provided a full valuation allowance.

The provision (benefit) for income taxes for the years ended December 31, 2023 and 2022 is as follows:

	December 31, 2023	December 31, 2022
Current		
Federal	$ —	$ —
State	—	—
Foreign	—	—
Total current	—	—
Deferred		
Federal	(7,198,732)	(7,139,924)
State	(92,676)	—
Foreign	—	—
Change in valuation allowance	7,291,408	7,139,924
Total deferred	—	—
Income tax provision (benefit)	$ —	$ —

Deferred tax assets and liabilities reflect the net tax effect of temporary differences between the carrying amount of assets and liabilities for financial reporting purposes and amounts used for income tax purposes. Significant components of our deferred tax assets as of December 31, 2023 and 2022 are as follows:

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	December 31, 2023	December 31, 2022
Deferred tax assets (liabilities):		
Capitalized R&D, net of amortization	$ 6,800,091	$ 3,454,424
Other	33,579	1,050
Net operating loss carryforwards	12,500,774	10,875,920
Research and development tax credits	12,420,432	10,132,074
Total deferred tax assets	31,754,875	24,463,468
Valuation allowance	(31,754,875)	(24,463,468)
Net deferred tax assets	$ —	$ —

The reconciliation of the effective income tax rate to the Federal statutory rate for the years ended December 31, 2023 and 2022 is as follows:

	December 31, 2023	December 31, 2022
Statutory federal income tax rate	% 21.00	% 21.00
Research and development tax credits	% 9.45	% 10.96
Other	)% (1.32	% 3.91
Change in valuation allowance	)%(29.13	)%(35.87
Effective income tax rate	% 0.00	% 0.00

As of December 31, 2023 and 2022, the Company had gross federal income tax net operating loss ("NOL") carryforwards of $59,443,749 and $51,790,095, respectively, and federal research tax credits of $12,420,432 and $10,132,074, respectively. Of the federal NOL carryforwards, $3,010,902 will expire beginning in 2037 and $56,432,847 has an indefinite life while the federal research tax credits will expire by 2043. In addition, the Company has state NOL carryovers of $319,752 that will carry forward indefinitely.

Utilization of U.S. net operating losses and tax credit carryforwards may be limited by "ownership change" rules, as defined in Sections 382 and 383 of the Code. Similar rules may apply under state tax laws. The Company has not conducted a study to date to assess whether a limitation would apply under Sections 382 and 383 of the Code as and when it starts utilizing its net operating losses and tax credits. The Company will continue to monitor activities in the future. In the event the Company previously experienced an ownership change, or should experience an ownership change in the future, the amount of net operating losses and research and development credit carryovers available in any taxable year could be limited and may expire unutilized.

The CARES Act was signed into law on March 27, 2020 as a response to the economic challenges facing U.S. businesses caused by the COVID-19 global pandemic. The CARES Act allowed net operating loss incurred in 2018-2020 to be carried back five years or carried forward indefinitely, and to be fully utilized without being subjected to the 80% taxable income limitation. Net operating losses incurred after December 31, 2020 will be subjected to the 80% taxable income limitation. In assessing the realization of deferred tax assets, management considers whether it is more likely than not that some portion, or all, of the deferred tax asset will be realized. The ultimate realization of deferred tax assets is dependent upon the Company attaining future taxable income during periods in which those temporary differences become deductible.

Due to the uncertainty surrounding the realization of the benefits of its deferred assets, including NOL carryforwards, the Company has provided a 100% valuation allowance on its deferred tax assets at December 31, 2023 and 2022.

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For The Years Ended December 31, 2023 and 2022

12. RELATED PARTY

During 2018, the Company entered into a master service agreement with Pacific BioPharma Logistics, Inc. ("PBL") to provide clinical support related to the packaging, labeling, kitting, storage, distribution and inventory for the Company's investigational products. Mr. Richard Kenley, Vice President of Manufacturing for the Company, is an unpaid advisor for PBL and his spouse is a shareholder in PBL. During the years ended December 31, 2023 and 2022 we incurred $853,574 and $636,727, respectively, in services provided by PBL, which amounts are included in research and development expense in the accompanying consolidated statements of operations. As of December 31, 2023 and 2022, we had an outstanding balance owed to PBL of $52,206 and $52,298, respectively, which amounts are included in accounts payable in the accompanying consolidated balance sheets.

13. SUBSEQUENT EVENTS

The Company has evaluated subsequent events after the consolidated balance sheet date and through the issuance date of these consolidated financial statements, and based on our evaluation, management has determined that no other subsequent events have occurred that would require recognition in the accompanying consolidated financial statements or disclosure in the notes thereto other than as disclosed below and in the accompanying notes.

On February 20, 2024, the Company issued a convertible promissory note in the amount of $3,000,000 to a related party (the "Related Party Convertible Promissory Note"), which accrues interest at a rate of 7% per annum and matures on June 30, 2024 ("Maturity Date"). Principal and accrued interest are due and payable on the Maturity Date, subject to an automatic conversion upon a Qualified Financing (as defined below) or an Initial Public Offering (as defined below) or at the option of the holder, convertible into shares of Series C redeemable convertible preferred stock.

In the event the Company either completes a financing of at least $5 million in gross proceeds ("Qualified Financing") or closes the Company's first firm commitment underwritten initial public offering ("Initial Public Offering") of its Common Stock before the Maturity Date, the Related Party Convertible Promissory Note will automatically convert into (i) in the case of a Qualified Financing, that number of shares of capital stock issued in such Qualified Financing (the "Qualified Financing Securities") equal to the quotient obtained by dividing the outstanding principal amount of the Related Party Convertible Promissory Note plus all accrued and unpaid interest thereon by eighty percent (80%) of the per share price at which shares are to be sold in such Qualified Financing or (ii) in the case of an Initial Public Offering, such number of shares of Common Stock (as defined below) equal to the outstanding principal amount of the Related Party Convertible Promissory Note plus all accrued and unpaid interest thereon, divided by eighty percent (80%) of the Initial Public Offering price.

In the event a Qualified Financing or Initial Public Offering does not occur prior to the Maturity Date, then on or after the Maturity Date, the holder may elect to either (i) convert the Related Party Convertible Promissory Note into such number of shares of Series C redeemable convertible preferred stock equal to the principal amount plus the accrued but unpaid interest thereon divided by $4.36 or (ii) elect that the Related Party Convertible Promissory Note become fully due and payable in cash.

ACTUATE THERAPEUTICS, INC.

CONDENSED CONSOLIDATED BALANCE SHEETS

	March 31, 2024	December 31, 2023
	Unaudited	
ASSETS		
Current assets:		
Cash and cash equivalents	$ 2,068,307	$ 2,958,659
Prepaid assets and other current assets	119,774	36,907
Total current assets	2,188,081	2,995,566
Deferred offering costs	510,502	—
Total assets	$ 2,698,583	$ 2,995,566
LIABILITIES, REDEEMABLE CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT		
Current liabilities:		
Accounts payable	$ 3,956,063	$ 3,421,840
Accrued compensation	277,500	277,500
Other accrued expenses	5,500,310	3,221,254
Related party convertible notes payable at fair value	5,000,000	—
Total current liabilities	14,733,873	6,920,594
Long term liabilities:		
Accrued interest	135,117	130,041
Warrant liability	1,020,564	988,049
License payable	404,991	404,991
Total long-term liabilities	1,560,672	1,523,081
Total liabilities	16,294,545	8,443,675
Commitments and contingencies (Note 6)		
Redeemable convertible preferred stock $0.000001 par value, 33,463,018 shares authorized; 24,678,355 shares issued and outstanding; liquidation value of $122,962,342 and $121,033,336 as of March 31, 2024 and December 31, 2023, respectively.	94,178,404	94,178,404
Stockholders' deficit:		
Common stock: $0.000001 par value, 38,108,584 shares authorized; 3,043,309 shares issued and outstanding	3	3
Additional paid-in capital	5,616,211	5,468,005
Accumulated deficit	(113,390,580)	(105,094,521)
Total stockholders' deficit	(107,774,366)	(99,626,513)
Total liabilities, redeemable convertible preferred stock and stockholders' deficit	$ 2,698,583	$ 2,995,566

See accompanying notes to unaudited condensed consolidated financial statements.

ACTUATE THERAPEUTICS, INC.

CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS (UNAUDITED)

	Three Months Ended March 31,	
	2024	**2023**
Operating expenses:		
Research and development	$ 6,860,430	$ 4,523,757
General and administrative	912,824	774,799
Total operating expenses	7,773,254	5,298,556
Loss from operations	(7,773,254)	(5,298,556)
Other income (expense):		
Change in estimated fair value of warrant liability	(32,515)	5,104
Loss on issuance of related party convertible notes payable at fair value	(200,000)	—
Change in estimated fair value of related party convertible notes payable	(300,000)	—
Interest expense	(5,076)	(28,454)
Interest income	14,786	51,651
Total other income (expense), net	(522,805)	28,301
Net loss	$ (8,296,059)	$ (5,270,255)
Weighted-average shares of common stock outstanding, basic and diluted	2,763,243	2,411,455
Net loss per share attributable to common stockholders, basic and diluted	$ (3.00)	$ (2.19)

See accompanying notes to unaudited condensed consolidated financial statements.

ACTUATE THERAPEUTICS, INC.

CONDENSED CONSOLIDATED STATEMENTS OF REDEEMABLE CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT (UNAUDITED)

For the Three Months Ended March 31, 2024

	Redeemable Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount			
Balances, January 1, 2024	24,678,355	$ 94,178,404	3,043,309	$ 3	$ 5,468,005	$ (105,094,521)	$ (99,626,513)
Stock-based compensation expense	—	—	—	—	148,206	—	148,206
Net loss	—	—	—	—	—	(8,296,059)	(8,296,059)
Balances, March 31, 2024	24,678,355	$ 94,178,404	3,043,309	$ 3	$ 5,616,211	$ (113,390,580)	$ (107,774,366)

For the Three Months Ended March 31, 2023

	Redeemable Convertible Preferred Stock		Common Stock		Additional Paid-in Capital	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount			
Balances, January 1, 2023	23,656,337	$ 90,137,751	3,043,309	$ 3	$ 5,044,466	$ (80,349,901)	$ (75,305,432)
Stock-based compensation expense	—	—	—	—	73,131	—	73,131
Proceeds from issuances of redeemable convertible preferred stock, net of issuance costs of $206,821	578,037	2,313,431	—	—	—	—	—
Net loss	—	—	—	—	—	(5,270,255)	(5,270,255)
Balances, March 31, 2023	24,234,374	$ 92,451,182	3,043,309	$ 3	$ 5,117,597	$ (85,620,156)	$ (80,502,556)

See accompanying notes to unaudited condensed consolidated financial statements.

ACTUATE THERAPEUTICS, INC.

CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS (UNAUDITED)

	Three Months Ended March 31,	
	2024	**2023**
Operating Activities:		
Net loss	$ (8,296,059)	$ (5,270,255)
Adjustment to reconcile net loss to net cash used in operating activities:		
Stock-based compensation expense	148,206	73,131
Change in estimated fair value of warrant liability	32,515	(5,104)
Loss on issuance of related party convertible notes payable at fair value	200,000	—
Change in estimated fair value of related party convertible notes payable	300,000	—
Interest accrued on license payable	5,076	28,454
Changes in operating assets and liabilities:		
Prepaid assets and other current assets	(82,867)	5,245
Accounts payable	483,703	468,678
Accrued compensation	—	(132,033)
Other accrued expenses	1,961,844	(526,957)
Net cash used in operating activities	(5,247,582)	(5,358,841)
Financing Activities:		
Proceeds from issuances of related party convertible notes payable, net	4,500,000	—
Proceeds received for redeemable convertible preferred stock to be issued	—	150,000
Deferred offering costs	(142,770)	—
Proceeds from issuances of redeemable convertible preferred stock, net	—	2,313,431
Net cash provided by financing activities	4,357,230	2,463,431
Net change in cash and cash equivalents	(890,352)	(2,895,410)
Cash and cash equivalents, beginning of period	2,958,659	20,449,310
Cash and cash equivalents, end of period	$ 2,068,307	$ 17,553,900
Supplemental disclosure of cash flow information:		
Cash paid for interest	$ —	$ —
Cash paid for income taxes	$ —	$ —
Supplemental Schedule of Noncash Financing Activities:		
Deferred offering costs, unpaid and accrued	$ 367,732	$ —

See accompanying notes to unaudited condensed consolidated financial statements.

ACTUATE THERAPEUTICS, INC.

NOTES TO THE CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
For The Three Months Ended March 31, 2024 and 2023 (unaudited)

1. DESCRIPTION OF BUSINESS AND BASIS OF PRESENTATION

Actuate Therapeutics, Inc. (the "Company") was incorporated in the State of Delaware on January 16, 2015. The Company is a clinical-stage biopharmaceutical company focused on developing novel therapies for the treatment of cancers through the inhibition of glycogen synthase kinase-3 ("GSK-3"). The Company's lead investigational product, elraglusib (formerly 9-ING-41), is a small molecule that is designed to enter cancer cells and block the function of the enzyme GSK-3β, thereby causing the death of the cancer cells and the regulation of anti-tumor immunity.

The Company has a 100%-owned Irish subsidiary, Actuate Therapeutics Limited, that is currently dormant.

The Company operates as a semi-virtual biopharmaceutical company with expertise in all aspects of preclinical and clinical development. In addition, the Company contracts with highly experienced development, manufacturing, regulatory, and clinical consultants located in offices throughout the United States of America ("U.S."), Europe and Canada.

Basis of Presentation

The accompanying unaudited condensed financial statements as of March 31, 2024 and for the three months ended March 31, 2024 and 2023 have been prepared in accordance with U.S. generally accepted accounting principle (U.S. GAAP) for interim financial information and pursuant to Article 10 of Regulation of the Securities Act of 1933, as amended. Accordingly, they do not include all of the information and notes required by U.S. GAAP for complete financial statements. These unaudited condensed financial statements include only normal and recurring adjustments that the Company believes are necessary to fairly state the Company's financial position and the results of its operations and cash flows. The results for the three months ended March 31, 2024 are not necessarily indicative of the results expected for the full fiscal year or any subsequent interim period. The condensed balance sheet at December 31, 2023 has been derived from the audited financial statements at that date but does not include all disclosures required by U.S. GAAP for complete financial statements. Because all of the disclosures required by U.S. GAAP for complete financial statements are not included herein, these unaudited condensed financial statements and the notes accompanying them should be read in conjunction with the Company's audited consolidated financial statements for the year ended December 31, 2023 included elsewhere in this Registration Statement.

Any reference in these notes to applicable guidance is meant to refer to the authoritative U.S. GAAP as found in the Accounting Standards Codification ("ASC") and Accounting Standards Updates ("ASU") of the Financial Accounting Standards Board ("FASB").

Going Concern and Management's Plans

The accompanying unaudited condensed consolidated financial statements have been prepared assuming the Company will continue as a going concern. As of March 31, 2024, the Company had cash and cash equivalents of $2,068,307 and a working capital deficit of $12,545,792. The Company has not generated revenues since inception and has incurred recurring operating losses since inception. The Company expects to continue to incur losses for the foreseeable future and therefore, the Company's ability to continue its operations is highly dependent on its ability to raise additional capital to fund its future operations.

During the three months ended March 31, 2024, the Company issued convertible promissory notes for aggregate principal amount of $4,500,000 to a related party (the "Related Party Convertible Notes Payable") in exchange for gross proceeds of $4,500,000 (see Note 5).

During the three months ended March 31, 2024, the Company continued to incur net losses primarily due to increased research and development expenses as it hired additional professional and scientific staff,

advanced its clinical pipeline, and continued to execute its manufacturing plans. Management expects to incur substantial additional expenditures during the remainder of 2024 and beyond for the development and potential commercialization of its product candidates, provided the Company is able to raise sufficient capital. If the Company encounters unforeseen delays or expenses, management will have the ability to curtail its presently planned level of operations. Management anticipates, based on currently proposed plans and assumptions, that our cash and cash equivalents on hand will not satisfy the Company's operational and capital requirements through twelve months from the issuance date of these unaudited condensed consolidated financial statements. Additionally, in view of the Company's expectation to incur significant losses for the foreseeable future, it will be required to raise additional capital resources in order to fund its operations, although the availability of, and the Company's access to such resources, is not assured. The above matters raise substantial doubt regarding the Company's ability to continue as a going concern.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The Company's significant accounting policies are disclosed in the audited consolidated financial statements appearing elsewhere in this prospectus. Since the date of such audited consolidated financial statements, there have been no changes to the Company's significant accounting policies, except as noted below.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates, assumptions, and judgements that affect the reported amounts of assets, liabilities, expenses, and related disclosures in the accompanying notes. The Company bases its estimates, assumptions and judgements on historical experience when available and on various factors that it believes to be reasonable under the circumstances as of the date of the accompanying unaudited condensed consolidated financial statements including the fair value of common stock, fair value of the warrant liability, fair value of related party convertible notes payable, stock-based compensation expense, accrued expenses (including accrued expenses related to research and development ("R&D") as described below), and the recoverability of the Company's net deferred tax assets and related valuation allowance. In addition, other factors may affect estimates, including the expected business and operational changes, the sensitivity and volatility associated with the assumptions used in developing estimates, and whether historical trends are expected to be representative of future trends. The estimation process often may yield a range of potentially reasonable estimates of the ultimate future outcomes, and management must select an amount that falls within that range of reasonable estimates. Actual results could differ materially from the estimates and assumptions used in the preparation of the accompanying unaudited condensed consolidated financial statements under different assumptions or conditions.

Accrued Expenses Related to R&D Expenses

As part of the process of preparing our unaudited condensed consolidated financial statements, we are required to estimate our R&D expenses as of each balance sheet date. This process involves reviewing open contracts, including clinical site contracts, and communicating with our personnel to identify services that have been performed on our behalf, and estimating the level of service performed and the associated cost incurred for the service when we have not yet been invoiced or otherwise notified of the actual cost. We make estimates of our R&D expenses as of each balance sheet date based on facts and circumstances known to us at that time. The significant estimates in our R&D expenses include the costs incurred for services performed by our vendors in connection with services for which we have not yet been invoiced. We base our expenses related to R&D activities on our estimates of the services received and efforts expended pursuant to quotes and contracts with contractors and vendors that conduct R&D on our behalf. The financial terms of these agreements are subject to negotiation, vary from contract to contract, and may result in uneven payment flows. Advance payments for goods and services that will be used in future R&D activities are expensed when

the activity has been performed or when the goods have been received rather than when the payment is made. Although we do not expect our estimates to be materially different from amounts actually incurred, if our estimates of the status and timing of services performed differ from the actual status and timing of services performed, it could result in us reporting amounts that are too high or too low in any particular period. To date, there have been no material differences between our estimates of such expenses and the amounts actually incurred.

Deferred Offering Costs

The Company capitalizes as deferred offering costs all direct and incremental legal, professional, accounting and other third-party fees incurred in connection with the Company's initial public offering ("IPO"). The deferred offering costs will be offset against the IPO proceeds upon the consummation of an offering. As of March 31, 2024 and December 31, 2023, the Company had $510,502 and zero in deferred offering costs, respectively, of which $50,520 was included in accounts payable and $317,212 was included in other accrued expenses in the accompanying unaudited condensed consolidated balance sheets.

Fair Value of Financial Instruments

Authoritative guidance requires disclosure of the fair value of financial instruments. The Company applies fair value measurements to record fair value adjustments to certain assets and liabilities and to determine fair value disclosures. The carrying amount of certain of the Company's financial instruments, including cash and cash equivalents, accounts payable and accrued liabilities, approximate their estimated fair values primarily due to the short-term nature of the instruments or based on information obtained from market sources and management estimates. The Related Party Convertible Notes Payable (see Notes 3 and 5) and the redeemable convertible preferred stock warrant liability (see Notes 3 and 9) are carried at fair value based on unobservable market inputs. The Company measures the fair value of certain of its financial liabilities on a recurring basis. A fair value hierarchy is used to rank the quality and reliability of the information used to determine fair values. Financial assets and liabilities carried at fair value which is not equivalent to cost will be classified and disclosed in one of the following three categories:

- Level 1 — Quoted prices (unadjusted) in active markets for identical assets and liabilities;
- Level 2 — Inputs other than Level 1 that are observable, either directly or indirectly, such as unadjusted quoted prices for similar assets and liabilities, unadjusted quoted prices in the markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities; and
- Level 3 — Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities. Level 3 assets and liabilities include those whose fair value measurements are determined using pricing models, discounted cash flow methodologies or similar valuation techniques and significant management judgment or estimation.

Fair Value Option of Accounting for Related Party Convertible Notes Payable

When financial instruments contain various embedded derivatives which may require bifurcation and separate accounting of those derivatives apart from the entire host instrument, if eligible, ASC 825, *Financial Instruments* ("ASC 825") allows issuers to elect the fair value option ("FVO") of accounting for those instruments. The FVO may be elected on an instrument-by-instrument basis and is irrevocable unless a new election date occurs. The FVO allows the issuer to account for the entire financial instrument at fair value with subsequent remeasurements of that fair value recorded through the statements of operations at each reporting date. A financial instrument is generally eligible for the FVO if, amongst other factors, no part of the convertible, or contingently convertible, instrument is classified in stockholder's equity and the instrument does not contain a beneficial conversion feature at issuance, provided if a contingent beneficial

conversion feature, if any, is not separately recognized within stockholders' equity at the issuance date, a convertible debt instrument with a contingent beneficial conversion feature would be eligible for the FVO if all other criteria are met.

Based on the eligibility assessment discussed above, the Company concluded that its Related Party Convertible Notes Payable are eligible for the FVO and accordingly elected to apply the FVO to its Related Party Convertible Notes Payable in accordance with ASC 825. Accordingly, the Related Party Convertible Notes Payable are measured at fair value on their issuance dates and remeasured at estimated fair value at the end of each reporting period with changes in fair value recognized as a component of other income (expense) in the unaudited condensed consolidated statements of operations. The primary reason for electing the fair value option was to address simplification and cost-benefit considerations that result from accounting for hybrid financial instruments at fair value in their entirety versus bifurcation of the embedded derivatives from the debt hosts.

The estimated fair values of the Related Party Convertible Notes Payable are determined using valuation models that incorporate assumptions and estimates. The Company assesses these assumptions and estimates at each financial reporting period as additional information impacting the assumptions is obtained. Assumptions in the models include but are not limited to equity value, volatility, time to a conversion event, risk-free rate and scenario weightings. The fair value measurements of the Related Party Convertible Notes Payable are based on significant inputs that are not observable in the market and represent a Level 3 measurement (see Notes 3 and 5). The change in fair value related to accrued interest is also included within the single line of change in fair value of Related Party Convertible Notes Payable in the unaudited condensed consolidated statements of operations.

In addition, in certain circumstances, the estimated fair value at issuance may be greater than the face value at issuance. The loss on issuance of the related party convertibles notes payable of $200,000 recorded during the three months ended March 31, 2024 represents the difference between the estimated fair value of the Related Party Convertible Notes Payable and the gross proceeds received on the issuance date based on the assumptions, including the proximity in time to the anticipated IPO, the discount on conversion of the related party convertible notes payable (see Notes 3 and 5), and the increased probability weighted IPO scenario.

Redeemable Convertible Preferred Stock

The Company records all shares of redeemable convertible preferred stock at their respective fair values on the dates of issuance, net of issuance costs. Redeemable convertible preferred stock is recorded outside of permanent equity because while it is not mandatorily redeemable, in certain events considered not solely within the Company's control, such as a merger, acquisition, or sale of all or substantially all of the Company's assets, each referred to as a "deemed liquidation event," the redeemable convertible preferred stock will become redeemable at the option of the holders of at least a majority of the then outstanding preferred shares. The Company has not adjusted the carrying value of the redeemable convertible preferred stock to its liquidation preference because a deemed liquidation event obligating the Company to pay the liquidation preference to holders of shares of redeemable convertible preferred stock is not probable of occurring as of the issuance date of these unaudited condensed consolidated financial statements. Subsequent adjustments to the carrying values to the liquidation preference will be made only if it becomes probable that such a deemed liquidation event will occur.

Redeemable Convertible Preferred Stock Warrants

The Company's redeemable convertible preferred stock warrants require liability classification and accounting as the underlying redeemable convertible preferred stock is considered contingently redeemable and may obligate the Company to transfer assets to the holders at a future date upon occurrence of a deemed liquidation event. The warrants are recorded at their estimated fair value upon issuance and are subject to

remeasurement to estimated fair value at each balance sheet date, with changes in the estimated fair value recognized as a component of other income (expense) in the accompanying unaudited condensed consolidated statements of operations. The Company will continue to adjust the warrant liability for changes in estimated fair value until the earlier of the exercise or expiration of the redeemable convertible preferred stock warrants, the occurrence of a deemed liquidation event, or the conversion of redeemable convertible preferred stock into common stock.

Net Loss Per Share Attributable to Common Stockholders

Basic net loss per common share is calculated by dividing the net loss attributable to common stockholders by the weighted-average number of shares of common stock outstanding during the period, without consideration of potentially dilutive securities. Diluted net loss per share is computed by dividing the net loss attributable to common stockholders by the weighted-average number of shares of common stock and potentially dilutive securities outstanding for the period. For purposes of the diluted net loss per share calculation, redeemable convertible preferred stock, convertible notes payable, warrants to purchase redeemable convertible preferred stock, unvested RSAs, and outstanding stock options are considered to be potentially dilutive securities (see Note 10).

Basic and diluted net loss attributable to common stockholders per share is presented in conformity with the two-class method required for participating securities as the redeemable convertible preferred stock and common stock subject to repurchase are considered participating securities. The redeemable convertible preferred stock does not have a contractual obligation to share in the Company's losses, and unvested RSAs subject to repurchase is considered an unvested stock-based compensation award for accounting purposes. As such, the net loss is attributed entirely to common stockholders. Because the Company has reported a net loss for the reporting periods presented, the diluted net loss per common share is the same as basic net loss per common share for those periods.

Recently Issued Accounting Standards

Accounting standards not listed below were assessed and determined not to be applicable or are expected to have minimal impact on the Company's financial statements.

In August 2020, the FASB issued ASU 2020-06, *Debt — Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging — Contracts in Entity's Own Equity (Subtopic 815-40)*. The guidance simplifies the accounting for certain financial instruments, eliminates the current models that require separation of beneficial conversion and cash conversion features from convertible instruments, and simplifies the derivative scope exception guidance pertaining to equity classification of contracts in an entity's own equity. It also introduces additional disclosures for convertible debt and freestanding instruments that are indexed to and settled in an entity's own equity and amends the diluted earnings per share guidance, including the requirement to use the if-converted method for all convertible instruments. The guidance is effective for public business entities that meet the definition of a Securities and Exchange Commission filer, excluding entities eligible to be smaller reporting companies as defined by the Securities and Exchange Commission, for fiscal years beginning after December 15, 2021, including interim periods within those fiscal years. For all other entities, the guidance is effective for fiscal years beginning after December 15, 2023, including interim periods within those fiscal years. Early adoption is permitted, but no earlier than fiscal years beginning after December 15, 2020, including interim periods within those fiscal years. The Company adopted the guidance as of January 1, 2024 with no material impact on the Company's unaudited condensed consolidated financial statements upon adoption.

ACTUATE THERAPEUTICS, INC.

NOTES TO THE CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
For The Three Months Ended March 31, 2024 and 2023 (unaudited) (continued)

3. FAIR VALUE MEASUREMENTS

The following table summarizes the Company's liabilities measured at fair value as of March 31, 2024 and December 31, 2023:

		Fair Value Measurements at March 31, 2024 Using		
	Fair Value at March 31, 2024	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Liabilities:				
Related party convertible notes payable	$ 5,000,000	$ —	$ —	$ 5,000,000
Redeemable convertible preferred stock warrant liability	1,020,564	—	—	1,020,564
Total liabilities	$ 6,020,564	$ —	$ —	$ 6,020,564

		Fair Value Measurements at December 31, 2023 Using		
	Fair Value at December 31, 2023	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Liabilities:				
Redeemable convertible preferred stock warrant liability	$ 988,049	$ —	$ —	$ 988,049
Total liabilities	$ 988,049	$ —	$ —	$ 988,049

The following table sets forth the changes in the aggregate estimated fair value of the Company's Series B and Series C redeemable convertible preferred stock warrant liability:

Estimated fair value as of December 31, 2023	$ 988,049
Change in fair value	32,515
Estimated fair value as of March 31, 2024	$1,020,564

The Series B redeemable convertible preferred stock warrant liability was valued using the following assumptions using the Black-Scholes valuation model as of March 31, 2024 and December 31, 2023:

	March 31, 2024	December 31, 2023
Stock price	$ 4.86	$ 4.78
Expected term (in years)	4.4	4.7
Expected volatility	%83.66	%80.68
Weighted average risk-free interest rate	% 5.23	% 4.48

Dividend yield	% 0.00	% 0.00

ACTUATE THERAPEUTICS, INC.

NOTES TO THE CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
For The Three Months Ended March 31, 2024 and 2023 (unaudited) (continued)

The Series C redeemable convertible preferred stock warrant liability was valued using the following assumptions using the Black-Scholes valuation model as of March 31, 2024 and December 31, 2023:

	March 31, 2024	December 31, 2023
Stock price	$ 4.83	$ 4.72
Expected term (in years)	4.2	4.5
Expected volatility	%83.84	%80.68
Weighted average risk-free interest rate	% 5.23	% 4.48
Dividend yield	% 0.00	% 0.00

The following table sets forth the changes in the aggregate estimated fair value of the Company's Related Party Convertible Notes Payable for the three months ended March 31, 2024 (see Note 5):

Estimated fair value at issuance	$4,700,000
Change in fair value	300,000
Estimated fair value as of March 31, 2024	$5,000,000

The fair value of the Related Party Convertible Notes Payable was estimated using a scenario-weighted binomial lattice model to calculate equity values at different points in time leading up to a conversion event. Assumptions in the model include but are not limited to the following: equity value, conversion price, accrued interest, volatility, risk-free interest rate, dividend yield, time to a conversion event, and scenario weightings. Accrued interest on the Related Party Convertible Notes Payable was included in the determination of the estimated fair value as of March 31, 2024.

4. OTHER ACCRUED EXPENSES

Other accrued expenses as of March 31, 2024 and December 31, 2023 consisted of the following:

	March 31, 2024	December 31, 2023
Accrued clinical trial costs	$ 5,170,182	$ 3,207,785
Other accrued expenses	330,128	13,469
Total other accrued expenses	$ 5,500,310	$ 3,221,254

5. RELATED PARTY CONVERTIBLE NOTES PAYABLE

On February 20, 2024 and March 27, 2024, the Company issued convertible promissory notes in the amount of $3,000,000 and $1,500,000, respectively, to Bios Clinical Opportunity Fund, LP, a fund affiliated with two members of the board of directors of the Company and a majority shareholder, which notes accrue interest at a rate of 7% per annum and mature on June 30, 2024 ("Maturity Date"). Principal and accrued interest are due and payable on the Maturity Date, subject to an automatic conversion upon a Qualified Financing (as defined below) or an IPO (as defined below) or at the option of the holder, convertible into shares of Series C redeemable convertible preferred stock.

In the event the Company either completes a financing of at least $5 million in gross proceeds ("Qualified Financing") or closes the Company's first firm commitment underwritten IPO of its Common Stock before the Maturity Date, the Related Party Convertible Notes Payable will automatically convert into (i) in the case of a Qualified Financing, that number of shares of capital stock issued in such Qualified Financing (the "Qualified Financing Securities") equal to the quotient obtained by dividing the outstanding principal amount of the Related Party Convertible Notes Payable plus all accrued and unpaid interest thereon by eighty percent (80%) of the per share price at which shares are to be sold in such Qualified Financing or (ii) in

the case of an IPO, such number of shares of Common Stock (as defined below) equal to the outstanding principal amount of the Related Party Convertible Notes Payable plus all accrued and unpaid interest thereon, divided by eighty percent (80%) of the IPO price.

In the event a Qualified Financing or IPO does not occur prior to the Maturity Date, then on or after the Maturity Date, the holder may elect to either (i) convert the Related Party Convertible Notes Payable into such number of shares of Series C redeemable convertible preferred stock equal to the principal amount plus the accrued but unpaid interest thereon divided by $4.36 or (ii) elect that the Related Party Convertible Notes Payable become fully due and payable in cash.

Transaction fees of the related party in the amount of $50,000 that were withheld by the related party were expensed as incurred in accordance with ASC 825.

6. COMMITMENTS AND CONTINGENCIES

Legal

The Company may be involved, from time to time, in legal proceedings and claims arising in the ordinary course of its business. Such matters are subject to many uncertainties and outcomes and are not predictable with assurance. While management believes that such matters are currently insignificant, matters arising in the ordinary course of business for which the Company is or could become involved in litigation may have a material adverse effect on its business and financial condition. To the Company's knowledge, the Company is not subject to any pending legal proceedings.

Indemnities and Guarantees

We have made certain indemnities and guarantees, under which we may be required to make payments to a guaranteed or indemnified party, in relation to certain transactions. We indemnify our officers and directors to the maximum extent permitted under the laws of the State of Delaware. The duration of these indemnities and guarantees varies and, in certain cases, is indefinite. These indemnities and guarantees do not provide for any limitation of the maximum potential future payments we could be obligated to make. Historically, we have not been obligated to make any payments for these obligations and no liabilities have been recorded for these indemnities and guarantees in the accompanying unaudited condensed consolidated balance sheets.

7. LICENSES AND AGREEMENTS

Northwestern License Agreement

On March 31, 2015, the Company entered into an Exclusive License Agreement with Equity (the "Northwestern License Agreement") with Northwestern University ("Northwestern"). Pursuant to the Northwestern License Agreement, Northwestern granted the Company (a) a nonexclusive license to certain technical information developed in the laboratory of Andrew Mazar, and (b) an exclusive license to all results obtained by Andrew Mazar and his collaborators at Northwestern on the use of the GSK-3β (formerly 9-ING-41) and related compounds used for the treatment of cancer and combination therapies. In consideration of the license granted pursuant to the Northwestern License Agreement, the Company granted Northwestern 50,000 shares of the Company's common stock, representing 5% of the Company's capital stock on a fully diluted basis on the date of grant. In addition, the Company granted Northwestern the right to participate in future offerings of the Company's capital securities on the same terms as offered to those participating in the offering. In 2019, Northwestern's right to participate in future offerings expired.

UIC License Agreement

On April 6, 2015, the Company entered into an Exclusive License Agreement with Equity (the "UIC License Agreement") with The Board of Trustees of the University of Illinois ("UIC"), whereby, UIC

granted the Company (a) an exclusive, nontransferable license, with the right to sublicense under UIC's rights in the Patent Rights (as defined in the UIC License Agreement), and (b) a non-exclusive, non-transferable license, with the right to sublicense, to use UIC's rights in the Technical Information (as defined in the UIC License Agreement) within the Territory and the Field as each such term is defined in the UIC License Agreement. In consideration of the license granted under the UIC License Agreement, the Company issued 83,750 shares of the Company's common stock to UIC, which represented 5% of the Company's capital stock on a fully diluted basis, as defined in the UIC License Agreement, and agreed to pay UIC (i) development milestones of up to $1.3 million, of which, up to $0.3 million is due upon the progress of clinical trials and $1.0 million is due upon the initiation of commercial sales (ii) annual minimum royalty payments of $5,000 beginning on the third anniversary year of the UIC License Agreement and increasing to $15,000 in year four, $35,000 in year five, and $50,000 in year six and thereafter, (iii) royalty on net sales for product covered under the Patent Rights in the low single digits with a 50% reduction in royalties for products solely utilizing Technical Information, (iv) a declining percentage of sublicensing revenue based on the escalating stage of development upon a sublicensing event, and (v) the reimbursement of all patent and related expenses incurred by UIC covering the Patent Rights. For the three months ended March 31, 2023, the Company incurred reimbursable patent expenses to UIC in the aggregate amount of $5,524, which amount was included in general and administrative expenses in the accompanying unaudited condensed consolidated statements of operations. There we no related expenses incurred under the UIC License Agreement during the three months ended March 31, 2024.

In addition, the Company has an obligation to UIC related to a sub-license and collaboration agreement dated August 28, 2017 with an unrelated entity, which agreement was later terminated on January 31, 2018. Under the agreement, the Company initially paid UIC a portion of the sublicense fees in the amount of $44,999 with the remaining unpaid balance of $404,991 due and payable to UIC in two installments with 50% due and payable on the one-year anniversary from the first commercial sale and the remaining balance is due on the second-year anniversary from the first commercial sale. Notwithstanding the foregoing, in the event the Company effectuates a change in control, sublicenses the underlying technology, or secures cumulative funding of at least $100 million (of which, the Company has received aggregate net proceeds of $94.2 million as of March 31, 2024, excluding the Related Party Convertible Notes of $4.5 million received during the three months ended March 31. 2024), all unpaid amounts shall be immediately due and payable. The unpaid balance of $404,991 as of March 31, 2024 and December 31, 2023 continues to accrue interest at a rate of 5% per annum, representing the prime rate as of the date of the agreement plus 1%. Interest payable to UIC was $135,117 and $130,041 as of March 31, 2024 and December 31, 2023, respectively, and is included in the accompanying unaudited condensed consolidated balance sheets.

8. STOCKHOLDERS' DEFICIT

The Company authorized capital as of March 31, 2024 consists of 38,108,584 shares of common stock, $0.000001 par value per share ("Common Stock") and 33,463,018 shares of preferred stock, $0.000001 par value per share, of which, the Company has designated multiple series of redeemable convertible preferred stock ("Preferred Stock").

ACTUATE THERAPEUTICS, INC.

NOTES TO THE CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
For The Three Months Ended March 31, 2024 and 2023 (unaudited) (continued)

Redeemable Convertible Preferred Stock

As of March 31, 2024, the redeemable convertible preferred stock is comprised of the following:

	Number of Shares Authorized	Number of Shares Issued and Outstanding	Face Amount	Liquidation Value	Original Issue Price
Series A	1,983,663	1,983,663	$ 3,967,333	$ 6,202,941	$2.00000
Series B-1	4,133,477	3,858,547	14,121,012	19,682,752	$3.65967
Series B-2	2,307,017	2,307,017	8,824,986	12,222,274	$3.82528
Series B-3	1,625,000	1,625,000	6,500,000	8,823,896	$4.00000
Series B-4	11,961,721	9,333,928	39,015,819	49,134,888	$4.18000
Series C	11,452,140	5,570,200	24,286,072	26,895,591	$4.36000
	33,463,018	24,678,355	$96,715,222	$122,962,342	

As of December 31, 2023, the redeemable convertible preferred stock is comprised of the following:

	Number of Shares Authorized	Number of Shares Issued and Outstanding	Face Amount	Liquidation Value	Original Issue Price
Series A	1,983,663	1,983,663	$ 3,967,333	$ 6,123,812	$2.00000
Series B-1	4,133,477	3,858,547	14,121,012	19,401,105	$3.65967
Series B-2	2,307,017	2,307,017	8,824,986	12,046,258	$3.82528
Series B-3	1,625,000	1,625,000	6,500,000	8,694,252	$4.00000
Series B-4	11,961,721	9,333,928	39,015,819	48,356,709	$4.18000
Series C	11,452,140	5,570,200	24,286,072	26,411,200	$4.36000
	33,463,018	24,678,355	$96,715,222	$121,033,336	

The rights, preferences, privileges and restrictions granted to or imposed on the Company's redeemable convertible preferred stock or the holders thereof are as follows:

Dividends

The holders of redeemable convertible preferred stock shall be entitled to receive dividends, out of any assets legally available therefore, prior and in preference to any declaration or payment of any dividend to the common stockholders, at the rate of 8.0% per annum on each of the Series A, Series B-1, Series B-2, Series B-3, Series B-4, and Series C original issue prices, payable when, and if declared by the Board. Such dividends shall be cumulative and if less than the full amount of dividends payable on the redeemable convertible preferred stock if declared and paid, any such payments shall be made ratably among the holders of the redeemable convertible preferred stock in proportion to the total amount each holder would be entitled to receive if the full amount of dividends payable on the redeemable convertible preferred stock had been declared. As of March 31, 2024 and December 31, 2023, no dividends had been declared or paid.

Liquidation

In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Company or deemed liquidation event (as defined in the certificate of incorporation), the holders of shares of Preferred Stock then outstanding shall be entitled to be paid out of the assets of the Company available for distribution to its stockholders before any payment shall be made to the holders of Common Stock by reason of their

ownership thereof, an amount per share equal to one times the original issue price, plus any dividends declared but unpaid thereon. If upon any such liquidation, dissolution or winding up of the Company or deemed liquidation event, the assets of the Company available for distribution to its stockholders shall be insufficient to pay the holders of shares of Preferred Stock the full amount to which they shall be entitled, the holders of shares of Preferred Stock shall share ratable in any distribution of the assets available for distribution in proportion to the respective amounts which would otherwise be payable in respect of the shares held by them upon such distribution if all amounts payable on or with respect to such shares were paid in full.

Conversion

Each share of redeemable convertible preferred stock is convertible at the option of the holder at any time into a share of fully paid and non-assessable share of Common Stock. Each share of convertible preferred stock is convertible into that number of common shares as is determined by dividing the applicable initial purchase price (the "Initial Purchase Price") of such share by the applicable conversion price. The conversion rates for each series of redeemable convertible preferred stock as of December 31, 2023 were as follows: Series A — $2.00; Series B-1 — $3.65967; Series B-2 — $3.82528; Series B-3 — $4.00; Series B-4 — $4.18; and Series C — $4.36.

The conversion price is subject to adjustment upon the occurrence of certain events, including issuances of shares of Common Stock at a price, exercise price, or conversion price lower than the conversion prices of the Preferred Stock, unless waived by a majority of the holders of the series of redeemable convertible preferred stock.

Upon the closing of the sale of shares of common stock to the public resulting in at least $100 million in gross proceeds, all outstanding shares of Preferred Stock shall automatically be converted into shares of Common Stock at the then effective conversion rate.

Voting Rights

The holders of redeemable convertible preferred stock shall have the right to one vote for each whole share of Common Stock into which such redeemable convertible preferred stock could then be converted. With respect to such vote, the holder shall have full voting rights and powers equal to the voting rights and powers of the holders of Common Stock, shall be entitled to notice of any stockholders' meeting in accordance with the bylaws of the Company, and shall be entitled to vote, together with holders of Common Stock, with respect to any matter upon which holders of Common Stock have the right to vote.

Redemption and Balance Sheet Classification

The redeemable convertible preferred stock is recorded within temporary equity because, while it is not mandatorily redeemable, it will become redeemable at the option of the holders upon the occurrence of certain deemed liquidation events that are considered not solely within the Company's control.

Common Stock

As of March 31, 2024, there were 38,108,584 shares of Common Stock authorized, of which, 3,043,309 shares were issued and outstanding as of March 31, 2024 and December 31, 2023.

The voting, dividend, and liquidation rights of the holders of Common Stock are subject to and qualified by the rights, powers and preferences of the holders of the Preferred Stock.

Reserved Shares

As of March 31, 2024, the Company reserved the following shares of Common Stock for issuance upon the (i) conversion of the outstanding redeemable convertible preferred stock, (ii) conversion of

Related Party Convertible Notes Payable, (iii) exercise of outstanding redeemable convertible preferred stock warrants, (iv) exercise of issued and outstanding stock options, and (v) to reserve the remaining shares available for grant under the 2015 Plan:

	March 31, 2024
Conversion of redeemable convertible preferred stock	24,678,355
Conversion of related party convertible notes payable	1,037,653
Exercise of Series C redeemable convertible preferred stock warrants	32,796
Exercise of Series B redeemable convertible preferred stock warrants	274,930
Stock options outstanding	708,011
Shares reserved for issuance under the 2015 Plan	894,246
Total	27,625,991

9. WARRANTS

Redeemable Convertible Preferred Stock Warrant Liability

On June 30, 2023, in connection with issuance of the Series C redeemable convertible preferred stock, the Company issued the placement agent warrants to purchase 32,796 shares of Series C redeemable convertible preferred stock at an exercise price of $5.23 per share. The warrants terminate at the earlier of (i) five (5) years from the issuance date, (ii) the consummation of a change of control, or (iii) upon the first closing of an initial public offering of the Company's common stock. The warrants have a net exercise provision under which the holders could, in lieu of payment of the exercise price in cash, surrender the warrant and receive a net amount of shares based on the fair market value of the Company's stock at the time of exercise of the warrants after deduction of the aggregate exercise price. The warrants contain provisions for adjustment of the exercise price and number of shares issuable upon the exercise of warrants in the event of certain stock dividends, stock splits, reorganizations, reclassifications, and consolidations. The initial estimated fair value of the warrants of $93,863 was calculated using the Black-Scholes valuation model (see Note 3) and recorded as a reduction to redeemable convertible preferred stock and a corresponding increase in the warrant liability.

On September 7, 2018, in connection with convertible promissory note payable agreements, the Company agreed to issue the noteholders warrants to purchase shares of Series B-1 redeemable convertible preferred stock. Warrants to purchase 137,465 shares of Series B-1 redeemable convertible preferred stock were issued at an exercise price of $2.93 per share and warrants to purchase 137,465 shares of series B-1 redeemable convertible preferred stock were issued at an exercise price of $5.86 per share. The warrants terminate at the earlier of (i) ten (10) years from the issuance date, (ii) the consummation of a change of control, or (iii) upon the first closing of an initial public offering of the Company's common stock. The warrants have a net exercise provision under which the holders could, in lieu of payment of the exercise price in cash, surrender the warrant and receive a net amount of shares based on the fair market value of the Company's stock at the time of exercise of the warrants after deduction of the aggregate exercise price. The warrants contain provisions for adjustment of the exercise price and number of shares issuable upon the exercise of warrants in the event of certain stock dividends, stock splits, reorganizations, reclassifications, and consolidations. The initial estimated fair value of the warrants of $805,292 was recorded on the closing date of a private placement in April 2019, representing the initial date the warrants could be measured.

The Series B-1 and Series C warrants had an aggregate estimated fair value of $1,020,564 and $988,049 as of March 31, 2024 and December 31, 2023, respectively (see Note 3). Changes in the estimated fair value of the warrant liability were recognized as a component of other income (expense) in the accompanying unaudited condensed consolidated statements of operations.

ACTUATE THERAPEUTICS, INC.

NOTES TO THE CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
For The Three Months Ended March 31, 2024 and 2023 (unaudited) (continued)

10. STOCK-BASED COMPENSATION

The 2015 Plan provides for the grant of incentive stock options, non-qualified stock options and restricted common stock awards. As of March 31, 2024, there were 3,670,566 shares authorized under the 2015 Plan, of which, 894,246 shares remained available for grant. All the Company's employees, as well as all of the Company's non-employee directors and other consultants, advisors and other persons who provide services to the Company are eligible to receive incentive awards under the 2015 Plan.

Restricted Common Stock Awards ("RSAs")

The Company did not grant RSAs during the three months ended March 31, 2024. As of March 31, 2024, the total estimated unrecognized compensation cost related to non-vested RSAs was approximately $303,000. This cost is expected to be recognized over the remaining weighted average vesting period of 0.99 years.

Restricted common stock activity for the three months ended March 31, 2024 is as follows:

	Restricted Common Stock Award Shares	Weighted Average Grant Fair Date Value
Unvested balance at December 31, 2023	304,251	$ 1.23
Granted	—	$ —
Vested	(55,154)	$ 1.17
Forfeited	—	$ —
Unvested balance at March 31, 2024	249,097	$ 1.24

Stock Options

The following table provides the assumptions used in determining the estimated fair value of stock option awards granted during the three months ended March 31, 2024:

	Three Months Ended March 31, 2024
Expected volatility	% 81.65
Risk-free interest rate	% 4.23
Expected dividend yield	% 0.00
Expected term (in years)	5.85

The weighted-average grant-date fair value of the option awards granted was $1.86 for the three months ended March 31, 2024. The estimated fair value of shares vested during the three months ended March 31, 2024 was $0.85. There were no stock option awards granted during the three months ended March 31, 2023.

ACTUATE THERAPEUTICS, INC.

NOTES TO THE CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
For The Three Months Ended March 31, 2024 and 2023 (unaudited) (continued)

The following table summarizes stock option activity during the three months ended March 31, 2024:

	Number of Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value
Outstanding at December 31, 2023	478,011	$ 1.19	9.31	
Options granted	230,000	$ 2.60		
Options exercised	—	$ —		
Options canceled and forfeited	—	$ —		
Outstanding at March 31, 2024	708,011	$ 1.65	9.34	$ 1,346,606
Vested and expected to vest at March 31, 2024	708,011	$ 1.65	9.34	$ 1,346,606
Exercisable at March 31, 2024	157,414	$ 1.19	8.98	$ 371,497

As of March 31, 2024, total unrecognized stock-based compensation cost related to stock options was approximately $605,000. This cost is expected to be recognized over the remaining weighted average vesting period of 2.15 years. The aggregate intrinsic value is calculated as the difference between the option exercise price and the estimated fair value of the underlying Common Stock.

The following table summarizes the stock-based compensation expense recorded in the accompanying unaudited condensed consolidated statements of operations during the three months ended March 31, 2024 and 2023:

	Three Months Ended March 31,	
	2024	2023
Research and development	$ 72,948	$ 15,621
General and administrative	75,258	57,510
Total	$ 148,206	$ 73,131

The Company has not recognized and does not expect to recognize in the near future, any tax benefit related to employee stock-based compensation expense as a result of the full valuation allowance related to its net deferred tax assets.

11. NET LOSS PER SHARE ATTRIBUTABLE TO COMMON STOCKHOLDERS

The following table sets forth the computation of basic and diluted net loss per share attributable to common stockholders:

	Three Months Ended March 31,	
	2024	2023
Numerator:		
Net loss	$ (8,296,059)	$ (5,270,255)
Denominator:		
Weighted-average shares of common stock outstanding, basic and diluted	2,763,243	2,411,455
Net loss per share attributable to common stockholders, basic and diluted	$ (3.00)	$ (2.19)

The potential dilutive effect of redeemable convertible preferred stock and related party convertible notes outstanding during the period are calculated using the if-converted method assuming the conversion of redeemable convertible preferred stock as of the earliest period reported or at the date of issuance, if later,

but are excluded if their effect is anti-dilutive. The potential dilutive effect of options, unvested RSAs, and warrants outstanding during the period are calculated in accordance with the treasury stock method, but are excluded if their effect is anti-dilutive.

The potential shares of Common Stock that were excluded from the computation of diluted net loss per share attributable to common stockholders for the periods presented because including them would have had an antidilutive effect were as follows:

	March 31,	
	2024	2023
Redeemable convertible preferred stock	24,678,355	24,234,374
Related party convertible notes payable to purchase redeemable convertible preferred stock	1,037,653	—
Options issued and outstanding	708,011	—
Unvested restricted common stock awards ("RSAs")	249,097	545,764
Warrants to purchase redeemable convertible preferred stock	307,726	274,930
Total	26,980,842	25,055,068

12. RELATED PARTY

During 2018, the Company entered into a master service agreement with Pacific BioPharma Logistics, Inc. ("PBL") to provide clinical support related to the packaging, labeling, kitting, storage, distribution and inventory for the Company's investigational products. Mr. Richard Kenley, Vice President of Manufacturing for the Company, is an unpaid advisor for PBL and his spouse is a shareholder in PBL. During the three months ended March 31, 2024 and 2023, we incurred $371,423 and $161,633, respectively, in services provided by PBL, which amounts are included in research and development expense in the accompanying unaudited condensed consolidated statements of operations. As of March 31, 2024 and December 31, 2023, we had an outstanding balance owed to PBL of $195,686 and $52,206, respectively, which amounts are included in accounts payable in the accompanying unaudited condensed consolidated balance sheets.

13. SUBSEQUENT EVENTS

The Company has evaluated subsequent events after the unaudited condensed consolidated balance sheet date and through the issuance date of these consolidated financial statements, and based on our evaluation, management has determined that no other subsequent events have occurred that would require recognition in the accompanying unaudited condensed consolidated financial statements or disclosure in the notes thereto other than as disclosed below and in the accompanying notes.

Shares of Common Stock

PRELIMINARY PROSPECTUS

Sole Bookrunner

Titan Partners Group

a division of American Capital Partners

Co-Manager

Newbridge Securities Corporation

, 2024

Through and including , 2024 (the 25th day after the date of this prospectus), all dealers effecting transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to a dealer's obligation to deliver a prospectus when acting as an underwriter and with respect to an unsold allotment or subscription.

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution.

The estimated expenses in connection with the sale of the securities being registered hereby, are as follows:

SEC registration fee	$ 7.380
Accounting fees and expenses	*
FINRA filing fee	$6,537.50
Nasdaq listing fee	*
Printing expenses	*
Legal fees and expenses	*
Accounting fees and expenses	*
Transfer agent fees and expenses	*
Miscellaneous	*
Total	$ *

* To be filed by amendment

Item 14. Indemnification of Directors and Officers.

Subsection (a) of Section 145 of the General Corporation Law of the State of Delaware (the DGCL) empowers a corporation to indemnify any person who was or is a party or who is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of the corporation) by reason of the fact that the person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by the person in connection with such action, suit or proceeding if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe the person's conduct was unlawful.

Subsection (b) of Section 145 empowers a corporation to indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action or suit by or in the right of the corporation to procure a judgment in its favor by reason of the fact that the person acted in any of the capacities set forth above, against expenses (including attorneys' fees) actually and reasonably incurred by the person in connection with the defense or settlement of such action or suit if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation, except that no indemnification shall be made in respect of any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery or the court in which such action or suit was brought shall determine upon application that, despite the adjudication of liability but in view of all the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses which the Court of Chancery or such other court shall deem proper.

Section 145 further provides that to the extent a director or officer of a corporation has been successful on the merits or otherwise in the defense of any action, suit or proceeding referred to in subsections (a) and (b) of Section 145, or in defense of any claim, issue or matter therein, such person shall be indemnified against expenses (including attorneys' fees) actually and reasonably incurred by such person in connection therewith; that indemnification provided for by Section 145 shall not be deemed exclusive of any other rights

to which the indemnified party may be entitled; and the indemnification provided for by Section 145 shall, unless otherwise provided when authorized or ratified, continue as to a person who has ceased to be a director, officer, employee or agent and shall inure to the benefit of such person's heirs, executors and administrators. Section 145 also empowers the corporation to purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise against any liability asserted against such person and incurred by such person in any such capacity, or arising out of his status as such, whether or not the corporation would have the power to indemnify such person against such liabilities under Section 145.

Section 102(b)(7) of the DGCL provides that a corporation's certificate of incorporation may contain a provision eliminating or limiting the personal liability of a director to the corporation or its stockholders for monetary damages for breach of fiduciary duty as a director, provided that such provision shall not eliminate or limit the liability of a director (i) for any breach of the director's duty of loyalty to the corporation or its stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) under Section 174 of the DGCL or (iv) for any transaction from which the director derived an improper personal benefit.

Our amended and restated certificate of incorporation and our amended and restated bylaws, each of which will become effective immediately prior to the closing of this offering, will provide that we shall indemnify our directors and officers, and may indemnify our employees and other agents, to the maximum extent permitted by the DGCL, and our bylaws provide that we shall indemnify directors, officers, employees and other agents to the maximum extent permitted by the DGCL.

In addition, we have entered into indemnification agreements with each of our directors and officers. These agreements require us to indemnify these individuals to the fullest extent permitted under Delaware law against liabilities that may arise by reason of their service to us, and to advance expenses incurred as a result of any proceeding against them as to which they could be indemnified. We also intend to enter into indemnification agreements with our future directors and officers.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers, and controlling persons pursuant to the foregoing provisions, or otherwise, we have been advised that, in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment of expenses incurred or paid by a director, officer or controlling person in a successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, we will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to the court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

Item 15. Recent Sales of Unregistered Securities.

Since January 1, 2021, we have made the following sales of unregistered securities:

(1) In January 2021, we issued and sold to certain investors an aggregate of 5,869,263 shares of our Series B-4 redeemable convertible preferred stock at a purchase price of $4.18 per share, for aggregate gross proceeds of approximately $24.5 million.

(2) In multiple closings from August 2022 to June 2023, we issued and sold to certain investors an aggregate of 5,570,200 shares of our Series C redeemable convertible preferred stock at a purchase price of $4.36 per share, and received aggregate gross proceeds of approximately $23.4 million.

(3) In June 2023, in connection with our Series C financing, we issued to the placement agent warrants to purchase an aggregate of 32,796 shares of our Series C redeemable convertible preferred stock at an exercise price of $5.23 per share, which warrant will convert into a warrant to purchase common stock at an exercise price of $5.23 if not automatically exercised as of the closing of this offering.

(4) In February, March and May 2024, we issued and sold to a certain accredited investor a convertible promissory note, with a principal amount of $3.0 million, $1.5 million and $1.0 million, respectively, that is subject to an automatic conversion upon a Qualified Financing (as defined below) or an Initial Public Offering (as defined below) or at the option of the holder, convertible into shares of Series C redeemable convertible preferred stock. In the event we either complete a financing of at least $5 million in gross proceeds ("Qualified Financing") or close a firm commitment underwritten initial public offering ("Initial Public Offering") of our common stock before June 30, 2024 (the Maturity Date), the note will automatically convert into (i) in the case of a Qualified Financing, that number of shares of capital stock issued in such Qualified Financing (the Qualified Financing Securities) equal to the quotient obtained by dividing the outstanding principal amount of the note plus all accrued and unpaid interest thereon by eighty percent (80%) of the per share price at which shares are to be sold in such Qualified Financing or (ii) in the case of an Initial Public Offering, such number of shares of common stock equal to the outstanding principal amount of the note plus all accrued and unpaid interest thereon, divided by eighty percent (80%) of the Initial Public Offering price. In the event a Qualified Financing or Initial Public Offering does not occur prior to the Maturity Date, then on or after the Maturity Date, the holder may elect to either (i) convert the note into such number of shares of Series C redeemable convertible preferred stock equal to the principal amount plus the accrued but unpaid interest thereon divided by $4.36 or (ii) elect that the note become fully due and payable in cash.

(5) From January 1, 2021 through the date of this registration statement, we granted to certain of our directors, employees and consultants under our 2015 Stock Incentive Plan, as amended (the 2015 Plan), options to purchase 708,011 shares of our common stock, all of which remain outstanding, with per share exercise prices ranging from $1.19 to $2.60.

(6) From January 1, 2021 to the effective date of this registration statement, we granted to certain of our directors, employees and consultants restricted stock awards under our 2015 Plan covering an aggregate of 2,135,167 shares of our common stock.

The offers, sales and issuances of the securities described in paragraphs (1) through (4) were deemed to be exempt from registration under the Securities Act in reliance on Section 4(a)(2) (or Regulation D promulgated thereunder) in that the issuance of securities to the accredited investors did not involve a public offering. The recipients of securities in each of these transactions acquired the securities for investment only and not with a view to or for sale in connection with any distribution thereof and appropriate legends were affixed to the securities issued in these transactions. Each of the recipients of securities in these transactions was an accredited investor under Rule 501 of Regulation D. No underwriters were involved in these transactions.

The offers, sales and issuances of the securities described in paragraphs (5) and (6) were deemed to be exempt from registration under the Securities Act in reliance on either Rule 701 in that the transactions were under compensatory benefit plans and contracts relating to compensation as provided under Rule 701 or Section 4(a)(2) in that the issuance of securities to the accredited investors did not involve a public offering. The recipients of such securities were our employees, directors or bona fide consultants and received the securities under the 2015 Plan.

Appropriate legends were affixed to the securities issued in these transactions. Each of the recipients of securities in these transactions had adequate access, through employment, business or other relationships, to information about us.

Item 16. Exhibits

(a) Exhibits.

The exhibits listed below are filed as part of this registration statement.

Exhibit Number	Description of Document
1.1†	Form of Underwriting Agreement
3.1	Fifth Amended and Restated Certificate of Incorporation, as currently in effect
3.2†	Certificate of Amendment to Fifth Amended and Restated Certificate of Incorporation
3.3	Form of Sixth Amended and Restated Certificate of Incorporation to become effective immediately prior to the closing of this offering
3.4	Bylaws, as currently in effect
3.5	Form of Amended and Restated Bylaws to become effective upon the closing of this offering
4.1†	Form of Common Stock Certificate of the registrant
4.2	Fourth Amended and Restated Investors' Rights Agreement, by and between the Registrant and certain of its stockholders, dated November 30, 2022
4.3†	Form of Representative Warrant
4.4†	Form of Second Amended and Restated Warrant
5.1†	Opinion of Baker & Hostetler LLP
10.1+	Actuate Therapeutics, Inc. 2015 Equity Incentive Plan, as amended, and form of grant agreements thereunder
10.2+	Actuate Therapeutics, Inc. 2024 Equity Incentive Plan
10.3+	Non-Employee Director Compensation Policy
10.4*	Exclusive License Agreement with Equity, dated April 6, 2015, as amended, between The Board of Trustees of the University of Illinois and the Registrant
10.5*	License Agreement, dated March 31, 2015, as amended, between Northwestern University and the Registrant
10.6+	Employment Agreement, effective April 15, 2015 and as amended on each of February 5, 2016, September 28, 2017, September 23, 2018, January 29, 2019, August 1, 2022, January 27, 2023 December 12, 2023 and May 9, 2024, between Daniel Schmitt, and the Registrant
10.7+	Employment Agreement, effective June 1, 2022, between Andrew P. Mazar, Ph.D., and the Registrant
10.8+	Consulting Agreement, effective February 17, 2024, between Paul Lytle, and the Registrant
10.9+	Employment Agreement, effective June 1, 2024, between Paul Lytle, and the Registrant
10.10+	Form of Indemnification Agreement for Directors and Officers
10.11+	Indemnification Agreement, effective February 17, 2024, between Paul Lytle and the Registrant
10.12+	Indemnification Agreement, effective March 17, 2017, between each of the parties set forth on the schedule thereto and the Registrant
21.1	List of Subsidiaries
23.1	Consent of KMJ Corbin & Company LLP, Independent Registered Public Accounting Firm
23.2†	Consent of Baker & Hostetler LLP (included in Exhibit 5.1)
24.1†	Power of Attorney (included on signature page)
99.1+	Clawback Policy
99.2	Consent of Director Nominee (Jason Keyes)
99.3	Consent of Director Nominee (Amy Ronneberg)

99.4	Consent of Director Nominee (Roger Sawhney)
107	Filing Fee Table

† To be filed by amendment.

¥ Schedules have been omitted pursuant to Item 601(a)(5) of Regulation S-K. The registrant undertakes to furnish supplemental copies of any of the omitted schedules upon request by the SEC.

+ Indicates management contract or compensatory plan.

* Certain portions of this exhibit have been omitted pursuant to Item 601(b)(10) of Regulation S-K on the basis that they are not material and would likely cause competitive harm to the registrant if disclosed.

Item 17. Undertakings

The undersigned registrant hereby undertakes to provide to the underwriters at the closing specified in the underwriting agreement certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act, and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question of whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue:

The undersigned hereby undertakes that:

1. For purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this registration Statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this Registration Statement as of the time it was declared effective.

2. For the purpose of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, on the 24th day of May, 2024.

Actuate Therapeutics, Inc.

By: /s/ Daniel M. Schmitt

Name: Daniel M. Schmitt
Title: President and Chief Executive Officer

SIGNATURES AND POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below hereby constitutes and appoints Daniel M. Schmitt and Andrew P. Mazar, and each of them, his or her true and lawful attorneys-in-fact and agents, each with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments, including post-effective amendments, to this Registration Statement, and any registration statement relating to the offering covered by this Registration Statement and filed pursuant to Rule 462(b) under the Securities Act of 1933, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done, as fully for all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that each of said attorneys-in-fact and agents, or his or her substitute or substitutes may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

Name	Position	Date
By: /s/ Daniel M. Schmitt Daniel M. Schmitt	President, Chief Executive Officer and Director (Principal Executive Officer)	May 24, 2024
By: /s/ Paul Lytle Paul Lytle	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	May 24, 2024
By: /s/ Aaron G.L. Fletcher Aaron G.L. Fletcher, Ph.D.	Director and Chairperson	May 24, 2024
By: /s/ Les Kreis, Jr Les Kreis, Jr.	Director	May 24, 2024
By: /s/ Todd Thomson Todd Thomson	Director	May 24, 2024
By: /s/ Daniel Zabrowski	Director	May 24, 2024

Daniel Zabrowski, Ph.D.

Exhibit 3.1

FIFTH AMENDED AND RESTATED
CERTIFICATE OF INCORPORATION
OF
ACTUATE THERAPEUTICS, INC.

(Pursuant to Sections 242 and 245 of the
General Corporation Law of the State of Delaware)

Actuate Therapeutics, Inc., a corporation organized and existing under and by virtue of the provisions of the General Corporation Law of the State of Delaware (the "General Corporation Law"),

DOES HEREBY CERTIFY:

1. That the name of this corporation is Actuate Therapeutics, Inc. and that this corporation was originally incorporated pursuant to the General Corporation Law on January 16, 2015 under the name "Apotheca Therapeutics, Inc."

2. That the Board of Directors of the Corporation (the "Board of Directors") duly adopted resolutions proposing to amend and restate the Fourth Amended and Restated Certificate of Incorporation of this corporation, declaring said amendment and restatement to be advisable and in the best interests of this corporation and its stockholders, and authorizing the appropriate officers of this corporation to solicit the consent of the stockholders therefor, which resolution setting forth the proposed amendment and restatement is as follows:

RESOLVED, that the Fourth Amended and Restated Certificate of Incorporation of this corporation be amended and restated in its entirety to read as follows:

FIRST: The name of this corporation is Actuate Therapeutics, Inc. (the "Corporation").

SECOND: The address of the registered office of the Corporation in the State of Delaware is 108 Lakeland Ave, Dover, DE 19901 Kent County. The name of its registered agent at such address is Capitol Services, Inc.

THIRD: The nature of the business or purposes to be conducted or promoted is to engage in any lawful act or activity for which corporations may be organized under the General Corporation Law.

FOURTH: The total number of shares of all classes of stock which the Corporation shall have authority to issue is (i) 38,108,584 shares of Common Stock, $0.000001 par value per share ("Common Stock"), and (ii) 33,463,018 shares of Preferred Stock, $0.000001 par value per share ("Preferred Stock"), of which (A) 1,983,663 shares shall be designated "Series A Preferred Stock," (B) 4,133,477 shares shall be designated "Series B-1 Preferred Stock," (C) 2,307,017 shares shall be designated "Series B-2 Preferred Stock," (D) 1,625,000 shares shall be designated "Series B-3 Preferred Stock," (E) 11,961,721 shares shall be designated "Series B-4 Preferred Stock," and (F) 11,452,140 shares shall be designated "Series C Preferred Stock." The Series B-1 Preferred Stock, the Series B-2 Preferred Stock, the Series B-3 Preferred Stock and the Series B-4 Preferred Stock shall collectively be referred to herein as the "Series B Preferred Stock."

The following is a statement of the designations and the powers, privileges and rights, and the qualifications, limitations or restrictions thereof in respect of each class of capital stock of the Corporation.

A. COMMON STOCK

1. General. The voting, dividend and liquidation rights of the holders of the Common Stock are subject to and qualified by the rights, powers and preferences of the holders of the Preferred Stock set forth herein.

2. Voting. The holders of the Common Stock are entitled to one vote for each share of Common Stock held at all meetings of stockholders (and written actions in lieu of meetings); provided, however, that, except as otherwise required by law, holders of Common Stock, as such, shall not be entitled to vote on any amendment to this Fifth Amended and Restated Certificate of Incorporation (as amended and/or restated from time to time (the "Certificate of Incorporation") that relates solely to the terms of one or more outstanding series of Preferred Stock if the holders of such affected series are entitled, either separately or together with the holders of one or more other such series, to vote thereon pursuant to this Certificate of Incorporation or pursuant to the General Corporation Law. There shall be no cumulative voting. The number of authorized shares of Common Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by (in addition to any vote of the holders of one or more series of Preferred Stock that may be required by the terms of this Certificate of Incorporation) the affirmative vote of the holders of shares of capital stock of the Corporation representing a majority of the votes represented by all outstanding shares of capital stock of the Corporation entitled to vote, irrespective of the provisions of Section 242(b)(2) of the General Corporation Law.

B. PREFERRED STOCK

The Preferred Stock of the Corporation shall have the following rights, preferences, powers, privileges and restrictions, qualifications and limitations. Unless otherwise indicated, references to "sections" or "subsections" in this Part B of this Article Fourth refer to sections and subsections of Part B of this Article Fourth.

1. Dividends.

1.1 Series C Preferred Stock Dividends. From and after the date of issuance of any shares of Series C Preferred Stock, dividends at the rate of 8.0% per year on the Series C Original Issue Price (as defined below) shall accrue on such shares of Series C Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series C Preferred Stock) (the "Series C Accruing Dividends").

1.2 Series B Preferred Stock Dividends. From and after the date of issuance of any shares of Series B-1 Preferred Stock, dividends at the rate of 8.0% per year on the Series B-1 Original Issue Price (as defined below) shall accrue on such shares of Series B-1 Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series B-1 Preferred Stock) (the "Series B-1 Accruing Dividends"). From and after the date of issuance of any shares of Series B-2 Preferred Stock, dividends at the rate of 8.0% per year on the Series B-2 Original Issue Price (as defined below) shall accrue on such shares of Series B-2 Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series B-2 Preferred Stock) (the "Series B-2 Accruing Dividends"). From and after the date of issuance of any shares of Series B-3 Preferred Stock, dividends at the rate of 8.0% per year on the Series B-3 Original Issue Price (as defined below) shall accrue on such shares of Series B-3 Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series B-3 Preferred Stock) (the "Series B-3 Accruing Dividends"). From and after the date of issuance of any shares of Series B-4 Preferred Stock, dividends at the rate of 8.0% per year on the Series B-4 Original Issue Price (as defined below) shall accrue on such shares of Series B-4 Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series B-4 Preferred Stock) (the "Series B-4 Accruing Dividends").

1.3 Series A Preferred Stock Dividends. From and after the date of issuance of any shares of Series A Preferred Stock, dividends at the rate of 8.0% per year on the Series A Original Issue Price (as defined below) shall accrue on such shares of Series A Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series A Preferred Stock) (the "Series A Accruing Dividends" and, collectively with the Series B-1 Accruing Dividends, the Series B-2 Accruing Dividends, the Series B-3 Accruing Dividends, the Series B-4 Accruing Dividends and the Series C Accruing Dividends, the "Accruing Dividends").

1.4 Payment of Dividends. Accruing Dividends shall accrue from day to day, whether or not declared, and shall be cumulative; provided, however, that except as set forth in the following sentence of this Subsection 1.4 or in Subsection 2.1, such Accruing Dividends shall be payable only when, as, and if declared by the Board of Directors and the Corporation shall be under no obligation to pay such Accruing Dividends. The Corporation shall not declare, pay or set aside any dividends on shares of any other class or series of capital stock of the Corporation (other than dividends on shares of Common Stock payable in shares of Common Stock) unless (in addition to the obtaining of any consents required elsewhere in the Certificate of Incorporation) the holders of the Preferred Stock then

outstanding shall first receive, or simultaneously receive, a dividend on each outstanding share of Preferred Stock in an amount at least equal to the sum of (i) the amount of the aggregate Accruing Dividends then accrued on such share of Preferred Stock and not previously paid, and (ii) (A) in the case of a dividend on Common Stock or any class or series that is convertible into Common Stock, that dividend per share of Preferred Stock as would equal the product of (1) the dividend payable on each share of such class or series determined, if applicable, as if all shares of such class or series had been converted into Common Stock, and (2) the number of shares of Common Stock issuable upon conversion of a share of such series of Preferred Stock, in each case calculated on the record date for determination of holders entitled to receive such dividend, or (B) in the case of a dividend on any class or series that is not convertible into Common Stock, at a rate per share of Preferred Stock determined by (1) dividing the amount of the dividend payable on each share of such class or series of capital stock by the original issuance price of such class or series of capital stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to such class or series), and (2) multiplying such fraction by an amount equal to the Original Issue Price; provided that, if the Corporation declares, pays or sets aside, on the same date, a dividend on shares of more than one class or series of capital stock of the Corporation, the dividend payable to the holders of Preferred Stock pursuant to this Section 1 shall be calculated based upon the dividend on the class or series of capital stock that would result in the highest Preferred Stock dividend. The "Series A Original Issue Price" shall mean $2.00 per share, the "Series B-1 Original Issue Price" shall mean $3.65967 per share, the "Series B-2 Original Issue Price" shall mean $3.82528 per share, the "Series B-3 Original Issue Price" shall mean $4.00 per share, the "Series B-4 Original Issue Price" shall mean $4.18 per share, and the "Series C Original Issue Price" shall mean $4.36 per share, in each case, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to such series of Preferred Stock. The "Original Issue Price" shall mean, as applicable, the Series A Original Issue Price, the Series B-1 Original Issue Price, the Series B-2 Original Issue Price, the Series B-3 Original Issue Price, the Series B-4 Original Issue Price and/or the Series C Original Issue Price.

2. Liquidation, Dissolution or Winding Up; Certain Mergers, Consolidations and Asset Sales.

2.1 Preferential Payments to Holders of Preferred Stock. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event (as defined below), the holders of shares of Preferred Stock then outstanding shall be entitled to be paid out of the assets of the Corporation available for distribution to its stockholders before any payment shall be made to the holders of Common Stock by reason of their ownership thereof, an amount per share equal to one (1) times the Original Issue Price, plus any dividends declared but unpaid thereon. If upon any such liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, the assets of the Corporation available for distribution to its stockholders shall be insufficient to pay the holders of shares of Preferred Stock the full amount to which they shall be entitled under this Subsection 2.1, the holders of shares of Preferred Stock shall share ratably in any distribution of the assets available for distribution in proportion to the respective amounts which would otherwise be payable in respect of the shares held by them upon such distribution if all amounts payable on or with respect to such shares were paid in full.

2.2 Distribution of Remaining Assets. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, after the payment of all preferential amounts required to be paid to the holders of shares of Preferred Stock, the remaining assets of the Corporation available for distribution to its stockholders shall be distributed among the holders of the shares of Preferred Stock and Common Stock, pro rata based on the number of shares held by each such holder, treating for this purpose all such securities as if they had been converted to Common Stock pursuant to the terms of the Certificate of Incorporation immediately prior to such liquidation, dissolution or winding up of the Corporation. The aggregate amount which a holder of a share of Preferred Stock is entitled to receive under Subsections 2.1 and 2.2 is hereinafter referred to as the "Liquidation Amount."

2.3 Deemed Liquidation Events.

2.3.1 Definition. Each of the following events shall be considered a "Deemed Liquidation Event" unless the holders of at least a majority of the outstanding shares of Series A Preferred Stock, voting together as a single class on an as-converted basis, the holders of at least a majority of the outstanding shares of Series B Preferred Stock, voting together as a single class

on an as-converted basis, and the holders of at least a majority of the outstanding shares of Series C Preferred Stock, voting together as a single class on an as-converted basis, elect otherwise by written notice sent to the Corporation at least ten (10) days prior to the effective date of any such event:

(a) a merger or consolidation in which

(i) the Corporation is a constituent party, or

(ii) a subsidiary of the Corporation is a constituent party and the Corporation issues shares of its capital stock pursuant to such merger or consolidation,

except any such merger or consolidation involving the Corporation or a subsidiary in which the shares of capital stock of the Corporation outstanding immediately prior to such merger or consolidation continue to represent, or are converted into or exchanged for shares of capital stock that represent, immediately following such merger or consolidation, at least a majority, by voting power, of the equity of (1) the surviving or resulting entity; or (2) if the surviving or resulting entity is a wholly-owned subsidiary of another entity immediately following such merger or consolidation, the parent entity of such surviving or resulting entity; or

(b) (1) the sale, lease, transfer, exclusive license or other disposition, in a single transaction or series of related transactions, by the Corporation or any subsidiary of the Corporation of all or substantially all the assets of the Corporation and its subsidiaries taken as a whole, or (2) the sale or disposition (whether by merger, consolidation or otherwise, and whether in a single or a series of related transactions) of one or more subsidiaries of the Corporation if substantially all of the assets of the Corporation and its subsidiaries taken as a whole are held by such subsidiary or subsidiaries, except where such sale, lease, transfer, exclusive license or other disposition is to a wholly owned subsidiary of the Corporation.

2.3.2 Effecting a Deemed Liquidation Event.

(a) The Corporation shall not have the power to effect a Deemed Liquidation Event referred to in Subsection 2.3.1(a)(i) unless the agreement or plan of merger or consolidation for such transaction (the "Merger Agreement") provides that the consideration payable to the stockholders of the Corporation in such Deemed Liquidation Event shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1 and 2.2.

(b) In the event of a Deemed Liquidation Event referred to in Subsection 2.3.1(a)(ii) or 2.3.1(b), if the Corporation does not effect a dissolution of the Corporation under the General Corporation Law within ninety (90) days after such Deemed Liquidation Event, then (y) the Corporation shall send a written notice to each holder of Preferred Stock no later than the ninetieth (90th) day after the Deemed Liquidation Event advising such holders of their right (and the requirements to be met to secure such right) to require the redemption of such shares of Preferred Stock pursuant to the terms of Subsections 2.3.2(b)(i), (ii), and (iii), and (z) if the holders of at least a majority of the then outstanding shares of Series A Preferred Stock, voting together as a single class on an as-converted basis, the holders of at least a majority of the then outstanding shares of Series B Preferred Stock, voting together as a single class on an as-converted basis, and the holders of at least a majority of the then outstanding shares of Series C Preferred Stock, voting together as a single class on an as-converted basis, so request in a written instrument delivered to the Corporation not later than one hundred twenty (120) days after such Deemed Liquidation Event, the Corporation shall use the consideration received by the Corporation for such Deemed Liquidation Event (net of any retained liabilities associated with the assets sold or technology licensed, as determined in good faith by the Board of Directors), together with any other assets of the Corporation available for distribution to its stockholders, all to the extent permitted by Delaware law governing distributions to stockholders (the "Available Proceeds"), on the one hundred fiftieth (150th) day after such Deemed Liquidation Event, to redeem all outstanding shares of Preferred Stock at a price per share equal to the applicable Liquidation Amount. Notwithstanding the foregoing, in the event of a redemption pursuant to the preceding sentence, if the Available Proceeds are not sufficient to redeem all outstanding shares of Preferred Stock, the Corporation shall ratably redeem each holder's shares of Preferred Stock to the fullest extent of such Available Proceeds, and shall redeem the remaining shares as soon as it may lawfully do so under Delaware law governing distributions to stockholders. Prior to the distribution or redemption provided for in this Subsection 2.3.2(b), the Corporation shall not expend or dissipate the consideration received for such Deemed Liquidation Event, except to discharge expenses incurred in connection with such Deemed Liquidation Event.

(i) The Corporation shall send written notice of the redemption (the "Redemption Notice") to each holder of record of Preferred Stock not less than forty (40) days prior to the redemption date. The Redemption Notice shall state (A) the number of shares of Preferred Stock held by the holder that the Corporation shall redeem on the redemption date specified in the Redemption Notice; (B) the redemption date and the redemption price; (C) the date upon which the holder's right to convert such shares terminates (as determined in accordance with Subsection 4.1); and (D) for holders of shares in certificated form, that the holder is to surrender to the Corporation, in the manner and at the place designated, his, her or its certificate or certificates representing the shares of Preferred Stock to be redeemed.

(ii) On or before the redemption date, each holder of shares of Preferred Stock, unless such holder has exercised his, her or its right to convert such shares as provided in Section 4, shall, if a holder of shares in certificated form, surrender the certificate or certificates representing such shares (or, if such registered holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation, in the manner and at the place designated in the Redemption Notice, and thereupon the redemption price for such shares shall be payable to the order of the person whose name appears on such certificate or certificates as the owner thereof. In the event less than all of the shares of Preferred Stock represented by a certificate are redeemed, a new certificate, instrument, or book entry representing the unredeemed shares of Preferred Stock shall promptly be issued to such holder.

(iii) If the Redemption Notice shall have been duly given, and if on the redemption date the redemption price payable upon redemption of the shares of Preferred Stock to be redeemed is paid or tendered for payment or deposited with an independent payment agent so as to be available therefor in a timely manner, then notwithstanding that any certificates evidencing any of the shares of Preferred Stock so called for redemption shall not have been surrendered, all rights with respect to such shares shall forthwith after the redemption date terminate, except only the right of the holders to receive the redemption price without interest upon surrender of any such certificate or certificates therefor.

2.3.3 Amount Deemed Paid or Distributed. The amount deemed paid or distributed to the holders of capital stock of the Corporation upon any such merger, consolidation, sale, transfer, exclusive license, other disposition or redemption shall be the cash or the value of the property, rights or securities paid or distributed to such holders pursuant to such Deemed Liquidation Event by the Corporation or the acquiring person, firm or other entity. The value of such property, rights or securities shall be determined in good faith by the Board of Directors.

2.3.4 Allocation of Escrow and Contingent Consideration. In the event of a Deemed Liquidation Event pursuant to Subsection 2.3.1(a)(i), if any portion of the consideration payable to the stockholders of the Corporation is payable only upon satisfaction of contingencies (the "Additional Consideration"), the Merger Agreement shall provide that (a) the portion of such consideration that is not Additional Consideration (such portion, the "Initial Consideration") shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1 and 2.2 as if the Initial Consideration were the only consideration payable in connection with such Deemed Liquidation Event; and (b) any Additional Consideration which becomes payable to the stockholders of the Corporation upon satisfaction of such contingencies shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1 and 2.2 after taking into account the previous payment of the Initial Consideration as part of the same transaction. For the purposes of this Subsection 2.3.4, consideration placed into escrow or retained as holdback to be available for satisfaction of indemnification or similar obligations in connection with such Deemed Liquidation Event shall be deemed to be Additional Consideration.

3. Voting.

3.1 General. On any matter presented to the stockholders of the Corporation for their action or consideration at any meeting of stockholders of the Corporation (or by written consent of stockholders in lieu of meeting), each holder of outstanding shares of Preferred Stock shall be entitled to cast the number of votes equal to the number of whole shares of Common Stock into which the shares of Preferred Stock held by such holder are convertible as of the record date for determining stockholders entitled to vote on such matter. Except as provided by law or by the other provisions of this Certificate of Incorporation, holders of Preferred Stock shall vote together with the holders of Common Stock as a single class and on an as converted to Common Stock basis.

3.2 Election of Directors. The holders of record of the shares of Series C Preferred Stock, exclusively and as a separate class voting together on an as-converted basis, shall be entitled to elect one (1) director of the Corporation (the "Series C Director"), the holders of record of the shares of Series B Preferred Stock, exclusively and as a separate class voting together on an as-converted basis, shall be entitled to elect two (2) directors of the Corporation (the "Series B Directors") and the holders of record of the shares of Series A Preferred Stock, exclusively and as a separate class, shall be entitled to elect one (1) director of the Corporation (the "Series A Director"). Any director elected as provided in the preceding sentence may be removed without cause by, and only by, the affirmative vote of the holders of the shares of the class or series of capital stock entitled to elect such director or directors, given either at a special meeting of such stockholders duly called for that purpose or pursuant to a written consent of stockholders. If the holders of shares of Series A Preferred Stock, Series B Preferred Stock and Series C Preferred Stock, respectively, fail to elect a sufficient number of directors to fill all directorships for which they are entitled to elect directors, voting exclusively and as a separate class, pursuant to the first sentence of this Subsection 3.2, then any directorship not so filled shall remain vacant until such time as the holders of the Series A Preferred Stock, Series B Preferred Stock or Series C Preferred Stock, as applicable, elect a person to fill such directorship by vote or written consent in lieu of a meeting; and no such directorship may be filled by stockholders of the Corporation other than by the stockholders of the Corporation that are entitled to elect a person to fill such directorship, voting exclusively and as a separate class. The holders of record of the shares of Common Stock and of any other class or series of voting stock (including the Preferred Stock), exclusively and voting together as a single class on an as-converted basis, shall be entitled to elect the balance of the total number of directors of the Corporation. At any meeting held for the purpose of electing a director, the presence in person or by proxy of the holders of a majority of the outstanding shares of the class or series entitled to elect such director shall constitute a quorum for the purpose of electing such director. Except as otherwise provided in this Subsection 3.2, a vacancy in any directorship filled by the holders of any class or series shall be filled only by vote or written consent in lieu of a meeting of the holders of such class or series or by any remaining director or directors elected by the holders of such class or series pursuant to this Subsection 3.2.

3.3 Preferred Stock Protective Provisions. At any time when any shares of Preferred Stock are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, do any of the following without (in addition to any other vote required by law or the Certificate of Incorporation) the written consent or affirmative vote of the holders of a majority of the then outstanding shares of Series A Preferred Stock, Series B Preferred Stock and Series C Preferred Stock, given in writing or by vote at a meeting, consenting or voting (as the case may be), each voting as a separate class on an as-converted basis, and any such act or transaction entered into without such consent or vote shall be null and void ab initio, and of no force or effect.

3.3.1 liquidate, dissolve or wind-up the business and affairs of the Corporation, effect any merger or consolidation or any other Deemed Liquidation Event, or consent to any of the foregoing;

3.3.2 amend, alter or repeal any provision of this Certificate of Incorporation or Bylaws of the Corporation in a manner that adversely affects the powers, preferences or rights of any series of Preferred Stock;

3.3.3 create, or authorize the creation of, or issue or obligate itself to issue shares of, any additional class or series of capital stock unless the same has no voting rights other than those granted to the Preferred Stock and ranks junior to any series of Preferred Stock with respect to the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends and rights of redemption, or increase the authorized number of shares of Preferred Stock or increase the authorized number of shares of any additional class or series of capital stock;

3.3.4 (i) reclassify, alter or amend any existing security of the Corporation that is *pari passu* with the Preferred Stock in respect of the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends or rights of redemption, if such reclassification, alteration or amendment would render such other security senior to the Preferred Stock in respect of any such right, preference, or privilege or would grant to such other security voting rights other than those granted to the Preferred Stock, or (ii) reclassify, alter or amend any existing security of the Corporation that is junior to the Preferred Stock in respect of the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends or rights of redemption, if such reclassification, alteration or amendment would render such other security senior to or *pari passu* with the

Preferred Stock in respect of any such right, preference or privilege, or would grant to such other security voting rights other than those granted to the Preferred Stock;

3.3.5 purchase or redeem (or permit any subsidiary to purchase or redeem) or pay or declare any dividend or make any distribution on, any shares of capital stock of the Corporation other than (i) redemptions of or dividends or distributions on the Preferred Stock as expressly authorized herein, (ii) dividends or other distributions payable on the Common Stock solely in the form of additional shares of Common Stock, (iii) repurchases of stock from former employees, officers, directors, consultants or other persons who performed services for the Corporation or any subsidiary in connection with the cessation of such employment or service at the lower of the original purchase price or the then-current fair market value thereof, or (iv) as approved by the Board of Directors;

3.3.6 create, or authorize the creation of, or issue, or authorize the issuance of any debt security, or permit any subsidiary to take any such action with respect to any debt security, if the aggregate indebtedness of the Corporation and its subsidiaries for borrowed money following such action would exceed $200,000 unless such debt security has received the prior approval of the Board of Directors;

3.3.7 encumber or grant a security interest in all or substantially all of the assets of the Corporation;

3.3.8 acquire or dispose of any material assets through a merger, the purchase or sale of all or substantially all of the assets or capital stock of another entity, or otherwise;

3.3.9 increase the number of shares authorized for issuance under any stock or option plan of the Corporation or create any new stock or option plan of the Corporation unless such plan has received the prior approval of the Board of Directors;

3.3.10 hire, terminate, or change the compensation of any senior executive of the Corporation;

3.3.11 license any material technology or intellectual property of the Corporation to any third party;

3.3.12 enter into any joint venture that is material to the Corporation;

3.3.13 cause the Corporation to enter into or become a party to any transaction with any director, founder, officer, or management employee of the Corporation or any affiliate, or family member of, such individual;

3.3.14 increase or decrease the authorized number of directors constituting the Board of Directors; or

3.3.15 increase or decrease the authorized number of shares of Common Stock or Preferred Stock (or any series thereof).

4. Optional Conversion.

The holders of the Preferred Stock shall have conversion rights as follows (the "Conversion Rights"):

4.1 Right to Convert.

4.1.1 Conversion Ratio. Each share of Preferred Stock shall be convertible, at the option of the holder thereof, at any time and from time to time, and without the payment of additional consideration by the holder thereof, into such number of fully paid and non-assessable shares of Common Stock as is determined by dividing the Original Issue Price by the Conversion Price (as defined below) in effect at the time of conversion. The "Series A Conversion Price" shall initially be equal to $2.00, the "Series B-1 Conversion Price" shall initially be equal to $3.65967, the "Series B-2 Conversion Price" shall initially be equal

to $3.82528, the "Series B-3 Conversion Price" shall initially be equal to $4.00, the "Series B-4 Conversion Price" shall initially be equal to $4.18, and the "Series C Conversion Price" shall initially be equal to $4.36. The "Conversion Price" shall mean, as applicable, the Series A Conversion Price, the Series B-1 Conversion Price, the Series B-2 Conversion Price, the Series B-3 Conversion Price, the Series B-4 Conversion Price and/or the Series C Conversion Price. The Conversion Price, and the rate at which shares of Preferred Stock may be converted into shares of Common Stock, shall be subject to adjustment as provided below.

4.1.2 Termination of Conversion Rights. In the event of a liquidation, dissolution or winding up of the Corporation or a Deemed Liquidation Event, the Conversion Rights shall terminate at the close of business on the last full day preceding the date fixed for the payment of any such amounts distributable on such event to the holders of Preferred Stock.

4.2 Fractional Shares. No fractional shares of Common Stock shall be issued upon conversion of the Preferred Stock. In lieu of any fractional shares to which the holder would otherwise be entitled, the Corporation shall pay cash equal to such fraction multiplied by the fair market value of a share of Common Stock as determined in good faith by the Board of Directors. Whether or not fractional shares would be issuable upon such conversion shall be determined on the basis of the total number of shares of Preferred Stock the holder is at the time converting into Common Stock and the aggregate number of shares of Common Stock issuable upon such conversion.

4.3 Mechanics of Conversion.

4.3.1 Notice of Conversion. In order for a holder of Preferred Stock to voluntarily convert shares of Preferred Stock into shares of Common Stock, such holder shall (a) provide written notice to the Corporation's transfer agent at the office of the transfer agent for the Preferred Stock (or at the principal office of the Corporation if the Corporation serves as its own transfer agent) that such holder elects to convert all or any number of such holder's shares of Preferred Stock and, if applicable, any event on which such conversion is contingent, and (b), if such holder's shares are certificated, surrender the certificate or certificates for such shares of Preferred Stock (or, if such registered holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate), at the office of the transfer agent for the Preferred Stock (or at the principal office of the Corporation if the Corporation serves as its own transfer agent). Such notice shall state such holder's name or the names of the nominees in which such holder wishes the shares of Common Stock to be issued. If required by the Corporation, any certificates surrendered for conversion shall be endorsed or accompanied by a written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or his, her or its attorney duly authorized in writing. The close of business on the date of receipt by the transfer agent (or by the Corporation if the Corporation serves as its own transfer agent) of such notice and, if applicable, certificates (or lost certificate affidavit and agreement) shall be the time of conversion (the "Conversion Time"), and the shares of Common Stock issuable upon conversion of the specified shares shall be deemed to be outstanding of record as of such date. The Corporation shall, as soon as practicable after the Conversion Time (i) issue and deliver to such holder of Preferred Stock, or to his, her or its nominees, a certificate or certificates for the number of full shares of Common Stock issuable upon such conversion in accordance with the provisions hereof and a certificate for the number (if any) of the shares of Preferred Stock represented by the surrendered certificate that were not converted into Common Stock, (ii) pay in cash such amount as provided in Subsection 4.2 in lieu of any fraction of a share of Common Stock otherwise issuable upon such conversion, and (iii) pay all declared but unpaid dividends on the shares of Preferred Stock converted.

4.3.2 Reservation of Shares. The Corporation shall at all times when the Preferred Stock shall be outstanding, reserve and keep available out of its authorized but unissued capital stock, for the purpose of effecting the conversion of the Preferred Stock, such number of its duly authorized shares of Common Stock as shall from time to time be sufficient to effect the conversion of all outstanding shares of Preferred Stock; and if at any time the number of authorized but unissued shares of Common Stock shall not be sufficient to effect the conversion of all then outstanding shares of the Preferred Stock, the Corporation shall take such corporate action as may be necessary to increase its authorized but unissued shares of Common Stock to such number of shares as shall be sufficient for such purposes, including, without limitation, engaging in best efforts to obtain the requisite stockholder approval

of any necessary amendment to this Certificate of Incorporation. Before taking any action which would cause an adjustment reducing the Conversion Price below the then par value of the shares of Common Stock issuable upon conversion of the Preferred Stock, the Corporation will take any corporate action which may, in the opinion of its counsel, be necessary in order that the Corporation may validly and legally issue fully paid and non-assessable shares of Common Stock at such adjusted Conversion Price.

4.3.3 Effect of Conversion. All shares of Preferred Stock which shall have been surrendered for conversion as herein provided shall no longer be deemed to be outstanding and all rights with respect to such shares shall immediately cease and terminate at the Conversion Time, except only the right of the holders thereof to receive shares of Common Stock in exchange therefor, to receive payment in lieu of any fraction of a share otherwise issuable upon such conversion as provided in Subsection 4.2 and to receive payment of any dividends declared but unpaid thereon. Any shares of Preferred Stock so converted shall be retired and cancelled and may not be reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of Preferred Stock accordingly.

4.3.4 No Further Adjustment. Upon any such conversion, no adjustment to the Conversion Price shall be made for any declared but unpaid dividends on the Preferred Stock surrendered for conversion or on the Common Stock delivered upon conversion.

4.3.5 Taxes. The Corporation shall pay any and all issue and other similar taxes that may be payable in respect of any issuance or delivery of shares of Common Stock upon conversion of shares of Preferred Stock pursuant to this Section 4. The Corporation shall not, however, be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of shares of Common Stock in a name other than that in which the shares of Preferred Stock so converted were registered, and no such issuance or delivery shall be made unless and until the person or entity requesting such issuance has paid to the Corporation the amount of any such tax or has established, to the satisfaction of the Corporation, that such tax has been paid.

4.4 Adjustments to Conversion Price for Diluting Issues.

4.4.1 Special Definitions. For purposes of this Article Fourth, the following definitions shall apply:

(a) "Option" shall mean rights, options or warrants to subscribe for, purchase or otherwise acquire Common Stock or Convertible Securities.

(b) "Series C Original Issue Date" shall mean the date on which the first share of Series C Preferred Stock was issued.

(c) "Convertible Securities" shall mean any evidences of indebtedness, shares or other securities directly or indirectly convertible into or exchangeable for Common Stock, but excluding Options.

(d) "Additional Shares of Common Stock" shall mean all shares of Common Stock issued (or, pursuant to Subsection 4.4.3 below, deemed to be issued) by the Corporation after the Series C Original Issue Date, other than (1) the following shares of Common Stock, and (2) shares of Common Stock deemed issued pursuant to the following Options and Convertible Securities (clauses (1) and (2), collectively, "Exempted Securities"):

(i) shares of Common Stock, Options or Convertible Securities issued as a dividend or distribution on Preferred Stock;

(ii) shares of Common Stock, Options or Convertible Securities issued by reason of a dividend, stock split, split-up or other distribution on shares of Common Stock that is covered by Subsection 4.5, 4.6, 4.7 or 4.8;

(iii) shares of Common Stock or Options issued to employees or directors of, or consultants or advisors to, the Corporation or any of its subsidiaries

pursuant to a plan, agreement or arrangement approved by the Board of Directors of the Corporation;

(iv) shares of Common Stock or Convertible Securities actually issued upon the exercise of Options or shares of Common Stock actually issued upon the conversion or exchange of Convertible Securities, in each case provided such issuance is pursuant to the terms of such Option or Convertible Security;

(v) shares of Common Stock, Options or Convertible Securities issued to banks, equipment lessors or other financial institutions, or to real property lessors, pursuant to a debt financing, equipment leasing or real property leasing transaction approved by the Board of Directors of the Corporation;

(vi) shares of Common Stock, Options or Convertible Securities issued to suppliers or third party service providers in connection with the provision of goods or services pursuant to transactions approved by the Board of Directors of the Corporation;

(vii) shares of Common Stock, Options or Convertible Securities issued pursuant to the acquisition of another corporation by the Corporation by merger, purchase of substantially all of the assets or other reorganization or to a joint venture agreement, provided that such issuances are approved by the Board of Directors of the Corporation; or

(viii) shares of Common Stock, Options or Convertible Securities issued in connection with sponsored research, collaboration, technology license, development, OEM, marketing or other similar agreements or strategic partnerships approved by the Board of Directors of the Corporation.

4.4.2 No Adjustment of Conversion Price. No adjustment in the Series A Conversion Price shall be made as the result of the issuance or deemed issuance of Additional Shares of Common Stock if the Corporation receives written notice from the holders of at least a majority of the then outstanding shares of Series A Preferred Stock agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Common Stock. No adjustment in the Series B-1 Conversion Price shall be made as the result of the issuance or deemed issuance of Additional Shares of Common Stock if the Corporation receives written notice from the holders of at least a majority of the then outstanding shares of Series B-1 Preferred Stock agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Common Stock. No adjustment in the Series B-2 Conversion Price shall be made as the result of the issuance or deemed issuance of Additional Shares of Common Stock if the Corporation receives written notice from the holders of at least a majority of the then outstanding shares of Series B-2 Preferred Stock agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Common Stock. No adjustment in the Series B-3 Conversion Price shall be made as the result of the issuance or deemed issuance of Additional Shares of Common Stock if the Corporation receives written notice from the holders of at least a majority of the then outstanding shares of Series B-3 Preferred Stock agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Common Stock. No adjustment in the Series B-4 Conversion Price shall be made as the result of the issuance or deemed issuance of Additional Shares of Common Stock if the Corporation receives written notice from the holders of at least a majority of the then outstanding shares of Series B-4 Preferred Stock agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Common Stock. No adjustment in the Series C Conversion Price shall be made as the result of the issuance or deemed issuance of Additional Shares of Common Stock if the Corporation receives written notice from the holders of at least a majority of the then outstanding shares of Series C Preferred Stock agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Common Stock.

4.4.3 Deemed Issue of Additional Shares of Common Stock.

(a) If the Corporation at any time or from time to time after the Series C Original Issue Date shall issue any Options or Convertible Securities (excluding Options or Convertible Securities which are themselves Exempted Securities) or shall fix a record date for the determination of holders of any class of securities entitled to receive any such Options or Convertible Securities, then the maximum number of shares of Common Stock (as set forth in the instrument relating thereto, assuming the satisfaction of any conditions to exercisability, convertibility or exchangeability, but without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or, in the case of Convertible Securities and Options therefor, the conversion or exchange of such Convertible Securities, shall be deemed to be Additional Shares of Common Stock issued as of the time of such issue or, in case such a record date shall have been fixed, as of the close of business on such record date.

(b) If the terms of any Option or Convertible Security, the issuance of which resulted in an adjustment to the Conversion Price pursuant to the terms of Subsection 4.4.4, are revised as a result of an amendment to such terms or any other adjustment pursuant to the provisions of such Option or Convertible Security (but excluding automatic adjustments to such terms pursuant to anti-dilution or similar provisions of such Option or Convertible Security) to provide for either (1) any increase or decrease in the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any such Option or Convertible Security, or (2) any increase or decrease in the consideration payable to the Corporation upon such exercise, conversion and/or exchange, then, effective upon such increase or decrease becoming effective, the Conversion Price computed upon the original issue of such Option or Convertible Security (or upon the occurrence of a record date with respect thereto) shall be readjusted to such Conversion Price as would have obtained had such revised terms been in effect upon the original date of issuance of such Option or Convertible Security. Notwithstanding the foregoing, no readjustment pursuant to this clause (b) shall have the effect of increasing the Conversion Price to an amount which exceeds the lower of (i) the Conversion Price in effect immediately prior to the original adjustment made as a result of the issuance of such Option or Convertible Security, or (ii) the Conversion Price that would have resulted from any issuances of Additional Shares of Common Stock (other than deemed issuances of Additional Shares of Common Stock as a result of the issuance of such Option or Convertible Security) between the original adjustment date and such readjustment date.

(c) If the terms of any Option or Convertible Security (excluding Options or Convertible Securities which are themselves Exempted Securities), the issuance of which did not result in an adjustment to the Conversion Price pursuant to the terms of Subsection 4.4.4 (either because the consideration per share (determined pursuant to Subsection 4.4.5) of the Additional Shares of Common Stock subject thereto was equal to or greater than the Conversion Price then in effect, or because such Option or Convertible Security was issued before the Series C Original Issue Date), are revised after the Series C Original Issue Date as a result of an amendment to such terms or any other adjustment pursuant to the provisions of such Option or Convertible Security (but excluding automatic adjustments to such terms pursuant to anti-dilution or similar provisions of such Option or Convertible Security) to provide for either (1) any increase in the number of shares of Common Stock issuable upon the exercise, conversion or exchange of any such Option or Convertible Security, or (2) any decrease in the consideration payable to the Corporation upon such exercise, conversion or exchange, then such Option or Convertible Security, as so amended or adjusted, and the Additional Shares of Common Stock subject thereto (determined in the manner provided in Subsection 4.4.3(a) shall be deemed to have been issued effective upon such increase or decrease becoming effective.

(d) Upon the expiration or termination of any unexercised Option or unconverted or unexchanged Convertible Security (or portion thereof) which resulted (either upon its original issuance or upon a revision of its terms) in an adjustment to the Conversion Price pursuant to the terms of Subsection 4.4.4, the Conversion Price shall be readjusted to such Conversion Price as would have obtained had such Option or Convertible Security (or portion thereof) never been issued.

(e) If the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any Option or Convertible Security, or the consideration payable to the Corporation upon such exercise, conversion and/or exchange, is calculable at the time such Option or Convertible Security is issued or amended but is subject to adjustment based upon subsequent events, any adjustment to the Conversion Price provided for in this Subsection 4.4.3 shall be effected at the time of such issuance or amendment based on such number of shares or amount of consideration without regard to any provisions for subsequent adjustments (and any subsequent adjustments shall be treated as provided in clauses (b) and (c) of this Subsection 4.4.3). If the number

of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any Option or Convertible Security, or the consideration payable to the Corporation upon such exercise, conversion and/or exchange, cannot be calculated at all at the time such Option or Convertible Security is issued or amended, any adjustment to the Conversion Price that would result under the terms of this Subsection 4.4.3 at the time of such issuance or amendment shall instead be effected at the time such number of shares and/or amount of consideration is first calculable (even if subject to subsequent adjustments), assuming for purposes of calculating such adjustment to the Conversion Price that such issuance or amendment took place at the time such calculation can first be made.

4.4.4 Adjustment of Conversion Price Upon Issuance of Additional Shares of Common Stock. In the event the Corporation shall at any time after the Series C Original Issue Date issue Additional Shares of Common Stock (including Additional Shares of Common Stock deemed to be issued pursuant to Subsection 4.4.3), without consideration or for a consideration per share less than the Conversion Price in effect immediately prior to such issuance or deemed issuance, then the Conversion Price shall be reduced, concurrently with such issue, to a price (calculated to the nearest one-hundredth of a cent) determined in accordance with the following formula:

$$CP_2 = CP_1 * (A + B) \div (A + C)$$

For purposes of the foregoing formula, the following definitions shall apply:

(a) "CP_2" shall mean the Conversion Price in effect immediately after such issuance or deemed issuance of Additional Shares of Common Stock

(b) "CP_1" shall mean the Conversion Price in effect immediately prior to such issuance or deemed issuance of Additional Shares of Common Stock;

(c) "A" shall mean the number of shares of Common Stock outstanding immediately prior to such issuance or deemed issuance of Additional Shares of Common Stock (treating for this purpose as outstanding all shares of Common Stock issuable upon exercise of Options outstanding immediately prior to such issuance or deemed issuance or upon conversion or exchange of Convertible Securities (including the Preferred Stock) outstanding (assuming exercise of any outstanding Options therefor) immediately prior to such issue);

(d) "B" shall mean the number of shares of Common Stock that would have been issued or deemed issued if such Additional Shares of Common Stock had been issued at a price per share equal to CP_1 (determined by dividing the aggregate consideration received by the Corporation in respect of such issue by CP_1); and

(e) "C" shall mean the number of such Additional Shares of Common Stock issued in such transaction.

4.4.5 Determination of Consideration. For purposes of this Subsection 4.4, the consideration received by the Corporation for the issuance or deemed issuance of any Additional Shares of Common Stock shall be computed as follows:

(a) Cash and Property: Such consideration shall:

(i) insofar as it consists of cash, be computed at the aggregate amount of cash received by the Corporation, excluding amounts paid or payable for accrued interest;

(ii) insofar as it consists of property other than cash, be computed at the fair market value thereof at the time of such issue, as determined in good faith by the Board of Directors; and

(iii) in the event Additional Shares of Common Stock are issued together with other shares or securities or other assets of the Corporation for consideration which covers both, be the proportion of such consideration so received, computed as provided in clauses (i) and (ii) above, as determined in good faith by the Board of Directors of the Corporation.

(b) Options and Convertible Securities. The consideration per share received by the Corporation for Additional Shares of Common Stock deemed to have been issued pursuant to Subsection 4.4.3, relating to Options and Convertible Securities, shall be determined by dividing:

(i) The total amount, if any, received or receivable by the Corporation as consideration for the issue of such Options or Convertible Securities, plus the minimum aggregate amount of additional consideration (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such consideration) payable to the Corporation upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities, by

(ii) the maximum number of shares of Common Stock (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities.

4.4.6 Multiple Closing Dates. In the event the Corporation shall issue on more than one date Additional Shares of Common Stock that are a part of one transaction or a series of related transactions and that would result in an adjustment to the Conversion Price pursuant to the terms of Subsection 4.4.4, and such issuance dates occur within a period of no more than ninety (90) days from the first such issuance to the final such issuance, then, upon the final such issuance, the Conversion Price shall be readjusted to give effect to all such issuances as if they occurred on the date of the first such issuance (and without giving effect to any additional adjustments as a result of any such subsequent issuances within such period).

4.5 Adjustment for Stock Splits and Combinations. If the Corporation shall at any time or from time to time after the Series C Original Issue Date effect a subdivision of the outstanding Common Stock, the Conversion Price in effect immediately before that subdivision shall be proportionately decreased so that the number of shares of Common Stock issuable on conversion of each share of such series of Preferred Stock shall be increased in proportion to such increase in the aggregate number of shares of Common Stock outstanding. If the Corporation shall at any time or from time to time after the Series C Original Issue Date combine the outstanding shares of Common Stock, the Conversion Price in effect immediately before the combination shall be proportionately increased so that the number of shares of Common Stock issuable on conversion of each share of such series of Preferred Stock shall be decreased in proportion to such decrease in the aggregate number of shares of Common Stock outstanding. Any adjustment under this subsection shall become effective at the close of business on the date the subdivision or combination becomes effective.

4.6 Adjustment for Certain Dividends and Distributions. In the event the Corporation at any time or from time to time after the Series C Original Issue Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable on the Common Stock in additional shares of Common Stock, then and in each such event the Conversion Price in effect immediately before such event shall be decreased as of the time of such issuance or, in

the event such a record date shall have been fixed, as of the close of business on such record date, by multiplying the Conversion Price then in effect by a fraction:

(1) the numerator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date, and

(2) the denominator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date plus the number of shares of Common Stock issuable in payment of such dividend or distribution.

Notwithstanding the foregoing (a) if such record date shall have been fixed and such dividend is not fully paid or if such distribution is not fully made on the date fixed therefor, the Conversion Price shall be recomputed accordingly as of the close of business on such record date and thereafter the Conversion Price shall be adjusted pursuant to this subsection as of the time of actual payment of such dividends or distributions; and (b) no such adjustment shall be made if the holders of Preferred Stock simultaneously receive a dividend or other distribution of shares of Common Stock in a number equal to the number of shares of Common Stock as they would have received if all outstanding shares of Preferred Stock had been converted into Common Stock on the date of such event.

4.7 Adjustments for Other Dividends and Distributions. In the event the Corporation at any time or from time to time after the Series C Original Issue Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable in securities of the Corporation (other than a distribution of shares of Common Stock in respect of outstanding shares of Common Stock) or in other property and the provisions of Section 1 do not apply to such dividend or distribution, then and in each such event the holders of Preferred Stock shall receive, simultaneously with the distribution to the holders of Common Stock, a dividend or other distribution of such securities or other property in an amount equal to the amount of such securities or other property as they would have received if all outstanding shares of Preferred Stock had been converted into Common Stock on the date of such event.

4.8 Adjustment for Merger or Reorganization, etc. Subject to the provisions of Subsection 2.3, if there shall occur any reorganization, recapitalization, reclassification, consolidation or merger involving the Corporation in which the Common Stock (but not the Preferred Stock) is converted into or exchanged for securities, cash or other property (other than a transaction covered by Subsections 4.4, 4.6 or 4.7), then, following any such reorganization, recapitalization, reclassification, consolidation or merger, each share of Preferred Stock shall thereafter be convertible in lieu of the Common Stock into which it was convertible prior to such event into the kind and amount of securities, cash or other property which a holder of the number of shares of Common Stock of the Corporation issuable upon conversion of one share of Preferred Stock immediately prior to such reorganization, recapitalization, reclassification, consolidation or merger would have been entitled to receive pursuant to such transaction; and, in such case, appropriate adjustment (as determined in good faith by the Board of Directors) shall be made in the application of the provisions in this Section 4 with respect to the rights and interests thereafter of the holders of the Preferred Stock, to the end that the provisions set forth in this Section 4 (including provisions with respect to changes in and other adjustments of the Conversion Price for the Preferred Stock) shall thereafter be applicable, as nearly as reasonably may be, in relation to any securities or other property thereafter deliverable upon the conversion of the Preferred Stock. For the avoidance of doubt, nothing in this Subsection 4.8 shall be construed as preventing the holders of Preferred Stock from seeking any appraisal rights to which they are otherwise entitled under the General Corporation Law in connection with a merger triggering an adjustment hereunder, nor shall this Subsection 4.8 be deemed conclusive evidence of the fair value of the shares of Preferred Stock in any such appraisal proceeding.

4.9 Certificate as to Adjustments. Upon the occurrence of each adjustment or readjustment of the Conversion Price pursuant to this Section 4, the Corporation, at its expense, shall, as promptly as reasonably practicable but in any event not later than ten (10) days thereafter, compute such adjustment or readjustment in accordance with the terms hereof and furnish to each holder of Preferred Stock a certificate setting forth such adjustment or readjustment (including the kind and amount of securities, cash or other property into which the Preferred Stock is convertible) and showing in detail the facts upon which such adjustment or readjustment is based. The Corporation shall, as promptly as reasonably practicable after the written request at any time of any holder of Preferred Stock (but in any event not later than ten (10) days thereafter), furnish or cause to be furnished to such holder a certificate setting forth (i) the Conversion Price then in effect, and (ii) the number of shares of Common Stock and the amount, if any, of other securities, cash or property which then would be received upon the conversion of Preferred Stock.

4.10 Notice of Record Date. In the event:

(a) the Corporation shall take a record of the holders of its Common Stock (or other capital stock or securities at the time issuable upon conversion of the Preferred Stock) for the purpose of entitling or enabling them to receive any dividend or other distribution, or to receive any right to subscribe for or purchase any shares of capital stock of any class or any other securities, or to receive any other security; or

(b) of any capital reorganization of the Corporation, any reclassification of the Common Stock of the Corporation, or any Deemed Liquidation Event; or

(c) of the voluntary or involuntary dissolution, liquidation or winding-up of the Corporation,

then, and in each such case, the Corporation will send or cause to be sent to the holders of the Preferred Stock a notice specifying, as the case may be, (i) the record date for such dividend, distribution or right, and the amount and character of such dividend, distribution or right, or (ii) the effective date on which such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up is proposed to take place, and the time, if any is to be fixed, as of which the holders of record of Common Stock (or such other capital stock or securities at the time issuable upon the conversion of the Preferred Stock) shall be entitled to exchange their shares of Common Stock (or such other capital stock or securities) for securities or other property deliverable upon such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up, and the amount per share and character of such exchange applicable to the Preferred Stock and the Common Stock. Such notice shall be sent at least ten (10) days prior to the record date or effective date for the event specified in such notice.

5. Mandatory Conversion.

5.1 Trigger Events. Upon the closing of the sale of shares of Common Stock to the public in a firm-commitment underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, resulting in at least $100,000,000 of gross proceeds to the Corporation, then (a) all outstanding shares of Preferred Stock shall automatically be converted into shares of Common Stock, at the then effective conversion rate as calculated pursuant to Subsection 4.1.1, and (b) such shares may not be reissued by the Corporation. Upon the date and time, or the occurrence of an event, specified by vote or written consent of the holders of at least a majority of the then outstanding shares of Series C Preferred Stock, exclusively and as a separate class on an as-converted basis, then (i) all outstanding shares of the Series C Preferred Stock shall automatically be converted into shares of Common Stock, at the then effective conversion rate as calculated pursuant to Subsection 4.1.1, and (ii) such shares may not be reissued by the Corporation. Upon the date and time, or the occurrence of an event, specified by vote or written consent of the holders of at least a majority of the then outstanding shares of Series B Preferred Stock, exclusively and as a separate class on an as-converted basis, then (1) all outstanding shares of the Series B Preferred Stock shall automatically be converted into shares of Common Stock, at the then effective conversion rate as calculated pursuant to Subsection 4.1.1, and (2) such shares may not be reissued by the Corporation. Upon the date and time, or the occurrence of an event, specified by vote or written consent of the holders of at least a majority of the then outstanding shares of Series A Preferred Stock, exclusively and as a separate class on an as-converted basis, then (y) all outstanding shares of the Series A Preferred Stock shall automatically be converted into shares of Common Stock, at the then effective conversion rate as calculated pursuant to Subsection 4.1.1, and (z) such shares may not be reissued by the Corporation. The time of such closing or the date and time specified or the time of the event specified in such vote or written consent is referred to herein as the "Mandatory Conversion Time."

5.2 Procedural Requirements. All holders of record of shares of the applicable series of Preferred Stock shall be sent written notice of the Mandatory Conversion Time and the place designated for mandatory conversion of all such shares of Preferred Stock pursuant to this Section 5. Such notice need not be sent in advance of the occurrence of the Mandatory Conversion Time. Upon receipt of such notice, each holder of shares of the applicable series of Preferred Stock in certificated form shall surrender his, her or its certificate or certificates for all such shares (or, if such holder alleges that such certificate has been lost, stolen or destroyed,

a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation at the place designated in such notice. If so required by the Corporation, any certificates surrendered for conversion shall be endorsed or accompanied by written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or by his, her or its attorney duly authorized in writing. All rights with respect to the Preferred Stock converted pursuant to Subsection 5.1, including the rights, if any, to receive notices and vote (other than as a holder of Common Stock), will terminate at the Mandatory Conversion Time (notwithstanding the failure of the holder or holders thereof to surrender any certificates at or prior to such time), except only the rights of the holders thereof, upon surrender of any certificate or certificates of such holders (or lost certificate affidavit and agreement) therefor, to receive the items provided for in the next sentence of this Subsection 5.2. As soon as practicable after the Mandatory Conversion Time and, if applicable, the surrender of any certificate or certificates (or lost certificate affidavit and agreement) for Preferred Stock, the Corporation shall (a) issue and deliver to such holder, or to his, her or its nominees, a certificate or certificates for the number of full shares of Common Stock issuable on such conversion in accordance with the provisions hereof, and (b) pay cash as provided in Subsection 4.2 in lieu of any fraction of a share of Common Stock otherwise issuable upon such conversion and the payment of any declared but unpaid dividends on the shares of Preferred Stock converted. Such converted Preferred Stock shall be retired and cancelled and may not be reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of Preferred Stock accordingly.

6. Redemption. Except as set forth in Subsection 2.3.2(b), the Preferred Stock shall not be redeemable at the election of the holders thereof.

7. Redeemed or Otherwise Acquired Shares. Any shares of Preferred Stock that are redeemed or otherwise acquired by the Corporation or any of its subsidiaries shall be automatically and immediately cancelled and retired and shall not be reissued, sold or transferred. Neither the Corporation nor any of its subsidiaries may exercise any voting or other rights granted to the holders of Preferred Stock following redemption.

8. Waiver. Except as otherwise set forth in this Certificate of Incorporation, any of the rights, powers, preferences and other terms of a particular series of Preferred Stock set forth herein may be modified or waived on behalf of all holders of such series of Preferred Stock and with respect to all shares of such series of Preferred Stock by the affirmative written consent or vote of the holders of shares of such series of Preferred Stock then outstanding that would be required to approve of or consent to the subject matter with respect to which such right, power, preference or other term is being modified or waived.

9. Notices. Any notice required or permitted by the provisions of this Article Fourth to be given to a holder of shares of Preferred Stock shall be mailed, postage prepaid, to the post office address last shown on the records of the Corporation, or given by electronic communication in compliance with the provisions of the General Corporation Law, and shall be deemed sent upon such mailing or electronic transmission.

FIFTH: Subject to any additional vote required by this Certificate of Incorporation or the Bylaws of the Corporation, in furtherance and not in limitation of the powers conferred by statute, the Board of Directors is expressly authorized to make, repeal, alter, amend and rescind any or all of the Bylaws of the Corporation.

SIXTH: Subject to any additional vote required by this Certificate of Incorporation, the number of directors of the Corporation shall be determined in the manner set forth in the Bylaws of the Corporation. Each director shall be entitled one vote on each matter presented to the Board of Directors.

SEVENTH: Elections of directors need not be by written ballot unless the Bylaws of the Corporation shall so provide.

EIGHTH: Meetings of stockholders may be held within or without the State of Delaware, as the Bylaws of the Corporation may provide. The books of the Corporation may be kept outside the State of Delaware at such place or places as may be designated from time to time by the Board of Directors or in the Bylaws of the Corporation.

NINTH: To the fullest extent permitted by law, a director of the Corporation shall not be personally liable to the Corporation or its stockholders for monetary damages for breach of fiduciary duty as a director. If the General Corporation Law or any other law of the State of Delaware is amended after approval by the stockholders of this Article Ninth to authorize corporate action further

eliminating or limiting the personal liability of directors, then the liability of a director of the Corporation shall be eliminated or limited to the fullest extent permitted by the General Corporation Law as so amended.

Any repeal or modification of the foregoing provisions of this Article Ninth by the stockholders of the Corporation shall not adversely affect any right or protection of a director of the Corporation existing at the time of, or increase the liability of any director of the Corporation with respect to any acts or omissions of such director occurring prior to, such repeal or modification.

TENTH: To the fullest extent permitted by applicable law, the Corporation is authorized to provide indemnification of (and advancement of expenses to) directors, officers and agents of the Corporation (and any other persons to which General Corporation Law permits the Corporation to provide indemnification) through provisions in the Bylaws of the Corporation, agreements with such agents or other persons, vote of stockholders or disinterested directors or otherwise, in excess of the indemnification and advancement otherwise permitted by Section 145 of the General Corporation Law.

Any amendment, repeal or modification of the foregoing provisions of this Article Tenth shall not (a) adversely affect any right or protection of any director, officer or other agent of the Corporation existing at the time of such amendment, repeal or modification or (b) increase the liability of any director of the Corporation with respect to any acts or omissions of such director, officer or agent occurring prior to, such amendment, repeal or modification.

ELEVENTH: The Corporation renounces, to the fullest extent permitted by law, any interest or expectancy of the Corporation in, or in being offered an opportunity to participate in, any Excluded Opportunity. An "Excluded Opportunity" is any matter, transaction or interest that is presented to, or acquired, created or developed by, or which otherwise comes into the possession of (i) any director of the Corporation who is not an employee of the Corporation or any of its subsidiaries, or (ii) any holder of Preferred Stock or any partner, member, director, stockholder, employee, affiliate or agent of any such holder, other than someone who is an employee of the Corporation or any of its subsidiaries (collectively, the persons referred to in clauses (i) and (ii) are "Covered Persons"), unless such matter, transaction or interest is presented to, or acquired, created or developed by, or otherwise comes into the possession of, a Covered Person expressly and solely in such Covered Person's capacity as a director of the Corporation while such Covered Person is performing services in such capacity. Any repeal or modification of this Article Eleventh will only be prospective and will not affect the rights under this Article Eleventh in effect at the time of the occurrence of any actions or omissions to act giving rise to liability. Notwithstanding anything to the contrary contained elsewhere in this Certificate of Incorporation, the affirmative vote of the holders of at least a majority of the shares of Preferred Stock then outstanding, will be required to amend or repeal, or to adopt any provisions inconsistent with this Article Eleventh.

TWELFTH: Unless the Corporation consents in writing to the selection of an alternative forum, the Court of Chancery in the State of Delaware shall be the sole and exclusive forum for any stockholder (including a beneficial owner) to bring (i) any derivative action or proceeding brought on behalf of the Corporation, (ii) any action asserting a claim of breach of fiduciary duty owed by any director, officer or other employee of the Corporation to the Corporation or the Corporation's stockholders, (iii) any action asserting a claim against the Corporation, its directors, officers or employees arising pursuant to any provision of the Delaware General Corporation Law or this Certificate of Incorporation or the Bylaws of the Corporation, or (iv) any action asserting a claim against the Corporation, its directors, officers or employees governed by the internal affairs doctrine, except for, as to each of (i) through (iv) above, any claim as to which the Court of Chancery determines that there is an indispensable party not subject to the jurisdiction of the Court of Chancery (and the indispensable party does not consent to the personal jurisdiction of the Court of Chancery within ten days following such determination), which is vested in the exclusive jurisdiction of a court or forum other than the Court of Chancery, or for which the Court of Chancery does not have subject matter jurisdiction. If any provision or provisions of this Article Twelfth shall be held to be invalid, illegal or unenforceable as applied to any person or entity or circumstance for any reason whatsoever, then, to the fullest extent permitted by law, the validity, legality and enforceability of such provisions in any other circumstance and of the remaining provisions of this Article Twelfth (including, without limitation, each portion of any sentence of this Article Twelfth containing any such provision held to be invalid, illegal or unenforceable that is not itself held to be invalid, illegal or unenforceable) and the application of such provision to other persons or entities and circumstances shall not in any way be affected or impaired thereby.

THIRTEENTH: For purposes of Section 500 of the California Corporations Code (to the extent applicable), in connection with any repurchase of shares of Common Stock permitted under this Certificate of Incorporation from employees, officers, directors or consultants of the Corporation in connection with a termination of employment or services pursuant to agreements or arrangements approved by the Board of Directors (in addition to any other consent required under this Certificate of Incorporation), such repurchase may be made without regard to any "preferential dividends arrears amount" or "preferential rights amount" (as those terms are defined in Section 500 of the California Corporations Code). Accordingly, for purposes of making any calculation under California Corporations Code Section 500 in connection with such repurchase, the amount of any "preferential dividends arrears amount" or "preferential rights amount" (as those terms are defined therein) shall be deemed to be zero (0).

* * *

3. That the foregoing amendment and restatement was approved by the holders of the requisite number of shares of this corporation in accordance with Section 228 of the General Corporation Law.

4. That this Fifth Amended and Restated Certificate of Incorporation, which restates and integrates and further amends the provisions of this Corporation's Fourth Amended and Restated Certificate of Incorporation filed on November 25, 2020, has been duly adopted in accordance with Sections 242 and 245 of the General Corporation Law.

IN WITNESS WHEREOF, this Fifth Amended and Restated Certificate of Incorporation has been executed by a duly authorized officer of this corporation on this 27th day of September, 2022.

By: /s/ Daniel Schmitt
Daniel Schmitt, President and Chief Executive Officer

Exhibit 3.3

FORM OF

SIXTH AMENDED AND RESTATED CERTIFICATE OF INCORPORATION
OF
ACTUATE THERAPEUTICS, INC.

Actuate Therapeutics, Inc. (the "Corporation"), a corporation organized and existing under the General Corporation Law of the State of Delaware (the "DGCL"), does hereby certify as follows:

1. The name of the Corporation is Actuate Therapeutics, Inc. The Corporation was incorporated under the name Apotheca Therapeutics, Inc. by the filing of its original Certificate of Incorporation with the Secretary of State (the "Secretary of State") of the State of Delaware on January 16, 2015. A Certificate of Amendment, changing the name of the Corporation from Apotheca Therapeutics, Inc. to Actuate Therapeutics, Inc., was filed with the Secretary of State on October 1, 2015. An Amended and Restated Certificate of Incorporation was filed with the Secretary of State on March 16, 2017. A Second Amended and Restated Certificate of Incorporation was filed with the Secretary of State on April 29, 2019. A Third Amended and Restated Certificate of Incorporation was filed with the Secretary of State on October 1, 2019. A Fourth Amended and Restated Certificate of Incorporation was filed with the Secretary of State on November 25, 2020. A Fifth Amended and Restated Certificate of Incorporation was filed with the Secretary of State on September 27, 2022 (the "Existing Certificate").

2. This Sixth Amended and Restated Certificate of Incorporation (the "Amended and Restated Certificate"), which amends and restates the Existing Certificate in its entirety, has been approved by the Board of Directors of the Corporation (the "Board of Directors") in accordance with Sections 242 and 245 of the DGCL and has been adopted by the written consent of the stockholders of the Corporation in accordance with Section 228 of the DGCL.

4.. The text of the Existing Certificate is hereby amended and restated by this Amended and Restated Certificate to read in its entirety to read as follows:

ARTICLE I
NAME

The name of the corporation is Actuate Therapeutics, Inc.

ARTICLE II
REGISTERED OFFICE AND AGENT

The address of the Corporation's registered office in the State of Delaware is 108 Lakeland Ave., in the City of Dover, County of Kent, 19901, and the name of its registered agent at such address is Capitol Services, Inc.

ARTICLE III
PURPOSE

The purpose of the Corporation is to engage in any lawful act or activity for which corporations may be organized under the DGCL as it now exists or may hereafter be amended and supplemented.

ARTICLE IV
CAPITAL STOCK

The Corporation is authorized to issue two classes of stock to be designated, respectively, "Common Stock" and "Preferred Stock." The total number of shares of capital stock which the Corporation shall have authority to issue is 210,000,000. The total number of shares of Common Stock that the Corporation is authorized to issue is 200,000,000, having a par value of $0.000001 per share, and the total number of shares of Preferred Stock that the Corporation is authorized to issue is 10,000,000, having a par value of $0.000001 per share.

The designations and the powers, privileges and rights, and the qualifications, limitations or restrictions thereof in respect of each class of capital stock of the Corporation are as follows:

A. COMMON STOCK.

1. General. The voting, dividend, liquidation, and other rights and powers of the Common Stock are subject to and qualified by the rights, powers and preferences of any series of Preferred Stock as may be designated by the Board of Directors of the Corporation (the "Board of Directors") and outstanding from time to time.

2. Voting. Except as otherwise provided herein or expressly required by law, each holder of Common Stock, as such, shall be entitled to vote on each matter submitted to a vote of stockholders and shall be entitled to one (1) vote for each share of Common Stock held of record by such holder as of the record date for determining stockholders entitled to vote on such matter. Except as otherwise required by law, holders of Common Stock, as such, shall not be entitled to vote on any amendment to this Amended and Restated Certificate (including any Certificate of Designation (as defined below)) that relates solely to the rights, powers, preferences (or the qualifications, limitations or restrictions thereof) or other terms of one or more outstanding series of Preferred Stock if the holders of such affected series are entitled, either separately or together with the holders of one or more other such series, to vote thereon pursuant to this Amended and Restated Certificate (including any Certificate of Designation) or pursuant to the DGCL.

Subject to the rights of any holders of any outstanding series of Preferred Stock, the number of authorized shares of Common Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by the affirmative vote of the holders of a majority of the stock of the Corporation entitled to vote, irrespective of the provisions of Section 242(b)(2) of the DGCL.

3. Dividends. Subject to applicable law and the rights and preferences of any holders of any outstanding series of Preferred Stock, the holders of Common Stock, as such, shall be entitled to the payment of dividends on the Common Stock when, as and if declared by the Board of Directors in its sole discretion in accordance with applicable law.

4. Liquidation. Subject to the rights and preferences of any holders of any shares of any outstanding series of Preferred Stock, in the event of any liquidation, dissolution or winding up of the Corporation, whether voluntary or involuntary, the funds and assets of the Corporation that may be legally distributed to the Corporation's stockholders shall be distributed among the holders of the then outstanding Common Stock *pro rata* in accordance with the number of shares of Common Stock held by each such holder.

B. PREFERRED STOCK

Shares of Preferred Stock may be issued from time to time in one or more series, each of such series to have such terms as stated or expressed herein and in the resolution or resolutions providing for the creation and issuance of such series adopted by the Board of Directors as hereinafter provided.

Authority is hereby expressly granted to the Board of Directors from time to time to issue the Preferred Stock in one or more series, and in connection with the creation of any such series, by adopting a resolution or resolutions providing for the issuance of the shares thereof and by filing a certificate of designation relating thereto in accordance with the DGCL (a "Certificate of Designation"), to determine and fix the number of shares of such series and such voting powers, full or limited, or no voting powers, and such designations, preferences and relative participating, optional or other special rights, and qualifications, limitations or restrictions thereof, including without limitation thereof, dividend rights, conversion rights, redemption privileges and liquidation preferences, and to increase or decrease (but not below the number of shares of such series then outstanding) the number of shares of any series as shall be stated and expressed in such resolutions, all to the fullest extent now or hereafter permitted by the DGCL. Without limiting the generality of the foregoing, the resolution or resolutions providing for the creation and issuance of any series of Preferred Stock may provide that such series shall be superior or rank equally or be junior to any other series of Preferred Stock to the extent permitted by law and this Amended and Restated Certificate (including any Certificate of Designation). Except as otherwise required by law, holders of any series of Preferred Stock shall be entitled only to such voting rights, if any, as shall expressly be granted thereto by this Amended and Restated Certificate (including any Certificate of Designation).

The number of authorized shares of Preferred Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by the affirmative vote of the holders of a majority of the stock of the Corporation entitled to vote, irrespective of the provisions of Section 242(b)(2) of the DGCL.

ARTICLE V
BOARD OF DIRECTORS

For the management of the business and for the conduct of the affairs of the Corporation it is further provided that:

A. Subject to the special rights of the holders of one or more outstanding series of Preferred Stock to elect directors, the directors of the Corporation shall be classified with respect to the time for which they severally hold office into three classes, designated as Class I, Class II and Class III. The initial Class I directors shall serve for a term expiring at the first annual meeting of the stockholders following the date of this Amended and Restated Certificate; the initial Class II directors shall serve for a term expiring at the second annual meeting of the stockholders following the date of this Amended and Restated Certificate; and the initial Class III directors shall serve for a term expiring at the third annual meeting of the stockholders following the date of this Amended and Restated Certificate. At each annual meeting of the stockholders of the Corporation beginning with the first annual meeting of the stockholders following the date of this Amended and Restated Certificate, subject to the special rights of the holders of one or more outstanding series of Preferred Stock to elect directors, the successors of the class of directors whose term expires at that meeting shall be elected to hold office for a term expiring at the annual meeting of the stockholders held in the third year following the year of their election. Each director shall hold office until his or her successor is duly elected and qualified or until his or her earlier death, resignation, disqualification or removal. No decrease in the number of directors shall shorten the term of any incumbent director. The Board of Directors is authorized to assign members of the Board of Directors already in office to Class I, Class II and Class III.

B. Except as otherwise expressly provided by the DGCL or this Amended and Restated Certificate, the business and affairs of the Corporation shall be managed by or under the direction of the Board of Directors. The number of directors which shall constitute the whole Board of Directors shall be fixed exclusively by one or more resolutions adopted from time to time by the Board of Directors.

C. Subject to the special rights of the holders of one or more outstanding series of Preferred Stock to elect directors, the Board of Directors or any individual director may be removed from office at any time, but only for cause and only by the affirmative vote of the holders of at least two-thirds (66 and 2/3%) of the voting power of all of the then outstanding shares of voting stock of the Corporation entitled to vote at an election of directors.

D. Subject to the special rights of the holders of one or more outstanding series of Preferred Stock to elect directors, except as otherwise provided by law, any vacancies on the Board of Directors resulting from death, resignation, disqualification, retirement, removal or other causes and any newly created directorships resulting from any increase in the number of directors shall be filled exclusively by the affirmative vote of a majority of the directors then in office, even though less than a quorum, or by a sole remaining director (other than any directors elected by the separate vote of one or more outstanding series of Preferred Stock), and shall not be filled by the stockholders. Any director appointed in accordance with the preceding sentence shall hold office until the expiration of the term of the class to which such director shall have been appointed or until his or her earlier death, resignation, retirement, disqualification, or removal.

E. Whenever the holders of any one or more series of Preferred Stock issued by the Corporation shall have the right, voting separately as a series or separately as a class with one or more such other series, to elect directors at an annual or special meeting of stockholders, the election, term of office, removal and other features of such directorships shall be governed by the terms of this Amended and Restated Certificate (including any Certificate of Designation). Notwithstanding anything to the contrary in this Article V, the number of directors that may be elected by the holders of any such series of Preferred Stock shall be in addition to the number fixed pursuant to paragraph B of this Article V, and the total number of directors constituting the whole Board of Directors shall be automatically adjusted accordingly. Except as otherwise provided in the Certificate of Designation(s) in respect of one or more series of Preferred Stock, whenever the holders of any series of Preferred Stock having such right to elect additional directors are divested of such right pursuant to the provisions of such Certificate of Designation(s), the terms of office of all such additional directors elected by the holders of such series of Preferred Stock, or elected to fill any vacancies resulting from the death, resignation, disqualification or removal of such additional

directors, shall forthwith terminate (in which case each such director thereupon shall cease to be qualified as, and shall cease to be, a director) and the total authorized number of directors of the Corporation shall automatically be reduced accordingly.

F. In furtherance and not in limitation of the powers conferred by statute, the Board of Directors is expressly authorized to adopt, amend or repeal the Amended and Restated Bylaws of the Corporation (as amended and/or restated from time to time, the "Bylaws"). In addition to any vote of the holders of any class or series of stock of the Corporation required by applicable law or by this Amended and Restated Certificate (including any Certificate of Designation in respect of one or more series of Preferred Stock) or the Bylaws of the Corporation, the adoption, amendment or repeal of the Bylaws of the Corporation by the stockholders of the Corporation shall require the affirmative vote of the holders of at least two-thirds (66 and 2/3%) of the voting power of all of the then outstanding shares of voting stock of the Corporation entitled to vote generally in an election of directors, voting together as a single class.

G. The directors of the Corporation need not be elected by written ballot unless the Bylaws so provide.

ARTICLE VI
STOCKHOLDERS

A. Any action required or permitted to be taken by the stockholders of the Corporation must be effected at an annual or special meeting of the stockholders of the Corporation, and shall not be taken by written consent in lieu of a meeting. Notwithstanding the foregoing, any action required or permitted to be taken by the holders of any series of Preferred Stock, voting separately as a series or separately as a class with one or more other such series, may be taken without a meeting, without prior notice and without a vote, to the extent expressly so provided by the applicable Certificate of Designation relating to such series of Preferred Stock, if a consent or consents in writing, setting forth the action so taken, shall be signed by the holders of outstanding shares of the relevant series of Preferred Stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted and shall be delivered to the Corporation in accordance with the applicable provisions of the DGCL.

B. Subject to the special rights of the holders of one or more series of Preferred Stock, special meetings of the stockholders of the Corporation may be called, for any purpose or purposes, at any time only by or at the direction of the Board of Directors, the Chairperson of the Board of Directors, the Chief Executive Officer or the President, and shall not be called by any other person or persons.

C. Advance notice of stockholder nominations for the election of directors and of other business proposed to be brought by stockholders before any meeting of the stockholders of the Corporation shall be given in the manner provided in the Bylaws of the Corporation.

ARTICLE VII
LIABILITY

No director or officer of the Corporation shall have any personal liability to the Corporation or its stockholders for monetary damages for any breach of fiduciary duty as a director or officer, except to the extent such exemption from liability or limitation thereof is not permitted under the DGCL as the same exists or hereafter may be amended. Any amendment, repeal or modification of this Article VII, or the adoption of any provision of the Amended and Restated Certificate inconsistent with this Article VII, shall not adversely affect any right or protection of a director or officer of the Corporation with respect to any act or omission occurring prior to such amendment, repeal, modification or adoption. If the DGCL is amended after approval by the stockholders of this Article VII to authorize corporate action further eliminating or limiting the personal liability of directors or officers, then the liability of a director or officer of the Corporation shall be eliminated or limited to the fullest extent permitted by the DGCL as so amended.

ARTICLE VIII
INDEMNIFICATION

The Corporation shall have the power to provide rights to indemnification and advancement of expenses to its current and former officers, directors, employees and agents and to any person who is or was serving at the request of the Corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise.

ARTICLE IX
FORUM SELECTION

Unless the Corporation consents in writing to the selection of an alternative forum, (a) the Court of Chancery (the "Chancery Court") of the State of Delaware (or, in the event that the Chancery Court does not have jurisdiction, the federal district court for the District of Delaware or other state courts of the State of Delaware) shall, to the fullest extent permitted by law, be the sole and exclusive forum for (i) any derivative action, suit or proceeding ("Proceeding") brought on behalf of the Corporation, (ii) any Proceeding asserting a claim of breach of a fiduciary duty owed by any director, officer or stockholder of the Corporation to the Corporation or to the Corporation's stockholders, (iii) any Proceeding arising pursuant to any provision of the DGCL, this Amended and Restated Certificate or the Bylaws (in each case, as may be amended from time to time) or (iv) any Proceeding asserting a claim against the Corporation governed by the internal affairs doctrine, in all cases to the fullest extent permitted by law; and (b) subject to the preceding provisions of this Article IX, to the extent permitted by applicable law, the federal district courts of the United States of America shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act of 1933, as amended. If any action the subject matter of which is within the scope of clause (a) of the immediately preceding sentence is filed in a court other than the courts in the State of Delaware (a "Foreign Action"), such stockholder shall be deemed to have consented to (x) the personal jurisdiction of the state and federal courts in the State of Delaware in connection with any action brought in any such court to enforce the provisions of clause (a) of the immediately preceding sentence and (y) having service of process made upon such stockholder in any such action by service upon such stockholder's counsel in the Foreign Action as agent for such stockholder. If any action the subject matter of which is within the scope of clause (b) of this Article IX is filed in a court other than the federal district courts of the United States of America (a "Foreign Securities Act Action") in the name of any stockholder, such stockholder shall be deemed to have consented to (i) the personal jurisdiction of the federal district courts of the United States of America in connection with any action brought in any such court to enforce clause (b) (a "Securities Act Enforcement Action"), and (ii) having service of process made upon such stockholder in any such Securities Act Enforcement Action by service upon such stockholder's counsel in the Foreign Securities Act Action as agent for such stockholder.

For the avoidance of doubt, clause (b) of this Article IX is intended to benefit and may be enforced by the Corporation, its officers and directors, the underwriters to any offering giving rise to any Proceeding, and any other professional or entity whose profession gives authority to a statement made by that person or entity and who has prepared or certified any part of the documents underlying the offering.

Any person or entity purchasing or otherwise acquiring any interest in any security of the Corporation shall be deemed to have notice of and consented to this Article IX. Notwithstanding the foregoing, the provisions of this Article IX shall not apply to suits brought to enforce any liability or duty created by the Securities Exchange Act of 1934, as amended, or any other claim for which the federal courts of the United States have exclusive jurisdiction.

If any provision or provisions of this Article IX shall be held to be invalid, illegal or unenforceable as applied to any circumstance for any reason whatsoever, (i) the validity, legality and enforceability of such provisions in any other circumstance and of the remaining provisions of this Article IX (including, without limitation, each portion of any paragraph of this Article IX containing any such provision held to be invalid, illegal or unenforceable that is not itself held to be invalid, illegal or unenforceable) shall not in any way be affected or impaired thereby and (ii) the application of such provision to other persons or entities and circumstances shall not in any way be affected or impaired thereby.

ARTICLE X
AMENDMENTS

A. Notwithstanding anything contained in this Amended and Restated Certificate to the contrary, in addition to any vote required by applicable law, the following provisions in this Amended and Restated Certificate may be amended, altered, repealed or rescinded, in whole or in part, or any provision inconsistent therewith or herewith may be adopted, only by the affirmative vote of the holders of at least two-thirds (66 and 2/3%) of the total voting power of all the then outstanding shares of stock of the Corporation entitled to vote thereon, voting together as a single class: Part B of Article IV, Article V, Article VI, Article VII, Article VIII, Article IX and this Article X.

B. If any provision or provisions of this Amended and Restated Certificate shall be held to be invalid, illegal or unenforceable as applied to any circumstance for any reason whatsoever: (i) the validity, legality and enforceability of such provisions in any other circumstance and of the remaining provisions of this Amended and Restated Certificate (including, without limitation, each portion of any paragraph of this Amended and Restated Certificate containing any such provision held to be invalid, illegal or unenforceable that is

not itself held to be invalid, illegal or unenforceable) shall not, to the fullest extent permitted by applicable law, in any way be affected or impaired thereby and (ii) to the fullest extent permitted by applicable law, the provisions of this Amended and Restated Certificate (including, without limitation, each such portion of any paragraph of this Amended and Restated Certificate containing any such provision held to be invalid, illegal or unenforceable) shall be construed so as to permit the Corporation to protect its directors, officers, employees and agents from personal liability in respect of their good faith service to or for the benefit of the Corporation to the fullest extent permitted by law.

5. This Amended and Restated Certificate shall become effective on the date of filing with the Secretary of State of the State of Delaware.

***

IN WITNESS WHEREOF, Actuate Therapeutics, Inc. has caused this Amended and Restated Certificate to be signed by a duly authorized officer of the Corporation, on [●], 2024.

ACTUATE THERAPEUTICS, INC.

By: _____
Name: Daniel Schmitt
Title: President and Chief Executive Officer

[Signature Page to Sixth Amended and Restated Certificate of Incorporation]

Exhibit 3.4

BYLAWS

OF

APOTHECA THERAPEUTICS, INC.

These Bylaws (the "***Bylaws***") of Apotheca Therapeutics, Inc., a Delaware corporation (the "***Corporation***"), are subject to, and governed by, the Delaware General Corporation law (as amended from time to time, the "***DGCL***"), and the Certificate of Incorporation of the Corporation (as amended from time to time, the "***Certificate***"). In the event of a direct conflict between the provisions of these Bylaws and the mandatory provisions of the DGCL or the provisions of the Certificate, such provisions of the DGCL or the Certificate, as the case may be, will be controlling

ARTICLE I

OFFICES

1.1. Registered Office. The registered office of the Corporation in the State of Delaware shall be located at 1675 South State Street, Suite B, Dover, Delaware 19901. The registered agent at such address shall be Capitol Services, Inc. The registered office and/or registered agent of the Corporation may be changed from time to time by action of the Corporation's Board of Directors (the "***Board***") in compliance with the DGCL.

1.2. Other Offices. The Corporation may also have offices at such other places, both within and without the State of Delaware, as the Board may from time to time determine or the business of the Corporation may require.

ARTICLE II

MEETINGS OF STOCKHOLDERS

2.1. Place and Time of Meetings. An annual meeting of the stockholders shall be held each year within one hundred twenty (120) days after the close of the immediately preceding fiscal year of the Corporation for the purpose of electing directors and conducting such other proper business as may come before the meeting. Subject to the foregoing, the date, time and place of the annual meeting shall be as determined by the President of the Corporation; provided, that if the President does not so act, the Board shall determine the date, time and place of such meeting.

2.2. Special Meetings. Special meetings of the stockholders may be called for any purpose and may be held at such time and place, within or without the State of Delaware, as shall be stated in a notice of such meeting or in a duly executed waiver of notice thereof. Such meetings may be called at any time by the Board or the . President and shall be called by the President upon the written request of holders of shares entitled to cast not less than a majority of the votes at such a meeting. Such written request shall state the purpose or purposes of the meeting and shall be delivered to the President.

2.3. Place of Meetings. The Board may designate any place, either within or without the State of Delaware, as the place of meeting for any annual meeting of the stockholders or for any special meeting of the stockholders called by the Board. If no such designation is made, or if a special meeting be otherwise called, the place of meeting shall be the principal executive office of the Corporation.

2.4. Notice. Whenever stockholders are required or permitted to take action at a meeting, written or printed notice stating the place, date, time, and, in the case of special meetings, the purpose or purposes, of such meeting, shall be given to each stockholder entitled to vote at such meeting not less than ten (10) nor more than sixty (60) days before the date of the meeting. All such notices shall be delivered, either personally or by mail, by or at the direction of the Board, the President or the Secretary of the Corporation, and if mailed, such notice shall, be deemed to be delivered when deposited in the United States mail, postage prepaid, addressed to the

stockholder at his, her or its address as the same appears on the records of the Corporation. Attendance of a stockholder at a meeting shall constitute a waiver of notice of such meeting, except when the stockholder attends for the express purpose of objecting at the beginning of the meeting to the transaction of any business because the meeting is not lawfully called or convened.

2.5. Stockholders List. The officer having charge of the stock ledger of the Corporation shall make, at least ten (10) days before every meeting of the stockholders, a complete list of the stockholders entitled to vote at such meeting arranged in alphabetical order, showing the address of each stockholder and the number of shares registered in the name of each stockholder. Such list shall be open to the examination of any stockholder, for any purpose germane to the meeting, during ordinary business hours, for a period of at least ten (10) days prior to the meeting, either at a place within the city where the meeting is to be held, which place shall be specified in the notice of the meeting or, if not so specified, at the place where the meeting is to be held. The list shall also be produced and kept at the time and place of the meeting during the whole time thereof, and may be inspected by any stockholder who is present.

2.6. Quorum. The holders of a majority of the outstanding shares of capital stock, present in person or represented by proxy, shall constitute a quorum at all meetings of the stockholders, except as otherwise required by statute or by the Certificate. If a quorum is not present, the holders of a majority of the shares present in person or represented by proxy at the meeting, and entitled to vote at the meeting, may adjourn the meeting to another time and/or place.

2.7. Adjourned Meetings. When a meeting is adjourned to another time and place, notice need not be given of the adjourned meeting if the time and place thereof are announced at the meeting at which the adjournment is taken. At the adjourned meeting, the Corporation may transact any business which might have been transacted at the original meeting. If the adjournment is for more than thirty (30) days, or if after the adjournment a new record date is fixed for the adjourned meeting, a notice of the adjourned meeting shall be given to each stockholder of record entitled to vote at the meeting.

2.8. Vote Required. When a quorum is present, the affirmative vote of the majority of shares present in person or represented by proxy at the meeting and entitled to vote on the subject matter shall be the act of the stockholders, unless the question is one upon which by express provisions of an applicable law or of the Certificate a different vote is required, in which case such express provision shall govern and control the decision of such question.

2.9. Voting Rights. Except as otherwise provided by the DGCL or by the Certificate and subject to Section 6.3 hereof, every stockholder shall at every meeting of the stockholders be entitled to one (1) vote in person or by proxy for each share of common stock of the Corporation held by such stockholder.

2.10. Proxies. Each stockholder entitled to vote at a meeting of stockholders or to express consent or dissent to corporate action in writing without a meeting may authorize another person or persons to act for it by proxy, but no such proxy shall be voted or acted upon after three (3) years from its date, unless the proxy provides for a longer period. A duly executed proxy shall be irrevocable if it states that it is irrevocable and if, and only as long as, it is coupled with an interest sufficient in law to support an irrevocable power. A proxy may be made irrevocable regardless of whether the interest with which it is coupled is an interest in the stock itself or an interest in the Corporation generally. Any proxy is suspended when the person executing the proxy is present at a meeting of stockholders and elects to vote, except that when such proxy is coupled with an interest and the fact of the interest appears on the face of the proxy, the agent named in the proxy shall have all voting and other rights referred to in the proxy, notwithstanding the presence of the stockholder executing the proxy. At each meeting of the stockholders, and before any voting commences, all proxies filed at or before the meeting shall be submitted to and examined by the Secretary or a person designated by the Secretary, and no shares may be represented or voted under a proxy that has been found to be invalid or irregular.

2.11. Action by Written Consent. Unless otherwise provided in the Certificate, any action required to be taken at any annual or special meeting of stockholders of the Corporation, or any action which may be taken at any annual or special meeting of such stockholders, may be taken without a meeting, without prior notice and without a vote, if a consent or consents in writing, setting forth the action so taken and bearing the dates of signature of the stockholders who signed the consent or consents, shall be signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted and shall be delivered to the Corporation by delivery to its registered office in the State of Delaware, or the Corporation's principal place of business, or an officer or agent of the Corporation having custody of the book or books in which proceedings of meetings of the stockholders are recorded. Delivery made to the Corporation's registered office shall be by hand or by certified or registered mail, return receipt requested; provided, however, that no consent or consents delivered

by certified or registered mail shall be deemed delivered until such consent or consents are actually received at the registered office. All consents properly delivered in accordance with this Section 2.11 shall be deemed to be recorded when so delivered. No written consent shall be effective to take the corporate action referred to therein unless, within sixty (60) days of the earliest dated consent delivered to the Corporation as required by this Section 2.11, written consents signed by the holders of a sufficient number of shares to take such corporate action are so recorded. Prompt notice of the taking of the corporate action without a meeting by less than unanimous written consent shall be given to those stockholders who have not provided such consent in writing. Any action taken pursuant to such written consent or consents of the stockholders shall have the same force and effect as if taken by the stockholders at a meeting thereof.

2.12. Stockholder Meeting by Electronic Communication. Stockholders may participate in and hold a meeting by means of conference telephone or other means of remote communication equipment by means of which all persons participating in the meeting can hear each other. Participation in such a meeting shall constitute presence in person at the meeting, except where a person participates in the meeting for the express purpose of objecting to the transaction of any business on the ground that the meeting is not lawfully called or convened if (1) the Corporation implements reasonable measures to verify that each person considered present and permitted to vote at the meeting by means of remote communication is a stockholder; (2) the Corporation implements reasonable measures to provide the stockholders at the meeting by means of remote communication a reasonable opportunity to participate in the meeting and to vote on matters submitted to the stockholder, including an opportunity to read or hear the proceedings of a meeting substantially concurrently with the proceedings; and (3) the Corporation maintains a record of any stockholder vote or other action taken at the meeting by means of remote communication.

ARTICLE III

DIRECTORS

3.1. General Powers. The business and affairs of the Corporation shall be managed by or under the direction of the Board.

3.2. Number, Election and Term of Office. The number of directors which shall constitute the first Board shall be one (1). Thereafter, the number of directors shall be established from time to time by resolution of the Board. The directors shall be elected by a plurality of the votes of the shares present in person or represented by proxy at the meeting and entitled to vote in the election of directors. The directors shall be elected in this manner at the annual meeting of the stockholders, except as provided in Section 3.4. Each director elected shall hold office until a successor is duly elected and qualified or until his or her earlier death, resignation or removal as hereinafter provided.

3.3. Removal and Resignation. Any director or the entire Board may be removed at any time, with or without cause, by the holders of a majority of the shares then entitled to vote at an election of directors. Whenever the holders of any class or series are entitled to elect one or more directors by the provisions of the Certificate, the provisions of this Section 3.3 shall apply, in respect to the removal without cause of a director or directors so elected, to the vote of the holders of the outstanding shares of that class or series and not to the vote of the outstanding shares as a whole. Any director may resign at any time upon written notice to the Corporation.

3.4. Vacancies. Vacancies and newly created directorships resulting from any increase in the authorized number of directors may be filled by a majority of the directors then in office, though less than a quorum, or by a sole remaining director. Each director so chosen shall hold office until a successor is duly elected and qualified or until his or her earlier death, resignation or removal as herein provided.

3.5. Annual Meetings. The annual meeting of each newly elected Board shall be held without other notice than this bylaw immediately after, and at the same place as, the annual meeting of stockholders.

3.6. Other Meetings and Notice. Regular meetings, other than the annual meeting, of the Board may be held without notice at such time and at such place as shall from time to time be determined by resolution of the Board. Special meetings of the Board may be

called by or at the request of the President on at least twenty-four (24) hours' prior notice to each director, either personally, by telephone or by mail.

3.7. Quorum, Required Vote and Adjournment. A majority of the total number of directors shall constitute a quorum for the transaction of business. The vote of a majority of directors present at a meeting at which a quorum is present shall be the act of the Board. If a quorum shall not be present at any meeting of the Board, the directors present thereat may adjourn the meeting from time to time, without notice other than announcement at the meeting, until a quorum shall be present.

3.8. Committees. The Board may, by resolution passed by a majority of the whole Board, designate one or more committees, each committee to consist of one or more of the directors of the Corporation, which to the extent provided in such resolution or these Bylaws shall have and may exercise the powers of the Board in the management and affairs of the Corporation, except as otherwise limited by applicable law. The Board may designate one or more directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of the committee. Such committee or committees shall have such name or names as may be determined from time to time by resolution adopted by the Board. Each committee shall keep regular minutes of its meetings and report the same to the Board when required.

3.9. Committee Rules. Each committee of the Board may fix its own rules of procedure and shall hold its meetings as provided by such rules, except as may otherwise be provided by a resolution of the Board designating such committee. Unless otherwise provided in such a resolution, the presence of at least a majority of the members of the committee shall be necessary to constitute a quorum. In the event that a member and that member's alternate, if alternates are designated by the Board as provided in Section 3.8, of such committee is or are absent or disqualified, the member or members thereof present at any meeting and not disqualified from voting, whether or not such member or members constitute a quorum, may unanimously appoint another member of the Board to act at the meeting in place of any such absent or disqualified member.

3.10. Communications Equipment. Members of the Board or any committee thereof may participate in and act at any meeting of the Board or such committee through the use of a conference telephone or other communications equipment by means of which all persons participating in the meeting can hear each other, and participation in the meeting pursuant to this section shall constitute presence in person at the meeting.

3.11. Waiver of Notice and Presumption of Assent. Any member of the Board or any committee thereof who is present at a meeting shall be conclusively presumed to have waived notice of such meeting except when such member attends for the express purpose of objecting at the beginning of the meeting to the transaction of any business because the meeting is not lawfully called or convened. Such member shall be conclusively presumed to have assented to any action taken unless such member's dissent shall be entered in the minutes of the meeting or unless such member's written dissent to such action shall be filed with the person acting as the Secretary of the meeting before the adjournment thereof or shall be forwarded by registered mail to the Secretary of the Corporation immediately after the adjournment of the meeting. Such right to dissent shall not apply to any member who voted in favor of such action.

3.12. Action by Written Consent. Unless otherwise restricted by the Certificate, any action required or permitted to be taken at any meeting of the Board, or of any committee thereof, may be taken without a meeting if all members of the Board or committee, as the case may be, consent thereto in writing, and the writing or writings are filed with the minutes of proceedings of the Board or committee.

ARTICLE IV

OFFICERS

4.1. Number. The officers of the Corporation shall be elected by the Board and shall consist of a President and a Secretary, and such other officers and assistant officers as may be deemed necessary or desirable by the Board. Any number of offices may be held by the same person. In its discretion, the Board may choose not to fill any office for any period as it may deem advisable, except that the offices of President and Secretary shall be filled as expeditiously as possible.

4.2. Election and Term of Office. The officers of the Corporation shall be elected annually by the Board at its first meeting held after each annual meeting of stockholders or as soon thereafter as conveniently may be. Vacancies may be filled or new offices

created and filled at any meeting of the Board. Each officer shall hold office until a successor is duly elected and qualified or until his or her earlier death, resignation or removal as hereinafter provided.

4.3. Removal. Any officer or agent elected by the Board may be removed by the Board whenever in its judgment the best interests of the Corporation would be served thereby, but such removal shall be without prejudice to the contract rights, if any, of the person so removed.

4.4. Vacancies. Any vacancy occurring in any office because of death, resignation, removal, disqualification or otherwise, may be filled by the Board for the unexpired portion of the term by the Board then in office.

4.5. Compesnation. Compensation of all officers shall be fixed by the Board, and no officer shall be prevented from receiving such compensation by virtue of him or her also being a director of the Corporation.

4.6. President. The President of the Corporation shall, subject to the powers of the Board: (i) preside at all meetings of the Board and the stockholders; (ii) have general charge of the business, affairs and property of the Corporation, and control over its officers, agents and employees; (iii) see that all orders and resolutions of the Board are carried into effect; and (iv) have such other powers and perform such other duties as may be prescribed by the Board or provided in these Bylaws. The President shall execute bonds, mortgages and other contracts requiring a seal, under the seal of the Corporation, except where required or permitted by law to be otherwise signed and executed and except where the signing and execution thereof shall be expressly delegated by the Board to some other officer or agent of the Corporation.

4.7. Vice Presidents. The Vice President of the Corporation, if any, or if there shall be more than one, the Vice Presidents in the order determined by the Board, shall, in the absence or disability of the President, act with all of the powers and be subject to all the restrictions of the President. The Vice Presidents shall also perform such other duties and have such other powers as the Board or these Bylaws may, from time to time, prescribe.

4.8. Secretary and Assistant Secretaries. The Secretary of the Corporation shall attend all meetings of the Board, all meetings of the committees thereof and all meetings of the stockholders and record all of the proceedings of the meetings in a book or books to be kept for that purpose. Under the President's supervision, the Secretary shall: (i) give, or cause to be given, all notices required to be given by these Bylaws or by law; (ii) have such powers and perform such duties as the Board or these Bylaws may, from time to time, prescribe; and (iii) have custody of the corporate seal of the Corporation. The Secretary, or an Assistant Secretary, shall have authority to affix the corporate seal to any instrument requiring it and when so affixed, it may be attested by its signature or by the signature of such Assistant Secretary. The Board may give general authority to any other officer to affix the seal of the Corporation and to attest the affixing by his or her signature. The Assistant Secretary, or if there be more than one, the Assistant Secretaries in the order determined by the Board, shall, in the absence or disability of the Secretary, perform the duties and exercise the powers of the Secretary and shall perform such other duties and have such other powers as the Board or Secretary may, from time to time, prescribe.

4.9. Treasurer and Assistant Treasurers. The Treasurer, if any, shall: (i) have the custody of the corporate funds and securities; (ii) keep full and accurate accounts of receipts and disbursements in books belonging to the Corporation; (iii) deposit all monies and other valuable effects in the name and to the credit of the Corporation as may be ordered by the Board; (iv) cause the funds of the Corporation to be disbursed when such disbursements have been duly authorized, taking proper vouchers for such disbursements; and (v) render to the President and the Board, at its regular meeting or when the Board so requires, an account of the Corporation; shall have such powers and perform such duties as the Board or these Bylaws may, from time to time, prescribe. If required by the Board, the Treasurer shall give the Corporation a bond (which shall be rendered every six (6) years) in such sums and with such surety or sureties as shall be satisfactory to the Board for the faithful performance of the duties of the office of treasurer and for the restoration to the Corporation, in case of death, resignation, retirement, or removal from office, of all books, papers, vouchers, money, and other property of whatever kind in the possession or under the control of the Treasurer belonging to the Corporation. The Assistant Treasurer, or if there shall be more than one, the Assistant Treasurers in the order determined by the Board, shall in the absence or disability of the Treasurer, perform the duties and exercise the powers of the Treasurer. The Assistant Treasurers shall perform such other duties and have such other powers as the Board or Treasurer may, from time to time, prescribe.

4.10. Other Officers, Assistant Officers and Agents. Officers, assistant officers and agents, if any, other than those whose duties are provided for in these Bylaws, shall have such authority and perform such duties as may from time to time be prescribed by resolution of the Board.

4.11. Absence or Disability of Officers. In the case of the absence or disability of any officer of the Corporation and of any person hereby authorized to act in such officer's place during such officer's absence or disability, the Board may by resolution delegate the powers and duties of such officer to any other officer or to any director, or to any other person whom it may select.

ARTICLE V

INDEMNIFICATION OF OFFICERS, DIRECTORS AND OTHERS

5.1. Nature of Indemnity. Each person who was or is made a party or is threatened to be made a party to or is involved in any action, suit or proceeding, whether civil, criminal, administrative or investigative (hereinafter a "***proceeding***"), by reason of the fact that he or she, or a person of whom he or she is the legal representative, is or was a director or officer, of the Corporation or is or was serving at the request of the Corporation as a director, officer, employee, fiduciary, or agent of another corporation or of a partnership, joint venture, trust or other enterprise, shall be indemnified and held harmless by the Corporation to the fullest extent which it is empowered to do so unless prohibited from doing so by the DGCL, as the same exists or may hereafter be amended (but, in the case of any such amendment, only to the extent that such amendment permits the Corporation to provide broader indemnification rights than said law permitted the Corporation to provide prior to such amendment) against all expense, liability and loss (including attorneys' fees actually and reasonably incurred by such person in connection with such proceeding) and such indemnification shall inure to the benefit of his or her heirs, executors and administrators; provided, however, that, except as provided in Section 5.2, the Corporation shall indemnify any such person seeking indemnification in connection with a proceeding initiated by such person only if such proceeding was authorized by the Board. The right to indemnification conferred in this Article V shall be a contract right and, subject to Sections 5.2 and 5.5, shall include the right to be paid by the Corporation the expenses incurred in defending any such proceeding in advance of its final disposition. The Corporation may, by action of its Board, provide indemnification to employees and agents of the Corporation with the same scope and effect as the foregoing indemnification of directors and officers.

5.2. Procedure for Indemnification of Directors and Officers. Any indemnification of a director or officer of the Corporation under Section 5.1 or advance of expenses under Section 5.5 shall be made promptly, and in any event within thirty (30) days, upon the written request of the director or officer. If a determination by the Corporation that the director or officer is entitled to indemnification pursuant to this Article V is required, and the Corporation fails to respond within sixty (60) days to a written request for indemnity, the Corporation shall be deemed to have approved the request. If the Corporation denies a written request for indemnification or advancing of expenses, in whole or in part, or if payment in full pursuant to such request is not made within thirty (30) days, the right to indemnification or advances as granted by this Article V shall be enforceable by the director or officer in any court of competent jurisdiction. Such person's costs and expenses incurred in connection with successfully establishing its right to indemnification, in whole or in part, in any such action shall also be indemnified by the Corporation. It shall be a defense to any such action (other than an action brought to enforce a claim for expenses incurred in defending any proceeding in advance of its final disposition where the required undertaking, if any, has been tendered to the Corporation) that the claimant has not met the standards of conduct which make it permissible under the DGCL for the Corporation to indemnify the claimant for the amount claimed, but the burden of such defense shall be on the Corporation. Neither the failure of the Corporation (including its Board, independent legal counsel, or its stockholders) to have made a determination prior to the commencement of such action that indemnification of the claimant is proper in the circumstances because he or she has met the applicable standard of conduct set forth in the DGCL, nor an actual determination by the Corporation (including its Board, independent legal counsel, or its stockholders) that the claimant has not met such applicable standard of conduct, shall be a defense to the action or create a presumption that the claimant has not met the applicable standard of conduct.

5.3. Article Not Exclusive. The rights to indemnification and the payment of expenses incurred in defending a proceeding in advance of its final disposition conferred in this Article V shall not be exclusive of any other right which any person may have or hereafter acquire under any statute, provision of the Certificate, bylaw, agreement, vote of stockholders or disinterested directors or otherwise.

5.4. Insurance. The Corporation may purchase and maintain insurance on its own behalf and on behalf of any person who is or was a director, officer, employee, fiduciary, or agent of the Corporation or was serving at the request of the Corporation as a director, officer, employee or agent of another Corporation, partnership, joint venture, trust or other enterprise against any liability asserted against him or her and incurred by him or her in any such capacity, whether or not the Corporation would have the power to indemnify such person against such liability under this Article V.

5.5. Expenses. Expenses incurred by any person described in Section 1 of this Article V in defending a proceeding shall be paid by the Corporation in advance of such proceeding's final disposition unless otherwise determined by the Board in the specific case upon receipt of an undertaking by or on behalf of the director or officer to repay such amount if it shall ultimately be determined that he or she is not entitled to be indemnified by the Corporation. Such expenses incurred by other employees and agents may be so paid upon such terms and conditions, if any, as the Board deems appropriate.

5.6. Employees and Agents. Persons who are not covered by the foregoing provisions of this Article V and who are or were employees or agents of the Corporation, or who are or were serving at the request of the Corporation as employees or agents of another Corporation, partnership, joint venture, trust or other enterprise, may be indemnified to the extent authorized at any time or from time to time by the Board.

5.7. Contract Rights. The provisions of this Article V shall be deemed to be a contract right between the Corporation and each director or officer who serves in any such capacity at any time while this Article V and the relevant provisions of the DGCL or other applicable law are in effect, and any repeal or modification of this Article V or any such law shall not affect any rights or obligations then existing with respect to any state of facts or proceeding then existing.

5.8. Merger or Consolidation. For purposes of this Article V, references to "the Corporation" shall include, in addition to the resulting Corporation, any constituent Corporation (including any constituent of a constituent) absorbed in a consolidation or merger which, if its separate existence had continued, would have had power and authority to indemnify its directors, officers, and employees or agents, so that any person who is or was a director, officer, employee or agent of such constituent Corporation, or is or was serving at the request of such constituent Corporation as a director, officer, employee or agent of another Corporation, partnership, joint venture, trust or other enterprise, shall stand in the same position under this Article V with respect to the resulting or surviving Corporation as he or she would have with respect to such constituent Corporation if its separate existence had continued.

ARTICLE VI

CERTIFICATES OF STOCK

6.1. Form. Every holder of stock in the Corporation shall be entitled to have a certificate, signed by, or in the name of the Corporation by the President and the Secretary or an Assistant Secretary of the Corporation, certifying the number of shares of a specific class or series owned by such holder in the Corporation. If such a certificate is countersigned (i) by a transfer agent or an assistant transfer agent other than the Corporation or its employee or (ii) by a registrar, other than the Corporation or its employee, the signature of any such President, Secretary, or Assistant Secretary may be facsimiles. In case any officer or officers who have signed, or whose facsimile signature or signatures have been used on, any such certificate or certificates shall cease to be such officer or officers of the Corporation whether because of death, resignation or otherwise before such certificate or certificates have been delivered by the Corporation, such certificate or certificates may nevertheless be issued and delivered as though the person or persons who signed such certificate or certificates or whose facsimile signature or signatures have been used thereon had not ceased to be such officer or officers of the Corporation. All certificates for shares shall be consecutively numbered or otherwise identified. The name of the person to whom the shares represented thereby are issued, with the number of shares and date of issue, shall be entered on the books of the Corporation. Shares of stock of the Corporation shall only be transferred on the books of the Corporation by the holder of record thereof or by such holder's attorney duly authorized in writing, upon surrender to the Corporation of the certificate or certificates for such shares endorsed by the appropriate person or persons, with such evidence of the authenticity of such endorsement, transfer, authorization, and other matters as the Corporation may reasonably require, and accompanied by all necessary stock transfer stamps. In that event, it shall be the duty of the Corporation to issue a new certificate to the person entitled thereto, cancel the old certificate or certificates, and record the transaction on its books. The Board may appoint a bank or trust company organized under the laws of the United States or any state thereof to act as its transfer agent or registrar, or both in connection with the transfer of any class or series of securities of the Corporation.

6.2. Lost Certificates. The Board may direct a new certificate or certificates to be issued in place of any certificate or certificates previously issued by the Corporation alleged to have been lost, stolen, or destroyed, upon the making of an affidavit of that fact by the person claiming the certificate of stock to be lost, stolen, or destroyed. When authorizing such issue of a new certificate or certificates, the Board may, in its discretion and as a condition precedent to the issuance thereof, require the owner of such lost, stolen, or destroyed certificate or certificates, or its legal representative, to give the Corporation a bond sufficient to indemnify the Corporation against any claim that may be made against the Corporation on account of the loss, theft or destruction of any such certificate or the issuance of such new certificate.

6.3. Fixing a Record Date for Stockholder Meetings. In order that the Corporation may determine the stockholders entitled to notice of or to vote at any meeting of stockholders or any adjournment thereof, the Board may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board, and which record date shall not be more than sixty (60) nor less than ten (10) days before the date of such meeting. If no record date is fixed by the Board, the record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be the close of business on the next day preceding the day on which notice is given, or if notice is waived, at the close of business on the day next preceding the day on which the meeting is held. A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting; *provided, however,* that the Board may fix a new record date for the adjourned meeting.

6.4. Fixing a Record Date for Action by Written Consent. In order that the Corporation may determine the stockholders entitled to consent to corporate action in writing without a meeting, the Board may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board, and which date shall not be more than ten (10) days after the date upon which the resolution fixing the record date is adopted by the Board. If no record date has been fixed by the Board, the record date for determining stockholders entitled to consent to corporate action in writing without a meeting, when no prior action by the Board is required by statute, shall be the first date on which a signed written consent setting forth the action taken or proposed to be taken is delivered to the Corporation by delivery to its registered office in the State of Delaware, its principal place of business, or an officer or agent of the Corporation having custody of the book in which proceedings of meetings of stockholders are recorded. Delivery made to the Corporation's registered office shall be by hand or by certified or registered mail, return receipt requested. If no record date has been fixed by the Board and prior action by the Board is required by statute, the record date for determining stockholders entitled to consent to corporate action in writing without a meeting shall be at the close of business on the day on which the Board adopts the resolution taking such prior action.

6.5. Fixing a Record Date for Other Purposes. In order that the Corporation may determine the stockholders entitled to receive payment of any dividend or other distribution or allotment or any rights or the stockholders entitled to exercise any rights in respect of any change, conversion or exchange of stock, or for the purposes of any other lawful action, the Board may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted, and which record date shall be not more than sixty (60) days prior to such action. If no record date is fixed, the record date for determining stockholders for any such purpose shall be at the close of business on the day on which the Board adopts the resolution relating thereto.

6.6. Registered Stockholders. Prior to the surrender to the Corporation of the certificate or certificates for a share or shares of stock with a request to record the transfer of such share or shares, the Corporation may treat the registered owner as the person entitled to receive dividends, to vote, to receive notifications, and otherwise to exercise all the rights and powers of an owner. The Corporation shall not be bound to recognize any equitable or other claim to or interest in such share or shares on the part of any other person, whether or not it shall have express or other notice thereof.

ARTICLE VII

GENERAL PROVISIONS

7.1. Dividends. Dividends upon the capital stock of the Corporation, subject to the provisions of the Certificate, if any, may be declared by the Board at any regular or special meeting, pursuant to applicable law. Dividends may be paid in cash, in property, or

in shares of the capital stock, subject to the provisions of the Certificate. Before payment of any dividend, there may be set aside out of any funds of the Corporation available for dividends such sum or sums as the Board from time to time, in its absolute discretion, thinks proper as a reserve or reserves to meet contingencies, or for equalizing dividends, or for repairing or maintaining any property of the Corporation, or any other purpose and the Board may modify or abolish any such reserve in the manner in which it was created.

7.2. Checks, Drafts or Orders. All checks, drafts, or other orders for the payment of money by or to the Corporation and all notes and other evidences of indebtedness issued in the name of the Corporation shall be signed by such officer or officers, agent or agents of the Corporation, and in such manner, as shall be determined by resolution of the Board or a duly authorized committee thereof.

7.3. Contracts. The Board may authorize any officer or officers, or any agent or agents, of the Corporation to enter into any contract or to execute and deliver any instrument in the name of and on behalf of the Corporation, and such authority may be general or confined to specific instances.

7.4. Loans. The Corporation may lend money to, or guarantee any obligation of, or otherwise assist any officer or other employee of the Corporation or of its subsidiary, including any officer or employee who is a director of the Corporation or its subsidiary, whenever, in the judgment of the directors, such loan, guaranty or assistance may reasonably be expected to benefit the Corporation. The loan, guaranty or other assistance may be with or without interest, and may be unsecured, or secured in such manner as the Board shall approve, including, without limitation, a pledge of shares of stock of the Corporation. Nothing in this section contained shall be deemed to deny, limit or restrict the powers of guaranty or warranty of the Corporation at common law or under any statute.

7.5. Fiscal Year. The fiscal year of the Corporation shall be fixed by resolution of the Board.

7.6. Corporate Seal. The Board may provide a corporate seal, which may be used by causing such seal or a facsimile thereof to be impressed or affixed or reproduced or otherwise.

7.7. Voting Securities Owned By Corporation. Voting securities in any other corporation held by the Corporation shall be voted by the President, unless the Board specifically confers authority to vote with respect thereto, which authority may be general or confined to specific instances, upon some other person or officer. Any person authorized to vote securities shall have the power to appoint proxies, with general power of substitution.

7.8. Inspection of Books and Records. Any stockholder of record, in person or by attorney or other agent, shall, upon written demand under oath stating the purpose thereof, have the right during the usual hours for business to inspect for any proper purpose the Corporation's stock ledger, a list of its stockholders, and its other books and records, and to make copies or extracts therefrom. A proper purpose shall mean any purpose reasonably related to such person's interest as a stockholder. In every instance where an attorney or other agent shall be the person who seeks the right to inspection, the demand under oath shall be accompanied by a power of attorney or such other writing which authorizes the attorney or other agent to so act on behalf of the stockholder. The demand under oath shall be directed to the Corporation at its registered office in the State of Delaware or at its principal place of business.

7.9. Section Headings. Section headings in these Bylaws are for convenience of reference only and shall not be given any substantive effect in limiting or otherwise construing any provision herein.

7.10. Inconsistent Provisions. In the event that any provision of these Bylaws is or becomes inconsistent with any provision of the Certificate, the DGCL or any other applicable law, the provision of these Bylaws shall not be given any effect to the extent of such inconsistency but shall otherwise be given full force and effect.

ARTICLE VIII

AMENDMENTS

These Bylaws may be amended, altered, or repealed and new bylaws adopted at any meeting of the Board by a majority vote. The fact that the power to adopt, amend, alter, or repeal these Bylaws has been conferred upon the Board shall not divest the stockholders of the same powers.

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CERTIFICATE BY SECRETARY

The undersigned, being the Secretary of the Corporation, hereby certifies that the foregoing Bylaws were duly adopted by the initial directors of the Corporation effective on March 8, 2015.

IN WITNESS WHEREOF, I have signed this certification as of the 8th day of March, 2015.

/s/ Daniel Schmitt
Daniel Schmitt, Secretary

Exhibit 3.5

FORM OF

AMENDED AND RESTATED

BYLAWS

OF

ACTUATE THERAPEUTICS, INC.

(A Delaware Corporation)

TABLE OF CONTENTS

Amended and Restated Bylaws of

Actuate Therapeutics, Inc.

ARTICLE I
CORPORATE OFFICES

1.1 Registered Office.

The address of the registered office of Actuate Therapeutics, Inc.. (the "Corporation") in the State of Delaware, and the name of its registered agent at such address, shall be as set forth in the Corporation's Sixth Amended and Restated Certificate of Incorporation, as the same may be amended and/or restated from time to time (the "Certificate of Incorporation").

1.2 Other Offices.

The Corporation may have additional offices at any place or places, within or outside the State of Delaware, as the Corporation's board of directors (the "Board") may from time to time establish or as the business of the Corporation may require.

ARTICLE II
MEETINGS OF STOCKHOLDERS

2.1 Place of Meetings.

Meetings of stockholders shall be held at any place within or outside the State of Delaware, as may be designated from time to time by the Board, the Chairperson of the Board, the Chief Executive Officer or the President. The Board may, in its sole discretion, determine that a meeting of stockholders shall not be held at any place, but may instead be held solely by means of remote communication as authorized by Section 211(a)(2) of the General Corporation Law of the State of Delaware (the "DGCL").

2.2 Annual Meeting.

The Board, the Chairperson of the Board, the Chief Executive Officer or the President shall designate the date and time of the annual meeting. At the annual meeting, directors shall be elected to fill any term of a directorship that expires on the date of such annual meeting and other proper business properly brought before the meeting in accordance with these Bylaws may be transacted. The Board may postpone, reschedule or cancel any previously scheduled annual meeting of stockholders.

2.3 Special Meeting.

Special meetings of the stockholders may be called only by such persons and only in such manner as set forth in the Certificate of Incorporation.

No business may be transacted at any special meeting of stockholders other than the business specified in the notice of such meeting. The Board may postpone, reschedule or cancel any previously scheduled special meeting of stockholders.

2.4 Notice of Business to be Brought before a Meeting.

(a) At an annual meeting of the stockholders, only such business shall be conducted as shall have been properly brought before the meeting. To be properly brought before an annual meeting, business must be (i) specified in a notice of meeting (or any supplement thereto) given by or at the direction of the Board, (ii) if not specified in a notice of meeting, otherwise brought before the meeting by or at the direction of the Board or the Chairperson of the Board or (iii) otherwise properly brought before the meeting by a stockholder present in person who (A) (1) was a record owner of shares of the Corporation both at the time of giving the notice provided for in this Section 2.4 and at the time of the meeting, (2) is entitled to vote at the meeting, and (3) has complied with this Section 2.4 in all applicable respects or (B) properly made such proposal in accordance with Rule 14a-8 under the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder (as so amended and inclusive of such rules and regulations, the "Exchange Act"). The foregoing clause (iii) shall be the exclusive means for a stockholder to propose business to be brought before an annual meeting of the stockholders. The only matters that may be brought before a special meeting are the matters specified in the notice of meeting (or any supplement thereto) given by or at the direction of the person calling the meeting pursuant to Section 2.3, and stockholders shall not be permitted to propose business to be brought before a special meeting of the stockholders. For purposes of this Section 2.4, "present in person" shall mean that the stockholder proposing that the business be brought before the annual meeting of the Corporation, or a qualified representative of such proposing stockholder, appear at such annual meeting. A "qualified representative" of such proposing stockholder shall be a duly authorized officer, manager or partner of such stockholder or any other person authorized by a writing executed by such stockholder or an electronic transmission delivered by such stockholder to act for such stockholder as proxy at the meeting of stockholders and such person must produce such writing or electronic transmission, or a reliable reproduction of the writing or electronic transmission, at the meeting of stockholders. Stockholders seeking to nominate persons for election to the Board must comply with Section 2.5 and Section 2.6 and this Section 2.4 shall not be applicable to nominations except as expressly provided in Section 2.5 and Section 2.6.

(b) Without qualification, for business to be properly brought before an annual meeting by a stockholder, the stockholder must (i) provide Timely Notice (as defined below) thereof in writing and in proper form to the Secretary of the Corporation and (ii) provide any updates or supplements to such notice at the times and in the forms required by this Section 2.4. To be timely, a stockholder's notice must be delivered to the principal executive offices of the Corporation not less than ninety (90) days nor more than one hundred twenty (120) days prior to the one-year anniversary of the preceding year's annual meeting; *provided*, *however*, that if the date of the annual meeting is more than thirty (30) days before or more than sixty (60) days after such anniversary date, or if no annual meeting was held in the preceding year, notice by the stockholder to be timely must be so delivered not earlier than the hundred twentieth (120th) day prior to such annual meeting and not later than the close of business on (i) the ninetieth (90th) day prior to such annual meeting or, (ii) if later, the tenth (10th) day following the day on which public disclosure of the date of such annual meeting was first made by the Corporation (such notice within such time periods, "Timely Notice"). In no event shall any adjournment or postponement of an annual meeting or the announcement thereof commence a new time period (or extend any time period) for the giving of Timely Notice as described above.

(c) To be in proper form for purposes of this Section 2.4, a stockholder's notice to the Secretary shall set forth:

(i) As to each Proposing Person (as defined below) and, if the Proposing Person is an entity, as to each director, executive officer, general partner, managing member or other control person of such entity: (A) the name and address of each such person, as they appear on the Corporation's books and records (if applicable); (B) the class and series and number of shares of the Corporation that are, directly or indirectly, owned of record or beneficially owned (within the meaning of Rule 13d-3 under the Exchange Act) by each such person, except that each such person shall in all events be deemed to beneficially own any shares of any class or series of the Corporation as to which such person has a right to acquire beneficial ownership at any time in the future; (C) a description of any material interest in the proposed business of each such person and any affiliates and associates of the Proposing Person, or others acting in concert with the Proposing Person in connection with the Corporation or the proposed business; (D) a description of any agreement, arrangement or understanding between or among each such person and any other person or persons (including their names) in connection with the proposal of such business or the solicitation of proxies in favor of such proposal; (E) a description of any agreement, arrangement or understanding (including any derivative or short positions, swaps, profit interests, options, warrants, convertible securities, stock appreciation or similar rights, hedging transactions, and borrowed or loaned shares) that has been entered into by, or on behalf of, each such person, the effect or intent of which is to mitigate loss to, manage risk or benefit of share price changes for, or increase or decrease the voting power of, such person with respect to shares of stock of the Corporation; and (F) any other information relating to each such person that would be required to be disclosed in a proxy statement or other filings required to be made in connection with solicitations of proxies for the business proposed pursuant to Section 14 of the Exchange Act and the rules and regulations promulgated thereunder. In

addition, as to each Proposing Person, (A) any other information relating to each Proposing Person that would be required to be disclosed in a Schedule 13D filed pursuant to Rule 13d-1(a) or an amendment pursuant to Rule 13d-2(a) if such a statement is required to be filed under the Exchange Act by such Proposing Person and/or any of its respective affiliates or associates; (B) a representation that such Proposing Person intends to appear in person or by proxy at the annual meeting to bring such business before the meeting; and (C) a representation whether such Proposing Person intends or is part of a group that intends (i) to deliver a proxy statement and/or form of proxy to holders of at least the percentage of the Corporation's outstanding capital stock required to approve or adopt the proposal (and such representation shall be included in any such proxy statement and form of proxy) and/or (ii) otherwise to solicit proxies or votes from stockholders in support of such proposal (and such representation shall be included in any such solicitation materials).

(ii) As to each item of business that the Proposing Person proposes to bring before the annual meeting, (A) a brief description of the business desired to be brought before the annual meeting and the reasons for conducting such business at the annual meeting, (B) the text of the proposal or business (including the text of any resolutions proposed for consideration and in the event that such business includes a proposal to amend the Bylaws, the language of the proposed amendment), and (C) any other information relating to such item of business that would be required to be disclosed in a proxy statement or other filing required to be made in connection with solicitations of proxies in support of the business proposed to be brought before the meeting pursuant to Section 14(a) of the Exchange Act.

For purposes of this Section 2.4, the term "Proposing Person" shall mean the stockholder or stockholders of record, and the beneficial owner, if any, on whose behalf, the proposal is being made.

(d) The Board may request that any Proposing Person furnish such additional information as may be reasonably required by the Board. Such Proposing Person shall provide such additional information within ten (10) days after it has been requested by the Board.

(e) A Proposing Person shall update and supplement its notice to the Corporation of its intent to propose business at an annual meeting, if necessary, so that the information provided or required to be provided in such notice pursuant to this Section 2.4 shall be true and correct as of the record date for stockholders entitled to vote at the meeting and as of the date that is ten (10) business days prior to the meeting or any adjournment or postponement thereof, and such update and supplement shall be delivered to the Secretary at the principal executive offices of the Corporation not later than five (5) business days after the record date for stockholders entitled to vote at the meeting (in the case of the update and supplement required to be made as of such record date), and not later than eight (8) business days prior to the date for the meeting or, if practicable, any adjournment or postponement thereof (and, if not practicable, on the first practicable date prior to the date to which the meeting has been adjourned or postponed) (in the case of the update and supplement required to be made as of ten (10) business days prior to the meeting or any adjournment or postponement thereof). For the avoidance of doubt, the obligation to update and supplement as set forth in this paragraph or any other Section of these Bylaws shall not limit the Corporation's rights with respect to any deficiencies in any notice provided by a stockholder, extend any applicable deadlines hereunder or enable or be deemed to permit a stockholder who has previously submitted notice hereunder to amend or update any proposal or to submit any new proposal, including by changing or adding matters, business or resolutions proposed to be brought before a meeting of the stockholders.

(f) Notwithstanding anything in these Bylaws to the contrary, no business shall be conducted at an annual meeting that is not properly brought before the meeting in accordance with this Section 2.4. The presiding officer of the meeting shall, if the facts warrant, determine that the business was not properly brought before the meeting in accordance with this Section 2.4, and if he or she should so determine, he or she shall so declare to the meeting and any such business not properly brought before the meeting shall not be transacted.

(g) This Section 2.4 is expressly intended to apply to any business proposed to be brought before an annual meeting of stockholders other than any proposal made in accordance with Rule 14a-8 under the Exchange Act and included in the Corporation's proxy statement. In addition to the requirements of this Section 2.4 with respect to any business proposed to be brought before an annual meeting, each Proposing Person shall comply with all applicable requirements of the Exchange Act and other applicable law with respect to any such business. Nothing in this Section 2.4 shall be deemed to affect the rights of stockholders to request inclusion of proposals in the Corporation's proxy statement pursuant to Rule 14a-8 under the Exchange Act.

(h) For purposes of these Bylaws, "public disclosure" shall mean disclosure in a press release reported by a national news service or in a document publicly filed by the Corporation with the Securities and Exchange Commission pursuant to Sections 13, 14 or 15(d) of the Exchange Act.

2.5 Notice of Nominations for Election to the Board.

(a) Nominations of any person for election to the Board at an annual meeting or at a special meeting (but only if the election of directors is a matter specified in the notice of meeting given by or at the direction of the person calling such special meeting) may be made at such meeting only (i) by or at the direction of the Board, including by any committee or persons authorized to do so by the Board or these Bylaws, or (ii) by a stockholder present in person who (A) was a record owner of shares of the Corporation both at the time of giving the notice provided for in this Section 2.5 and at the time of the meeting, (B) is entitled to vote at the meeting, and (C) has complied with this Section 2.5 and Section 2.6 as to such notice and nomination. For purposes of this Section 2.5, "present in person" shall mean that the stockholder nominating any person for election to the Board at the meeting of the Corporation, or a qualified representative of such stockholder, appear at such meeting. A "qualified representative" of such proposing stockholder shall be a duly authorized officer, manager or partner of such stockholder or any other person authorized by a writing executed by such stockholder or an electronic transmission delivered by such stockholder to act for such stockholder as proxy at the meeting of stockholders and such person must produce such writing or electronic transmission, or a reliable reproduction of the writing or electronic transmission, at the meeting of stockholders. The foregoing clause (ii) shall be the exclusive means for a stockholder to make any nomination of a person or persons for election to the Board at an annual meeting or special meeting.

(b) (i) Without qualification, for a stockholder to make any nomination of a person or persons for election to the Board at an annual meeting, the stockholder must (1) provide Timely Notice (as defined in Section 2.4) thereof in writing and in proper form to the Secretary of the Corporation, (2) provide the information required by this Section 2.5 and Section 2.6 and (3) provide any updates or supplements to such notice at the times and in the forms required by this Section 2.5 and Section 2.6.

(ii) Without qualification, if the election of directors is a matter specified in the notice of meeting given by or at the direction of the person calling a special meeting, then for a stockholder to make any nomination of a person or persons for election to the Board at a special meeting, the stockholder must (1) provide timely notice thereof in writing and in proper form to the Secretary of the Corporation at the principal executive offices of the Corporation, (2) provide the information required by this Section 2.5 and Section 2.6 and (3) provide any updates or supplements to such notice at the times and in the forms required by this Section 2.5. To be timely, a stockholder's notice for nominations to be made at a special meeting must be delivered to the principal executive offices of the Corporation not earlier than the one hundred twentieth (120th) day prior to such special meeting and not later than the ninetieth (90th) day prior to such special meeting or, if later, the tenth (10th) day following the day on which public disclosure (as defined in Section 2.4) of the date of such special meeting was first made.

(iii) In no event shall any adjournment or postponement of an annual meeting or special meeting or the announcement thereof commence a new time period (or extend any time period) for the giving of a stockholder's notice as described above.

(iv) In no event may a Nominating Person provide Timely Notice with respect to a greater number of director candidates than are subject to election by stockholders at the applicable meeting. If the Corporation shall, subsequent to such notice, increase the number of directors subject to election at the meeting, such notice as to any additional nominees shall be due on the later of (i) the conclusion of the time period for Timely Notice or, in the case of a special meeting, the date set forth in Section 2.5(b)(ii) or (ii) the tenth day following the date of public disclosure (as defined in Section 2.4) of such increase.

(c) To be in proper form for purposes of this Section 2.5, a stockholder's notice to the Secretary shall set forth:

(i) As to each Nominating Person (as defined below), and, if the Nominating Person is an entity, as to each director, executive officer, general partner, managing member or other control person of such entity: (A) the name and address of each

such person as they appear on the Corporation's books and records (if applicable); (B) the class and series and number of shares of the Corporation that are, directly or indirectly, owned of record or beneficially owned (within the meaning of Rule 13d-3 under the Exchange Act) by each such person, except that each such person shall in all events be deemed to beneficially own any shares of any class or series of the Corporation as to which such person has a right to acquire beneficial ownership at any time in the future; (C) a description of any direct or indirect material interest in any agreement, arrangement or understanding between or among each such person and any affiliates and associates of the Nominating Person, any proposed nominee and/or any other person or persons (including their names) pursuant to which the nomination(s) are being made or related to the solicitation of proxies or votes in favor of electing such nominee(s); (D) a description of any agreement, arrangement or understanding (including any derivative or short positions, swaps, profit interests, options, warrants, convertible securities, stock appreciation or similar rights, hedging transactions, and borrowed or loaned shares) that has been entered into by, or on behalf of, each such person, the effect or intent of which is to mitigate loss to, manage risk or benefit of share price changes for, or increase or decrease the voting power of, such stockholder or such beneficial owner with respect to shares of stock of the Corporation; and (E) any other information relating to each such person that would be required to be disclosed in a proxy statement or other filings required to be made in connection with solicitations of proxies for the election of directors in a contested election pursuant to Section 14 of the Exchange Act and the rules and regulations promulgated thereunder. In addition, as to each Nominating Person, (A) any other information relating to each Nominating Person that would be required to be disclosed in a Schedule 13D filed pursuant to Rule 13d-1(a) or an amendment pursuant to Rule 13d-2(a) if such a statement is required to be filed under the Exchange Act by such Nominating Person and/or any of its respective affiliates or associates; (B) a representation that such Nominating Person intends to appear in person or by proxy at the meeting to nominate the person(s) named in its notice; and (C) a representation whether such Nominating Person intends or is part of a group that intends (i) to deliver a proxy statement and/or form of proxy to holders of at least the percentage of the Corporation's outstanding capital stock reasonably believed by such Nominating Person to be sufficient to elect the nominee (and such representation shall be included in any such proxy statement and form of proxy) and/or (ii) otherwise to solicit proxies or votes from stockholders in support of such nomination (and such representation shall be included in any such solicitation materials); and

(ii) As to each candidate whom a Nominating Person proposes to nominate for election as a director, (A) a description of all direct and indirect compensation and other material monetary agreements, arrangements and understandings during the past three years, and any other material relationships, between or among (x) the Nominating Person and the affiliates and associates of such Nominating Person and others acting in concert with such Nominating Person in connection with the Corporation or the nominations, on the one hand, and (y) each proposed nominee, and his or her respective affiliates and associates, or others acting in concert with such nominee(s) in connection with the Corporation or the nominations, on the other hand, including all information that would be required to be disclosed pursuant to Item 404 of Regulation S-K if the Nominating Person and any beneficial owner on whose behalf the nomination is made or any affiliate or associate thereof or person acting in concert therewith in connection with the Corporation or the nominations were the "registrant" for purposes of such Item and the proposed nominee were a director or executive officer of such registrant, and all information relating to such candidate for nomination that is required to be disclosed in a proxy statement or other filings required to be made in connection with solicitations of proxies for election of directors in a contested election pursuant to Section 14(a) under the Exchange Act (including such candidate's written consent to being named in a proxy statement and accompanying proxy card relating to the Corporation's next meeting of stockholders at which directors are to be elected and to serving as a director for a full term if elected), and (B) a completed and signed questionnaire, representation and agreement as provided in Section 2.6(a).

For purposes of this Section 2.5, the term "Nominating Person" shall mean the stockholder or stockholders of record, and the beneficial owner, if any, on whose behalf the nomination is being made.

(d) The Board may request that any Nominating Person furnish such additional information as may be reasonably required by the Board. Such Nominating Person shall provide such additional information within ten (10) days after it has been requested by the Board.

(e) A Nominating Person shall further update and supplement such notice, if necessary, so that the information provided or required to be provided in such notice pursuant to this Section 2.5 shall be true and correct as of the record date for stockholders entitled to vote at the meeting and as of the date that is ten (10) business days prior to the meeting or any adjournment or postponement thereof, and such update and supplement shall be delivered to the Secretary at the principal executive offices of the Corporation not later than five (5) business days after the record date for stockholders entitled to vote at the meeting (in the case of the update and supplement required to be made as of such record date), and not later than eight (8) business days prior to the date for the meeting or, if practicable, any adjournment or postponement thereof (and, if not practicable, on the first practicable date prior to the

date to which the meeting has been adjourned or postponed) (in the case of the update and supplement required to be made as of ten (10) business days prior to the meeting or any adjournment or postponement thereof). For the avoidance of doubt, the obligation to update and supplement as set forth in this paragraph or any other Section of these Bylaws shall not limit the Corporation's rights with respect to any deficiencies in any notice provided by a stockholder, extend any applicable deadlines hereunder or enable or be deemed to permit a stockholder who has previously submitted notice hereunder to amend or update any nomination or to submit any new nomination.

(f) In addition to the requirements of this Section 2.5 with respect to any nomination proposed to be made at a meeting, each Nominating Person shall comply with all applicable requirements of the Exchange Act with respect to any such nominations. Notwithstanding the foregoing provisions of this Section 2.5, unless otherwise required by law, (i) no Nominating Person shall solicit proxies in support of director nominees other than the Corporation's nominees unless such Nominating Person has complied with Rule 14a-19 promulgated under the Exchange Act in connection with the solicitation of such proxies, including the provision to the Corporation of notices required thereunder in a timely manner and (ii) if any Nominating Person (1) provides notice pursuant to Rule 14a-19(b) promulgated under the Exchange Act and (2) subsequently fails to comply with the requirements of Rule 14a-19(a)(2) and Rule 14a-19(a)(3) promulgated under the Exchange Act, including the provision to the Corporation of notices required thereunder in a timely manner, or fails to timely provide reasonable evidence sufficient to satisfy the Corporation that such Nominating Person has met the requirements of Rule 14a-19(a)(3) promulgated under the Exchange Act in accordance with the following sentence, then the nomination of each such proposed nominee shall be disregarded, notwithstanding that the nominee is included as a nominee in the Corporation's proxy statement, notice of meeting or other proxy materials for any annual meeting (or any supplement thereto) and notwithstanding that proxies or votes in respect of the election of such proposed nominees may have been received by the Corporation (which proxies and votes shall be disregarded). If any Nominating Person provides notice pursuant to Rule 14a-19(b) promulgated under the Exchange Act, such Nominating Person shall deliver to the Corporation, no later than five (5) business days prior to the applicable meeting, reasonable evidence that it has met the requirements of Rule 14a-19(a)(3) promulgated under the Exchange Act.

2.6 Additional Requirements for Valid Nomination of Candidates to Serve as Director and, if Elected, to be Seated as Directors.

(a) To be eligible to be a candidate for election as a director of the Corporation at an annual or special meeting, a candidate must be nominated in the manner prescribed in Section 2.5 and the candidate for nomination, if nominated by a stockholder of record, must have previously delivered (in accordance with Section 2.5(b)), to the Secretary at the principal executive offices of the Corporation, (i) a completed written questionnaire (in the form provided by the Corporation upon written request of any stockholder of record therefor) with respect to the background, qualifications, stock ownership and independence of such proposed nominee and (ii) a written representation and agreement (in the form provided by the Corporation upon written request of any stockholder of record therefor) that such candidate for nomination (A) is not and, if elected as a director during his or her term of office, will not become a party to (1) any agreement, arrangement or understanding with, and has not given and will not give any commitment or assurance to, any person or entity as to how such proposed nominee, if elected as a director of the Corporation, will act or vote on any issue or question (a "Voting Commitment") that has not been disclosed to the Corporation or (2) any Voting Commitment that could limit or interfere with such proposed nominee's ability to comply, if elected as a director of the Corporation, with such proposed nominee's fiduciary duties under applicable law, (B) is not, and will not become a party to, any agreement, arrangement or understanding with any person or entity other than the Corporation with respect to any direct or indirect compensation or reimbursement for service as a director that has not been disclosed to the Corporation and (C) if elected as a director of the Corporation, will comply with all applicable corporate governance, conflict of interest, confidentiality, stock ownership and trading and other policies and guidelines of the Corporation applicable to directors and in effect during such person's term in office as a director (and, if requested by any candidate for nomination, the Secretary of the Corporation shall provide to such candidate for nomination all such policies and guidelines then in effect).

(b) The Board may also require any proposed candidate for nomination as a director to furnish such other information as may reasonably be requested by the Board in writing prior to the meeting of stockholders at which such candidate's nomination is to be acted upon. Without limiting the generality of the foregoing, the Board may request such other information in order for the Board to determine the eligibility of such candidate for nomination to be an independent director of the Corporation or to comply with the director qualification standards and any additional selection criteria in accordance with the Corporation's Corporate Governance Guidelines. Such other information shall be delivered to the Secretary at the principal executive offices of the Corporation not later than five (5) business days after the request by the Board has been delivered to the Nominating Person.

(c) A candidate for nomination as a director shall further update and supplement the materials delivered pursuant to this Section 2.6, if necessary, so that the information provided or required to be provided pursuant to this Section 2.6 shall be true and correct as of the record date for stockholders entitled to vote at the meeting and as of the date that is ten (10) business days prior to the meeting or any adjournment or postponement thereof, and such update and supplement shall be delivered to, the Secretary at the principal executive offices of the Corporation not later than five (5) business days after the record date for stockholders entitled to vote at the meeting (in the case of the update and supplement required to be made as of such record date), and not later than eight (8) business days prior to the date for the meeting or, if practicable, any adjournment or postponement thereof (and, if not practicable, on the first practicable date prior to the date to which the meeting has been adjourned or postponed) (in the case of the update and supplement required to be made as of ten (10) business days prior to the meeting or any adjournment or postponement thereof).For the avoidance of doubt, the obligation to update and supplement as set forth in this paragraph or any other Section of these Bylaws shall not limit the Corporation's rights with respect to any deficiencies in any notice provided by a stockholder, extend any applicable deadlines hereunder or enable or be deemed to permit a stockholder who has previously submitted notice hereunder to amend or update any nomination or to submit any new proposal, including by changing or adding nominees, matters, business or resolutions proposed to be brought before a meeting of the stockholders.

(d) No candidate shall be eligible for nomination as a director of the Corporation unless such candidate for nomination and the Nominating Person seeking to place such candidate's name in nomination has complied with Section 2.5 and this Section 2.6, as applicable. The presiding officer at the meeting shall, if the facts warrant, determine that a nomination was not properly made in accordance with Section 2.5 and this Section 2.6, and if he or she should so determine, he or she shall so declare such determination to the meeting, the defective nomination shall be disregarded and any ballots cast for the candidate in question (but in the case of any form of ballot listing other qualified nominees, only the ballots cast for the nominee in question) shall be void and of no force or effect.

(e) Notwithstanding anything in these Bylaws to the contrary, no candidate for nomination shall be eligible to be seated as a director of the Corporation unless nominated and elected in accordance with Section 2.5 and this Section 2.6.

2.7 Notice of Stockholders' Meetings.

Unless otherwise provided by law, the Certificate of Incorporation or these Bylaws, the notice of any meeting of stockholders shall be sent or otherwise given in accordance with Section 8.1 of these Bylaws not less than ten (10) nor more than sixty (60) days before the date of the meeting to each stockholder entitled to vote at such meeting as of the record date for determining the stockholders entitled to notice of the meeting. The notice shall specify the place, if any, date and time of the meeting, the means of remote communication, if any, by which stockholders and proxy holders may be deemed to be present in person and vote at such meeting, and, in the case of a special meeting, the purpose or purposes for which the meeting is called.

2.8 Quorum.

Unless otherwise provided by law, the Certificate of Incorporation or these Bylaws, the holders of a majority in voting power of the stock issued and outstanding and entitled to vote, present in person, or by remote communication, if applicable, or represented by proxy, shall constitute a quorum for the transaction of business at all meetings of the stockholders. A quorum, once established at a meeting, shall not be broken by the withdrawal of enough votes to leave less than a quorum. If, however, a quorum is not present or represented at any meeting of the stockholders, then either (i) the person presiding over the meeting or (ii) a majority in voting power of the stockholders entitled to vote at the meeting, present in person, or by remote communication, if applicable, or represented by proxy, shall have power to recess the meeting or adjourn the meeting from time to time in the manner provided in Section 2.9 of these Bylaws until a quorum is present or represented. At any recessed or adjourned meeting at which a quorum is present or represented, any business may be transacted that might have been transacted at the meeting as originally noticed.

2.9 Adjourned Meeting; Notice.

When a meeting is adjourned to another time or place, unless these Bylaws otherwise require, notice need not be given of the adjourned meeting if the time, place, if any, thereof, and the means of remote communications, if any, by which stockholders and proxy holders may be deemed to be present in person and vote at such adjourned meeting are announced at the meeting at which the adjournment is taken or are provided in any other manner permitted by the DGCL. At any adjourned meeting, the Corporation may

transact any business which might have been transacted at the original meeting. If the adjournment is for more than thirty (30) days, a notice of the adjourned meeting shall be given to each stockholder of record entitled to vote at the meeting. If after the adjournment a new record date for determination of stockholders entitled to vote is fixed for the adjourned meeting, the Board shall fix as the record date for determining stockholders entitled to notice of such adjourned meeting the same or an earlier date as that fixed for determination of stockholders entitled to vote at the adjourned meeting, and shall give notice of the adjourned meeting to each stockholder of record entitled to vote at such meeting as of the record date so fixed for notice of such adjourned meeting.

2.10 Conduct of Business.

The date and time of the opening and the closing of the polls for each matter upon which the stockholders will vote at a meeting shall be announced at the meeting by the person presiding over the meeting. The Board may adopt by resolution such rules and regulations for the conduct of the meeting of stockholders as it shall deem appropriate. Except to the extent inconsistent with such rules and regulations as adopted by the Board, the person presiding over any meeting of stockholders shall have the right and authority to convene and (for any or no reason) to recess and/or adjourn the meeting, to prescribe such rules, regulations and procedures (which need not be in writing) and to do all such acts as, in the judgment of such presiding person, are appropriate for the proper conduct of the meeting. Such rules, regulations or procedures, whether adopted by the Board or prescribed by the person presiding over the meeting, may include, without limitation, the following: (i) the establishment of an agenda or order of business for the meeting; (ii) rules and procedures for maintaining order at the meeting and the safety of those present (including, without limitation, rules and procedures for removal of disruptive persons from the meeting); (iii) limitations on attendance at or participation in the meeting to stockholders entitled to vote at the meeting, their duly authorized and constituted proxies or such other persons as the person presiding over the meeting shall determine; (iv) restrictions on entry to the meeting after the time fixed for the commencement thereof; and (v) limitations on the time allotted to questions or comments by participants. The presiding person at any meeting of stockholders, in addition to making any other determinations that may be appropriate to the conduct of the meeting (including, without limitation, determinations with respect to the administration and/or interpretation of any of the rules, regulations or procedures of the meeting, whether adopted by the Board or prescribed by the person presiding over the meeting), shall, if the facts warrant, determine and declare to the meeting that a matter of business was not properly brought before the meeting and if such presiding person should so determine, such presiding person shall so declare to the meeting and any such matter or business not properly brought before the meeting shall not be transacted or considered. Unless and to the extent determined by the Board or the person presiding over the meeting, meetings of stockholders shall not be required to be held in accordance with the rules of parliamentary procedure.

2.11 Voting.

Except as may be otherwise provided in the Certificate of Incorporation, these Bylaws or the DGCL, each stockholder shall be entitled to one (1) vote, in person or proxy, for each share of capital stock held by such stockholder.

Except as otherwise provided by the Certificate of Incorporation, at all duly called or convened meetings of stockholders at which a quorum is present, for the election of directors, a plurality of the votes cast shall be sufficient to elect a director. Except as otherwise provided by the Certificate of Incorporation, these Bylaws, the rules or regulations of any stock exchange applicable to the Corporation, or applicable law or pursuant to any regulation applicable to the Corporation or its securities, each other matter presented to the stockholders at a duly called or convened meeting at which a quorum is present shall be decided by the affirmative vote of the holders of a majority in voting power of the votes cast (excluding abstentions and broker non-votes) on such matter.

2.12 Record Date for Stockholder Meetings and Other Purposes.

In order that the Corporation may determine the stockholders entitled to notice of or to vote at any meeting of stockholders or any adjournment thereof, the Board may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board, and which record date shall, unless otherwise required by law, not be more than sixty (60) days nor less than ten (10) days before the date of such meeting. If the Board so fixes a date, such date shall also be the record date for determining the stockholders entitled to vote at such meeting unless the Board determines, at the time it fixes such record date, that a later date on or before the date of the meeting shall be the date for making such determination. If no record date is fixed by the Board, the record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be the close of business on the next day preceding the day on which notice is first given, or, if notice is waived, at the close of business on the day next preceding the day on which the meeting is held. A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall

apply to any adjournment of the meeting; provided, however, that the Board may fix a new record date for determination of stockholders entitled to vote at the adjourned meeting; and in such case shall also fix as the record date for stockholders entitled to notice of such adjourned meeting the same or an earlier date as that fixed for determination of stockholders entitled to vote in accordance herewith at the adjourned meeting.

In order that the Corporation may determine the stockholders entitled to receive payment of any dividend or other distribution or allotment or any rights or the stockholders entitled to exercise any rights in respect of any change, conversion or exchange of capital stock, or for the purposes of any other lawful action, the Board may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted, and which record date shall be not more than sixty (60) days prior to such action. If no record date is fixed, the record date for determining stockholders for any such purpose shall be at the close of business on the day on which the Board adopts the resolution relating thereto.

2.13 Proxies.

Each stockholder entitled to vote at a meeting of stockholders may authorize another person or persons to act for such stockholder by proxy authorized by an instrument in writing or by a transmission permitted by law, including Rule 14a-19 promulgated under the Exchange Act, filed in accordance with the procedure established for the meeting, but no such proxy shall be voted or acted upon after three (3) years from its date, unless the proxy provides for a longer period. The revocability of a proxy that states on its face that it is irrevocable shall be governed by the provisions of Section 212 of the DGCL. A proxy may be in the form of an electronic transmission which sets forth or is submitted with information from which it can be determined that the transmission was authorized by the stockholder.

Any stockholder directly or indirectly soliciting proxies from other stockholders must use a proxy card color other than white, which shall be reserved for the exclusive use by the Board.

2.14 List of Stockholders Entitled to Vote.

The Corporation shall prepare, no later than the tenth day before each meeting of stockholders, a complete list of the stockholders entitled to vote at the meeting (provided, however, that if the record date for determining the stockholders entitled to vote is less than ten (10) days before the date of the meeting, the list shall reflect the stockholders entitled to vote as of the tenth day before the meeting date), arranged in alphabetical order, and showing the address of each stockholder and the number of shares registered in the name of each stockholder. The Corporation shall not be required to include electronic mail addresses or other electronic contact information on such list. Such list shall be open to the examination of any stockholder, for any purpose germane to the meeting for a period of ten (10) days ending on the day before the meeting date: (i) on a reasonably accessible electronic network, provided that the information required to gain access to such list is provided with the notice of the meeting, or (ii) during ordinary business hours, at the Corporation's principal executive office. In the event that the Corporation determines to make the list available on an electronic network, the Corporation may take reasonable steps to ensure that such information is available only to stockholders of the Corporation. Such list shall presumptively determine the identity of the stockholders entitled to vote at the meeting and the number of shares held by each of them. Except as otherwise provided by law, the stock ledger shall be the only evidence as to who are the stockholders entitled to examine the list of stockholders required by this Section 2.14 or to vote in person or by proxy at any meeting of stockholders.

2.15 Inspectors of Election.

Before any meeting of stockholders, the Board, the Chairperson of the Board, the Chief Executive Officer or the President shall appoint an inspector or inspectors of election, who may be employees of the Corporation, to act at the meeting or its adjournment and make a written report thereof. The Board, the Chairperson of the Board, the Chief Executive Officer or the President may designate one or more persons as alternate inspectors to replace any inspector who fails to act. If any person appointed as inspector or any alternate fails to appear or fails or refuses to act, then the person presiding over the meeting shall appoint a person to fill that vacancy.

Such inspectors shall:

(i) determine the number of shares outstanding and the voting power of each, the number of shares represented at the meeting and the validity of any proxies and ballots;

(ii) count all votes or ballots;

(iii) count and tabulate all votes;

(iv) determine and retain for a reasonable period a record of the disposition of any challenges made to any determination by the inspector(s); and

(v) certify its or their determination of the number of shares represented at the meeting and its or their count of all votes and ballots.

Each inspector, before entering upon the discharge of the duties of inspector, shall take and sign an oath faithfully to execute the duties of inspection with strict impartiality and according to the best of such inspector's ability. Any report or certificate made by the inspectors of election is prima facie evidence of the facts stated therein. The inspectors of election may appoint such persons to assist them in performing their duties as they determine.

2.16 Delivery to the Corporation.

Whenever this Article II requires one or more persons (including a record or beneficial owner of stock) to deliver a document or information to the Corporation or any officer, employee or agent thereof (including any notice, request, questionnaire, revocation, representation or other document or agreement), such document or information shall be in writing exclusively (and not in an electronic transmission) and shall be delivered exclusively by hand (including, without limitation, overnight courier service) or by certified or registered mail, return receipt requested, and the Corporation shall not be required to accept delivery of any document not in such written form or so delivered. For the avoidance of doubt, the Corporation expressly opts out of Section 116 of the DGCL with respect to the delivery of information and documents to the Corporation required by this Article II.

ARTICLE III
DIRECTORS

3.1 Powers.

Except as otherwise provided by the Certificate of Incorporation or the DGCL, the business and affairs of the Corporation shall be managed by or under the direction of the Board.

3.2 Number of Directors.

Subject to the Certificate of Incorporation, the total number of directors constituting the Board shall be determined from time to time by resolution of the Board. No reduction of the authorized number of directors shall have the effect of removing any director before that director's term of office expires.

3.3 Election, Qualification and Term of Office of Directors.

Except as provided in Section 3.4 of these Bylaws, and subject to the Certificate of Incorporation, each director, including a director elected to fill a vacancy or newly created directorship, shall hold office until the expiration of the term of the class, if any, for which elected and until such director's successor is duly elected and qualified or until such director's earlier death, resignation, disqualification or removal. Directors need not be stockholders. The Certificate of Incorporation or these Bylaws may prescribe qualifications for directors.

3.4 Resignation and Vacancies.

Any director may resign at any time upon notice given in writing or by electronic transmission to the Corporation. The resignation shall take effect at the time specified therein or upon the happening of an event specified therein, and if no time or event is specified, at the time of its receipt. When one or more directors so resigns and the resignation is effective at a future date or upon the

happening of an event to occur on a future date, a majority of the directors then in office, including those who have so resigned, shall have power to fill such vacancy or vacancies, the vote thereon to take effect when such resignation or resignations shall become effective, and each director so chosen shall hold office as provided in Section 3.3.

Unless otherwise provided in the Certificate of Incorporation or these Bylaws, vacancies resulting from the death, resignation, disqualification or removal of any director, and newly created directorships resulting from any increase in the authorized number of directors shall be filled only by a majority of the directors then in office, although less than a quorum, or by a sole remaining director.

3.5 Place of Meetings; Meetings by Telephone.

The Board may hold meetings, both regular and special, either within or outside the State of Delaware.

Unless otherwise restricted by the Certificate of Incorporation or these Bylaws, members of the Board, or any committee designated by the Board, may participate in a meeting of the Board, or any committee, by means of conference telephone or other communications equipment by means of which all persons participating in the meeting can hear each other, and such participation in a meeting pursuant to this bylaw shall constitute presence in person at the meeting.

3.6 Regular Meetings.

Regular meetings of the Board may be held without notice at such times and at such places, if any, as may be determined from time to time by the Board.

3.7 Special Meetings; Notice.

Special meetings of the Board for any purpose or purposes may be called at any time by the Chairperson of the Board, the Chief Executive Officer, the President, the Secretary or a majority of the total number of directors constituting the Board.

Notice of the time and place of special meetings shall be:

(i) delivered personally by hand, by courier or by telephone;

(ii) sent by United States first-class mail, postage prepaid;

(iii) sent by facsimile or electronic mail; or

(iv) sent by other means of electronic transmission,

directed to each director at that director's address, telephone number, facsimile number or electronic mail address, or other address for electronic transmission, as the case may be, as shown on the Corporation's records.

If the notice is (i) delivered personally by hand, by courier or by telephone, (ii) sent by facsimile or electronic mail, or (iii) sent by other means of electronic transmission, it shall be delivered or sent at least twenty-four (24) hours before the time of the holding of the meeting. If the notice is sent by U.S. mail, it shall be deposited in the U.S. mail at least four (4) days before the time of the holding of the meeting. The notice need not specify the place of the meeting (if the meeting is to be held at the Corporation's principal executive office) nor the purpose of the meeting.

3.8 3.8 Quorum.

At all meetings of the Board, unless otherwise provided by the Certificate of Incorporation, a majority of the total number of directors shall constitute a quorum for the transaction of business. The vote of a majority of the directors present at any meeting at which a quorum is present shall be the act of the Board, except as may be otherwise specifically provided by statute, the Certificate of Incorporation or these Bylaws. If a quorum is not present at any meeting of the Board, then the directors present thereat may adjourn the meeting from time to time, without notice other than announcement at the meeting, until a quorum is present.

3.9 Board Action without a Meeting.

Unless otherwise restricted by the Certificate of Incorporation or these Bylaws, any action required or permitted to be taken at any meeting of the Board, or of any committee thereof, may be taken without a meeting if all members of the Board or committee, as the case may be, consent thereto in writing or by electronic transmission. After an action is taken, the consent or consents relating thereto shall be filed with the minutes of the proceedings of the Board, or the committee thereof, in the same paper or electronic form as the minutes are maintained. Such action by written consent or consent by electronic transmission shall have the same force and effect as a unanimous vote of the Board.

3.10 Fees and Compensation of Directors.

Unless otherwise restricted by the Certificate of Incorporation or these Bylaws, the Board shall have the authority to fix the compensation, including fees and reimbursement of expenses, of directors for services to the Corporation in any capacity.

ARTICLE IV
COMMITTEES

4.1 Committees of Directors.

The Board may designate one (1) or more committees, each committee to consist of one (1) or more of the directors of the Corporation. The Board may designate one (1) or more directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of the committee. In the absence or disqualification of a member of a committee, the member or members thereof present at any meeting and not disqualified from voting, whether or not such member or members constitute a quorum, may unanimously appoint another member of the Board to act at the meeting in the place of any such absent or disqualified member. Any such committee, to the extent provided in the resolution of the Board or in these Bylaws, shall have and may exercise all the powers and authority of the Board in the management of the business and affairs of the Corporation, and may authorize the seal of the Corporation to be affixed to all papers that may require it; but no such committee shall have the power or authority to (i) approve or adopt, or recommend to the stockholders, any action or matter expressly required by the DGCL to be submitted to stockholders for approval, or (ii) adopt, amend or repeal any bylaw of the Corporation.

4.2 Committee Minutes.

Each committee shall keep regular minutes of its meetings and report the same to the Board when required.

4.3 Meetings and Actions of Committees.

Meetings and actions of committees shall be governed by, and held and taken in accordance with, the provisions of:

(i) Section 3.5 (place of meetings; meetings by telephone);

(ii) Section 3.6 (regular meetings);

(iii) Section 3.7 (special meetings; notice);

(iv) Section 3.9 (board action without a meeting); and

(v) Section 7.13 (waiver of notice),

with such changes in the context of those bylaws as are necessary to substitute the committee and its members for the Board and its members. *However*:

(i) the time of regular meetings of committees may be determined either by resolution of the Board or by resolution of the committee;

(ii) special meetings of committees may also be called by resolution of the Board or the Chairperson of the applicable committee; and

(iii) the Board may adopt rules for the governance of any committee to override the provisions that would otherwise apply to the committee pursuant to this Section 4.3, provided that such rules do not violate the provisions of the Certificate of Incorporation or applicable law.

4.4 Subcommittees.

Unless otherwise provided in the Certificate of Incorporation, these Bylaws or the resolutions of the Board designating the committee, a committee may create one (1) or more subcommittees, each subcommittee to consist of one (1) or more members of the committee, and delegate to a subcommittee any or all of the powers and authority of the committee.

ARTICLE V
OFFICERS

5.1 Officers.

The officers of the Corporation shall include a Chief Executive Officer, a President and a Secretary. The Corporation may also have, at the discretion of the Board, a Chairperson of the Board, a Vice Chairperson of the Board, a Chief Financial Officer, a Treasurer, one (1) or more Vice Presidents, one (1) or more Assistant Treasurers, one (1) or more Assistant Secretaries, and any such other officers as may be appointed in accordance with the provisions of these Bylaws. Any number of offices may be held by the same person. No officer need be a stockholder or director of the Corporation.

5.2 Appointment of Officers.

The Board shall appoint the officers of the Corporation, except such officers as may be appointed in accordance with the provisions of Section 5.3 of these Bylaws.

5.3 Subordinate Officers.

The Board may appoint, or empower the Chief Executive Officer or, in the absence of a Chief Executive Officer, the President, to appoint, such other officers and agents as the business of the Corporation may require. Each of such officers and agents shall hold office for such period, have such authority, and perform such duties as are provided in these Bylaws or as the Board may from time to time determine.

5.4 Removal and Resignation of Officers.

Subject to the rights, if any, of an officer under any contract of employment, any officer may be removed, either with or without cause, by the Board or, except in the case of an officer chosen by the Board, by any officer upon whom such power of removal may be conferred by the Board.

Any officer may resign at any time by giving written notice to the Corporation. Any resignation shall take effect at the date of the receipt of that notice or at any later time specified in that notice. Unless otherwise specified in the notice of resignation, the acceptance of the resignation shall not be necessary to make it effective. Any resignation is without prejudice to the rights, if any, of the Corporation under any contract to which the officer is a party.

5.5 Vacancies in Offices.

Any vacancy occurring in any office of the Corporation shall be filled by the Board or as provided in Section 5.3.

5.6 Representation of Shares of Other Corporations.

The Chairperson of the Board, the Chief Executive Officer, or the President of this Corporation, or any other person authorized by the Board, the Chief Executive Officer or the President, is authorized to vote, represent and exercise on behalf of this Corporation all rights incident to any and all shares or voting securities of any other corporation or other person standing in the name of this Corporation. The authority granted herein may be exercised either by such person directly or by any other person authorized to do so by proxy or power of attorney duly executed by such person having the authority.

5.7 Authority and Duties of Officers.

All officers of the Corporation shall respectively have such authority and perform such duties in the management of the business of the Corporation as may be provided herein or designated from time to time by the Board and, to the extent not so provided, as generally pertain to their respective offices, subject to the control of the Board.

(a) President; Chief Executive Officer. Unless the Board has designated another person as the Corporation's Chief Executive Officer, the President shall be the Chief Executive Officer of the Corporation. The Chief Executive Officer shall have general charge and supervision of the business of the Corporation subject to the direction of the Board, and shall perform all duties and have all powers that are commonly incident to the office of the chief executive or that are delegated to such officer by the Board. The President shall perform such other duties and shall have such other powers as the Board or the Chief Executive Officer (if the President is not the Chief Executive Officer) may from time to time prescribe. In the event of the absence, inability or refusal to act of the Chief Executive Officer or the President (if the President is not the Chief Executive Officer), the Vice President (or if there shall be more than one, the Vice Presidents in the order determined by the Board of Directors) shall perform the duties of the Chief Executive Officer and when so performing such duties shall have all the powers of and be subject to all the restrictions upon the Chief Executive Officer.

(b) Vice Presidents. Each Vice President shall perform such duties and possess such powers as the Board or the Chief Executive Officer may from time to time prescribe. The Board may assign to any Vice President the title of Executive Vice President, Senior Vice President or any other title selected by the Board.

(c) Secretary and Assistant Secretaries. The Secretary shall perform such duties and shall have such powers as the Board or the Chief Executive Officer may from time to time prescribe. In addition, the Secretary shall perform such duties and have such powers as are incident to the office of the secretary, including without limitation the duty and power to give notices of all meetings of stockholders and special meetings of the Board, to attend all meetings of stockholders and the Board and keep a record of the proceedings, to maintain a stock ledger and prepare lists of stockholders and their addresses as required, to be custodian of corporate records and the corporate seal and to affix and attest to the same on documents. Any Assistant Secretary shall perform such duties and possess such powers as the Board, the Chief Executive Officer or the Secretary may from time to time prescribe. In the event of the absence, inability or refusal to act of the Secretary, the Assistant Secretary (or if there shall be more than one, the Assistant Secretaries in the order determined by the Board of Directors) shall perform the duties and exercise the powers of the Secretary. In the absence of the Secretary or any Assistant Secretary at any meeting of stockholders or directors, the chairman of the meeting shall designate a temporary secretary to keep a record of the meeting.

(d) Treasurer and Assistant Treasurers. The Treasurer shall perform such duties and shall have such powers as may from time to time be assigned by the Board or the Chief Executive Officer. In addition, the Treasurer shall perform such duties and have such powers as are incident to the office of treasurer, including without limitation the duty and power to keep and be responsible for all funds and securities of the Corporation, to deposit funds of the Corporation in depositories selected in accordance with these Bylaws, to disburse such funds as ordered by the Board, to make proper accounts of such funds, and to render as required by the Board statements of all such transactions and of the financial condition of the Corporation. The Assistant Treasurers shall perform such duties and possess such powers as the Board, the Chief Executive Officer or the Treasurer may from time to time prescribe. In the event of the absence, inability or refusal to act of the Treasurer, the Assistant Treasurer (or if there shall be more than one, the Assistant Treasurers in the order determined by the Board of Directors) shall perform the duties and exercise the powers of the Treasurer.

5.8 Compensation.

The compensation of the officers of the Corporation for their services as such shall be fixed from time to time by or at the direction of the Board. An officer of the Corporation shall not be prevented from receiving compensation by reason of the fact that he or she is also a director of the Corporation.

ARTICLE VI
RECORDS

A stock ledger consisting of one or more records in which the names of all of the Corporation's stockholders of record, the address and number of shares registered in the name of each such stockholder, and all issuances and transfers of stock of the corporation are recorded in accordance with Section 224 of the DGCL shall be administered by or on behalf of the Corporation. Any records administered by or on behalf of the Corporation in the regular course of its business, including its stock ledger, books of account, and minute books, may be kept on, or by means of, or be in the form of, any information storage device, or method, or one or more electronic networks or databases (including one or more distributed electronic networks or databases), provided that the records so kept can be converted into clearly legible paper form within a reasonable time and, with respect to the stock ledger, that the records so kept (i) can be used to prepare the list of stockholders specified in Sections 219 and 220 of the DGCL, (ii) record the information specified in Sections 156, 159, 217(a) and 218 of the DGCL, and (iii) record transfers of stock as governed by Article 8 of the Uniform Commercial Code as adopted in the State of Delaware.

ARTICLE VII
GENERAL MATTERS

7.1 Execution of Corporate Contracts and Instruments.

The Board, except as otherwise provided in these Bylaws, may authorize any officer or officers, or agent or agents, to enter into any contract or execute any instrument in the name of and on behalf of the Corporation; such authority may be general or confined to specific instances.

7.2 Stock Certificates.

The shares of the Corporation shall be represented by certificates, provided that the Board by resolution may provide that some or all of the shares of any class or series of stock of the Corporation shall be uncertificated. Certificates for the shares of stock, if any, shall be in such form approved by the Board and consistent with applicable law. Every holder of stock represented by a certificate shall be entitled to have a certificate signed by, or in the name of the Corporation by, any two officers authorized to sign stock certificates representing the number of shares registered in certificate form. The Chairperson or Vice Chairperson of the Board, Chief Executive Officer, the President, Vice President, the Treasurer, any Assistant Treasurer, the Secretary or any Assistant Secretary of the Corporation shall be specifically authorized to sign stock certificates. Any or all of the signatures on the certificate may be a facsimile. In case any officer, transfer agent or registrar who has signed or whose facsimile signature has been placed upon a certificate has ceased to be such officer, transfer agent or registrar before such certificate is issued, it may be issued by the Corporation with the same effect as if he or she were such officer, transfer agent or registrar at the date of issue.

The Corporation may issue the whole or any part of its shares as partly paid and subject to call for the remainder of the consideration to be paid therefor. Upon the face or back of each stock certificate issued to represent any such partly paid shares, or upon the books and records of the Corporation in the case of uncertificated partly paid shares, the total amount of the consideration to be paid therefor and the amount paid thereon shall be stated. Upon the declaration of any dividend on fully paid shares, the Corporation shall declare a dividend upon partly paid shares of the same class, but only upon the basis of the percentage of the consideration actually paid thereon.

7.3 Special Designation of Certificates.

If the Corporation is authorized to issue more than one class of stock or more than one series of any class, then the powers, the designations, the preferences and the relative, participating, optional or other special rights of each class of stock or series thereof and the qualifications, limitations or restrictions of such preferences and/or rights shall be set forth in full or summarized on the face or on the back of the certificate that the Corporation shall issue to represent such class or series of stock (or, in the case of uncertificated shares,

set forth in a notice provided pursuant to Section 151 of the DGCL); provided, however, that except as otherwise provided in Section 202 of the DGCL, in lieu of the foregoing requirements, there may be set forth on the face of back of the certificate that the Corporation shall issue to represent such class or series of stock (or, in the case of any uncertificated shares, included in the aforementioned notice) a statement that the Corporation will furnish without charge to each stockholder who so requests the powers, the designations, the preferences and the relative, participating, optional or other special rights of each class of stock or series thereof and the qualifications, limitations or restrictions of such preferences and/or rights.

7.4 Lost, Stolen or Destroyed Certificates.

Except as provided in this Section 7.4, no new certificates for shares shall be issued to replace a previously issued certificate unless the latter is surrendered to the Corporation and cancelled at the same time. The Corporation may issue a new certificate of stock or uncertificated shares in the place of any certificate theretofore issued by it, alleged to have been lost, stolen or destroyed, and the Corporation may require the owner of the lost, stolen or destroyed certificate, or such owner's legal representative, to give the Corporation a bond sufficient to indemnify it against any claim that may be made against it on account of the alleged loss, theft or destruction of any such certificate or the issuance of such new certificate or uncertificated shares.

7.5 Shares Without Certificates.

The Corporation may adopt a system of issuance, recordation and transfer of its shares of stock by electronic or other means not involving the issuance of certificates, provided the use of such system by the Corporation is permitted in accordance with applicable law.

7.6 Construction; Definitions.

Unless the context requires otherwise, the general provisions, rules of construction and definitions in the DGCL shall govern the construction of these Bylaws. Without limiting the generality of this provision, the singular number includes the plural and the plural number includes the singular.

7.7 Dividends.

The Board, subject to any restrictions contained in either (i) the DGCL or (ii) the Certificate of Incorporation, may declare and pay dividends upon the shares of its capital stock. Dividends may be paid in cash, in property or in shares of the Corporation's capital stock.

The Board may set apart out of any of the funds of the Corporation available for dividends a reserve or reserves for any proper purpose and may abolish any such reserve. Such purposes shall include but not be limited to equalizing dividends, repairing or maintaining any property of the Corporation, and meeting contingencies.

7.8 Fiscal Year.

Except as from time to time otherwise designated by the Board, the fiscal year of the Corporation shall begin on the first day of January of each year and end on the last day of December in each year.

7.9 Seal.

The Corporation may adopt a corporate seal, which shall be adopted and which may be altered by the Board. The Corporation may use the corporate seal by causing it or a facsimile thereof to be impressed or affixed or in any other manner reproduced.

7.10 Transfer of Stock.

Shares of the Corporation shall be transferable in the manner prescribed by law and in these Bylaws. Shares of stock of the Corporation shall be transferred on the books of the Corporation only by the holder of record thereof or by such holder's attorney duly authorized in writing, upon surrender to the Corporation of the certificate or certificates representing such shares endorsed by the appropriate person or persons (or by delivery of duly executed instructions with respect to uncertificated shares), with such evidence of the authenticity of such endorsement or execution, transfer, authorization and other matters as the Corporation may reasonably require, and accompanied by all necessary stock transfer stamps. No transfer of stock shall be valid as against the Corporation for any purpose until it shall have been entered in the stock records of the Corporation by an entry showing the names of the persons from and to whom it was transferred.

7.11 Stock Transfer Agreements.

The Corporation shall have power to enter into and perform any agreement with any number of stockholders of any one or more classes or series of stock of the Corporation to restrict the transfer of shares of stock of the Corporation of any one or more classes owned by such stockholders in any manner not prohibited by the DGCL.

7.12 Registered Stockholders.

The Corporation:

(i) shall be entitled to recognize the exclusive right of a person registered on its books as the owner of shares to receive dividends and to vote as such owner; and

(ii) shall not be bound to recognize any equitable or other claim to or interest in such share or shares on the part of another person, whether or not it shall have express or other notice thereof, except as otherwise provided by the laws of the State of Delaware.

ARTICLE VIII
NOTICE

8.1 Delivery of Notice; Notice by Electronic Transmission.

Without limiting the manner by which notice otherwise may be given effectively to stockholders, any notice to stockholders given by the Corporation under any provisions of the DGCL, the Certificate of Incorporation, or these Bylaws may be given in writing directed to the stockholder's mailing address (or by electronic transmission directed to the stockholder's electronic mail address, as applicable) as it appears on the records of the Corporation and shall be given (1) if mailed, when the notice is deposited in the U.S. mail, postage prepaid, (2) if delivered by courier service, the earlier of when the notice is received or left at such stockholder's address or (3) if given by electronic mail, when directed to such stockholder's electronic mail address unless the stockholder has notified the Corporation in writing or by electronic transmission of an objection to receiving notice by electronic mail. A notice by electronic mail must include a prominent legend that the communication is an important notice regarding the Corporation.

Without limiting the manner by which notice otherwise may be given effectively to stockholders, any notice to stockholders given by the Corporation under any provision of the DGCL, the Certificate of Incorporation or these Bylaws shall be effective if given by a form of electronic transmission consented to by the stockholder to whom the notice is given. Any such consent shall be revocable by the stockholder by written notice or electronic transmission to the Corporation. Notwithstanding the provisions of this paragraph, the Corporation may give a notice by electronic mail in accordance with the first paragraph of this section without obtaining the consent required by this paragraph.

Any notice given pursuant to the preceding paragraph shall be deemed given:

(i) if by facsimile telecommunication, when directed to a number at which the stockholder has consented to receive notice;

(ii) if by a posting on an electronic network together with separate notice to the stockholder of such specific posting, upon the later of (A) such posting and (B) the giving of such separate notice; and

(iii) if by any other form of electronic transmission, when directed to the stockholder.

Notwithstanding the foregoing, a notice may not be given by an electronic transmission from and after the time that (1) the Corporation is unable to deliver by such electronic transmission two (2) consecutive notices given by the Corporation and (2) such inability becomes known to the Secretary or an Assistant Secretary of the Corporation or to the transfer agent, or other person responsible for the giving of notice, provided, however, the inadvertent failure to discover such inability shall not invalidate any meeting or other action.

An affidavit of the Secretary or an Assistant Secretary or of the transfer agent or other agent of the Corporation that the notice has been given shall, in the absence of fraud, be prima facie evidence of the facts stated therein.

8.2 Waiver of Notice.

Whenever notice is required to be given under any provision of the DGCL, the Certificate of Incorporation or these Bylaws, a written waiver, signed by the person entitled to notice, or a waiver by electronic transmission by the person entitled to notice, whether before or after the time of the event for which notice is to be given, shall be deemed equivalent to notice. Attendance of a person at a meeting shall constitute a waiver of notice of such meeting, except when the person attends a meeting for the express purpose of objecting at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Neither the business to be transacted at, nor the purpose of, any regular or special meeting of the stockholders need be specified in any written waiver of notice or any waiver by electronic transmission unless so required by the Certificate of Incorporation or these Bylaws.

ARTICLE IX
INDEMNIFICATION

9.1 Indemnification of Directors and Officers.

The Corporation shall indemnify and hold harmless, to the fullest extent permitted by the DGCL as it presently exists or may hereafter be amended, any director or officer of the Corporation who was or is made or is threatened to be made a party or is otherwise involved in any action, suit or proceeding, whether civil, criminal, administrative or investigative (a "Proceeding") by reason of the fact that he or she, or a person for whom he or she is the legal representative, is or was a director or officer of the Corporation or, while serving as a director or officer of the Corporation, is or was serving at the request of the Corporation as a director, officer, employee or agent of another corporation or of a partnership (a "covered person"), joint venture, trust, enterprise or non-profit entity, including service with respect to employee benefit plans, against all liability and loss suffered and expenses (including attorneys' fees, judgments, fines ERISA excise taxes or penalties and amounts paid in settlement) reasonably incurred by such person in connection with any such Proceeding. Notwithstanding the preceding sentence, except as otherwise provided in Section 9.4, the Corporation shall be required to indemnify a person in connection with a Proceeding initiated by such person only if the Proceeding was authorized in the specific case by the Board.

9.2 Indemnification of Others.

The Corporation shall have the power to indemnify and hold harmless, to the fullest extent permitted by applicable law as it presently exists or may hereafter be amended, any employee or agent of the Corporation who was or is made or is threatened to be made a party or is otherwise involved in any Proceeding by reason of the fact that he or she, or a person for whom he or she is the legal representative, is or was an employee or agent of the Corporation or is or was serving at the request of the Corporation as a director, officer, employee or agent of another corporation or of a partnership, joint venture, trust, enterprise or non-profit entity, including service with respect to employee benefit plans, against all liability and loss suffered and expenses reasonably incurred by such person in connection with any such Proceeding.

9.3 Prepayment of Expenses.

The Corporation shall to the fullest extent not prohibited by applicable law pay the expenses (including attorneys' fees) incurred by any covered person, and may pay the expenses incurred by any employee or agent of the Corporation, in defending any Proceeding in advance of its final disposition; *provided*, *however*, that such payment of expenses in advance of the final disposition of the Proceeding shall be made only upon receipt of an undertaking by the person to repay all amounts advanced if it should be ultimately determined that the person is not entitled to be indemnified under this Article IX or otherwise.

9.4 Determination; Claim.

If a claim for indemnification (following the final disposition of such Proceeding) under this Article IX is not paid in full within sixty (60) days, or a claim for advancement of expenses under this Article IX is not paid in full within thirty (30) days, after a written claim therefor has been received by the Corporation the claimant may thereafter (but not before) file suit to recover the unpaid amount of such claim and, if successful in whole or in part, shall be entitled to be paid the expense of prosecuting such claim to the fullest extent permitted by law. In any such action the Corporation shall have the burden of proving that the claimant was not entitled to the requested indemnification or payment of expenses under applicable law.

9.5 Non-Exclusivity of Rights.

The rights conferred on any person by this Article IX shall not be exclusive of any other rights which such person may have or hereafter acquire under any statute, provision of the Certificate of Incorporation, these Bylaws, agreement, vote of stockholders or disinterested directors or otherwise.

9.6 Insurance.

The Corporation may purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the Corporation, or is or was serving at the request of the Corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust enterprise or non-profit entity against any liability asserted against him or her and incurred by him or her in any such capacity, or arising out of his or her status as such, whether or not the Corporation would have the power to indemnify him or her against such liability under the provisions of the DGCL.

9.7 Other Indemnification.

The Corporation's obligation, if any, to indemnify or advance expenses to any person who was or is serving at its request as a director, officer, employee or agent of another corporation, partnership, joint venture, trust, enterprise or non-profit entity shall be reduced by any amount such person may collect as indemnification or advancement of expenses from such other corporation, partnership, joint venture, trust, enterprise or non-profit enterprise.

9.8 Continuation of Indemnification.

The rights to indemnification and to prepayment of expenses provided by, or granted pursuant to, this Article IX shall continue notwithstanding that the person has ceased to be a director or officer of the Corporation and shall inure to the benefit of the estate, heirs, executors, administrators, legatees and distributees of such person.

9.9 Amendment or Repeal; Interpretation.

The provisions of this Article IX shall constitute a contract between the Corporation, on the one hand, and, on the other hand, each individual who serves or has served as a director or officer of the Corporation (whether before or after the adoption of these Bylaws), in consideration of such person's performance of such services, and pursuant to this Article IX the Corporation intends to be legally bound to each such current or former director or officer of the Corporation. With respect to current and former directors and officers of the Corporation, the rights conferred under this Article IX are present contractual rights and such rights are fully vested, and shall be deemed to have vested fully, immediately upon adoption of these Bylaws. With respect to any directors or officers of the Corporation who commence service following adoption of these Bylaws, the rights conferred under this provision shall be present contractual rights and such rights shall fully vest, and be deemed to have vested fully, immediately upon such director or officer commencing service as a director or officer of the Corporation. Any repeal or modification of the foregoing provisions of this Article IX shall not adversely affect any right or protection (i) hereunder of any person in respect of any act or omission occurring prior to the time of such repeal or modification or (ii) under any agreement providing for indemnification or advancement of expenses to an officer or director of the Corporation in effect prior to the time of such repeal or modification.

Any reference to an officer of the Corporation in this Article IX shall be deemed to refer exclusively to the Chief Executive Officer, President, and Secretary, or other officer of the Corporation appointed by (x) the Board pursuant to Article V of these Bylaws or (y) an officer to whom the Board has delegated the power to appoint officers pursuant to Article V of these Bylaws, and any reference to an officer of any other corporation, partnership, joint venture, trust, employee benefit plan or other enterprise shall be deemed to refer exclusively to an officer appointed by the board of directors (or equivalent governing body) of such other entity pursuant to the certificate of incorporation and Bylaws (or equivalent organizational documents) of such other corporation, partnership, joint venture, trust, employee benefit plan or other enterprise. The fact that any person who is or was an employee of the Corporation or an employee of any other corporation, partnership, joint venture, trust, employee benefit plan or other enterprise has been given or has used the title of "Vice President" or any other title that could be construed to suggest or imply that such person is or may be an officer of the Corporation or of such other corporation, partnership, joint venture, trust, employee benefit plan or other enterprise shall not result in such person being constituted as, or being deemed to be, an officer of the Corporation or of such other corporation, partnership, joint venture, trust, employee benefit plan or other enterprise for purposes of this Article IX.

ARTICLE X
AMENDMENTS

The Board is expressly empowered to adopt, amend or repeal the Bylaws of the Corporation. The stockholders also shall have power to adopt, amend or repeal the Bylaws of the Corporation; *provided*, *however*, that such action by stockholders shall require, in addition to any other vote required by the Certificate of Incorporation or applicable law, the affirmative vote of the holders of at least two-thirds of the voting power of all the then-outstanding shares of voting stock of the Corporation with the power to vote generally in an election of directors, voting together as a single class.

ARTICLE XI
DEFINITIONS

As used in these Bylaws, unless the context otherwise requires, the following terms shall have the following meanings:

An "electronic transmission" means any form of communication, not directly involving the physical transmission of paper, including the use of, or participation in, one or more electronic networks or databases (including one or more distributed electronic networks or databases), that creates a record that may be retained, retrieved and reviewed by a recipient thereof, and that may be directly reproduced in paper form by such a recipient through an automated process.

An "electronic mail" means an electronic transmission directed to a unique electronic mail address (which electronic mail shall be deemed to include any files attached thereto and any information hyperlinked to a website if such electronic mail includes the contact information of an officer or agent of the Corporation who is available to assist with accessing such files and information).

An "electronic mail address" means a destination, commonly expressed as a string of characters, consisting of a unique user name or mailbox (commonly referred to as the "local part" of the address) and a reference to an internet domain (commonly referred to as the "domain part" of the address), whether or not displayed, to which electronic mail can be sent or delivered.

The term "person" means any individual, general partnership, limited partnership, limited liability company, corporation, trust, business trust, joint stock company, joint venture, unincorporated association, cooperative or association or any other legal entity or organization of whatever nature, and shall include any successor (by merger or otherwise) of such entity.

Exhibit 4.2

ACTUATE THERAPEUTICS INC.
FOURTH AMENDED AND RESTATED INVESTOR RIGHTS AGREEMENT

THIS FOURTH AMENDED AND RESTATED INVESTOR RIGHTS AGREEMENT (this "Agreement"), is made as of the 30th day of November, 2022, by and among ACTUATE THERAPEUTICS, INC., a Delaware corporation (the "Company"), and each of the investors listed on Schedule A hereto, each of which is referred to in this Agreement as an "Investor," and any Additional Purchaser (as defined in the Purchase Agreement) that becomes a party to this Agreement in accordance with Subsection 6.9 hereof.

WHEREAS, certain of the Investors (the "Existing Investors") hold shares of the Company's Series A Preferred Stock, Series B-1 Preferred Stock, Series B-2 Preferred Stock, Series B-3 Preferred Stock, Series B-4 Preferred Stock and/or shares of Common Stock issued upon conversion thereof and possess registration rights, information rights, rights of first offer, and other rights pursuant to that certain Amended and Restated Investor Rights Agreement dated as of April 30, 2019, as further amended by that certain Second Amended and Restated Investor Rights Agreement, dated September 30, 2019, and that certain Third Amended and Restated Investor Rights Agreement, dated November 30, 2020, by and among the Company and such Existing Investors (collectively, the "Prior Agreement");

WHEREAS, the Existing Investors are holders of a majority of the Registrable Securities of the Company (as defined in the Prior Agreement), and desire to amend and restate the Prior Agreement in its entirety and to accept the rights created pursuant to this Agreement in lieu of the rights granted to them under the Prior Agreement; and

WHEREAS, certain of the Investors are parties to that certain Series C Preferred Stock Purchase Agreement of even date herewith by and among the Company and such Investors (the "Purchase Agreement"), under which certain of the Company's and such Investors' obligations are conditioned upon the execution and delivery of this Agreement by such Investors, Existing Investors holding a majority of the Registrable Securities, and the Company.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Existing Investors hereby agree that the Prior Agreement shall be amended and restated and superseded and replaced in its entirety by this Agreement, and the parties to this Agreement further agree as follows.

1. Definitions. For purposes of this Agreement:

1.1 "Affiliate" means, with respect to any specified Person, any other Person who, directly or indirectly, controls, is controlled by, or is under common control with such Person, including, without limitation, any general partner, managing member, officer, director or trustee of such Person, or any venture capital fund now or hereafter existing that is controlled by one or more general partners or managing members of, or shares the same management company with, such Person.

1.2 "Bios" means, collectively, Bios Fund I, LP, Bios Fund I QP, LP, Bios Fund II, LP, Bios Fund II QP, LP, Bios Fund II NT, LP, Bios Actuate Co-Invest I, LP, Bios Fund III NT, LP, Bios Fund III QP, LP, Bios Fund III, LP and Bios Actuate Co-Invest II, LP.

1.3 "Board of Directors" means the board of directors of the Company.

1.4 "Certificate of Incorporation" means the Company's Fifth Amended and Restated Certificate of Incorporation, as amended and/or restated from time to time.

1.5 "Common Stock" means shares of the Company's common stock, par value $0.000001 per share.

1.6 "Competitor" means a Person engaged, directly or indirectly (including through any partnership, limited liability company, corporation, joint venture or similar arrangement (whether now existing or formed hereafter)), in the treatment of high impact

cancers and inflammatory diseases, but shall not include (i) Kairos (or its Affiliates), (ii) Bios (or its Affiliates), or (iii) any other financial investment firm or collective investment vehicle that, together with its Affiliates, holds less than ten percent (10%) of the outstanding equity of any Competitor and does not, nor do any of its Affiliates, have a right to designate any members of the board of directors of any Competitor.

1.7 "Damages" means any loss, damage, claim or liability (joint or several) to which a party hereto may become subject under the Securities Act, the Exchange Act, or other federal or state law, insofar as such loss, damage, claim or liability (or any action in respect thereof) arises out of or is based upon: (i) any untrue statement or alleged untrue statement of a material fact contained in any registration statement of the Company, including any preliminary prospectus or final prospectus contained therein or any amendments or supplements thereto; (ii) an omission or alleged omission to state therein a material fact required to be stated therein, or necessary to make the statements therein not misleading; or (iii) any violation or alleged violation by the indemnifying party (or any of its agents or Affiliates) of the Securities Act, the Exchange Act, any state securities law, or any rule or regulation promulgated under the Securities Act, the Exchange Act, or any state securities law.

1.8 "Derivative Securities" means any securities or rights convertible into, or exercisable or exchangeable for (in each case, directly or indirectly), Common Stock, including options and warrants.

1.9 "Exchange Act" means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

1.10 "Excluded Registration" means (i) a registration relating to the sale of securities to employees of the Company or a subsidiary pursuant to a stock option, stock purchase, or similar plan; (ii) a registration relating to an SEC Rule 145 transaction; (iii) a registration on any form that does not include substantially the same information as would be required to be included in a registration statement covering the sale of the Registrable Securities; or (iv) a registration in which the only Common Stock being registered is Common Stock issuable upon conversion of debt securities that are also being registered.

1.11 "Form S-1" means such form under the Securities Act as in effect on the date hereof or any successor registration form under the Securities Act subsequently adopted by the SEC.

1.12 "Form S-3" means such form under the Securities Act as in effect on the date hereof or any registration form under the Securities Act subsequently adopted by the SEC that permits incorporation of substantial information by reference to other documents filed by the Company with the SEC.

1.13 "GAAP" means generally accepted accounting principles in the United States.

1.14 "Holder" means any holder of Registrable Securities who is a party to this Agreement.

1.15 "Immediate Family Member" means a child, stepchild, grandchild, parent, stepparent, grandparent, spouse, sibling, mother-in-law, father-in-law, son-in-law, daughter-in- law, brother-in-law, or sister-in-law, including, adoptive relationships, of a natural person referred to herein.

1.16 "Initiating Holders" means, collectively, Holders who properly initiate a registration request under this Agreement.

1.17 "IPO" means the Company's first underwritten public offering of its Common Stock under the Securities Act.

1.18 "Kairos" means, collectively, Kairos Venture Partners II, L.P., Kairos SPV Fund LLC, Kairos Venture Opportunities I, L.P. and Kairos-Actuate SPV, L.P.

1.19 "Key Employee" means any executive level employee (including division director and vice president level positions) as well as any employee who, either alone or in concert with others, develops, invents, programs or designs any Company Intellectual Property (as defined in the Purchase Agreement).

1.20 "Major Investor" means any Investor that, individually or together with such Investor's Affiliates, holds at least 683,122 shares of Registrable Securities, as adjusted for any stock split, stock dividend, combination, or other recapitalization or reclassification effected after the date hereof.

1.21 "New Securities" means, collectively, equity securities of the Company, whether or not currently authorized, as well as rights, options, or warrants to purchase such equity securities, or securities of any type whatsoever that are, or may become, convertible or exchangeable into or exercisable for such equity securities.

1.22 "Person" means any individual, corporation, partnership, trust, limited liability company, association or other entity.

1.23 "Preferred Stock" means, collectively, shares of Series A Preferred Stock, Series B-1 Preferred Stock, Series B-2 Preferred Stock, Series B-3 Preferred Stock, Series B-4 Preferred Stock and Series C Preferred Stock.

1.24 "Registrable Securities" means (i) the Common Stock issuable or issued upon conversion of the Preferred Stock; (ii) any Common Stock, or any Common Stock issued or issuable (directly or indirectly) upon conversion and/or exercise of any other securities of the Company, acquired by the Investors after the date hereof; and (iii) any Common Stock issued as (or issuable upon the conversion or exercise of any warrant, right, or other security that is issued as) a dividend or other distribution with respect to, or in exchange for or in replacement of, the shares referenced in clauses (i) and (ii) above; excluding in all cases, however, any Registrable Securities sold by a Person in a transaction in which the applicable rights under this Agreement are not assigned pursuant to Subsection 6.1, and excluding for purposes of Section 2 any shares for which registration rights have terminated pursuant to Subsection 2.13 of this Agreement.

1.25 "Registrable Securities then outstanding" means the number of shares determined by adding the number of shares of outstanding Common Stock that are Registrable Securities and the number of shares of Common Stock issuable (directly or indirectly) pursuant to then exercisable and/or convertible securities that are Registrable Securities.

1.26 "Restricted Securities" means the securities of the Company required to be notated with the legend set forth in Subsection 2.12(b) hereof.

1.27 "SEC" means the United States Securities and Exchange Commission.

1.28 "SEC Rule 144" means Rule 144 promulgated by the SEC under the Securities Act. Securities Act.

1.29 "SEC Rule 145" means Rule 145 promulgated by the SEC under the

1.30 "Securities Act" means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

1.31 "Selling Expenses" means all underwriting discounts, selling commissions, and stock transfer taxes applicable to the sale of Registrable Securities, and fees and disbursements of counsel for any Holder, except for the fees and disbursements of the Selling Holder Counsel borne and paid by the Company as provided in Subsection 2.6.

1.32 "Series A Preferred Stock" means shares of the Company's Series A Preferred Stock, par value $0.000001 per share.

1.33 "Series B-1 Preferred Stock" means shares of the Company's Series B-1 Preferred Stock, par value $0.000001 per share.

1.34 "Series B-2 Preferred Stock" means shares of the Company's Series B-2 Preferred Stock, par value $0.000001 per share.

1.35 "Series B-3 Preferred Stock" means shares of the Company's Series B-3 Preferred Stock, par value $0.000001 per share.

1.36 "Series B-4 Preferred Stock" means shares of the Company's Series B-4 Preferred Stock, par value $0.000001 per share.

1.37 "Series C Preferred Stock" means shares of the Company's Series C Preferred Stock, par value $0.000001 per share

1.38 "Voting Agreement" means that certain Fourth Amended and Restated Voting Agreement of even date herewith among the Company, the Investors and the Company's stockholders signatory thereto, as amended and/or restated from time to time.

2. Registration Rights. The Company covenants and agrees as follows:

2.1 Demand Registration.

(a) Form S-1 Demand. If at any time after the earlier of (i) five (5) years after the date of this Agreement, or (ii) one hundred eighty (180) days after the effective date of the registration statement for the IPO, the Company receives a request from Holders of at least fifty percent (50%) of the Registrable Securities then outstanding that the Company file a Form S-1 registration statement having an anticipated offering price of at least $18.40 per share and an anticipated aggregate offering price, net of Selling Expenses, of at least $60,000,000, then the Company shall (x) within ten (10) days after the date such request is given, give notice thereof (the "Demand Notice") to all Holders other than the Initiating Holders; and (y) as soon as practicable, and in any event within sixty (60) days after the date such request is given by the Initiating Holders, file a Form S-1 registration statement under the Securities Act covering all Registrable Securities that the Initiating Holders requested to be registered and any additional Registrable Securities requested to be included in such registration by any other Holders, as specified by notice given by each such Holder to the Company within twenty (20) days of the date the Demand Notice is given, and in each case, subject to the limitations of Subsections 2.1(c) and 2.3.

(b) Form S-3 Demand. If at any time when it is eligible to use a Form S-3 registration statement, the Company receives a request from Holders of at least twenty-five percent (25%) of the Registrable Securities then outstanding that the Company file a Form S-3 registration statement with respect to outstanding Registrable Securities of such Holders having an anticipated aggregate offering price of at least $1 million, then the Company shall (i) within ten (10) days after the date such request is given, give a Demand Notice to all Holders other than the Initiating Holders; and (ii) as soon as practicable, and in any event within forty-five (45) days after the date such request is given by the Initiating Holders, file a Form S-3 registration statement under the Securities Act covering all Registrable Securities requested to be included in such registration by any other Holders, as specified by notice given by each such Holder to the Company within twenty (20) days of the date the Demand Notice is given, and in each case, subject to the limitations of Subsections 2.1(c) and 2.3.

(c) Notwithstanding the foregoing obligations, if the Company furnishes to Holders requesting a registration pursuant to this Subsection 2.1 a certificate signed by the Company's chief executive officer stating that in the good faith judgment of the Board of Directors it would be materially detrimental to the Company and its stockholders for such registration statement to either become effective or remain effective for as long as such registration statement otherwise would be required to remain effective, because such action would (i) materially interfere with a significant acquisition, corporate reorganization, or other similar transaction involving the Company; (ii) require premature disclosure of material information that the Company has a bona fide business purpose for preserving as confidential; or (iii) render the Company unable to comply with requirements under the Securities Act or Exchange Act, then the Company shall have the right to defer taking action with respect to such filing, and any time periods with respect to filing or effectiveness thereof shall be tolled correspondingly, for a period of not more than ninety (90) days after the request of the Initiating Holders is given; provided, however, that the Company may not invoke this right more than twice in any twelve (12) month period; and provided further that the Company shall not register any securities for its own account or that of any other stockholder during such ninety (90)-day period other than an Excluded Registration.

(d) The Company shall not be obligated to effect, or to take any action to effect, any registration pursuant to Subsection 2.1(a): (i) during the period that is sixty (60) days before the Company's good faith estimate of the date of filing of, and ending on a date that is one hundred eighty (180) days after the effective date of, a Company-initiated registration, provided that the Company is actively employing in good faith commercially reasonable efforts to cause such registration statement to become effective; (ii) after the Company has effected two registrations pursuant to Subsection 2.1(a); or (iii) if the Initiating Holders propose to dispose of shares of Registrable Securities that may be immediately registered on Form S-3 pursuant to a request made pursuant to Subsection 2.1(b). The Company shall not be obligated to effect, or to take any action to effect, any registration pursuant to Subsection 2.1(b): (i) during the period that is thirty (30) days before the Company's good faith estimate of the date of filing of, and ending on a date that is ninety (90) days after the effective date of, a Company-initiated registration, provided that the Company is actively employing in good faith commercially reasonable efforts to cause such registration statement to become effective; or (ii) if the Company has effected two registrations pursuant to Subsection 2.1(b) within the twelve (12) month period immediately preceding the date of such request. A registration shall not be counted as "effected" for purposes of this Subsection 2.1(d) until such time as the applicable registration statement has been declared effective by the SEC, unless the Initiating Holders withdraw their request for such registration, elect not to pay the registration expenses therefor, and forfeit their right to one demand registration statement pursuant to Subsection 2.6, in which case such withdrawn registration statement shall be counted as "effected" for purposes of this Subsection 2.1(d); provided, that if such withdrawal is during a period the Company has deferred taking action pursuant to Subsection 2.1(c), then the Initiating Holders may withdraw their request for registration and such registration will not be counted as "effected" for purposes of this Subsection 2.1(d).

2.2 Company Registration. If the Company proposes to register (including, for this purpose, a registration effected by the Company for stockholders other than the Holders) any of its Common Stock under the Securities Act in connection with the public offering of such securities solely for cash (other than in an Excluded Registration), the Company shall, at such time, promptly give each Holder notice of such registration. Upon the request of each Holder given within twenty (20) days after such notice is given by the Company, the Company shall, subject to the provisions of Subsection 2.3, cause to be registered all of the Registrable Securities that each such Holder has requested to be included in such registration. The Company shall have the right to terminate or withdraw any registration initiated by it under this Subsection 2.2 before the effective date of such registration, whether or not any Holder has elected to include Registrable Securities in such registration. The expenses (other than Selling Expenses) of such withdrawn registration shall be borne by the Company in accordance with Subsection 2.6.

2.3 Underwriting Requirements.

(a) If, pursuant to Subsection 2.1, the Initiating Holders intend to distribute the Registrable Securities covered by their request by means of an underwriting, they shall so advise the Company as a part of their request made pursuant to Subsection 2.1, and the Company shall include such information in the Demand Notice. The underwriter(s) will be selected by the Company and shall be reasonably acceptable to a majority in interest of the Initiating Holders. In such event, the right of any Holder to include such Holder's Registrable Securities in such registration shall be conditioned upon such Holder's participation in such underwriting and the inclusion of such Holder's Registrable Securities in the underwriting to the extent provided herein. All Holders proposing to distribute their securities through such underwriting shall (together with the Company as provided in Subsection 2.4(e)) enter into an underwriting agreement in customary form with the underwriter(s) selected for such underwriting. Notwithstanding any other provision of this Subsection 2.3, if the managing underwriter(s) advise(s) the Initiating Holders in writing that marketing factors require a limitation on the number of shares to be underwritten, then the Initiating Holders shall so advise all Holders of Registrable Securities that otherwise would be underwritten pursuant hereto, and the number of Registrable Securities that may be included in the underwriting shall be allocated among such Holders of Registrable Securities, including the Initiating Holders, in proportion (as nearly as practicable) to the number of Registrable Securities owned by each Holder or in such other proportion as shall mutually be agreed to by all such selling Holders; provided, however, that the number of Registrable Securities held by the Holders to be included in such underwriting shall not be reduced unless all other securities are first entirely excluded from the underwriting. To facilitate the allocation of shares in accordance with the above provisions, the Company or the underwriters may round the number of shares allocated to any Holder to the nearest one hundred (100) shares.

(b) In connection with any offering involving an underwriting of shares of the Company's capital stock pursuant to Subsection 2.2, the Company shall not be required to include any of the Holders' Registrable Securities in such underwriting unless the Holders accept the terms of the underwriting as agreed upon between the Company and its underwriters, and then only in such quantity as the underwriters in their sole discretion determine will not jeopardize the success of the offering by the Company. If

the total number of securities, including Registrable Securities, requested by stockholders to be included in such offering exceeds the number of securities to be sold (other than by the Company) that the underwriters in their reasonable discretion determine is compatible with the success of the offering, then the Company shall be required to include in the offering only that number of such securities, including Registrable Securities, which the underwriters and the Company in their sole discretion determine will not jeopardize the success of the offering. If the underwriters determine that less than all of the Registrable Securities requested to be registered can be included in such offering, then the Registrable Securities that are included in such offering shall be allocated among the selling Holders in proportion (as nearly as practicable to) the number of Registrable Securities owned by each selling Holder or in such other proportions as shall mutually be agreed to by all such selling Holders. To facilitate the allocation of shares in accordance with the above provisions, the Company or the underwriters may round the number of shares allocated to any Holder to the nearest one hundred (100) shares. Notwithstanding the foregoing, in no event shall (i) the number of Registrable Securities included in the offering be reduced unless all other securities (other than securities to be sold by the Company) are first entirely excluded from the offering, or (ii) the number of Registrable Securities included in the offering be reduced below twenty-five percent (25%) of the total number of securities included in such offering, unless such offering is the IPO, in which case the selling Holders may be excluded further if the underwriters make the determination described above and no other stockholder's securities are included in such offering. For purposes of this Subsection 2.3(b) concerning apportionment, for any selling Holder that is a partnership, limited liability company, or corporation, the partners, members, retired partners, retired members, stockholders, and Affiliates of such Holder, or the estates and Immediate Family Members of any such partners, retired partners, members, and retired members and any trusts for the benefit of any of the foregoing Persons, shall be deemed to be a single "selling Holder," and any pro rata reduction with respect to such "selling Holder" shall be based upon the aggregate number of Registrable Securities owned by all Persons included in such "selling Holder," as defined in this sentence.

(c) For purposes of Subsection 2.1, a registration shall not be counted as "effected" if, as a result of an exercise of the underwriter's cutback provisions in Subsection 2.3(a), fewer than fifty percent (50%) of the total number of Registrable Securities that Holders have requested to be included in such registration statement are actually included.

2.4 Obligations of the Company. Whenever required under this Section 2 to effect the registration of any Registrable Securities, the Company shall, as expeditiously as reasonably possible:

(a) prepare and file with the SEC a registration statement with respect to such Registrable Securities and use its commercially reasonable efforts to cause such registration statement to become effective and, upon the request of the Holders of a majority of the Registrable Securities registered thereunder, keep such registration statement effective for a period of up to one hundred twenty (120) days or, if earlier, until the distribution contemplated in the registration statement has been completed; provided, however, that (i) such one hundred twenty (120) day period shall be extended for a period of time equal to the period the Holder refrains, at the request of an underwriter of Common Stock (or other securities) of the Company, from selling any securities included in such registration, and (ii) in the case of any registration of Registrable Securities on Form S-3 that are intended to be offered on a continuous or delayed basis, subject to compliance with applicable SEC rules, such one hundred twenty (120) day period shall be extended for up to 60 days, if necessary, to keep the registration statement effective until all such Registrable Securities are sold;

(b) prepare and file with the SEC such amendments and supplements to such registration statement, and the prospectus used in connection with such registration statement, as may be necessary to comply with the Securities Act in order to enable the disposition of all securities covered by such registration statement;

(c) furnish to the selling Holders such numbers of copies of a prospectus, including a preliminary prospectus, as required by the Securities Act, and such other documents as the Holders may reasonably request in order to facilitate their disposition of their Registrable Securities;

(d) use its commercially reasonable efforts to register and qualify the securities covered by such registration statement under such other securities or blue-sky laws of such jurisdictions as shall be reasonably requested by the selling Holders; provided that, the Company shall not be required to qualify to do business or to file a general consent to service of process in any

such states or jurisdictions, unless the Company is already subject to service in such jurisdiction and except as may be required by the Securities Act;

(e) in the event of any underwritten public offering, enter into and perform its obligations under an underwriting agreement, in usual and customary form, with the underwriter(s) of such offering;

(f) use its commercially reasonable efforts to cause all such Registrable Securities covered by such registration statement to be listed on a national securities exchange or trading system and each securities exchange and trading system (if any) on which similar securities issued by the Company are then listed;

(g) provide a transfer agent and registrar for all Registrable Securities registered pursuant to this Agreement and provide a CUSIP number for all such Registrable Securities, in each case not later than the effective date of such registration;

(h) promptly make available for inspection by the selling Holders, any managing underwriter(s) participating in any disposition pursuant to such registration statement, and any attorney or accountant or other agent retained by any such underwriter or selected by the selling Holders, all financial and other records, pertinent corporate documents, and properties of the Company, and cause the Company's officers, directors, employees, and independent accountants to supply all information reasonably requested by any such seller, underwriter, attorney, accountant, or agent, in each case, as necessary or advisable to verify the accuracy of the information in such registration statement and to conduct appropriate due diligence in connection therewith;

(i) notify each selling Holder, promptly after the Company receives notice thereof, of the time when such registration statement has been declared effective or a supplement to any prospectus forming a part of such registration statement has been filed; and

(j) after such registration statement becomes effective, notify each selling Holder of any request by the SEC that the Company amend or supplement such registration statement or prospectus.

In addition, the Company shall ensure that, at all times after any registration statement covering a public offering of securities of the Company under the Securities Act shall have become effective, its insider trading policy shall provide that the Company's directors may implement a trading program under Rule 10b5-1 of the Exchange Act.

2.5 Furnish Information. It shall be a condition precedent to the obligations of the Company to take any action pursuant to this Section 2 with respect to the Registrable Securities of any selling Holder that such Holder shall furnish to the Company such information regarding itself, the Registrable Securities held by it, and the intended method of disposition of such securities as is reasonably required to effect the registration of such Holder's Registrable Securities.

2.6 Expenses of Registration. All expenses (other than Selling Expenses) incurred in connection with registrations, filings, or qualifications pursuant to Section 2, including all registration, filing, and qualification fees; printers' and accounting fees; fees and disbursements of counsel for the Company; and the reasonable fees and disbursements, not to exceed $30,000 per registration, of one counsel for the selling Holders ("Selling Holder Counsel"), shall be borne and paid by the Company; provided, however, that the Company shall not be required to pay for any expenses of any registration proceeding begun pursuant to Subsection 2.1 if the registration request is subsequently withdrawn at the request of the Holders of a majority of the Registrable Securities to be registered (in which case all selling Holders shall bear such expenses pro rata based upon the number of Registrable Securities that were to be included in the withdrawn registration), unless the Holders of a majority of the Registrable Securities agree to forfeit their right to one registration pursuant to Subsections 2.1(a) or 2.1(b), as the case may be; provided further that if, at the time of such withdrawal, the Holders shall have learned of a material adverse change in the condition, business, or prospects of the Company from that known to the Holders at the time of their request and have withdrawn the request with reasonable promptness after learning of such information then the Holders shall not be required to pay any of such expenses and shall not forfeit their right to one registration pursuant to Subsections 2.1(a) or 2.1(b). All Selling Expenses relating to Registrable Securities registered pursuant to this Section 2 shall be borne and paid by the Holders pro rata on the basis of the number of Registrable Securities registered on their behalf.

2.7 Delay of Registration. No Holder shall have any right to obtain or seek an injunction restraining or otherwise delaying any registration pursuant to this Agreement as the result of any controversy that might arise with respect to the interpretation or implementation of this Section 2.

2.8 Indemnification. If any Registrable Securities are included in a registration statement under this Section 2:

(a) To the extent permitted by law, the Company will indemnify and hold harmless each selling Holder, and the partners, members, officers, directors, and stockholders of each such Holder; legal counsel and accountants for each such Holder; any underwriter (as defined in the Securities Act) for each such Holder; and each Person, if any, who controls such Holder or underwriter within the meaning of the Securities Act or the Exchange Act, against any Damages, and the Company will pay to each such Holder, underwriter, controlling Person, or other aforementioned Person any legal or other expenses reasonably incurred thereby in connection with investigating or defending any claim or proceeding from which Damages may result, as such expenses are incurred; provided, however, that the indemnity agreement contained in this Subsection 2.8(a) shall not apply to amounts paid in settlement of any such claim or proceeding if such settlement is effected without the consent of the Company, which consent shall not be unreasonably withheld, conditioned or delayed, nor shall the Company be liable for any Damages to the extent that they arise out of or are based upon actions or omissions made in reliance upon and in conformity with written information furnished by or on behalf of any such Holder, underwriter, controlling Person, or other aforementioned Person expressly for use in connection with such registration.

(b) To the extent permitted by law, each selling Holder, severally and not jointly, will indemnify and hold harmless the Company, and each of its directors, each of its officers who has signed the registration statement, each Person (if any), who controls the Company within the meaning of the Securities Act, legal counsel and accountants for the Company, any underwriter (as defined in the Securities Act), any other Holder selling securities in such registration statement, and any controlling Person of any such underwriter or other Holder, against any Damages, in each case only to the extent that such Damages arise out of or are based upon actions or omissions made in reliance upon and in conformity with written information furnished by or on behalf of such selling Holder expressly for use in connection with such registration; and each such selling Holder will pay to the Company and each other aforementioned Person any legal or other expenses reasonably incurred thereby in connection with investigating or defending any claim or proceeding from which Damages may result, as such expenses are incurred; provided, however, that the indemnity agreement contained in this Subsection 2.8(b) shall not apply to amounts paid in settlement of any such claim or proceeding if such settlement is effected without the consent of the Holder, which consent shall not be unreasonably withheld, conditioned or delayed; and provided further that in no event shall the aggregate amounts payable by any Holder by way of indemnity or contribution under Subsections 2.8(b) and 2.8(d) exceed the proceeds from the offering received by such Holder (net of any Selling Expenses paid by such Holder), except in the case of fraud or willful misconduct by such Holder.

(c) Promptly after receipt by an indemnified party under this Subsection 2.8 of notice of the commencement of any action (including any governmental action) for which a party may be entitled to indemnification hereunder, such indemnified party will, if a claim in respect thereof is to be made against any indemnifying party under this Subsection 2.8, give the indemnifying party notice of the commencement thereof. The indemnifying party shall have the right to participate in such action and, to the extent the indemnifying party so desires, participate jointly with any other indemnifying party to which notice has been given, and to assume the defense thereof with counsel mutually satisfactory to the parties; provided, however, that an indemnified party (together with all other indemnified parties that may be represented without conflict by one counsel) shall have the right to retain one separate counsel, with the fees and expenses to be paid by the indemnifying party, if representation of such indemnified party by the counsel retained by the indemnifying party would be inappropriate due to actual or potential differing interests between such indemnified party and any other party represented by such counsel in such action. The failure to give notice to the indemnifying party within a reasonable time of the commencement of any such action shall relieve such indemnifying party of any liability to the indemnified party under this Subsection 2.8, to the extent that such failure materially prejudices the indemnifying party's ability to defend such action. The failure to give notice to the indemnifying party will not relieve it of any liability that it may have to any indemnified party otherwise than under this Subsection 2.8.

(d) To provide for just and equitable contribution to joint liability under the Securities Act in any case in which either: (i) any party otherwise entitled to indemnification hereunder makes a claim for indemnification pursuant to this Subsection 2.8 but it is judicially determined (by the entry of a final judgment or decree by a court of competent jurisdiction and the expiration of time to appeal or the denial of the last right of appeal) that such indemnification may not be enforced in such case, notwithstanding the fact that this Subsection 2.8 provides for indemnification in such case, or (ii) contribution under the Securities Act may be required on the part of any party hereto for which indemnification is provided under this Subsection 2.8, then, and in each such case, such parties will contribute to the aggregate losses, claims, damages, liabilities, or expenses to which they may be subject (after contribution from others) in such proportion as is appropriate to reflect the relative fault of each of the indemnifying party and the indemnified party in connection with the statements, omissions, or other actions that resulted in such loss, claim, damage, liability, or expense, as well as to reflect any other relevant equitable considerations. The relative fault of the indemnifying party and of the indemnified party shall be determined by reference to, among other things, whether the untrue or allegedly untrue statement of a material fact, or the omission or alleged omission of a material fact, relates to information supplied by the indemnifying party or by the indemnified party and the parties' relative intent, knowledge, access to information, and opportunity to correct or prevent such statement or omission; provided, however, that, in any such case (x) no Holder will be required to contribute any amount in excess of the public offering price of all such Registrable Securities offered and sold by such Holder pursuant to such registration statement, and (y) no Person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) will be entitled to contribution from any Person who was not guilty of such fraudulent misrepresentation; and provided further that in no event shall a Holder's liability pursuant to this Subsection 2.8(d), when combined with the amounts paid or payable by such Holder pursuant to Subsection 2.8(b), exceed the proceeds from the offering received by such Holder (net of any Selling Expenses paid by such Holder), except in the case of willful misconduct or fraud by such Holder.

(e) Notwithstanding the foregoing, to the extent that the provisions on indemnification and contribution contained in the underwriting agreement entered into in connection with the underwritten public offering are in conflict with the foregoing provisions, the provisions in the underwriting agreement shall control.

(f) Unless otherwise superseded by an underwriting agreement entered into in connection with the underwritten public offering, the obligations of the Company and Holders under this Subsection 2.8 shall survive the completion of any offering of Registrable Securities in a registration under this Section 2, and otherwise shall survive the termination of this Agreement.

2.9 Reports Under Exchange Act. With a view to making available to the Holders the benefits of SEC Rule 144 and any other rule or regulation of the SEC that may at any time permit a Holder to sell securities of the Company to the public without registration or pursuant to a registration on Form S-3, the Company shall:

(a) make and keep available adequate current public information, as those terms are understood and defined in SEC Rule 144, at all times after the effective date of the registration statement filed by the Company for the IPO;

(b) use commercially reasonable efforts to file with the SEC in a timely manner all reports and other documents required of the Company under the Securities Act and the Exchange Act (at any time after the Company has become subject to such reporting requirements); and

(c) furnish to any Holder, so long as the Holder owns any Registrable Securities, forthwith upon request (i) to the extent accurate, a written statement by the Company that it has complied with the reporting requirements of SEC Rule 144 (at any time after ninety (90) days after the effective date of the registration statement filed by the Company for the IPO), the Securities Act, and the Exchange Act (at any time after the Company has become subject to such reporting requirements), or that it qualifies as a registrant whose securities may be resold pursuant to Form S-3 (at any time after the Company so qualifies); and (ii) such other information as may be reasonably requested in availing any Holder of any rule or regulation of the SEC that permits the selling of any such securities without registration (at any time after the Company has become subject to the reporting requirements under the Exchange Act) or pursuant to Form S-3 (at any time after the Company so qualifies to use such form).

2.10 Limitations on Subsequent Registration Rights. From and after the date of this Agreement, the Company shall not, without the prior written consent of the Holders of a majority of the Registrable Securities then outstanding, enter into any agreement with any holder or prospective holder of any securities of the Company that would provide to such holder or prospective holder the right to include securities in any registration on other than either a pro rata basis with respect to the Registrable Securities or on a subordinate basis after all Holders have had the opportunity to include in the registration and offering all shares of Registrable Securities that they

wish to so include; provided that, this limitation shall not apply to any additional Investor who becomes a party to this Agreement in accordance with Subsection 6.9.

2.11 "Market Stand-off" Agreement. Each Holder hereby agrees that it will not, without the prior written consent of the managing underwriter, during the period commencing on the date of the final prospectus relating to the registration by the Company of shares of its Common Stock or any other equity securities under the Securities Act on a registration statement on Form S-1 or Form S-3, and ending on the date specified by the Company and the managing underwriter (such period not to exceed one hundred eighty (180) days in the case of the IPO, or such other period as may be requested by the Company or an underwriter to accommodate regulatory restrictions on (1) the publication or other distribution of research reports, and (2) analyst recommendations and opinions, including, but not limited to, the restrictions contained in FINRA Rule 2241, or any successor provisions or amendments thereto), or ninety (90) days in the case of any registration other than the IPO, or such other period as may be requested by the Company or an underwriter to accommodate regulatory restrictions on (1) the publication or other distribution of research reports and (2) analyst recommendations and opinions, including, but not limited to, the restrictions contained in FINRA Rule 2241, or any successor provisions or amendments thereto), (i) lend; offer; pledge; sell; contract to sell; sell any option or contract to purchase; purchase any option or contract to sell; grant any option, right, or warrant to purchase; or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock or any securities convertible into or exercisable or exchangeable (directly or indirectly) for Common Stock held immediately before the effective date of the registration statement for such offering, or (ii) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of such securities, whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of Common Stock or other securities, in cash, or otherwise. The foregoing provisions of this Subsection 2.11 shall not apply to the sale of any shares to an underwriter pursuant to an underwriting agreement, or the transfer of any shares to any trust for the direct or indirect benefit of the Holder or the immediate family of the Holder, provided that the trustee of the trust agrees to be bound in writing by the restrictions set forth herein, and provided further that any such transfer shall not involve a disposition for value, and shall be applicable to the Holders only if all officers and directors are subject to the same restrictions and the Company uses commercially reasonable efforts to obtain a similar agreement from all stockholders individually owning more than one percent (1%) of the Company's outstanding Common Stock (after giving effect to conversion into Common Stock of all outstanding Preferred Stock). The underwriters in connection with such registration are intended third party beneficiaries of this Subsection 2.11 and shall have the right, power and authority to enforce the provisions hereof as though they were a party hereto. Each Holder further agrees to execute such agreements as may be reasonably requested by the underwriters in connection with such registration that are consistent with this Subsection 2.11 or that are necessary to give further effect thereto.

2.12 Restrictions on Transfer.

(a) The Preferred Stock and the Registrable Securities shall not be sold, pledged, or otherwise transferred, and the Company shall not recognize and shall issue stop-transfer instructions to its transfer agent with respect to any such sale, pledge, or transfer, except upon the conditions specified in this Agreement, which conditions are intended to ensure compliance with the provisions of the Securities Act. A transferring Holder will cause any proposed purchaser, pledgee, or transferee of the Preferred Stock and the Registrable Securities held by such Holder to agree to take and hold such securities subject to the provisions and upon the conditions specified in this Agreement.

(b) Each certificate, instrument, or book entry representing (i) the Preferred Stock, (ii) the Registrable Securities, and (iii) any other securities issued in respect of the securities referenced in clauses (i) and (ii), upon any stock split, stock dividend, recapitalization, merger, consolidation, or similar event, shall (unless otherwise permitted by the provisions of Subsection 2.12(c)) be notated with a legend substantially in the following form:

THE SECURITIES REPRESENTED HEREBY HAVE BEEN ACQUIRED FOR INVESTMENT AND HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933. SUCH SHARES MAY NOT BE SOLD, PLEDGED, OR TRANSFERRED IN THE ABSENCE OF SUCH REGISTRATION OR A VALID EXEMPTION FROM THE REGISTRATION AND PROSPECTUS DELIVERY REQUIREMENTS OF SAID ACT.

THE SECURITIES REPRESENTED HEREBY MAY BE TRANSFERRED ONLY IN ACCORDANCE WITH THE TERMS OF AN AGREEMENT BETWEEN THE COMPANY AND THE STOCKHOLDER, A COPY OF WHICH IS ON FILE WITH THE SECRETARY OF THE COMPANY.

The Holders consent to the Company making a notation in its records and giving instructions to any transfer agent of the Restricted Securities in order to implement the restrictions on transfer set forth in this Subsection 2.12.

(c) The Holder of such Restricted Securities, by acceptance of ownership thereof, agrees to comply in all respects with the provisions of this Section 2. Before any proposed sale, pledge, or transfer of any Restricted Securities, unless there is in effect a registration statement under the Securities Act covering the proposed transaction, the Holder thereof shall give notice to the Company of such Holder's intention to effect such sale, pledge, or transfer. Each such notice shall describe the manner and circumstances of the proposed sale, pledge, or transfer in sufficient detail and, if reasonably requested by the Company, shall be accompanied at such Holder's expense by either (i) a written opinion of legal counsel who shall, and whose legal opinion shall, be reasonably satisfactory to the Company, addressed to the Company, to the effect that the proposed transaction may be effected without registration under the Securities Act; (ii) a "no action" letter from the SEC to the effect that the proposed sale, pledge, or transfer of such Restricted Securities without registration will not result in a recommendation by the staff of the SEC that action be taken with respect thereto; or (iii) any other evidence reasonably satisfactory to counsel to the Company to the effect that the proposed sale, pledge, or transfer of the Restricted Securities may be effected without registration under the Securities Act, whereupon the Holder of such Restricted Securities shall be entitled to sell, pledge, or transfer such Restricted Securities in accordance with the terms of the notice given by the Holder to the Company. The Company will not require such a legal opinion or "no action" letter (x) in any transaction in compliance with SEC Rule 144; or (y) in any transaction in which such Holder distributes Restricted Securities to an Affiliate of such Holder for no consideration; provided that each transferee agrees in writing to be subject to the terms of this Subsection 2.12. Each certificate, instrument, or book entry representing the Restricted Securities transferred as above provided shall be notated with, except if such transfer is made pursuant to SEC Rule 144, the appropriate restrictive legend set forth in Subsection 2.12(b), except that such certificate instrument, or book entry shall not be notated with such restrictive legend if, in the opinion of counsel for such Holder and the Company, such legend is not required in order to establish compliance with any provisions of the Securities Act.

2.13 Termination of Registration Rights. The right of any Holder to request registration or inclusion of Registrable Securities in any registration pursuant to Subsections 2.1 or 2.2 shall terminate upon the earliest to occur of:

(a) such date, on or after the IPO, on which such Holder may immediately sell all of such Holder's Registrable Securities under Rule 144 during any three (3) month period; and

(b) the third anniversary of the IPO.

3. Information Rights.

3.1 Delivery of Financial Statements. The Company shall deliver to each Major Investor, provided that the Board of Directors has not reasonably determined that such Major Investor is a Competitor:

(a) as soon as practicable, but in any event within one hundred twenty (120) days after the end of each fiscal year of the Company (i) an unaudited balance sheet as of the end of such year, (ii) unaudited statements of income and of cash flows for such year, and a comparison between (x) the actual amounts as of and for such year and (y) the comparable amounts for the prior year and as included in the Budget (as defined in Subsection 3.1(e)) for such year, with an explanation of any material differences between such amounts and a schedule as to the sources and applications of funds for such year, and (iii) an unaudited statement of stockholders' equity as of the end of such year, all prepared in accordance with GAAP (except that such financial statements may not contain all notes thereto that may be required in accordance with GAAP);

(b) as soon as practicable, but in any event within forty-five (45) days after the end of each of the first three (3) quarters of each fiscal year of the Company, unaudited statements of income and cash flows for such fiscal quarter, and an unaudited balance sheet and a statement of stockholders' equity as of the end of such fiscal quarter, all prepared in accordance with GAAP (except

that such financial statements may (i) be subject to normal year- end audit adjustments; and (ii) not contain all notes thereto that may be required in accordance with GAAP);

(c) as soon as practicable, but in any event within forty-five (45) days after the end of each quarter of each fiscal year of the Company, a statement showing the number of shares of each class and series of capital stock and securities convertible into or exercisable for shares of capital stock outstanding at the end of the period, the Common Stock issuable upon conversion or exercise of any outstanding securities convertible or exercisable for Common Stock and the exchange ratio or exercise price applicable thereto, and the number of shares of underlying issued stock options and stock options not yet issued but reserved for issuance, if any, all in sufficient detail as to permit the Major Investors to calculate their respective percentage equity ownership in the Company, and certified by the chief financial officer or chief executive officer of the Company as being true, complete, and correct;

(d) as soon as practicable, but in any event within thirty (30) days following any Major Investor's request or the occurrence of any event that has had, or reasonably could be expected to have, a material adverse effect on the Company as determined by the Company in its reasonable discretion, an unaudited income statement and statement of cash flows for the month noted in such request or the month in which such event occurs, as applicable, and an unaudited balance sheet and statement of stockholders' equity as of the end of such month, all prepared in accordance with GAAP (except that such financial statements may (i) be subject to normal year-end audit adjustments and (ii) not contain all notes thereto that may be required in accordance with GAAP); and

(e) as soon as practicable, but in any event thirty (30) days before the end of each fiscal year, a budget and business plan for the next fiscal year (collectively, the "Budget"), approved by the Board of Directors and prepared on a monthly basis, including balance sheets, income statements, and statements of cash flow for such months and, promptly after prepared, any other budgets or revised budgets prepared by the Company.

If, for any period, the Company has any subsidiary whose accounts are consolidated with those of the Company, then in respect of such period the financial statements delivered pursuant to the foregoing sections shall be the consolidated and consolidating financial statements of the Company and all such consolidated subsidiaries.

Notwithstanding anything else in this Subsection 3.1 to the contrary, the Company may cease providing the information set forth in this Subsection 3.1 during the period starting with the date forty-five (45) days before the Company's good-faith estimate of the date of filing of a registration statement if it reasonably concludes it must do so to comply with the SEC rules applicable to such registration statement and related offering; provided that the Company's covenants under this Subsection 3.1 shall be reinstated at such time as the Company is no longer actively employing its commercially reasonable efforts to cause such registration statement to become effective.

3.2 Inspection. The Company shall permit each Major Investor (provided that the Board of Directors has not reasonably determined that such Major Investor is a Competitor), at such Major Investor's expense, to visit and inspect the Company's properties; examine its books of account and records; and discuss the Company's affairs, finances, and accounts with its officers, during normal business hours of the Company as may be reasonably requested by the Major Investor; provided, however, that the Company shall not be obligated pursuant to this Subsection 3.2 to provide access to any information that it reasonably and in good faith considers to be a trade secret or confidential information (unless covered by an enforceable confidentiality agreement, in form acceptable to the Company) or the disclosure of which would adversely affect the attorney-client privilege between the Company and its counsel.

3.3 Termination of Information Rights. The covenants set forth in Subsection 3.1 and Subsection 3.2 shall terminate and be of no further force or effect immediately before the consummation of the IPO.

3.4 Confidentiality. Each Investor agrees that such Investor will keep confidential and will not disclose, divulge, or use for any purpose (other than to monitor its investment in the Company) any confidential information obtained from the Company pursuant to the terms of this Agreement (including notice of the Company's intention to file a registration statement), unless such confidential information (a) is known or becomes known to the public in general (other than as a result of a breach of this Subsection 3.4 by such Investor), (b) is or has been independently developed or conceived by the Investor without use of the Company's confidential information, or (c) is or has been made known or disclosed to the Investor by a third party without a breach of any obligation of confidentiality such third party may have to the Company; provided, however, that an Investor may disclose confidential information (i) to its attorneys, accountants, consultants, and other professionals to the extent necessary to obtain their services in connection with monitoring its

investment in the Company; (ii) to any prospective purchaser of any Registrable Securities from such Investor, if such prospective purchaser agrees to be bound by the provisions of this Subsection 3.4; (iii) to any existing or prospective Affiliate, partner, member, stockholder, or wholly-owned subsidiary of such Investor in the ordinary course of business, provided that such Investor informs such Person that such information is confidential and directs such Person to maintain the confidentiality of such information; or (iv) as may otherwise be required by law, regulation, rule, court order or subpoena, provided that the Investor promptly notifies the Company of such disclosure and takes reasonable steps to minimize the extent of any such required disclosure.

4. Rights to Future Stock Issuances.

4.1 Right of First Offer. Subject to the terms and conditions of this Subsection 4.1 and applicable securities laws, if the Company proposes to offer or sell any New Securities, the Company shall first offer such New Securities to each Major Investor. A Major Investor shall be entitled to apportion the right of first offer hereby granted to it in such proportions as it deems appropriate, among (i) itself and (ii) its Affiliates.

(a) The Company shall give notice (the "Offer Notice") to each Major Investor, stating (i) its bona fide intention to offer such New Securities, (ii) the number of such New Securities to be offered, and (iii) the price and terms, if any, upon which it proposes to offer such New Securities.

(b) By notification to the Company within twenty (20) days after the Offer Notice is given, (i) subject to the provisions of Subsection 4.1(b)(ii), each Major Investor may elect to purchase or otherwise acquire, at the price and on the terms specified in the Offer Notice, up to that portion of such New Securities which equals the proportion that the Common Stock then held by such Major Investor (including all shares of Common Stock then issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of the Preferred Stock and any other Derivative Securities then held by such Major Investor) bears to the total Common Stock of the Company then outstanding (assuming full conversion and/or exercise, as applicable, of all Preferred Stock and other Derivative Securities). At the expiration of such twenty (20) day period, the Company shall promptly notify each Major Investor that elects to purchase or acquire all the shares available to it (each, a "Fully Exercising Investor") of any other Major Investor's failure to do likewise. During the ten (10) day period commencing after the Company has given such notice, each Fully Exercising Investor may, by giving notice to the Company, elect to purchase or acquire, in addition to the number of shares specified above, up to that portion of the New Securities for which Major Investors were entitled to subscribe but that were not subscribed for by the Major Investors which is equal to the proportion that the Common Stock issued and held, or issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of Preferred Stock and any other Derivative Securities then held, by such Fully Exercising Investor bears to the Common Stock issued and held, or issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of the Preferred Stock and any other Derivative Securities then held, by all Fully Exercising Investors who wish to purchase such unsubscribed shares. The closing of any sale pursuant to this Subsection 4.1(b) shall occur within the later of one hundred and twenty (120) days of the date that the Offer Notice is given and the date of initial sale of New Securities pursuant to Subsection 4.1(c).

(c) If all New Securities referred to in the Offer Notice are not elected to be purchased or acquired as provided in Subsection 4.1(b), the Company may, during the ninety (90) day period following the expiration of the periods provided in Subsection 4.1(b), offer and sell the remaining unsubscribed portion of such New Securities to any Person or Persons at a price not less than, and upon terms no more favorable to the offeree than, those specified in the Offer Notice. If the Company does not enter into an agreement for the sale of the New Securities within such period, or if such agreement is not consummated within thirty (30) days of the execution thereof, the right provided hereunder shall be deemed to be revived and such New Securities shall not be offered unless first reoffered to the Major Investors in accordance with this Subsection 4.1.

(d) The right of first offer in this Subsection 4.1 shall not be applicable to (i) Exempted Securities (as defined in the Certificate of Incorporation); and (ii) shares of Common Stock issued in the IPO.

4.2 Termination. The covenants set forth in Subsection 4.1 shall terminate and be of no further force or effect immediately before the consummation of the IPO.

5. Additional Covenants.

5.1 Insurance. The Company shall cause (i) the currently effective Directors and Officers liability insurance policy in the amount of $2,000,000, and (ii) the currently effective key man insurance policy on Daniel Schmitt in the amount of $3,000,000 to be maintained, in each case, until such time as the Board of Directors determines that such insurance policies should be discontinued.

5.2 Employee Agreements. The Company will cause (i) each person now or hereafter employed by it or by any subsidiary (or engaged by the Company or any subsidiary as a consultant/independent contractor) with access to confidential information and/or trade secrets to enter into a nondisclosure and proprietary rights assignment agreement, and (ii) each Key Employee to enter into a non-solicitation agreement effective during the term of their provision of services to the Company and for a one (1)-year period thereafter, in each case substantially in the form approved by the Board of Directors. In addition, the Company shall not amend, modify, terminate, waive, or otherwise alter, in whole or in part, any of the above-referenced agreements or any restricted stock agreement between the Company and any employee, without the consent of the Board of Directors.

5.3 Qualified Small Business Stock. The Company shall use commercially reasonable efforts to cause the shares of Preferred Stock, as well as any shares into which such shares are converted, within the meaning of Section 1202(f) of the Internal Revenue Code (the "Code"), to constitute "qualified small business stock" as defined in Section 1202(c) of the Code; provided, however, that such requirement shall not be applicable if the Board of Directors determines, in its good-faith business judgment, that such qualification is inconsistent with the best interests of the Company. The Company shall submit to its stockholders (including the Investors) and to the Internal Revenue Service any reports that may be required under Section 1202(d)(1)(C) of the Code and the regulations promulgated thereunder. In addition, within twenty (20) business days after any Investor's written request therefor, the Company shall, at its option, either (i) deliver to such Investor a written statement indicating whether (and what portion of) such Investor's interest in the Company constitutes "qualified small business stock" as defined in Section 1202(c) of the Code, or (ii) deliver to such Investor such factual information in the Company's possession as is reasonably necessary to enable such Investor to determine whether (and what portion of) such Investor's interest in the Company constitutes "qualified small business stock" as defined in Section 1202(c) of the Code.

5.4 Board Matters. Unless otherwise determined by the vote of a majority of the directors then in office, the Board of Directors shall meet at least quarterly in accordance with an agreed-upon schedule. The Company shall reimburse the directors for all reasonable out-of-pocket travel expenses incurred (consistent with the Company's travel policy) in connection with attending meetings of the Board of Directors.

5.5 Successor Indemnification. If the Company or any of its successors or assignees consolidates with or merges into any other Person and is not the continuing or surviving corporation or entity of such consolidation or merger, then to the extent necessary, proper provision shall be made so that the successors and assignees of the Company assume the obligations of the Company with respect to indemnification of members of the Board of Directors as in effect immediately before such transaction, whether such obligations are contained in the Company's Bylaws, the Certificate of Incorporation, or elsewhere, as the case may be.

5.6 Indemnification Matters. The Company hereby acknowledges that one (1) or more of the directors nominated to serve on the Board of Directors by the Investors (each a "Fund Director") may have certain rights to indemnification, advancement of expenses and/or insurance provided by one or more of the Investors and certain of their affiliates (collectively, the "Fund Indemnitors"). The Company hereby agrees (a) that it is the indemnitor of first resort (i.e., its obligations to any such Fund Director are primary and any obligation of the Fund Indemnitors to advance expenses or to provide indemnification for the same expenses or liabilities incurred by such Fund Director are secondary), (b) that it shall be required to advance the full amount of expenses incurred by such Fund Director and shall be liable for the full amount of all expenses, judgments, penalties, fines and amounts paid in settlement by or on behalf of any such Fund Director to the extent legally permitted and as required by the Certificate of Incorporation or the Bylaws of the Company (or any agreement between the Company and such Fund Director), without regard to any rights such Fund Director may have against the Fund Indemnitors, and (c) that it irrevocably waives, relinquishes and releases the Fund Indemnitors from any and all claims against the Fund Indemnitors for contribution, subrogation or any other recovery of any kind in respect thereof. The Company further agrees that no advancement or payment by the Fund Indemnitors on behalf of any such Fund Director with respect to any claim for which such Fund Director has sought indemnification from the Company shall affect the foregoing and the Fund Indemnitors shall have a right of

contribution and/or be subrogated to the extent of such advancement or payment to all of the rights of recovery of such Fund Director against the Company. Each Fund Director and each Fund Indemnitor is an intended third-party beneficiary of this Subsection 5.6 and shall have the right, power and authority to enforce the provisions of this Subsection 5.6 as though it was a party to this Agreement.

5.7 Employee Stock. Unless otherwise approved by the Board of Directors, all future grants of options to purchase, or rights to receive awards of, shares of the Company's capital stock after the date hereof shall be required to execute restricted stock or option agreements, as applicable, providing for (i) vesting of shares over a four (4) year period, with the first twenty-five percent (25%) of such shares vesting following twelve (12) months of continued employment or service, and the remaining shares vesting in equal monthly installments over the following thirty-six (36) months, and (ii) a market stand-off provision substantially similar to that in Subsection 2.11. Without the prior approval by the Board of Directors, the Company shall not amend, modify, terminate, waive or otherwise alter, in whole or in part, any stock purchase, stock restriction or option agreement with any existing employee or service provider if such amendment would cause it to be inconsistent with this Subsection 5.7. In addition, unless otherwise approved by the Board of Directors, the Company shall retain (and not waive) a "right of first refusal" on employee transfers until the Company's IPO and shall have the right to repurchase unvested shares at cost upon termination of employment of a holder of restricted stock.

5.8 Right to Conduct Activities.

(a) The Company hereby agrees and acknowledges that Kairos (together with its Affiliates) is a professional investment organization, and as such reviews the business plans and related proprietary information of many enterprises and invests in numerous portfolio companies, some of which may compete directly or indirectly with the Company's business (as currently conducted or as currently propose to be conducted). The Company hereby agrees that, to the extent permitted under applicable law, Kairos (and its Affiliates) shall not be liable to the Company for any claim arising out of, or based upon, (i) the investment by Kairos (or its Affiliates) in any entity competitive with the Company, or (ii) actions taken by any partner, officer, employee or other representative of Kairos (or its Affiliates) to assist any such competitive company, whether or not such action was taken as a member of the board of directors of such competitive company or otherwise, and whether or not such action has a detrimental effect on the Company; provided, however, that the foregoing shall not relieve (x) any of the Investors from liability associated with the unauthorized disclosure of the Company's confidential information, or (y) any director or officer of the Company from any liability associated with his or her fiduciary duties to the Company. Nothing in this Agreement shall preclude or in any way restrict Kairos (or its Affiliates) from investing or participating in any particular enterprise whether or not such enterprise has products or services which compete with those of the Company.

(b) The Company hereby agrees and acknowledges that Bios (together with its Affiliates) is a professional investment organization, and as such reviews the business plans and related proprietary information of many enterprises and invests in numerous portfolio companies, some of which may compete directly or indirectly with the Company's business (as currently conducted or as currently propose to be conducted). The Company hereby agrees that, to the extent permitted under applicable law, Bios (and its Affiliates) shall not be liable to the Company for any claim arising out of, or based upon, (i) the investment by Bios (or its Affiliates) in any entity competitive with the Company, or (ii) actions taken by any partner, officer, employee or other representative of Bios (or its Affiliates) to assist any such competitive company, whether or not such action was taken as a member of the board of directors of such competitive company or otherwise, and whether or not such action has a detrimental effect on the Company; provided, however, that the foregoing shall not relieve (x) any of the Investors from liability associated with the unauthorized disclosure of the Company's confidential information, or (y) any director or officer of the Company from any liability associated with his or her fiduciary duties to the Company. Nothing in this Agreement shall preclude or in any way restrict Bios (or its Affiliates) from investing or participating in any particular enterprise whether or not such enterprise has products or services which compete with those of the Company.

5.9 RESERVED.

5.10 Termination of Covenants. The covenants set forth in this Section 5, except for Subsections 5.5 and 5.6, shall terminate and be of no further force or effect immediately before the consummation of the IPO.

6. Miscellaneous.

6.1 Successors and Assigns. The rights under this Agreement may be assigned (but only with all related obligations) by a Holder to a transferee of Registrable Securities that (i) is an Affiliate of a Holder; (ii) is a Holder's Immediate Family Member or trust for the benefit of an individual Holder or one or more of such Holder's Immediate Family Members; or (iii) after such transfer, holds at least 75,000 shares of Registrable Securities (subject to appropriate adjustment for stock splits, stock dividends, combinations, and other recapitalizations); provided, however, that (x) the Company is, within a reasonable time after such transfer, furnished with written notice of the name and address of such transferee and the Registrable Securities with respect to which such rights are being transferred; and (y) such transferee agrees in a written instrument delivered to the Company to be bound by and subject to the terms and conditions of this Agreement, including the provisions of Subsection 2.11. For the purposes of determining the number of shares of Registrable Securities held by a transferee, the holdings of a transferee (1) that is an Affiliate or stockholder of a Holder; (2) who is a Holder's Immediate Family Member; or (3) that is a trust for the benefit of an individual Holder or such Holder's Immediate Family Member shall be aggregated together and with those of the transferring Holder; provided further, that all transferees who would not qualify individually for assignment of rights shall have a single attorney-in-fact for the purpose of exercising any rights, receiving notices, or taking any action under this Agreement. The terms and conditions of this Agreement inure to the benefit of and are binding upon the respective successors and permitted assignees of the parties. Nothing in this Agreement, express or implied, is intended to confer upon any party other than the parties hereto or their respective successors and permitted assignees any rights, remedies, obligations or liabilities under or by reason of this Agreement, except as expressly provided herein.

6.2 Governing Law. This Agreement shall be governed by the internal law of the State of Delaware, without regard to conflict of law principles that would result in the application of any law other than the law of the State of Delaware.

6.3 Counterparts. This Agreement may be executed in two (2) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Counterparts may be delivered via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, e.g., www.docusign.com) or other transmission method and any counterpart so delivered shall be deemed to have been duly and validly delivered and be valid and effective for all purposes.

6.4 Titles and Subtitles. The titles and subtitles used in this Agreement are for convenience only and are not to be considered in construing or interpreting this Agreement.

6.5 Notices. All notices and other communications given or made pursuant to this Agreement shall be in writing and shall be deemed effectively given upon the earlier of actual receipt or (i) personal delivery to the party to be notified; (ii) when sent, if sent by electronic mail or facsimile during the recipient's normal business hours, and if not sent during normal business hours, then on the recipient's next business day; (iii) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid; or (iv) one (1) business day after the business day of deposit with a nationally recognized overnight courier, freight prepaid, specifying next-day delivery, with written verification of receipt. All communications shall be sent to the respective parties at their addresses as set forth on Schedule A hereto, the signature pages hereto or to the principal office of the Company and to the attention of the Chief Executive Officer, in the case of the Company, or to such email address, facsimile number, or address as subsequently modified by written notice given in accordance with this Subsection 6.5. If notice is given to the Company, a copy (which shall not constitute notice) shall also be sent to Baker & Hostetler LLP, 1050 Connecticut Avenue, NW, Suite 1100, Washington, DC 20036, Attn: Janis M. Penman.

6.6 Amendments and Waivers. Any term of this Agreement may be amended and the observance of any term of this Agreement may be waived (either generally or in a particular instance, and either retroactively or prospectively) only with the written consent of the Company and the holders of a majority of the Registrable Securities then outstanding; provided that, the Company may in its sole discretion waive compliance with Subsection 2.12(c) (and the Company's failure to object promptly in writing after notification of a proposed assignment allegedly in violation of Subsection 2.12(c) shall be deemed to be a waiver); and provided further that any provision hereof may be waived by any waiving party on such party's own behalf, without the consent of any other party. Notwithstanding the foregoing, (a) this Agreement may not be amended or terminated and the observance of any term hereof may not be waived with respect to any Investor without the written consent of such Investor, unless such amendment, termination, or waiver applies to all Investors in the same fashion (it being agreed that a waiver of the provisions of Section 4 with respect to a particular transaction shall be deemed to apply to all Investors in the same fashion if such waiver does so by its terms, notwithstanding the fact that certain

Investors may nonetheless, by agreement with the Company, purchase securities in such transaction), (b) Subsections 3.1, 3.2 and 3.3, Section 4 and any other section of this Agreement applicable to the Major Investors (including this clause (b) of this Subsection 6.6) may not be amended, modified, terminated or waived without the written consent of the holders of at least a majority of the Registrable Securities then outstanding and held by the Major Investors, and (c) Subsections 5.5 and 5.6 may not be amended, modified, terminated or waived without the written consent of each of Kairos and Bios. Notwithstanding the foregoing, Schedule A hereto may be amended by the Company from time to time to add transferees of any Registrable Securities in compliance with the terms of this Agreement without the consent of the other parties; and Schedule A hereto may also be amended by the Company after the date of this Agreement without the consent of the other parties to add information regarding any additional Investor who becomes a party to this Agreement in accordance with Subsection 6.9, or to revise the class and/or series of shares held by Investors. Notwithstanding the foregoing, (a) the definition of "Competitor" and the provisions of Subsection 5.8(a) and this clause of Subsection 6.6 may not be amended, terminated or waived without the written consent of Kairos in a manner that is adverse to Kairos and its Affiliates, for so long as Kairos or its Affiliates continue to own beneficially any shares of Preferred Stock, and (b) the definition of "Competitor" and the provisions of Subsection 5.8(b) and this clause of Subsection 6.6 may not be amended, terminated or waived without the written consent of Bios in a manner that is adverse to Bios and its Affiliates, for so long as Bios or its Affiliates continue to own beneficially any shares of Preferred Stock. The Company shall give prompt notice of any amendment or termination hereof or waiver hereunder to any party hereto that did not consent in writing to such amendment, termination, or waiver. Any amendment, termination, or waiver effected in accordance with this Subsection 6.6 shall be binding on all parties hereto, regardless of whether any such party has consented thereto. No waivers of or exceptions to any term, condition, or provision of this Agreement, in any one or more instances, shall be deemed to be or construed as a further or continuing waiver of any such term, condition, or provision.

6.7 Severability. In case any one or more of the provisions contained in this Agreement is for any reason held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provision of this Agreement, and such invalid, illegal, or unenforceable provision shall be reformed and construed so that it will be valid, legal, and enforceable to the maximum extent permitted by law.

6.8 Aggregation of Stock. All shares of Registrable Securities held or acquired by Affiliates shall be aggregated together for the purpose of determining the availability of any rights under this Agreement and such Affiliated persons may apportion such rights as among themselves in any manner they deem appropriate.

6.9 Additional Investors. Notwithstanding anything to the contrary contained herein, if the Company issues additional shares of Preferred Stock after the date hereof, whether pursuant to the Purchase Agreement or otherwise, any purchaser of such shares of Preferred Stock may become a party to this Agreement by executing and delivering an additional counterpart signature page to this Agreement, and thereafter shall be deemed an "Investor" for all purposes hereunder. No action or consent by the Investors shall be required for such joinder to this Agreement by such additional Investor, so long as such additional Investor has agreed in writing to be bound by all of the obligations as an "Investor" hereunder.

6.10 Entire Agreement. This Agreement (including any Schedules and Exhibits hereto) constitutes the full and entire understanding and agreement among the parties with respect to the subject matter hereof, and any other written or oral agreement relating to the subject matter hereof existing between the parties is expressly canceled. Upon the effectiveness of this Agreement, the Prior Agreement shall be deemed amended and restated and superseded and replaced in its entirety by this Agreement, and shall be of no further force or effect.

6.11 Dispute Resolution; Waiver of Jury Trial. The parties (a) hereby irrevocably and unconditionally submit to the jurisdiction of the state courts of Delaware and to the jurisdiction of the United States District Court for the District of Delaware for the purpose of any suit, action or other proceeding arising out of or based upon this Agreement, (b) agree not to commence any suit, action or other proceeding arising out of or based upon this Agreement except in the state courts of Delaware or the United States District Court for the District of Delaware, and (c) hereby waive, and agree not to assert, by way of motion, as a defense, or otherwise, in any such suit, action or proceeding, any claim that it is not subject personally to the jurisdiction of the above-named courts, that its property is exempt

or immune from attachment or execution, that the suit, action or proceeding is brought in an inconvenient forum, that the venue of the suit, action or proceeding is improper or that this Agreement or the subject matter hereof may not be enforced in or by such court.

EACH PARTY HEREBY WAIVES ITS RIGHTS TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION BASED UPON OR ARISING OUT OF THIS AGREEMENT, THE OTHER TRANSACTION DOCUMENTS, THE SECURITIES OR THE SUBJECT MATTER HEREOF OR THEREOF. THE SCOPE OF THIS WAIVER IS INTENDED TO BE ALL-ENCOMPASSING OF ANY AND ALL DISPUTES THAT MAY BE FILED IN ANY COURT AND THAT RELATE TO THE SUBJECT MATTER OF THIS TRANSACTION, INCLUDING, WITHOUT LIMITATION, CONTRACT CLAIMS, TORT CLAIMS (INCLUDING NEGLIGENCE), BREACH OF DUTY CLAIMS, AND ALL OTHER COMMON LAW AND STATUTORY CLAIMS. THIS SECTION HAS BEEN FULLY DISCUSSED BY EACH OF THE PARTIES HERETO AND THESE PROVISIONS WILL NOT BE SUBJECT TO ANY EXCEPTIONS. EACH PARTY HERETO HEREBY FURTHER WARRANTS AND REPRESENTS THAT SUCH PARTY HAS REVIEWED THIS WAIVER WITH ITS LEGAL COUNSEL, AND THAT SUCH PARTY KNOWINGLY AND VOLUNTARILY WAIVES ITS JURY TRIAL RIGHTS FOLLOWING CONSULTATION WITH LEGAL COUNSEL.

The prevailing party shall be entitled to reasonable attorney's fees, costs, and necessary disbursements in addition to any other relief to which such party may be entitled.

6.12 Delays or Omissions. No delay or omission to exercise any right, power, or remedy accruing to any party under this Agreement, upon any breach or default of any other party under this Agreement, shall impair any such right, power, or remedy of such nonbreaching or nondefaulting party, nor shall it be construed to be a waiver of or acquiescence to any such breach or default, or to any similar breach or default thereafter occurring, nor shall any waiver of any single breach or default be deemed a waiver of any other breach or default theretofore or thereafter occurring. All remedies, whether under this Agreement or by law or otherwise afforded to any party, shall be cumulative and not alternative.

[*signatures on next page*]

IN WITNESS WHEREOF, the undersigned has executed this Fourth Amended and Restated Investor Rights Agreement as of the date first written above.

COMPANY:

ACTUATE THERAPEUTICS, INC.

By: /s/ Daniel Schmitt
Name: Daniel Schmitt
Title: President and Chief Executive Officer

Address:

1751 River Run, Suite 400
Fort Worth, TX 76107

IN WITNESS WHEREOF, the undersigned has executed this Fourth Amended and Restated Investor Rights Agreement as of the date set forth below.

INVESTER:

Name: _____
Address: _____

Email: _____
Date: _____

SCHEDULE A

INVESTORS

Exhibit 10.1

APOTHECA THERAPEUTICS, INC.

2015 STOCK INCENTIVE PLAN

Date Adopted by Board: April 20, 2015
Date Approved by Stockholders: June 1, 2015
Effective Date: June 1, 2015

SECTION 1. PURPOSE OF THIS PLAN

1.1 Eligible Award Recipients. The individuals eligible to receive Awards under the Apotheca Therapeutics, Inc. 2015 Stock Incentive Plan (the "***Incentive Plan***") are the key Employees, Directors and Consultants who are responsible for or contribute to the management, growth and success of Apotheca Therapeutics, Inc., a Delaware corporation (the "***Company***"), and its Affiliates.

1.2 General Purpose. The Company, by means of the Incentive Plan, seeks to retain and attract Eligible Individuals who contribute to the Company's success by their ability, ingenuity and industry, and to enable such individuals to participate in the long-term success and growth of the Company by giving them a proprietary interest in the Company through the granting of the following Awards: (i) Incentive Stock Options, (ii) Non-Qualified Stock Options, and (iii) Restricted Shares.

SECTION 2. DEFINITIONS

As used in this Incentive Plan, the following terms shall have the meanings set forth below unless the context requires otherwise:

2.1 ***"Affiliate"*** means any Parent Corporation or Subsidiary Corporation, whether now existing or hereafter established.

2.2 **"*Award*"** shall mean the grant of a Stock Option or Restricted Shares pursuant to this Incentive Plan.

2.3 **"*Award Agreement*"** shall mean the written agreement evidencing the terms and conditions of a grant of one or more Awards under this Incentive Plan to an Eligible Individual. Each Award Agreement shall be subject to the terms and conditions of the Incentive Plan and need not be identical.

2.4 ***"Award Date"*** shall mean the date on which an Award is granted to an Eligible Individual.

2.5 **"*Award Term*"** shall mean the maximum period during which a Participant may exercise, purchase, or otherwise benefit from an Award granted under this Incentive Plan.

2.6 **"*Board*"** shall mean the Board of Directors of the Company, as the same may be constituted from time to time.

2.7 **"*Cause*"** shall mean termination of a Participant's service with the Company or an Affiliate as a result of the occurrence of one or more of the following events, except as otherwise expressly provided in the applicable Award Agreement: misconduct, negligence, dishonesty, violence or threat of violence (including any violation of federal securities laws) that is injurious to the Company or any of its Affiliates; disclosure of trade secrets, client information or other confidential information; breach of the provisions of an agreement, covenant or other obligation with the Company or an Affiliate, including without limitation an employment agreement or a non-disclosure or confidentiality agreement; material mismanagement in the performance of his or her duties; willful failure to execute or comply with the major policies of the Company or an Affiliate or his stated duties; any other willful misconduct which is materially injurious to the financial condition or business reputation of the Company or any of its Affiliates; material breach of a written policy of the Company or an Affiliate or the laws or rules of any governmental or regulatory body applicable to the Company or an Affiliate; and conviction of, or plea of nolo contendere to, any felony or another crime involving dishonesty or moral turpitude or which could reflect negatively

upon the Company or an Affiliate or otherwise impair or impede its operations. If Participant is a party to an employment or service agreement with the Company or its Affiliates and such agreement provides for a definition of Cause, the definition therein contained shall constitute "Cause" for purposes of this Incentive Plan in addition to the above definition. The determination of a Participant's termination for "Cause" shall be made in the sole and absolute discretion of the Board.

2.8 ***"Change of Control"*** shall mean the occurrence of (i) a sale, lease or other disposition of all or substantially all of the assets of the Company, (ii) a merger or consolidation in which the Company is not the surviving corporation (except for a merger or consolidation with an entity controlled by the stockholders of the Company), (iii) a reverse merger in which the Company is the surviving corporation but the Shares of Common Stock outstanding immediately preceding the merger are converted by virtue of the merger into other property, whether in the form of securities, cash or otherwise or (iv) the adoption of a plan of dissolution or liquidation of the Company.

2.9 ***"Code"*** shall mean the Internal Revenue Code of 1986, as amended from time to time (or any successor to such legislation).

2.10 ***"Committee"*** shall mean the one or more Persons appointed by the Board and to which some or all of the Board's authority to administer the Incentive Plan has been delegated in accordance with the provisions of subsection 3.1 hereof. If no Committee has been appointed, the Board shall be deemed the Committee.

2.11 ***"Common Stock"*** shall mean the authorized shares of common stock of the Company,

$0.000001 par value per share, as may be adjusted by the Board from time to time. Any adjustment to the par value of a share shall be incorporated herein without any need to otherwise amend the Incentive Plan.

2.12 ***"Company"*** shall mean Apotheca Therapeutics, Inc., a corporation organized under the laws of the State of Delaware, and any successor thereto.

2.13 ***"Consultant"*** shall mean any Person, including an advisor, (i) engaged by the Company or any Affiliate to render consulting or advisory services and who is compensated for such services or who provides *bona fide* services to the Company or any Affiliate pursuant to a written agreement; or (ii) who is a member of the board of directors of any Affiliate. However, the term "Consultant" shall not include either Directors who are not compensated by the Company for their services as Directors or Directors who are merely paid a director's fee by the Company for their services as Directors.

2.14 ***"Continuous Service"*** means that Participant's service with the Company or any Affiliate, whether as an Employee, Director or Consultant, is not interrupted or terminated. The Participant's Continuous Service shall not be deemed to have terminated merely because of a change in the capacity in which Participant renders service to the Company or any Affiliate as an Employee, Consultant or Director or a change in the entity for which Participant renders such service, provided that there is no interruption or termination of Participant's Continuous Service. For example, a change in status from an Employee of the Company to a Consultant of an Affiliate or a Director will not constitute an interruption of Continuous Service. Notwithstanding the foregoing, with respect to an Incentive Stock Option, an Employee's Continuous Service shall be deemed to have terminated in the event of a change in capacity from an Employee to a Consultant or non-Employee Director. The Plan Administrator, in its sole discretion, may determine whether Continuous Service shall be considered interrupted in the case of any leave of absence approved by the Company, including sick leave, military leave or any other personal leave.

2.15 ***"Director"*** shall mean a member of the Board, whether an Employee or non-Employee Director.

2.16 ***"Disability"*** shall mean the Participant's permanent and total inability to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or which can be expected to last for a continuous period of not less than 12 months. The determination of a Participant's "Disability" shall be made in the sole and absolute discretion of the Plan Administrator.

2.17 ***"Effective Date"*** shall mean June 1, 2015.

2.18 **"*Eligible Individual*"** shall mean an Employee, Consultant or Director eligible to receive an Award under Section 5 of this Incentive Plan.

2.19 ***"Employee"*** shall mean the common-law employee of the Company or any Affiliate. Mere service as a Director or payment of a director's fee by the Company or any Affiliate shall not be sufficient to constitute "employment" by the Company or an Affiliate.

2.20 **"*Exercise Agreement*"** shall mean the written agreement delivered by Participant to the Plan Administrator to evidence such Participant's exercise of his rights provided under the applicable Award Agreement.

2.21 **"*Exercise Date*"** shall mean the date set out in the Exercise Agreement on which Participant exercises his rights provided under the applicable Award Agreement.

2.22 ***"Exercise Price"*** shall mean the consideration required, as determined by the Plan Administrator and set out in the Award Agreement, to be remitted upon exercise of an Award.

2.23 ***"Expiration Date"*** shall mean June 1, 2025, or in the event the Incentive Plan is subsequently amended to make any change described in clause (ii) of subsection 12.1, the date which is ten (10) years from the date on which such amendment is approved by the Board, or if earlier, the date on which such amendment is approved by the stockholders of the Company.

2.24 ***"Fair Market Value"*** shall mean, with respect to the Shares, the value established, in good faith, by the Board as of any date. Fair Market Value shall be determined in accordance with applicable guidance and regulations promulgated under Section 409A of the Code (or any successor provision thereto).

2.25 **"*Incentive Plan*"** shall mean this Apotheca Therapeutics, Inc. 2015 Stock Incentive Plan, as amended from time to time.

2.26 ***"Incentive Stock Option"*** shall mean any option to purchase Shares awarded pursuant to Section 6 of this Incentive Plan that qualifies as an "incentive stock option" pursuant to Section 422 of the Code.

2.27 ***"Non-Qualified Stock Option"*** shall mean any option to purchase Shares awarded pursuant to Section 6 of this Incentive Plan that does not qualify as an Incentive Stock Option (including, without limitation, any option to purchase Shares originally designated, or intended to qualify, as an Incentive Stock Option but that does not, for any reason whatsoever, qualify as an Incentive Stock Option).

2.28 ***"Parent Corporation"*** shall mean any entity (other than the Company) in an unbroken chain of entities ending with the Company, provided each entity in the unbroken chain (other than the Company) owns, at the time of the determination, ownership interests possessing fifty percent (50%) or more of the total combined voting power of all classes of ownership interests in one of the other entities in such chain; provided, however, that with respect to an Award of an Incentive Stock Option, the term "Parent Corporation" shall refer solely to an entity that is taxed under federal income tax laws as a corporation.

2.29 ***"Participant"*** shall mean any Eligible Individual who has been granted and holds an Award granted pursuant to this Incentive Plan.

2.30 ***"Person"*** shall mean an individual, partnership, joint venture, corporation, limited liability company, trust, estate or other entity or organization.

2.31 ***"Plan Administrator"*** shall mean the Committee appointed by the Board to administer the Incentive Plan pursuant to subsection 3.1 hereof, or if no Committee has been appointed or is then serving, the Board.

2.32 ***"Purchase Price"*** shall mean the consideration required, as determined by the Plan Administrator and set out in the Award Agreement, to be remitted upon grant of an Award of Restricted Shares.

2.33 ***"Restricted Shares"*** shall mean any Shares granted pursuant to Section 7 of this Incentive Plan that are subject to transferability restrictions and/or a substantial risk of forfeiture.

2.34 ***"Restriction Period"*** shall mean the period during which Restricted Shares issued pursuant to Section 7 hereof are subject to a substantial risk of forfeiture.

2.35 ***"Securities Act"*** shall mean the Securities Act of 1933, as amended from time to time (or any successor to such legislation).

2.36 ***"Shares"*** shall mean shares of the Common Stock and any shares of capital stock or other securities hereafter issued or issuable upon, in respect of or in substitution or exchange for shares of Common Stock.

2.37 ***"Stock Option"*** shall mean any Incentive Stock Option or Non-Qualified Stock Option.

2.38 ***"Subsidiary Corporation"*** shall mean any entity (other than the Company) in an unbroken chain of entities beginning with the Company, provided each entity (other than the last entity) in the unbroken chain owns, at the time of the determination, ownership interests possessing fifty percent (50%) or more of the total combined voting power of all classes of ownership interests in one of the other entities in such chain; provided, however, that with respect to an Award of an Incentive Stock Option, the term "Subsidiary Corporation" shall refer solely to an entity that is taxed under federal income tax laws as a corporation.

2.39 ***"Ten Percent Shareholder"*** shall mean an individual who, at the time a Stock Option is granted pursuant to Section 6 hereof, owns (or is deemed to own pursuant to Section 424(d) of the Code) stock possessing more than ten percent (10%) of the total combined voting power of all classes of stock of the Company or any Affiliate.

2.40 ***"Termination Date"*** shall mean the date on which a Participant's Continuous Service with the Company (or any Affiliate) terminates due to retirement, death, Disability, voluntary termination, with or without Cause, or otherwise.

SECTION 3. ADMINISTRATION OF THE PLAN

3.1 ***Administration of Incentive Plan***. The Incentive Plan shall be administered by the Plan Administrator. If a Committee is appointed by the Board to serve as Plan Administrator, the Committee shall consist of at least one member of the Board. In the event of a vacancy, the Board shall appoint another individual to serve. All members of the Committee will serve at the pleasure of the Board and shall be authorized to act with respect to all functions delegated to the Committee. Any Committee to which the Board's authority has been delegated will act by a majority of its members (or by unanimous vote if the Committee is comprised of less than three (3) members). To the extent a Committee appointed hereunder shall cease or no longer be authorized to act hereunder, the functions delegated to the Committee shall revert to the Board.

3.2 ***Powers of the Plan Administrator.*** The Plan Administrator shall have the power, in its sole and absolute discretion, but subject to and within the limitations of the express provisions of the Incentive Plan:

(a) To determine from time to time which Eligible Individuals under the Incentive Plan shall be granted Awards under the Incentive Plan; when and how each Award shall be granted; what type or combination of types of Awards shall be granted; the provisions of each Award granted (which need not be identical), including the time or times when an Award may be exercised; the number of Shares with respect to which an Award shall be granted to each Eligible Individual; the Exercise Price or the Purchase Price for Shares under an Award; the terms, performance criteria or other conditions, vesting periods or any restrictions for an Award and any restrictions on Shares acquired pursuant to an Award; and any other terms and conditions of an Award that the Plan Administrator deems appropriate and as are not inconsistent with the terms of this Incentive Plan;

(b) To determine whether, to what extent, and under what circumstances, to allow alternative payment options to exercise Awards or pay withholding taxes imposed upon the grant, exercise or vesting of any Award, and the terms and conditions of such payment options;

(c) To rely upon Employees of the Company or an Affiliate for such clerical and recordkeeping duties as may be necessary in connection with the administration of this Incentive Plan;

(d) To accelerate or defer (with the consent of the subject Participant) the vesting of any rights under an Award;

(e) To establish, amend and revoke rules and regulations as it may deem appropriate for the conduct of meetings and the proper administration of the Incentive Plan;

(f) To delegate to one or more Persons the right to act on its behalf in such matters as authorized by the Plan Administrator;

(g) To construe and interpret the Incentive Plan and Award Agreements issued hereunder;

(h) To take such actions as are deemed necessary or advisable by the Plan Administrator to qualify the Incentive Plan for exemption from the registration requirements of federal and state securities laws, to prepare, file and execute all applications, agreements, certificates and other documents with respect to the Incentive Plan, the grant of any Award hereunder, or the exercise of any Award hereunder with the appropriate federal and state agencies, and to take any and all other actions that are deemed necessary or advisable by the Plan Administrator to comply with applicable federal and state securities laws;

(i) To cancel or revoke any Award issued hereunder if the issuance of such Award would violate any applicable federal or state securities laws;

(j) To amend the Incentive Plan or an Award Agreement to the extent provided under Section 12 hereof. The Plan Administrator, in the exercise of this power, may correct any defect, omission or inconsistency in the Incentive Plan or in any Award Agreement, in a manner and to the extent it shall deem necessary or expedient to make the Incentive Plan fully effective; and

(k) To take any and all other actions that are deemed necessary or advisable by the Plan Administrator for the administration of the Incentive Plan.

3.3 ***Effect of Plan Administrator's Decision*****.** All determinations, interpretations and constructions made by the Plan Administrator in good faith shall not be subject to review by any Person and shall be final, binding and conclusive on all Persons. Any member of the Board or Committee acting as Plan Administrator and any officer or Employee of the Company or any Affiliate acting at the direction of the Plan Administrator shall not be personally liable for any action or determination taken or made in good faith with respect to the Incentive Plan, and shall, to the extent provided in subsection 13.6 hereof, be fully indemnified by the Company with respect to any such action or determination.

SECTION 4. SHARES SUBJECT TO PLAN AND RELATED ADJUSTMENTS

4.1 ***Share Reserve***. Except as otherwise provided in this Section 4, the maximum number of Shares that may be issued with respect to Awards granted pursuant to this Plan shall not exceed 25,000 Shares; provided, however, that the maximum number of Shares that may be issued upon exercise of Incentive Stock Options granted pursuant to this Plan shall not exceed 25,000 Shares. The Shares issued pursuant to this Plan may be authorized but unissued Shares or may be Shares issued pursuant to this Plan that have been reacquired by the Company.

4.2 ***Cancellation, Expiration, or Forfeiture of Awards***. To the extent that any Award granted pursuant to this Plan shall be forfeited, expire or be cancelled, in whole or in part, then the number of Shares subject to the Plan pursuant to subsection 4.1 shall be increased by the portion of the Awards or stock options so forfeited, expired or cancelled, and such forfeited, expired or cancelled Shares may be awarded pursuant to the provisions of this Plan.

4.3 ***Payment in Shares.*** If Shares are permitted to be delivered to the Company in full or partial payment of the Exercise Price, Purchase Price or the applicable withholding taxes imposed on any Award granted pursuant to this Plan then the number of Shares available for future Awards granted pursuant to this Plan shall be reduced only by the net number of Shares issued under the applicable award.

4.4 ***Repurchases of Shares.*** If Shares issued in connection with any Award granted pursuant to this Plan shall be repurchased by the Company, in whole or in part, then the number of Shares subject to the Plan pursuant to subsection 4.1 shall be increased by the portion of the Shares repurchased by the Company, and such repurchased Shares may again be awarded pursuant to the provisions of this Plan.

4.5 ***Issuance of Share Certificates.*** Prior to the issuance of Common Stock hereunder, whether upon grant, exercise, or purchase pursuant to the applicable Award, Participant shall submit the consideration, if any, required under the applicable Award Agreement, payment or other provision for any applicable tax withholding obligations, and all documents to be executed and delivered by Participant to the Company in accordance with the provisions of this Plan and the applicable Award Agreement or as may otherwise be required by the Company or the Plan Administrator, including, without limitation, an executed counterpart to an applicable stockholder's agreement and, with respect to Restricted Shares, a stock power, endorsed in blank, relating to the Shares covered by such Award. The Company will evidence the issuance of Shares hereunder by any means appropriate, including, without limitation, book- entry registration or issuance of a duly executed Share certificate in the name of Participant, provided that stock certificates evidencing Restricted Shares granted pursuant to this Plan shall be held in the custody by the Company or its duly authorized delegate until the restrictions thereon have lapsed. If certificates are issued, a separate certificate or certificates will be issued for Shares issued in connection with each type of Award granted to the Participant.

SECTION 5. ELIGIBILITY

5.1 ***Individuals Eligible to Participate***. The Plan Administrator shall determine, within the limitations of the Incentive Plan, the Employees, Consultants or Directors of the Company or any Affiliate to whom Awards may be granted. In making such determination, as well as the determination of the type of Award and terms of such Award, the Plan Administrator may consider the position and responsibilities of the Eligible Individual, the importance of such individual to the Company, the duties of such individual, the past, present and potential contributions of such individual to the growth and success of the Company and such other factors as the Plan Administrator may deem relevant in connection with accomplishing the purposes of this Incentive Plan.

5.2 ***Evidence of Participation***. Each Award granted to an Eligible Individual shall be evidenced by an Award Agreement, in such form as prescribed by the Plan Administrator and containing such terms and provisions as are not inconsistent with this Incentive Plan. The provisions of separate Award Agreements need not be identical, but each Award Agreement shall include (through incorporation of the provisions hereof by reference in the Award Agreement or otherwise) the substance of the terms of the Incentive Plan. Each Award will be deemed to have been granted as of the date on which the Plan Administrator has completed the action declaring the Award, which date shall be specified by the Plan Administrator in the applicable Award Agreement, notwithstanding any delay which may elapse in the delivery and execution of such Award Agreement.

SECTION 6. STOCK OPTIONS

6.1 ***Grant of Stock Options.*** The Plan Administrator may, in its sole and absolute discretion, may grant Stock Options, whether alone or in addition to other Awards granted pursuant to this Incentive Plan, to any Eligible Individual. Each Eligible Individual so selected shall be offered a Stock Option to purchase the number of Shares determined by the Plan Administrator and set forth in an Award Agreement; provided, however only Employees of the Company (or any Affiliate) may be granted Incentive Stock Options. The Plan Administrator shall specify in the Award Agreement the number of Shares subject to the Award, whether such Stock Option is an Incentive Stock Option or Non-Qualified Stock Option and such other terms or conditions as the Plan Administrator shall, in its sole and absolute discretion, determine appropriate and which are not inconsistent with the terms of the Incentive Plan.

6.2 ***Award Term***. No Stock Option shall be exercisable after the expiration of the Award Term determined by the Plan Administrator and set out in Participant's Award Agreement. Notwithstanding any provision herein to the contrary, the Award Term of any Incentive Stock Option granted under this Incentive Plan shall not exceed ten (10) years from the Award Date, or, in the case of an Incentive Stock Option granted to a Ten Percent Shareholder, five (5) years from the Award Date.

6.3 ***Exercise Price.*** The Exercise Price of each Stock Option granted under this Section 6 shall be established by the Plan Administrator or shall be determined by a method established by the Plan Administrator as of the Award Date. Notwithstanding the foregoing, the Exercise Price of any Stock Option shall not be less than 100% of the Fair Market Value of a Share on the Award Date (or if greater, the par value of such Common Stock), or, in the case of an Incentive Stock Option granted to a Ten Percent Shareholder, 110% of the Fair Market Value of a Share on the Award Date.

6.4 ***Vesting of Stock Options***. Each Stock Option granted pursuant to this Plan may only be exercised to the extent that Participant is vested in such Stock Option. Except as otherwise provided under subsection 11.2 herein, each Stock Option shall vest separately in accordance with the vesting schedule determined by the Plan Administrator and set out in the applicable Award Agreement. Notwithstanding the foregoing, the Plan Administrator may accelerate the vesting schedule of any outstanding Stock Option to the extent the Plan Administrator determines, in its sole and absolute discretion, that such acceleration is not inconsistent with the purposes of this Plan.

6.5 ***Time and Manner of Exercise***. Except to the extent otherwise provided in the applicable Award Agreement, each Stock Option may be exercised, in whole or in part, by submitting to the Plan Administrator an Exercise Agreement in the form prescribed by the Plan Administrator and duly executed by Participant (or, following Participant's Disability or death, his legal representative, estate or heirs, as the case may be). Except as otherwise permitted by the Plan Administrator and expressly provided in the applicable Award Agreement, the Exercise Price and applicable tax withholding shall be paid in full at the time of exercise in a manner permitted under Section 9 herein.

(a) *Voluntary Termination of Service*. Unless otherwise provided in the applicable Award Agreement, in the event Participant's Continuous Service terminates (other than upon Participant's death or Disability, or for Cause), Participant may thereafter exercise the vested portion of his Stock Option (to the extent that Participant was entitled to exercise such Stock Option as of the Termination Date) but only within such period of time ending on the earlier of (i) the date ninety (90) days following Participant's Termination Date or (ii) the expiration of the Award Term under subsection 6.2. If, after termination, Participant does not exercise Participant's Stock Option within the time specified herein, the Stock Option shall terminate and will no longer be exercisable.

(b) *Death of Participant*. Unless otherwise provided in the applicable Award Agreement, in the event Participant's Continuous Service terminates by reason of such Participant's death (or Participant dies within the ninety (90) day period following Participant's Termination Date), Participant's estate or heirs may thereafter exercise Participant's Stock Option (to the extent that Participant was entitled to exercise such Stock Option as of the Termination Date) but only within such period of time ending on the earlier of (i) the first anniversary of the Participant's death or (ii) the expiration of the Award Term under subsection 6.2. If, after the Participant's death, Participant's estate or heirs have not exercised Participant's Stock Option within the time specified herein, the Stock Option shall terminate and will no longer be exercisable.

(c) *Disability of Participant*. Unless otherwise provided in the applicable Award Agreement, in the event Participant's Continuous Service terminates by reason of such Participant's Disability, Participant, or his legal representative, may thereafter exercise Participant's Stock Option (to the extent that Participant was entitled to exercise such Stock Option as of the Termination Date) but only within such period of time ending on the earlier of (i) the first anniversary of the Participant's Termination Date or (ii) the expiration of the Award Term under subsection 6.2. If, after termination, Participant, or his legal representative, has not exercised Participant's Stock Option within the time specified herein, the Stock Option shall terminate and will no longer be exercisable.

(d) *Termination For Cause*. Unless otherwise provided in the applicable Award Agreement, in the event Participant's Continuous Service terminates for Cause, all Stock Options held by such Participant, whether or not vested, shall immediately terminate and will no longer be exercisable.

(e) *Discretion of Plan Administrator*. The Plan Administrator shall have the sole discretion, exercisable at any time, to extend the time during which a Stock Option is to remain exercisable following Participant's Termination Date from the period otherwise in effect for that Stock Option and set forth in the Award Agreement to such greater period of time as the Plan Administrator shall deem appropriate; provided, however, that the period in which the Stock Option is exercisable shall not be extended to a date beyond the expiration of the Award Term under subsection 6.2 or, if later, thirty (30) days following the date

on which the exercise of the Stock Option would no longer violate applicable securities laws. If the Plan Administrator extends the time during which an Incentive Stock Option will remain exercisable, then such extension shall be treated as the grant of a new Option as of the date of the extension.

(f) *Payment Upon Subsequent Exercise*. Notwithstanding any provision to the contrary herein, upon notice of intent to exercise of any one or more Stock Options on or after Participant's Termination Date in accordance with this subsection 6.5, the Company may, as soon as administratively feasible, in lieu of the issuance of Shares, remit to Participant (or his legal representative, estate, or heirs, as the case may be) a payment, in such manner as the Company may deem appropriate, equal to the Fair Market Value of the Shares that would otherwise be issued under the applicable Stock Option(s), less the aggregate Exercise Price and less applicable withholding taxes; provided, however, that such payment shall not be made unless (i) the Company has sufficient capital and liquidity, as determined by the Board, in its sole and absolute discretion, to make such cash payment and (ii) the Plan Administrator has received from Participant all necessary assignments, endorsements, instruments or such other evidences of title as may be reasonably required by the Plan Administrator.

(g) *Lapsed and Cancelled Stock Options*. Nothing contained in this Incentive Plan will be deemed to extend the term of a Stock Option or to revive any Stock Option that has previously lapsed or been cancelled, terminated or surrendered.

6.6 *Transferability of Option*.

(a) Rights to Transfer. A Stock Option shall be transferable to the extent provided in the Award Agreement; provided, however, that an Incentive Stock Option shall not be transferable except by will or by the laws of descent and distribution and shall be exercisable during the lifetime of Participant only by Participant. If the Award Agreement does not provide for transferability, then the Stock Option shall not be transferable except by will or by the laws of descent and distribution, and shall be exercisable during the lifetime of Participant only by Participant.

(b) Evidence of Rights. The transferee of a Stock Option shall not be permitted to exercise the Stock Option unless and until such transferee has provided the Plan Administrator a copy of the will and/or such other evidence as the Plan Administrator determines necessary to establish the validity of the transfer.

6.7 *Restrictions for Incentive Stock Options.*

(a) Shareholder Approval of Plan. To the extent shareholder approval of this Incentive Plan is required by Section 422 of the Code, no Eligible Individual shall be granted an Incentive Stock Option unless this Incentive Plan is approved by the stockholders of the Company within twelve (12) months before or after the date this Incentive Plan is initially adopted (or, if applicable, amended pursuant to clause (ii) of subsection 12.1) by the Board.

(b) Fair Market Value Restrictions. To the extent that the aggregate Fair Market Value (determined on the Award Date) of Common Stock with respect to which Incentive Stock Options are exercisable for the first time by any Participant during any calendar year (under all plans of the Company and its Affiliates) exceeds one hundred thousand dollars ($100,000), the Stock Options or portions thereof that exceed such limit (according to the order in which they were granted) shall be treated as Non-Qualified Stock Options.

(c) Termination of Authority to Issue Incentive Stock Options. Notwithstanding any provision of this Incentive Plan to the contrary, no Incentive Stock Option shall be granted to any Employee after the Expiration Date.

(d) Qualification of Incentive Stock Option. To the extent that a Stock Option designated as an Incentive Stock Option does not qualify as an Incentive Stock Option (whether because of its provisions, the failure of the stockholders of the Company to timely approve this Incentive Plan, or the time or manner of its exercise or otherwise) such Stock Option or the portion thereof that does not qualify as an Incentive Stock Option shall be deemed to constitute a Non-Qualified Stock Option under this Incentive Plan.

(e) Failure to Qualify. Notwithstanding any provision herein to the contrary, none of the Plan Administrator, the Company, any Affiliates, or the directors, officers or Employees of the foregoing shall have any liability to any Participant or any other Person if a Stock Option designated as an Incentive Stock Option fails to qualify as such at any time.

SECTION 7. RESTRICTED SHARES

7.1 ***Grants of Restricted Shares***. The Plan Administrator may, in its sole and absolute discretion, grant Restricted Shares, whether alone or in addition to other Awards granted pursuant to this Plan, to any Eligible Individual. Each Eligible Individual granted Restricted Shares shall execute an Award Agreement setting forth the terms and conditions of such Restricted Shares, including, without limitation, the Purchase Price, if any, the Restriction Period, and conditions of forfeiture, whether based on performance standards, period of service or otherwise.

7.2 ***Payment for Restricted Shares*.** Upon Participant's acceptance of an applicable Award Agreement for Restricted Shares, Participant shall pay to the Company the Purchase Price, if any, for the Restricted Shares. Such Purchase Price may be paid in any manner permitted under Section 9 herein and set forth in the applicable Award Agreement. The Purchase Price, if any, shall be determined by the Plan Administrator, in its sole and absolute discretion, and set forth in the applicable Award Agreement.

7.3 ***Terms of Restricted Shares*.**

(a) *Forfeiture of Restricted Shares*. Subject to subsection 7.3(b) herein, and except as otherwise provided in the applicable Award Agreement, all Restricted Shares shall be forfeited and returned to the Company and all rights of Participant with respect to such Restricted Shares shall terminate unless Participant satisfies the requirements of the Award Agreement, which may include requirements for continuation of service, performance, and such other terms and conditions as the Plan Administrator shall, in its sole and absolute discretion, determine applicable with respect to the Restricted Shares.

(b) *Waiver of Forfeiture Period*. Notwithstanding anything contained in this Section 7 to the contrary, the Plan Administrator may, in its sole and absolute discretion, waive the Restriction Period and any other conditions set forth in the applicable Award Agreement under appropriate circumstances (which may include the death or Disability of Participant, or a material change in circumstances arising after the Award Date) and impose such terms and conditions (including forfeiture of a proportionate number of the Restricted Shares) as the Plan Administrator shall deem appropriate.

7.4 ***Tax Elections.*** Each Participant who has been granted an Award of Restricted Shares shall have the opportunity to file with the Internal Revenue Service an election under Section 83(b) of the Code (an "83(b) Election") to recognize taxable income for the taxable year in which the Award was granted equal to the Fair Market Value of such Restricted Shares on the Award Date (less the Purchase Price, if any). A Participant who makes an 83(b) Election with respect to Restricted Shares shall be treated as the owner of such Shares for federal income tax purposes and, on or before January 31 of each calendar year, shall receive a Form 1099 showing the amount of dividends or distributions paid during such year with respect to such Restricted Shares, if any. A Participant who does not make an 83(b) Election with respect to Restricted Shares shall not be treated as the owner of such Shares for federal income tax purposes until the expiration of the Restriction Period and, on or before January 31 of each calendar year during the Restriction Period, shall, if an Employee, receive a Form W-2 or, if a non- Employee, receive a Form 1099, as the case may be, showing the amount of dividends or distributions paid during such year with respect to such Restricted Shares and applicable withholding amounts, if any. Notwithstanding the foregoing, a Participant's making or failure to make an 83(b) Election shall not affect the Participant becoming a shareholder of record, for state law purposes, pursuant to subsection 4.5.

SECTION 8. SHAREHOLDER RIGHTS

8.1 ***Rights Upon Grant of Award***. No Person shall have any rights as a stockholder of the Company with respect to any Shares of Common Stock subject to an Award unless and until such Person becomes the holder of record of such Shares pursuant to subsection 4.5 hereof, and except as otherwise permitted by subsection 11.1, no adjustment will be made for dividends or other distributions in respect of such Shares for which the record date is prior to the date on which such Person has become the holder of record. For these purposes, a Participant who receives a grant of Restricted Shares shall become a holder of record as of the Award Date or, if later, the date on which the applicable Purchase Price is paid and shall thereafter be entitled to the voting and dividend or distribution rights appurtenant to such Shares.

8.2 ***Rights Following Termination of Continuous Service***. Following termination of a Participant's Continuous Services for any reason, the Shares of Common Stock obtained by the Participant in connection with the grant, exercise or vesting of an Award issued pursuant to this Incentive Plan, whether held by Participant or Participant's legal representative, estate or heirs, shall be subject to repurchase by the Company in accordance with the terms of any applicable stockholders' agreement and such other conditions as set forth in the applicable Award Agreement.

SECTION 9. PAYMENT UNDER AWARDS

9.1 ***Consideration for Shares.*** Except as otherwise provided in this Incentive Plan, consideration for Shares purchased under Awards may be submitted only in such amounts and at such intervals of time as specified in the applicable Award Agreement:

(a) by payment to the Company of the amount of such consideration by cash, wire transfer, certified check or bank draft;

(b) by execution of a promissory note, to be submitted with a stock power, endorsed in blank relating to the Shares held as collateral for such note;

(c) by "cashless exercise," pursuant to which the Company withholds from the Shares that would otherwise be issued upon exercise of an Award that number of Shares with a Fair Market Value equal to the Exercise Price for the Award with respect to which such election was made;

(d) through the delivery of unrestricted Shares having a Fair Market Value equal to the Exercise Price and owned by Participant for more than six (6) months (or such shorter or longer period of time as is necessary to avoid a charge to earnings on the Company's financial statements);

(e) any combination of one or more methods described herein; or

(f) any other consideration deemed acceptable by the Plan Administrator, in its sole and absolute discretion.

Notwithstanding any provision herein to the contrary, a Participant shall not be permitted to exercise an Incentive Stock Option pursuant to paragraphs (c) - (f) above unless the Award Agreement specifically permits such method of exercise on the Award Date.

9.2 ***Withholding Requirements.*** The amount, as determined by the Plan Administrator, of any federal, state or local tax required to be withheld by the Company due to the grant, exercise, or vesting of an Award must be submitted in such amounts and at such time as specified in the applicable Award Agreement.

(a) by payment to the Company of the amount of such withholding obligation by cash, wire transfer, certified check or bank draft;

(b) through either the retention by the Company of a number of Shares out of the Shares being acquired through the Award or the delivery of unrestricted Shares owned by Participant for more than six (6) months (or such shorter or longer period as is necessary to avoid a charge to earnings on the Company's financial statements) and having a Fair Market Value equal to the minimum withholding obligation; or

(c) pursuant to a written agreement between the Participant and the Company authorizing the Company to withhold from such Participant's regular wages the amount of such withholding obligation.

If Participant elects to use and the Plan Administrator permits either method described in subsection 9.2(b) herein in full or partial satisfaction of any withholding tax liability resulting from the grant, exercise or vesting of an Award hereunder, the Company shall remit a cash payment or an amount equal to the Fair Market Value of the Shares so withheld or delivered, as the case may be, to the appropriate taxing authorities.

SECTION 10. COMPLIANCE WITH SECURITIES AND OTHER LAWS

10.1 Securities Laws. Notwithstanding any other provision of this Incentive Plan, the Company shall not be obligated to sell or issue any Shares pursuant to any Award granted under this Incentive Plan unless (a) the Shares have been registered under applicable federal securities law, or the issuance of such Shares is exempt from registration, (b) the prior approval of such sale or issuance has been obtained from any state regulatory body having jurisdiction to the extent necessary to comply with applicable state securities laws, and (c) if the Shares have been listed on any exchange, the Shares have been duly listed on such exchange in accordance with the procedures specified thereunder. As a condition to the issuance or transfer of any Award or any security issuable in connection with such Award, the Company may require an opinion of counsel, satisfactory to the Company, to the effect that such issuance and/or transfer will not be in violation of the Securities Act or any other applicable securities laws and may place such legends on any agreement, instrument or certificate evidencing such Award or Shares, issue stop transfer orders with respect thereto and require such agreements or undertakings as the Company may deem necessary or advisable to assure compliance with applicable laws or regulations. The Company shall not be liable for damages due to delay in the issuance, delivery or transfer of any Award or any security issuable in connection with such Award or any agreement, instrument or certificate evidencing such Award or Shares for any reason whatsoever. The Company is under no obligation to take any action or incur any expense to register or qualify the issuance, delivery or transfer of any Award or any Share issuable in connection with such Award under applicable securities laws or to perfect any exemption from such registration or qualification or to list any Shares on any securities exchange or automated quotation system. Furthermore, the Company will have no liability to any Person for refusing to issue, deliver or transfer any Award or any Share issuable in connection with such Award if such refusal is based upon the foregoing provisions of this subsection 10.1.

10.2 ***Investment Assurances.*** The Company may require a Participant, as a condition of exercising or acquiring Common Stock under any Award, (i) to give written assurances satisfactory to the Company as to Participant's knowledge and experience in financial and business matters and/or to employ a purchaser representative reasonably satisfactory to the Company who is knowledgeable and experienced in financial and business matters and that he is capable of evaluating, alone or together with the purchaser representative, the merits and risks of exercising the Award; and (ii) to give written assurances satisfactory to the Company stating that Participant is acquiring Common Stock subject to the Award for Participant's own account and not with any present intention of selling or otherwise distributing the Common Stock. The foregoing requirements, and any assurances given pursuant to such requirements, shall be inoperative if (1) the issuance of the Shares upon the exercise or grant of an Award has been registered under a then currently effective registration statement under then applicable securities laws or (2) as to any particular requirement, a determination is made by counsel for the Company that such requirement need not be met in the circumstances under the then applicable securities laws.

10.3 ***Prohibition on Deferred Compensation.*** Notwithstanding any provision herein to the contrary, the Company intends that no Award granted hereunder will constitute a deferral of compensation under a "nonqualified deferred compensation plan", as such term is defined under Section 409A(d)(1) of the Code (or a successor provision thereto), either in form or operation. If any provision of this Incentive Plan or any Award is ambiguous, such provision shall be construed in a manner necessary to achieve the intent of the foregoing provision.

SECTION 11. ADJUSTMENTS UPON CHANGES IN SHARES

11.1 ***Capitalization Adjustments***. If any change is made in the Common Stock subject to the Incentive Plan, or subject to any Award, without the receipt of consideration by the Company (through merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, stock split, liquidating dividend, combination of Shares, exchange of Shares, change in corporate structure or other transaction not involving the receipt of consideration by the Company), the Incentive Plan will be appropriately adjusted in the class(es) and maximum number of Shares available for issuance under the Incentive Plan pursuant to subsection 4.1 and the outstanding Awards will be appropriately adjusted in the class(es) and number of securities and price per Share of Common Stock subject to such outstanding Awards. The Plan Administrator shall make such adjustments, and its determination shall be final, binding and conclusive. (The conversion of any convertible securities of the Company shall not be treated as a transaction "without receipt of consideration" by the Company).

11.2 ***Change of Control***. In the event of a Change of Control, unless the Plan Administrator determines otherwise, then with respect to Awards held by Participants whose Continuous Service has not terminated:

(a) Notice and Acceleration. (i) the Company shall provide each Participant written notice of such Change of Control, (ii) all outstanding Stock Options of such Participant shall automatically accelerate and become fully exercisable, and (iii) the restrictions and conditions on all outstanding Restricted Stock held by such Participant shall immediately lapse.

(b) Assumption of Grants. Upon a Change of Control where the Company is not the surviving corporation (or survives only as a subsidiary of another corporation), unless the Plan Administrator determines otherwise, all outstanding Stock Options that are not exercised shall be assumed by, or replaced with comparable options or rights, by the surviving corporation.

(c) Other Alternatives. Notwithstanding the foregoing, in the event of a Change of Control, the Plan Administrator may take one or both of the following actions: the Plan Administrator may (i) require that Participants surrender their outstanding Stock Options in exchange for a payment by the Company, in cash or Common Stock as determined by the Plan Administrator, in an amount equal to the amount by which the then Fair Market Value of the shares of Common Stock subject to the Participant's unexercised Stock Options exceeds the Exercise Price of the Stock Options, or (ii) after giving Participants an opportunity to exercise their outstanding Stock Options, terminate any or all unexercised Stock Options at such time as the Plan Administrator deems appropriate. Such surrender or termination shall take place as of the date of the Change of Control or such other date as the Plan Administrator may specify.

SECTION 12. AMENDMENT AND TERMINATION

12.1 ***Amendment of Incentive Plan***. Notwithstanding anything contained in this Incentive Plan to the contrary, all provisions of this Incentive Plan may at any time, or from time to time, be modified or amended by the Board; provided, however, that no amendment or modification shall be made to the Incentive Plan that would (i) impair the rights of any Participant with respect to an outstanding Award issued to such Participant, unless a majority of the Participants impaired by the amendment or modification consent to such change in writing or (ii) increase the number of Shares subject to issuance upon the exercise of Incentive Stock Options (other than in accordance with an adjustment pursuant to subsection 11.1 hereof), change the class of Employees eligible to receive Incentive Stock Options pursuant to this Incentive Plan, or change the identity of the granting company or the Shares issued upon exercise of Incentive Stock Options, unless such amendment is approved by the stockholders of the Company within twelve (12) months before or after such amendment. In addition, the Plan Administrator shall be authorized to the same extent as the Board to correct any defect, omission or inconsistency in the Incentive Plan in a manner and to the extent it shall deem necessary or expedient to make the Incentive Plan fully effective.

12.2 ***Amendment of Award***. The Plan Administrator may amend, modify or terminate any outstanding Award at any time prior to payment or exercise in any manner not inconsistent with the terms of this Incentive Plan; provided, however, that a Participant's rights under the Award shall not be impaired by such amendment unless (i) the Plan Administrator requests the consent of such Participant and (ii) the Participant consents in writing.

12.3 ***Termination of Incentive Plan***. The Board may suspend or terminate this Plan at any time, and such suspension or termination may be retroactive or prospective; provided that the termination of this Plan shall not impair or affect any Award previously granted hereunder and the rights of the holder thereof shall remain in effect until the Award has been exercised in its entirety or has expired or otherwise has been terminated by the terms of such Award. Absent any action by the Board to terminate or suspend the Incentive Plan, the Incentive Plan shall automatically terminate on the Expiration Date.

SECTION 13. GENERAL PROVISIONS

13.1 ***General Assets***. The proceeds to be received by the Company upon exercise of any Award or purchase of Shares pursuant to any Award will constitute general assets of the Company and may be used for any proper purposes.

13.2 ***No Assignment or Alienation***. Any attempted assignment, transfer, pledge, hypothecation or other disposition of an Award or the Shares issued in connection with an Award contrary to the provisions of this Incentive Plan or the applicable Award

Agreement, or the levy of any execution, attachment or similar process upon an Award or Shares issued in connection with an Award shall be null and void and without effect.

13.3 ***No Limit on Other Compensation Arrangements.*** Nothing contained in this Incentive Plan shall prevent the Company from adopting or continuing in effect other compensation arrangements, and such arrangements may be either generally applicable or applicable only in specific cases.

13.4 ***Tax Withholding.*** The Plan Administrator shall notify each Participant of any tax withholding obligations arising as a result of the grant, exercise or vesting of an Award. As a condition to a Participant's exercise of an Award, and the issuance of Shares, Participant must satisfy the applicable withholding obligation as may be required by law in a manner permitted under Section 9.2 hereof.

13.5 ***No Right to Employment or Continuation of Relationship.*** Nothing in this Incentive Plan or in any Award Agreement, nor the grant of any Award, shall confer upon or be construed as giving any Participant any right to remain in the employ of the Company or an Affiliate or to continue as a Consultant or non-Employee Director. Further, the Company or an Affiliate may at any time dismiss a Participant from employment or terminate the relationship of any Consultant or non-Employee Director with the Company or any Affiliate, free from any liability or any claim pursuant to this Incentive Plan, unless otherwise expressly provided in this Incentive Plan or in any Award Agreement. No Consultant, Director or Employee of the Company or any Affiliate shall have any claim to be granted an Award, and there is no obligation for uniformity of treatment of any Consultant, Director or Employee of the Company or any Affiliate, or of any Participants.

13.6 ***Indemnification of Plan Administrator.*** The Company shall indemnify each present and future member of the Committee or the Board acting in its capacity as Plan Administrator, as well as any officer or Employee acting at the direction of the Plan Administrator or its authorized delegate, for all expenses (including the amount of judgments and the amount of approved settlements made with a view to the curtailment of costs of litigation, other than amounts paid to the Company itself) reasonably incurred by him in connection with or arising out of any action, suit, or proceeding in which he may be involved by reason of his performance or non-performance of services in connection with the administration of this Incentive Plan, whether or not he continues in such position at the time of incurring such expenses; provided, however, that such indemnity shall not include any expenses incurred by such individual (a) in respect of matters as to which he shall be finally adjudged in any such action, suit, or proceeding to have been guilty of gross negligence or willful misconduct in the performance of his duties hereunder or (b) in respect of any matter in which any settlement is effected in an amount in excess of the amount approved by the Company on the advice of its legal counsel. The foregoing right of indemnification shall inure to the benefit of the heirs, executors, or administrators of the estate of each such member of the Committee or the Board, as well as any Employee acting at the direction of the Plan Administrator or its authorized delegate, and shall be in addition to all other rights to which such member, officer or Employee shall be entitled as a matter of law, contract, or otherwise.

13.7 ***No Limitation Upon the Rights of the Company.*** The grant of an Award pursuant to this Incentive Plan shall not affect in any way the right or power of the Company to make adjustments, reclassifications, or changes of its capital or business structure; to merge, convert or consolidate; to dissolve or liquidate; or sell or transfer all or any part of its business or assets.

13.8 ***No Fractional Shares.*** No fractional Shares shall be issued or delivered pursuant to this Incentive Plan. If an Award vests or becomes exercisable with respect to a fractional Share, such installment will instead be rounded to the next highest whole number of Shares, except for the final installment, which will be for the balance of the total Shares subject to the Award. If the final installment results in a fractional Share, the Plan Administrator shall determine, in its sole discretion, whether cash, other securities or other property shall be paid or transferred in lieu of any such fractional Shares or whether such fractional Shares or any rights thereto shall be cancelled, terminated or otherwise eliminated.

13.9 ***GOVERNING LAW.*** TO THE EXTENT NOT OTHERWISE PREEMPTED BY FEDERAL LAW, THE VALIDITY, CONSTRUCTION AND EFFECT OF THIS PLAN AND ANY RULES AND REGULATIONS RELATING TO THIS PLAN SHALL BE DETERMINED IN ACCORDANCE WITH THE LAWS OF THE STATE OF DELAWARE, WITHOUT GIVING EFFECT TO THE CONFLICT OF LAWS PRINCIPLES THEREOF.

13.10 ***Qualification of Incentive Plan.*** This Incentive Plan is not intended to be, and shall not be, qualified under Section 401(a) of the Code.

13.11 ***Severability.*** If any provision of this Incentive Plan or any Award is, or becomes, or is deemed to be, invalid, illegal or unenforceable in any jurisdiction or as to any individual or Award, or would cause this Incentive Plan or any Award to fail to comply under any law deemed applicable by the Plan Administrator, such provision shall be construed or deemed amended to conform to applicable law, or if it cannot be construed or deemed amended without, in the sole determination of the Plan Administrator, materially altering the intent of this Incentive Plan or the Award, such provision shall be stricken as to such jurisdiction, individual or Award and the remainder of this Incentive Plan and any such Award shall remain in full force and effect.

13.12 ***Headings.*** Headings are given throughout this Incentive Plan solely as a convenience to facilitate reference. Such headings shall not be deemed in any way material or relevant to the construction or interpretation of this Incentive Plan or any provision thereof.

13.13 ***Gender and Number.*** In construing the Incentive Plan, any masculine terminology herein shall also include the feminine, and the definition of any term herein in the singular shall also include the plural, except when otherwise indicated by the context.

13.14 ***Effective Date.*** Except as otherwise expressly provided to the contrary, this Incentive Plan shall be effective as of the 1st day of June, 2015.

THIS CONCLUDES THE 2015 STOCK INCENTIVE PLAN

ACTUATE THERAPEUTICS, INC.
2015 STOCK INCENTIVE PLAN

Stock Option Award Agreement

Unless otherwise defined herein, the terms defined in the Actuate Therapeutics, Inc. 2015 Stock Incentive Plan, as amended (the "Plan"), shall have the same defined meanings in this Stock Option Agreement (this "Agreement").

A. NOTICE OF STOCK OPTION GRANT

Optionee:

The Optionee has been granted a Stock Option to purchase Common Stock of the Company, subject to the terms and conditions of the Plan and this Agreement, as follows:

Award Date	[DATE], 202__
Vesting Commencement Date	[DATE]
Exercise Price per Share	$1.19
Total Number of Shares	
Type of Stock Option	Non-Qualified Stock Option
Award Term Expiration Date	[DATE], 203__

B. TERMS OF OPTION

1. Vesting. Subject to accelerated vesting as set forth below or in the Plan, this Option will be exercisable, in whole or in part, in accordance with the following vesting schedule:

25% of the Shares subject to this Stock Option shall vest 12 months following the Award Date, subject to Optionee remaining in Continuous Service with the Company, and no Shares shall vest before such date. The remaining Shares subject to this Stock Option shall vest monthly over the next 36 months in equal monthly amounts, subject to Optionee remaining in Continuous Service with the Company.

2. Exercise of Option.

(a) Right to Exercise. This Stock Option shall be exercisable during its term in accordance with the applicable provisions of the Plan and this Agreement.

(b) Method of Exercise. This Stock Option shall be exercisable by delivery of an Exercise Agreement, in the form provided by the Company, which shall state (i) the Optionee's election to exercise the Stock Option; (ii) the number of Shares with respect to which the Stock Option is being exercised; and (iii) such other representations and agreements as may be required by the Company. The Exercise Agreement shall be accompanied by payment of the aggregate Exercise Price as to all exercised Shares. This Stock Option shall be deemed to be exercised upon receipt by the Company of such fully executed Exercise Agreement accompanied by the aggregate Exercise Price.

(c) Method of Payment. Payment of the aggregate Exercise Price shall be by any of the following, or a combination thereof, at the election of the Optionee, subject to approval by the Company:

(i) cash, wire transfer, certified check, or bank draft;

(ii) execution of a promissory note, to be submitted with a stock power, endorsed in blank relating to the Shares held as collateral for such note;

(iii) consideration received by the Company under a formal cashless exercise program adopted by the Company in connection with the Plan;

(iv) surrender of other Shares that, (A) in the case of Shares acquired from the Company, either directly or indirectly, have been owned by the Optionee, and not subject to a substantial risk of forfeiture, for more than six (6) months on the date of surrender, and (B) have a Fair Market Value on the date of surrender equal to the aggregate Exercise Price of the exercised Shares; or

(v) delivery of such other lawful consideration as the Company may permit in its sole discretion.

(d) Issuance of Shares.

(i) No Shares shall be issued pursuant to the exercise of a Stock Option unless (i) such issuance and such exercise comply with applicable laws; and (ii) to the extent requested by the Company, the Optionee enters into, executes, and delivers any and all buy-sell, purchase option, shareholder, and other agreements regarding the disposition of the Shares held by the Optionee and the purchase of such Shares by the Company, as the Company shall determine to be necessary or appropriate in its sole discretion. Assuming compliance with the forgoing, for income tax purposes the Shares shall be considered transferred to the Optionee on the date on which the Option is exercised with respect to such Shares.

(ii) Each exercise of this Stock Option shall, at the election of the Company, be contingent upon receipt by the Company from the holder of this Stock Option of such written representations concerning his or her intentions with regard to retention or disposition of the Shares being acquired by exercise of this Stock Option and/or such written covenants and agreements as to the manner of disposal of such Shares as, in the opinion of the Company, may be necessary to ensure that any disposition by such holder will not involve a violation of the Securities Act or any similar or superseding statute or statutes, or any other applicable statute or regulation, as then in effect. This Stock Option shall be subject to the requirement that if at any time the Company shall determine, in its discretion, that the

listing, registration or qualification of the Shares subject to this Stock Option upon any securities exchange or under any state or federal law, or the consent or approval of any governmental regulatory body, is necessary or desirable as a condition of the issuance or delivery of Shares hereunder, this Stock Option may not be exercised unless such listing, registration, qualification, consent or approval shall have been effected or obtained free of any conditions not acceptable to the Company.

(e) Repurchase Option. The Optionee acknowledges and agrees that, as a condition to the receipt of Shares upon the exercise of this Stock Option, any Shares issued upon the exercise of the Stock Option shall remain subject to the repurchase option under Section 8.2 of the Plan.

(f) Exercise Period. In no event may the Optionee exercise this Stock Option after the Award Term Expiration Date set forth in Section A. Notwithstanding anything to the contrary in the Plan, and subject to the vesting restrictions set forth in Section B.1 of this Agreement, this Stock Option shall be exercisable for ten (10) years following the Award Date. Notwithstanding the last sentence, upon the termination of the Optionee's Continuous Service, the Stock Option, to the extent then vested, must be exercised within the period set forth under Section 6.5 of the Plan. In the event the Stock Option is a Non-Qualified Stock Option, the Plan Administrator may extend the otherwise applicable exercise period to a date that is not later than the Award Term Expiration Date to the extent such extension is permitted by applicable law and does not result in the Stock Option being treated as a new Award under the Plan. Any portion of this Stock Option that remains unexercised at the end of the applicable exercise period shall be forfeited.

(g) Right of First Refusal. The Optionee agrees that, as a condition to the receipt of Shares upon the exercise of this Stock Option, he or she shall be deemed a party to the Company's Amended and Restated Right of First Refusal and Co-Sale Agreement, the terms of which shall be incorporated herein by reference, and the Optionee shall be bound by, and subject to, all the obligations under such agreement that are applicable to a "Key Holder" (as defined therein).

C. AGREEMENT

1. Grant of Stock Option. Pursuant to the Plan, the Company hereby grants to the Participant named in the Notice of Stock Option Grant (the "Optionee"), a Stock Option to purchase, from the Company, for the Exercise Price set forth above, Shares of the Company. This Stock Option is subject to the terms and conditions of the Plan, which are incorporated herein by reference. In the event of a conflict between the terms and conditions of the Plan and this Agreement, the terms and conditions of the Plan shall prevail.

2. Type of Stock Option. If designated in Part I as an Incentive Stock Option, this Stock Option is intended to qualify as an Incentive Stock Option as defined in Code Section 422. Nevertheless, to the extent that it exceeds the $100,000 rule of Code Section 422(d), this Option shall be treated as a Non-Qualified Stock Option.

3. Restrictions on Exercise. This Stock Option may not be exercised if the issuance of such Shares upon such exercise or the method of payment of consideration for such Shares would constitute a violation of any applicable law.

4. Rights as Shareholder. Neither the Optionee nor his or her guardian or legal representatives shall be a stockholder of the Company or have any of the rights or privileges of a stockholder of the Company in respect of any of the Shares deliverable upon the exercise of this Stock Option unless and until certificates representing such Shares shall have been issued and delivered to the Optionee or his or her guardian or legal representative.

5. Non-Transferability of Stock Option. This Option may not be transferred in any manner otherwise than by will or by the laws of descent or distribution and may be exercised during the lifetime of the Optionee only by the Optionee. The terms of the Plan and this Agreement shall be binding upon the executors, administrators, heirs, successors, and assigns of the Optionee.

6. Term of Stock Option. This Option may be exercised only within the term set out in the Notice of Stock Option Grant and may be exercised during such term only in accordance with the Plan and the terms of this Agreement.

7. Tax Obligations. The Optionee agrees to make appropriate arrangements with the Company (or the Affiliate employing or retaining the Optionee) for the satisfaction of all federal, state, local, and foreign income and employment tax withholding

requirements applicable to the Stock Option exercise. The Optionee acknowledges and agrees that the Company may refuse to honor the exercise and refuse to deliver Shares if such withholding amounts are not delivered at the time of exercise.

8. Entire Agreement; Governing Law. The Plan is incorporated herein by reference. The Plan and this Agreement constitute the entire agreement of the parties with respect to the subject matter hereof and supersede in their entirety all prior undertakings and agreements of the Company and the Optionee with respect to the subject matter hereof, and, except as provided under the Plan, may not be modified adversely to the Optionee's interest except by means of a writing signed by the Company and the Optionee. This Agreement is governed by the internal substantive laws but not the choice of law rules of Delaware.

9. No Guarantee of Continued Service. THE OPTIONEE ACKNOWLEDGES AND AGREES THAT THIS AGREEMENT AND THE TRANSACTIONS CONTEMPLATED HEREUNDER DO NOT CONSTITUTE AN EXPRESS OR IMPLIED PROMISE OF CONTINUED ENGAGEMENT AS AN EMPLOYEE OR SERVICE PROVIDER FOR ANY PERIOD, OR AT ALL, AND SHALL NOT INTERFERE IN ANY WAY WITH THE OPTIONEE'S RIGHT OR THE COMPANY'S RIGHT TO TERMINATE THE OPTIONEE'S RELATIONSHIP AS AN EMPLOYEE OR SERVICE PROVIDER AT ANY TIME, WITH OR WITHOUT CAUSE.

The Optionee acknowledges receipt of a copy of the Plan and represents that he or she is familiar with the terms and provisions thereof, and hereby accepts this Agreement subject to all of the terms and provisions thereof. The Optionee has reviewed the Plan and this Agreement in their entirety, has had an opportunity to obtain the advice of counsel prior to executing this Agreement, and fully understands all provisions of the Plan and this Agreement. The Optionee hereby agrees to accept, as binding, conclusive, and final, all decisions or interpretations of the Company upon any questions arising under the Plan or this Agreement. The Optionee further agrees to notify the Company upon any change in the residence address indicated herein.

IN WITNESS WHEREOF, the Company has caused this Agreement to be duly executed by an officer thereunto duly authorized, and the Optionee has executed this Agreement, all as of the Date of Grant.

ACTUATE THERAPEUTICS, INC.

By: _____
Name: Daniel Schmitt
Title: Chief Executive Officer

OPTIONEE

By: _____
Name:

ACTUATE THERAPEUTICS, INC.
2015 STOCK INCENTIVE PLAN

Stock Option Award Agreement

Unless otherwise defined herein, the terms defined in the Actuate Therapeutics, Inc. 2015 Stock Incentive Plan, as amended (the "Plan"), shall have the same defined meanings in this Stock Option Agreement (this "Agreement").

A. NOTICE OF STOCK OPTION GRANT

Optionee:

The Optionee has been granted a Stock Option to purchase Common Stock of the Company, subject to the terms and conditions of the Plan and this Agreement, as follows:

Award Date	[DATE], 202__
Exercise Price per Share	$1.19
Total Number of Shares	
Type of Option	Non-Qualified Stock Option
Award Term Expiration Date	[DATE], 203__

B. TERMS OF OPTION

1. Vesting. Subject to accelerated vesting as set forth below or in the Plan, this Option will be exercisable, in whole or in part, in accordance with the following vesting schedule:

50% of the Shares subject to this Stock Option shall vest on the Award Date. The remaining Shares subject to this Stock Option shall vest on the date that is 12 months following the Award Date, subject to Optionee remaining in Continuous Service with the Company.

2. Exercise of Option.

(a) Right to Exercise. This Stock Option shall be exercisable during its term in accordance with the applicable provisions of the Plan and this Agreement.

(b) Method of Exercise. This Option shall be exercisable by delivery of an Exercise Agreement, in the form provided by the Company, which shall state (i) the Optionee's election to exercise the Stock Option; (ii) the number of Shares with respect to which the Stock Option is being exercised; and (iii) such other representations and agreements as may be required by the Company. The Exercise Agreement shall be accompanied by payment of the aggregate Exercise Price as to all exercised Shares. This Stock Option shall be deemed to be exercised upon receipt by the Company of such fully executed Exercise Agreement accompanied by the aggregate Exercise Price.

(c) Method of Payment. Payment of the aggregate Exercise Price shall be by any of the following, or a combination thereof, at the election of the Optionee, subject to approval by the Company:

(i) cash, wire transfer, certified check, or bank draft;

(ii) execution of a promissory note, to be submitted with a stock power, endorsed in blank relating to the Shares held as collateral for such note;

(iii) consideration received by the Company under a formal cashless exercise program adopted by the Company in connection with the Plan;

(iv) surrender of other Shares that, (A) in the case of Shares acquired from the Company, either directly or indirectly, have been owned by the Optionee, and not subject to a substantial risk of forfeiture, for more than six (6) months on the date of surrender, and (B) have a Fair Market Value on the date of surrender equal to the aggregate Exercise Price of the exercised Shares; or

(v) delivery of such other lawful consideration as the Company may permit in its sole discretion.

(d) Issuance of Shares.

(i) No Shares shall be issued pursuant to the exercise of a Stock Option unless (i) such issuance and such exercise comply with applicable laws; and (ii) to the extent requested by the Company, the Optionee enters

into, executes, and delivers any and all buy-sell, purchase option, shareholder, and other agreements regarding the disposition of the Shares held by the Optionee and the purchase of such Shares by the Company, as the Company shall determine to be necessary or appropriate in its sole discretion. Assuming compliance with the forgoing, for income tax purposes the Shares shall be considered transferred to the Optionee on the date on which the Option is exercised with respect to such Shares.

(ii) Each exercise of this Stock Option shall, at the election of the Company, be contingent upon receipt by the Company from the holder of this Stock Option of such written representations concerning his, her or its intentions with regard to retention or disposition of the Shares being acquired by exercise of this Stock Option and/or such written covenants and agreements as to the manner of disposal of such Shares as, in the opinion of the Company, may be necessary to ensure that any disposition by such holder will not involve a violation of the Securities Act of 1933, or any similar or superseding statute or statutes, or any other applicable statute or regulation, as then in effect. This Stock Option shall be subject to the requirement that if at any time the Company shall determine, in its discretion, that the listing, registration or qualification of the Shares subject to this Stock Option upon any securities exchange or under any state or federal law, or the consent or approval of any governmental regulatory body, is necessary or desirable as a condition of the issuance or delivery of Shares hereunder, this Stock Option may not be exercised unless such listing, registration, qualification, consent or approval shall have been effected or obtained free of any conditions not acceptable to the Company.

(e) Repurchase Option. The Optionee acknowledges and agrees that, as a condition to the receipt of Shares upon the exercise of this Stock Option, any Shares issued upon the exercise of the Stock Option shall remain subject to the repurchase option under Section 8.2 of the Plan.

(f) Exercise Period. In no event may the Optionee exercise this Stock Option after the Award Term Expiration Date as set forth in Section A. Notwithstanding anything to the contrary in the Plan, and subject to the vesting restrictions set forth in Section B.1 of this Agreement, this Stock Option shall be exercisable for ten (10) years following the Award Date. Notwithstanding the last sentence, upon the termination of the Optionee's Continuous Service, the Stock Option, to the extent then vested, must be exercised within the period set forth under Section 6.5 of the Plan. In the event the Stock Option is a Non-Qualified Stock Option, the Plan Administrator may extend the otherwise applicable exercise period to a date that is not later than the Award Term Expiration Date to the extent such extension is permitted by applicable law and does not result in the Stock Option being treated as a new Award under the Plan. Any portion of this Stock Option that remains unexercised at the end of the applicable exercise period shall be forfeited.

C. AGREEMENT

1. Grant of Stock Option. Pursuant to the Plan, the Company hereby grants to the Participant named in the Notice of Stock Option Grant (the "Optionee"), a Stock Option to purchase, from the Company, for the Exercise Price set forth above, Shares of the Company. This Stock Option is subject to the terms and conditions of the Plan, which are incorporated herein by reference. In the event of a conflict between the terms and conditions of the Plan and this Agreement, the terms and conditions of the Plan shall prevail.

2. Type of Stock Option. If designated in Part I as an Incentive Stock Option, this Stock Option is intended to qualify as an Incentive Stock Option as defined in Code Section 422. Nevertheless, to the extent that it exceeds the $100,000 rule of Code Section 422(d), this Option shall be treated as a Non-Qualified Stock Option.

3. Restrictions on Exercise. This Stock Option may not be exercised if the issuance of such Shares upon such exercise or the method of payment of consideration for such Shares would constitute a violation of any applicable law.

4. Rights as Stockholder. Neither the Optionee nor his, her or its guardian or legal representatives shall be a stockholder of the Company or have any of the rights or privileges of a shareholder of the Company in respect of any of the Shares deliverable upon the exercise of this Stock Option unless and until certificates representing such Shares shall have been issued and delivered to the Optionee or his, her or its guardian or legal representative.

5. Non-Transferability of Stock Option. This Stock Option may not be transferred in any manner otherwise than by will or by the laws of descent or distribution and may be exercised during the lifetime of the Optionee only by the Optionee. The terms of the Plan and this Agreement shall be binding upon the executors, administrators, heirs, successors, and assigns of the Optionee.

6. Term of Stock Option. This Stock Option may be exercised only within the term set out in the Notice of Stock Option Grant and may be exercised during such term only in accordance with the Plan and the terms of this Agreement.

7. Tax Obligations. The Optionee agrees to make appropriate arrangements with the Company (or the Affiliate employing or retaining the Optionee) for the satisfaction of all federal, state, local, and foreign income and employment tax withholding requirements applicable to the Stock Option exercise. The Optionee acknowledges and agrees that the Company may refuse to honor the exercise and refuse to deliver Shares if such withholding amounts are not delivered at the time of exercise.

8. Entire Agreement; Governing Law. The Plan is incorporated herein by reference. The Plan and this Agreement constitute the entire agreement of the parties with respect to the subject matter hereof and supersede in their entirety all prior undertakings and agreements of the Company and the Optionee with respect to the subject matter hereof, and, except as provided under the Plan, may not be modified adversely to the Optionee's interest except by means of a writing signed by the Company and the Optionee. This Agreement is governed by the internal substantive laws but not the choice of law rules of Delaware.

9. No Guarantee of Continued Service. THE OPTIONEE ACKNOWLEDGES AND AGREES THAT THIS AGREEMENT AND THE TRANSACTIONS CONTEMPLATED HEREUNDER DO NOT CONSTITUTE AN EXPRESS OR IMPLIED PROMISE OF CONTINUED ENGAGEMENT AS AN EMPLOYEE, SERVICE PROVIDER OR DIRECTOR FOR ANY PERIOD, OR AT ALL, AND SHALL NOT INTERFERE IN ANY WAY WITH THE OPTIONEE'S RIGHT OR THE COMPANY'S RIGHT TO TERMINATE THE OPTIONEE'S RELATIONSHIP AS AN EMPLOYEE, SERVICE PROVIDER OR DIRECTOR AT ANY TIME, WITH OR WITHOUT CAUSE.

The Optionee acknowledges receipt of a copy of the Plan and represents that he, she or it is familiar with the terms and provisions thereof, and hereby accepts this Agreement subject to all of the terms and provisions thereof. The Optionee has reviewed the Plan and this Agreement in their entirety, has had an opportunity to obtain the advice of counsel prior to executing this Agreement, and fully understands all provisions of the Plan and this Agreement. The Optionee hereby agrees to accept, as binding, conclusive, and final, all decisions or interpretations of the Company upon any questions arising under the Plan or this Agreement. The Optionee further agrees to notify the Company upon any change in the residence address indicated herein.

IN WITNESS WHEREOF, the Company has caused this Agreement to be duly executed by an officer thereunto duly authorized, and the Optionee has executed this Agreement, all as of the Date of Grant.

ACTUATE THERAPEUTICS, INC.

By: _____
Name: Daniel Schmitt
Title: Chief Executive Officer

OPTIONEE

By: _____
Name:

RESTRICTED SHARE AWARD AGREEMENT

RECITALS

A. The Company has adopted the Actuate Therapeutics, Inc. 2015 Stock Incentive Plan (the "Plan") for the purpose of retaining the services of selected Employees, Directors, and Consultants.

B. Pursuant to Section 3.2 of the Plan, the Board of Directors (the "Board'), in its capacity as Plan Administrator of the Plan, is authorized, in its sole and absolute discretion, to issue awards to Employees, Consultants and Directors who provide services to or on behalf of the Company (or an Affiliate).

C. Participant is to render valuable services to the Company, and this Restricted Share Award Agreement (this "Agreement") is executed pursuant to, and is intended to carry out the purposes of, the Plan.

D. All capitalized terms in this Agreement shall have the meaning assigned to them in the Plan.

NOW, THEREFORE, it is hereby agreed as follows:

1. Award of Restricted Shares

The Company hereby grants to Participant an Award of Shares of Common Stock of the Company (the "Restricted Shares"), which shall be subject to restrictions and conditions set forth in the Plan, this Agreement and the terms of that certain Stock Restriction Agreement, by and between Participant and the Company, dated on or about the date hereof (the "Stock Restriction Agreement"), as described in more detail below.

Participant: _____

Award Date: _____, 20__

Number of Restricted Shares under Award: _____ Shares

Restrictions on Shares. In addition to the restrictions provided in the Plan, this Agreement and/or the Stock Restriction Agreement, the restrictions on Participant's unvested Restricted Shares are that the Shares shall be subject to forfeiture by Participant if Participant ceases to provide services to the Company, whether as an Employee, Consultant or Director.

Vesting: The Restricted Shares shall vest in accordance with the restrictions described above. The Restricted Shares shall vest, and the restrictions on such vested Shares shall lapse, in accordance with the following schedule:

Vesting Percentage	Vesting Date
50%	Award Date
50%	First Anniversary of the Award Date

For the purposes of this Agreement, the following terms shall apply:

"Excluded Issuances" shall mean the issuance by the Company of the following: (a) securities issued in connection with any stock split of or stock dividend on the Company's equity securities; (b) securities issued to the Company's employees, officers, directors, consultants, advisors, or service providers pursuant to any plan, agreement or similar arrangement; (c) securities issued

to banks or equipment lessors; (d) securities issued in connection with sponsored research, collaboration, technology license, development, OEM, marketing or other similar arrangements or strategic partnerships; (e) securities issued in a firm commitment underwritten public offering pursuant to an effective registration statement under the Securities Act; (f) securities issued in connection with a bona fide business acquisition of or by the Company (whether by merger, consolidation, sale of assets, sale or exchange of stock or otherwise); (g) securities issued for charitable purposes; or (h) any right, option or warrant to acquire any security convertible into or exercisable for the securities listed in clauses (a) through (h) above.

"Qualified Financing" shall mean the next transaction or series of related transactions occurring after the Award Date pursuant to which the Company issues and sells shares of its common or preferred equity securities in exchange for aggregate gross proceeds of at least $15,000,000, excluding amounts issued upon conversion of indebtedness under any convertible promissory note validly issued and outstanding at the time of the Qualified Financing and other Excluded Issuances.

Notwithstanding the foregoing, all unvested Restricted Shares shall vest, and all restrictions on all unvested Restricted Shares shall lapse, immediately upon a Change in Control, as defined in the Plan.

Certificated Shares Issued. Upon receipt of a duly executed counterpart to the Stock Restriction Agreement, the Company shall issue certificate(s) in the name of Participant for the number of Restricted Shares issued pursuant to this Agreement. Certificates for the unvested Restricted Shares shall be deposited with the Company (or an escrow agent designated by the Company) (the "Escrow Holder"), together with a stock power, in the form attached hereto as Appendix I, endorsed in blank. Upon the lapse of the restrictions, the Escrow Holder shall deliver to Participant (or his personal representative, estate or heirs, as the case may be) certificates for the Shares deposited.

Restrictive Legends. Participant understands and agrees that the Company will place on the Share certificates issued pursuant to this Agreement the following legend, as well as any other legends and disclosures required by the Plan or the Stock Restriction Agreement, or as may be required by state or U.S. Federal securities laws, the Company's Certificate of Incorporation or Bylaws, any other agreement between Participant and the Company or any agreement between Participant and any third party.

THE SECURITIES REPRESENTED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED, OR QUALIFIED OR REGISTERED UNDER STATE SECURITIES OR BLUE SKY LAWS. THESE SECURITIES HAVE BEEN ACQUIRED FOR INVESTMENT AND NOT WITH A VIEW TO DISTRIBUTION, AND NEITHER THESE SECURITIES NOR ANY INTEREST OR PARTICIPATION THEREIN MAY BE SOLD, OFFERED FOR SALE, PLEDGED, HYPOTHECATED OR OTHERWISE TRANSFERRED OR DISPOSED OF EXCEPT IN COMPLIANCE WITH THE SECURITIES ACT OF 1933, AS AMENDED, APPLICABLE STATE SECURITIES OR BLUE SKY LAWS AND THE APPLICABLE RULES AND REGULATIONS THEREUNDER. THE ISSUER OF THESE SECURITIES MAY REQUIRE AN OPINION OF COUNSEL IN FORM AND SUBSTANCE SATISFACTORY TO THE ISSUER TO THE EFFECT THAT ANY PROPOSED TRANSFER OR RESALE IS IN COMPLIANCE WITH THE ACT AND ANY APPLICABLE STATE SECURITIES LAWS.

THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO CERTAIN RESTRICTIONS ON TRANSFER, A RIGHT OF FIRST REFUSAL, CO-SALE OBLIGATIONS, AND DRAG-ALONG RIGHTS, AS SET FORTH IN A STOCK RESTRICTION AGREEMENT BETWEEN THE ISSUER AND THE ORIGINAL HOLDER OF THESE SHARES. A COPY OF THIS DOCUMENT MAY BE OBTAINED AT THE PRINCIPAL OFFICE OF THE ISSUER. SUCH TRANSFER RESTRICTIONS, RIGHT OF FIRST REFUSAL, CO-SALE OBLIGATIONS, AND DRAG-ALONG RIGHTS ARE BINDING ON TRANSFERRES OF THESE SHARES.

Stop-Transfer Instructions. Participant acknowledges that to ensure compliance with the restrictions imposed by the Plan and this Agreement, the Company may issue appropriate "stop- transfer" instructions to its transfer agent, if any, and if the Company transfers its own securities, it may make appropriate notations to the same effect in its own records.

Refusal to Transfer. Participant acknowledges that the Company will not be required (a) to transfer on its books any Shares that have been sold or otherwise transferred in violation of any of the provisions of the Plan, this Agreement or the Stock Restriction Agreement, or (b) to treat as owner of such Shares, or to accord the right to vote or pay dividends to any purchaser or other transferee to whom such Shares have been so transferred.

2. Tax Withholding and Reporting

(a) Withholding Upon Lapse of Restrictions. Except to the extent a proper election under Code Section 83(b) has been made, no later than the date as of which the restrictions in Section 1 hereof lapse with respect to all or any portion of the Restricted Shares awarded under this Agreement, Participant shall pay to the Company any applicable federal, state and local taxes of any kind required by law to be withheld by the Company, if any, with respect to the Shares for which the restrictions have lapsed.

(b) Withholding Upon Section 83(b) Election. If Participant makes a proper election pursuant to Code Section 83(b), in substantially the form attached hereto as Appendix II, Participant shall, no later than the date on which such election is filed, pay to the Company any applicable federal, state and local taxes of any kind required by law to be withheld by the Company, if any, with respect to the Shares for which such election was made. Participant acknowledges that in order to make a proper election under Code Section 83(b), he must file with the appropriate district office of the Internal Revenue Service, within thirty (30) days of the date on which Company transfers the Restricted Shares to Participant in accordance with this Agreement, a written election to include in his gross income for federal income tax purposes an amount equal to the Fair Market Value of the Restricted Shares awarded hereunder less the aggregate Purchase Price paid for such Shares, if any.

(c) Manner of Withholding. Participant may provide for payment of the Company's withholding obligation by any of the following means: (i) cash, wire transfer, certified check or bank draft; or (ii) such other method as may be approved by the Plan Administrator, in its sole and absolute discretion.

(d) Tax Reporting. The Company shall issue to Participant a Form W-2, or its equivalent (or, if applicable, a Form 1099, or its equivalent) reflecting the amount to be reported by Participant as compensation income for the calendar year(s) in which all or any portion of the Restricted Shares vest or, if applicable, the calendar year with respect to which Participant makes a timely Section 83(b) Election with respect to all or a portion of such Restricted Shares.

3. Compliance with Laws and Regulations

Participant acknowledges that the Shares have not been registered with the Securities Exchange Commission under the Securities Act, and that, notwithstanding any other provision of the Agreement to the contrary, the vesting and holding of the Shares is expressly conditioned upon compliance with the Securities Act and all applicable state securities laws. Participant understands that the Company is under no obligation to register or qualify the Shares with the Securities and Exchange Commission, any state securities commission or any Stock Exchange to effect such compliance. Participant agrees to cooperate with the Company to ensure compliance with such laws.

4. Representations and Warranties of Participant

Participant represents and warrants to the Company that:

(a) Agrees to Terms of the Plan. Participant has received a copy of the Plan and has read and understands the terms of the Plan and this Agreement, and agrees to be bound by their terms and conditions. Participant acknowledges that there may be adverse tax consequences upon the vesting of Shares or disposition of the Shares once vested, and that Participant should consult a tax advisor prior to such time.

(b) Agrees to Terms of Stock Restriction Agreement. To the extent applicable, Participant has received a copy of the Stock Restriction Agreement, has read and understands the terms of the Stock Restriction Agreement, and agrees to be bound by its terms and conditions. Participant understands that (i) he may not sell, transfer or assign the Shares except in accordance with the provisions of the Stock Restriction Agreement, and (ii) in certain circumstances, Participant is obligated to sell his Shares back to the Company pursuant to the terms of the Stock Restriction Agreement, at the price determined in accordance with the applicable provisions of the Stock Restriction Agreement.

(c) Purchase for Own Account for Investment. Participant is receiving the Shares for Participant's own account for investment purposes only and not with a view to, or for sale in connection with, a distribution of the Shares within the meaning of the Securities Act. Participant has no present intention of selling or otherwise disposing of all or any portion of the Shares and no one other than Participant has any beneficial ownership of any of the Shares.

(d) Access to Information. Participant has had access to all information regarding the Company and its present and prospective business, assets, liabilities and financial condition that Participant reasonably considers important in making the decision to purchase or hold the Shares, and Participant has had ample opportunity to ask questions of the Company's representatives concerning such matters and this investment.

(e) Understanding of Risks. Participant is fully aware of: (i) the highly speculative nature of the investment in the Shares; (ii) the financial hazards involved; (iii) the lack of liquidity of the Shares and the restrictions on transferability of the Shares (e.g.. that Participant may not be able to sell or dispose of the Shares or use them as collateral for loans); (iv) the qualifications and backgrounds of the management of the Company; and (v) the tax consequences of investment in the Shares. Participant is capable of evaluating the merits and risks of this investment, has the ability to protect Participant's own interests in this transaction and is financially capable of bearing a total loss of this investment.

(f) Understanding of Securities Laws Restrictions on Transfer. Participant understands that the Shares have not been registered under the Securities Act, or any state securities act, and are being sold on the basis of exemptions from registration under the Securities Act and applicable state securities acts. Participant understands that there presently is no public market for the Shares and none is anticipated to develop in the foreseeable future. Participant acknowledges and agrees that the Shares will not be transferable under any circumstances unless (i) the Shares have been registered or qualified under the Securities Act and all applicable state securities laws, or (ii) if requested, the Company shall have received an opinion of counsel stating that an exemption from such registration or qualification is available (such opinion and such counsel to be acceptable to the Company); accordingly, Participant hereby acknowledges that there can be no assurance that Participant will be able to liquidate his investment in the Company. Participant understands that the Company is under no obligation to register the Shares under the Securities Act or to comply with any applicable exemption under the Securities Act on behalf of Participant with respect to any resale of the Shares and that Participant will not be able to avail himself of the provisions of Rule 144 promulgated under the Securities Act with respect to the resale of the Shares until the Shares have been beneficially owned by Participant for a period of two (2) years from date of purchase. Participant further understands that any certificates evidencing the Shares will bear legends referring to the foregoing transfer restrictions. Participant further understands that the restrictions on transfer imposed by federal and state securities laws are in addition to the restrictions on transfer set forth in the Stock Restriction Agreement, and that a transfer of Shares must comply with all applicable securities laws as well as all applicable provisions of the Stock Restriction Agreement.

(g) No General Solicitation. At no time was Participant presented with or solicited by any publicly issued or circulated newspaper, mail, radio, television or other form of general advertising or solicitation in connection with the offer, sale and purchase of the shares of Shares.

5. Restrictions on Transfer

Except to the extent otherwise permitted under the Stock Restriction Agreement, Participant may not sell, assign, pledge as security or otherwise transfer or encumber the Shares, whether voluntary or involuntary, and if involuntary, whether by process of law in any civil or criminal suit, action or proceeding, whether in the nature of an insolvency or bankruptcy proceeding or otherwise.

6. No Obligation to Employ

Nothing in the Plan or this Agreement shall confer on Participant any right to continue in the employ of, or other relationship with, the Company, or limit in any way the right of the Company to terminate Participant's employment or other relationship at any time, with or without Cause.

7. Tax Consequences

Set forth below is a brief summary as of the Effective Date of the Plan of some of the federal and state tax consequences of holding Restricted Shares. THIS SUMMARY IS NECESSARILY INCOMPLETE, AND THE TAX LAWS AND REGULATIONS ARE SUBJECT TO CHANGE. PARTICIPANT SHOULD CONSULT A TAX ADVISOR BEFORE ACCEPTING THIS AWARD.

(a) Lapse of Restrictions. Except to the extent a proper election under Code Section 83(b) has been made, the excess of the Fair Market Value of the Shares on the date on which the restrictions lapse over the aggregate Purchase Price paid for the Shares, if any, shall be includible as compensation income (taxable at ordinary income tax rates) in Participant's taxable income for the calendar year in which the restrictions lapse. In the event a proper Section 83(b) election has been made, Participant shall include as compensation income in Participant's taxable income for the calendar year in which the Restricted Shares were transferred to Participant an amount equal to the excess of the Fair Market Value of the Shares on the date on which the Shares were transferred over the aggregate Purchase Price paid for the Shares, if any. If Participant is a current or former Employee of the Company, the Company may be required to withhold from Participant's compensation, or collect from Participant, and pay to the applicable taxing authorities an amount equal to a percentage of this income at the time of payment.

(b) Holding Restricted Shares. There may be a regular federal and state income tax liability resulting from holding Restricted Shares. Except to the extent a proper election under Code Section 83(b) has been made, Participant will be treated as having received income (taxable at ordinary income tax rates) equal to the dividends or other income paid with respect to Restricted Shares granted under this Agreement. In the event a proper Section 83(b) election has been made, or following the lapse of the restrictions described in this Agreement, Participant shall be treated as having received income (taxable at income tax rates applicable to dividends) equal to the dividends or other income paid with respect to Restricted Shares granted under this Agreement. If Participant is a current or former Employee of the Company, the Company may be required to withhold from Participant's compensation, or collect from Participant, and pay to the applicable taxing authorities an amount equal to a percentage of this income at the time of payment.

(c) Disposition of Restricted Shares. If the Restricted Shares are held for more than twelve (12) months following the Award Date, any gain realized on disposition of the Restricted Shares to the Company will be treated as long-term capital gain.

8. Privileges of Stock Ownership

Except as otherwise provided herein, commencing upon the date the Company transfers Restricted Shares to Participant, Participant shall have all the rights of a shareholder of the Company with respect to the Restricted Shares represented by share certificates registered in his name, including the right to vote such Restricted Shares and receive dividends and other distributions paid or made with respect to such Restricted Shares.

9. Interpretation

Any dispute regarding the interpretation of this Agreement shall be submitted by Participant or the Company to the Plan Administrator for review. The resolution of such a dispute by the Plan Administrator shall be final and binding on the Company and Participant.

10. Entire Agreement

The Plan is incorporated herein by reference. This Agreement, the Stock Restriction Agreement, the Plan, and the Advisor Agreement constitute the entire agreement of the parties and supersede all prior undertakings and agreements with respect to the subject matter hereof. If any inconsistency should exist between the nondiscretionary terms and conditions of this Agreement and the Plan, the Plan shall govern and control.

11. Notices

Any notice required to be given or delivered to the Company under the terms of this Agreement shall be in writing and addressed to the Corporate Secretary of the Company at its principal corporate offices. Any notice required to be given or delivered to Participant shall be in writing and addressed to Participant at the address indicated below or to such other address as such party may designate in writing from time to time to the Company. All notices shall be deemed to have been given or delivered upon: (a) personal delivery; (b) five

(5) days after deposit in the United States mail by certified or registered mail (return receipt requested); (c) one (1) business day after deposit with any return receipt express courier (prepaid); or (d) one (1) business day after transmission by facsimile or telecopier.

12. Successors and Assigns

The Company may assign any of its rights or obligations under this Agreement. This Agreement shall be binding upon and inure to the benefit of the successors and assigns of the Company. Subject to the restrictions on transfer set forth herein, this Agreement shall be binding upon Participant's transferees.

13. Governing Law

This Agreement shall be governed by and construed in accordance with the laws of the State of Texas without giving effect to its conflict of law principles. If any provision of this Agreement is determined by a court of law to be illegal or unenforceable, then such provision will be enforced to the maximum extent possible and the other provisions will remain fully effective and enforceable.

[*Signature Page Follows*]

IN WITNESS WHEREOF, the Company has caused this Agreement to be executed in duplicate by its duly authorized representative and Participant has executed this Agreement in duplicate, effective as of the Award Date.

ACTUATE THERAPEUTICS, INC.

By: _____

_____
(Please print name)

_____
(Please print title)

PARTICIPANT

_____
(Signature)

_____
(Please print name)

Address: _____

_____

APPENDIX I

ASSIGNMENT SEPARATE FROM CERTIFICATE

FOR VALUE RECEIVED, I, _____, in my capacity as owner of those certain shares of Common Stock of Actuate Therapeutics, Inc. (the "Company") awarded pursuant to the Restricted Share Award Agreement, dated as of _____, 20__ (the "Award Agreement"), hereby sell, assign and transfer to the Company _____ (_____) Shares standing in my name, on the books of the Company represented by Certificate No. ____, and do hereby irrevocably constitute and appoint _____ as attorney to transfer said stock on the books of the Company with full power of substitution in the premises.

This Assignment Separate from Certificate may only be used in accordance with the Award Agreement.

PARTICIPANT

Dated: _____ _____

APPENDIX II

ELECTION UNDER SECTION 83(b)
OF THE INTERNAL REVENUE CODE

The undersigned Taxpayer hereby elects, pursuant to Section 83(b) of the Internal Revenue Code of 1986, as amended, to include the excess, of which there is none, of the fair market value of the property described below at the time of transfer over the amount paid for such property, as compensation for services in the calculation of the Taxpayer's federal taxable income.

1. TAXPAYER'S NAME: _____

   TAXPAYER'S ADDRESS: _____

   _____

   SOCIAL SECURITY NUMBER: _____

2. The property with respect to which the election is made is described as follows: ___ shares of common stock of Actuate Therapeutics, Inc. (the "Company"), which were purchased in accordance with the terms of a Restricted Share Award Agreement between the Company and the Taxpayer. The Company is the Taxpayer's employer or the corporation for whom the Taxpayer performs services.

3. The date on which the shares of common stock were transferred was _____,_____ and this election is made for calendar year _____.

4. The unvested shares of common stock received are subject to forfeiture upon termination of Taxpayer's employment or performance of services for any reason.

5. The fair market value of the shares of common stock (without regard to restrictions other than restrictions which by their terms will never lapse) was $____ per share at the time of purchase.

6. The amount paid for the shares of common stock was $____ per share.

7. The Taxpayer has submitted a copy of this statement to the Company.

THIS ELECTION MUST BE FILED WITH THE INTERNAL REVENUE SERVICE AT THE OFFICE WHERE THE TAXPAYER FILES ANNUAL INCOME TAX RETURNS, WITHIN 30 DAYS AFTER THE DATE OF TRANSFER OF THE SHARES OF COMMON STOCK, AND MUST ALSO BE FILED WITH THE TAXPAYER'S INCOME TAX RETURN FOR THE CALENDAR YEAR IN WHICH THE SHARES WERE ISSUED. THE ELECTION CANNOT BE REVOKED WITHOUT THE CONSENT OF THE INTERNAL REVENUE SERVICE.

Dated: _____

_____
Taxpayer's Signature

ACTUATE THERAPEUTICS, INC.
STOCK RESTRICTION AGREEMENT

THIS STOCK RESTRICTION AGREEMENT (this "Agreement") is made and entered into effective as of _____, 201__ (the "Effective Date"), by and between Actuate Therapeutics, Inc., a Delaware corporation (the "Corporation"), and _____ ("Stockholder").

1. Delivery of Shares. As of the Effective Date, the Corporation has issued and delivered to Stockholder ____ shares of common stock of the Corporation, par value $0.000001 per share (the "Shares")[, pursuant to the terms of a Restricted Share Award Agreement, dated as of the date hereof][1].

2. Transfer Restrictions.

(a) Restricted Securities. The Shares have not been registered under the Securities Act of 1933, as amended ("1933 Act") or the securities laws of any state or any other jurisdiction pursuant to one or more exemptions from registration for transactions not involving a public offering. Stockholder hereby confirms that Stockholder has been informed that the Shares are restricted securities under the 1933 Act and may not be resold or transferred unless the Shares are first registered under federal and applicable state securities laws or unless an exemption from such registration is available. Accordingly, Stockholder hereby acknowledges that Stockholder is prepared to hold the Shares for an indefinite period and that Stockholder is aware that Rule 144 issued under the 1933 Act, which exempts certain resales of restricted securities, is not presently available to exempt the resale of the Shares from the registration requirements of the 1933 Act.

(b) Restrictions on Transfer. Without the Corporation's consent and subject to the terms of this Agreement, Stockholder shall not Transfer (as defined below) any Shares, other than a Permitted Transfer (as defined below), unless and until there is compliance with all of the following requirements:

(i) Stockholder shall have provided the Corporation with a written summary of the terms and conditions of the proposed Transfer.

(ii) Stockholder shall have complied with all requirements of this Agreement applicable to the disposition of the Shares.

(iii) Stockholder shall have provided the Corporation with written assurances, in form and substance satisfactory to the Corporation, that (A) the proposed disposition does not require registration of the Shares under the 1933 Act or applicable state securities laws, or (B) all appropriate action necessary for compliance with the registration requirements of the 1933 Act or any applicable state securities laws or any exemption from registration available thereunder (including, without limitation, Rule 144 promulgated under the 1933 Act) has been taken.

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[1] Include bracketed language for those Stockholders receiving restricted Shares.

The Corporation shall not be required (i) to transfer on its books any shares that have been sold or transferred in violation of the provisions of this Agreement or (ii) to treat as the owner of the Shares, or otherwise to accord voting, dividend or liquidation rights to, any transferee to whom the Shares have been Transferred in contravention of this Agreement. In this Agreement, "Transfer" means any sale, transfer, assignment, encumbrance, pledge, hypothecation or other disposition of all or any part of or any interest in the Shares. In this Agreement, "Permitted Transfer" means (A) any Transfer of Shares to an inter-vivos trust created by a Stockholder who is an individual for the primary benefit of one or more of (i) such Stockholder, (ii) such Stockholder's spouse, (iii) such Stockholder's parents, siblings, descendants or the descendants of any of the foregoing, (iv) such Stockholder's spouse's parents, siblings, descendants or the descendants of any of the foregoing; (B) any testamentary Transfer of Shares to or for the benefit of such Stockholder's spouse, parent or descendants; (C) any Transfer by a Stockholder which is an entity to an entity controlling, controlled by or under common control with such Stockholder; and (D) a Transfer of Shares by a Stockholder who is a natural person to an entity that such Stockholder controls.

(c) Transferee Obligations. Each Person (as defined below), other than the Corporation, to whom or which Shares are Transferred by means of a Permitted Transfer must, as a condition precedent to the validity of such Transfer, acknowledge in writing to the Corporation that such Person is bound by the provisions of this Agreement and that the Transferred Shares are subject to this Agreement to the same extent such Shares would be so subject if retained by Stockholder. In this Agreement, "Person" means any individual, partnership, limited liability company, corporation, trust or other entity.

(d) Restrictive Legends. The stock certificates for all Shares shall be endorsed with substantially the following restrictive legends:

> THE SECURITIES REPRESENTED HEREBY HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED, OR QUALIFIED OR REGISTERED UNDER STATE SECURITIES OR BLUE SKY LAWS. THESE SECURITIES HAVE BEEN ACQUIRED FOR INVESTMENT AND NOT WITH A VIEW TO DISTRIBUTION, AND NEITHER THESE SECURITIES NOR ANY INTEREST OR PARTICIPATION THEREIN MAY BE SOLD, OFFERED FOR SALE, PLEDGED, HYPOTHECATED OR OTHERWISE TRANSFERRED OR DISPOSED OF EXCEPT IN COMPLIANCE WITH THE SECURITIES ACT OF 1933, AS AMENDED, APPLICABLE STATE SECURITIES OR BLUE SKY LAWS AND THE APPLICABLE RULES AND REGULATIONS THEREUNDER. THE ISSUER OF THESE SECURITIES MAY REQUIRE AN OPINION OF COUNSEL IN FORM AND SUBSTANCE SATISFACTORY TO THE ISSUER TO THE EFFECT THAT ANY PROPOSED TRANSFER OR RESALE IS IN COMPLIANCE WITH THE ACT AND ANY APPLICABLE STATE SECURITIES LAWS.
>
> THE SHARES REPRESENTED BY THIS CERTIFICATE ARE SUBJECT TO CERTAIN RESTRICTIONS ON TRANSFER, A RIGHT OF FIRST REFUSAL, CO-SALE OBLIGATIONS, AND DRAG-ALONG RIGHTS, AS SET FORTH IN A STOCK RESTRICTION AGREEMENT BETWEEN THE ISSUER AND THE ORIGINAL HOLDER OF THESE SHARES. A COPY OF THIS DOCUMENT MAY BE OBTAINED AT THE PRINCIPAL OFFICE OF THE ISSUER. SUCH TRANSFER RESTRICTIONS, RIGHT OF FIRST REFUSAL, CO-SALE OBLIGATIONS, AND DRAG-ALONG RIGHTS ARE BINDING ON TRANSFEREES OF THESE SHARES.

(e) Market Stand-Off.

(i) In connection with any underwritten public offering by the Corporation of its equity securities pursuant to a Form S-1 registration statement filed under the 1933 Act, including the Corporation's Initial Public Offering (as defined below), the Stockholder agrees that the Stockholder shall not, directly or indirectly, sell, make any short sale of, loan, hypothecate, pledge, offer, grant or sell any option or other contract for the purchase of, purchase any option or other contract for the sale of, or otherwise dispose of or transfer, or agree to engage in any of the foregoing transactions with respect to, any Shares acquired under this Agreement for a period specified by the Corporation or its underwriters. Such restriction (the "Market Stand-Off") shall be in effect for such period of time commencing on and following the date of the final prospectus for the Initial Public Offering as may be requested by the Corporation or its underwriters. In no event, however, shall the Market Stand-Off period exceed 180 days following the Initial Public Offering. In the event of the declaration of a dividend, a spin-off, a common stock split, an adjustment in conversion ratio, a recapitalization or a

similar transaction affecting the Corporation's outstanding securities without receipt of consideration, any new, substitute or additional securities that are by reason of such transaction distributed with respect to any Shares subject to the Market Stand-Off, or into which such Shares thereby become convertible, shall immediately be subject to the Market Stand-Off to the same extent the Shares are at such time covered by such provisions. In order to enforce the Market Stand-Off, the Corporation may impose stop-transfer instructions with respect to the Shares acquired under this Agreement until the end of the applicable Market Stand-Off period. The Corporation's underwriters shall be beneficiaries of the agreement set forth in this Section 2(e), and the Stockholder agrees that any transferee of the Stockholder shall be bound by the provisions of this Section 2(e). In this Agreement, "Initial Public Offering" means the effectiveness of a Form S-1 registration statement filed under the 1933 Act covering the Corporation's Common Stock.

(ii) The Stockholder shall execute and deliver such other agreements as may be reasonably requested by the Corporation or its underwriters that are consistent with this Section 2(e) or that are necessary to give further effect thereto. In addition, if requested by the Corporation or its underwriters, the Stockholder shall provide, within ten (10) days of this request, such information as may be required by the Corporation or its underwriters in connection with the completion of the Corporation's Initial Public Offering.

3. Right of First Refusal.

(a) Transfer Notice. If at any time the Stockholder proposes to Transfer all or any part of or any interest in the Shares to one or more third parties pursuant to an understanding with the third parties, other than a Permitted Transfer, then the Stockholder (the "Selling Stockholder") shall first give the Corporation written notice of the Selling Stockholder's intention to make the Transfer (the "Transfer Notice"). The Transfer Notice shall include (i) a description of the Shares to be transferred (the "Offered Shares"); (ii) the identity of the prospective transferee(s); (iii) a certification as to the number of Shares currently owned, directly or indirectly, by the proposed transferee and his, her or its affiliates; and (iv) the consideration and the other material terms and conditions upon which the proposed Transfer is to be made (including, without limitation, whether such Transfer is proposed to be made for cash and/or pursuant to a promissory note and, if all or any portion of such purchase price is payable pursuant to a promissory note, the terms of such promissory note). The Transfer Notice shall certify that the Selling Stockholder has received a firm offer from the prospective transferee(s) and in good faith believes a binding agreement for the Transfer is obtainable on the terms set forth in the Transfer Notice. The Transfer Notice shall also include a copy of any written proposal, term sheet or letter of intent or other agreement relating to the proposed Transfer and proof satisfactory to the Corporation that the proposed Transfer will not violate any applicable federal or state securities laws and will not be in contravention of the provisions set forth in Section 2 of this Agreement.

(b) Corporation's Option. The Corporation and it assignee(s) shall have an option for a period of thirty (30) days from receipt of the Transfer Notice to elect to purchase the Offered Shares (or any portion thereof) at the same price and subject to the same material terms and conditions as described in the Transfer Notice. The Corporation and its assignee(s) may exercise such purchase option and, thereby, purchase all (or any portion of) the Offered Shares by notifying the Selling Stockholder in writing before expiration of such thirty (30)-day period as to the number of Offered Shares that it wishes to purchase. The Selling Stockholder agrees to sell any or all of the Offered Shares to the Corporation and/or its assignee(s) to the extent such option is so exercised. If the Corporation or an assignee gives the Selling Stockholder notice that it desires to purchase the Offered Shares, then payment for the Offered Shares shall be by check or wire transfer, against delivery of the Offered Shares to be purchased at a place agreed upon between the parties to such transaction and at the time of the scheduled closing therefore or, if the Transfer Notice indicated that any portion of the purchase price for the Offered Shares was to be represented by a promissory note, the Corporation and its assignee(s) shall have the option to either deliver an equivalent promissory note at the closing or pay in cash the principal amount of such promissory note at the closing. In no event shall the Corporation or its assignee(s) be required to provide any security for its, his or her obligations under any such promissory note, irrespective of whether the prospective transferee offered to provide security. The time of scheduled closing shall be no later than forty-five (45) days after the Corporation's receipt of the Transfer Notice, unless the Transfer Notice contemplates a later closing with the prospective third party transferee(s) or unless the value of the purchase price has not yet been established pursuant to Section 3(c) hereof. At the closing, the Selling Stockholder shall execute and deliver to the Corporation and/or its assignee(s), as applicable, a stock power with respect to the Shares subject to Transfer, in form and substance reasonably acceptable to the Corporation and each such assignee, as applicable, as well as any other instruments reasonably requested by the Corporation and/or any such assignee, as applicable, to give effect to the purchase and such Shares shall be so Transferred free and clear of any liens, other than those arising under this Agreement or applicable securities laws.

(c) Valuation of Property. Should the purchase price specified in any Transfer Notice be payable in property other than cash or evidences of indebtedness, the Corporation and its assignee(s) shall have the right to pay the purchase price in the form of

cash equal in amount to the value of such property. If the Selling Stockholder and the Corporation and/or its assignee(s) cannot agree on such cash value within ten (10) days after the Corporation notifies the Selling Stockholder of its intent to purchase the Offered Shares pursuant to Section 3(b), the valuation shall be as determined in good faith by the Board of Directors of the Corporation (the "Board"), using any reasonable valuation method. If the time for the closing of the purchase has expired but for the determination of the value of the purchase price offered by the prospective transferee(s), then such closing shall be held on or prior to the fifth (5th) business day after the valuation shall have been made pursuant to this Section 3(c).

(d) Non-Exercise of Right. To the extent that any Offered Share has not been purchased pursuant to Section 3(b) hereof, the Corporation shall promptly so notify the Selling Stockholder. The Selling Stockholder shall, subject to compliance with Section 8, have a period of thirty (30) days from receipt of such notice in which to sell such unpurchased Offered Shares upon terms and conditions (including the purchase price) specified in the Transfer Notice; provided, however, that any such sale or disposition shall not be effected in contravention of the provisions of Section 2 of this Agreement and the transferee shall agree in writing on a form prescribed by the Corporation to be bound by all provisions of this Agreement with respect to such Offered Shares. In the event that the Selling Stockholder does not consummate such sale or disposition within such thirty (30) day period, all rights of first refusal under this Section 3 shall continue to be applicable to any subsequent disposition of the Offered Shares by the Selling Stockholder until such rights lapse in accordance with the terms of this Section 3. Furthermore, the exercise or nonexercise of such rights shall not adversely affect the right of the Corporation and its assignee(s) to make subsequent purchases from the Selling Stockholder of Shares.

(e) Change in Control. In the event of a Change in Control, all rights of first refusal under this Section 3 shall remain in full force and effect and shall apply to the new shares or capital received in exchange for the Shares in consummation of the Change in Control, but only to the extent the Shares are at the time covered by the rights of first refusal under this Section 3. For purposes of this Agreement, "Change in Control" means any of the following transactions, as determined in the sole and absolute discretion of the Board:

(i) The date that any one Person (other than existing stockholders of the Corporation), or more than one such Persons acting as a group, acquires ownership of the Corporation's voting stock that, together with the Corporation's voting stock held by such Person or group, constitutes more than fifty percent (50%) of the total voting power of the Corporation's equity interests. However, if any one Person (other than existing stockholders of the Corporation), or more than one such Persons acting as a group, is considered to own more than fifty percent (50%) of the total voting stock of the Corporation, the acquisition of additional shares of stock by the same Person or Persons will not be considered to cause a Change in Control.

(ii) The consummation of a consolidation or merger of the Corporation in which the Corporation is not the surviving entity or pursuant to which the Corporation's equity interests would be converted into cash, securities or other property; except that, the foregoing provisions of this Section 3(e)(ii) shall not apply if the majority of the board of directors of the surviving corporation are, and for a one-year period after the merger continue to be, Persons who were directors of the Corporation immediately prior to the merger or were elected as directors, or nominated for election as a director, by a vote of at least two-thirds of the directors then still in office who were directors of the Corporation immediately prior to the merger; and

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(iii) The date that any one Person or more than one Person acting as a group acquires all or substantially all of the assets from the Corporation.

Notwithstanding the foregoing Section 3(e) to the contrary, a Change in Control shall not be deemed to have occurred in the event the Corporation forms a holding company and, as a result thereof, the holders of the Corporation's voting securities immediately prior to the transaction hold, in approximately the same relative proportions as they held prior to the transaction, substantially all of the voting securities of the holding company that owns all of the Corporation's voting securities immediately after completion of the transaction. Further, a Change in Control shall not be deemed to have occurred due to any acquisition of voting stock by an employee stock ownership plan sponsored by the Corporation.

(f) Lapse. Notwithstanding any other provision of this Section 3, any right of first refusal provided in this Section 3 shall terminate as to any Shares upon the earlier to occur of (i) an Initial Public Offering, and (ii) a Change in Control in which the successor entity has equity securities that are publicly traded.

4. Involuntary Transfers.

(a) In the event of (i) the attachment, sequestration, garnishment, foreclosure or other similar involuntary transfer resulting from a bankruptcy or similar proceeding affecting the Stockholder, (ii) the death (that does not result in a Permitted Transfer) or involuntary dissolution of the Stockholder, or (iii) a Stockholder Change in Control (as defined below), then the Corporation and its assignee(s) shall have an option for a period of thirty (30) days from the date described in the second sentence of Section 4(b) below to elect to purchase all or any portion of the Shares subject to such occurrence from the applicable Interested Party (as defined below) for a purchase price equal to the fair market value of the Shares as determined in good faith by the Board, using any reasonable valuation method. Each Interested Party shall be required to sell any or all of the applicable Shares to the Corporation and/or its assignee(s) to the extent such option is so exercised. In this Agreement, "Stockholder Change in Control" means the occurrence of any of the events described in subparts (i) or (ii) of the definition of Change in Control in this Agreement with respect to the Stockholder (as opposed to the Corporation), and which shall not require a determination of the Board. In this Agreement, "Interested Party" means (A) each Person who, as a result of a Transfer that is subject to this Section 4, holds Shares previously owned by the Stockholder, or (b) the Stockholder, in the event that the Stockholder has undergone a Stockholder Change in Control.

(b) The applicable Interested Party shall deliver a written notice to the Corporation no later than thirty (30) days after the occurrence of the applicable event described in Section 4(a) above. The time periods during which the Corporation and its assignee(s) may elect to purchase the Shares under this Section 4 shall commence on the Corporation's receipt of the actual notice of the occurrence of an event set forth in Section 4(a) above.

(c) The closing of the sale and purchase of Shares pursuant to this Section 4 shall take place at the offices of the Corporation on such date as the Interested Party and the Corporation and/or its assignee(s), as applicable, shall agree; provided, however, that in the absence of any such agreement, the closing shall occur on the tenth (10^{th}) day after the expiration of the last applicable time period described in Section 4(a). Payment of the purchase price for the Shares shall be made by virtue of a cash down payment equal to twenty percent (20%) of the total purchase price, and the balance shall bear interest at a fixed rate per annum equal to the prime rate (as published in *The Wall Street Journal*) in effect on the date of purchase, adjusted on an annual basis, which shall be paid in quarterly installments of principal and interest over a period of five (5) years. At the closing, the Interested Party shall execute and deliver to the Corporation and/or its assignee(s), as applicable, a stock power with respect to the applicable Shares, in form and substance reasonably acceptable to the Corporation and each such assignee, as applicable, as well as any other instruments reasonably requested by the Corporation and/or any such assignee, as applicable, to give effect to the purchase and such Shares shall be so Transferred free and clear of any liens, other than those arising under this Agreement or applicable securities laws.

5. Transfers Involving Spouses.

(a) Upon a divorce between the Stockholder and the Stockholder's spouse, which spouse is not also a stockholder of the Corporation at the time of the divorce, unless they mutually agree to the contrary, the fair market value of the Shares will be determined in the same manner as described in Section 4(a) as of the date of the filing of a petition for divorce. The divorcing spouse's community share of the value so determined will constitute the entire interest of the divorcing spouse in the Shares. The Stockholder and the Stockholder's spouse agree that in the event of a divorce between them, either (i) the Stockholder shall be the recipient of the entire amount of Shares as part of any marital property settlement and agreement between them, or (ii) the spouse will sell and the Stockholder will purchase, the community share of the Shares held by the Stockholder's spouse, if any, upon payment terms to be agreed upon between them, or if no agreement is reached, at a purchase price equal to one-half of the fair market value of the Shares determined in the same manner as described in Section 4(a) and payable in the same manner as described in Section 4(c).

(b) Upon the death of a spouse of the Stockholder who is not also a stockholder of the Corporation at the time of death, the community interest in the Shares of such deceased spouse will devolve to the surviving Stockholder, and each spouse of the Stockholder, by executing this Agreement and in consideration of the benefits to be received hereunder, agrees to make and keep unrevoked at such spouse's death, a valid will containing such a provision to this effect; provided, however, the non-existence of a valid will containing such a provision will not relieve the personal representatives, estate, heirs or devisees of such deceased spouse of the obligation to fully perform the terms of this Agreement. The Stockholder and his or her spouse agree that in the event of the death of the spouse where such spouse fails to leave behind a valid will in compliance with this Section 5(b), the Stockholder may purchase and the personal representative, estate, heirs or devisees of such spouse shall sell to the Stockholder, the community interest of the Stockholder's spouse in the Shares, if any, upon payment terms to be agreed upon between them, or if no agreement is reached, at a purchase price equal to one-half of the fair market value of the Shares determined in the same manner as described in Section 4(a) and payable in the same manner as described in Section 4(c).

(c) If the Stockholder fails to receive or purchase the community interest of the Stockholder's deceased spouse upon his or her death, or from the former spouse upon divorce, the Corporation and its assignee(s) will have the continuing right, but not the obligation, anytime thereafter to elect to purchase the interest in the Shares owned by the Stockholder's former spouse, the estate of such spouse or by the spouse's respective personal representative, estate, heirs or devisees, as applicable. The purchase price for such interest shall be one-half of the fair market value of the Shares determined in the same manner as described in Section 4(a) and payable in the same manner as described in Section 4(c). The closing of the sale and purchase of the interest in the Shares pursuant to this Section 5(c) shall take place at the offices of the Corporation on such date as the Corporation and/or its assignee(s), as applicable, shall determine. At the closing, the spouse or such spouse's personal representative, estate, heirs, or devisees, as applicable, shall execute and deliver to the Corporation and/or its assignee(s), as applicable, a stock power or other appropriate assignment instrument with respect to the interest subject to Transfer, in form and substance reasonably acceptable to the Corporation and each assignee, as applicable, as well as any other instruments reasonably requested by the Corporation and/or any such assignee, as applicable, to give effect to the purchase and such interest shall be so Transferred free and clear of any liens, other than those arising under this Agreement or applicable securities laws.

6. Involuntary Encumbrance. If all or any part of the Shares are involuntarily encumbered or Transferred by judicial process (other than through divorce proceedings as provided for in Section 5) to any Person (the "Acquirer"), the Corporation and its assignee(s) shall have the option, exercisable by written notice to the Acquirer, for a period of sixty (60) days from the date that the Corporation receives actual knowledge of such encumbrance or Transfer by judicial process, to purchase the encumbered or Transferred Shares for a purchase price equal to the fair market value of the Shares determined in the same manner as described in Section 4(a) and payable in the same manner as described in Section 4(c). The purchase shall take place on a date selected by the Acquirer within thirty (30) days following the date the Corporation and/or its assignee(s), as applicable, gives notice of his, her, its, or their intent to exercise the option. If all of the Shares are not purchased by the Corporation and/or its assignee(s), the remaining Shares shall nevertheless remain subject to the terms and provisions of this Agreement, and the Acquirer shall succeed to the rights and obligations under this Agreement. Further, the Acquirer shall be obligated to sign an Addendum to this Agreement in the form and substance reasonably acceptable to the Corporation.

7. Transfer by Pledge. No Shares may be pledged or otherwise voluntarily hypothecated or encumbered by the Stockholder unless the Board approves the pledge in its sole and absolute discretion, such approval to be calculated or determined without the vote of the director who is also the Stockholder seeking to pledge his, her or its Shares, if applicable. Any attempt to pledge or hypothecate Shares without the foregoing consent will be deemed null and void, *ab initio*.

8. Co-Sale Right.

(a) If at any time, (i) the Stockholder owns greater than five percent (5%) of the Corporation's issued and outstanding shares of stock on a Fully Diluted Basis (as defined below), and (ii) the Board of Trustees of the University of Illinois, a body corporate and politic of the State of Illinois (together with each Person to whom or which its rights as described in this Section 8 are transferred, the "University") owns any shares of Common Stock, then, if Stockholder, after complying with the provisions of Section 3, desires to Transfer all or any part of Stockholder's Shares to any Person other than any other stockholder of the Corporation or the Corporation (the "Buyer") and other than pursuant to a Permitted Transfer pursuant to the provisions of any of subparts (A)-(C) in the definition of Permitted Transfer in Section 2 of this Agreement, Stockholder shall give notice in writing to the University of its intention to proceed with the transaction (the "Co-Sale Offer"). The University shall have the right, exercisable by providing written notice within ten (10) days of the Co-Sale Offer (to the address of University as reflected in the records of the Corporation), to sell to the Buyer, as a condition to such sale by Stockholder, at the same price per Share and on the same terms and conditions as involved in the sale by Stockholder, a number of shares of the Corporation's stock equal to the product of (I) the quotient of (A) the number of shares of the Corporation's stock held by the University, divided by (B) the aggregate number of shares of the Corporation's stock outstanding, on a Fully-Diluted Basis; multiplied by (II) the aggregate number of Shares to be sold in the contemplated Transfer. In this Agreement, "Fully-Diluted Basis" means, as of a specified date (but in the case of convertible debt, only at the time that such convertible debt converts into capital stock of the Corporation, or at such time specific conversion ratio is established pursuant to the operation of such instrument),

the number of shares of Common Stock then outstanding (assuming conversion of all outstanding stock other than Common Stock into Common Stock) plus the number of shares of Common Stock issuable upon exercise or conversion of then outstanding convertible securities, options, rights or warrants of the Corporation (which shall be determined without regard to whether such securities are then vested, exercisable or convertible), excluding any Exempt Securities (as defined below) issued after the date of this Agreement. In this Agreement, "Exempt Securities" include: (1) shares of capital stock, options or convertible securities of the Corporation issued by the Corporation by reason of a dividend, stock split, split-up or other distribution on shares of Common Stock; (2) shares of capital stock or options issued to employees or directors of, or consultants or advisors to, the Corporation or any of its subsidiaries pursuant to a plan, agreement or arrangement approved by the Board; (3) shares of capital stock or convertible securities of the Corporation actually issued by the Corporation upon the exercise of options or shares of capital actually issued upon the conversion or exchange of convertible securities, in each case provided such issuance is pursuant to the terms of such option or convertible security; (4) shares of capital stock, options, warrants or convertible securities of the Corporation issued by the Corporation to banks, equipment lessors or other financial institutions, or to real property lessors, pursuant to a debt financing, equipment leasing or real property leasing transaction approved by the Board; (5) shares of capital stock, options, warrants or convertible securities of the Corporation issued by the Corporation to suppliers or third party service providers in connection with the provision of goods or services pursuant to transactions approved by the Board; and (6) shares of capital stock, options, warrants or convertible securities of the Corporation issued by the Corporation pursuant to the strategic acquisition of the equity securities or assets of another business entity.

(b) Stockholder and the University shall sell to the Buyer all, or at the option of the Buyer, any portion of the Corporation's stock proposed to be sold by them, at the price and upon other terms and conditions not more favorable to the Buyer than those in the Co-Sale Offer provided by Stockholder pursuant to Section 8(a) above; provided, however, that any purchase of less than all of such stock by the Buyer shall be made from Stockholder and the University pro rata based upon the relative number of shares of stock that Stockholder and the University is otherwise entitled to sell.

9. Drag-Along Rights.

(a) Actions to be Taken. In the event that either (i) the holders of at least fifty-one percent (51%) of the then issued shares of common stock of the Corporation (the "Selling Investors"), or (ii) the Board (collectively, (i) and (ii) being the "Electing Holders") approve a Change in Control in writing, and such approval specifies that this Section 9 shall apply to such Change in Control, then:

(i) if such transaction requires any approval of the stockholders of the Corporation, then, with respect to all Shares owned by the Stockholder, the Stockholder hereby agrees to vote (in person, by proxy or by action by written consent, as applicable) all such Shares in favor of, and adopt, such Change in Control (together with any related amendment to the certificate of incorporation or bylaws required in order to implement such Change in Control) and to vote in opposition to any and all other proposals that could reasonably be expected to delay or impair the ability of the Corporation or the Selling Investors to consummate such Change in Control;

(ii) if such transaction is a sale of stock or otherwise requires the Stockholder to Transfer any Shares, the Stockholder hereby agrees to sell the same proportion of Shares as is being sold by the Selling Investors to the same acquirer to whom or which the Selling Investors propose to sell their shares of stock, and, except as permitted below, on the same terms and conditions as the Selling Investors;

(iii) the Stockholder hereby agrees to execute and deliver all related documentation and take such other action in support of the Change in Control as shall reasonably be requested by the Corporation or the Selling Investors, as applicable, in order to carry out the terms and provisions of this Section 9, including without limitation, with respect to the Stockholder, executing and delivering instruments of conveyance and transfer, and any purchase agreement, merger agreement, indemnity agreement, escrow agreement, consent, waiver, governmental filing, share certificate duly endorsed for transfer (free and clear of impermissible liens, claims and encumbrances) and any similar or related documents;

(iv) the Stockholder hereby agrees not to deposit, except as provided in this Agreement, any Shares in a voting trust or subject any Shares to any arrangement or agreement with respect to the voting of such Shares, unless specifically requested to do so by the acquirer in connection with the Change in Control;

(v) the Stockholder hereby agrees to refrain from exercising any dissenters' rights or rights of appraisal under any applicable laws at any time with respect to such Change in Control;

(vi) if such transaction is a sale of stock or otherwise requires the Stockholder to Transfer any Shares, if the applicable consideration includes any securities and due receipt thereof by the Stockholder would be required under applicable law (x) the registration or qualification of such securities or of any Person as a broker or dealer or agent with respect to such securities or (y) the provision to the Stockholder of any information other than such information as a prudent issuer would generally furnish in an offering made solely to "accredited investors" as defined in Regulation D promulgated under the U.S. Securities Act of 1933, as amended, the Corporation may cause to be paid to the Stockholder in lieu thereof, against surrender of the shares of common stock which would have otherwise been sold by the Stockholder, an amount in cash equal to the fair market value (as reasonably determined by the Board) of the securities which the Stockholder would otherwise receive as of the date of the issuance of such securities in exchange for the shares of common stock;

(vii) bear their Stockholder's proportionate share of any escrows, holdbacks or adjustments in purchase price as the same may be agreed to by the Selling Investors in connection with such Change in Control; and

(viii) take such other actions as may be reasonably necessary to provide customary escrow/holdback arrangements relating to such Change in Control, in each case to the extent that each Selling Investor is similarly obligated.

(b) Exceptions. Notwithstanding the foregoing, the Stockholder shall not be required to comply with Section 9(a) in connection with any proposed Change in Control unless:

(i) any representations and warranties to be made by the Stockholder in connection with the Change in Control are limited to representations and warranties related to authority, ownership, due execution and enforceability, the ability to convey valid title to the Shares, and the absence of consents or approvals, including, but not limited to, representations and warranties that (A) the Stockholder holds all right, title and interest in and to the Shares, free and clear of all liens and encumbrances (excluding those arising under applicable securities laws and this Agreement), (B) the obligations of the Stockholder in connection with the transaction have been duly authorized, (C) the documents to be entered into by the Stockholder have been duly executed by the Stockholder and delivered to the acquirer and are enforceable against the Stockholder in accordance with their respective terms, and (D) the absence of, or compliance with, any governmental or third party consents, approvals, filings or notifications required to be obtained or made by the Stockholder in connection with the Change in Control;

(ii) the Stockholder shall not be liable for the inaccuracy of any representation or warranty made by any other Person in connection with the Change in Control, other than the Corporation (to the extent each other Selling Investor is similarly obligated and with sole recourse to an escrow established for the benefit of the acquirer (each Person's contributions to such escrow being proportionate based on the amount of consideration to be received by each Person (as among all selling Persons) in connection with the Change in Control));

(iii) except as provided in Section 9(b)(ii), any indemnification provided by the Stockholder in such Change in Control shall be either (x) on an individual basis (and not on a joint and several basis) solely with respect to the individual representations and warranties made by such Stockholder in accordance with Section 9(b)(i) or (y) on a several basis (and not on a joint and several basis) with sole recourse to an escrow established for the benefit of the proposed acquirer in which all Selling Investors and the Stockholder participate proportionally based upon the aggregate consideration to be received by each such Person in connection with such Change in Control, it being understood and agreed that any such indemnification obligation of the Stockholder shall in no event exceed the amount of consideration to be received by the Stockholder in connection with the Change in Control;

(iv) upon the consummation of the Change in Control, (A) each holder of each class or series of the Corporation's capital stock will receive the same form of consideration for their shares of such class or series as is received by other

stockholders in respect of their shares of such same class or series, and (B) each stockholder holding such shares will receive the same amount of consideration per share as is received by other stockholders in respect of their shares of such same series; provided, however, that, notwithstanding the foregoing, if the consideration to be paid in exchange for the shares of common stock, pursuant to this Section 9(b)(iv) includes any securities and due receipt thereof by any stockholder would require under applicable law (x) the registration or qualification of such securities or of any Person as a broker or dealer or agent with respect to such securities or (y) the provision to any stockholder of any information other than such information as a prudent issuer would generally furnish in an offering made solely to "accredited investors" as defined in Regulation D promulgated under the 1933 Act, the Corporation may cause to be paid to any such stockholder in lieu thereof, against surrender of the shares, as applicable, which would have otherwise been sold by such stockholder, an amount in cash equal to the fair market value (as reasonably determined by the Board) of the securities which such stockholder would otherwise receive as of the date of the issuance of such securities in exchange for the shares, as applicable;

(v) subject to clause (iv) above, requiring the same form of consideration to be available to the holders of any single class or series of capital stock, if any holders of any capital stock of the Corporation are given an option as to the form and amount of consideration to be received as a result of the Change in Control, all holders of such capital stock will be given the same option; provided, however, that nothing in this Section 9(b)(v) shall entitle any holder to receive any form of consideration that such holder would be ineligible to receive as a result of such holder's failure to satisfy any condition, requirement or limitation that is generally applicable to the Corporation's stockholders; and

(vi) the Selling Investors, the Stockholder, and each other stockholder of the Corporation participating in such Change in Control comply with the provisions of Section 8 of this Agreement (as if such Selling Investor or stockholder were the Stockholder), if Section 8 of this Agreement is applicable to the Change in Control.

(c) Except as expressly set forth in this Section 9, if any such Change in Control is consummated, the Selling Investors and the Stockholder will be required to bear up to, but not in excess of, their respective pro rata share (based upon the aggregate consideration to be received by each such Person in connection with such Change in Control) of the reasonable and documented out-of-pocket costs and expenses of the transaction (to the extent that such amounts are not otherwise paid by the Corporation or the acquirer) and if the Change in Control is not consummated, the Stockholder shall not be responsible for his, her or its proportionate share of such costs and expenses. Notwithstanding the foregoing, the Stockholder shall not be responsible for any such costs or expenses to the extent that such costs and expenses exceed the amount of consideration received by the Stockholder pursuant to the Change in Control.

(d) The Selling Investors shall be beneficiaries of the agreement set forth in this Section 9.

10. Stop-Transfer Notices. In order to ensure compliance with the restrictions on Transfer set forth in this Agreement, the Corporation may issue appropriate "stop transfer" instructions to its transfer agent, if any, and, if the Corporation transfers its own securities, it may make appropriate notations to the same effect in its own records.

11. Refusal to Transfer. The Corporation shall not be required (i) to transfer on its books any Shares that have been sold or otherwise Transferred in violation of any of the provisions of this Agreement, or (ii) treat as owner of such Shares or to accord the right to vote or pay dividends to any purchaser or other transferee to whom such Shares shall have been so Transferred.

12. Preferred Financing. In the event that the Corporation conducts a closing of the issue and sale of shares of any class of Preferred Stock of the Corporation (the "Preferred Financing"), Stockholder hereby agrees to execute and deliver to the Corporation any and all transaction documents reasonably required with respect to the Preferred Financing, including any investors' rights, right of first refusal and co-sale, voting, and/or similar or ancillary agreement(s) entered into among stockholders of the Corporation in connection with the closing of such Preferred Financing, as applicable, with customary representations and warranties and provisions regarding, among other things, the voting of shares of capital stock of the Corporation, restrictions on Transfer of such shares, and registration rights with respect to such shares, in each case to the extent that each other stockholder holding shares of capital stock of the same class as Stockholder is similarly obligated.

13. General Provisions.

(a) Assignment. In this Agreement, whenever the Corporation shall have the right to acquire Shares or any interest therein, the Corporation may designate and assign one or more employees, officers, directors or other Persons, to exercise all or

a part of the Corporation's right; provided, however, that if any such Person is so designated and assigned by the Corporation and such Person is not a stockholder of the Corporation, then the provisions of Section 8 of this Agreement will be required to be complied with prior to such time as such Transfer to such Person under this Agreement is consummated.

(b) Notices. Any notice required to be given under this Agreement shall be in writing and shall be deemed effective upon personal delivery or upon deposit in the U.S. mail, registered or certified, postage prepaid and properly addressed to the party entitled to such notice at the address indicated below such party's signature line on this Agreement or at such other address as such party may designate by 10 days advance written notice under this Section to all other parties to this Agreement.

(c) No Waiver. The failure of the Corporation in any instance to exercise any right provided to the Corporation under this Agreement shall not constitute a waiver of any other similar rights that may subsequently arise under the provisions of this Agreement or any other agreement between the Corporation and Stockholder. No waiver of any breach or condition of this Agreement shall be deemed to be a waiver of any other or subsequent breach or condition, whether of like or different nature.

(d) Cancellation of Shares. If the Corporation shall make available, at the time and place and in the amount and form provided in this Agreement, the consideration for the Shares to be repurchased in accordance with the provisions of this Agreement, then from and after such time, the Person from whom or which such Shares are to be repurchased shall no longer have any rights as a holder of such Shares other than the right to receive payment of such consideration in accordance with this Agreement. Such Shares shall be deemed purchased in accordance with the applicable provisions hereof, and the Corporation shall be deemed the owner and holder of such Shares, whether or not the certificates therefor have been delivered as required by this Agreement.

(e) Stockholder Undertaking. Stockholder hereby agrees to take whatever additional action and execute whatever additional documents the Corporation may deem necessary or advisable in order to carry out or affect one or more of the obligations or restrictions imposed on either Stockholder or the Shares pursuant to the provisions of this Agreement.

(f) Agreement Applicable to Community Interests. Any right or interest of a spouse of a Stockholder in the Shares, whether such right or interest is created by law (including community property laws) or otherwise, shall for all purposes hereof be included in, deemed a part of and bound by the same terms hereof as the Shares to which such right or interest relates or appertains, and any action taken, offer made or purchase right exercisable hereunder with reference to Shares owned by a Stockholder shall be applicable to any right or interest which the spouse of such Stockholder may have or be entitled to have therein. The spouse of Stockholder agrees to execute the attached Spousal Consent to evidence the foregoing agreements as a condition precedent to the delivery of the Shares to Stockholder.

(g) Severability. If any provision of this Agreement is held by final judgment of a court of competent jurisdiction to be invalid, illegal or unenforceable, such invalid, illegal or unenforceable provision shall be severed from the remainder of this Agreement, and the remainder of this Agreement shall be enforced. In addition, the invalid, illegal or unenforceable provision shall be deemed to be automatically modified, and, as so modified, to be included in this Agreement, such modification being made to the minimum extent necessary to render the provision valid, legal and enforceable. Notwithstanding the foregoing, however, if the severed or modified provision concerns all or a portion of the essential consideration to be delivered under this Agreement by one party to the other, the remaining provisions of this Agreement shall also be modified to the extent necessary to equitably adjust the parties' respective rights and obligations hereunder.

(h) Entire Agreement. Except as provided below, this Agreement, including the exhibits and schedules attached hereto, if any, contains the entire agreement of the parties with respect to the subject matter hereof, and supersedes all prior agreements between them, whether oral or written, of any nature whatsoever with respect to the subject matter hereof. However, this Agreement does not supersede the Corporation's rights under any agreement between Stockholder and the Corporation that (i) protects the Corporation's proprietary information or intellectual property, or (ii) prohibits Stockholder from competing with the Corporation or soliciting the Corporation's customers, suppliers or employees; rather all such rights of the Corporation under any such agreements shall be in addition

to the rights granted herein. The recitals to this Agreement are hereby incorporated into and made a part of this Agreement for all purposes.

(i) Governing Law. This Agreement shall be governed by the laws of the State of Delaware without giving effect to any choice or conflict of law provisions.

(j) Successors and Assigns. The provisions of this Agreement shall inure to the benefit of, and be binding upon, the Corporation and its successors and assigns and upon Stockholder, Stockholder's assigns and the legal representatives, heirs and legatees of Stockholder's estate, whether or not any such Person shall have become a party to this Agreement and have agreed in writing to join herein and be bound by the terms hereof.

IN WITNESS WHEREOF, the parties have executed this Agreement on the day and year first indicated above.

ACTUATE THERAPEUTICS, INC.,
a Delaware corporation

By: _____
Name: _____
Title: _____

STOCKHOLDER

By: _____
Address: _____

_____
_____

SPOUSAL CONSENT

I, spouse of _____, have read and am aware of, understand and fully consent and agree to the provisions of the Agreement attached hereto and its binding effect upon any interest, community or otherwise, I may own now or hereafter in any Shares, and agree that the termination of my marriage to _____ for any reason shall not have the effect of removing any Shares otherwise subject to the Agreement from the coverage thereof. I hereby evidence such awareness, understanding, consent and agreement by joining in the Agreement and by executing below.

_____
Signature of Spouse

Printed Name: _____

Address:

_____
_____

Exhibit 10.2

ACTUATE THERAPEUTICS, INC.
2024 STOCK INCENTIVE PLAN

ARTICLE 1
PURPOSE

The Plan's purpose is to enhance the Company's ability to attract, retain and motivate persons who make (or are expected to make) important contributions to the Company by providing these individuals with equity ownership opportunities and/or equity-linked compensatory opportunities. Capitalized terms used in the Plan are defined in Article 11.

ARTICLE 2
ELIGIBILITY

Service Providers are eligible to be granted Awards under the Plan, subject to the limitations described herein.

ARTICLE 3
ADMINISTRATION AND DELEGATION

3.1 Administration. The Plan is administered by the Administrator. The Administrator has authority to determine which Service Providers receive Awards, grant Awards, and set Award terms and conditions, subject to the conditions and limitations in the Plan. The Administrator also has the authority to take all actions and make all determinations under the Plan, to interpret the Plan and Award Agreements and to adopt, amend and repeal Plan administrative rules, guidelines, and practices as it deems advisable. The Administrator may correct defects and ambiguities, supply omissions and reconcile inconsistencies in the Plan or any Award Agreement as it deems necessary or appropriate to administer the Plan and any Awards. The Administrator's determinations under the Plan are in its sole discretion and will be final and binding on all persons having or claiming any interest in the Plan or any Award.

3.2 Appointment of Committees. To the extent Applicable Laws permit, the Board or the Administrator may delegate any or all of its powers under the Plan to one or more Committees or committees of officers of the Company or any of its Subsidiaries. The Board or the Administrator, as applicable, may rescind any such delegation, abolish any such committee or Committee and/or re-vest in itself any previously delegated authority at any time.

ARTICLE 4
STOCK AVAILABLE FOR AWARDS

4.1 Number of Shares. Subject to adjustment under Article 8 and the terms of this Article 4, Awards may be made under the Plan covering up to the Overall Share Limit. As of the Plan's effective date, the Company will cease granting awards under the Prior Plan; however, the Prior Plan Awards will remain subject to the terms of the applicable Prior Plan. Shares issued under the Plan may consist of authorized but unissued Shares, Shares purchased on the open market or treasury Shares.

4.2 Share Recycling. If all or any part of an Award or a Prior Plan Award expires, lapses or is terminated, exchanged for or settled in cash, surrendered, repurchased, canceled without having been fully exercised or forfeited, in any case, in a manner that results in the Company acquiring Shares covered by the Award or Prior Plan Award at a price not greater than the price (as adjusted to reflect any Equity Restructuring) paid by the Participant for such Shares or not issuing any Shares covered by the Award or Prior Plan Award, the unused Shares covered by the Award or Prior Plan Award will, as applicable, become or again be available for Award grants under the Plan. Shares delivered (either by actual delivery or attestation) to the Company by a Participant to satisfy the applicable exercise or purchase price of an Award or Prior Plan Award and/or to satisfy any applicable tax withholding obligation with respect to an Award or Prior Plan Award (including Shares retained by the Company from the Award or Prior Plan Award being exercised or purchased and/or creating the tax obligation) shall not again be made available for issuance or delivery under the Plan. The payment of Dividend Equivalents in cash in conjunction with any outstanding Awards shall not count against the Overall Share Limit.

4.3 Substitute Awards. In connection with an entity's merger or consolidation with the Company or the Company's acquisition of an entity's property or stock, the Administrator may grant Awards in substitution for any options or other stock, or stock-based awards granted before such merger or consolidation by such entity or its affiliate. Substitute Awards may be granted on such terms as the Administrator deems appropriate, notwithstanding limitations on Awards in the Plan. Substitute Awards will not count against the Overall Share Limit (nor shall Shares subject to a Substitute Award be added to the Shares available for Awards under the Plan as provided above), except that Shares acquired by exercise of substitute Incentive Stock Options will count against the maximum number of Shares that may be issued pursuant to the exercise of Incentive Stock Options under the Plan. Additionally, in the event that a company acquired by the Company or any Subsidiary or with which the Company or any Subsidiary combines has shares available under a pre-existing plan approved by stockholders and not adopted in contemplation of such acquisition or combination, the shares available for grant pursuant to the terms of such pre-existing plan (as adjusted, to the extent appropriate, using the exchange ratio or other adjustment or valuation ratio or formula used in such acquisition or combination to determine the consideration payable to the holders of common stock of the entities party to such acquisition or combination) may be used for Awards under the Plan and shall not reduce the Shares authorized for grant under the Plan (and Shares subject to such Awards shall not be added to the Shares available for Awards under the Plan as provided above); provided that Awards using such available shares shall not be made after the date awards or grants could have been made under the terms of the pre-existing plan, absent the acquisition or combination, and shall only be made to individuals who were not Employees, Consultants or Directors prior to such acquisition or combination.

4.4 Non-Employee Director Compensation. Notwithstanding any provision to the contrary in the Plan, the Administrator may establish compensation for non-employee Directors from time to time, subject to the limitations in the Plan. The Administrator will from time to time determine the terms, conditions and amounts of all such non-employee Director compensation in its discretion and pursuant to the exercise of its business judgment, taking into account such factors, circumstances and considerations as it shall deem relevant from time to time, provided that the sum of any cash compensation, or other compensation, and the value (determined as of the grant date in accordance with Financial Accounting Standards Board Accounting Standards Codification Topic 718, or any successor thereto) of Awards granted to a non-employee Director as compensation for services as a non-employee Director during any calendar year of the Company may not exceed $1,000,000 (increased to $1,500,000 in the calendar year of a non-employee Director's initial service as a non-employee director or any calendar year during which a non-employee Director serves as chairman of the Board or lead independent Director), which limits shall not apply to the compensation for any non-employee Director of the Company who serves in any capacity in addition to that of a non-employee Director for which he or she receives additional compensation or any compensation paid to any non-employee Director prior to the calendar year following the calendar year in which the Plan's effective date occurs. The Administrator may make exceptions to this limit for individual non-employee Directors, as the Administrator may determine in its discretion.

ARTICLE 5
STOCK OPTIONS AND STOCK APPRECIATION RIGHTS

5.1 General. The Administrator may grant Options or Stock Appreciation Rights to Service Providers subject to the limitations in the Plan, including any limitations in the Plan that apply to Incentive Stock Options. A Stock Appreciation Right will entitle the Participant (or other person entitled to exercise the Stock Appreciation Right) to receive from the Company upon exercise of the exercisable portion of the Stock Appreciation Right an amount determined by multiplying the excess, if any, of the Fair Market Value of one Share on the date of exercise over the exercise price per Share of the Stock Appreciation Right by the number of Shares with respect to which the Stock Appreciation Right is exercised, subject to any limitations of the Plan or that the Administrator may impose and payable in cash, Shares valued at Fair Market Value or a combination of the two as the Administrator may determine or provide in the Award Agreement.

5.2 Exercise Price. The Administrator will establish each Option's and Stock Appreciation Right's exercise price and specify the exercise price in the Award Agreement. The exercise price will not be less than 100% of the Fair Market Value on the grant date of the Option (subject to Section 5.6) or Stock Appreciation Right. Notwithstanding the foregoing, in the case of an Option or a Stock Appreciation Right that is a Substitute Award, the exercise price per share of the Shares subject to such Option or Stock Appreciation Right, as applicable, may be less than the Fair Market Value per share on the date of grant; provided that the exercise price of any Substitute Award shall be determined in accordance with the applicable requirements of Sections 424 and 409A of the Code.

5.3 Duration. Each Option or Stock Appreciation Right will be exercisable at such times and as specified in the Award Agreement, provided that, subject to Section 5.6, the term of an Option or Stock Appreciation Right will not exceed ten (10) years. Notwithstanding the foregoing and unless determined otherwise by the Company, to the extent permitted under Applicable Laws, if the Participant, prior to the end of the term of an Option or Stock Appreciation Right, violates the non-competition, non-solicitation,

confidentiality or other similar restrictive covenant provisions of any employment contract, confidentiality and nondisclosure agreement or other agreement between the Participant and the Company or any of its Subsidiaries, the right of the Participant and the Participant's transferees to exercise any Option or Stock Appreciation Right issued to the Participant shall terminate immediately upon such violation, unless the Company otherwise determines.

5.4 Exercise. Options and Stock Appreciation Rights may be exercised by delivering to the Company a written notice of exercise, in a form the Administrator approves (which may be electronic), signed by the person authorized to exercise the Option or Stock Appreciation Right, together with, as applicable, payment in full (i) as specified in Section 5.5 for the number of Shares for which the Award is exercised and (ii) as specified in Section 9.5 for any applicable taxes. Unless the Administrator otherwise determines, an Option or Stock Appreciation Right may not be exercised for a fraction of a Share.

5.5 Payment Upon Exercise. Subject to Section 10.8, any Company insider trading policy (including blackout periods) and Applicable Laws, the exercise price of an Option must be paid by:

(a) cash, wire transfer of immediately available funds or by check payable to the order of the Company, provided that the Company may limit the use of one of the foregoing payment forms if one or more of the payment forms below is permitted;

(b) if there is a public market for Shares at the time of exercise, unless the Company otherwise determines, (A) delivery (including electronically or telephonically to the extent permitted by the Company) of an irrevocable and unconditional undertaking by a broker acceptable to the Company to deliver promptly to the Company sufficient funds to pay the exercise price, or (B) the Participant's delivery to the Company of a copy of irrevocable and unconditional instructions to a broker acceptable to the Company to deliver promptly to the Company cash or a check sufficient to pay the exercise price; provided that such amount is paid to the Company at such time as may be required by the Administrator;

(c) to the extent permitted by the Administrator, delivery (either by actual delivery or attestation) of Shares owned by the Participant valued at their fair market value;

(d) to the extent permitted by the Administrator, surrendering Shares then issuable upon the Option's exercise valued at their fair market value on the exercise date;

(e) to the extent permitted by the Administrator, delivery of a promissory note or any other property that the Administrator determines is good and valuable consideration; or

(f) to the extent permitted by the Company, any combination of the above payment forms approved by the Administrator.

5.6 Additional Terms of Incentive Stock Options. The Administrator may grant Incentive Stock Options only to employees of the Company, any of its present or future parent or subsidiary corporations, as defined in Sections 424(e) or (f) of the Code, respectively, and any other entities the employees of which are eligible to receive Incentive Stock Options under the Code. If an Incentive Stock Option is granted to a Greater Than 10% Stockholder, the exercise price will not be less than 110% of the Fair Market Value on the Option's grant date, and the term of the Option will not exceed five (5) years. All Incentive Stock Options will be subject to and construed consistently with Section 422 of the Code. By accepting an Incentive Stock Option, the Participant agrees to give prompt notice to the Company of dispositions or other transfers (other than in connection with a Change in Control) of Shares acquired under the Option made within (i) two (2) years from the grant date of the Option or (ii) one (1) year after the transfer of such Shares to the Participant, specifying the date of the disposition or other transfer and the amount the Participant realized, in cash, other property, assumption of indebtedness or other consideration, in such disposition or other transfer. Neither the Company nor the Administrator will be liable to a Participant, or any other party, if an Incentive Stock Option fails or ceases to qualify as an "incentive stock option" under Section 422 of the Code. Any Incentive Stock Option or portion thereof that fails to qualify as an "incentive stock option" under Section 422 of the Code for any reason, including becoming exercisable with respect to Shares having a fair market value exceeding the $100,000 limitation under Treasury Regulation Section 1.422-4, will be a Non-Qualified Stock Option. The foregoing terms shall be incorporated into any Award Agreement evidencing an Option intended to be an Incentive Stock Option to the extent necessary to cause such Award to so qualify.

ARTICLE 6
RESTRICTED STOCK; RESTRICTED STOCK UNITS

6.1 General. The Administrator may grant Restricted Stock, or the right to purchase Restricted Stock, to any Service Provider, subject to the Company's right to repurchase all or part of such Shares at their issue price or other stated or formula price from the Participant (or to require forfeiture of such Shares) if conditions the Administrator specifies in the Award Agreement are not satisfied before the end of the applicable restriction period or periods that the Administrator establishes for such Award. In addition, the Administrator may grant to Service Providers Restricted Stock Units, which may be subject to vesting and forfeiture conditions during the applicable restriction period or periods, as set forth in an Award Agreement.

6.2 Restricted Stock.

(a) Dividends. Participants holding Shares of Restricted Stock will be entitled to all ordinary cash dividends paid with respect to such Shares, unless the Administrator provides otherwise in the Award Agreement. In addition, unless the Administrator provides otherwise, if any dividends or distributions are paid in Shares, or consist of a dividend or distribution to holders of Common Stock of property other than an ordinary cash dividend, the Shares or other property will be subject to the same restrictions on transferability and forfeitability as the Shares of Restricted Stock with respect to which they were paid. Notwithstanding anything to the contrary herein, unless otherwise determined by the Administrator, with respect to any award of Restricted Stock, dividends which are paid to holders of Common Stock prior to vesting shall only be paid out to a Participant holding such Restricted Stock to the extent that the vesting conditions are subsequently satisfied. All such dividend payments will be made no later than March 15 of the calendar year following the calendar year in which the right to the dividend payment becomes nonforfeitable.

(b) Stock Certificates. The Company may require that the Participant deposit in escrow with the Company (or its designee) any stock certificates issued in respect of Shares of Restricted Stock, together with a stock power endorsed in blank.

6.3 Restricted Stock Units.

(a) Settlement. The Administrator may provide that settlement of Restricted Stock Units will occur upon or as soon as reasonably practicable after the Restricted Stock Units vest or will instead be deferred, on a mandatory basis or at the Participant's election, in a manner intended to comply with Section 409A.

(b) Stockholder Rights. A Participant will have no rights of a stockholder with respect to Shares subject to any Restricted Stock Unit unless and until the Shares are delivered in settlement of the Restricted Stock Unit.

ARTICLE 7
OTHER STOCK OR CASH BASED AWARDS; DIVIDEND EQUIVALENTS

7.1 Other Stock or Cash Based Awards. Other Stock or Cash Based Awards may be granted to Participants, including Awards entitling Participants to receive Shares to be delivered in the future and including annual or other periodic or long-term cash bonus awards (whether based on specified Performance Criteria or otherwise), in each case subject to any conditions and limitations in the Plan. Such Other Stock or Cash Based Awards will also be available as a payment form in the settlement of other Awards, as standalone payments and as payment in lieu of compensation to which a Participant is otherwise entitled. Other Stock or Cash Based Awards may be paid in Shares, cash, or other property, as the Administrator determines.

7.2 Dividend Equivalents. A grant of Restricted Stock Units or Other Stock or Cash Based Award may provide a Participant with the right to receive Dividend Equivalents, and no Dividend Equivalents shall be payable with respect to Options or Stock Appreciation Rights. Dividend Equivalents may be paid currently or credited to an account for the Participant, settled in cash or Shares and subject to the same restrictions on transferability and forfeitability as the Award with to which the Dividend Equivalents are paid and subject to other terms and conditions as set forth in the Award Agreement. Notwithstanding anything to the contrary herein, unless otherwise determined by the Administrator, Dividend Equivalents with respect to an Award shall only be paid to a Participant to the extent that the vesting conditions are subsequently satisfied. All such Dividend Equivalent payments will be made no later than March 15 of the calendar year following the calendar year in which the right to the Dividend Equivalent payment becomes nonforfeitable, unless determined otherwise by the Administrator or unless deferred in a manner intended to comply with Section 409A.

ARTICLE 8
ADJUSTMENTS FOR CHANGES IN COMMON STOCK AND CERTAIN OTHER EVENTS

8.1 Equity Restructuring. In connection with any Equity Restructuring, notwithstanding anything to the contrary in this Article 8, the Administrator will equitably adjust each outstanding Award as it deems appropriate to reflect the Equity Restructuring, which may include adjusting the number and type of securities subject to each outstanding Award and/or the Award's exercise price or grant price (if applicable), granting new Awards to Participants, and making a cash payment to Participants. The adjustments provided under this Section 8.1 will be nondiscretionary and final and binding on the affected Participant and the Company; provided that the Administrator will determine whether an adjustment is equitable.

8.2 Corporate Transactions. In the event of any dividend or other distribution (whether in the form of cash, Common Stock, other securities, or other property), reorganization, merger, consolidation, combination, amalgamation, repurchase, recapitalization, liquidation, dissolution, or sale, transfer, exchange or other disposition of all or substantially all of the assets of the Company, or sale or exchange of Common Stock or other securities of the Company, Change in Control, issuance of warrants or other rights to purchase Common Stock or other securities of the Company, other similar corporate transaction or event, other unusual or nonrecurring transaction or event affecting the Company or its financial statements or any change in any Applicable Laws or accounting principles, the Administrator, on such terms and conditions as it deems appropriate, either by the terms of the Award or by action taken prior to the occurrence of such transaction or event (except that action to give effect to a change in Applicable Law or accounting principles may be made within a reasonable period of time after such change), is hereby authorized to take any one or more of the following actions whenever the Administrator determines that such action is appropriate in order to (x) prevent dilution or enlargement of the benefits or potential benefits intended by the Company to be made available under the Plan or with respect to any Award granted or issued under the Plan, (y) to facilitate such transaction or event or (z) give effect to such changes in Applicable Laws or accounting principles:

(a) To provide for the cancellation of any such Award in exchange for either an amount of cash or other property with a value equal to the amount that could have been obtained upon the exercise or settlement of the vested portion of such Award or realization of the Participant's rights under the vested portion of such Award, as applicable; provided that, if the amount that could have been obtained upon the exercise or settlement of the vested portion of such Award or realization of the Participant's rights, in any case, is equal to or less than zero, then the Award may be terminated without payment; provided, further, that Awards held by members of the Board will be settled in Shares on or immediately prior to the applicable event if the Administrator takes action under this clause (a);

(b) To provide that such Award shall vest and, to the extent applicable, be exercisable as to all Shares covered thereby, notwithstanding anything to the contrary in the Plan or the provisions of such Award;

(c) To provide that such Award be assumed by the successor or survivor corporation, or a parent or subsidiary thereof, or shall be substituted for by awards covering the stock of the successor or survivor corporation, or a parent or subsidiary thereof, with appropriate adjustments as to the number and kind of shares and/or applicable exercise or purchase price, in all cases, as determined by the Administrator;

(d) To make adjustments in the number and type of Shares (or other securities or property) subject to outstanding Awards and/or with respect to which Awards may be granted under the Plan (including, but not limited to, adjustments of the limitations in Article 4 on the maximum number and kind of shares which may be issued) and/or in the terms and conditions of (including the grant or exercise price or applicable performance goals), and the criteria included in, outstanding Awards;

(e) To replace such Award with other rights or property selected by the Administrator; and/or

(f) To provide that the Award will terminate and cannot vest, be exercised or become payable after the applicable event.

8.3 Effect of Non-Assumption in a Change in Control. Notwithstanding the provisions of Section 8.2, if a Change in Control occurs and a Participant's Awards are not continued, converted, assumed, or replaced with a substantially similar award by (a) the Company, or (b) a successor entity or its parent or subsidiary (an "***Assumption***"), and provided that the Participant has not had a Termination of Service, then the Administrator may provide that, immediately prior to the Change in Control, such Awards shall become fully vested, exercisable and/or payable, as applicable, and all forfeiture, repurchase and other restrictions on such Awards shall lapse, in which case, such Awards shall be canceled upon the consummation of the Change in Control in exchange for the right to receive the Change in Control consideration payable to other holders of Common Stock (i) which may be on such terms and conditions as apply generally to holders of Common Stock under the Change in Control documents (including, without limitation, any escrow, earn-out or

other deferred consideration provisions) or such other terms and conditions as the Administrator may provide, and (ii) determined by reference to the number of Shares subject to such Awards and net of any applicable exercise price; *provided that* to the extent that any Awards constitute "nonqualified deferred compensation" that may not be paid upon the Change in Control under Section 409A without the imposition of taxes thereon under Section 409A, the timing of such payments shall be governed by the applicable Award Agreement (subject to any deferred consideration provisions applicable under the Change in Control documents); and *provided, further*, that if the amount to which a Participant would be entitled upon the settlement or exercise of such Award at the time of the Change in Control is equal to or less than zero, then such Award may be terminated without payment. An Award will be considered replaced with a comparable award if the Award is exchanged for an amount of cash or other property with a value equal to the amount that could have been obtained upon the settlement of such Award in such Change in Control (as determined by the Administrator), even if such cash or other property payable with respect to the unvested portion of such Award remains subject to similar vesting provisions following such Change in Control. Notwithstanding the foregoing, the Administrator will have full and final authority to determine whether an Assumption of an Award has occurred in connection with a Change in Control.

8.4 Administrative Stand Still. In the event of any pending stock dividend, stock split, combination or exchange of shares, merger, consolidation or other distribution (other than normal cash dividends) of Company assets to stockholders, or any other extraordinary transaction or change affecting the Shares or the Share price, including any Equity Restructuring or any securities offering or other similar transaction, for administrative convenience, the Administrator may refuse to permit the exercise of any Award for up to sixty (60) days before or after such transaction.

8.5 General. Except as expressly provided in the Plan or the Administrator's action under the Plan, no Participant will have any rights due to any subdivision or consolidation of Shares of any class, dividend payment, increase or decrease in the number of Shares of any class or dissolution, liquidation, merger, or consolidation of the Company or other corporation. Except as expressly provided with respect to an Equity Restructuring under Section 8.1 or the Administrator's action under the Plan, no issuance by the Company of Shares of any class, or securities convertible into Shares of any class, will affect, and no adjustment will be made regarding, the number of Shares subject to an Award or the Award's grant or exercise price. The existence of the Plan, any Award Agreements and the Awards granted hereunder will not affect or restrict in any way the Company's right or power to make or authorize (i) any adjustment, recapitalization, reorganization or other change in the Company's capital structure or its business, (ii) any merger, consolidation dissolution or liquidation of the Company or sale of Company assets or (iii) any sale or issuance of securities, including securities with rights superior to those of the Shares or securities convertible into or exchangeable for Shares. The Administrator may treat Participants and Awards (or portions thereof) differently under this Article 8.

ARTICLE 9
GENERAL PROVISIONS APPLICABLE TO AWARDS

9.1 Transferability. Except as the Administrator may determine or provide in an Award Agreement or otherwise for Awards other than Incentive Stock Options, Awards may not be sold, assigned, transferred, pledged or otherwise encumbered, either voluntarily or by operation of law, except for certain Designated Beneficiary designations, by will or the laws of descent and distribution, or, subject to the Administrator's consent, pursuant to a domestic relations order, and, during the life of the Participant, will be exercisable only by the Participant. Any permitted transfer of an Award hereunder shall be without consideration, except as required by Applicable Law. References to a Participant, to the extent relevant in the context, will include references to a Participant's authorized transferee that the Administrator specifically approves.

9.2 Documentation. Each Award will be evidenced in an Award Agreement, which may be written or electronic, as the Administrator determines. Each Award may contain terms and conditions in addition to those set forth in the Plan.

9.3 Discretion. Except as the Plan otherwise provides, each Award may be made alone or in addition or in relation to any other Award. The terms of each Award to a Participant need not be identical, and the Administrator need not treat Participants or Awards (or portions thereof) uniformly.

9.4 Termination of Status. The Administrator will determine how the disability, death, retirement, an authorized leave of absence or any other change or purported change in a Participant's Service Provider status affects an Award and the extent to which, and the period during which, the Participant, the Participant's legal representative, conservator, guardian or Designated Beneficiary may exercise rights under the Award, if applicable.

9.5 Withholding. Each Participant must pay the Company or make provision satisfactory to the Administrator for payment of, any taxes required by Applicable Law to be withheld in connection with such Participant's Awards by the date of the event creating the tax liability. The Company may deduct an amount sufficient to satisfy such tax obligations based on the applicable statutory withholding rates (or such other rate as may be determined by the Company after considering any accounting consequences or costs) from any payment of any kind otherwise due to a Participant. In the absence of a contrary determination by the Company (or, with respect to withholding pursuant to clause (ii) below with respect to Awards held by individuals subject to Section 16 of the Exchange Act, a contrary determination by the Administrator), all tax withholding obligations will be calculated based on the minimum applicable statutory withholding rates. Subject to Section 10.8 and any Company insider trading policy (including blackout periods), Participants may satisfy such tax obligations (i) in cash, by wire transfer of immediately available funds, by check made payable to the order of the Company, provided that the Company may limit the use of the foregoing payment forms if one or more of the payment forms below is permitted, (ii) to the extent permitted by the Administrator, in whole or in part by delivery of Shares, including Shares delivered by attestation and Shares retained from the Award creating the tax obligation, valued at their fair market value on the date of delivery, (iii) if there is a public market for Shares at the time the tax obligations are satisfied, unless the Company otherwise determines, (A) delivery (including electronically or telephonically to the extent permitted by the Company) of an irrevocable and unconditional undertaking by a broker acceptable to the Company to deliver promptly to the Company sufficient funds to satisfy the tax obligations, or (B) delivery by the Participant to the Company of a copy of irrevocable and unconditional instructions to a broker acceptable to the Company to deliver promptly to the Company cash or a check sufficient to satisfy the tax withholding; provided that such amount is paid to the Company at such time as may be required by the Administrator, or (iv) to the extent permitted by the Company, any combination of the foregoing payment forms approved by the Administrator. Notwithstanding any other provision of the Plan, the number of Shares which may be so delivered or retained pursuant to clause (ii) of the immediately preceding sentence shall be limited to the number of Shares which have a fair market value on the date of delivery or retention no greater than the aggregate amount of such liabilities based on the maximum individual statutory tax rate in the applicable jurisdiction at the time of such withholding (or such other rate as may be required to avoid the liability classification of the applicable award under generally accepted accounting principles in the United States of America); provided, however, to the extent such Shares were acquired by Participant from the Company as compensation, the Shares must have been held for the minimum period required by applicable accounting rules to avoid a charge to the Company's earnings for financial reporting purposes; provided, further, that, any such Shares delivered or retained shall be rounded up to the nearest whole Share to the extent rounding up to the nearest whole Share does not result in the liability classification of the applicable Award under generally accepted accounting principles in the United States of America. If any tax withholding obligation will be satisfied under clause (ii) above by the Company's retention of Shares from the Award creating the tax obligation and there is a public market for Shares at the time the tax obligation is satisfied, the Company may elect to instruct any brokerage firm determined acceptable to the Company for such purpose to sell on the applicable Participant's behalf some or all of the Shares retained and to remit the proceeds of the sale to the Company or its designee, and each Participant's acceptance of an Award under the Plan will constitute the Participant's authorization to the Company and instruction and authorization to such brokerage firm to complete the transactions described in this sentence.

9.6 Amendment of Award; Repricing; Backdating. The Administrator may amend, modify, or terminate any outstanding Award, including by substituting another Award of the same or a different type, changing the exercise or settlement date, and converting an Incentive Stock Option to a Non-Qualified Stock Option. The Participant's consent to such action will be required unless (i) the action, taking into account any related action, does not materially and adversely affect the Participant's rights under the Award, or (ii) the change is permitted under Article 8 or pursuant to Section 10.6. Notwithstanding anything in this Plan to the contrary, except as provided under Article 8, the Administrator may not (i) amend the terms of outstanding Options or Stock Appreciation Rights to reduce the exercise or grant price of such outstanding Options or Stock Appreciation Rights; (ii) cancel outstanding Options or Stock Appreciation Rights in exchange for Options or Stock Appreciation Rights with an exercise or grant price that is less than the exercise price of the original Options or Stock Appreciation Rights; or (iii) cancel outstanding Options or Stock Appreciation Rights with an exercise or grant price above the current Fair Market Value in exchange for cash or other securities. In addition, the Administrator may not make a grant of an Option or Stock Appreciation Right with a grant date that is effective prior to the date the Administrator takes action to approve such Award.

9.7 Conditions on Delivery of Stock. The Company will not be obligated to deliver any Shares under the Plan or remove restrictions from Shares previously delivered under the Plan until (i) all Award conditions have been met or removed to the Company's satisfaction, (ii) as determined by the Company, all other legal matters regarding the issuance and delivery of such Shares have been satisfied, including any applicable securities laws and stock exchange or stock market rules and regulations, and (iii) the Participant has executed and delivered to the Company such representations or agreements as the Administrator deems necessary or appropriate to satisfy any Applicable Laws. The Company's inability to obtain authority from any regulatory body having jurisdiction, which the Administrator

determines is necessary to the lawful issuance and sale of any securities, will relieve the Company of any liability for failing to issue or sell such Shares as to which such requisite authority has not been obtained.

9.8 Acceleration. The Administrator may at any time provide that any Award will become immediately vested and fully or partially exercisable, free of some or all restrictions or conditions, or otherwise fully or partially realizable.

9.9 Cash Settlement. Without limiting the generality of any other provision of the Plan, the Administrator may provide, in an Award Agreement or subsequent to the grant of an Award, at its discretion, that any Award may be settled in cash, Shares or a combination thereof.

9.10 Broker-Assisted Sales. In the event of a broker-assisted sale of Shares in connection with the payment of amounts owed by a Participant under or with respect to the Plan or Awards, including amounts to be paid under the final sentence of Section 9.5: (a) any Shares to be sold through the broker-assisted sale will be sold on the day the payment first becomes due, or as soon thereafter as practicable; (b) such Shares may be sold as part of a block trade with other Participants in the Plan in which all Participants receive an average price; (c) the applicable Participant will be responsible for all broker's fees and other costs of sale, and by accepting an Award, each Participant agrees to indemnify and hold the Company harmless from any losses, costs, damages, or expenses relating to any such sale; (d) to the extent the Company or its designee receives proceeds of such sale that exceed the amount owed, the Company will pay such excess in cash to the applicable Participant as soon as reasonably practicable; (e) the Company and its designees are under no obligation to arrange for such sale at any particular price; and (f) in the event the proceeds of such sale are insufficient to satisfy the Participant's applicable obligation, the Participant may be required to pay immediately upon demand to the Company or its designee an amount in cash sufficient to satisfy any remaining portion of the Participant's obligation.

ARTICLE 10
MISCELLANEOUS

10.1 No Right to Employment or Other Status. No person will have any claim or right to be granted an Award, and the grant of an Award will not be construed as giving a Participant the right to continued employment or any other relationship with the Company or any of its Subsidiaries. The Company and its Subsidiaries expressly reserves the right at any time to dismiss or otherwise terminate its relationship with a Participant free from any liability or claim under the Plan or any Award, except as expressly provided in an Award Agreement or in the Plan.

10.2 No Rights as Stockholder; Certificates. Subject to the Award Agreement, no Participant or Designated Beneficiary will have any rights as a stockholder with respect to any Shares to be distributed under an Award until becoming the record holder of such Shares. Notwithstanding any other provision of the Plan, unless the Administrator otherwise determines or Applicable Laws require, the Company will not be required to deliver to any Participant certificates evidencing Shares issued in connection with any Award and instead such Shares may be recorded in the books of the Company (or, as applicable, its transfer agent or stock plan administrator). The Company may place legends on stock certificates issued under the Plan that the Administrator deems necessary or appropriate to comply with Applicable Laws.

10.3 Effective Date and Term of Plan. Unless earlier terminated by the Board, the Plan will become effective on the Pricing Date and will remain in effect until the tenth anniversary of the earlier of (i) the date the Board adopted the Plan or (ii) the date the Company's stockholders approved the Plan, but Awards previously granted may extend beyond that date in accordance with the Plan. The Plan will be submitted for the approval of the Company's stockholders within twelve (12) months after the date of the Board's adoption of the Plan.

10.4 Amendment and Termination of Plan. The Administrator may amend, suspend, or terminate the Plan at any time; provided that no amendment, other than an increase to the Overall Share Limit, may materially and adversely affect any Award outstanding at the time of such amendment without the affected Participant's consent. No Awards may be granted under the Plan during any suspension period or after the Plan's termination. Awards outstanding at the time of any Plan suspension or termination will continue to be governed by the Plan and the Award Agreement, as in effect before such suspension or termination. The Board will obtain stockholder approval of any Plan amendment to the extent necessary to comply with Applicable Laws.

10.5 Provisions for Foreign Participants. The Administrator may modify Awards granted to Participants who are foreign nationals or employed outside the United States or establish subplans or procedures under the Plan to address differences in laws, rules, regulations, or customs of such foreign jurisdictions with respect to tax, securities, currency, employee benefit or other matters.

10.6 Section 409A.

(a) General. The Company intends that all Awards be structured to comply with, or be exempt from, Section 409A, such that no adverse tax consequences, interest, or penalties under Section 409A apply. Notwithstanding anything in the Plan or any Award Agreement to the contrary, the Administrator may, without a Participant's consent, amend this Plan or Awards, adopt policies and procedures, or take any other actions (including amendments, policies, procedures and retroactive actions) as are necessary or appropriate to preserve the intended tax treatment of Awards, including any such actions intended to (A) exempt this Plan or any Award from Section 409A, or (B) comply with Section 409A, including regulations, guidance, compliance programs and other interpretative authority that may be issued after an Award's grant date. The Company makes no representations or warranties as to an Award's tax treatment under Section 409A or otherwise. The Company will have no obligation under this Section 10.6 or otherwise to avoid the taxes, penalties, or interest under Section 409A with respect to any Award and will have no liability to any Participant or any other person if any Award, compensation or other benefits under the Plan are determined to constitute noncompliant "nonqualified deferred compensation" subject to taxes, penalties or interest under Section 409A.

(b) Separation from Service. If an Award constitutes "nonqualified deferred compensation" under Section 409A, any payment or settlement of such Award upon a termination of a Participant's Service Provider relationship will, to the extent necessary to avoid taxes under Section 409A, be made only upon the Participant's "separation from service" (within the meaning of Section 409A), whether such "separation from service" occurs upon or after the termination of the Participant's Service Provider relationship. For purposes of this Plan or any Award Agreement relating to any such payments or benefits, references to a "termination," "termination of employment" or like terms means a "separation from service."

(c) Payments to Specified Employees. Notwithstanding any contrary provision in the Plan or any Award Agreement, any payment(s) of "nonqualified deferred compensation" required to be made under an Award to a "specified employee" (as defined under Section 409A and as the Administrator determines) due to his or her "separation from service" will, to the extent necessary to avoid taxes under Section 409A(a)(2)(B)(i) of the Code, be delayed for the six (6)-month period immediately following such "separation from service" (or, if earlier, until the specified employee's death) and will instead be paid (as set forth in the Award Agreement) on the day immediately following such six (6)-month period or as soon as administratively practicable thereafter (without interest). Any payments of "nonqualified deferred compensation" under such Award payable more than six (6) months following the Participant's "separation from service" will be paid at the time or times the payments are otherwise scheduled to be made. Furthermore, notwithstanding any contrary provision of the Plan or any Award Agreement, any payment of "nonqualified deferred compensation" under the Plan that may be made in installments shall be treated as a right to receive a series of separate and distinct payments.

10.7 Limitations on Liability. Notwithstanding any other provisions of the Plan, no individual acting as a director, officer, other employee or agent of the Company or any Subsidiary will be liable to any Participant, former Participant, spouse, beneficiary, or any other person for any claim, loss, liability, or expense incurred in connection with the Plan or any Award, and such individual will not be personally liable with respect to the Plan because of any contract or other instrument executed in his or her capacity as an Administrator, director, officer, other employee or agent of the Company or any Subsidiary. The Company will indemnify and hold harmless each director, officer, other employee and agent of the Company or any Subsidiary that has been or will be granted or delegated any duty or power relating to the Plan's administration or interpretation, against any cost or expense (including attorneys' fees) or liability (including any sum paid in settlement of a claim with the Administrator's approval) arising from any act or omission concerning this Plan unless arising from such person's own fraud or bad faith.

10.8 Lock-Up Period. The Company may, at the request of any underwriter representative or otherwise, in connection with registering the offering of any Company securities under the Securities Act, prohibit Participants from, directly or indirectly, selling or otherwise transferring any Shares or other Company securities during a period of up to one hundred eighty (180) days following the effective date of a Company registration statement filed under the Securities Act, or such longer period as determined by the underwriter.

10.9 Data Privacy. As a condition for receiving any Award, each Participant explicitly and unambiguously consents to the collection, use and transfer, in electronic or other form, of personal data as described in this section by and among the Company and its Subsidiaries and affiliates exclusively for implementing, administering, and managing the Participant's participation in the Plan. The

Company and its Subsidiaries and affiliates may hold certain personal information about a Participant, including the Participant's name, address, and telephone number; birthdate; social security number, insurance number or other identification number; salary; nationality; job title(s); any Shares held in the Company or its Subsidiaries and affiliates; and Award details, to implement, manage and administer the Plan and Awards (the "***Data***"). The Company and its Subsidiaries and affiliates may transfer the Data amongst themselves as necessary to implement, administer and manage a Participant's participation in the Plan, and the Company and its Subsidiaries and affiliates may transfer the Data to third parties assisting the Company with Plan implementation, administration, and management. These recipients may be located in the Participant's country, or elsewhere, and the Participant's country may have different data privacy laws and protections than the recipients' country. By accepting an Award, each Participant authorizes such recipients to receive, possess, use, retain and transfer the Data, in electronic or other form, to implement, administer and manage the Participant's participation in the Plan, including any required Data transfer to a broker or other third party with whom the Company or the Participant may elect to deposit any Shares. The Data related to a Participant will be held only as long as necessary to implement, administer, and manage the Participant's participation in the Plan. A Participant may, at any time, view the Data that the Company holds regarding such Participant, request additional information about the storage and processing of the Data regarding such Participant, recommend any necessary corrections to the Data regarding the Participant or refuse or withdraw the consents in this Section 10.9 in writing, without cost, by contacting the local human resources representative. If the Participant refuses or withdraws the consents in this Section 10.9, the Company may cancel Participant's ability to participate in the Plan and, in the Administrator's discretion, the Participant may forfeit any outstanding Awards. For more information on the consequences of refusing or withdrawing consent, Participants may contact their local human resources representative.

10.10 Severability. If any portion of the Plan or any action taken under it is held illegal or invalid for any reason, the illegality or invalidity will not affect the remaining parts of the Plan, and the Plan will be construed and enforced as if the illegal or invalid provisions had been excluded, and the illegal or invalid action will be null and void.

10.11 Governing Documents. If any contradiction occurs between the Plan and any Award Agreement or other written agreement between a Participant and the Company (or any Subsidiary) that the Administrator has approved, the Plan will govern, unless it is expressly specified in such Award Agreement or other written document that a specific provision of the Plan will not apply.

10.12 Governing Law; Venue; Waiver of Jury Trial. The Plan and all Awards will be governed by and interpreted in accordance with the laws of the State of Delaware, disregarding any state's choice-of-law principles requiring the application of a jurisdiction's laws other than the State of Delaware. By accepting an Award, each Participant irrevocably and unconditionally consents to submit to the exclusive jurisdiction of the courts of the State of Delaware and of the United States of America, in each case located in the State of Delaware, for any action arising out of or relating to the Plan (and agrees not to commence any litigation relating thereto except in such courts), and further agrees that service of any process, summons, notice or document by U.S. registered mail to the address contained in the records of the Company shall be effective service of process for any litigation brought against it in any such court. By accepting an Award, each Participant irrevocably and unconditionally waives any objection to the laying of venue of any litigation arising out of the Plan or any Award hereunder in the courts of the State of Delaware or the United States of America, in each case located in the State of Delaware, and further irrevocably and unconditionally waives and agrees not to plead or claim in any such court that any such litigation brought in any such court has been brought in an inconvenient forum. By accepting an Award, each Participant irrevocably and unconditionally waives, to the fullest extent permitted by applicable law, any and all rights to trial by jury in connection with any litigation arising out of or relating to the Plan or any Award hereunder.

10.13 Clawback Provisions. All compensation received by Participants, including pursuant to Awards (including, without limitation, any proceeds, gains or other economic benefit actually or constructively received by Participant upon any receipt or exercise of any Award or upon the receipt or resale of any Shares underlying the Award) shall be subject to reduction, cancellation, forfeiture and/or recoupment to the extent necessary to comply with (a) any clawback, forfeiture or other similar policy adopted by the Company (each, a "***Policy***"), and (b) any other clawback, recoupment, forfeiture or similar policies or provisions applicable to a Participant or required under Applicable Law (collectively, the "***Recovery Arrangements***"), notwithstanding any other agreement to the contrary. No recovery of compensation under any Recovery Arrangements will be an event that triggers or contributes to any right of a Participant to resign for "good reason" (or similar term) under the Plan or any Award Agreement or any other agreement with the Company or a Subsidiary or affiliate. By accepting an Award, each Participant will be deemed to have agreed that he or she is not entitled to indemnification in connection with any enforcement of the Recovery Arrangements and to have waived any rights to such indemnification under the Company's organizational documents or otherwise. By accepting an Award, each Participant agrees to take all required action in a reasonably prompt manner, as applicable, to enable the enforcement of the Recovery Arrangements. The Administrator may condition a Participant's receipt of an Award on such Participant's execution of an acknowledgment pursuant to which such Participant will agree to be bound by the terms of, and comply with, the Recovery Arrangements and this Section 10.13.

10.14 Titles and Headings. The titles and headings in the Plan are for convenience of reference only and, if there is any conflict, the Plan's text, rather than such titles or headings, will control.

10.15 Conformity to Securities Laws. Participant acknowledges that the Plan is intended to conform to the extent necessary with Applicable Laws. Notwithstanding anything herein to the contrary, the Plan and all Awards will be administered only in conformance with Applicable Laws. To the extent Applicable Laws permit, the Plan and all Award Agreements will be deemed amended as necessary to conform to Applicable Laws.

10.16 Relationship to Other Benefits. No payment under the Plan will be taken into account in determining any benefits under any pension, retirement, savings, profit sharing, group insurance, welfare or other benefit plan of the Company or any Subsidiary except as expressly provided in writing in such other plan or an agreement thereunder.

10.17 Plan Language. The official language of the Plan shall be English. To the extent that the Plan or any Award Agreements are translated from English into another language, the English version of the Plan and Award Agreements will always govern, in the event that there are inconsistencies or ambiguities which may arise due to such translation.

10.18 Applicable Currency. The Award Agreement shall specify the currency applicable to such Award. The Administrator may determine, in its sole discretion, that an Award denominated in one currency may be paid in any other currency based on the prevailing exchange rate as the Administrator deems appropriate. A Participant may be required to provide evidence that any currency used to pay the exercise price of any Award were acquired and taken out of the jurisdiction in which the Participant resides in accordance with Applicable Laws, including foreign exchange control laws and regulations. In the absence of a designation in an Award Agreement, the currency applicable to an Award shall be U.S. Dollars.

ARTICLE 11
DEFINITIONS

As used in the Plan, the following words and phrases will have the following meanings:

11.1 "***Administrator***" means the Board or a Committee to the extent that the Board's powers or authority under the Plan have been delegated to such Committee.

11.2 "***Applicable Laws***" means the requirements relating to the administration of equity incentive plans under U.S. federal and state securities, tax and other applicable laws, rules and regulations, the applicable rules of any stock exchange or quotation system on which the Common Stock is listed or quoted and the applicable laws and rules of any foreign country or other jurisdiction where Awards are granted.

11.3 "***Award***" means, individually or collectively, a grant under the Plan of Options, Stock Appreciation Rights, Restricted Stock, Restricted Stock Units, Dividend Equivalents, or Other Stock or Cash Based Awards.

11.4 "***Award Agreement***" means a written agreement evidencing an Award, which may be electronic, that contains such terms and conditions as the Administrator determines, consistent with and subject to the terms and conditions of the Plan.

11.5 "***Board***" means the Board of Directors of the Company.

11.6 "***Cause***" means the termination of a Participant's service with the Company or a Subsidiary as a result of the occurrence of one or more of the following events, except as otherwise expressly provided in the applicable Award Agreement: misconduct, negligence, dishonesty, violence or threat of violence (including any violation of federal securities laws) that is injurious to the Company or any of its Subsidiaries; disclosure of trade secrets, client information or other confidential information; breach of the provisions of an agreement, covenant or other obligation with the Company or a Subsidiary, including without limitation an employment agreement or a non-disclosure or confidentiality agreement; material mismanagement in the performance of his or her duties; willful failure to execute or comply with the major policies of the Company or a Subsidiary or his or her stated duties; any other willful misconduct which is materially injurious to the financial condition or business reputation of the Company or any of its Subsidiaries; material breach of a written policy of the Company or a Subsidiary or the laws or rules of any governmental or regulatory body applicable to the Company

or a Subsidiary; and conviction of, or plea of nolo contendere to, any felony or another crime involving dishonesty or moral turpitude or which could reflect negatively upon the Company or a Subsidiary or otherwise impair or impede its operations. If Participant is a party to an employment or service agreement with the Company or its Subsidiaries and such agreement provides for a definition of Cause, the definition therein contained shall constitute "Cause" for purposes of this Plan in addition to the above definition. The determination of a Participant's termination for "Cause" shall be made in the sole and absolute discretion of the Board.

11.7 "***Change in Control***" means the occurrence of (i) a sale, lease or other disposition of all or substantially all of the assets of the Company, (ii) a merger or consolidation in which the Company is not the surviving corporation (except for a merger or consolidation with an entity controlled by the stockholders of the Company), (iii) a reverse merger in which the Company is the surviving corporation but the Shares outstanding immediately preceding the merger are converted by virtue of the merger into other property, whether in the form of securities, cash or otherwise or (iv) the adoption of a plan of dissolution or liquidation of the Company.

Notwithstanding the foregoing, if a Change in Control constitutes a payment event with respect to any Award (or portion of any Award) that provides for the deferral of compensation that is subject to Section 409A, to the extent required to avoid the imposition of additional taxes under Section 409A, the transaction or event described above with respect to such Award (or portion thereof) shall only constitute a Change in Control for purposes of the payment timing of such Award if such transaction also constitutes a "change in control event," as defined in Treasury Regulation Section 1.409A-3(i)(5).

The Administrator shall have full and final authority, which shall be exercised in its discretion, to determine conclusively whether a Change in Control has occurred pursuant to the above definition, the date of the occurrence of such Change in Control and any incidental matters relating thereto; provided that any exercise of authority in conjunction with a determination of whether a Change in Control is a "change in control event" as defined in Treasury Regulation Section 1.409A-3(i)(5) shall be consistent with such regulation.

11.8 "***Code***" means the U.S. Internal Revenue Code of 1986, as amended, and the regulations issued thereunder.

11.9 "***Committee***" means one or more committees or subcommittees of the Board, which may include one or more Company directors or executive officers, to the extent Applicable Laws permit. To the extent required to comply with the provisions of Rule 16b-3, it is intended that each member of the Committee will be, at the time the Committee takes any action with respect to an Award that is subject to Rule 16b-3, a "non-employee director" within the meaning of Rule 16b-3; however, a Committee member's failure to qualify as a "non-employee director" within the meaning of Rule 16b-3 will not invalidate any Award granted by the Committee that is otherwise validly granted under the Plan.

11.10 "***Common Stock***" means the common stock of the Company.

11.11 "***Company***" means Actuate Therapeutics, Inc., a corporation organized under the laws of the State of Delaware, and any successor thereto.

11.12 "***Consultant***" means any consultant or advisor engaged by the Company or any of its Subsidiaries to render services to such entity, in each case that can be granted an Award that is eligible to be registered on a Form S-8 Registration Statement.

11.13 "***Designated Beneficiary***" means the beneficiary or beneficiaries the Participant designates, in a manner the Administrator determines, to receive amounts due or exercise the Participant's rights if the Participant dies or becomes incapacitated. Without a Participant's effective designation, "Designated Beneficiary" will mean the Participant's estate.

11.14 "***Director***" means a Board member.

11.15 "***Disability***" means a permanent and total disability under Section 22(e)(3) of the Code, as amended.

11.16 "***Dividend Equivalents***" means a right granted to a Participant under the Plan to receive the equivalent value (in cash or Shares) of dividends paid on Shares.

11.17 "***Employee***" means any employee of the Company or its Subsidiaries.

11.18 "***Equity Restructuring***" means a non-reciprocal transaction between the Company and its stockholders, such as a stock dividend, stock split, spin-off or recapitalization through a large, nonrecurring cash dividend that affects the number or kind of Shares (or other securities of the Company) or the share price of Common Stock (or other securities of the Company) and causes a change in the per share value of the Common Stock underlying outstanding Awards.

11.19 "***Exchange Act***" means the U.S. Securities Exchange Act of 1934, as amended.

11.20 "***Fair Market Value***" means, as of any date, the value of a Share of Common Stock determined as follows: (a) if the Common Stock is listed on any established stock exchange, its Fair Market Value will be the closing sales price for such Common Stock as quoted on such exchange for such date, or if no sale occurred on such date, the last day preceding such date during which a sale occurred, as reported in *The Wall Street Journal* or another source the Administrator deems reliable; (b) if the Common Stock is not traded on a stock exchange but is quoted on a national market or other quotation system, the closing sales price on such date, or if no sales occurred on such date, then on the last date preceding such date during which a sale occurred, as reported in *The Wall Street Journal* or another source the Administrator deems reliable; or (c) in the absence of an established market for the Common Stock, the Administrator may determine the Fair Market Value in its discretion. Notwithstanding the foregoing, with respect to any Award granted on the Pricing Date, the Fair Market Value shall mean the initial public offering price of a Share as set forth in the Company's final prospectus relating to its initial public offering filed with the Securities and Exchange Commission.

11.21 "***Greater Than 10% Stockholder***" means an individual then owning (within the meaning of Section 424(d) of the Code) more than 10% of the total combined voting power of all classes of stock of the Company or its parent or subsidiary corporation, as defined in Section 424(e) and (f) of the Code, respectively.

11.22 "***Incentive Stock Option***" means an Option intended to qualify as an "incentive stock option" as defined in Section 422 of the Code.

11.23 "***Non-Qualified Stock Option***" means an Option, or portion thereof, not intended or not qualifying as an Incentive Stock Option.

11.24 "***Option***" means an option to purchase Shares, which will either be an Incentive Stock Option or a Non-Qualified Stock Option.

11.25 "***Other Stock or Cash Based Awards***" means cash awards, awards of Shares, and other awards valued wholly or partially by referring to, or are otherwise based on, Shares or other property awarded to a Participant under Article 7.

11.26 "***Overall Share Limit***" means the sum of (i) the number of Shares equal to 12% of the aggregate number of Pricing Date Fully-Diluted Shares, which number is equal to [ ]; (ii) any shares of Common Stock which are available for issuance under the Prior Plan as of the Pricing Date; (iii) any shares of Common Stock that are subject to Prior Plan Awards that become available for issuance under the Plan pursuant to Article 4; and (iv) an annual increase on the first day of each calendar year beginning January 1, 2025 and ending on and including January 1, 2034, equal to the lesser of (A) 5% of the aggregate number of shares of Common Stock outstanding on the final day of the immediately preceding calendar year and (B) such smaller number of Shares as is determined by the Administrator. The entirety of the Overall Share Limit shall be available for Awards of Incentive Stock Options.

11.27 "***Participant***" means a Service Provider who has been granted an Award.

11.28 "***Performance Criteria***" mean the criteria (and adjustments) that the Administrator may select for an Award to establish performance goals for a performance period, which may include the following: net earnings or losses (either before or after one or more of interest, taxes, depreciation, amortization, and non-cash equity-based compensation expense); gross or net sales or revenue or sales or revenue growth; net income (either before or after taxes) or adjusted net income; profits (including but not limited to gross profits, net profits, profit growth, net operation profit or economic profit), profit return ratios or operating margin; budget or operating earnings (either before or after taxes or before or after allocation of corporate overhead and bonus); cash flow (including operating cash flow and free cash flow or cash flow return on capital); return on assets; return on capital or invested capital; cost of capital; return on stockholders'

equity; total stockholder return; return on sales; costs, reductions in costs and cost control measures; expenses; working capital; earnings or loss per share; adjusted earnings or loss per share; price per share or dividends per share (or appreciation in or maintenance of such price or dividends); regulatory achievements or compliance; implementation, completion or attainment of objectives relating to research, development, regulatory, commercial, or strategic milestones or developments; market share; economic value or economic value added models; division, group or corporate financial goals; customer satisfaction/growth; customer service; employee satisfaction; recruitment and maintenance of personnel; human capital management (including diversity and inclusion); supervision of litigation and other legal matters; strategic partnerships and transactions; financial ratios (including those measuring liquidity, activity, profitability or leverage); debt levels or reductions; sales-related goals; financing and other capital raising transactions; cash on hand; acquisition activity; investment sourcing activity; and marketing initiatives, any of which may be measured in absolute terms or as compared to any incremental increase or decrease. Such performance goals also may be based solely by reference to the Company's performance or the performance of a Subsidiary, division, business segment or business unit of the Company or a Subsidiary, or based upon performance relative to performance of other companies or upon comparisons of any of the indicators of performance relative to performance of other companies.

11.29 "***Plan***" means this 2024 Stock Incentive Plan.

11.30 "***Pricing Date***" means the date upon which the Company's Registration Statement on Form S-1 filed with the Securities and Exchange Commission relating to the registered underwritten public offering of shares of Common Stock becomes effective.

11.31 "***Pricing Date Fully-Diluted Shares***" means, as of the Pricing Date, the sum of (a) the Shares outstanding on such date (after giving effect to the Shares to be sold in the initial public offering and assuming the exercise in full of the underwriters' option to purchase additional Shares in such initial public offering), (b) the Shares subject to compensatory equity awards (including stock options) outstanding on such date (with the number of Shares subject to performance-based compensatory equity awards calculated at the "maximum" level of performance), and (c) all Shares available for future issuance under the Plan as of such date.

11.32 "***Prior Plan***" means the Actuate Therapeutics, Inc. (formerly Apotheca Therapeutics, Inc.) 2015 Stock Incentive Plan.

11.33 "***Prior Plan Award***" means an award outstanding under the Prior Plan as of the Pricing Date.

11.34 "***Restricted Stock***" means Shares awarded to a Participant under Article 6 subject to certain vesting conditions and other restrictions.

11.35 "***Restricted Stock Unit***" means an unfunded, unsecured right to receive, on the applicable settlement date, one Share or an amount in cash or other consideration determined by the Administrator to be of equal value as of such settlement date awarded to a Participant under Article 6 subject to certain vesting conditions and other restrictions.

11.36 "***Rule 16b-3***" means Rule 16b-3 promulgated under the Exchange Act.

11.37 "***Section 409A***" means Section 409A of the Code and all regulations, guidance, compliance programs and other interpretative authority thereunder.

11.38 "***Securities Act***" means the U.S. Securities Act of 1933, as amended.

11.39 "***Service Provider***" means an Employee, Consultant or Director.

11.40 "***Shares***" means shares of Common Stock.

11.41 "***Stock Appreciation Right***" means a stock appreciation right granted under Article 5.

11.42 "***Subsidiary***" means any entity (other than the Company), whether domestic or foreign, in an unbroken chain of entities beginning with the Company if each of the entities other than the last entity in the unbroken chain beneficially owns, at the time of the determination, securities or interests representing at least 50% of the total combined voting power of all classes of securities or interests in one of the other entities in such chain.

11.43 "***Substitute Awards***" means Awards granted or Shares issued by the Company in assumption of, or in substitution or exchange for, awards previously granted, or the right or obligation to make future awards, in each case by a company acquired by the Company or any Subsidiary or with which the Company or any Subsidiary combines.

11.44 "***Termination of Service***" means the date the Participant ceases to be a Service Provider. A Participant's status as a Service Provider shall not be deemed to have terminated merely because of a change in the capacity in which Participant renders service to the Company or any Affiliate as an Employee, Consultant or Director or a change in the entity for which Participant renders such service, provided there is no interruption or termination of Participant's continuous status as a Service Provider. The Administrator, in its sole discretion, may determine whether continuous service as a Service Provider shall be considered interrupted in the case of any leave of absence approved by the Company, including sick leave, military leave or any other personal leave.

* * * * *

Exhibit 10.3

ACTUATE THERAPEUTICS, INC.

NON-EMPLOYEE DIRECTOR COMPENSATION PROGRAM

Non-employee members of the board of directors (the "***Board***") of Actuate Therapeutics, Inc. (the "***Company***") shall receive cash and equity compensation as set forth in this Non-Employee Director Compensation Program (this "***Program***"). The cash and equity compensation described in this Program shall be paid or be made, as applicable, automatically and without further action of the Board, to each member of the Board who is not an employee of the Company or any parent or subsidiary of the Company (each, a "***Non-Employee Director***") who is entitled to receive such cash or equity compensation, unless such Non-Employee Director declines the receipt of such cash or equity compensation by written notice to the Company and subject to any limits on non-employee director compensation set forth in the Equity Plan (as defined below). This Program shall remain in effect until it is revised or rescinded by further action of the Board. This Program may be amended, modified or terminated by the Board at any time in its sole discretion. The terms and conditions of this Program shall supersede any prior cash and/or equity compensation arrangements for service as a member of the Board between the Company and any of its Non-Employee Directors, except for equity compensation previously granted to a Non-Employee Director. This Program shall become effective on the date of the effectiveness of the Company's Registration Statement on Form S-1 relating to the initial public offering of the Company's common stock (the "***Effective Date***").

Cash Compensation

The schedule of annual retainers (the "***Annual Retainers***") for the Non-Employee Directors is as follows:

Position	Amount
Base Board Retainer	$ 40,000
Chair of the Board or Lead Independent Director (in lieu of the Base Board Retainer)	$ 70,000
Chair of Audit Committee	$ 19,000
Chair of Compensation Committee	$ 12,000
Chair of Nominating and Corporate Governance Committee	$ 8,000
Member of Audit Committee (non-Chair)	$ 9,000
Member of Compensation Committee (non-Chair)	$ 6,500
Member of Nominating and Corporate Governance Committee (non-Chair)	$ 4,000

For the avoidance of doubt, the Annual Retainers for committee service in the table above are additive and a Non-Employee Director shall be eligible to earn an Annual Retainer for each committee position in which he or she serves. The Annual Retainers shall be earned on a quarterly basis based on a calendar quarter and shall be paid in cash by the Company in arrears not later than the fifteenth day following the end of each calendar quarter. In the event a Non-Employee Director does not serve as a Non-Employee Director, or in the applicable position, for an entire calendar quarter, the Annual Retainer paid to such Non-Employee Director shall be prorated for the portion of such calendar quarter actually served as a Non-Employee Director, or in such position, as applicable. The Board may adopt a program that allows Non-Employee Directors to defer Annual Retainers.

Equity Compensation

Each Non-Employee Director shall be granted the equity awards described below, which equity awards shall be granted under and subject to the terms and provisions of the Company's 2024 Stock Incentive Plan or any other applicable Company equity incentive plan then-maintained by the Company (the "***Equity Plan***") and shall be subject to an equity award agreement in substantially the form previously approved by the Board for use under the Equity Plan. All applicable terms of the Equity Plan apply to this Program as if fully set forth herein, and all grants of equity awards hereby are subject in all respects to the terms of the Equity Plan and the applicable equity award agreement. The fair market value of options grants will be calculated in accordance with ASC Topic 718.

A. Initial Awards. Each Non-Employee Director who is initially elected or appointed to the Board at or following the Effective Date shall be automatically granted stock options to purchase 30,000 shares of the Company's common stock under the Equity Plan on the date of such initial election or appointment. The awards described in this Section shall be referred to as "***Initial Awards***."

B. Annual Awards. A Non-Employee Director who (i) is serving on the Board as of the Effective Date and as of the date of any annual meeting of the Company's stockholders beginning in the year following the Effective Date, and (ii) will continue to serve as a Non-Employee Director immediately following such date, shall be automatically granted stock options to purchase 15,000 shares of the Company's common stock under the Equity Plan on such date. The awards described in this Section shall be referred to as "***Annual Awards***." For the avoidance of doubt, a Non-Employee Director elected for the first time to the Board at an annual meeting of the Company's stockholders shall only receive an Initial Award in connection with such election and shall not receive any Annual Award on the date of such meeting as well. In addition, in the event of an adjournment or postponement of any annual meeting following the time such meeting commences, the date of the annual meeting for purposes of this clause (B) shall be the date on which the business to be conducted at the annual meeting is concluded.

Notwithstanding the foregoing, a Non-Employee Director shall have served as a Non-Employee Director for at least (6) months as of the date of any annual meeting to receive an Annual Award, unless otherwise determined by the Board; in which case, the Board may determine to grant such Non-Employee Director an Annual Award or a Prorated Annual Award (as defined below). "***Prorated Annual Award***" means the product determined by multiplying (i) the Annual Award, by (ii) a fraction, the numerator of which is equal to (x) 365 minus (y) the number of days that elapsed from the date of the annual meeting of the Company's stockholders preceding the Non-Employee Director's date of initial election or appointment to the date of such initial election or appointment, and the denominator of which is 365.

C. Terms of Awards Granted to Non-Employee Directors.

1. *Vesting*. Unless otherwise determined by the Board or the Compensation Committee, each Initial Award shall vest and become exercisable in substantially equal annual installments over the three (3) years beginning on the date of the Non-Employee Director's election or appointment to the Board, subject to the Non-Employee Director continuing in service on the Board through each such vesting date. Unless otherwise determined by the Board or the Compensation Committee, each Annual Award shall vest and/or become exercisable on the one-year anniversary of the date of grant of such Annual Award subject to the Non-Employee Director continuing in service on the Board through such vesting date.

2. *Forfeiture.* Unless the Board otherwise determines or as otherwise provided in this clause (2), any portion of an Initial Award or Annual Award which is unvested at the time of a Non-Employee Director's termination of service on the Board as a Non-Employee Director shall be immediately forfeited upon such termination of service and shall not thereafter become vested. All of a Non-Employee Director's Initial Awards and Annual Awards shall vest in full upon a Non-Employee Director's Termination of Service by reason of death or Disability and immediately prior to the occurrence of a Change in Control (as defined in the Equity Plan), to the extent outstanding at such time.

Reimbursements

The Company shall reimburse each Non-Employee Director for all reasonable, documented, out-of-pocket travel and other business expenses incurred by such Non-Employee Director in the performance of his or her duties to the Company in accordance with the Company's applicable expense reimbursement policies and procedures as in effect from time to time.

Exhibit 10.4

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE ACTUATE THERPEUTICS, INC. HAS DETERMINED THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD LIKELY CAUSE COMPETITIVE HARM TO ACTUATE THERPEUTICS, INC. IF PUBLICLY DISCLOSED.

EXCLUSIVE LICENSE AGREEMENT WITH EQUITY

License Agreement ("**Agreement**"), effective as of April 6, 2015 ("**Effective Date**") between The Board Of Trustees Of The University Of Illinois, a body corporate and politic of the State of Illinois, 352 Henry Administration Building, 506 S. Wright St., Urbana, Illinois 61801 ("**University**") and Apotheca Therapeutics a Delaware corporation, with a principal place of business at 1401 Foch Street, Fort Worth, TX 76107 ("**Licensee**" or **"Company").**

University holds certain rights to the patent rights and technical information described below and desires to have the rights exploited for commercial purposes for the public benefit. Licensee wishes to obtain the exclusive license to the patent rights and the non-exclusive license to the technical information for such commercial purposes.

Therefore, in consideration of the obligations set forth below, University and Licensee hereby agree as follows.

ARTICLE 1 - DEFINITIONS

"**Affiliate**" means any entity that directly or indirectly controls, is controlled by, or is under common control with Licensee, and is identified in writing to the University. For purposes of the preceding sentence, "**control**" means the right to control, or actual control of, the management of the entity, whether by ownership of securities, by voting rights, by agreement or otherwise. While an entity is entitled to the benefits of an Affiliate under this Agreement for only the period of time the entity qualifies as an Affiliate under this definition, all obligations under this Agreement that accrued to the entity while an Affiliate shall survive until fulfilled even though the entity no longer qualifies as an Affiliate.

"**Confidential Information**" means any information or material disclosed by one party, the "**disclosing party**" to the other party, the "**receiving party**" that is identified in writing as confidential at the time of disclosure or, if disclosed orally or observed, is identified as confidential at the time of disclosure or is summarized in a marked writing within [***] of disclosure, and is not information or material that is: (a) already known to receiving party at the time of disclosure as evidenced by receiving party's written records; (b) in the public domain other than through acts or omissions of receiving party, or anyone that accessed the Confidential Information from receiving party; (c) lawfully disclosed without restriction to receiving party by a third party; or (d) independently developed by receiving party without knowledge of or access to the Confidential Information as evidenced by receiving party's written records.

"Equity Rights" means the capital stock and related rights granted to the University by Licensee and its Affiliates and other parties as set forth herein.

"**Field**" shall have the meaning set forth on Schedule 1.

"**including**" means including, without limitation.

"**License Year**" means each successive one year term following the Effective Date.

"**Market Exclusivity**" means an exclusive benefit by grant or an exclusion under or from any Regulatory Authority relating to a Product, including orphan drug protection and data exclusivity.

"**Net Sales**" means the gross invoice amounts for Product sold, transferred, practiced, performed or otherwise provided, less the following deductions, but only to the extent included in the invoiced amount and documented as solely attributable to the Product:

(a) customary trade, quantity or cash discounts and rebates actually given;

(b) refunds, replacements or credits given to purchasers for return of Product; and

(c) freight and other transportation costs, including insurance charges, and unreimbursed duties, tariffs, sales and excise taxes actually paid, excluding value-added taxes.

Net Sales on Product provided as part of a non-cash exchange or other than through an arms-length transaction shall mean the amount invoiced in an arms-length sale of the same or equivalent Product in substantially the same quantity, time and place as the non-cash transfer, and if no such sale has occurred, shall be the fair market value of the transferred Product(s).

"**Patent Rights**" means: (a) the patents and patent applications listed on Schedule 1; (b) U.S., PCT and foreign patent applications claiming priority therefrom, including divisional, and continuations; (c) patents issuing from any of the foregoing; and (d) reissues, renewals, re-examinations, substitutions or extensions thereof, and supplementary protection certificates referencing any of the foregoing, in each case only to the extent of the claimed subject matter that is fully disclosed and enabled by the disclosures in (a) of this definition to satisfy 35 U.S.C. §112.

"**Product(s)**" means any product or process: (a) claimed by the Patent Rights, or whose manufacture, use or production is claimed by the Patent Rights; (b) the development, manufacture, reproduction, performance, use, sale or importation of which is, incorporates, uses or is derived from any of the Technical Information; or (c) meeting the qualifications of both (a) and (b) of this definition.

"**Regulatory Authority**" means the U.S. Food and Drug Administration, European Medicines Agency or other similar regulatory body, agency or entity, and their respective successors anywhere in the world, that grants approvals, licenses, registrations or authorizations on behalf of any national, multi-national, regional, state or local agency, department, administration, bureau, fund, commission, council or other governmental entity necessary to test, make, market, distribute, use or sell products in its respective jurisdiction.

"**Royalty Period**" means each [***] of a License Year. The final Royalty Period shall end on the date of termination or expiration of this Agreement.

"**Sublicense**" means any agreement, however captioned, and regardless of how the conveyances are referred to, or how the parties are referred to therein, in which Licensee directly or indirectly through privity of contract: (a) grants or otherwise conveys any of the rights licensed hereunder; (b) agrees not to assert any of the rights licensed hereunder; (c) has obtained the agreement of the other party thereto not to practice any right licensed hereunder; and/or (d) permits the making, offering for sale, using, selling and/or importing of Product.

"**Sublicensee**" means any third party, including an Affiliate, to which a Sublicense is conveyed.

"**Sublicense Revenue**" means all remuneration paid to Licensee under a Sublicense, including all up-front license fees, milestone payments, maintenance fees or other sums, and the fair market value of any non-cash payments and/or in kind transfers, but excluding royalties paid by Licensee to University hereunder based on Net Sales by Sublicensees. Also excluded from Sublicense Revenue are payments made to Company or Affiliates from Sublicensees that are (a) fees paid by Sublicensee for services rendered by Licensee employees or consultants in support of Sublicensee's efforts in addition to, in excess of or outside of normal and customary support for licensed programs, to the extent such services rendered are not required pursuant to any Sublicense; (b) equity investments from third Parties so long as proceeds from said equity investments are not received from a Sublicensee as consideration for any Sublicense; (c) bona fide funding in support of laboratory research, product development or clinical trials, so long as Licensee does not receive such payments from a Sublicensee as consideration for any Sublicense.

"**Technical Information**" means the information and/or material described on Schedule 1, and if provided in the form of: (a) biological materials, then including all progeny, modifications and/or derivatives of the materials made by or on behalf of Licensee and/or any Sublicensee; (b) software or other copyrightable work, then including all derivative works made by or on behalf of Licensee and/or any Sublicensee.

"**Term**" means the period of time from the Effective Date until the later of the date: (a) of the last to expire of the Patent Rights; or (b) when Licensee provides notice that use of Technical Information has ceased in accordance with Section 2.1; or (c) of the expiration of the last form of Market Exclusivity.

"**Territory**" shall have the meaning set forth on Schedule 1.

ARTICLE 2 - GRANT OF LICENSE

2.1. **Grant**. Subject to the terms and conditions of this Agreement and Licensee's continuing compliance therewith, University grants and Licensee accepts: (a) an exclusive, non-transferable license, limited to the Field and the Territory, with the right to sublicense, under the University's rights in the Patent Rights to make, have made, use, import, sell, and offer for sale royalty-bearing Product solely within the Field and within the Territory; and (b) a non-exclusive, non-transferable license, limited to the Field and the Territory, with the right to sublicense, to use the University's rights in the Technical Information to make and sell royalty-bearing Product solely within the Field and within the Territory. Within [***] of the last signature below, University shall provide Licensee with the Technical Information, selected by University in its sole discretion to transfer, for Licensee to use solely as permitted in Section 2.1(b), which constitutes University's entire obligation to Licensee regarding the Technical Information. If the Technical Information includes tangible materials, then such Technical Information is provided in bailment to Licensee solely as permitted in Section 2.1(b), and nothing herein shall be construed as a sale thereof. Licensee shall notify University when all use of Technical Information ceases, and all rights to Technical Information granted in Section 2.1(b) shall revert to University as of the date of the notice.

2.2. **Reservations**. University reserves all rights, titles and interests not expressly granted in Section 2.1, and the right to practice and have practiced the Patent Rights for non-commercial purposes, including teaching, research and public service, and to publish any information included in the Patent Rights and Technical Information. Nothing in this Agreement or a party's performance hereunder shall be construed as conferring, by implication, estoppel or otherwise, upon Licensee, any party in privity with Licensee, or any customer of any of the foregoing, any right, title or interest under any of University's intellectual or tangible property right at any time, except for those rights as expressly granted in Section 2.1. Nothing in this Agreement shall be construed as University granting any license under Patent Rights or Technical Information owned by any third party.

2.3. **Sublicenses**. Subject to the terms and conditions of this Agreement and Licensee's and Sublicensee's continuing compliance therewith, Licensee may grant Sublicenses provided each is: (a) in writing; (b) provides written notice to the University of the grant of each Sublicense [***] after the execution of such Sublicense, the written notice identifying the name and address of the Sublicensee; (c) on terms and conditions that are consistent with and not in conflict with this Agreement, are no less protective of University's rights than those terms and conditions set forth herein, create no additional obligation on University, terminate with the termination of this Agreement and designate University as a third party beneficiary thereunder. Licensee shall be fully responsible to University for any breach of any Sublicense that would constitute a breach of this Agreement if the result of actions or inactions of Licensee hereunder. For clarity, any Affiliate desiring to exercise any of the rights granted hereunder must enter into a Sublicense. Licensee will provide University with a copy of each Sublicense, and each amendment, restatement and/or termination thereof, within [***] of execution, and in no event any later than [***] following University's request. Licensee will provide University with a copy of each report received by Licensee from each Sublicensee. Sublicensees shall have the right to further sublicense provided that each such further sublicensee shall be considered a Sublicensee for all purposes hereunder.

2.4. **Federal Funding**. Licensee understands that Patent Rights or Technical Information may have been conceived or first actually reduced to practice, or during the Term may be first actually reduced to practice, with funding from the U.S. government. All rights granted in this Agreement are limited by and subject to the rights of the United States government, including those set forth in 35 U.S.C. §200 et seq. ("**Bayh-Dole Act**"). Licensee agrees to comply and permit University to comply with the Bayh-Dole Act, including to provide the reporting information required and to substantially manufacture Product and products produced through the use of Product in the United States, unless waived. Licensee is a "small business firm" as defined in 15 U.S.C. §632 and shall promptly notify University of any changes during the Term.

ARTICLE 3 - CONSIDERATION

3.1. **Signing Fee**. Within [***] of the last signature to this Agreement, Licensee shall pay University the amount set forth on Schedule 1 listed as the "**Signing Fee**". Licensee shall also issue and sell to University, equity securities, on the price and terms for the number and type of equity securities of Licensee, and rights to acquire equity securities of Licensee, and with such other related rights, preferences and privileges with respect to such equity securities, pursuant to the Equity Rights Agreement executed contemporaneously therewith and attached in Exhibit B.

3.2. **Net Sales**. Net Sales accrue with the earlier of invoice or provision of Product, whether by sale, lease, transfer, performance or otherwise. Within [***] after the end of each Royalty Period, Licensee shall pay University royalties on Net Sales accruing in such Royalty Period in the percentages set forth on Schedule 1. Royalty payments on Net Sales made to University may be credited toward the Annual Minimum for the License Year in which the royalty payment accrues, and only for that License Year.

3.3. **Sublicensee Revenues.** Sublicensee Revenues accrue upon receipt by Licensee. Within [***] of the Sublicensee's payment date to Licensee, Licensee shall pay University royalties on Sublicensee Revenue as set forth on Schedule 1. Royalty Payments on Sublicensee Revenue made to University may be credited toward the Annual Minimum payment for the License Year that the Sublicensee Revenue royalty payment accrues, and only for that License Year. Licensee shall not receive Sublicensee Revenue other than in the form of cash payments without written approval from University and agreement with University on the fair market value.

3.4. **Annual Minimums**. If total amounts actually paid by Licensee to University under Sections 3.2 and 3.3 for any License Year are less than the amount set forth on Schedule 1 for that License Year (each an "**Annual Minimum**"), then within [***] of the end of the License Year, Licensee shall pay University the amount equal to the shortfall. If this Agreement expires or terminates for any reason, the Annual Minimum for that License Year shall be reduced pro-rata and due immediately upon such expiration or termination.

3.5. **Milestone Payments**. Licensee shall pay University each milestone payment set forth on Schedule 1 within [***] after the occurrence of the corresponding milestone event.

3.6. **Payments and Financial Reports**.

(a) All amounts due to University under this Agreement shall be paid in U.S. dollars, by check or other instrument representing immediately available funds, payable as set forth on Schedule 1. Payments are non-refundable and unless expressly stated herein, non-creditable. If Licensee or any Sublicensee receives payment in a currency other than U.S. dollars, such currency will be converted directly from the currency in the country of sales origin to U.S. dollars on the date payment was made to Licensee or Sublicensee, without intermediate conversions, based on the conversion rate applicable for exchange of Citibank, N.A., in New York, New York, on the date of payment.

(b) Payments due to the University under this Agreement, if not paid when due, shall be subject to a late payment charge of [***] of the delinquent amount (or the maximum interest rate permitted by law if less) or $1.00, whichever is greater, per month on the past due balance, and a past due penalty of [***] per month. In the event Licensee's past due amount is referred for collection, Licensee shall pay a one-time collection fee of [***]. Licensee hereby acknowledges that University may refer Client's past due accounts for collection and authorize legal action for the collection of past due accounts, and Licensee shall be responsible for all reasonable costs of collection incurred by University including reasonable attorney fees and court costs. The accrual or receipt by University of interest under this Section shall not constitute a waiver by University of any right it may otherwise have to declare a breach of or default under this Agreement and to terminate this Agreement. Licensee authorizes University and its agents to contact Licensee at any telephone number, wireless communication service and/or email address Licensee provides to the University, using automated telephone dialing systems, artificial or pre-recorded voice or text messages, or personal calls, regarding Licensee's obligation to repay any debt owed to University. Licensee understands that others may be able to access University's messages and/or emails, and their content, which may include information regarding Licensee's debt. The accrual or receipt by University of late payments and interest shall not waive any right or remedy University may otherwise have, including to terminate this Agreement in accordance with Section 6.2.

(c) Licensee shall promptly notify University of Sublicensee Revenue that has accrued. In addition, Licensee shall deliver to University a true and complete accounting within [***] days after the end of each Royalty Period, including the final Royalty Period showing all amounts that have accrued to University during the Royalty Period, the calculation of such amounts on a Product-by-Product basis as set forth on Exhibit A. If no payments are due in a Royalty Period, then Licensee shall submit a report to University so stating.

(d) If Company upon advice of its patent counsel reasonably deems it necessary to obtain a license under a patent owned by a third party who is not an Affiliate or a Sublicensee in order to avoid infringement thereof while practicing the Patent Rights to make Products hereunder, then during such practice of the third party's patent in any particular country where such license is so required, Licensee may deduct [***] of the royalties paid by Licensee to such third party during the Royalty Period that are attributable to the use of its patent for such Product in such country from the amount of royalties otherwise due to University pursuant to Section 3.2 for such Product in such country, provided that in no event shall royalties otherwise due to University in such Royalty Period for such Product in such country be less than [***].

3.7. **Records**. Licensee shall keep, and shall cause each Sublicensee to keep, complete, continuous and accurate records in sufficient and customary detail such that the calculations and payment amounts may be verified. During the Term and for a period of [***] following the expiration or termination of this Agreement, upon [***] prior written notice and no more than once annually, Licensee shall permit, and shall ensure each Sublicensee shall permit, University and/or its representative to audit and copy their respective books and records regarding any obligation under Article 3, during normal business hours. The examinations shall be made by a certified public accountant selected by the University and reasonably acceptable to the Company at University's expense, unless the examination shows a shortage of [***] or more in the amount of payments made to University prior to notice of the audit, in which case, Licensee shall reimburse University for all costs and expenses, including attorneys' or professionals fees incurred in connection therewith.

3.8. **Diligence**.

(a) Licensee shall bring or require its Sublicensees to bring Products to market within the Field and throughout the Territory, and develop such markets through a thorough, vigorous and diligent program for the commercial exploitation of the Patent Rights and Technical Information. In partial satisfaction of its obligations to bring Products to market, Licensee shall achieve the development events by the corresponding dates as set forth in Schedule 1, and shall promptly notify University upon the achievement of each development event, identify whether the Licensee or which of its Sublicensees are responsible for such achievement, and provide the actual date of such achievement.

(b) If University provides information to Licensee demonstrating: (i) potential feasibility of a particular Product or use in the Field; or (ii) that a third party desires the right to develop, manufacture or sell a particular Product or a particular use in the Field; and Licensee does not provide to University evidence that such Product or use is being diligently developed, manufactured or sold by Licensee or one of its Sublicensees, and Licensee determines, in cooperation with University, that such development is commercially reasonable, then Licensee shall promptly commence development of such Product or use, or Sublicense such third party the right to the particular Product or use; at University's discretion, Licensee may be required to provide written documentation supporting a claim of lack of commercial reasonability of a particular Product or particular use in the Field, such documentation to be produced by a third party other than the third party identified in (ii) above as may be mutually agreed upon by University and Licensee. If within [***] of such demonstration Licensee has not so performed, then University may either terminate this Agreement, or unilaterally convert the grant of rights in Section 2.1(a) to non-exclusive regarding such particular Product or use in the Field, as selected by University in its sole discretion.

ARTICLE 4 - IP MANAGEMENT

4.1. **Responsibility**.

University shall be responsible for filing, prosecuting, defending and maintaining the Patent Rights and Technical Information, as set forth in Schedule 1, in its sole discretion. At Licensee's request and expense, University shall instruct its patent counsel to provide Licensee with copies of all official actions and other communications received from or submitted to the United States Patent and Trademark Office (and corresponding foreign authorities) with respect to the Patent Rights in the Field and Territory. Provided Licensee is not in breach of this Agreement, University shall reasonably consider Licensee's advice and comments regarding prosecution strategy for Patent Rights.

4.2. **Patent Costs**. Within [***] receipt of each invoice, Licensee shall reimburse University for all documented costs and expenses, including attorneys' fees, whether incurred before, on or after the Effective Date in connection with the Patent Rights, including the preparation, filing, prosecution, maintenance and defense thereof. From time to time, the anticipated costs and expenses may be

significant, including when nationalizing and paying annuities, or Licensee may have been or be in arrears, and in either case Licensee shall, upon request, pay to University estimated costs and expenses in advance of such costs and expenses being incurred.

4.3. **Discontinuation of Support**. If Licensee desires to stop paying future costs or expenses associated with the filing or prosecution of any patent application, or maintenance or defense of any patent, within the Patent Rights, then it shall give prompt written notice to University prior to University incurring such costs or expenses, and all rights in and to such Patent Rights shall revert to University upon receipt of such notice. If Licensee does not provide University with notice at least [***] prior to the date on which the cost or expense may be incurred, then Licensee shall remain responsible therefor. If University, acting in reliance on such notice, ceases to file or prosecute such patent application or maintain or defend such patent of the Patent Rights, then Licensee and/or Sublicensee shall not sell any product or practice any processes that would have been covered by the claims of that patent application or patent unless Licensee pays royalties on Net Sales in that country at the royalty rate set for Net Sales of Product defined under subsection (b) of the definition of Product. For clarity, in addition to and not in lieu of any other rights and remedies, any patent or patent application within the Patent Rights for which Licensee fails to pay any invoice when due shall revert to University, shall be unilaterally removed from the Patent Rights along with all Patent Rights arising from such patent application or patent after the date of exclusion without further obligation to Licensee, and may be freely licensed by University to others.

4.4. **Patent Term Extension**. On a country-by-country basis, the parties shall cooperate in selecting the patent within the Patent Rights for which to seek term extension, and as applicable, the Product for which to reference in a supplementary protection certificate, in accordance with the applicable laws of each country where there are Patent Rights. Each party agrees to execute any documents and to take any additional actions as the other party may reasonably request in connection therewith.

4.5. **Marking**. Licensee shall ensure all Product are marked with the: (a) Patent Rights in a manner provided for under applicable patent laws; and (b) Field and Territory restrictions, including in a manner sufficient to prevent any implied license.

4.6. **Enforcement**.

(a) If Licensee becomes aware of the infringement of any patent under the Patent Rights, it shall immediately notify University, and provide any available evidence of such infringement lawfully in its possession or that of its Sublicensees. Licensee shall have the first right to abate the alleged infringement in the Field, provided that Licensee has standing to bring an action asserting the Patent Rights without joining University, and evidences to University that it has sufficient resources to incur all associated costs and expenses. Licensee may enforce the Patent Rights against the infringer in the Field by appropriate legal proceedings, provided that Licensee employs counsel reasonably satisfactory to University, informs University of all developments in such proceedings, and provides University with all correspondence between it and the infringer including pleadings related to any such action. Nothing in this Agreement is a waiver of sovereign immunity. Should University elect to join in any abatement activity or enforcement proceeding it shall do so in its sole discretion, with the right to be represented by counsel of its selection. Licensee shall not have any right to surrender or compromise the Patent Rights, to admit the fault of University, its counsel or any inventor on the Patent Rights, to create an obligation on University, or to grant any infringer any rights under the Patent Rights other than a Sublicense subject to the conditions which would apply to the grant of any other Sublicense.

(b) Licensee shall be responsible for all costs and expenses of any abatement and/or enforcement activities, including legal proceedings, which Licensee initiates, including paying all costs and expenses that University incurs in connection with any abatement activity and/or enforcement proceedings. Recoveries collected by Licensee shall be paid (i) first, to Licensee in the amount of all documented and reasonable out-of-pocket costs and expenses incurred by Licensee in such action, (ii) then to University to reimburse University for any of its documented and reasonable out-of-pocket costs and expenses incurred that have not been previously reimbursed by Licensee, and (iii) the remainder, if any, shall be paid to University in the amount greater of either (a) the percent of the total direct billed costs of litigation paid by University if University elects to join in and share the costs associated with abatement activity or enforcement proceeding, or (b) the percent owed according to the Sublicensee Revenue schedule in Schedule 1; and the amount paid to Licensee shall be the remainder not paid to University. Under no circumstances shall University's share fall below [***] in recoveries collected by Licensee.

(c) If Licensee elects not to abate any alleged infringement or to enforce the Patent Rights, then it shall so notify University in writing. Upon receipt of such notice, or in the event Licensee fails to abate or enforce the Patent Rights regarding such alleged infringer within [***] of notice of the alleged infringement, University may, in its sole discretion, and at its own expense, take steps to abate the

alleged infringement and/or enforce any Patent Rights, to control, settle, and defend such suit, and to recover for its own account any damages, awards or settlements. Licensee shall reasonably cooperate in any such actions, including being joined as a party in such action upon University's written request.

ARTICLE 5 – REPRESENTATIONS AND INDEMNIFICATION

5.1. **University's Limited Representation**. As a state entity, University is not permitted to make any warranties. However, University represents solely that it has the right, power and authority to enter into this Agreement. The Patent Rights and Technical Information are provided "AS IS; WHERE IS." EXCEPT AS SPECIFICALLY SET FORTH IN SECTION 5.1, UNIVERSITY DISCLAIMS ANY AND ALL REPRESENTATIONS AND WARRANTIES OF ANY KIND OR NATURE, WHETHER EXPRESS STATUTORY, IMPLIED OR OTHERWISE, INCLUDING RELATING TO PERFORMANCE, MARKETABILITY, TITLE OR OTHERWISE IN ANY RESPECT RELATED TO THE PATENT RIGHTS, TECHNICAL INFORMATION OR PRODUCT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHTS, REGARDING THE MAKING, USING OR SELLING OR OTHER DISTRIBUTION OF PRODUCT BY ANY PERSON OR ENTITY, THE VALIDITY, SCOPE, ENFORCEABILITY OR PATENTABILITY OF ANY OF THE PATENT RIGHTS, THE ACCURACY OF ANY INFORMATION PROVIDED OR THE ACCURACY, SAFETY, OR USEFULNESS FOR ANY PURPOSE OF ANY OF THE PATENT RIGHTS, TECHNICAL INFORMATION OR PRODUCT.

5.2 **Licensee Representations**. Licensee represents and warrants that: (a) the execution and delivery of this Agreement has been duly authorized and no further approval, corporate or otherwise, is required in order to execute, deliver and perform this valid and binding agreement in accordance with the terms and conditions herein; (b) it and all Sublicensees shall comply with all court orders and applicable international, national, or local laws and/or regulations in its performance under this Agreement, including export control laws and HIPPA; (c) it shall diligently pursue the development, manufacture, and sale of Product in the Field and the Territory throughout the Term and comply with the terms and conditions herein; (d) it now maintains and shall continue to maintain throughout the Term and beyond insurance coverage in accordance with Section 5.5; and (e) it is and shall be at all times during the Term a valid legal entity existing under the law of its state of formation with the power to own all of its properties and assets and to carry on its business as it is currently being conducted.

5.3. **Limitation of Liability**. In no event shall University or its affiliates including their respective trustees, directors, officers, faculty, staff, students, employees, independent contractors or agents (collectively, the "**Representatives**"), be responsible or liable for any indirect, special, punitive, incidental, exemplary or consequential damages, loss of use or lost profits regardless of legal theory or whether advised of the possibility of such damage. Licensee shall not, and shall require that its Sublicensees do not, imply or make any statements, representations or warranties, or accept any liabilities or responsibilities whatsoever that are inconsistent with this Article 5.

5.4. **Indemnification**. Licensee, on behalf of itself and Sublicensees, assumes the entire risk and responsibility for the safety, efficacy, performance, design, marketability, title and quality of all Product. None of the University, its affiliates or any of their respective Representatives (each an "**Indemnified Person**") shall have any liability or responsibility whatsoever to Licensee or any Sublicensee or any other person or entity for or on account of (and Licensee agrees and shall cause each of its Sublicensees to agree not to assert any claim against any Indemnified Person in connection with) any injury, loss, or damage of any kind or nature, sustained by, or any damage assessed or asserted against, or any other liability incurred by or imposed upon, Licensee, any of its Sublicensees, or any other person or entity, whether direct, indirect, special, punitive, incidental, consequential or otherwise arising under any legal theory, including attorneys' fees, and Licensee shall indemnify and hold each Indemnified Person harmless from and against all claims, demands, losses, damages or penalties, including attorneys' fees, arising out of or in connection with or relating to: (a) Licensee's breach of this Agreement and/or Sublicensees' breach of their respective agreements pertaining to the subject matter of this Agreement; (b) the exercise of any right granted, including when resulting in the exhaustion of University's rights in patents other than the Patent Rights as licensed; (c) the advertising, promotion, marking, manufacture, sale, offer for sale, importation, exportation or use of Product, and related product liability therefrom; (d) any act or omission of negligence or willful misconduct by Licensee, and/or Sublicensees; and/or (e) the death of or injury to person(s) or property damage relating to the subject matter of this Agreement; except to the extent of such losses that are attributable to University's breach of this Agreement, negligence or willful malfeasance. Licensee shall not settle or compromise any claim or allegation subject to indemnification hereunder in a manner that imposes any material obligation on, or makes any admission of fault by, any Indemnified Person (including compromising the validity or enforceability of Patent Rights and/or Technical Information).

5.5. **Insurance**. Licensee shall obtain and carry in full force and effect, and shall cause its Sublicensees to obtain and carry in full force and effect, insurance with the coverages and limits as are reasonably adequate to ensure that Licensee can meet its obligations to University under this Agreement, including pursuant to this Article 5, the nature and extent of which insurance shall be commensurate with usual and customary industry practices for similarly situated companies, but in any event not less than the amounts set forth on Schedule 1. Such insurance will be written by a reputable insurance company reasonably acceptable to the University authorized to do business in the State of Illinois, will name the University as an additional insured under all general liability and product liability policies and shall require [***] written notice to be given to University prior to any cancellation, endorsement or other change. Licensee will provide University, for itself and on behalf of any Sublicensee, with appropriate certificates of insurance from time to time as requested by University reflecting the obligations of Licensee pursuant to this Section 5.5.

ARTICLE 6 – TERM AND TERMINATION

6.1. **Term**. Unless terminated earlier under Sections 6.2 or 6.3, this Agreement shall expire at the end of the Term.

6.2. **University Right to Terminate**. University shall have the right (without prejudice to any of its other rights or remedies conferred on it by this Agreement or otherwise) to terminate this Agreement only if Licensee:

(a) fails to pay any amount, provide any other consideration, or make any report when required to be made pursuant to this Agreement, and Licensee does not cure such failure within thirty (30) days after notice thereof by University;

(b) is in breach of any provision of this Agreement not covered by Section 6.2(a), including failing to meet any requirement under Section 3.8 of this Agreement, and Licensee fails to remedy any such breach within forty-five (45) days after notice thereof by University;

(c) is in breach of any obligations that Licensee has to University under any other agreement between Licensee and University, including the Equity Rights Agreement and Licensee fails to remedy any such breach or default within forty-five (45) days after written notice thereof by University;

(d) makes any materially false report, and such termination shall be upon written notice to Licensee;

(e) to the extent not prohibited by applicable law commences a voluntary case as a debtor under the Bankruptcy Code of the United States or any successor statute (the "**Bankruptcy Code**"), or if an involuntary case is commenced against Licensee under the Bankruptcy Code by a third party other than the University or any of its affiliates, or if an order for relief shall be entered in such case, or if the same or any similar circumstance shall occur under the laws of any foreign jurisdiction; and/or

(f) takes any action that purports to cause or causes any of the Patent Rights or Technical Information to be subject to any lien or encumbrance, and such termination shall be upon written notice to Licensee.

6.3. **Licensee Right to Terminate**. Licensee may terminate this Agreement at any time on written notice to University at least ninety (90) days prior to the termination date specified in the notice and the notice shall include Licensee's justification for such termination.

6.4. **Effect of Expiration or Termination**. Upon the expiration or termination of this Agreement, all rights granted herein shall automatically revert to University. Unless this Agreement expires, Licensee shall immediately cease and cause its Sublicensees to immediately cease practicing the Patent Rights and Technical Information, and Licensee shall return to University or destroy, as University directs, all of University's Technical Information. Notwithstanding the expiration or termination of this Agreement, neither party is relieved of its rights and obligations that have previously accrued. Terms and conditions of this Agreement that by their nature prescribe continuing rights and obligations shall survive the termination or expiration of this Agreement, including: (i) Licensee's obligation to pay any fees accrued or perform obligations remaining unpaid or unperformed under the terms of this Agreement prior

to such termination (including the delivery and continuing benefits, if any, under the Equity Rights Agreement); and (ii) Licensee's obligations under Sections 3.4, 3.6, 3.7, 4.2, 4.7 and, to the extent proceedings have been initiated, Section 4.6, Article 5, this Section 6.4 and Article 7.

ARTICLE 7 – MISCELLANEOUS

7.1. **Assignment or Change of Control**.

(a) This Agreement shall not be assigned or transferred by Licensee without the prior written consent of University except in the event of the sale of all or substantially all the assets of Licensee. Upon at least [***] prior notification to Licensee, University may assign or transfer this Agreement, the Patent Rights, Technical Information and/or its obligations and/or benefits hereunder without the consent of Licensee, so long as said assignment or transfer is not commercially deleterious to Licensee. Any conveyance inconsistent with the terms and conditions of this Agreement shall be null and void. This Agreement shall be binding on the parties and their respective successors and assigns and inure to the benefit of the parties and their respective permitted successors and assigns. Notwithstanding anything to the contrary in this Agreement, this Agreement cannot be assumed or assigned by Licensee, any trustee acting on behalf of the assets of Licensee, or otherwise including in connection with Licensee's insolvency, liquidation, appointment over any assets related to this Agreement, voluntary or involuntary arrangement with any of its creditors, ceasing to carry on its business or any similar event under the law of any foreign jurisdictions, unless such assignee provides evidence satisfactory to University that such assignee has the capability to perform as required by this Agreement.

(b) Upon (i) permitted assignment or transfer of this Agreement, or (ii) sale of all or substantially all stock or assets of Licensee in any transaction or series of related transactions that results in the current equity holders of Licensee holding less than fifty percent (50%) of the outstanding equity interests of Licensee, as measured by voting power; or the transfer of all or fifty (50%) or more of the assets of Licensee to an entity that is not an Affiliate of the Licensee (each a "**Change in Control**"), Licensee shall pay to University the applicable percentage as set forth in Schedule 1 of any remuneration, including fair market value of non-cash remuneration, received by Licensee and/or its equity holders for such assignment, transfer, or Change in Control, due no later than [***] prior to the first to occur of the effective date or last signature date of the assignment or transfer, or closing date of Change of Control.

7.2. **Participation Rights**. If Licensee proposes to sell any equity securities or securities that are convertible into equity securities of the Licensee, then the University and/or its Assignee (as defined below) will have the right to purchase up to [***] of the securities issued in each offering on the same terms and conditions as are offered to the other purchasers in each such financing. Licensee shall provide [***] advanced written notice of each such financing, including reasonable detail regarding the terms and purchasers in the financing. The term "Assignee" means (a) any entity to which the University's participation rights under this section have been assigned either by the University or another entity, or (b) any entity that is controlled by the University. This paragraph shall survive the termination of this agreement.

7.3. **No Third Party Beneficiaries**. The representations, warranties, covenants and undertakings contained in this Agreement are for the sole benefit of the parties and their permitted successors and assigns and shall not be construed as conferring any rights on any third party.

7.4. **Notices**. All notices required or desired to be given under this Agreement, and all payments to be made to University under this Agreement, shall be delivered to the parties at the addresses set forth on Schedule 1, as may be amended unilaterally upon notice in compliance with this provision. Notices may be given by hand, electronically via email as long as the receiving party sends a confirmatory reply to the sender or the sender otherwise receives an email receipt notification from the receiving party's email system, or by a nationally recognized overnight delivery service. The date of personal delivery or electronic delivery confirmation, or one day after the date of deposit with the overnight delivery service for next business day delivery, as the case may be, shall be the date the notice is deemed delivered under this Agreement.

7.5. **Severability**. The provisions of this Agreement are severable, and if any provision is determined to be invalid or unenforceable in a given jurisdiction, such invalidity or non-enforceability shall not in any way affect the validity and enforceability of the remaining provisions or the validity or enforceability of those provisions in any other jurisdiction. Any invalid or unenforceable provision will be reformed promptly by the parties to effectuate their intent as evidenced on the Effective Date.

7.6. **Governing Law and Venue**. This Agreement is governed and interpreted under the laws of the state of Illinois, excluding any conflict of laws provisions, and Licensee (a) consents to avail itself of the courts located within the state of Illinois and submits to the jurisdiction of any local, state or federal court located within the state of Illinois; (b) shall not bring any action or claim against University in any other jurisdiction; (d) shall require that its Affiliates and Sublicensees agree not to bring any action or claim against University in any other jurisdiction; and (d) consents to delivery and service of process by means of the notice provisions established in this Agreement. Nothing in this Agreement shall be construed as a waiver of sovereign immunity by or on behalf of University.

7.7. **Counterparts**. This Agreement may be executed in counterparts, each of which shall be deemed an original, and all of which together shall constitute one instrument. The parties agree that duplicated, electronic, or facsimile signatures shall be deemed original for all purposes.

7.8. **Relationship of Parties**. There is no relationship of principal to agent, master to servant, employer to employee, or franchiser to franchisee or joint venture or partnership between the parties created by this Agreement. Neither party has the authority on behalf of the other to bind the other or incur any obligation.

7.9. **Headings**. The headings of the articles, sections, subsections, and paragraphs of this Agreement including in Exhibits and the Schedule have been added for convenience only and shall not affect the interpretation or construction of this Agreement in any manner.

7.10. **Advertising**. Licensee shall not use, and shall cause its Sublicensees to not use, the names or trademarks of University or its Representatives any adaptation thereof, including any commercial activity, marketing, advertising or sales brochures without the prior written consent of University in each instance, which consent may be granted or withheld in University's sole and complete discretion. Notwithstanding the foregoing, Licensee may use the name of University in a factual manner in: (a) executive summaries, business plans, offering memoranda and other similar documents used by Licensee for the purpose of raising financing for the operations of Licensee or entering into commercial contracts with third parties, but in such case only to the extent necessary to inform a reader that the Patent Rights and Technical Information have been licensed by Licensee from University, or to inform a reader of the identity and published credentials of the University faculty members listed as inventors of the Patent Rights and Technical Information; (b) any securities reports required to be filed with the Securities and Exchange Commission; and any reports required by any other federal or state regulatory agency.

7.11. **Conflicts**. Licensee acknowledges and agrees that it will use reasonable efforts to avoid potential conflicts of interest between the University and University employees who may also be employees, consultants, shareholders or directors of Licensee. Licensee agrees to cooperate with University with respect to the University of Illinois Policy on Conflicts of Commitment and Interest, available at http://www.research.uiuc.edu/coi/index.asp, and to work constructively with University to manage and mitigate any conflicts that may arise in the course of this and related agreements between it and University.

7.12. **Confidentiality**.

(a) Subject to Section 7.11(c), Licensee agrees to maintain, and shall cause its Sublicensees to maintain, Schedule 1, Technical Information, and all Confidential Information provided by or on behalf of University hereunder in confidence, and only use Confidential Information as required and permitted by Section 2.1(b). Licensee may disclose Confidential Information to potential Sublicensees or investors, provided that Licensee shall first obtain from the intended recipient(s) a valid and binding confidentiality agreement which is at least as protective of the Confidential Information as the confidentiality agreement Licensee employs to protect its own proprietary and confidential information, which shall reflect no less than those restrictions on Licensee herein. Licensee shall take, and shall cause its Sublicensees to take, such actions as the University may reasonably request from time to time to safeguard the confidentiality of Confidential Information.

(b) Subject to Section 7.11(c), University agrees to maintain Confidential Information if provided by Licensee to the individual identified in Schedule 1 as entitled to accept notices on behalf of the University, and to use such Confidential Information solely in relation to this Agreement and for any reporting required hereon or regarding Section 2.4.

(c) If receiving party is required by law, regulation, or court order to disclose any of the Confidential Information, then it may do so provided that it had promptly notified disclosing party, and discloses only such Confidential Information as is legally required.

Licensee acknowledges that University is subject to compliance with requests made under the Freedom of Information Act ("FOIA"). University shall notify Licensee of all FOIA requests in connection with the Confidential Information, and Licensee shall have the right to intervene and/or defend against the disclosure of the Confidential Information arising from such FOIA request at Licensee's sole expense.

(d) Given the nature of the University's Confidential Information licensed hereunder and the competitive damage that would result to University upon unauthorized disclosure or use thereof, the parties hereby agree that monetary damages may not be sufficient remedy for any breach of this Section 7.11, and, therefore, in addition to and not in lieu of any other rights or remedies, University may seek specific performance and injunctive and other equitable relief as a remedy for any breach or threatened breach of this Section 7.11 without showing actual monetary damages in connection with such remedy.

(e) The parties may have entered into one or more confidentiality agreements with respect to some or all of the Confidential Information (collectively, the "**Confidentiality Agreements**") and agree that as of the Effective Date, the Confidentiality Agreements are terminated and this Agreement shall govern the disclosure and use of Confidential Information. Any Confidential Information provided under the Confidentiality Agreements will be treated as a disclosure made under this Agreement.

7.13. **Entire Agreement, Amendment and Waiver**. The Schedule and Exhibits are attached hereto and incorporated herein by reference. This Agreement, including all Exhibits and the Schedule, and any agreements between the parties referenced herein, contain the entire understanding of the parties with respect to the subject matter of this Agreement and supersede any and all prior written or oral discussions, arrangements, courses of conduct or agreements. Except as expressly stated herein, this Agreement may be amended only by an instrument in writing duly executed by the parties. The waiver of a breach hereunder may be effected only by a writing signed by the waiving party and shall not constitute a waiver of any other breach. The delay or failure to assert a right or to insist upon compliance with any term or condition of this Agreement shall not constitute a waiver, or excuse a similar or subsequent failure to perform any such term or condition.

IN WITNESS WHEREOF, the parties hereto have caused this valid and binding agreement to be executed by their respective duly authorized officers or representatives on the date indicated below.

THE BOARD OF TRUSTEES
OF THE UNIVERSITY OF ILLINOIS

By: /s/ Walter K. Knorr April 13, 2015
Walter K. Knorr, Comptroller Date

LICENSEE

By: /s/ Daniel M. Schmitt, CEO April 14, 2015
Name/Title/Date

Attest: /s/ Susan M. Kies 4/13/15
Susan M. Kies, Secretary Date

Schedule 1 to Exclusive License Agreement

ARTICLE 1 DEFINITIONS

Patent Rights

TECH ID#	INVENTION	APP #	COUNTRY	ISSUE DATE	ISSUED #	STATUS
CZ061	3-Benzofuranyl-4-Indolyl Maleimides As Potent GSK3		US		8,207,216	issued

	Inhibitors for Neurodegenerative Disorders					
CZ061	3-Benzofuranyl-4-Indolyl Maleimides As Potent GSK3 Inhibitors for Neurodegenerative Disorders	EP07865893.7	EU			Notice of allowance
CZ061	3-Benzofuranyl-4-Indolyl Maleimides As Potent GSK3 Inhibitors for Neurodegenerative Disorders	CA2,673,368	CA			pending
CZ061	3-Benzofuranyl-4-Indolyl Maleimides As Potent GSK3 Inhibitors for Neurodegenerative Disorders	CA2,669,877	CA			pending

Field means Exclusive for all uses with exception of those reserved for the University as outlined in Paragraph 2.2b

Territory means For Patent Rights: Where patent rights exist; For Technical Information: Worldwide.

Technical Information: The "UIC Technical Information" shall be as described in appendix 1.

ARTICLE 3 PAYMENTS AND REPORTS

Signing Fee: $10,000.00

Royalty rate on Net Sales in territories where Patent Rights or Market Exclusivity exist:

Royalty rate on Net Sales of Product defined by subsection (a) or (c) of the definition: [***]

Royalty rate on Net Sales of Product defined by subsection (b) of the definition: [***]

Royalty rates on Sublicensee Revenue:

- [***]
- [***]
- [***]
- [***]
- [***]

Annual Minimums License Year — Minimum Payment per section 3.4

- Year 1: $0
- Year 2: $0
- Year 3: $5,000
- Year 4: $15,000
- Year 5: $35,000
- Year 6 until first commercial sale: $50,000
- Years after first commercial sale: $100,000

Milestone Event	Payment
[***]	$ 10,000.00

[***]	$ 50,000.00
[***]	$ 250,000.00
[***]	$ 1,000,000.00

Patent Costs

Ongoing Patent costs: Licensee will pay upon invoicing of the University

Past Patent costs:

- End of Year 1: None
- End of Year 2: 25%
- End of Year 3: 25%
- End of Year 4: 25%
- End of Year 5 : Remaining outstanding

Development Event	Achievement Due Date
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]

Checks payable to: [***]

Email notice: [***]

Wire to: [***]

ARTICLE 5 REPRESENTATIONS; INDEMNIFICATION

Minimum Insurance Requirements

General Liability: (i) [***] per occurrence, with an aggregate minimum of [***] for personal injury or death; and an additional (ii) [***] per occurrence, with an aggregate minimum of [***] for property damage.

Product Liability: Prior to the first Product testing for or in human, or if such Product does not require such testing, then generation of the first Net Sale or [***] per occurrence and [***] in aggregate.

ARTICLE 7 MISCELLANEOUS

Assignment or Change of Control

Execution or Closing Date During

Licensee shall pay to University

- [***] if Closing is at the same time or prior to 6 months after the Effective Date;
- [***] if Closing occurs after 6 months from the Effective Date, and at the same time or prior to 12 months after Effective Date;
- [***] if Closing occurs after 12 months from the Effective Date, and at the same time or prior to 18 months after the Effective Date; and
- [***] if Closing occurs after 18 months from the Effective Date, and at the same time or prior to 24 months after the Effective Date
- 0% after 24 months.

Notices

If to University: Office of Technology Management
University of Illinois at Chicago (MC 682)
1853 West Polk Street, Suite 446
Chicago, IL 60612-7335

FEIN:
Phone: 312-996-7018
Fax: 312-996-1995

With copy to: OTM Legal Counsel
1737 W. Polk Suite 405 (mc/225)
Chicago, IL 60612

If to Licensee: CEO
Apotheca Therapeutics Inc.
1401 Foch St, Suite 140
Fort Worth, TX. 76107

FEIN: 47-3044785
Phone: 847-986-4190
Fax: 847-986-4190
Delaware Corporation File Number 5676683

With copy to: BakerHostetler
2929 Arch Street
Cira Centre, 12th Floor
Philadelphia, PA 19104-2891

Exhibit A to Exclusive License Agreement

Royalty Period _____, ____ to _____, ____

Information from Licensee per Product:

1. Product name, number and description, and applicable Patent Rights and/or Technical Information

2. Units of Product sold, transferred, practiced, performed or otherwise provided and in which country

3. Units of Product provided as part of non-case exchange or other than through an arms-length transaction

4. Gross invoice amount for Product

5. Application of foreign currency conversion rate, shown for each currency received for Product

6. Calculation of Net Sales, including deductions

7. Royalty rates

8. Total royalty payment amount

9. Sublicensee Revenue accrued in Royalty Period

10. Calculation of Annual Minimum owed

11. Milestone Payments made during Royalty Period with specific reference to Milestones Event listed on Schedule 1

Information per Sublicensee shall include the above plus:

1. Name and address of each Sublicensee:

2. Total amounts reported above, with respect to each Sublicensee

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Exhibit B

EQUITY RIGHTS AGREEMENT

This Equity Rights Agreement (the "Agreement") is entered into as of **April 6, 2015** (the "Effective Date") by and between **[Apotheca Therapeutics, Inc.]**, a Delaware corporation (the "Company") and the Board of Trustees of the University of Illinois (the "University"). Pursuant to that certain **[Exclusive Technology License Agreement with Equity]** dated as of the date hereof (the "License Agreement"), the Company and the University hereby agree as follows:

1. DELIVERY OF SHARES.

On or prior to the date of execution of this Agreement, in consideration for the University's entry into the License Agreement, the Company has delivered to the University 50,000 shares or units of equity securities, representing 5 percent (5%) of all issued and outstanding equity securities, and rights to acquire equity securities, of the Company on a Fully Diluted Basis (as defined in Section 5(b) below) as of the date hereof.

2. CO-SALE RIGHT.

Except to the extent required to do so by law or any existing agreement to which it is subject, the Company shall not cause or permit to be recorded in its stock transfer records any Transfer (as defined below), or consent to any Transfer, of shares of its stock unless the Company has required that the Transfer be conducted in accordance with the following procedure:

a. If at any time any holder of greater than five percent (5%) of the Company's stock on a Fully Diluted Basis (a "Principal Stockholder") desires to sell all or any part of its stock to any person other than any other stockholder or the Company (the "Buyer"), such

Principal Stockholder shall give notice in writing to the University of its intention to proceed with the transaction (the "Co-Sale Offer"). The University shall have the right, exercisable by providing written notice within [***] of the Co-Sale Offer, to sell to the Buyer, as a condition to the sale by such Principal Stockholder, at the same price per share and on the same terms and conditions as involved in the sale by such Principal Stockholder, a number of shares of stock equal to the product of (I) the quotient of (A) the number of shares of stock held by the University, divided by (B) the aggregate number of shares of stock outstanding, on a fully-diluted basis; multiplied by (II) the aggregate number of shares of stock to be sold in the contemplated Transfer.

b. The Principal Stockholder and the University shall sell to the Buyer all, or at the option of the Buyer, any portion of the stock proposed to be sold by them at the price and upon other terms and conditions not more favorable to the Buyer than those in the Co-Sale Offer provided by such Principal Stockholder pursuant to Section 1(a) above; provided, however, that any purchase of less than all of such stock by the Buyer shall be made from any Principal Stockholder and the University pro rata based upon the relative number of shares of stock that such Principal Stockholder and the University is otherwise entitled to sell.

c. For purposes of this Section, a "Transfer" shall mean a sale, exchange, assignment, transfer, mortgage, pledge, encumbrance, hypothecation, disposition, gift, devise, bequest, or other disposition or grant of rights or interests, whether voluntarily or involuntarily, by operation of law or otherwise, but does not include a Permitted Transfer. A "Permitted Transfer" shall be: (A) any transfer of stock to an inter-vivos trust created by an individual stockholder for the primary benefit of one or more of (i) such stockholder, (ii) such stockholder's spouse, (iii) such stockholder's parents, siblings, descendants or the descendants of any of the foregoing, and (iv) such stockholder's spouse's parents, siblings, descendants or the descendants of any of the foregoing; (B) any testamentary Transfer of stock to or for the benefit of such stockholder's spouse, parent or descendants; and (C) any transfer by an stockholder that is an entity to an entity controlling, controlled by or under common control with such stockholder (an "Affiliate").

3. REGISTRATION RIGHTS

a. Piggyback Registration. After the initial public offering of the Company's stock, the University shall be entitled to have its shares registered at the same time the Company registers shares of stock for its own or another's account under the Securities Act of 1933, as amended (the "Securities Act"). If such registration relates to an underwritten offering of the stock and if, in the good faith judgment of the managing underwriter of such offering, the inclusion of the University's stock would interfere with the successful marketing of the stock offered by the Company and/or others, the number of shares of the University's stock included in such registration may be reduced. Any reduction will be applied to each stockholder exercising registration rights in proportion to the number of shares of stock such holder proposed to include in such registration; provided, further, that if there are reduction requirements contained in an agreement or agreements between the Company and any holders of stock in the Company, then the University shall be subject to no more restrictive provisions than those which are applicable to any holder of more than one percent (1%) of the Company's stock. The Company shall give the University at least [***] prior written notice of its intention to allow piggyback registration to University. The Company shall pay all expenses related to such registration, including all registration, filing, qualification, printer's and Company attorney and accounting fees, but excluding underwriter commissions and discounts.

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b. Limitation on Piggyback Registrations. Notwithstanding the foregoing, the Company shall not be obligated to register any of shares of stock held by the University in a registration by the Company relating to any merger, acquisition, exchange offer, employee benefit plan of the Company, dividend reinvestment plan of the Company or a registration on any form which does not include substantially the same information as would be required to register the shares of stock held by the University.

4. REPRESENTATIONS AND WARRANTIES OF THE COMPANY

The Company represents and warrants to the University that, as of the Effective Date, and except as set forth in any Disclosure Schedule attached hereto and made a part hereof:

a. Organization, Qualifications and Corporate Power. The Company is a corporation duly incorporated, validly existing and in good standing under the laws of the State of Delaware and is duly licensed or qualified to transact business as a foreign corporation and is in good standing in each jurisdiction in which the nature of the business transacted by it or the character of the properties owned or leased by it requires such licensing or qualification, except where the failure to be so licensed or qualified does not have a material adverse effect on the Company's business or financial condition. The Company has provided the University with a true, correct and complete copy of the Company's Certificate of Incorporation and By-Laws and any amendments thereto. The Company has the corporate power and authority

to own and hold its properties and to carry on its business as now conducted and as proposed to be conducted, to execute, deliver and perform this Agreement, and to issue, sell and deliver the shares delivered pursuant to the License Agreement (the "Shares").

b. Authorization of Agreements, Etc. The execution and delivery by the Company of this Agreement, the performance by the Company of its obligations hereunder and under the License Agreement, and the issuance, sale and delivery of the Shares have been duly authorized by all requisite corporate action and will not (i) violate any provision of law, any order of any court or other agency of government, or the terms of the Certificate of Incorporation or the By-laws of the Company, as amended, or (ii) violate any provision of any indenture, agreement or other instrument to which the Company or any of its properties or assets is bound, or (iii) conflict with, result in a breach of or constitute (with due notice or lapse of time or both) a default under any such indenture, agreement or other instrument, or (iv) result in the creation or imposition of any lien, charge, restriction, claim or encumbrance of any nature whatsoever upon any of the properties or assets of the Company.

c. Due Authorization. The Shares, when issued, will be duly authorized, validly issued, fully paid and nonassessable shares and will be free and clear of all liens, charges, restrictions, claims and encumbrances imposed by or through the Company, except for transfer restrictions imposed by applicable securities laws.

d. Validity. This Agreement has been duly executed and delivered by the Company and constitute legal, valid and binding obligations of the Company, enforceable in accordance with its terms.

e. Capital Stock. Immediately prior to the Effective Date the Company has 1,000,000 shares of common stock outstanding. The Company has no other authorized or outstanding class or series of capital stock, and has not issued, and does not have any commitments to issue, any securities exchangeable for or convertible into the Company's capital stock. After the issuance of shares to the University, the shareholders of record, and the number of shares of stock held by each, will be as set forth in the attached Disclosure Schedule. The statutory designations, powers, preferences, rights, qualifications, limitations and restrictions in respect of each class and series of authorized capital stock of the Company are as set forth in the Certificate of Incorporation and Bylaws of the Company. All of the outstanding securities of the Company were issued in compliance with all applicable federal and state securities laws.

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f. Governmental Approvals. No registration or filing with, or consent or approval of or other action by, any federal, state or other governmental agency or instrumentality is or will be necessary for the valid execution, delivery and performance by the Company of this Agreement, or the issuance, sale and delivery of the Shares, other than filings pursuant to federal and state securities laws (all of which filings have been made by the Company, other than those which are required to be made after the Effective Date and which will be duly made on a timely basis) in connection with the sale of the Shares.

g. Offering of the Shares. Neither the Company nor any person authorized or employed by the Company as agent, broker, dealer or otherwise in connection with the offering or sale of the Shares has offered the Shares or any such similar security for sale to, or solicited any offer to buy the Shares or any such similar security from, or otherwise approached or negotiated with respect thereto with, any person or persons so as to subject the offering, issuance or sale of the Shares to the registration provisions of the Securities Act.

5. ANTI-DILUTION.

a. If, at any time, prior to such time as the Company has achieved the Funding Threshold (as defined below) (the "Termination Event"), the Company issues Securities (as defined below) that would cause the University's shareholdings in the Company to drop below five percent (5%), on a Fully Diluted Basis, the Company shall issue additional shares of common stock to the University such that the University's shareholdings in the Company shall not fall below five percent (5%), on a Fully Diluted Basis, as calculated after giving effect to the anti-dilutive issuance (the "Anti-Dilution Shares"). Any issuances of Anti-Dilution Shares shall be in partial consideration for the licenses granted under the License Agreements and the University shall not be required to pay any further consideration for such shares. All Anti-Dilution Shares, when issued pursuant to the terms hereof, shall, upon such issuance, be duly authorized, validly issued, fully paid and nonassessable. Such issuances shall continue until the Termination Event. Thereafter, this Section 4 shall terminate, no additional Anti-Dilution Shares shall be due to the University pursuant to this Section 4, and the University's shareholdings in the company will be subject to ordinary dilution.

b. The following terms shall have the following meanings:

"Exempt Securities" include: (i) shares of capital stock, options or convertible securities of the Company issued by the Company by reason of a dividend, stock split, split-up or other distribution on shares of common stock; (ii) shares of capital stock or options issued to employees or directors of, or consultants or advisors to, the Company or any of its subsidiaries pursuant to a plan, agreement or arrangement approved by the Board of Directors of the Company; (iii) shares of capital stock or convertible securities of the Company actually issued by the Company upon the exercise of options or shares of capital actually issued upon the conversion or exchange of convertible securities, in each case provided such issuance is pursuant to the terms of such option or convertible security; (iv) shares of capital stock, options, warrants or convertible securities of the Company issued by the Company to banks, equipment lessors or other financial institutions, or to real property lessors, pursuant to a debt financing, equipment leasing or real property leasing transaction approved by the Board of Directors of the Company; (v) shares of capital stock, options, warrants or convertible securities of the Company issued by the Company to suppliers or third party service providers in connection with the provision of goods or services pursuant to transactions approved by the Board of Directors of the Company; and (vi) shares of capital stock, options, warrants or convertible securities of the Company issued by the Company pursuant to the strategic acquisition of the equity securities or assets of another business entity.

"Fully Diluted Basis" means, as of a specified date (but in the case of convertible debt, only at the time that such convertible debt converts into capital stock, or at such time specific conversion ratio is established pursuant to the operation of such instrument), the number of shares of Common Stock then outstanding (assuming conversion of all outstanding stock other than common stock into common stock) plus the number of shares of Common Stock issuable upon exercise or conversion of then outstanding convertible securities, options, rights or warrants of the Company (which shall be determined without regard to whether such securities are then vested, exercisable or convertible), excluding any Exempt Securities issued after the date of this Agreement.

"Funding Threshold" means a cumulative total of [***] in cash raised by the Company after the Effective Date in one or more financing rounds in exchange for Securities.

"Securities" means shares of capital stock, convertible securities, warrants, options, convertible time or other rights to subscribe for, purchase or acquire from the Company any capital stock of the Company, excluding any Exempt Securities. Convertible debt shall be deemed a "Security" only at the time that such convertible debt converts into capital stock, or at such time specific conversion ratio is established pursuant to the operation of such instrument.

6. FINANCIAL INFORMATION.

The Company shall furnish to the University information reports and rights no less favorable than those provided or granted to any other holder of stock of the Company, solely in respect of such holder's stock. In any event the Company shall provide the University with unaudited quarterly balance sheets and statements of income within [***] after the end of each quarter, and unaudited annual balance sheets and statements of income within [***] after the end of each fiscal year, all certified as accurate by an officer of the Company.

7. CERTAIN COVENANTS.

a. Notice of Certain Events. The Company agrees to provide the University with at least [***] prior written notice of the reasonably anticipated closing date for (i) any and all merger, consolidation or restructuring transactions involving the Company or any of its Affiliates, (ii) any sale of all or substantially all of the assets of the Company and its Affiliates, taken as a whole, (iii) any license of all or substantially all of the assets of the Company and its Affiliates, taken as a whole, or (iv) any issuance of stock of the Company or its Affiliates, or any rights to acquire stock of the Company or any of its Affiliates, or any related series of issuances, pursuant to which persons or entities will acquire or have the right to acquire forty percent (40%) or more of the stock or interests, or voting rights, of the Company or any Affiliate.

b. Certain Interested Transactions. Except with respect to agreements in existence as of the date hereof, the Company will not enter into any transaction with any person employed by or serving as an officer or director of the Company or any Affiliate, or any founding stockholder, unless such transaction has been approved by a majority of disinterested directors who are not themselves employees or officers of the Company or any Affiliate.

IN WITNESS WHEREOF, the parties hereto have executed this Equity Rights Agreement as of the Effective Date.

Apotheca Pharmaceuticals

By: /s/ Daniel M. Schmitt
Name: Daniel M. Schmitt
Title: CEO

THE BOARD OF TRUSTEES OF THE UNIVERSITY OF ILLINOIS

By: /s/ Walter K. Knorr April 13, 2015
Walter K. Knorr, Comptroller

Attest:
/s/ Susan M. Kies 4/13/15
Susan Kies, Secretary

AMENDMENT TO EXCLUSIVE LICENSE AGREEMENT WITH EQUITY

This AMENDMENT TO EXCLUSIVE LICENSE AGREEMENT WITH EQUITY (this "Amendment") is entered into as of the date ("Execution Date") of the last to be executed signature, by and between The Board of Trustees of the University of Illinois, a body corporate and politic of the State of Illinois ("University"), and Actuate Therapeutics, Inc., a Delaware corporation ("Licensee" or the "Company").

WHEREAS, on April 6, 2015, the parties entered into an Exclusive License Agreement with Equity (the "Original Agreement") pursuant to which, among other things, University licensed to the Company certain rights to the patent rights and technical information described in the Original Agreement; and

WHEREAS, the parties desire to amend the Original Agreement as set forth herein to enable Company to secure funding and utilize sublicensing revenue for development activities.

NOW, THEREFORE, in consideration of the foregoing, the mutual covenants and agreements herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by the parties, the parties do hereby agree and bind themselves as follows. Capitalized terms used, but not defined herein, shall have the meanings ascribed to them in the Original Agreement.

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1. **Article 3.8(b) of the Original Agreement is hereby deleted and restated in its entirety as follows:**

"(b) The Patent Rights and Technical Information licensed from University under this Agreement were developed supported by funds from the United States Government and thus any rights granted herein to Licensee (and subsequently by Licensee to its Sublicensees) are subject to, and shall in no way restrict, the rights of the United States Government pursuant to 35 USC §203."

2. **Section 7.1(b) of the Original Agreement is hereby deleted and restated in its entirety as follows:**

"(b) Upon (i) permitted assignment or transfer of this Agreement, or (ii) sale of all or substantially all stock or assets of Licensee in any transaction or series of related transactions that results in the current equity holders of Licensee holding less than fifty percent (50%) of the outstanding equity interests of Licensee, as measured by voting power; or the transfer of all or fifty percent (50%) or more of the assets of Licensee to an entity that is not an Affiliate of the Licensee (each a "**Change of Control**"), Licensee shall pay to University the applicable percentage as set forth in Schedule 1 of any remuneration, including fair market value of non-cash remuneration, received by Licensee and/or its

equity holders for such assignment, transfer, or Change in Control, due no later than [***] after the first to occur of the effective date or last signature date of the assignment or transfer, or closing date of Change in Control. Notwithstanding the foregoing, in the event the Licensee effectuates a Change in Control, Sublicenses the Product, or secures cumulative financing equal to or exceeding $100MM, then Licensee shall immediately pay the University all accrued but unpaid obligations of Licensee to University, including, but not limited to any indebtedness of Licensee to University, inclusive of historic patent costs and deferred payable obligations, if any, to the extent such amounts are not otherwise paid pursuant to the first sentence of this Section 7.1(b)."

3. Section 7.2 of the Original Agreement is hereby amended to include the following language after the last sentence of Section 7.2:

"Notwithstanding the foregoing, the participation right granted to University pursuant to this Section 7.2 shall terminate and be of no further force and effect in the event University's right to participate in any Licensee financing is triggered pursuant to this Section 7.2 and University does not elect to participate in such financing."

4. **A new Article 7.14 is hereby added to the Original Agreement as follows:**

"7.14. **Force Majeure**. If Licensee is prevented from performing any obligation hereunder by reason of fire, explosion, strike, labor dispute, casualty, accident, lack or failure of transportation, manufacturing facilities, flood, war, civil commotion, acts of god, governmental law, order or decree or any other cause beyond the reasonable control of Licensee, then Licensee shall be excused from performance hereunder to the extent and for the duration of such prevention, provided it promptly notifies University in writing of such prevention."

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5. **Article 3 of Schedule 1 to the Original Agreement is hereby amended to modify "Royalty rates on Sublicensee Revenue" as follows:**

[***]

6. Except as expressly stated herein, the parties hereby acknowledge and agree that the terms and conditions of the Original Agreement shall remain in full force and effect unchanged, and the same are hereby ratified, confirmed and reaffirmed by the parties in all respects.

7. This Amendment shall take effect ("Amendment Effective Date") upon Licensee's payment of a nonrefundable [***] amendment fee. In the event, Licensee fails to complete the first tranche of fund-raising with commitments totaling no less than $7,500,000 within 30 days of University's receipt of that payment, all changes under this Amendment shall be nullified and the license will revert to previous business terms. The completion of the funding event shall be communicated to the University in writing, and Licensee shall provide documentation evidencing such fund-raising.

8. At any time and from time to time, each party agrees, at Licensee's expense, to take such actions and to execute and deliver such documents as may be reasonably necessary to effectuate the purposes of this Amendment.

9. This Amendment, the Original Agreement, as amended hereby, and the exhibits and schedules thereto set forth the entire understanding of the parties with respect to the subject matter hereof, and supersede all existing agreements among them concerning such subject matter. The Parties acknowledge that no other documents shall have any effect on the construction or interpretation of this Agreement.

10. The provisions of this Amendment shall be binding upon and inure to the benefit of the parties and their respective successors and assigns. This Amendment may be executed in any number of counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument binding on the parties. This Amendment shall be governed by and construed in accordance with the laws of the State of Illinois, without giving effect to applicable conflict of laws principles.

[*remainder of page intentionally left blank*]
[*signatures on next page*]

[*signature page to Amendment to Exclusive License Agreement with Equity*]

IN WITNESS WHEREOF, the parties hereto have caused this Amendment be executed as of the date set forth above.

ACTUATE THERAPEUTICS, INC.

By: /s/ Daniel M. Schmitt 4/24/19
Daniel Schmitt Date
Chief Executive Officer

THE BOARD OF TRUSTEES

OF THE UNIVERSITY OF ILLINOIS

By: /s/ Avijit Ghosh 4/23/2019
Avijit Ghosh, Comptroller Date

/s/ Suseelan Pookote 4/23/2019
Signature of Comptroller Delegate Date

Suseelan Pookote, Director, UIC-OTM
Printed Name and Title of Comptroller Delegate

Attest: /s/ Dedra M. Williams 4/24/2019
Dedra M. Williams, Secretary Date

Exhibit 10.5

CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE ACTUATE THERPEUTICS, INC. HAS DETERMINED THE INFORMATION (I) IS NOT MATERIAL AND (II) WOULD LIKELY CAUSE COMPETITIVE HARM TO ACTUATE THERPEUTICS, INC. IF PUBLICLY DISCLOSED.

LICENSE AGREEMENT

This License Agreement ("**Agreement**") made this 31st day of March, 2015 (the "Effective Date") by and between Northwestern University, an Illinois corporation having a principal office at 633 Clark Street, Evanston, Illinois 60208 (hereinafter referred to as "Northwestern") and Apotheca Therapeutics, Inc., a Delaware corporation having a principal office at 1401 Foch Street, Fort Worth, TX 76107 (hereinafter referred to as "Licensee") (each of Northwestern and Licensee individually a "Party" and collectively the "Parties").

WITNESSETH

WHEREAS, Northwestern is the owner of certain Know-how and Materials relating to the use of the GSK-3β inhibitor 9-ING-41 and related compounds in cancer and combination therapies (NU 2015-xxx) and has the right to grant licenses hereunder, subject only to a royalty-free, nonexclusive license heretofore granted to the United States Government;

WHEREAS, Northwestern desires to have the Know-how and Materials used in the development and commercialization of the GSK-3β inhibitor 9-ING-41 and related compounds to benefit the public and is willing to grant a license hereunder;

WHEREAS, Licensee has represented to Northwestern that Licensee has the expertise, experience, and resources necessary to enable Licensee to commit itself to a thorough, vigorous and diligent program to develop and subsequently manufacture, market and sell products developed utilizing the Know-how and Materials;

WHEREAS, Licensee desires to obtain a license to Know-how and Materials upon the terms and conditions hereafter set forth;

NOW THEREFORE, in consideration of the premises and mutual covenants contained herein, the Parties hereto agree as follows:

ARTICLE I - DEFINITIONS

1.1 **"Affiliate"** shall mean any corporation, firm, partnership or other entity which controls, is controlled by or is under common control with a Party. For the purposes of this definition, "control" shall mean any right or collection of rights that together allow direction on any vote with respect to any action by an entity or the direction of management and operations of that entity. Such right or collection of rights includes without limitation (a) the authority to act as sole member or shareholder or partner with a majority interest in an entity; (b) a majority interest in an entity; and (c) the authority to appoint, elect, or approve at least a majority of the governing board of that entity.

1.2 "**Field**" shall mean all therapeutic, diagnostic, and commercial research uses.

1.3 "**Materials**" shall mean all the results obtained by Andrew Mazar and his collaborators at Northwestern on the use of the GSK-3β inhibitor 9-ING-41and related compounds in cancer treatment and combination therapies.

1.4 **"Non-Commercial Research Purposes"** means the use or practice of Know-how and Materials for academic research and other not-for-profit or scholarly purposes which are undertaken at a non-profit or governmental institution that does not involve the production or manufacture of products for sale or the performance of services for a fee. Without limiting the foregoing: (i) "academic research and other not-for-profit or scholarly purposes" includes, in non-limiting fashion, research that leads, or may lead,

to patentable or unpatentable inventions that may be licensed or otherwise transferred, either directly or indirectly, to third parties; and (ii) neither (A) receipt of license revenues on account of such inventions or receipt of reimbursements for the costs of preparation and shipping of samples of materials provided to third parties as a professional courtesy, in response to post-publication requests or otherwise in accordance with academic custom nor (B) receipt of funding to cover the direct and/or indirect costs of research, shall constitute sale of products or performance of service for a fee.

1.5 "**Know-how"** shall mean any and all technical information existing as of the Effective Date which was developed in the laboratory of Andrew Mazar, is owned by Northwestern, and directly relates to Materials

1.6 **"Territory"** shall mean the entire world

ARTICLE II - GRANT

2.1 In reliance upon the representations made to Northwestern by Licensee that Licensee has the unique experience, expertise and resources necessary to enable Licensee to perform its obligations hereunder, Northwestern hereby grants to Licensee and its Affiliates a non-exclusive license under Know-how and an exclusive license to the Materials to be used on the development of the GSK-3β inhibitor 9-ING-41 and related compounds as therapeutic agent in the Territory in the Field.

2.2 The grant under Paragraph 2.1 shall be subject to the obligations of Northwestern and of Licensee to the United States Government under any and all applicable laws, regulations, and executive orders including those set forth in 35 U.S.C. §200, et seq. Licensee shall cooperate with Northwestern by providing information to enable Northwestern to comply with its reporting obligations and shall make best efforts to comply with all such obligations applicable to Licensee, including that products produced through use of Licensed Know-how and Materials will be manufactured substantially in the U.S. unless this requirement is waived by the Federal Agency per 35 U.S.C. §204 or any other provision. Licensee reserves full rights to request that Northwestern pursue waiver of any U.S. manufacturing requirement at the expense solely of Licensee.

2.3 Northwestern reserves the rights, for itself and others, to use the Know-how and subject matter described in Materials solely for Non-Commercial Research Purposes.

2.4 The grant of this license does not obligate Northwestern or any creator of Materials to make available to Licensee, its sublicensees or Affiliates for their own use and benefit, Northwestern space, facilities, students and services, unless otherwise stated herein or in a separate contractual agreement between Northwestern and Licensee.

2.5 The license granted in Section 2.1 includes the right to grant sublicense of the rights licensed to Licensee under this Agreement. All sublicenses granted by Licensee shall be consistent with all terms and conditions of this Agreement or shall be null and void. Each sublicense shall terminate upon termination of this Agreement unless Northwestern provides written notice that it desires to assume such agreement(s) and further provided the terms of such sublicense are thereby amended so that Northwestern has no obligations under such agreement greater than its obligations to Licensee hereunder. Licensee shall provide Northwestern prompt notification and a copy of each sublicense agreement within [***] of execution. Any Affiliate of Licensee that desires to practice any of the rights licensed by Northwestern hereunder must enter into a sublicense agreement unless Licensee assigns its assets to such Affiliate, including its rights and obligations under this Agreement, in whole or exclusively in a field of use within the Field pursuant to Article IX. Licensee shall have the same responsibility for the activities of any sublicensee as if the activities were directly those of Licensee and shall be liable for sublicensees' compliance with the terms and conditions of this Agreement. Sublicensees shall have the right to further sublicense provided that each such further sublicensee shall be considered a Sublicensee for all purposes hereunder. In all cases, Licensee shall remain responsible for ensuring that all sublicensees comply with the financial and reporting obligations in this Agreement, and Licensee shall be responsible for collecting requisite payments and information from sublicensees and providing such information to Northwestern in accordance with the terms of this agreement. Each sublicense agreement shall name Northwestern as a third party beneficiary.

2.6 Licensee agrees that it and its Affiliates will not, and will contractually require their sublicensees to not, assert any patent arising from Licensee's use of the Know-how and Materials against Northwestern to prevent Northwestern from using any of the Know-how and Materials for its internal Non-Nommercial Academic Research Purposes.

ARTICLE III - CONFIDENTIAL INFORMATION

3.1 Northwestern and Licensee each agree that all information contained in documents marked "Confidential" which are forwarded to one by the other shall be received in strict confidence, used only for the purposes of this Agreement, and not disclosed by the recipient (except as required by law or regulation or by court or administrative agency order), its agents or employees to any third party without the prior written consent of an authorized officer of the disclosing Party, unless such information (a) was in the public domain at the time of disclosure, (b) later became part of the public domain through no act or omission of the recipient, its employees, agents, successors or assigns, (c) was lawfully disclosed to the recipient by a third party having the right to disclose it, (d) was already known by the recipient at the time of disclosure, (e) was independently developed, ,or (f) is required to be submitted to a government agency to obtain and maintain the approvals and clearances of Materials. Disclosure may also be made to Affiliates, distributors, customers, and agents, to nonclinical and clinical investigators, and to consultants, where necessary or desirable with appropriate safeguards to protect the confidential underlying disclosure. Northwestern and Licensee also agree that confidential information may be orally disclosed by one Party to the other Party. Such information shall be confirmed in writing and designated "Confidential" within [***] of disclosure for the provisions of this Article III to apply.

3.2 Each Party's obligation of confidence hereunder shall be fulfilled by using at least the same degree of care with the other Party's confidential information as it uses to protect its own confidential information. This obligation shall exist while this Agreement is in force and for a period of [***] thereafter except in the event of termination by Northwestern for breach on the part of Licensee, in which event Licensee's obligation to maintain the information confidential will exist for a period of [***] after the termination for breach.

3.3 This Agreement may be distributed solely (a) to those employees, agents and independent contractors of Northwestern and Licensee who have a need to know its contents, (b) to those persons whose knowledge of its contents will facilitate performance of the obligations of the Parties under this Agreement, (c) to those persons, if any, whose knowledge of its contents is essential in order to permit Licensee or Northwestern to maintain or secure the benefits under policies of insurance, or (d) as may be required by law or regulation or by court or administrative agency order.

ARTICLE IV - DUE DILIGENCE

4.1 Licensee hereby represents that Licensee has the unique experience, expertise and resources necessary to enable Licensee to perform its obligations hereunder. Licensee shall, upon execution of this Agreement, submit to Northwestern a preliminary development and business plan that sets forth an outline of Licensee's intended efforts to use Know-how and Materials to develop and commercialize the GSK-3β inhibitor 9-ING-41 and related compounds.

4.2 Licensee agrees to provide annual progress reports to Northwestern describing Licensee’s research and development efforts in the use of Licensed Know-how and Materials on the development of GSK-3β inhibitors during the preceding year.

ARTICLE V - PAYMENT

In consideration of the license granted by Northwestern to Licensee under this Agreement, and simultaneous with the execution of this Agreement,

Licensee shall issue to Northwestern 50,000 shares (the “Subject Shares”) of Licensee’s common stock, such Subject Shares representing five percent (5%) of the fully-diluted shares outstanding as of the date hereof, and shall deliver to Northwestern a stock certificate, duly signed by appropriate officers of Licensee and issued in Northwestern’s name, representing all of the Subject Shares. All Subject Shares issued to Northwestern hereunder shall be fully-paid and non-assessable upon their issuance to Northwestern.

If Licensee proposes to sell any equity securities or securities that are convertible into equity securities (“Equity Securities”) of the Licensee, then Northwestern and/or its Assignee (as defined below) will have the right to purchase Equity Securities issued in each offering on the same terms and conditions as are offered to the other purchasers in each such financing in an amount equal to the product of (i) Northwestern’s ownership percent of the fully-diluted shares outstanding multiplied by (ii) the number of Equity Securities issued in such financing. Licensee shall provide [***] advance written notice of each such financing, including reasonable detail regarding the terms and purchasers in the financing. The term "Assignee" means (a) any entity to which the Northwestern's participation rights

under this section have been assigned either by Northwestern or another entity, or (b) any entity that is controlled by Northwestern. This paragraph shall survive the termination of this agreement.

Notwithstanding the foregoing, to the extent that Northwestern and License (and potentially other investors) enter into a Stockholders' Agreement, Investors' Rights Agreement or similar agreement (any such agreement is a "Stockholders' Agreement") that contain provisions on preemptive rights that are in conflict with the foregoing provisions, the provisions in the Stockholders' Agreement shall control.

ARTICLE VI - PUBLICATION

Northwestern will be free to publish the results of any research related to Know-how and Materials and use any information for purposes of research, teaching, and other educationally-related matters. Not less than [***] prior to the submission of any proposed manuscript or [***] prior to the submission of any abstract, Northwestern will submit to Licensee drafts of any manuscript or abstract relating to Materials and Know-How. Licensee shall have the right to advise Northwestern as to the patentability of any invention disclosed therein, and to request the filing of a patent application at Licensee's cost and expense. At the end of such [***] period, Northwestern shall have the right, at its sole discretion, to submit such proposed manuscript or abstract but Licensee reserves the right to request that its name not be used in connection with said publication. The Licensee scientist(s) from whom the Material was obtained shall have the right to be co-author(s) on all publications resulting from the research hereunder, as appropriate under normal scientific conventions.

ARTICLE VII - MATERIAL LIABILITY

7.1 Licensee shall at all times during the term of this Agreement and thereafter, indemnify, defend and hold Northwestern, its trustees, directors, officers, employees and Affiliates, harmless against all claims, proceedings, demands and liabilities of any kind whatsoever, including legal expenses and reasonable attorneys' fees, arising out of the death of or injury to any person or persons or out of any damage to property, or resulting from the production, manufacture, sale, use, lease, consumption or advertisement of the Licensed Know-how and Materials or arising from any obligation of Licensee hereunder.

7.2 Licensee shall obtain and carry in full force and effect commercial, general liability insurance, which shall protect Licensee and Northwestern with respect to events covered by paragraph 7.1 above. Such insurance shall be written by an insurance company authorized to do business in the State of Illinois, shall list Northwestern as an additional insured thereunder, and shall require thirty (30) days written notice to be given to Northwestern prior to any cancellation or material change thereof. The limits of such insurance shall not be less than [***] per occurrence with an aggregate of [***] for bodily injury, death, or property damage, and [***] per occurrence with an aggregate of [***] for personal injury. Licensee shall provide Northwestern with Certificates of Insurance evidencing the same. Northwestern shall have the right to ascertain from time to time that such coverage exists, such right to be exercised in a reasonable manner.

7.3 EXCEPT AS OTHERWISE EXPRESSLY SET FORTH IN THIS AGREEMENT, NORTHWESTERN, ITS TRUSTEES, DIRECTORS, OFFICERS, EMPLOYEES, AND AFFILIATES MAKE NO REPRESENTATIONS AND EXTEND NO WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, VALIDITY OF PATENT RIGHTS CLAIMS, ISSUED OR PENDING AND THE ABSENCE OF LATENT OR OTHER DEFECTS, WHETHER OR NOT DISCOVERABLE. NOTHING IN THIS AGREEMENT SHALL BE CONSTRUED AS A REPRESENTATION MADE OR WARRANTY GIVEN BY NORTHWESTERN THAT THE PRACTICE BY LICENSEE OF THE LICENSE GRANTED HEREUNDER SHALL NOT INFRINGE THE PATENT RIGHTS OF ANY THIRD PARTY. IN NO EVENT SHALL NORTHWESTERN, ITS TRUSTEES, DIRECTORS, OFFICERS, EMPLOYEES AND AFFILIATES BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND, INCLUDING ECONOMIC DAMAGE OR INJURY TO PROPERTY AND LOST PROFITS, REGARDLESS OF WHETHER NORTHWESTERN SHALL BE ADVISED, SHALL HAVE OTHER REASON TO KNOW, OR IN FACT SHALL KNOW OF THE POSSIBILITY.

7.4 Licensee, by execution hereof, acknowledges, covenants and agrees that Licensee has not been induced in any way by Northwestern or employees or students thereof to enter into this Agreement, and further warrants and represents that (a) Licensee has conducted sufficient due diligence with respect to all items and issues pertaining to this Agreement; and (b) Licensee has adequate

knowledge and expertise, or has used knowledgeable and expert consultants, including but not limited to competent legal counsel, to adequately conduct such due diligence, and agrees to accept all risks inherent herein.

ARTICLE VIII - TERM AND TERMINATION

8.1 This Agreement shall become effective on the Effective Date. Unless sooner terminated as provided for below, this Agreement shall continue in effect, on a country-by-country basis, until the expiration of the last to expire of patent rights covering 9-ING-41 and related GSK-3β inhibitors.

8.2 The provisions of Article III (Confidentiality), Article V (Payment), Article VII (Materials Liability), Article VIII (Term and Termination), and Article X (Dispute Resolution) shall survive termination or expiration of this Agreement in accordance with their terms.

8.3 If (1) Licensee makes any general assignment for the benefit of its creditors; (2) a petition is filed by or against Licensee, or any proceeding is initiated against Licensee as a debtor, under any bankruptcy or insolvency law, unless the laws then in effect void the effectiveness of this provision; or (3) a receiver, trustee, or any similar officer is appointed to take possession, custody, or control of all or any part of Licensee's assets or property, then Northwestern may immediately terminate the license granted by this Agreement upon written notice to Licensee of such termination.

8.4 If either Party breaches any material obligation imposed by this Agreement then the other Party may at its option, send a written notice to the Party in breach that it intends to terminate the license granted by this Agreement. If the Party in breach does not cure the breach, within ninety (90) days from the notice date, then the other Party shall have the right to terminate the license granted immediately upon the date of mailing of a written notice of termination to the Party in breach.

8.5 Upon termination of this Agreement for any cause, nothing herein shall be construed to release either Party of any obligation that has matured prior to the effective date of such termination.

ARTICLE IX - ASSIGNMENT

9.1 Due to the nature and purpose of this Agreement, the Parties agree that a material element of this Agreement is that Northwestern has selected Apotheca Therapeutics Inc. to serve as the licensee under this Agreement based on the representations made by Apotheca Therapeutics Inc. that it has the unique experience, expertise and resources necessary to enable it to perform the obligations of the license hereunder. Accordingly, the Parties agree that this Agreement, the license granted hereunder, and the obligations of Licensee hereunder shall not be assigned, sublicensed (unless herein granted), or otherwise transferred by the Licensee without the prior written consent of Northwestern. Notwithstanding any assignment or transfer permitted under this Paragraph 12.1, Licensee shall remain fully liable to Northwestern for the performance of the assignee or transferee.

9.2 It is the understanding of the Parties that in the event a bankruptcy petition is filed by or against Licensee, or any proceeding is initiated against Licensee as a debtor under any bankruptcy or insolvency law, applicable law excuses Northwestern from accepting performance from or rendering performance to an entity other than Licensee, and Licensee, or trustee operating on behalf of the Licensee, shall be prohibited from assigning, sublicensing, or otherwise transferring the license granted hereunder and/or the obligations of Licensee hereunder without the prior written consent of Northwestern.

ARTICLE X - DISPUTE RESOLUTION

10.1 The Parties agree to effect all reasonable efforts to resolve any and all disputes between them in connection with this Agreement in an amicable manner.

10.2 The Parties agree that any dispute that arises in connection with this Agreement and which cannot be amicably resolved by the Parties shall be resolved by binding Alternative Dispute Resolution (ADR) in the manner set forth in Paragraph 13.3 through Paragraph 13.5.

10.3 If a Party intends to begin ADR to resolve a dispute, such Party shall provide written notice to the other Party informing the other Party of such intention and the issues to be resolved. Within [***] after its receipt of such notice, the other Party may, by written notice to the Party initiating ADR, add additional issues to be resolved. If the Parties cannot agree upon the selection of a neutral within [***] following receipt of the original ADR notice, a neutral shall be selected by the then President of the Center for Public Resources (CPR), 680 Fifth Avenue, New York, New York 10019. The neutral shall be a single individual having experience in the pharmaceutical industry who shall preside in resolution of any disputes between the Parties. The neutral selected shall not be an employee, director or shareholder of either Party or an Affiliate or sublicensee.

10.4 Each Party shall have [***] from the date the neutral is selected to object in good faith to the selection of that person. If either Party makes such an objection, the then President of the CPR shall, as soon as possible thereafter, select another neutral under the same conditions as set forth above. This second selection shall be final.

10.5 The ADR shall be conducted in the following manner:

(a) No later than [***] after selection, the neutral shall hold a hearing to resolve each of the issues identified by the Parties.

(b) At least [***] prior to the hearing, each Party must submit to the neutral and serve on the other Party a proposed ruling on each issue to be resolved. Such proposed ruling shall contain no argument on or analysis of the facts or issues, and shall be limited to not more than fifty (50) pages.

(c) The neutral shall not require or permit any discovery by any means, including depositions, interrogatories or production of documents.

(d) Each Party shall be entitled to no more than [***] of hearing to present testimony or documentary evidence. The testimony of both Parties shall be presented during consecutive calendar days. Such time limitation shall apply to any direct, cross or rebuttal testimony, but such time limitation shall only be charged against the Party conducting such direct, cross or rebuttal testimony. It shall be the responsibility of the neutral to determine whether the Parties have had the [***] to which each is entitled.

(e) Each Party shall have the right to be represented by counsel. The neutral shall have the sole discretion with regard to the admissibility of any evidence.

(f) The neutral shall rule on each disputed issue within [***] following the completion of the testimony of both Parties. Such ruling shall adopt in its entirety the proposed ruling of one of the Parties on each disputed issue.

(g) ADR shall take place in Chicago, Illinois. All costs incurred for a hearing room shall be shared equally between the Parties.

(h) The neutral shall be paid a reasonable fee plus expenses, which fees and expenses shall be shared equally by the Parties.

(i) The ruling shall be binding on the Parties and may be entered as an enforceable judgment by a state or federal court having jurisdiction of the Parties.

10.6 This Section X shall survive any termination of this Agreement.

ARTICLE XI - NOTICES AND PAYMENTS

Any payment, notice or other communication pursuant to this Agreement shall be sufficiently made or given on the date of mailing if sent to such Party by certified first class mail, postage prepaid, addressed to it at its address below or as it shall designate by written notice given to the other Party:

In the case of Northwestern:	Executive Director Innovation and New Ventures Office Northwestern University 1800 Sherman Avenue, Suite 504 Evanston, Illinois 60201
With a copy to:	Office of General Counsel Northwestern University 633 Clark Street Evanston, Illinois 60208 Attention: John Calkins
In the case of Licensee:	CEO Apotheca Therapeutics, Inc. 1401 Foch St, Suite 140 Fort Worth, TX. 76107

ARTICLE XII - GENERAL

12.1 **Force Majeure.** Neither Party shall be liable to the other for its failure to perform any of its obligations under this Agreement, except for payment obligations, during any period in which such performance is delayed because rendered impracticable or impossible due to circumstances beyond its reasonable control, including without limitation earthquakes, governmental regulation, fire, flood, labor difficulties, interruption of supply of key raw materials, civil disorder, and acts of God, provided that the Party experiencing the delay promptly notifies the other Party of the delay.

12.2 **Severability.** In the event any provision of this Agreement is held to be invalid or unenforceable, the valid or enforceable portion thereof and the remaining provisions of this Agreement will remain in full force and effect.

12.3 **Applicable Law.** This Agreement is made in accordance with and shall be governed and construed under the laws of the State of Illinois, excluding its choice of law rules.

12.4 **Entire Agreement.** This Agreement and the exhibits attached hereto constitute the entire, final, complete and exclusive agreement between the Parties and supersede all previous agreements or representations, written or oral, with respect to the subject matter of this Agreement. This Agreement may not be modified or amended except in a writing signed by a duly authorized representative of each Party.

12.5 **Headings.** The headings for each article and section in this Agreement have been inserted for convenience or reference only and are not intended to limit or expand on the meaning of the language contained in the particular article or section.

12.6 **Independent Contractors.** The Parties are not employees or legal representatives of the other Party for any purpose. Neither Party shall have the authority to enter into any contracts in the name of or on behalf of the other Party.

12.7 **Advertising.** Licensee shall not use the name of the inventor listed in this Agreement, of any institution with which the inventor has been or is connected, nor the name of Northwestern in any advertising, promotional or sales literature, without prior written consent obtained from Northwestern in each case.

12.8 **Waiver.** Any waiver (express or implied) by either Party of any breach of this Agreement shall not constitute a waiver of any other or subsequent breach.

12.9 **Counterparts.** This Agreement may be executed in counterparts with the same force and effect as if each of the signatories had executed the same instrument.

12.10 **Export Controls.** It is understood that Northwestern is subject to United States laws and regulations controlling the export of technical data, computer software, laboratory prototypes, and other commodities that may require a license from the applicable agency of the United States Government and/or may require written assurances by Licensee that it will not export data or commodities to certain foreign countries without prior approval of such agency. Northwestern neither represents that a license is required, nor that, if required, it will be issued.

In Witness Whereof, the Parties have executed this Agreement effective on the date first set forth above.

APOTHECA THERAPEUTICS INC.	**NORTHWESTERN UNIVERSITY**
By: /s/ Les Kreis	By: /s/ Alicia I. Löffler
Name: Les Kreis	Name: Alicia I. Löffler, Ph.D.
Title: President	Title: Associate Provost for INVO Associate Vice President for Research, Executive Director, INVO Office
Date: 5/5/2015	Date: 4/29/15

AMENDMENT TO LICENSE AGREEMENT

This AMENDMENT TO LICENSE AGREEMENT (this "Amendment") is entered into as of the 29th day of April, 2019, by and between Northwestern University, an Illinois corporation ("Northwestern"), and Actuate Therapeutics, Inc., a Delaware corporation ("Licensee").

WHEREAS, on March 31, 2015, the parties entered into a License Agreement (the "Original Agreement") pursuant to which, among other things, Northwestern licensed to Licensee certain rights in certain Know-how and Materials relating to the use of GSK-3β inhibitor 9-ING-41 and related compounds as described in the Original Agreement; and

WHEREAS, the parties desire to amend the Original Agreement as set forth herein.

NOW, THEREFORE, in consideration of the foregoing, the mutual covenants and agreements herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by the parties, the parties do hereby agree and bind themselves as follows. Capitalized terms used, but not defined herein, shall have the meanings ascribed to them in the Original Agreement.

1. Paragraph 2 of Article V of the Original Agreement is hereby amended and restated in its entirety as follows:

> "Northwestern and/or its Assignee (as defined below) shall be granted the opportunity to participate in future financing rounds at the same price per share/unit price being paid by all other participants in such financing (without giving effect to any discount applicable to any investor holding convertible promissory notes of Licensee). The term "Assignee" means (a) any entity to which Northwestern's participation rights under this section have been assigned either by Northwestern or another entity, or (b) any entity that is controlled by Northwestern. Notwithstanding the foregoing, the participation right granted to Northwestern pursuant to this Article V shall terminate and be of no further force and effect in the event (i) Northwestern executes an investor rights agreement or similar agreement with Licensee in connection with a future financing round of Licensee which addresses the rights of the signatories thereto to participate in future financing rounds, or (ii) Northwestern's right to participate in a future financing is triggered pursuant to this Article V and (y) Northwestern elects not to participate in such financing, or (z) Northwestern fails to notify Licensee of its election to participate in a future financing round within [***] following the date of Licensee's notice to Northwestern of such financing."

2. Section 9.1 of the Original Agreement is hereby amended and restated as follows:

"9.1 This Agreement may not be assigned, sublicensed (unless herein granted), or otherwise transferred by Licensee without the prior written consent of Northwestern. Notwithstanding the foregoing, except with respect to the assignment of this Agreement to a Restricted Party (defined below), Licensee may assign this Agreement upon not less than [***] prior written notice to Northwestern in connection with any event of a change of control of Licensee, whether by merger, sale of assets, sale of stock, operation of law or otherwise. For purposes of this Section 9.1 a "Restricted Party" shall mean any third party that is (a) not engaged in the development, manufacturing or sale of products in the pharmaceutical or biotechnology industry, or (b) with whom it would be inappropriate for Northwestern to contract or affiliate with due to such party's involvement or alleged involvement (by law enforcement or other governmental authority) in illicit activities, such as fraud, criminal conduct, or similar misconduct.

3. Except as expressly stated herein, the parties hereby acknowledge and agree that the terms and conditions of the Original Agreement shall remain in full force and effect unchanged, and the same are hereby ratified, confirmed and reaffirmed by the parties in all respects.

4. All of the amendments set forth in this Amendment shall take effect as of the date of this Amendment without further action by the parties hereto.

5. At any time and from time to time, each party agrees, at Licensee's expense, to take such actions and to execute and deliver such documents as may be reasonably necessary to effectuate the purposes of this Amendment.

6. This Amendment, the Original Agreement, as amended hereby, and the exhibits and schedules thereto set forth the entire understanding of the parties with respect to the subject matter hereof, and supersede all existing agreements among them concerning such subject matter.

7. The provisions of this Amendment shall be binding upon and inure to the benefit of the parties and their respective successors and assigns. This Amendment may be executed in any number of counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument binding on the parties. This Amendment shall be governed by and construed in accordance with the laws of the State of Illinois, without giving effect to applicable conflict of laws principles.

IN WITNESS WHEREOF, the parties hereto have caused this Amendment be executed as of the date set forth above.

NORTHWESTERN UNIVERSITY	ACTUATE THERAPEUTICS, INC.
By: /s/ Alicia I. Löffler	By: /s/ Daniel M. Schmitt
Name: Alicia I. Löffler	Daniel Schmitt
Title: Executive Director, INVO	Chief Executive Officer

Exhibit 10.6

EMPLOYMENT AGREEMENT

This EMPLOYMENT AGREEMENT (this ***"Agreement"),*** is entered into to be effective as of April 15, 2015 (the ***"Effective Date"),*** by and between Apotheca Therapeutics, Inc. a Delaware corporation (the ***"Company"),*** and Daniel Schmitt, an individual currently residing at [***] (the ***"Executive").***

WHEREAS, Company desires to employ the Executive on the terms, conditions and for the consideration hereinafter set forth, and the Executive is willing to serve as an employee of the Company on such terms and conditions and for such consideration.

NOW THEREFORE, for and in consideration of the mutual promises, covenants and obligations contained herein, the Company and the Executive hereby agree as follows:

1. **Employment and Duties.**

(a) General. Prior to the date that is the first to occur of (i) the date on which the Company first conducts a closing of the issue and sale of shares of Preferred Stock of the Company or (ii) such other date as the Company and the Executive mutually agree (the ***"Financing Date"),*** the Executive shall serve as an employee of the Company with the title of Chief Executive Officer, reporting to the Board of Directors of the Company (the ***"Board").*** In his capacity as an employee of the Company from the Effective Date until the Financing Date, the Executive's responsibility will be to support activities focused on leading short and long range strategic planning, raising equity-based and non-dilutive financing, managing budgets and fiscal controls, developing corporate infrastructure and external resources to acquire and advance the Company's drug candidates from bench into the clinic, and positively position the Company for acquisitions and/or commercial partnerships. From and after the Financing Date, subject to the terms of this Agreement, the Executive shall serve as Chief Executive Officer of the Company, reporting to the Board. In his capacity as Chief Executive Officer from and after the Financing Date, the Executive shall have such duties as described in the second sentence of this Section 1(a) and shall also have such duties and responsibilities, commensurate with the Executive's position, as may be reasonably assigned to the Executive from time to time by the Board. The Executive's principal place of employment during the Term (as defined below) shall be Grayslake, Illinois.

(b) Exclusive Services. From and after the Financing Date and for so long as the Executive is employed by the Company, the Executive shall devote his full business time and attention to his duties hereunder in such capacity, shall faithfully serve the Company, shall in all respects conform to and comply with the lawful and good faith directions and instructions given to him by the Board and shall use his best efforts to promote and serve the interests of the Company. Further, from and after the Financing Date and for so long as the Executive is employed by the Company, the Executive shall not, directly or indirectly, render services to any other Person (as defined below) without the prior consent of the Board or otherwise engage in activities that would interfere significantly with his faithful performance of his duties hereunder. Notwithstanding the foregoing, the Executive may, without any requirement to obtain the Board's prior consent, (i) serve on civic, childrens' sports organization and/or charitable boards and/or engage in charitable activities without remuneration therefor; and (ii) manage his own personal investments; provided, however, that any such activity or combination of such activities does not or do not unreasonably interfere with Executive's obligations described in the first sentence of this Section 1(b) or any other provision of this Agreement. Nothing in this Section l(b) shall preclude the Executive from continuing employment with Northwestern University prior to the Financing Date: provided, however, that, prior to the Financing Date and irrespective of such employment, the Executive shall be required to dedicate a reasonable amount of time to the performance of his duties hereunder as described in Section l(a) of this Agreement. For purposes of this Agreement, ***"Person"*** shall mean an individual, a corporation, a limited liability company, a partnership, an association, a trust, or other entity or organization, including any governmental entity.

2. **Term of Employment.** The term of this Agreement (the ***"Term")*** shall commence on the Effective Date and shall continue until terminated in accordance with the provisions of this Agreement. Subject to the provisions of Section 4 of this Agreement, this Agreement may be terminated by the Company or the Executive, at any time, upon thirty (30) days' prior written notice thereof to the other party. If the Financing Date has not occurred on or prior to the date that is eighteen months following the Effective Date, then either party may terminate this Agreement immediately upon written notice thereof to the other. Following any termination of this Agreement, Executive shall be entitled to receive any unpaid Base Salary (as defined below) accrued through the date of termination.

All other benefits, if any, due to Executive following Executive's termination shall be determined in accordance with the plans, policies and practices of the Company; provided, however, that except as described in Section 4, Executive shall not be entitled to any payments or benefits under any other agreement or any severance plan, policy or program of the Company or any of its affiliates (excluding any medical or dental insurance plans) and Executive shall not accrue any additional compensation (including any Base Salary) or other benefits under this Agreement following any such termination of employment.

3. **Compensation and Other Benefits.** Subject to the provisions of this Agreement, the Company shall pay and provide the following compensation and other benefits to the Executive during the Term as compensation for services rendered hereunder:

(a) Base Salary. The Company shall pay to the Executive a salary at the annual rate of $120,000 (the ***"Base Salary"),*** payable in substantially equal installments at such intervals as may be determined by the Company in accordance with the Company's then current ordinary payroll practices as established from time to time. As of the first day of the payroll cycle that includes the Financing Date, the Executive's Base Salary shall be increased to an annual rate of $200,000. In the event that the Financing Date occurs on a date other than the first day of a payroll cycle, the Executive shall, with respect to such payroll cycle, be entitled to compensation equal to the sum of (i) a prorated Base Salary at the annual rate of $120,000 based on the number of days in such payroll cycle that precede the Financing Date and (ii) a prorated Base Salary at the annual rate of $200,000 for the remaining number of days in such payroll cycle. Such proration shall be calculated by dividing the applicable annual rate of Base Salary by the number of payroll cycles within the calendar year and multiplying such quotient by a fraction, the numerator of which shall be the number of days in such payroll cycle during which such annual rate of Base Salary is in effect and the denominator of which shall be the total number of days in such payroll cycle. The Base Salary shall be reviewed in good faith by the Board, based upon the Executive's performance, within six months of the Financing Date and, thereafter, not less often than annually.

(b) Employee Benefits. Effective as of the Financing Date, the Executive shall be entitled to participate in all employee benefit arrangements that the Company may offer to its executives of a like status from time to time, and as may be amended from time to time.

(c) Expenses. The Company shall reimburse the Executive for reasonable travel and other business-related expenses incurred by the Executive in the fulfillment of his duties hereunder upon presentation of written documentation thereof, in accordance with the applicable expense reimbursement policies and procedures of the Company as in effect from time to time.

4. **Termination of Employment.** This Section 4 shall become effective as of the Financing Date.

(a) Termination of Employment in Absence of a Change in Control. Subject to satisfaction of Section 4(d), if the Executive's employment is terminated by the Company for any reason other than the Executive's death, the Executive's Disability (as defined below) or Cause (as defined below), or is terminated by the Executive for Good Reason, then the Executive shall be entitled to receive a payment equal to one times (x) his then current Base Salary (the ***"Standard Severance Benefits").*** The Executive shall have no further right to receive any other compensation or benefits after such termination or resignation of employment, except as described in Section 2 or, if applicable, Section 4(b). Except as otherwise required under Section 6(b), the Standard Severance Benefits shall be paid to the Executive in a lump sum no later than the forty-fifth (45^{th}) day immediately following the Executive's Separation from Service (as defined below), provided that the Executive first executes a release of any and all claims against the Company (set forth in Section 4(d), below) and the revocation period specified therein has expired without the Executive revoking such release. Notwithstanding the foregoing and for avoidance of doubt, if the Executive's employment is terminated by the Company for the Executive's death, the Executive's Disability or Cause or by the Executive without Good Reason at any time, then the Executive shall not be entitled to or receive the Standard Severance Benefits.

(i) For purposes of this Agreement, the term ***"Separation from Service"*** shall have the meaning ascribed under Section 409A of the Internal Revenue Code of 1986, as amended (the ***"Code")).***

(ii) For purposes of this Agreement, the term ***"Cause"*** shall mean a termination of the Executive's employment with the Company because of: (1) any act or omission by the Executive that constitutes a material breach by the Executive of any of his obligations under this Agreement; (2) the Executive's conviction of, or plea of nolo contendere to, (A) any felony or (B) another crime involving dishonesty or moral turpitude or which could reflect negatively upon the Company or otherwise impair or impede its operations; (3) the Executive's engaging in any misconduct, negligence, act of dishonesty, violence or threat of violence (including any violation of federal securities laws) that is injurious to the Company or any of its subsidiaries or affiliates; (4) the Executive's material breach of a written policy of the Company or the rules of any governmental or regulatory body applicable to the Company; (5) the Executive's refusal to follow the directions of the Board; or (6) any other willful misconduct by the Executive which is materially injurious to the financial condition or business reputation of the Company or any of its subsidiaries or affiliates. Notwithstanding anything in this Section 4(a)(ii) to the contrary, no event or condition described in Sections 4(a)(ii)(l), (3), (4), (5) or (6) shall constitute Cause unless (x) within 90 days from the Board first acquiring actual knowledge of the existence of the Cause condition, the Board provides the Executive written notice of its intention to terminate his employment for Cause and the grounds for such termination; (y) such grounds for termination (if susceptible to correction) are not corrected by the Executive within 20 days of his receipt of such notice (or, in the event that such grounds cannot be corrected within such 20-day period, the Executive has not taken all reasonable steps within such 20-day period to correct such grounds as promptly as practicable thereafter); and (z) the Board terminates the Executive's employment with the Company promptly following expiration of such 20- day period. For purposes of this Section 4(a)(ii), any attempt by the Executive to correct a stated Cause shall not be deemed an admission by the Executive that the Board's assertion of Cause is valid. Notwithstanding anything in this Agreement to the contrary, if the Executive's employment with the Company is terminated by the Company hereunder without Cause, within 90 days of termination the Company shall have the sole discretion to later use after-acquired evidence to retroactively re-characterize the prior termination as a termination for Cause if such after-acquired evidence supports such an action.

(iii) For purposes of this Agreement, the term ***"Good Reason"*** shall mean: (1) a material diminution in the Executive's Base Salary or a failure by the Company to pay material compensation due and payable to the Executive in connection with his employment; (2) a material diminution in the nature or scope of the Executive's authority, duties, responsibilities, or title from those applicable to him as of the Effective Date; (3) the Company requiring the Executive to be based at any office or location more than 50 miles from Grayslake, Illinois; or (4) a material breach by the Company of any term or provision of this Agreement. Notwithstanding anything in this Section 4(a)(ii) to the contrary, no event or condition described in this Section 4(a)(ii) shall constitute Good Reason unless, (x) within 90 days from the Executive first acquiring actual knowledge of the existence of the Good Reason condition described in this Section 4(a)(ii), the Executive provides the Board written notice of his intention to terminate his employment for Good Reason and the grounds for such termination; (y) such grounds for termination (if susceptible to correction) are not corrected by the Company within 20 days of the Board's receipt of such notice (or, in the event that such grounds cannot be corrected within such 20-day period, the Company has not taken all reasonable steps within such 20-day period to correct such grounds as promptly as practicable thereafter); and (z) the Executive terminates his employment with the Company promptly following expiration of such 20-day period. For purposes of this Section 4(a)(ii), any attempt by the Company to correct a stated Good Reason shall not be deemed an admission by the Company that the Executive's assertion of Good Reason is valid.

(iv) For purposes of this Agreement, the term ***"Disability"*** shall mean the Executive's inability, due to physical or mental incapacity taking into account any reasonable accomodations, to perform his duties under this Agreement for a period of at least ninety (90) consecutive days or at least one-hundred twenty (120) days during any consecutive six-month period, in any such case as determined by the Board in good faith. In conjunction with determining Disability for purposes of this Agreement, the Executive hereby (A) consents to any such examinations, to be performed by a qualified medical provider selected by the Company and approved by the Executive (which approval shall not be unreasonably withheld), which are relevant to a determination of whether the Executive has incurred a Disability; and (B) agrees to furnish such medical information as may be reasonably requested by the Company.

(b) Termination of Employment after a Change in Control. Subject to satisfaction of Section 4(d), if a Change in Control occurs and the Executive's employment is terminated by the Company for any reason other than the Executive's death, the Executive's Disability or Cause, or is terminated by the Executive for Good Reason, in any such case within the six (6) months immediately preceding or the twelve (12) months immediately following such Change in Control, then the Executive shall be entitled

to receive a payment equal to one and one-half times (1.5x) his then current Base Salary (or, if applicable, the Base Salary in effect on the date of the Executive's prior Separation from Service), reduced by the Standard Severance Benefits, if any, to which Executive was entitled under Section 4(a) (the ***"Change in Control Severance Benefits").*** Except as otherwise required under Section 6(b), Change in Control Severance Benefits shall be paid to the Executive in a lump sum no later than the forty-fifth (45^{th}) day immediately following the later of the Executive's Separation from Service and the Change in Control, provided the Executive first executes a release of any and all claims against the Company (set forth in Section 4(d), below) and the revocation period specified therein has expired without the Executive revoking such release. Notwithstanding the foregoing and for avoidance of doubt, if the Executive's employment is terminated by the Company for the Executive's death, the Executive's Disability or Cause or by the Executive without Good Reason, in any such case any time prior to or following a Change in Control, then the Executive shall not be entitled to or receive the Change in Control Severance Benefits. Furthermore, for the avoidance of doubt, in no event shall the Executive be entitled to receive both Standard Severance Benefits and Change in Control Severance Benefits in excess of one and one-half times (l.5x) his then current Base Salary (or, if applicable, the Base Salary in effect on the date of the Executive's prior Separation from Service).

(i) For purposes of this Agreement the term ***"Change in Control"*** shall mean any of the following transactions, as determined in the sole and absolute discretion of the Board of Directors of the Company:

(A) The date that any one Person (other than existing stockholders of the Company), or more than one such Persons acting as a group, acquires ownership of the Company's voting stock that, together with the Company's voting stock held by such Person or group, constitutes more than fifty percent (50%) of the total voting power of the Company's capital stock. However, if any one Person (other than existing stockholders of the Company), or more than one such Persons acting as a group, is considered to own more than fifty percent (50%) of the total voting stock of the Company's, the acquisition of additional shares of stock by the same Person or Persons will not be considered to cause a Change in Control.

(B) The consummation of a consolidation or merger of the Company in which the Company is not the surviving entity or pursuant to which the Company's equity interests would be converted into cash, securities or other property; except that, the foregoing provisions of this Section 4(a)(ii)(B) shall not apply if the majority of the board of directors of the surviving corporation are, and for a one-year period after the merger continue to be, persons who were directors of the Company immediately prior to the merger or were elected as directors, or nominated for election as a director, by a vote of at least two-thirds of the directors then still in office who were directors of the Company immediately prior to the merger; and

(C) The date that any one Person or more than one Person acting as a group acquires all or substantially all of the assets of the Company.

Notwithstanding the foregoing, a Change in Control shall not be deemed to have occurred in the event the Company forms a holding company and, as a result thereof, the holders of the Company's voting securities immediately prior to the transaction hold, in approximately the same relative proportions as they held prior to the transaction, substantially all of the voting securities of the holding company that owns all of the Company's voting securities immediately after completion of the transaction. Further, a Change in Control shall not be deemed to have occurred due to any acquisition of voting stock by an employee stock ownership plan sponsored by the Company.

(c) Resignation from Directorships and Officerships. The termination of the Executive's employment for any reason shall constitute the Executive's immediate resignation from (i) any director, officer or employee position the Executive has with the Company, and (ii) all fiduciary positions (including as a trustee) the Executive holds with respect to any employee benefit plans or trusts established by the Company. The Executive agrees that this Agreement shall serve as written notice of resignation in this circumstance.

(d) Waiver and Release. Notwithstanding any other provision of this Agreement to the contrary, unless expressly waived in writing by the Board in its sole discretion, the Company shall not make or provide any Standard Severance Benefits or Change in Control Severance Benefits (collectively referred to as the ***"Severance Benefits")*** under this Section 4 (other than accrued Base Salary as of the termination date) unless the Executive timely executes and delivers to the Company a general release (which shall be provided by the Company not later than five (5) days from the date on which the Executive's employment is terminated and be substantially in the form attached hereto as **Exhibit A),** whereby the Executive (or his estate or legally appointed personal representative, as applicable)

releases the Company (and affiliates of the Company and other designated persons as described in **Exhibit A)** from all employment based or related claims of the Executive and all obligations of the Company to the Executive other than with respect to (x) the Company's obligations to make and provide the Severance Benefits and other payments provided by this Agreement and (y) any vested benefits to which the Executive is entitled under the terms of any Company benefit or equity plan, and the Executive does not revoke such release within any applicable revocation period following the Executive's delivery of the executed release to the Company. If the requirements of this Section 4(d) are not satisfied by the Executive (or his estate or legally appointed personal representative, as applicable), then no Severance Benefits other than accrued Base Salary as of the termination date shall be due to the Executive (or his estate or legally appointed personal representative) pursuant to this Agreement.

(e) Notice of Termination. Any termination of employment by the Company or the Executive shall be communicated by a written ***"Notice of Termination"*** to the other party hereto given in accordance with Section 8(k) of this Agreement. In the event of a termination by the Company for Cause, the Notice of Termination shall (i) indicate the specific termination provision in this Agreement relied upon, (ii) set forth in reasonable detail the facts and circumstances claimed to provide a basis for termination of the Executive's employment under the provision so indicated and (iii) specify the date of termination. The failure by the Executive or the Company to set forth in the Notice of Termination any fact or circumstance which contributes to a showing of Cause shall not waive any right of the Executive or the Company, respectively, hereunder or preclude the Executive or the Company, respectively, from asserting such fact or circumstance in enforcing the Executive's or the Company's rights hereunder.

5. **Section 280G Payments.** Notwithstanding anything in this Agreement to the contrary, if the Executive is a "disqualified individual" (as defined in Section 280G(c) of the Code), and the payments and benefits provided for in this Agreement, together with any other payments and benefits which the Executive has the right to receive from the Company or any other Person, would constitute a "parachute payment" (as defined in Section 280G(b)(2) of the Code), then the payments and benefits provided for in this Agreement shall be either (a) reduced (but not below zero) so that the present value of such total amounts and benefits received by the Executive from the Company and/or such person(s) will be $1.00 less than three (3) times the Executive's "base amount" (as defined in Section 280G(b)(3) of the Code) and so that no portion of such amounts and benefits received by the Executive shall be subject to the excise tax imposed by Section 4999 of the Code or (b) paid in full, whichever produces the better "net after-tax position" to the Executive (taking into account any applicable excise tax under Section 4999 of the Code and any other applicable taxes). The reduction of payments and benefits hereunder, if applicable, shall be made by reducing, first, payments or benefits to be paid in cash hereunder in the order in which such payment or benefit would be paid or provided (beginning with such payment or benefit that would be made last in time and continuing, to the extent necessary, through to such payment or benefit that would be made first in time) and, then, reducing any benefit to be provided in-kind hereunder in a similar order. The determination as to whether any such reduction in the amount of the payments and benefits provided hereunder is necessary shall be made by the Board in good faith in consultation with the Executive. If a reduced payment or benefit is made or provided and through error or otherwise that payment or benefit, when aggregated with other payments and benefits from the Company (or its affiliates) used in determining if a "parachute payment" exists, exceeds $1.00 less than three (3) times the Executive's base amount, then the Executive shall immediately repay such excess to the Company upon notification that an overpayment has been made. Nothing in this paragraph shall require the Company to be responsible for, or have any liability or obligation with respect to, the Executive's excise tax liabilities under Section 4999 of the Code.

6. **Section 409A of the Code.** This Agreement is intended to either avoid the application of, or comply with, Section 409A of the Code. To that end this Agreement shall at all times be interpreted in a manner that is consistent with Section 409A of the Code. Notwithstanding any other provision in this Agreement to the contrary, the Company shall have the right, in its sole discretion, to adopt such amendments to this Agreement or take such other actions (including amendments and actions with retroactive effect) as it determines to be necessary or appropriate for this Agreement to comply with Section 409A of the Code. Further:

(a) Any reimbursement of any costs and expenses by the Company to the Executive under this Agreement shall be made by the Company in no event later than the close of the Executive's taxable year following the taxable year in which the cost or expense is incurred by the Executive. The expenses incurred by the Executive in any calendar year that are eligible for reimbursement under this Agreement shall not affect the expenses incurred by the Executive in any other calendar year that are eligible for reimbursement

hereunder and the Executive's right to receive any reimbursement hereunder shall not be subject to liquidation or exchange for any other benefit.

(b) Any payment following a Separation from Service that would be subject to Section 409A(a)(2)(A)(i) of the Code as a distribution following a Separation from Service of a "specified employee" (as defined under Section 409A(a)(2)(B)(i) of the Code) shall be made on the first to occur of (i) ten (10) days after the expiration of the six month period following such Separation from Service, (ii) death or (iii) such earlier date that complies with Section 409A.

(c) Each payment that the Executive may receive under this Agreement shall be treated as a "separate payment" for purposes of Section 409A of the Code.

7. **Confidential Information1 Trade Secrets and Restrictive Covenants.** The Company agrees to: (i) disclose, and to continue to disclose, its confidential information and trade secrets to the Executive; (ii) provide initial and continued training, education and development to the Executive; and (iii) provide the Executive with confidential information and trade secrets about, and the opportunity to develop relationships with, the Company's employees, customers and suppliers, and employees and agents of the Company's customers and suppliers. In consideration thereof, the Executive hereby agrees to comply with the restrictive covenants prescribed in **Exhibit B.** A default under or breach of **Exhibit B** shall constitute a material breach of this Agreement.

8. **Miscellaneous.**

(a) Defense of Claims. The Executive agrees that, during the Term, and for a period of twelve (12) months after termination of the Executive's employment, upon request from the Company, the Executive will cooperate with the Company in the defense of any claims or actions that may be made by or against the Company that affect the Executive's prior areas of responsibility, except if the Executive's reasonable interests are adverse to the Company in such claim or action. The Company agrees to promptly reimburse the Executive for all of the Executive's reasonable legal fees, travel and other direct expenses reasonably incurred to comply with the Executive's obligations under this Section 8(a).

(b) Non-Disparagement. The Executive and the Company agree that at no time during the Executive's employment by the Company or thereafter shall either the Executive or the Company make, or cause or assist any other Person to make, any statement or other communication to any third party which impugns or attacks, or is otherwise critical of, the reputation, business or character of the other party, or any of his or its affiliates or, if such other party is the Company, any of its directors, officers or employees.

(c) Source of Payments. All payments provided under this Agreement, other than payments made pursuant to a plan or agreement which provides otherwise, shall be paid in cash from the general funds of the Company, and no special or separate fund shall be established, and no other segregation of assets shall be made, to assure payment. The Executive shall have no right, title or interest whatsoever in or to any investments which the Company may make to aid the Company in meeting its obligations hereunder. To the extent that any Person acquires a right to receive payments from the Company hereunder, such right shall be no greater than the right of an unsecured creditor of the Company.

(d) Arbitration. Any dispute or controversy arising under or in connection with this Agreement or otherwise in connection with the Executive's employment by the Company that cannot be mutually resolved by the parties to this Agreement and their respective advisors and representatives shall be settled exclusively by arbitration in Tarrant County, Texas in accordance with the rules of the American Arbitration Association before one arbitrator of exemplary qualifications and stature, who shall be selected jointly by an individual to be designated by the Company and an individual to be selected by the Executive, or if such two individuals cannot agree on the selection of the arbitrator, who shall be selected by the American Arbitration Association.

(e) Amendment, Waiver. This Agreement (together with the Exhibits hereto) may not be modified, amended or waived in any manner, except by an instrument in writing signed by both parties hereto. The waiver by either party of compliance with any provision of this Agreement by the other party shall not operate or be construed as a waiver of any other provision of this Agreement, or of any subsequent breach by such party of a provision of this Agreement.

(f) Entire Agreement. This Agreement and the agreements specifically incorporated herein are the entire agreement and understanding of the parties hereto with respect to the matters covered herein and supersedes all prior or contemporaneous

negotiations, commitments, agreements and writings with respect to the subject matter hereof, all such other negotiations, commitments, agreements and writings shall have no further force or effect, and the parties to any such other negotiation, commitment, agreement or writing shall have no further rights or obligations thereunder.

(g) Governing Law/Venue. This Agreement shall be governed by and construed in accordance with the laws of the State of Delaware, without regard to conflict of laws principles thereof. Each party to this Agreement hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts in Tarrant County, Texas, for the purposes of any proceeding arising out of or based upon this Agreement.

(h) No Waiver. The failure of a party to insist upon strict adherence to any term of this Agreement on any occasion shall not be considered a waiver of such party's rights or deprive such party of the right thereafter to insist upon strict adherence to that term or any other term of this Agreement.

(i) Severability. In the event that any one or more of the provisions of this Agreement shall be or become invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions of this Agreement shall not be affected thereby.

(j) Successors; Binding Agreement. This Agreement shall inure to the benefit of and be binding upon personal or legal representatives, executors, administrators, successors, heirs, distributees, devisees and legatees.

(k) Notices. For the purpose of this Agreement, notices and all other communications provided for in the Agreement shall be in writing and shall be deemed to have been duly given when delivered by hand to the other party (which, in the case of the Company, shall be to the individual identified below), or, if sent by nationally-recognized overnight courier, one (1) business day after deposit with such nationally-recognized overnight courier, or three (3) days after it has been mailed by United States registered mail, return receipt requested, postage prepaid, addressed to the respective addresses set forth below in this Agreement, or to such other address as either party may have furnished to the other in writing in accordance herewith, except that notice of change of address shall be effective only upon receipt.

If to the Company: Apotheca Therapeutics, Inc. 1401
Foch Street, Suite 140 Fort Worth,
Texas 76107
Attn: Board of Directors

If to Executive: Daniel Schmitt

(m) Prior Employment. The Company has employed the Executive for the Executive's general skills, management abilities and experience in the Company's business or related industries. The Executive acknowledges that he has been specifically instructed not to bring, disclose or use in any fashion any confidential information, trade secrets, proprietary information, data or technology, nor any confidential pricing information, belonging to any prior employer. In no event is the Executive authorized to use or disclose any such information to the Company or any of its employees.

(n) Executive's Representations. The Executive hereby represents to the Company that (i) all confidential information, trade secrets or proprietary information, data or technology, belonging to any prior employer, including, without limitation, those that might have been contained on the Executive's personal computer, cell phone or other electronic communications or storage device have been returned and/or deleted in accordance with any policy of or agreement with the Executive's prior employer and (ii) the execution and delivery of this Agreement by the Executive and the Company and the performance by the Executive of his duties hereunder shall not constitute a breach of, or otherwise contravene, the terms of any employment agreement or other agreement or policy to which the Executive is a party or otherwise bound.

(o) Assignment; Assumption by Successor. This Agreement is binding upon and shall inure to the benefit of the parties hereto, together with their respective executors, administrators, successors, personal representatives, heirs, and assigns. Notwithstanding the foregoing, the rights and duties of and benefits to the Executive hereunder are personal to the Executive, and no such right or benefit may be assigned by him. The Company shall have the right to assign or transfer this Agreement to its successors or assigns. The terms "successors" and "assigns" shall include any Person who or which buys all or substantially all of Company's assets or all of its stock, or with which Company merges or consolidates. Any purported assignment of this Agreement, other than as provided above, shall be void. The failure of any successor entity to the Company to expressly assume in writing the terms of this Agreement shall be deemed a material breach of this Agreement.

(p) Withholding of Taxes. The Company may withhold from any amounts or benefits payable under this Agreement all taxes it may be required to withhold pursuant to any applicable law or regulation.

(q) Counterparts. This Agreement may be executed in two (2) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. This Agreement shall become effective when each party hereto shall have received counterparts thereof signed and delivered by each other party hereto. Any party may deliver an executed copy of this Agreement by facsimile or electronic mail (in .pdf format) to each other party and such delivery shall have the same force and effect as any other delivery of a manually signed copy of this Agreement.

(r) Survival. This Agreement shall terminate upon the termination of employment of the Executive; however, the following shall survive the termination of the Executive's employment and/or the expiration or termination of this Agreement, regardless of the reasons for such expiration or termination: Section 4 ("Termination of Employment") and the corresponding **Exhibit A** ("Waiver and Release"), Section 7 ("Confidential Information, Trade Secrets and Restrictive Covenants") and the corresponding **Exhibit B** ("Confidentiality, Non-Competition and Non-Solicitation Agreement"), Section 8(a) ("Defense of Claims"), Section 8(6) ("Non-Disparagement"), Section 8(d) ("Arbitration"), Section 8(f) ("Entire Agreement"), Section 8(g) ("Governing Law/Venue"), Section 8(k) ("Notices"), Section 8(o) ("Assignment; Assumption by Successor), and Section 8(n) ("Executive's Representations").

[Signature Page Follows]

IN **WITNESS WHEREOF,** the parties hereto have duly executed this Agreement effective as of the Effective Date.

EXECUTIVE:	**APOTHECA THERAPEUTICS, INC.:**
/S/ Daniel Schmitt	/S/ Leslie Wayne Kreis, Jr.
Daniel Schmitt	Name: Leslie Wayne Kreis, Jr. Title: Director

EXHIBIT

WAIVER AND RELEASE

Pursuant to the terms of the Employment Agreement (the ***"Agreement")*** by and between Apotheca Therapeutics, Inc., a Delaware corporation, and myself, and in exchange for any severance benefit payable under the Agreement (the ***"Severance Benefits"),*** I hereby waive all claims against and release (i) Apotheca Therapeutics, Inc., its officers, employees, agents, insurers, predecessors, successors and assigns (collectively referred to as the ***"Company"),*** (ii) all of the affiliates of the Company and their respective directors, officers, employees, agents, insurers, predecessors, successors and assigns, and (iii) the Company's and its affiliates' respective employee benefit plans and the fiduciaries and agents of said plans (collectively referred to as the ***"Benefit Plans")*** from any and all claims, demands, actions, liabilities and damages arising out of or relating in any way to my employment with or separation from employment with the

Company and its affiliates other than amounts due pursuant to the Agreement and the rights and benefits I am entitled to under the Benefit Plans (the Company, its affiliates, their respective directors, officers, employees, agents, insurers, predecessors, successors and assigns, and the Benefit Plans are sometimes hereinafter collectively referred to as the ***"Released Parties").***

I understand that signing this Waiver and Release is an important legal act. I **acknowledge that** I **have been advised in writing to consult an attorney before signing this Waiver and Release.** I **understand that, in order to be eligible for the Severance Benefits,** I **must sign (and return to the Company) this Waiver and Release before** I **will receive the Severance Benefits.** I **acknowledge that** I **have been given at least 21 days to consider whether to accept the Severance Benefits and whether to execute this Waiver and Release.**

In exchange for the payment to me of the Severance Benefits, (1) I agree not to sue the Released Parties in any local, state and/or federal court regarding or relating in any way to my employment with or separation from employment with the Company and its affiliates, and (2) I knowingly and voluntarily waive all claims and release the Released Parties from any and all claims, demands, actions, liabilities, and damages, whether known or unknown, arising out of or relating in any way to my employment with or separation from employment with the Company and its affiliates, except to the extent that my rights are vested under the terms of the Agreement or any employee benefit plans sponsored by the Company or any of its affiliates and except with respect to such rights or claims as may arise after the date this Waiver and Release is executed. This Waiver and Release includes, but is not limited to, claims and causes of action under: Title VII of the Civil Rights Act of 1964, as amended; the Age Discrimination in Employment Act of 1967, as amended, including the Older Workers Benefit Protection Act of 1990; the Civil Rights Act of 1866, as amended; the Civil Rights Act of 1991; the Americans with Disabilities Act of 1990; the Workers Adjustment and Retraining Notification Act of 1988; the Pregnancy Discrimination Act of 1978; the Employee Retirement Income Security Act of 1974, as amended; the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended; the Family and Medical Leave Act of 1993; the Occupational Safety and Health Act; the Texas Labor Code et. seq.; claims in connection with retaliation or "whistle blower" statutes; and/or contract, tort, defamation, slander, wrongful termination or any other state or federal regulatory, statutory or common law. Further, I expressly represent that no promise or agreement which is not expressed in this Waiver and Release has been made to me in executing this Waiver and Release, and that I am relying on my own judgment in executing this Waiver and Release, and that I am not relying on any statement or representation of the Company or any of its affiliates or any of their respective agents. I agree that this Waiver and Release is valid, fair, adequate and reasonable, is with my full knowledge and consent, was not procured through fraud, duress or mistake and has not had the effect of misleading, misinforming or failing to inform me. This release does not include, and is not intended to include, any claims that cannot be released as a matter of law.

Notwithstanding the foregoing and anything in this Waiver and Release to the contrary, I do not release and expressly retain (a) all rights to payment or providing for post-employment benefits under the Agreement or qualified retirement plans or health plans sponsored by the Company, (b) all rights to indemnity, contribution, and a defense of directors and officers and other liability coverage that I may have under any statute, Company policy or by this or any other agreement; and (c) the right to any, unpaid reasonable business expenses and any accrued benefits payable under any Company welfare plan or tax-qualified plan. Additionally, and notwithstanding the release of liability contained herein, nothing in this Waiver and Release prevents me from filing any non-legal waivable claim (including a challenge to the validity of this Waiver and Release) with the Equal Employment Opportunity Commission ("EEOC") or comparable state or local agency or participating in any investigation or proceeding conducted by the EEOC or comparable state or local agency; however, I understand and agree that I am waiving any and all rights to recover any monetary or personal relief or recovery as a result of such EEOC or comparable state or local agency proceeding or subsequent legal actions

I acknowledge that payment of the Severance Benefits is not an admission by any one or more of the Released Parties that they engaged in any wrongful or unlawful act or that they violated any federal or state law or regulation. I acknowledge that neither the Company nor any of its affiliates have promised me continued employment or represented to me that I will be rehired in the future. I acknowledge that the Company and I contemplate an unequivocal, complete and final dissolution of my employment relationship. I acknowledge that this Waiver and Release does not create any right on my part to be rehired by the Company or any of its affiliates, and I hereby waive any right to future employment by the Company or any of its affiliates.

I understand that for a period of 7 calendar days following the date that I sign this Waiver and Release, I may revoke my acceptance of this Waiver and Release, provided that my written statement of revocation is received on or before that seventh day by [Name and/or Title], [address], facsimile number: [_____], in which case the Waiver and Release will not become effective. If I timely revoke my acceptance of this Waiver and Release, the Company shall have no obligation under this Waiver and Release nor the

Agreement to provide the Severance Benefits to me. I understand that failure to revoke my acceptance of the offer within 7 calendar days from the date I sign this Waiver and Release will result in this Waiver and Release being permanent and irrevocable.

Should any of the provisions set forth in this Waiver and Release be determined to be invalid by a court, agency or other tribunal of competent jurisdiction, it is agreed that such determination shall not affect the enforceability of other provisions of this Waiver and Release. I acknowledge that this Waiver and Release sets forth the entire understanding and agreement between me and the Company and its affiliates concerning the subject matter of this Waiver and Release and supersedes any prior or contemporaneous oral and/or written agreements or representations, if any, between me and the Company and/or any of its affiliates.

I acknowledge that I have read this Waiver and Release, have had an opportunity to ask questions and have it explained to me and that I understand that this Waiver and Release will have the effect of knowingly and voluntarily waiving any action I might pursue, including breach of contract, personal injury, retaliation, discrimination on the basis of race, age, sex, national origin, or disability and any other claims arising prior to the date of this Waiver and Release. By execution of this document, I do not waive or release or otherwise relinquish any legal rights I may have which are attributable to or arise out of acts, omissions, or events of the Company or any of its affiliates which occur after the date of the execution of this Waiver and Release.

EXECUTIVE:

_____
Daniel Schmitt

Date: _____

APOTHECA THERAPEUTICS, INC.:

By: _____

Its: _____

Date: _____

EXHIBIT B

CONFIDENTIALITY, NON-COMPETITION AND NON-SOLICITATION AGREEMENT

As a condition of employment with Apotheca Therapeutics, Inc., a Delaware corporation, its subsidiaries, affiliates, successors, or assigns (together, the ***"Company"),*** the receipt by Daniel Schmitt (the ***"Employee")*** of compensation now and hereafter paid to Employee by the Company, and in exchange for the Company's agreement to provide Employee with access to the Company's Confidential Information and Trade Secrets (as defined below) and the grant of stock to Employee, Employee and the Company enter into this Confidentiality, Non-Competition and Non-Solicitation Agreement (the ***"Agreement"),*** effective as of April 15, 2015.

2. **Confidential Information and Trade Secrets of Company.** During the term of and in connection with Employee's employment with the Company, the Company will provide Employee with access to and the opportunity to become familiar with information concerning the business and affairs of the Company and/or its affiliates which is not generally known to persons who are not employees of Company, and which Company generally does not share other than with its employees, or with its customers and suppliers on an individual transactional basis (herein collectively referred to as the ***"Confidential Information and Trade Secrets").*** Confidential Information and Trade Secrets may be written, verbal or recorded by electronic, magnetic or other methods, whether or not expressly identified as "Confidential" by Company.

(a) Confidential Information and Trade Secrets includes, but is not limited to, the following information and materials:

(i) Financial information of any kind pertaining to Company or any of its affiliates, including, without limitation, information about the profit margins, profitability, pricing, income and expenses of Company, any of its affiliates, or any of its or their respective products or lines of business;

(ii) All information about and all communications received from, sent to or exchanged between Company or any of its affiliates, on the one hand, and any person or entity who or which has purchased, licensed, exchanged or otherwise entered into a transaction with Company or any of its affiliates, or to which Company or any of its affiliates has made a proposal with respect to the purchase, sale, license, exchange or other transaction involving any component, products or services which form any part of the Company Business (defined below) (such person or entity being hereinafter referred to as customer or customers), on the other hand;

(iii) Any and all information and records relating to Company's or any of its affiliates' contracts or transactions with, or charges, prices or sales to, its customers, including invoices, proposals, confirmations, bills of ladings, statements, accounting records, bids, payment records or any other information or documents regarding amounts charged to or paid by customers, for any software, products or services which form any part of the Company Business; and

(iv) trade secrets, technology, discoveries and improvements, know- how, proprietary rights, formulae, confidential and proprietary information, technical information, techniques, inventions, designs, drawings, procedures, processes, models, formulations, manuals and systems, whether or not patentable or copyrightable, including all biological, chemical, biochemical, toxicological, pharmacological and metabolic material and information and data relating thereto and formulation, clinical, analytical and stability information and data which have actual or potential commercial value and are not available in the public domain.

The term "Confidential Information and Trade Secrets" shall also include all notes, analyses, compilations, studies, summaries, and other material prepared by Employee containing or based, in whole or in part, on any information included in the foregoing.

(b) ***"Company Business"*** shall mean development and commercialization of drugs of specific mechanisms of action on defined biological targets that are licensed or may be licensed during the Executive's employment with the Company.

3. **Employee Confidentiality Obligations.** Employee agrees to keep all Confidential Information and Trade Secrets confidential and to not disclose any such Confidential Information and Trade Secrets, directly or indirectly, to any person or entity without the prior express written consent of an authorized representative of Company (other than Employee), except as required in the course and scope of his employment with Company. Employee also agrees not to use such Confidential Information and Trade Secrets in any way, either during the term of his employment with Company or at any time thereafter, except as required in the course and scope of his employment with Company. All such Confidential Information and Trade Secrets, including but not limited to files, records, customer lists, manuals, documents, drawings, specifications, personal notes, personal property, and similar items related to the business of the Company, whether or not prepared by Employee, shall remain the exclusive property of the Company.

4. **Return of Documents, Equipment, Etc.** Immediately upon the termination of Employee's employment with Company or whenever requested by Company, Employee shall return to an authorized representative of Company (other than Employee) all Confidential Information and Trade Secrets (whether prepared by Employee or otherwise and whether in Employee's possession or under Employee's reasonable control), and will not retain any copies, extracts or other reproductions in whole or in part of such Confidential Information and Trade Secrets. Upon Company's written request, all documents, memoranda, notes and other writings whatsoever (including all copies, extracts or other reproductions), prepared by Employee based on the information contained in the Confidential Information and Trade Secrets shall be destroyed, and such destruction shall be certified in writing to the Company by Employee. The return of such material shall not relieve the obligation of confidentiality or any other obligations created hereunder.

5. **Confidential Data of Customers of the Company.** In the course of performing duties under this Agreement, Employee will have access to and be handling substantial information concerning customers and clients of the Company. All information is considered confidential by the Company and shall not be disclosed, directly or indirectly, to any person or entity prior to termination of Employee's employment with Company or thereafter without the prior written consent of the Company.

6. **Inventions, Patents, and Copyright Works.** ***"Intellectual Property"*** includes, but is not limited to: patents, patent applications, inventions (whether patentable or not), discoveries, improvements, designs, ideas (whether or not shown or described in writing or reduced to practice) scientific and technical information, data and know-how of any nature including, and in addition to, any Confidential Information and Trade Secrets, and certain trademarks, service marks, brand names, trade names, trade dress, names, logos, slogans, domain names, and copyrights, copyright registrations, copyright applications, original works of authorship fixed in any tangible medium of expression including, but limited to, literary works (including all written material), books, brochures, catalogs, manuals, training materials, directories, compilations of information, compilations of inspection or testing procedures, computer programs, software (object and source code), protocols, system architectures, advertisements, artistic and graphic works (including designs, graphs, drawings, blueprints, and other works), recordings, models, photographs, slides, motion pictures, audio visual works, and the like, regardless of the form or manner in which documented or recorded, and all other intellectual property or proprietary rights, in each case whether or not subject to statutory registration or protection. As between Company and Employee, Employee recognizes, acknowledges, and agrees that Company is the owner of (x) all Intellectual Property related to the Company Business, (y) all Intellectual Property made, conceived, expressed, developed, or actually or constructively reduced to practice by Employee, solely or jointly with others, during the term of Employee's employment with Company, and (z) all Intellectual Property that uses, refers to, improves on, is derived from, is suggested by, results from or otherwise relates to the Company Business or any of the Company's Intellectual Property. Further, Employee agrees as follows:

(a) Keep Records. Employee agrees to keep and maintain adequate and current written records of all Intellectual Property made by Employee (solely or jointly with others) during the term of Employee's employment with Company. The records will be in the form of notes, sketches, drawings and any other format that may be specified by the Company. The records will be available to and remain the sole property of the Company at all times.

(b) Notification of Company. Employee agrees to promptly disclose to the Company all Intellectual Property and other proprietary information which Employee may author, create, make, conceive, or develop, either solely or jointly with others, whether inside or outside normal working hours or on or off Company premises, during the term of Employee's employment with the Company.

(c) Transfer of Rights. Employee agrees that all Intellectual Property that Employee develops (in whole or in part, either alone or jointly with others) shall be the sole property of the Company and its assigns, and the Company and its assigns shall be the sole owner of all patents, copyrights, mask-work rights, and registrations and other rights in connection therewith. Employee acknowledges that all original works of authorship that are made by Employee (solely or jointly with others) within the scope of and during the period of Employee's employment with the Company shall be considered "works made for hire" under applicable copyright law, to the extent possible. Employee agrees to and does hereby assign, grant, and convey to the Company, its successors and assigns, Employee's entire right, title, and interest in and to all Intellectual Property and other proprietary rights and information which Employee may author, create, make, receive, or develop, either solely or jointly with others, whether inside or outside normal working hours or on or off Company premises, during the term of Employee's employment with the Company. To perfect the Company's ownership of such Intellectual Property, Employee hereby assigns to the Company all rights that Employee may have or acquire in such Intellectual Property, including the right to modify such Intellectual Property, and otherwise waives and/or releases all rights of restraint and moral rights in the Intellectual Property.

(d) Assistance in Preparation of Applications. As to all such Intellectual Property, Employee further agrees to assist the Company in every proper way (but at the Company's expense) to obtain and from time to time enforce patents, copyrights, trade secrets, or other intellectual property or propriety rights, mask-work rights or other rights in such Intellectual Property in any and all countries, and Employee will execute all documents for use in applying for and obtaining such rights and enforcing them as the Company may desire, together with any assignments of them to the Company or persons designated by the Company. If the Company is unable for any reason whatsoever to secure Employee's signature to any lawful and necessary document required to apply for or execute any application with respect to such Intellectual Property (including renewals, extensions, continuations, divisions or continuations in whole or in part thereof), Employee hereby irrevocably designates and appoints the Company and its duly authorized officers and agents, as Employee's agents and attorneys-in-fact to act for and in Employee's behalf and to execute and file any such application and to do all other lawfully permitted acts to further the prosecution and issuance of patents, copyrights, trade secrets or other intellectual property or propriety rights, mask work rights or other rights thereon, with the same legal force and effect as if executed by Employee.

7. **Non-Competition and Non-Solicitation of Customers and Clients.** Employee hereby acknowledges and recognizes that, throughout Employee's employment with the Company, Company agrees to give Employee access to certain of its Confidential Information and Trade Secrets concerning Company, its affiliates, and the Company Business. Company agrees to provide this information to Employee in order to allow Employee to perform Employee's duties as an employee for and on behalf of Company, and to develop relationships with customers, customer representatives, suppliers and supplier representatives of the Company.

(a) Company agrees to provide, and to continue to provide, Employee with both specialized knowledge and education in Company's Business, in order to allow Employee to perform Employee's duties as an employee for and on behalf of Company in an efficient, proper and effective manner. Such knowledge and education may consist of verbal instructions and information, the furnishing of written materials, consultation and counseling, sales, staff and employee meetings, training sessions and seminars, in addition to formal or informal information and orientation methodologies and procedures. Employee will have access to certain of Company's transactional histories, and the details of prior purchases, sales, trades or exchanges, in order that Employee can learn Company's Business and/or improve Employee's skills, experience and knowledge.

(b) In consideration of Company's employment of Employee as a highly valued employee, the Company's agreement to provide Employee with access to certain Confidential Information and Trade Secrets, and the Company's agreement to provide specialized knowledge and education, Employee agrees to refrain from competing with Company or otherwise engaging in Restricted Activities, as defined below, during the Restricted Period.

(c) Employee agrees that during the term of his employment with Company and for a period of one (1) year after the Employee's employment with the Company terminates (the ***"Restricted Period"),*** regardless of whether the termination occurs with or without cause and regardless of which party terminates such employment, Employee will not, directly or indirectly, on Employee's own behalf or as a shareholder, partner, member, investor, lender, principal, director, officer, employee, consultant or agent of any other person or entity, engage in any of the Restricted Activities.

(d) ***"Restricted Activities"*** means and includes the following:

(i) Conducting, engaging or participating, directly or indirectly, as the chief executive officer or division head, agent, independent contractor, consultant, partner, shareholder, investor, lender, underwriter, supplier, customer or in any other similar capacity, in any business that competes with any part of the Company's Business; and

(ii) Recruiting, hiring, and/or attempting to recruit or hire, directly or by assisting others, any other employee, temporary or permanent, contract, part time or full time of the Company. For purposes of this covenant "any other employee" shall refer to employees who are under contract to provide services to the Company and who are still actively employed by the Company at the time of the attempted recruiting or hiring, or were so employed at any time within six (6) months prior to the time of such attempted recruiting or hiring.

(e) The Company and Employee acknowledge that the provisions contained in this Section 6 shall not prevent Employee from owning, solely as an investment, directly or indirectly, securities of any publicly traded corporation engaged in the Company Business if Employee does not, directly or indirectly, beneficially own in the aggregate more than 5% of all classes of outstanding equity securities of such entity.

(f) Employee and the Company agree that the limitations as to time and scope of activity to be restrained are reasonable and do not impose a greater restraint on Employee than is necessary to protect the property rights and other business interests of Company.

8. **Extraordinary Remedies and Attorneys' Fees.** Company and Employee agree that any breach by Employee of any of the provisions or covenants contained in the Agreement would cause irreparable harm and damage to the Company, in an amount that would be difficult to quantify, measure, or ascertain. Therefore, in the event of a breach of this Agreement by Employee, the Company shall be entitled to seek relief through restraining order, injunction, and all other available remedies, including claims for monetary damages incurred because of such breach. These remedies may be pursued concurrently and in any order, and the pursuit of any of these remedies shall not be deemed to limit the other remedies available to the Company in law or in equity. If any action at law or in equity, including an action for declaratory or injunctive relief, is brought to enforce or interpret the provisions of this Agreement, the prevailing

party shall be entitled to recover costs of court and reasonable attorneys' fees from the other party or parties to such action, which fees may be set by the court in the trial of such action or may be enforced in a separate action brought for that purpose, and which fees shall be in addition to any other relief that may be awarded.

9. **Survival of Provisions and Covenants.** Each and every provision or covenant contained in this contract shall survive the termination of Employee's employment with Company as expressly provided herein, and shall constitute an independent agreement between Employee and the Company. Further, the existence of any claim by Employee against the Company shall not constitute a defense to the enforcement of its rights by the Company.

10. **Severability.** It is the intent and agreement of the parties to this Agreement that, in case any one or more of the provisions of this Agreement shall, for any reason, be held to be invalid, illegal or unenforceable, such invalidity, illegality or unenforceability shall not affect any other provision of this Agreement and this Agreement shall be construed as if such invalid, illegal or unenforceable provision had never been contained herein except that this shall not prohibit any modification allowed or agreed upon pursuant to the terms of this Agreement or any right of reformation.

11. **Assignment.** This Agreement is binding upon and shall inure to the benefit of the parties hereto, together with their respective executors, administrators, successors, personal representatives, heirs, and assigns. Notwithstanding the foregoing, the rights, duties and benefits to Employee hereunder are personal to Employee, and no such right or benefit may be assigned by it. The Company shall have the right to assign or transfer this Agreement to its successors or assigns. The terms "successors" and "assigns" shall include any person, corporation, partnership or other entity that buys all or substantially all of Company's assets or all of its stock, or with which Company merges or consolidates. Any purported assignment of this Agreement, other than as provided above, shall be void.

12. **Previously Received Information.** Employee hereby represents to the Company that Employee is under no obligation or agreement that would prevent Employee from becoming an employee of the Company or carrying out the duties of Employee's proposed position of employment with the Company.

13. **Governing Law and Venue.** This Agreement shall be governed by, and construed in accordance with, the procedural and substantive laws of the State of Delaware. The Company and Employee irrevocably and unconditionally consent to submit to the exclusive jurisdiction of the state or federal courts located in Tarrant County, Texas as the sole venue and location for any actions, suits, or proceedings arising out of or relating to any aspect of this Agreement and all issues arising out of or relating to the employment relationship between the Company and Employee.

14. **Employee Acknowledgement.** Employee recognizes and acknowledges that Employee has freely entered into this Agreement for the full consideration expressed herein, the sufficiency and receipt of which Employee hereby acknowledges, and that Employee has had the opportunity to consult with counsel of Employee's choice with full knowledge and careful consideration of the consequences and meaning of execution of this Agreement.

15. **Entire Agreement.** Upon Employee's acceptance, this letter will contain the entire agreement and understanding between Employee and the Company with respect to the matters addressed herein and shall supersede any prior or contemporaneous agreements, understandings, communications, offers, representations, warranties, or commitments by or on behalf of the Company and its affiliates (oral or written). The terms of Employee's employment may in the future be amended, but only in writing signed by both Employee and a duly authorized officer of the Company.

[SIGNATURES ON NEXT PAGE]

AGREED AND ACCEPTED:
APOTHECA THERAPEUTICS, INC.

By: /s/ Leslie Wayne Kreis, Jr.
Name: Leslie Wayne Kreis, Jr.
Title: Director

AGREED AND ACCEPTED:
"EMPLOYEE"

Signature
/s/ Dan Schmitt
Dan Schmitt

AMENDMENT TO EMPLOYMENT AGREEMENT

This AMENDMENT TO EMPLOYMENT AGREEMENT (this "***Amendment***") is entered into as of the 5th day of February, 2016, by and between Actuate Therapeutics, Inc. (f/k/a Apotheca Therapeutics, Inc.), a Delaware corporation (the "***Company***"), and Daniel Schmitt, an individual currently residing at [***] (the "***Executive***" and together with the Company, the "***Parties***" and each individually, a "***Party***").

R E C I T A L *S*

WHEREAS, Each Party is a party to that certain Employment Agreement, dated April 15, 2015 (the "Employment Agreement"); and

WHEREAS, in consideration of the services performed by the Executive for and on behalf of the Company to the date hereof, and the services that the Company expects the Executive to perform for and on behalf of the Company from and after the date hereof, the Parties desire to amend certain provisions of the Employment Agreement.

NOW, THEREFORE, in consideration of the foregoing, of the mutual covenants and agreements herein contained, and of other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by all of the Parties, the Parties do hereby agree and bind themselves as follows:

1. Section 3(a). of the Employment Agreement is hereby amended by deleting such section in its entirety and substituting the following in lieu thereof:

> (a) Base Salary. The Company shall pay to the Executive a salary at the annual rate of $120,000 (the "***Base Salary***"), payable in substantially equal installments at such intervals as may be determined by the Company in accordance with the Company's then current ordinary payroll practices as established from time to time. As of the first day of the payroll cycle that includes the Financing Date, the Executive's Base Salary shall be increased to an annual rate of $220,000. In the event that the Financing Date occurs on a date other than the first day of a payroll cycle, the Executive shall, with respect to such payroll cycle, be entitled to compensation equal to the sum of (i) a prorated Base Salary at the annual rate of $120,000 based on the number of days in such payroll cycle that precede the Financing Date and (ii) a prorated Base Salary at the annual rate of $220,000 for the remaining number of days in such payroll cycle. Such proration shall be calculated by dividing the applicable annual rate of Base Salary by the number of payroll cycles within the calendar year and multiplying such quotient by a fraction, the numerator of which shall be the number of days in such payroll cycle during which such annual rate of Base Salary is in effect and the denominator of which shall be the total number of days in such payroll cycle. The Base Salary shall be reviewed in good faith by the Board, based upon the Executive's performance, within six months of the Financing Date and, thereafter, not less often than annually.

2. Section 3(d). Section 3 of the Employment Agreement is hereby amended by adding the following as new Section 3(d):

(d) Incentive Awards. Promptly following the Financing Date, the Company shall: (a) either (i) create and submit for approval of the Company's stockholders a new equity incentive plan (the "***New Plan***"), which shall be substantially similar to the Company's existing 2015 Stock Incentive Plan (the "***Existing Plan***"), and which will provide for the issuance of a number of shares of common stock of the Company, par value $0.000001 per share ("***Common Stock***"), equal to ten percent (10%) of the total then-issued and outstanding shares of Common Stock, on a fully-diluted basis (assuming, among other things, the conversion of all then-issued and outstanding shares of preferred stock into shares of Common Stock, as applicable), or (ii) amend the Existing Plan such that new shares of Common Stock equal to ten percent (10%) of the total then-issued and outstanding shares of Common Stock, on a fully-diluted basis (assuming, among other things, the conversion of all then-issued and outstanding shares of preferred stock into shares of Common Stock, as applicable) are available for issuance under the Existing Plan, as amended, and (b) grant restricted shares of Common Stock to Executive under the New Plan or the Existing Plan, as amended, in an aggregate amount equal to the amount of shares of Common Stock that will result in Executive owning, together with any other shares of capital stock of the Company (whether vested or unvested) that are then owned by Executive, five percent (5%) of the total then-issued and outstanding shares of Common Stock at that time, on a fully-diluted basis (assuming, among other things, the conversion of all then-issued and outstanding shares of preferred stock into shares of Common Stock, as applicable) (such shares of Common Stock, the "***New Restricted Shares***"), which New Restricted Shares shall vest in equal twenty-five percent (25%) installments at each of the following times (which need not occur in the following order): (i) the date of award; (ii) the date that the Company hires a person to serve as the Company's Chief Science Officer, Vice President of Clinical Operations, or similar position (which hiring is approved by the Board of Directors of the Company); (iii) the date that the Company submits an application for "Investigation of New Drug" to the United States Food and Drug Administration; and (iv) the date that the Company consummates (A) a strategic partnership, alliance or similar transaction with an unaffiliated third party, or (B) consummates a transaction with an unaffiliated third party pursuant to which the Company licenses all or some of its proprietary technology to such unaffiliated third party, in either such case described in (A) or (B), which does, or, at the time that such transaction is consummated, is reasonably expected to, result in aggregate gross proceeds to the Company of at least $25 million. All awards described above shall be subject to the terms of an award agreement entered into between the Company and Executive. In addition to the foregoing, Executive may be granted additional equity incentive awards from time to time during the term of this Agreement, each of which shall vest based on the achievement of specified performance objectives (whether of Executive, the Company, or both) and such other factors as approved by the Company. Such equity incentive awards shall be subject to the terms of the applicable award agreement, which need not be identical.

3. No Other Changes. Except as set forth in this Amendment, the other provisions of the Employment Agreement shall remain in full force and effect in accordance with their respective terms. Nothing contained herein shall constitute a waiver of any rights or claims of any Party heretofore or hereafter arising under or related to the Employment Agreement. From and after the date hereof, references in the Employment Agreement to "this Agreement" shall be construed to refer to the Employment Agreement as amended hereby, unless the context clearly otherwise requires.

4. General Provisions. The provisions of Sections 8(d), 8(g) and 8(q) of the Employment Agreement apply to this Amendment as if set forth herein, *mutatis mutandis.*

[*Signature Page Follows*]

IN WITNESS WHEREOF, the Parties have executed this Amendment as of the date set forth hereinabove.

COMPANY:

ACTUATE THERAPEUTICS, INC.

By: /s/ Daniel M. Schmitt
Name: Daneil M. Schmitt
Title: President & CEO

EXECUTIVE:

/s/ Daniel Schmitt
Daniel Schmitt

SECOND AMENDMENT TO EMPLOYMENT AGREEMENT

This SECOND AMENDMENT TO EMPLOYMENT AGREEMENT (this "Amendment") is entered into as of the 28th day of September, 2017, by and between Actuate Therapeutics, Inc. (f/k/a Apotheca Therapeutics, Inc.), a Delaware corporation (the "Company"), and Daniel Schmitt, an individual currently residing at [***] (the "Executive" and together with the Company, the "Parties" and each individually, a "Party").

RECITALS

WHEREAS, each of the Company and the Executive is a party to that certain Employment Agreement, dated April 15, 2015, as amended on February 5, 2016 (the "Employment Agreement"); and

WHEREAS, in consideration of the services performed by the Executive for and on behalf of the Company to the date hereof, and the services that the Company expects the Executive to perform for and on behalf of the Company from and after the date hereof, the Parties desire to amend certain provisions of the Employment Agreement.

NOW, THEREFORE, in consideration of the foregoing, of the mutual covenants and agreements herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by the Parties, the Parties do hereby agree and bind themselves as follows. Capitalized terms used, but not defined, in this Amendment, shall have the meanings set forth in the Employment Agreement.

1. Section 3(a). If and when the Company receives the "Pre-Clinical Development Milestone Payment" from Sotio a.s. ("Sotio"), pursuant to Section 8.3(a) of the License and Collaboration Agreement, dated August 28, 2017, by and between the Company and Sotio (the "Sotio Milestone") and without further action by the parties, Section 3(a) of the Employment Agreement shall be amended by deleting such section in its entirety and substituting the following in lieu thereof:

> "(a) Base Salary. The Company shall pay to the Executive a salary at the annual rate of $300,000 (the "Base Salary"), payable in substantially equal installments at such intervals as may be determined by the Company in accordance with the Company's then current ordinary payroll practices as established from time to time. The Base Salary shall be reviewed in good faith by the Board based upon the Executive's performance not less often than annually."

2. Section 3(e). If and when the Sotio Milestone occurs (the date of such occurrence, the "Milestone Date") and without further action by the parties, Section 3 of the Employment Agreement shall be amended by adding the following as a new Section 3(e):

> "(e) Annual Bonus. In addition to the compensation set forth in Sections 3(a) through (d), the Executive shall be eligible to receive a bonus equal to up to 25% of the Executive's Base Salary, which shall be payable upon the achievement of three milestones that shall be mutually agreed upon between the Company and the Executive on an annual basis."

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3. Additional Incentive Awards. If and when the Sotio Milestone occurs, the Company shall grant shares of Common Stock to the Executive under the Existing Plan in an amount equal to 1.0% of the issued and outstanding shares of Common Stock as of the Milestone Date on a fully diluted basis (such shares of Common Stock, the "Amendment Shares"). The Amendment Shares will be "restricted shares" and will be subject to vesting as follows and in accordance with the terms of a Restricted Award Agreement and a Stock Restriction Agreement, each to be executed as of the Milestone Date:

(a) 25% of the Amendment Shares shall vest on the one year anniversary of the Milestone Date (the "Anniversary Date"); and

(b) the remaining unvested Amendment Shares shall vest in equal installments on a monthly basis during the thirty-six (36) months following the Anniversary Date.

In addition, and regardless of whether the Sotio Milestone occurs, in the event the Company is sold on or prior to March 1, 2020 for cash in a transaction valued at or above $150,000,000 (a "Sale Transaction"), immediately prior to the consummation of such Sale Transaction, the Executive shall be granted shares of Common Stock under the Existing Plan representing 2.0% of the issued and outstanding shares of Common Stock on the day immediately prior to the closing of the Sale Transaction on a fully diluted basis (the "Transaction Shares"). The Transaction Shares shall be fully vested as of the date of grant. For purposes of this Amendment, a Sale Transaction shall include a sale of all of the capital securities of the company or a sale of substantially all of the Company's assets in a single transaction or series of related transactions, or a merger of the Company with another entity regardless of whether the Company is the surviving entity in such transaction.

4. Cash Bonus. Upon execution of this Amendment by both parties, the Company shall pay to the Executive a cash bonus equal to $25,000.

5. Sotio Bonus. In addition to the bonus set forth in Section 4, Executive shall be entitled to a cash bonus equal to $25,000 upon achievement of the Sotio Milestone.

6. Retroactive Salary. The Parties agree that, upon achievement of the Sotio Milestone, Executive shall be entitled to receive a retroactive salary increase equal to the difference between the Base Salary actually paid to Executive and the Base Salary set forth in Section 1 for the period beginning on March 17, 2017 and ending on the Milestone Date (the "Retroactive Salary"). The Retroactive Salary shall be payable to Executive in a lump sum in cash immediately following achievement of the Sotio Milestone.

7. No Other Changes. Except as set forth in this Amendment, the other provisions of the Employment Agreement shall remain in full force and effect in accordance with their respective terms. Nothing contained herein shall constitute a waiver of any rights or claims of any Party heretofore or hereafter arising under or related to the Employment Agreement. From and after the date hereof, references in the Employment Agreement to "this Agreement" shall be construed to refer to the Employment Agreement as amended hereby, unless the context clearly otherwise requires.

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8. General Provisions. The provisions of Sections 8(d), 8(g) and 8(q) of the Employment Agreement apply to this Amendment as if set forth herein, mutatis mutandis.

[*remainder of page intentionally left blank*]
[*Signature Page Follows*]

[*Signature Page to Second Amendment to Employment Agreement*]

IN WITNESS WHEREOF, the parties hereto have duly executed this Amendment effective as of the date set forth above.

EXECUTIVE

/s/ Daniel Schmitt
Daniel Schmitt

ACTUATE THERAPEUTICS, INC.

By: /s/ Aaron Fletcher
Name: Aaron Fletcher
Title: Director

THIRD AMENDMENT TO EMPLOYMENT AGREEMENT

This THIRD AMENDMENT TO EMPLOYMENT AGREEMENT (this "Amendment") is entered into as of the 23rd day of September, 2018 (the "Effective Date"), by and between Actuate Therapeutics, Inc., a Delaware corporation (the "Company"), and Daniel Schmitt, an individual currently residing at [***] (the "Executive" and together with the Company, the "Parties" and each individually, a "Party").

RECITALS

WHEREAS, each of the Company and the Executive is a party to that certain Employment Agreement, dated April 15, 2015 (the "Original Agreement"), as amended on February 5, 2016 (the "First Amendment") and September 28, 2017 (the "Second Amendment," together with the Original Agreement and the First Amendment, the "Employment Agreement"); and

WHEREAS, in consideration of the services performed by the Executive for and on behalf of the Company to the date hereof, and the services that the Company expects the Executive to perform for and on behalf of the Company from and after the date hereof, the Parties desire to amend certain provisions of the Employment Agreement.

NOW, THEREFORE, in consideration of the foregoing, of the mutual covenants and agreements herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by the Parties, the Parties do hereby agree and bind themselves as follows. Capitalized terms used, but not defined, in this Amendment, shall have the meanings set forth in the Employment Agreement.

1. Section 3(a). of the Employment Agreement shall be amended by deleting such section in its entirety and substituting the following in lieu thereof:

> "(a) Base Salary. The Company shall pay to the Executive a salary at the annual rate of $300,000 (the "Base Salary"), payable in substantially equal installments at such intervals as may be determined by the Company in accordance with the Company's then current ordinary payroll practices as established from time to time. The Base Salary and Executive's performance plan milestones shall be reviewed in good faith by the Board based upon the Executive's performance no later than the earlier to occur of (i) March 6, 2019, or (ii) the closing date of a Qualified Financing (as hereinafter defined) and, thereafter, not less often than annually. For purposes of this Agreement, "Qualified Financing" shall mean the next transaction or series of related transactions pursuant to which the Company issues and sells shares of its common or preferred equity securities in exchange for aggregate gross proceeds of at least $15,000,000.00, including amounts issued upon conversion of convertible indebtedness validly issued and outstanding at the time of the Qualified Financing."

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2. Section 3(e). Upon the closing of a Qualified Financing (the "Qualified Financing Closing") and without further action by the parties, Section 3 of the Employment Agreement shall be amended by adding the following as a new Section 3(e):

"(e) Annual Bonus. In addition to the compensation set forth in Sections 3(a) through (d), the Executive shall be eligible to receive a bonus equal to up to 25% of the Executive's Base Salary, which shall be payable upon the achievement of three milestones that shall be mutually agreed upon between the Company and the Executive on an annual basis."

3. Second Amendment. Paragraphs 1, 2, 3, 5 and 6 of the Second Amendment are hereby deleted in their entirety.

4. Additional Incentive Awards.

(a) If and when the Qualified Financing Closing occurs (the "Qualified Financing Date"), the Company shall grant shares of Common Stock to the Executive under the Existing Plan in an amount such that the aggregate number of shares of Common Stock owned by the Executive as of the Qualified Financing Date equals 5.0% of the issued and outstanding shares of Common Stock as of the Qualified Financing Date on a fully diluted basis (such shares of Common Stock, the "Amendment Shares"). The Amendment Shares will be "restricted shares" and will be subject to vesting as follows and in accordance with the terms of a Restricted Award Agreement and a Stock Restriction Agreement, each to be executed as of the Qualified Financing Date:

(i) One-third of the Amendment Shares shall vest on the first date of treatment of the first patient in an 1801 study;

(ii) One-third of the Amendment Shares shall vest upon the Company's receipt of regulatory approval to conduct a clinical trial of 9-ING-41 outside the United States; and

(iii) One-third shall vest on the first date of treatment of the third adult or pediatric patient with 9-ING-41 in combination with another chemotherapy agent.

(b) If and when the Qualified Financing Closing occurs, and immediately following issuance of the Amendment Shares (the "Additional Share Grant Time"), the Company shall grant to the Executive additional shares of Common Stock under the Existing Plan equal to 1.0% of the issued and outstanding shares of Common Stock as of the Additional Share Grant Time on a fully diluted basis (which fully diluted basis calculation shall take into consideration the Amendment Shares previously issued to the Executive) (such shares of Common Stock, the "Additional Shares"). The Additional Shares will be "restricted shares" and will be subject to vesting as follows and in accordance with the terms of a Restricted Award Agreement and a Stock Restriction Agreement, each to be executed as of the Additional Share Grant Time:

(i) 25% of the Additional Shares shall vest on the one year anniversary of the Qualified Financing Date (the "Anniversary Date"); and

(ii) the remaining unvested Additional Shares shall vest in equal installments on a monthly basis during the thirty-six (36) months following the Anniversary Date.

(c) In addition, and regardless of whether the Qualified Financing Closing occurs, in the event the Company is sold on or prior to March 1, 2022 for cash in a transaction valued at or above $300,000,000 (a "Sale Transaction"), immediately prior to the consummation of such Sale Transaction, the Executive shall be granted that number of shares of Common Stock under the Existing Plan such that the Executive's aggregate ownership of shares of Common Stock as of the date of such grant is equal to 8.0% of the issued and outstanding shares of Common Stock on a fully diluted basis (the "Transaction Shares"). The Transaction Shares shall be fully vested as of the date of grant. For purposes of this Amendment, a Sale Transaction shall include a sale of all of the capital securities of the Company or a sale of substantially all of the Company's assets in a single transaction or series of related transactions, or a merger of the Company with another entity regardless of whether the Company is the surviving entity in such transaction.

5. Qualified Financing Bonus. Executive shall be entitled to receive a cash bonus equal to $25,000 on the Qualified Financing Date.

6. Retroactive Salary. The Parties agree that, upon the occurrence of the Qualified Financing Closing, Executive shall be entitled to receive an amount representing a retroactive salary increase, which shall be calculated as the difference between the Base

Salary actually paid to Executive and the Base Salary set forth in Section 1 for the period beginning on March 17, 2017 and ending on the day immediately prior to the Effective Date (the "Retroactive Salary"). The Retroactive Salary shall be payable to Executive in a lump sum in cash on the Qualified Financing Date.

7. No Other Changes. Except as set forth in this Amendment, the other provisions of the Employment Agreement shall remain in full force and effect in accordance with their respective terms. Nothing contained herein shall constitute a waiver of any rights or claims of any Party heretofore or hereafter arising under or related to the Employment Agreement. From and after the date hereof, references in the Employment Agreement to "this Agreement" shall be construed to refer to the Employment Agreement as amended hereby, unless the context clearly otherwise requires.

8. General Provisions. The provisions of Sections 8(d), 8(g) and 8(q) of the Employment Agreement apply to this Amendment as if set forth herein, mutatis mutandis.

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[*Signature Page Follows*]

[*Signature Page to Third Amendment to Employment Agreement*]

IN WITNESS WHEREOF, the parties hereto have duly executed this Amendment effective as of the date set forth above.

EXECUTIVE	ACTUATE THERAPEUTICS, INC.
/s/ Daniel Schmitt	By: /s/ Daniel M. Schmitt
Daniel Schmitt	Name: Daniel M. Schmitt
	Title: President & CEO

FOURTH AMENDMENT TO EMPLOYMENT AGREEMENT

This FOURTH AMENDMENT TO EMPLOYMENT AGREEMENT (this "Amendment") is entered into as of the 29th day of January, 2019 (the "Effective Date"), by and between Actuate Therapeutics, Inc., a Delaware corporation (the "Company"), and Daniel Schmitt, an individual currently residing at [***] (the "Executive" and together with the Company, the "Parties" and each individually, a "Party").

RECITALS

WHEREAS, each of the Company and the Executive is a party to that certain Employment Agreement, dated April 15, 2015 (the "Original Agreement"), as amended on February 5, 2016 (the "First Amendment"), September 28, 2017 (the "Second Amendment"), and September 23, 2018 (the "Third Amendment," together with the Original Agreement, the First Amendment and the Second Amendment, the "Employment Agreement"); and

WHEREAS, in consideration of the services performed by the Executive for and on behalf of the Company to the date hereof, and the services that the Company expects the Executive to perform for and on behalf of the Company from and after the date hereof, the Parties desire to amend certain provisions of the Employment Agreement.

NOW, THEREFORE, in consideration of the foregoing, of the mutual covenants and agreements herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by the Parties, the Parties do hereby agree and bind themselves as follows. Capitalized terms used, but not defined, in this Amendment, shall have the meanings set forth in the Employment Agreement.

1. Section 3(a). of the Employment Agreement shall be amended by deleting such section in its entirety and substituting the following in lieu thereof:

> "(a) Base Salary. The Company shall pay to the Executive a salary at the annual rate of $300,000 (the "Base Salary"), payable in substantially equal installments at such intervals as may be determined by the Company in accordance with the Company's then current ordinary payroll practices as established from time to time. The Base Salary and Executive's performance plan milestones shall be reviewed in good faith by the Board based upon the Executive's performance no later than the earlier to occur of (i) March 6, 2019, or (ii) the closing date of a Qualified Financing (as hereinafter defined) and, thereafter, not less often than annually. For purposes of this Agreement, "Qualified Financing" shall mean the next transaction or series of related transactions pursuant to which the Company issues and sells shares of its common or preferred equity securities in exchange for aggregate gross proceeds of at least $13,000,000.00, including amounts issued upon conversion of convertible indebtedness validly issued and outstanding at the time of the Qualified Financing."

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2. Paragraph 4(a) of the Third Amendment. Paragraph 4(a) of the Third Amendment shall be amended by deleting such section in its entirety and substituting the following in lieu thereof:

> "(a) If and when the Qualified Financing Closing occurs (the "Qualified Financing Date"), the Company shall grant shares of Common Stock to the Executive under the Existing Plan in an amount such that the aggregate number of shares of Common Stock owned by the Executive as of the Qualified Financing Date equals 4.62% of the issued and outstanding shares of Common Stock as of the Qualified Financing Date on a fully diluted basis (such shares of Common Stock, the "Amendment Shares"). The Amendment Shares will be "restricted shares" and will be subject to vesting as follows and in accordance with the terms of a Restricted Award Agreement and a Stock Restriction Agreement, each to be executed as of the Qualified Financing Date:
>
> (i) One-third of the Amendment Shares shall vest on the first date of treatment of the first patient in an 1801 study;
>
> (ii) One-third of the Amendment Shares shall vest upon the Company's receipt of regulatory approval to conduct a clinical trial of 9-ING-41 outside the United States; and
>
> (iii) One-third shall vest on the first date of treatment of the third adult or pediatric patient with 9-ING-41 in combination with another chemotherapy agent."

3. Paragraphs 4(b) of the Third Amendment. Paragraph 4(b) of the Third Amendment shall be amended by deleting such section in its entirety and substituting the following in lieu thereof:

> "(b) RESERVED."

4. No Other Changes. Except as set forth in this Amendment, the other provisions of the Employment Agreement shall remain in full force and effect in accordance with their respective terms. Nothing contained herein shall constitute a waiver of any rights or claims of any Party heretofore or hereafter arising under or related to the Employment Agreement. From and after the date hereof, references in the Employment Agreement to "this Agreement" shall be construed to refer to the Employment Agreement as amended hereby, unless the context clearly otherwise requires.

5. General Provisions. The provisions of Sections 8(d), 8(g) and 8(q) of the Employment Agreement apply to this Amendment as if set forth herein, mutatis mutandis.

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[*Signature Page Follows*]

[*Signature Page to Fourth Amendment to Employment Agreement*]

IN WITNESS WHEREOF, the parties hereto have duly executed this Amendment effective as of the date set forth above.

EXECUTIVE	ACTUATE THERAPEUTICS, INC.
/s/ Daniel Smith	By: /s/ Daniel M. Smith
Daniel Schmitt	Name: Daniel M. Schmitt
	Title: President & CEO

FIFTH AMENDMENT TO EMPLOYMENT AGREEMENT

This FIFTH AMENDMENT TO EMPLOYMENT AGREEMENT (this "Amendment") is entered into as of the 3rd day of September, 2019 (the "Effective Date"), by and between Actuate Therapeutics, Inc., a Delaware corporation (the "Company"), and Daniel Schmitt, an individual currently residing at [***] (the "Executive" and together with the Company, the "Parties" and each individually, a "Party").

RECITALS

WHEREAS, each of the Company and the Executive is a party to that certain Employment Agreement, dated April 15, 2015 (the "Original Agreement"), as amended on February 5, 2016 (the "First Amendment"), September 28, 2017 (the "Second Amendment"), September 23, 2018 (the "Third Amendment"), and January 29, 2019 (the "Fourth Amendment," together with the Original Agreement, the First Amendment, the Second Amendment and the Third Amendment, the "Employment Agreement"); and

WHEREAS, in consideration of the services performed by the Executive for and on behalf of the Company to the date hereof, and the services that the Company expects the Executive to perform for and on behalf of the Company from and after the date hereof, the Parties desire to amend certain provisions of the Employment Agreement.

NOW, THEREFORE, in consideration of the foregoing, of the mutual covenants and agreements herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by the Parties, the Parties do hereby agree and bind themselves as follows. Capitalized terms used, but not defined, in this Amendment, shall have the meanings set forth in the Employment Agreement.

1. Section 3(a). The first sentence of Section 3(a) of the Employment Agreement shall be amended by deleting such sentence in its entirety and substituting the following in lieu thereof:

> "(a) Base Salary. The Company shall pay to the Executive a salary at the annual rate of $400,000 (the "Base Salary"), payable in substantially equal installments at such intervals as may be determined by the Company in accordance with the Company's then current ordinary payroll practices as established from time to time."

2. Section 3(e). of the Employment Agreement shall be amended by deleting such section in its entirety and substituting the following in lieu thereof:

> "(e) Annual Bonus. In addition to the compensation set forth in Sections 3(a) through (d), the Executive shall be eligible to receive a bonus equal to up to 25% of the Executive's Base Salary (the "Annual Bonus"), seventy percent (70%) of which shall be payable upon the achievement of milestones that shall be mutually agreed upon between the Company and the Executive on an annual basis and thirty percent (30%) of which shall be payable at the discretion of the Company's Board of Directors."

3. Paragraph 4(c) of the Third Amendment. Paragraph 4(c) of the Third Amendment shall be amended by deleting such section in its entirety and substituting the following in lieu thereof:

> "(c) In addition, in the event the Company is sold at any time between January 1, 2021 and March 1, 2022 for cash in a transaction valued at or above a per share price of $29.56 (a "Sale Transaction"), immediately prior to the consummation of such Sale Transaction, the Executive shall be granted that number of shares of Common Stock under the Existing Plan such that the Executive's aggregate ownership of shares of Common Stock as of the date of such grant is equal to 8.0% of the issued and outstanding shares of Common Stock on a fully diluted basis (the "Transaction Shares"). The Transaction Shares shall be fully vested as of the date of grant. For purposes of this Amendment, a Sale Transaction shall include a sale of all of the capital securities of the Company or a sale of substantially all of the Company's assets in a single transaction or series of related transactions, or a merger of the Company with another entity regardless of whether the Company is the surviving entity in such transaction."

4. Early Exit Bonus. In the event the Company is sold at any time between the Effective Date and December 31, 2020 (an "Early Exit Sale Transaction"), the Executive shall be entitled to receive a cash bonus equal to (a) 25% of the Executive's Base Salary, plus (b) an amount equal to the Base Salary that would have been paid to the Executive for the period beginning on the date the Early Exit Sale Transaction is consummated (the "Early Exit Closing Date") and March 1, 2022 if the Early Exit Sale Transaction had not been consummated (the "Early Exit Bonus"). The Early Exit Bonus shall be payable in a lump sum in cash on or before the Early Exit Closing Date.

5. Retroactive Salary. The Parties agree that, on the Effective Date, the Executive shall be entitled to receive a retroactive salary increase equal to the difference between the Base Salary actually paid to the Executive and the Base Salary set forth in Section 1 of this Amendment for the period beginning on June 1, 2019 and ending on the Effective Date (the "Retroactive Salary"). The Retroactive Salary shall be payable to the Executive in a lump sum in cash on the Effective Date.

6. No Other Changes. Except as set forth in this Amendment, the other provisions of the Employment Agreement shall remain in full force and effect in accordance with their respective terms. Nothing contained herein shall constitute a waiver of any rights or claims of any Party heretofore or hereafter arising under or related to the Employment Agreement. From and after the date hereof, references in the Employment Agreement to "this Agreement" shall be construed to refer to the Employment Agreement as amended hereby, unless the context clearly otherwise requires.

7. General Provisions. The provisions of Sections 8(d), 8(g) and 8(q) of the Employment Agreement apply to this Amendment as if set forth herein, mutatis mutandis.

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[*signatures on next page*]

[*Signature Page to Fifth Amendment to Employment Agreement*]

IN WITNESS WHEREOF, the parties hereto have duly executed this Amendment effective as of the date set forth above.

EXECUTIVE

/s/ Daniel Schmitt
Daniel Schmitt

ACTUATE THERAPEUTICS, INC.

By: /s/ Daniel M. Schmitt
Name: Daniel M. Schmitt
Title: President & CEO

SIXTH AMENDMENT TO EMPLOYMENT AGREEMENT

This SIXTH AMENDMENT TO EMPLOYMENT AGREEMENT (this "Amendment") is entered into as of the first day of August, 2022 (the "Effective Date"), by and between Actuate Therapeutics, Inc., a Delaware corporation (the "Company"), and Daniel Schmitt, an individual currently residing at [***] (the "Executive" and together with the Company, the "Parties" and each individually, a "Party").

RECITALS

WHEREAS, each of the Company and the Executive is a party to that certain Employment Agreement, dated April 15, 2015 (the "Original Agreement"), as amended on February 5, 2016 (the "First Amendment"), September 28, 2017 (the "Second Amendment"), September 23, 2018 (the "Third Amendment"), January 29, 2019 (the "Fourth Amendment), and September 3, 2019 (the "Fifth Amendment," together with the Original Agreement, the First Amendment, the Second Amendment, the Third Amendment and the Fourth Amendment, the "Employment Agreement"); and

WHEREAS, in consideration of the services performed by the Executive for and on behalf of the Company to the date hereof, and the services that the Company expects the Executive to perform for and on behalf of the Company from and after the date hereof, the Parties desire to amend certain provisions of the Employment Agreement.

NOW, THEREFORE, in consideration of the foregoing, of the mutual covenants and agreements herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by the Parties, the Parties do hereby agree and bind themselves as follows. Capitalized terms used, but not defined, in this Amendment, shall have the meanings set forth in the Employment Agreement.

1. Paragraph 4(c) of the Third Amendment. Paragraph 4(c) of the Third Amendment, as such paragraph was amended by the Fifth Amendment, shall be amended by deleting such paragraph in its entirety and substituting the following in lieu thereof:

> "(c) In addition, in the event the Company is sold at any time on or prior to March 31, 2024 for cash in a transaction valued at or above a per share price of $29.56 (a "Sale Transaction"), immediately prior to the consummation of such Sale Transaction, the Executive shall be granted that number of shares of Common Stock under the Existing Plan such that the Executive's aggregate ownership of shares of Common Stock as of the date of such grant (taking into account any shares owned by Executive separate and apart from the shares awarded in the Sale Transaction) is equal to 6.0% of the issued and outstanding shares of Common Stock on a fully diluted basis (the "Transaction Shares"), which percentage may be increased at the discretion of the Board. The Transaction Shares shall be fully vested as of the date of grant. For purposes of this Amendment, a Sale Transaction shall include a sale of all of the capital securities of the Company or a sale of substantially all of the Company's assets in a single transaction or series of related transactions, or a merger of the Company with another entity regardless of whether the Company is the surviving entity in such transaction."

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2. No Other Changes. Except as set forth in this Amendment, the other provisions of the Employment Agreement shall remain in full force and effect in accordance with their respective terms. Nothing contained herein shall constitute a waiver of any rights or claims of any Party heretofore or hereafter arising under or related to the Employment Agreement. From and after the date hereof, references in

the Employment Agreement to "this Agreement" shall be construed to refer to the Employment Agreement as amended hereby, unless the context clearly otherwise requires.

3. General Provisions. The provisions of Sections 8(d), 8(g) and 8(q) of the Employment Agreement apply to this Amendment as if set forth herein, *mutatis mutandis*.

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[*signatures on next page*]

[*Signature Page to Sixth Amendment to Employment Agreement*]

IN WITNESS WHEREOF, the parties hereto have duly executed this Amendment effective as of the date set forth above.

EXECUTIVE	ACTUATE THERAPEUTICS, INC.
/s/ Daniel Schmitt	By: /s/ Daniel M. Schmitt
Daniel Schmitt	Name: Daniel M. Schmitt
	Title: President & CEO

SEVENTH AMENDMENT TO EMPLOYMENT AGREEMENT

This SEVENTH AMENDMENT TO EMPLOYMENT AGREEMENT (this "Amendment") is entered into as of the 27th day of January, 2023 (the "Effective Date"), by and between Actuate Therapeutics, Inc., a Delaware corporation (the "Company"), and Daniel Schmitt, an individual currently residing at [***] (the "Executive" and together with the Company, the "Parties" and each individually, a "Party").

RECITALS

WHEREAS, each of the Company and the Executive is a party to that certain Employment Agreement, dated April 15, 2015 (the "Original Agreement"), as amended on February 5, 2016 (the "First Amendment"), September 28, 2017 (the "Second Amendment"), September 23, 2018 (the "Third Amendment"), January 29, 2019 (the "Fourth Amendment), September 3, 2019 (the "Fifth Amendment"), and August 1, 2022 (the "Sixth Amendment," together with the Original Agreement, the First Amendment, the Second Amendment, the Third Amendment, the Fourth Amendment and the Fifth Amendment, the "Employment Agreement"); and

WHEREAS, in consideration of the services performed by the Executive for and on behalf of the Company to the date hereof, and the services that the Company expects the Executive to perform for and on behalf of the Company from and after the date hereof, the Parties desire to amend certain provisions of the Employment Agreement.

NOW, THEREFORE, in consideration of the foregoing, of the mutual covenants and agreements herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by the Parties, the Parties do hereby agree and bind themselves as follows. Capitalized terms used, but not defined, in this Amendment, shall have the meanings set forth in the Employment Agreement.

1. Section 3(e). of the Employment Agreement shall be amended by deleting such section in its entirety and substituting the following in lieu thereof:

> "(e) Annual Bonus. In addition to the compensation set forth in Sections 3(a) through (d), the Executive shall be eligible to receive a bonus equal to up to 50% of the Executive's Base Salary (the "Annual Bonus"), seventy percent

(70%) of which shall be payable upon the achievement of milestones that shall be mutually agreed upon between the Company and the Executive on an annual basis and thirty percent (30%) of which shall be payable at the discretion of the Company's Board of Directors."

2. No Other Changes. Except as set forth in this Amendment, the other provisions of the Employment Agreement shall remain in full force and effect in accordance with their respective terms. Nothing contained herein shall constitute a waiver of any rights or claims of any Party heretofore or hereafter arising under or related to the Employment Agreement. From and after the date hereof, references in the Employment Agreement to "this Agreement" shall be construed to refer to the Employment Agreement as amended hereby, unless the context clearly otherwise requires.

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3. General Provisions. The provisions of Sections 8(d), 8(g) and 8(q) of the Employment Agreement apply to this Amendment as if set forth herein, *mutatis mutandis*.

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[*signatures on next page*]

[*Signature Page to Seventh Amendment to Employment Agreement*]

IN WITNESS WHEREOF, the parties hereto have duly executed this Amendment effective as of the date set forth above.

EXECUTIVE	ACTUATE THERAPEUTICS, INC.
/s/ Daniel Schmitt	By: /s/ Daniel M. Schmitt
Daniel Schmitt	Name: Daniel M. Schmitt
	Title: President & CEO

EIGHTH AMENDMENT TO EMPLOYMENT AGREEMENT

This EIGHTH AMENDMENT TO EMPLOYMENT AGREEMENT (this "Amendment") is entered into as of the 12th day of December, 2023 (the "Effective Date"), by and between Actuate Therapeutics, Inc., a Delaware corporation (the "Company"), and Daniel Schmitt, an individual currently residing at [***] (the "Executive" and together with the Company, the "Parties" and each individually, a "Party").

RECITALS

WHEREAS, each of the Company and the Executive is a party to that certain Employment Agreement, dated April 15, 2015 (the "Original Agreement"), as amended on February 5, 2016 (the "First Amendment"), September 28, 2017 (the "Second Amendment"), September 23, 2018 (the "Third Amendment"), January 29, 2019 (the "Fourth Amendment), September 3, 2019 (the "Fifth Amendment"), August 1, 2022 (the "Sixth Amendment"), and January 27, 2023 (the "Seventh Amendment," together with the Original Agreement, the First Amendment, the Second Amendment, the Third Amendment, the Fourth Amendment, the Fifth Amendment and the Sixth Amendment, the "Employment Agreement"); and

WHEREAS, in consideration of the services performed by the Executive for and on behalf of the Company to the date hereof, and the services that the Company expects the Executive to perform for and on behalf of the Company from and after the date hereof, the Parties desire to amend certain provisions of the Employment Agreement.

NOW, THEREFORE, in consideration of the foregoing, of the mutual covenants and agreements herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by the Parties, the Parties do hereby agree and bind themselves as follows. Capitalized terms used, but not defined, in this Amendment, shall have the meanings set forth in the Employment Agreement.

1. Paragraph 4(c) of the Third Amendment. Paragraph 4(c) of the Third Amendment, as such paragraph was amended by the Fifth Amendment and the Sixth Amendment, shall be amended by deleting such paragraph in its entirety and substituting the following in lieu thereof:

> "(c) In addition, in the event the Company is sold at any time on or prior to December 31, 2026 for cash in a transaction valued at or above a per share price of $29.56 (a "Sale Transaction"), immediately prior to the consummation of such Sale Transaction, the Executive shall be granted that number of shares of Common Stock under the Existing Plan such that the Executive's aggregate ownership of shares of Common Stock as of the date of such grant (taking into account any shares owned by Executive separate and apart from the shares awarded in the Sale Transaction) is equal to 8.0% of the issued and outstanding shares of Common Stock on a fully diluted basis (the "Transaction Shares"). The Transaction Shares shall be fully vested as of the date of grant. For purposes of this Amendment, a Sale Transaction shall include a sale of all of the capital securities of the Company or a sale of substantially all of the Company's assets in a single transaction or series of related transactions, or a merger of the Company with another entity regardless of whether the Company is the surviving entity in such transaction."

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2. Paragraph 4 of the Fifth Amendment. Paragraph 4(c) of the Fifth Amendment shall be amended by deleting such paragraph in its entirety and substituting the following in lieu thereof:

> "Sale Transaction Bonus. In the event the Company consummates a Sale Transaction, the Executive shall also be entitled to receive a cash bonus equal to 100% of the Executive's Base Salary (the "Sale Transaction Bonus"). The Sale Transaction Bonus shall be separate and apart from any other bonus amounts to which Executive shall be entitled under the Employment Agreement and shall be payable in a lump sum in cash on or before the date the Sale Transaction is consummated."

3. Additional Incentive and Bonus Awards.

(a) In the event on or before December 31, 2026 the Company receives $100 million or more in Gross Revenue (as hereinafter defined) (the "Global Licensing Threshold") pursuant to a licensing arrangement between the Company and any third party, regardless of whether such Gross Revenue is derived within or outside the United States, and provided that such Global Licensing Threshold is met within the twelve months following the effective date of such licensing arrangement, the Company shall grant to the Executive shares of Common Stock under the Existing Plan in an amount such that the aggregate number of shares of Common Stock owned by the Executive (taking into account any shares owned by Executive separate and apart from any shares awarded pursuant to this Section 3(a)) on the date the Global Licensing Threshold is met (the "Global Threshold Date") equals 6.0% of the issued and outstanding shares of Common Stock as of the Global Threshold Date on a fully diluted basis (such shares of Common Stock, the "Global Licensing Shares"). The Global Licensing Shares shall be fully vested as of the date of grant. In addition, in the event the Global Licensing Threshold is achieved, the Executive shall be entitled to receive a cash bonus equal to 50% of the Executive's Base Salary (the "Global Licensing Bonus"). The Global Licensing Bonus shall be separate and apart from any other bonus amounts to which Executive shall be entitled under the Employment Agreement and shall be payable in a lump sum as soon as practicable following the Global Threshold Date. For purposes of Sections 3(a) and (b), "Gross Revenue" shall mean any value received by the Company, regardless of the form in which received, including, but not limited to, all royalty payments, revenue share payments, milestone payments, and funds received by the Company to subsidize research and development, product commercialization, regulatory approvals and similar activities.

(b) In the event on or before December 31, 2026 the Company receives $50 million but less than $100 million in Gross Revenue (the "EU Licensing Threshold") pursuant to a licensing arrangement between the Company and any third party for Gross Revenue derived from the European Union, and provided that such EU Licensing Threshold is met within the twelve months following the effective date of such licensing arrangement, the Company shall grant to the Executive shares of Common Stock under the Existing Plan in an amount such that the aggregate number of shares of Common Stock owned by the Executive (taking into account any shares owned by Executive separate and apart from any shares awarded pursuant to this Section 3(b)) on the date the EU Licensing Threshold is met (the "EU Threshold Date") equals 5.0% of the issued and outstanding shares of Common Stock as of the EU Threshold Date on a fully diluted basis (such shares of Common Stock, the "EU Licensing Shares"). The EU Licensing Shares shall be fully vested as of the date of grant. In addition, in the event the EU Licensing Threshold is achieved, the Executive shall be entitled to receive a cash bonus equal to 25% of the Executive's Base Salary (the "EU Licensing Bonus"). The EU Licensing Bonus shall be separate and apart from any other bonus amounts to which Executive shall be entitled under the Employment Agreement and shall be payable in a lump sum as soon as practicable following the EU Threshold Date. For the avoidance of doubt, any amounts comprising the EU Licensing Threshold may be counted for the purposes of determining if the Global Licensing Threshold has been met; provided that, the maximum number of shares of Common Stock issuable to the Executive shall not exceed the percentage to which the Executive is entitled pursuant to Section 3(a); and provided further that, the maximum cash bonus payable to the Executive pursuant to Sections 3(a) and 3(b) shall not exceed 75% of the Executive's Base Salary in the aggregate.

(c) In the event on or before December 31, 2026 the Company receives more than $10 million in non-dilutive capital (the "Non-Dilutive Revenue Threshold") pursuant to any transaction entered into after the Effective Date (other than a transaction contemplated by Section 3(a) or (b)), the Company shall grant to the Executive shares of Common Stock under the Existing Plan in an amount such that the aggregate number of shares of Common Stock owned by the Executive (taking into account any shares owned by Executive separate and apart from any shares awarded pursuant to this Section 3(c)) on the date the Non-Dilutive Revenue Threshold is met (the "Non-Dilutive Revenue Threshold Date") equals 6.0% of the issued and outstanding shares of Common Stock as of the Non-Dilutive Revenue Threshold Date on a fully diluted basis (such shares of Common Stock, the "Non-Dilutive Revenue Shares"). The Non-Dilutive Revenue Shares shall be fully vested as of the date of grant. In addition, in the event the Non-Dilutive Revenue Threshold is achieved, the Executive shall be entitled to receive a cash bonus equal to 50% of the Executive's Base Salary (the "Non-Dilutive Revenue Bonus"). The Non-Dilutive Revenue Bonus shall be separate and apart from any other bonus amounts to which Executive shall be entitled under the Employment Agreement and shall be payable in a lump sum as soon as practicable following the Non-Dilutive Revenue Threshold Date.

(d) In the event the Company closes a Qualified Financing (as hereinafter defined), upon closing of such Qualified Financing:

(i) if the shares in such Qualified Financing are sold at a price less than or equal to $3.71 per share (a "Low Price QF"), then the Company shall grant to the Executive shares of Common Stock under the Existing Plan in an amount such that the aggregate number of shares of Common Stock owned by the Executive (taking into account any shares owned by Executive separate and apart from any shares awarded pursuant to this Section 3(d)(i)) on the closing date of the Low Price QF (the "Low Price QF Closing Date") equals 4.25% of the issued and outstanding shares of Common Stock as of the Low Price QF Closing Date on a fully diluted basis (such shares of Common Stock, the "Low Price QF Shares"). The Low Price QF Shares will be fully vested as of the date of grant;

(ii) if the shares in such Qualified Financing are sold at a price in excess of $3.71 per share (a "High Price QF"), then the Company shall grant to the Executive shares of Common Stock under the Existing Plan in an amount such that the aggregate number of shares of Common Stock owned by the Executive (taking into account any shares owned by Executive separate and apart from any shares awarded pursuant to this Section 3(d)(ii)) on the closing date of the High Price QF (the "High Price QF Closing Date") equals up to 5.0% of the issued and outstanding shares of Common Stock as of the High Price QF Closing Date on a fully diluted basis (such shares of Common Stock, the "High Price QF Shares"). The actual percentage referenced in the preceding sentence shall be determined by multiplying 5.0% by a fraction, the numerator of which is the actual price per share of the shares sold in the High Price QF and the denominator of which is $4.36; provided that, in no event shall this calculation result in a percentage greater than 5.0%. The High Price QF Shares shall be fully vested as of the date of grant.

For purposes of this Section 3(d), "Qualified Financing" shall mean the next transaction or series of related transactions occurring on or before December 31, 2026 pursuant to which the Company issues and sells shares of its common or preferred equity securities in exchange for aggregate gross proceeds of more than $10,000,000, excluding any gross proceeds attributable to sales to Bios Partners L.P. ("Bios") or its affiliates (which affiliates shall include, but not be limited to, any limited partners of Bios and/or its affiliated funds).

4. No Other Changes. Except as set forth in this Amendment, the other provisions of the Employment Agreement shall remain in full force and effect in accordance with their respective terms. Nothing contained herein shall constitute a waiver of any rights or claims of any Party heretofore or hereafter arising under or related to the Employment Agreement. From and after the date hereof, references in the Employment Agreement to "this Agreement" shall be construed to refer to the Employment Agreement as amended hereby, unless the context clearly otherwise requires.

5. General Provisions. The provisions of Sections 8(d), 8(g) and 8(q) of the Employment Agreement apply to this Amendment as if set forth herein, *mutatis mutandis*.

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[*signatures on next page*]

[*Signature Page to Eighth Amendment to Employment Agreement*]

IN WITNESS WHEREOF, the parties hereto have duly executed this Amendment effective as of the date set forth above.

EXECUTIVE	ACTUATE THERAPEUTICS, INC.
/s/ Daniel Schmitt	By: /s/ Daniel M. Schmitt
Daniel Schmitt	Name: Daniel M. Schmitt
	Title: President & CEO

NINTH AMENDMENT TO EMPLOYMENT AGREEMENT

This NINTH AMENDMENT TO EMPLOYMENT AGREEMENT (this "Amendment") is entered into as of the 9th day of May, 2024 (the "Effective Date"), by and between Actuate Therapeutics, Inc., a Delaware corporation (the "Company"), and Daniel Schmitt, an individual currently residing at [●] (the "Executive" and together with the Company, the "Parties" and each individually, a "Party").

RECITALS

WHEREAS, each of the Company and the Executive is a party to that certain Employment Agreement, dated April 15, 2015 (the "Original Agreement"), as amended on February 5, 2016 (the "First Amendment"), September 28, 2017 (the "Second Amendment"), September 23, 2018 (the "Third Amendment"), January 29, 2019 (the "Fourth Amendment), September 3, 2019 (the "Fifth Amendment"), August 1, 2022 (the "Sixth Amendment"), January 27, 2023 (the "Seventh Amendment"), and December 23, 2023 (the "Eighth Amendment," together with the Original Agreement, the First Amendment, the Second Amendment, the Third Amendment, the Fourth Amendment, the Fifth Amendment, the Sixth Amendment, and the Seventh Amendment, the "Employment Agreement"); and

WHEREAS, in consideration of the services performed by the Executive for and on behalf of the Company to the date hereof, and the services that the Company expects the Executive to perform for and on behalf of the Company from and after the date hereof, the Parties desire to amend certain provisions of the Employment Agreement.

NOW, THEREFORE, in consideration of the foregoing, of the mutual covenants and agreements herein contained, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by the Parties, the Parties do hereby

agree and bind themselves as follows. Capitalized terms used, but not defined, in this Amendment, shall have the meanings set forth in the Employment Agreement.

1. Paragraph 3(d) of the Eighth Amendment. Paragraph 3(d) of the Eighth Amendment shall be amended by deleting such paragraph in its entirety and substituting the following in lieu thereof:

"(d) In the event the Company closes a Qualified Financing (as hereinafter defined), upon closing of such Qualified Financing:

(i) if the shares in such Qualified Financing are sold at a price less than or equal to $3.71 per share (a "Low Price QF"), then the Company shall grant to the Executive shares of Common Stock under the Existing Plan in an amount such that the aggregate number of shares of Common Stock owned by the Executive (taking into account any shares owned by Executive separate and apart from any shares awarded pursuant to this Section 3(d)(i)) on the closing date of the Low Price QF (the "Low Price QF Closing Date") equals 4.25% of the issued and outstanding shares of Common Stock as of the Low Price QF Closing Date on a fully diluted basis (such shares of Common Stock, the "Low Price QF Shares"); and

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(ii) if the shares in such Qualified Financing are sold at a price in excess of $3.71 per share (a "High Price QF"), then the Company shall grant to the Executive shares of Common Stock under the Existing Plan in an amount such that the aggregate number of shares of Common Stock owned by the Executive (taking into account any shares owned by Executive separate and apart from any shares awarded pursuant to this Section 3(d)(ii)) on the closing date of the High Price QF (the "High Price QF Closing Date") equals up to 5.0% of the issued and outstanding shares of Common Stock as of the High Price QF Closing Date on a fully diluted basis (such shares of Common Stock, the "High Price QF Shares"). The actual percentage referenced in the preceding sentence shall be determined by multiplying 5.0% by a fraction, the numerator of which is the actual price per share of the shares sold in the High Price QF and the denominator of which is $4.36; provided that, in no event shall this calculation result in a percentage greater than 5.0%.

Each of the Low Price QF Shares and the High Price QF Shares shall vest as follows:

(1) 50% on the first anniversary of the Low Price QF Closing Date or the High Price QF Closing Date, as applicable; and

(2) 50% on the second anniversary of the Low Price QF Closing Date or the High Price QF Closing Date, as applicable.

Notwithstanding the foregoing, all unvested Low Price QF Shares and High Price QF Shares, as applicable, shall vest, and all restrictions on all unvested Low Price QF Shares and High Price QF Shares, as applicable, shall lapse, immediately upon:

(A) a Change in Control,

(B) termination of Executive's employment by the Company without Cause,

(C) termination of the Executive's employment by the Executive for Good Reason, or

(D) the Executive's death or Disability,

in each case as such capitalized terms are defined in the Employment Agreement.

For purposes of this Section 3(d), "Qualified Financing" shall mean the next transaction or series of related transactions occurring on or before December 31, 2026 pursuant to which the Company issues and sells shares of its common or preferred equity securities in exchange for aggregate gross proceeds of more than $10,000,000, excluding any gross proceeds attributable to sales to Bios Partners L.P. ("Bios") or its affiliates (which affiliates shall include, but not be limited to, any limited partners of Bios and/or its affiliated funds)."

2. No Other Changes. Except as set forth in this Amendment, the other provisions of the Employment Agreement shall remain in full force and effect in accordance with their respective terms. Nothing contained herein shall constitute a waiver of any rights or claims of any Party heretofore or hereafter arising under or related to the Employment Agreement. From and after the date hereof, references in the Employment Agreement to "this Agreement" shall be construed to refer to the Employment Agreement as amended hereby, unless the context clearly otherwise requires.

3. General Provisions. The provisions of Sections 8(d), 8(g) and 8(q) of the Employment Agreement apply to this Amendment as if set forth herein, *mutatis mutandis*.

[*remainder of page intentionally left blank*]
[*signatures on next page*]

[*Signature Page to Ninth Amendment to Employment Agreement*]

IN WITNESS WHEREOF, the parties hereto have duly executed this Amendment effective as of the date set forth above.

EXECUTIVE

/s/ Daniel Schmitt
Daniel Schmitt

ACTUATE THERAPEUTICS, INC.

By: /s/ Daniel Schmitt
Name: Daniel Schmitt
Title: President & CEO

Exhibit 10.7

This **EMPLOYMENT AGREEMENT** (this "Agreement"), is entered into to be effective as of June 1, 2022 (the "Effective Date"), by and between Actuate Therapeutics, Inc., a Delaware corporation (the "Company"), and Andrew Mazar, an individual currently residing at [***], (the "Executive").

WHEREAS, Company desires to employ the Executive on the terms, conditions and for the consideration hereinafter set forth, and the Executive is willing to serve as an employee of the Company on such terms and conditions and for such consideration.

NOW THEREFORE, for and in consideration of the mutual promises, covenants and obligations contained herein, the Company and the Executive hereby agree as follows:

1. **Employment and Duties**. Beginning on the Effective Date, the Executive shall serve as an employee of the Company with the title of Chief Operating Officer, reporting to the Board of Directors of the Company (the "Board"), and whose day-to-day supervision shall be by the Company's Chief Executive Officer. The Executive's responsibility will be to perform such duties and responsibilities commensurate with the Executive's position, as may be reasonably assigned to the Executive from time to time by the Board.

2. **Term of Employment**. The term of this Agreement (the "Initial Term") shall commence on the Effective Date and shall continue until terminated in accordance with the provisions of this Agreement. Subject to the provisions of Section 4 of this Agreement, this Agreement may be terminated by the Company or the Executive, at any time, upon thirty (30) days' prior written notice thereof to the other party. Following any termination of this Agreement, Executive shall be entitled to receive any unpaid Base Salary (as defined below) accrued through the date of termination. All other benefits, if any, due to Executive following Executive's termination shall be determined in accordance with the plans, policies and practices of the Company; provided, however, that except as described in Section 4, Executive shall not be entitled to any payments or benefits under any other agreement or any severance plan, policy or program of the Company or any of its affiliates (excluding any medical or dental insurance plans) and Executive shall not accrue any additional compensation (including any Base Salary) or other benefits under this Agreement following any such termination of employment.

3. **Compensation and Other Benefits**. Subject to the provisions of this Agreement, the Company shall pay and provide the following compensation and other benefits to the Executive during the Term as compensation for services rendered hereunder:

(a) Base Salary. The Company shall pay to the Executive a salary at the annual rate of $450,000 (as modified from time to time in accordance with this Section 3(a), the "Base Salary"), payable in substantially equal installments on a monthly basis. The Base Salary shall be reviewed by the Board, based upon the Executive's performance, not less often than annually.

(b) Annual Bonus. In addition to the compensation set forth in Section 3(a), the Executive shall be eligible to receive a bonus equal to up to 50% of the Executive's Base Salary, which shall be payable upon the achievement of milestones that shall be mutually agreed upon between the Company and the Executive on an annual basis.

(c) Signing Bonus. In addition to the compensation set forth in Section 3(a) and 3(b), the Executive shall be paid a one-time signing bonus of $200,000 upon execution of this Agreement.

(d) Employee Benefits. The Executive shall be entitled to participate in all employee benefit arrangements for which he meets the eligibility requirements that the Company may offer to its executives of a like status from time to time, and as may be amended from time to time.

(e) Expenses. The Company shall reimburse the Executive for reasonable travel and other business-related expenses incurred by the Executive in the fulfillment of his duties hereunder upon presentation of written documentation thereof, in accordance with the applicable expense reimbursement policies and procedures of the Company as in effect from time to time.

(f) Incentive Awards.

(i) In addition to the foregoing, the Company shall award to the Executive 72,710 shares of common stock, par value $0.000001 per share ("Common Stock") of the Company, pursuant to the Company's 2015 Stock Incentive Plan, as amended (or any successor plan thereto as in effect as of the date such award is made) (the "Plan"), with such award to be made effective on the Effective Date (the "Signing Award"). The shares of Common Stock subject to the Signing Award will be "restricted shares" and will be subject to vesting as follows in accordance with the terms of a Restricted Stock Award Agreement:

(A) 25% of the shares of the unvested Common Stock subject to the Signing Award shall vest on the one year anniversary of the Effective Date (the "Anniversary Date"); and

(B) the remaining unvested shares of Common Stock subject to the Signing Award shall vest in equal installments on a monthly basis during the thirty-six (36) months following the Anniversary Date.

(ii) In addition to the Signing Award, in the event the Company is sold on or prior to March 31, 2024 for cash in a transaction valued at or above $29.56 per share (a "Sale Transaction"), immediately prior to the consummation of such Sale Transaction, the Executive shall be granted that number of shares of Common Stock under the Plan that brings Executive's total ownership of Common Stock as of the day immediately prior to the closing of the Sale Transaction (taking into account any shares owned by Executive separate and apart from the shares awarded in the Sale Transaction) to 2.0% of the issued and outstanding shares of Common Stock on a fully diluted basis (the "Transaction Shares"). The Transaction Shares shall be fully vested as of the date of grant. For purposes of this Agreement, a Sale Transaction shall include a sale of all of the capital securities of the Company or a sale of substantially all of the Company's assets in a single transaction or series of related transactions, or a merger of the Company with another entity regardless of whether the Company is the surviving entity in such transaction.

4. **Termination of Employment**.

(a) Termination of Employment in Absence of a Change in Control. Subject to satisfaction of Section 4(d), if the Executive's employment is terminated by the Company for any reason other than the Executive's death, the Executive's Disability (as defined below) or Cause (as defined below), or is terminated by the Executive for Good Reason, then the Executive shall be entitled to receive a payment equal to 100 percent (100%) his then current Base Salary plus reimbursement of the cost associated with the Executive's premiums for elected COBRA coverage up to $25,000 (the "Standard Severance Benefits"). The Executive shall have no further right to receive any other compensation or benefits after such termination or resignation of employment, except as described in Section 2 or, if applicable, Section 4(b). Except as otherwise required under Section 6(b), the Standard Severance Benefits shall be paid to the Executive in a lump sum no later than the forty-fifth (45th) day immediately following the Executive's Separation from Service (as defined below), provided that the Executive first executes a release of any and all claims against the Company (set forth in Section 4(d), below) and the revocation period specified therein has expired without the Executive revoking such release. Notwithstanding the foregoing and for avoidance of doubt, if the Executive's employment is terminated by the Company for the Executive's death, the Executive's Disability or Cause or by the Executive without Good Reason at any time, then the Executive shall not be entitled to or receive the Standard Severance Benefits.

(i) For purposes of this Agreement, the term "Separation from Service" shall have the meaning ascribed under Section 409A of the Internal Revenue Code of 1986, as amended (the "Code").

(ii) For purposes of this Agreement, the term "Cause" shall mean a termination of the Executive's employment with the Company because of: (1) any act or omission by the Executive that constitutes a material breach by the Executive of any of his obligations under this Agreement; (2) the Executive's conviction of, or plea of *nolo contendere* to, (A) any felony, or (B) another crime involving dishonesty or moral turpitude or which could reflect negatively upon the Company or otherwise impair or impede its operations; (3) the Executive's engaging in any misconduct, negligence, act of dishonesty, violence or threat of violence (including any violation of federal securities laws) that is injurious to the Company or any of its subsidiaries or affiliates; (4) the Executive's material breach of a written policy of the Company or the rules of any governmental or regulatory body applicable to the Company; (5) the Executive's refusal to follow the directions of the Board; or (6) any other willful misconduct by the Executive that is materially injurious to the financial condition or business reputation of the Company or any of its subsidiaries or affiliates. Notwithstanding anything in this Section 4(a)(ii) to the contrary, no event or condition described in Sections 4(a)(ii)(1), (4), (5) or

(6) shall constitute Cause unless (x) within 90 days from the Board first acquiring actual knowledge of the existence of the Cause condition, the Board provides the Executive written notice of its intention to terminate his employment for Cause and the grounds for such termination; (y) such grounds for termination (if susceptible to correction) are not corrected by the Executive within 20 days of his receipt of such notice (or, in the event that such grounds cannot be corrected within such 20-day period, the Executive has not taken all reasonable steps within such 20-day period to correct such grounds as promptly as practicable thereafter); and (z) the Board terminates the Executive's employment with the Company promptly following expiration of such 20-day period. For purposes of this Section 4(a)(ii), any attempt by the Executive to correct a stated Cause shall not be deemed an admission by the Executive that the Board's assertion of Cause is valid. Notwithstanding anything in this Agreement to the contrary, if the Executive's employment with the Company is terminated by the Company hereunder without Cause, within 90 days of termination the Company shall have the sole discretion to later use after-acquired evidence to retroactively re-characterize the prior termination as a termination for Cause if such after-acquired evidence supports such an action.

(iii) For purposes of this Agreement, the term "Good Reason" shall mean: (1) a material diminution in the Executive's Base Salary or a failure by the Company to pay material compensation due and payable to the Executive in connection with his employment; (2) a material diminution in the nature or scope of the Executive's authority, duties, responsibilities, or title from those applicable to him as of the Effective Date; (3) the Company requiring the Executive to be based at any office or location more than 50 miles from Chicago, Illinois; or (4) a material breach by the Company of any term or provision of this Agreement. Notwithstanding anything in this Section 4(a)(iii) to the contrary, no event or condition described in this Section 4(a)(iii) shall constitute Good Reason unless, (x) within 90 days from the Executive first acquiring actual knowledge of the existence of the Good Reason condition described in this Section 4(a)(iii), the Executive provides the Board written notice of his intention to terminate his employment for Good Reason and the grounds for such termination; (y) such grounds for termination (if susceptible to correction) are not corrected by the Company within 20 days of the Board's receipt of such notice (or, in the event that such grounds cannot be corrected within such 20-day period, the Company has not taken all reasonable steps within such 20-day period to correct such grounds as promptly as practicable thereafter); and (z) the Executive terminates his employment with the Company promptly following expiration of such 20-day period. For purposes of this Section 4(a)(iii), any attempt by the Company to correct a stated Good Reason shall not be deemed an admission by the Company that the Executive's assertion of Good Reason is valid.

(iv) For purposes of this Agreement, the term "Disability" shall mean the Executive's inability, due to physical or mental incapacity taking into account any reasonable accommodations, to perform his duties under this Agreement for a period of at least ninety (90) consecutive days or at least one-hundred twenty (120) days during any consecutive six-month period, in any such case as determined by the Board in good faith. In conjunction with determining Disability for purposes of this Agreement, the Executive hereby (A) consents to any such examinations, to be performed by a qualified medical provider selected by the Company and approved by the Executive (which approval shall not be unreasonably withheld), which are relevant to a determination of whether the Executive has incurred a Disability; and (B) agrees to furnish such medical information as may be reasonably requested by the Company.

(b) Termination of Employment after a Change in Control. Subject to satisfaction of Section 4(d), if a Change in Control occurs and the Executive's employment is terminated by the Company for any reason other than the Executive's death, the Executive's Disability or Cause, or is terminated by the Executive for Good Reason, in any such case within the six (6) months immediately preceding or the twelve (12) months immediately following such Change in Control, then the Executive shall be entitled to receive a payment equal to one times (1.0x) his then current Base Salary (or, if applicable, the Base Salary in effect on the date of the Executive's prior Separation from Service), reduced by the Standard Severance Benefits, if any, to which Executive was entitled under Section 4(a) (the "Change in Control Severance Benefits"). Except as otherwise required under Section 6(b), Change in Control Severance Benefits shall be paid to the Executive in a lump sum no later than the forty-fifth (45th) day immediately following the later of the Executive's Separation from Service and the Change in Control, provided the Executive first executes a release of any and all claims against the Company (set forth in Section 4(d), below) and the revocation period specified therein has expired without the Executive revoking such release. Notwithstanding the foregoing and for the avoidance of doubt, if the Executive's employment is terminated by the Company for the Executive's death, the Executive's Disability or Cause or by the Executive without Good Reason, in any such case any time prior to or following a Change in Control, then the Executive shall not be entitled to or receive the Change in Control Severance Benefits. Furthermore, for the avoidance of doubt, in no event shall the Executive be entitled to receive both Standard Severance Benefits and Change in Control Severance Benefits in excess of one times (1.0x) his then current Base Salary (or, if applicable, the Base Salary in effect on the date of the Executive's prior Separation from Service).

(i) For purposes of this Agreement the term "Change in Control" shall mean any of the following transactions, as determined in the sole and absolute discretion of the Board:

(A) The date that any one Person (other than existing stockholders of the Company), or more than one such Persons acting as a group, acquires ownership of the Company's voting stock that, together with the Company's voting stock held by such Person or group, constitutes more than fifty percent (50%) of the total voting power of the Company's capital stock. However, if any one Person (other than existing stockholders of the Company), or more than one such Persons acting as a group, is considered to own more than fifty percent (50%) of the total voting stock of the Company, the acquisition of additional shares of stock by the same Person or Persons will not be considered to cause a Change in Control.

(B) The consummation of a consolidation or merger of the Company in which the Company is not the surviving entity or pursuant to which the Company's equity interests would be converted into cash, securities or other property; except that, the foregoing provisions of this Section 4(a)(ii)(B) shall not apply if the majority of the board of directors of the surviving corporation are, and for a one-year period after the merger continue to be, persons who were directors of the Company immediately prior to the merger or were elected as directors, or nominated for election as a director, by a vote of at least two-thirds of the directors then still in office who were directors of the Company immediately prior to the merger; and

(C) The date that any one Person or more than one Person acting as a group acquires all or substantially all of the assets of the Company.

Notwithstanding the foregoing, a Change in Control shall not be deemed to have occurred in the event the Company forms a holding company and, as a result thereof, the holders of the Company's voting securities immediately prior to the transaction hold, in approximately the same relative proportions as they held prior to the transaction, substantially all of the voting securities of the holding company that owns all of the Company's voting securities immediately after completion of the transaction. Further, a Change in Control shall not be deemed to have occurred due to any acquisition of voting stock by an employee stock ownership plan sponsored by the Company.

(c) Resignation from Directorships and Officerships. The termination of the Executive's employment for any reason shall constitute the Executive's immediate resignation from (i) any director, officer or employee position the Executive has with the Company, and (ii) all fiduciary positions (including as a trustee) the Executive holds with respect to any employee benefit plans or trusts established by the Company. The Executive agrees that this Agreement shall serve as written notice of resignation in this circumstance.

(d) Waiver and Release. Notwithstanding any other provision of this Agreement to the contrary, unless expressly waived in writing by the Board in its sole discretion, the Company shall not make or provide any Standard Severance Benefits or Change in Control Severance Benefits (collectively referred to as the "Severance Benefits") under this Section 4 (other than accrued Base Salary as of the termination date) unless the Executive timely executes and delivers to the Company a general release which shall be provided by the Company not later than five (5) days from the date on which the Executive's employment is terminated and be substantially in the form attached hereto as Exhibit A whereby the Executive (or his estate or legally appointed personal representative, as applicable) releases the Company (and affiliates of the Company and other designated persons as described in Exhibit A) from all employment based or related claims of the Executive and all obligations of the Company to the Executive other than with respect to (x) the Company's obligations to make and provide the Severance Benefits and other payments provided by this Agreement, and (y) any vested benefits to which the Executive is entitled under the terms of any Company benefit or equity plan, and the Executive does not revoke such release within any applicable revocation period following the Executive's delivery of the executed release to the Company. If the requirements of this Section 4(d) are not satisfied by the Executive (or his estate or legally appointed personal representative, as applicable), then no Severance Benefits other than accrued Base Salary as of the termination date shall be due to the Executive (or his estate or legally appointed personal representative) pursuant to this Agreement.

(e) Notice of Termination. Any termination of employment by the Company or the Executive shall be communicated by a written "Notice of Termination" to the other party hereto given in accordance with Section 8(k) of this Agreement. In the event of a termination by the Company for Cause, the Notice of Termination shall (i) indicate the specific termination provision in this Agreement relied upon, (ii) set forth in reasonable detail the facts and circumstances claimed to provide a basis for termination of the Executive's employment under the provision so indicated, and (iii) specify the date of termination. The failure by the Executive or the Company to set forth in the Notice of Termination any fact or circumstance which contributes to a showing of Cause shall not waive any right of the Executive or the Company, respectively, hereunder or preclude the Executive or the Company, respectively, from asserting such fact or circumstance in enforcing the Executive's or the Company's rights hereunder.

5. **Section 280G Payments**. Notwithstanding anything in this Agreement to the contrary, if the Executive is a "disqualified individual" (as defined in Section 280G(c) of the Code), and the payments and benefits provided for in this Agreement, together with any other payments and benefits which the Executive has the right to receive from the Company or any other Person, would constitute a "parachute payment" (as defined in Section 280G(b)(2) of the Code), then the payments and benefits provided for in this Agreement shall be either (a) reduced (but not below zero) so that the present value of such total amounts and benefits received by the Executive from the Company and/or such person(s) will be $1.00 less than three (3) times the Executive's "base amount" (as defined in Section 280G(b)(3) of the Code) and so that no portion of such amounts and benefits received by the Executive shall be subject to the excise tax imposed by Section 4999 of the Code, or (b) paid in full, whichever produces the better "net after-tax position" to the Executive (taking into account any applicable excise tax under Section 4999 of the Code and any other applicable taxes). The reduction of payments and benefits hereunder, if applicable, shall be made by reducing, first, payments or benefits to be paid in cash hereunder in the order in which such payment or benefit would be paid or provided (beginning with such payment or benefit that would be made last in time and continuing, to the extent necessary, through to such payment or benefit that would be made first in time) and, then, reducing any benefit to be provided in-kind hereunder in a similar order. The determination as to whether any such reduction in the amount of the payments and benefits provided hereunder is necessary shall be made by the Board in good faith in consultation with the Executive. If a reduced payment or benefit is made or provided and through error or otherwise that payment or benefit, when aggregated with other payments and benefits from the Company (or its affiliates) used in determining if a "parachute payment" exists, exceeds $1.00 less than three (3) times the Executive's base amount, then the Executive shall immediately repay such excess to the Company upon notification that an overpayment has been made. Nothing in this paragraph shall require the Company to be responsible for, or have any liability or obligation with respect to, the Executive's excise tax liabilities under Section 4999 of the Code.

6. **Section 409A of the Code**. This Agreement is intended to either avoid the application of, or comply with, Section 409A of the Code. To that end this Agreement shall at all times be interpreted in a manner that is consistent with Section 409A of the Code. Notwithstanding any other provision in this Agreement to the contrary, the Company shall have the right, in its sole discretion, to adopt such amendments to this Agreement or take such other actions (including amendments and actions with retroactive effect) as it determines to be necessary or appropriate for this Agreement to comply with Section 409A of the Code. Further:

(a) Any reimbursement of any costs and expenses by the Company to the Executive under this Agreement shall be made by the Company in no event later than the close of the Executive's taxable year following the taxable year in which the cost or expense is incurred by the Executive. The expenses incurred by the Executive in any calendar year that are eligible for reimbursement under this Agreement shall not affect the expenses incurred by the Executive in any other calendar year that are eligible for reimbursement hereunder and the Executive's right to receive any reimbursement hereunder shall not be subject to liquidation or exchange for any other benefit.

(b) Any payment following a Separation from Service that would be subject to Section 409A(a)(2)(A)(i) of the Code as a distribution following a Separation from Service of a "specified employee" (as defined under Section 409A(a)(2)(B)(i) of the Code) shall be made on the first to occur of (i) ten (10) days after the expiration of the six month period following such Separation from Service, (ii) death, or (iii) such earlier date that complies with Section 409A.

(c) Each payment that the Executive may receive under this Agreement shall be treated as a "separate payment" for purposes of Section 409A of the Code.

7. **Confidential Information, Trade Secrets and Restrictive Covenants**. The

Company agrees to: (i) disclose, and to continue to disclose, its confidential information and trade secrets to the Executive; (ii) provide initial and continued training, education and development to the Executive; and (iii) provide the Executive with confidential information and trade secrets about, and the opportunity to develop relationships with, the Company's employees, customers and suppliers, and employees and agents of the Company's customers and suppliers. In consideration thereof, the Executive hereby agrees to comply with the restrictive covenants prescribed in Exhibit B. A default under or breach of Exhibit B shall constitute a material breach of this Agreement.

8. **Miscellaneous**.

(a) Defense of Claims. The Executive agrees that, during the Term, and for a period of twelve (12) months after termination of the Executive's employment, upon request from the Company, the Executive will cooperate with the Company in the defense of any claims or actions that may be made by or against the Company that affect the Executive's prior areas of responsibility, except if the Executive's reasonable interests are adverse to the Company in such claim or action. The Company agrees to promptly reimburse the Executive for all of the Executive's reasonable legal fees, travel and other direct expenses reasonably incurred to comply with the Executive's obligations under this Section 8(a).

(b) Non-Disparagement. The Executive and the Company agree that at no time during the Executive's employment by the Company or thereafter shall either the Executive or the Company make, or cause or assist any other Person to make, any statement or other communication to any third party which impugns or attacks, or is otherwise critical of, the reputation, business or character of the other party, or any of his or its affiliates or, if such other party is the Company, any of its directors, officers or employees.

(c) Source of Payments. All payments provided under this Agreement, other than payments made pursuant to a plan or agreement which provides otherwise, shall be paid in cash from the general funds of the Company, and no special or separate fund shall be established, and no other segregation of assets shall be made, to assure payment. The Executive shall have no right, title or interest whatsoever in or to any investments which the Company may make to aid the Company in meeting its obligations hereunder. To the extent that any Person acquires a right to receive payments from the Company hereunder, such right shall be no greater than the right of an unsecured creditor of the Company.

(d) Arbitration. Any dispute or controversy arising under or in connection with this Agreement or otherwise in connection with the Executive's employment by the Company that cannot be mutually resolved by the parties to this Agreement and their respective advisors and representatives shall be settled exclusively by arbitration in Tarrant County, Texas in accordance with the rules of the American Arbitration Association before one arbitrator of exemplary qualifications and stature, who shall be selected jointly by an individual to be designated by the Company and an individual to be selected by the Executive, or if such two individuals cannot agree on the selection of the arbitrator, who shall be selected by the American Arbitration Association.

(e) Amendment. Waiver. This Agreement (together with the Exhibits hereto) may not be modified, amended or waived in any manner, except by an instrument in writing signed by both parties hereto. The waiver by either party of compliance with any provision of this Agreement by the other party shall not operate or be construed as a waiver of any other provision of this Agreement, or of any subsequent breach by such party of a provision of this Agreement.

(f) Entire Agreement. This Agreement and the agreements specifically incorporated herein are the entire agreement and understanding of the parties hereto with respect to the matters covered herein and supersedes all prior or contemporaneous negotiations, commitments, agreements and writings with respect to the subject matter hereof, all such other negotiations, commitments, agreements and writings shall have no further force or effect, and the parties to any such other negotiation, commitment, agreement or writing shall have no further rights or obligations thereunder.

(g) Governing Law/Venue. This Agreement shall be governed by and construed in accordance with the laws of the State of Delaware, without regard to conflict of laws principles thereof. Each party to this Agreement hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts in Tarrant County, Texas, for the purposes of any proceeding arising out of or based upon this Agreement.

(h) No Waiver. The failure of a party to insist upon strict adherence to any term of this Agreement on any occasion shall not be considered a waiver of such party's rights or deprive such party of the right thereafter to insist upon strict adherence to that term or any other term of this Agreement.

(i) Severability. In the event that any one or more of the provisions of this Agreement shall be or become invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions of this Agreement shall not be affected thereby.

(j) Successors: Binding Agreement. This Agreement shall inure to the benefit of and be binding upon personal or legal representatives, executors, administrators, successors, heirs, distributees, devisees and legatees.

(k) Notices. For the purpose of this Agreement, notices and all other communications provided for in the Agreement shall be in writing and shall be deemed to have been duly given (i) when delivered by hand to the other party (which, in the case of the Company, shall be to the individual identified below), or (ii) if sent by nationally-recognized overnight courier, one (1) business day after deposit with such nationally-recognized overnight courier, or (iii) three (3) days after it has been mailed by United States registered mail, return receipt requested, postage prepaid, addressed to the respective addresses set forth below in this Agreement, or to such other address as either party may have furnished to the other in writing in accordance herewith, except that notice of change of address shall be effective only upon receipt, or (iv) when sent, if sent by electronic mail or facsimile during normal business hours of the recipient, and if not sent during normal business hours, then on the recipient's next business day.

If to the Company: Actuate Therapeutics, Inc.
1751 River Run, Suite 400
Fort Worth, Texas 76107
Attn: Board of Directors
Email: [***]

If to Executive: Andrew Mazar
[***]
Email: [***]

(m) Prior Employment. The Company has employed the Executive for the Executive's general skills, management abilities and experience in the Company's business or related industries. The Executive acknowledges that he has been specifically instructed not to bring, disclose or use in any fashion any confidential information, trade secrets, proprietary information, data or technology, nor any confidential pricing information, belonging to any prior employer. In no event is the Executive authorized to use or disclose any such information to the Company or any of its employees.

(n) Executive's Representations. The Executive hereby represents to the Company that (i) all confidential information, trade secrets or proprietary information, data or technology, belonging to any prior employer, including, without limitation, those that might have been contained on the Executive's personal computer, cell phone or other electronic communications or storage device have been returned and/or deleted in accordance with any policy of or agreement with the Executive's prior employer, and (ii) the execution and delivery of this Agreement by the Executive and the Company and the performance by the Executive of his duties hereunder shall not constitute a breach of, or otherwise contravene, the terms of any employment agreement or other agreement or policy to which the Executive is a party or otherwise bound.

(o) Assignment; Assumption by Successor. This Agreement is binding upon and shall inure to the benefit of the parties hereto, together with their respective executors, administrators, successors, personal representatives, heirs, and assigns. Notwithstanding the foregoing, the rights and duties of and benefits to the Executive hereunder are personal to the Executive, and no such right or benefit may be assigned by him. The Company shall have the right to assign or transfer this Agreement to its successors or assigns. The terms "successors" and "assigns" shall include any Person who or which buys all or substantially all of Company's assets or all of its stock, or with which Company merges or consolidates. Any purported assignment of this Agreement, other than as provided above, shall be void. The failure of any successor entity to the Company to expressly assume in writing the terms of this Agreement shall be deemed a material breach of this Agreement.

(p) Withholding of Taxes. The Company may withhold from any amounts or benefits payable under this Agreement all taxes it may be required to withhold pursuant to any applicable law or regulation.

(q) Counterparts. This Agreement may be executed in two (2) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. This Agreement shall become effective when each party hereto shall have received counterparts thereof signed and delivered by each other party hereto. Counterparts may be delivered via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, e.g., www.docusign.com) or other transmission method and any counterpart so delivered shall be deemed to have been duly and validly delivered and be valid and effective for all purposes.

(r) Survival. This Agreement shall terminate upon the termination of employment of the Executive; however, the following shall survive the termination of the Executive's employment and/or the expiration or termination of this Agreement, regardless of the reasons for such expiration or termination: Section 4 ("Termination of Employment") and the corresponding Exhibit A ("Waiver and Release"), Section 7 ("Confidential Information, Trade Secrets and Restrictive Covenants") and the corresponding Exhibit B ("Confidentiality, Non- Competition and Non-Solicitation Agreement"), Section 8(a) ("Defense of Claims"), Section 8(b) ("Non-Disparagement"), Section 8(d) ("Arbitration"), Section 8(f) ("Entire Agreement"), Section 8(g) ("Governing Law/ Venue"), Section 8(k) ("Notices"), Section 8(o) ("Assignment; Assumption by Successor"), and Section 8(n) ("Executive's Representations").

[*remainder of page intentionally left blank*]
[*signatures on next page*]

[*Signature Page to Employment Agreement*]

IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement effective as of the Effective Date.

EXECUTIVE	ACTUATE THERAPEUTICS, INC.
/s/ Andrew Mazar	By: /s/ Daniel M. Schmitt
Andrew Mazar	Name: Daniel M. Schmitt
	Title: President & CEO

Exhibit A

WAIVER AND RELEASE

Exhibit B

CONFIDENTIALITY, NON COMPETITION AND NON-SOLICITATION AGREEMENT

Exhibit 10.8

February 17, 2024

Paul Lytle
[***]

Re: Consulting Agreement

Dear Mr. Lytle:

You and Actuate Therapeutics, Inc. (the "Company") have had discussions concerning your desire to render professional consulting services to the Company as described herein. The Company wants to engage your services, and you want to render them, subject to the terms and conditions of this letter agreement (this "Agreement"), which shall become effective upon the last date of signature of this Agreement by both parties (the "Effective Date"). For the purpose of this Agreement, you shall be referred to herein as "Consultant."

Consultant's Responsibilities. Consultant agrees to provide the consulting and other services to the Company as described on Schedule 1, attached hereto and made a part hereof (the "Services"). Consultant shall keep the Company advised of the progress of the Services and any work thereunder, and shall permit representatives of the Company to inspect from time to time the results of any of the Services that are susceptible to inspection. Consultant shall provide the Company with reports, specifications, drawings, models, and the like, as are appropriate to the nature of the Services, and shall keep detailed records of hours worked and cost of materials used, as well as other reasonable out-of-pocket expenses incurred, which such records the Company's representatives may examine upon reasonable notice to Consultant. Consultant agrees to devote his best efforts to providing the Services, and to perform the Services in a professional, workmanlike manner and in compliance with all applicable laws, rules, and regulations, and any internal rules and policies of the Company of which Consultant has been provided notice.

Confidentiality. Consultant acknowledges that he may have access to Confidential and Proprietary Information (as defined below), including, but not limited to, information acquired by Consultant from the Company, or developed by Consultant in connection with performance of the Services. For purposes of this Agreement "Confidential and Proprietary Information" means all non-public information about the Company, its parent and any of their subsidiaries and affiliates, or their respective businesses, clients and licensees, including, but not limited to, information or data relating to the products, concepts, systems, or data developed pursuant to the performance of the Services, including existing or planned products, concepts, systems, data, processes, formulas, techniques; know-how; research and development; the manner in which products are developed, evaluated, promoted, or manufactured; personnel information (including compensation); the identity of clients or licensees; pricing information; information concerning the creation, acquisition or disposition of products; business plans, finances, costs, profits, markets, software, inventions, operational methods, technical matters; and any other technical and/or business information or trade secrets, or information received from others that the Company is obligated to treat as confidential. Consultant shall at all times during Consultant's engagement with the Company and at all times thereafter, maintain all Confidential and Proprietary Information as strictly confidential and shall not disclose it to any third party without the prior written consent of the Company and shall, in no event, use it for Consultant's own benefit or for any purpose other than for the performance of the Services and Consultant's other obligations under this Agreement. Consultant shall immediately notify the Company upon discovery of any unauthorized use or disclosure of Confidential and Proprietary Information, and shall cooperate with the Company to regain possession of the Confidential and Proprietary Information and prevent its unauthorized use.

Ownership of Intellectual Property.

Any and all inventions, improvements, concepts, methods, processes, techniques and ideas, copyrights and copyrightable works, including reports, specifications, drawings, models, data, and the like, and other intellectual property, in each case made, developed or conceived by Consultant in connection with or during the performance of the Services (collectively, "Work Product") shall be the property of and owned solely and exclusively by the Company, and any copyrightable works included in the Work Product shall be considered a "work made for hire" owned by the Company to the fullest extent permitted by law. Consultant shall, and hereby does, irrevocably assign, without further consideration, all right, title and interest throughout the universe in any and all Work Product to the Company, any and all copyrights and other intellectual property rights therein, whether registered or unregistered, and in and to any renewals and extensions thereof, all rights of reversion and termination, and all works based upon, derived from, or incorporating any Work Product, and in and to all causes of action (either in law or in equity) and the right to sue, counterclaim, and recover, for past, present, or future infringement of the rights assigned to the Company under this Agreement. Without limiting the foregoing, the rights hereby assigned by Consultant in the Work Product include all rights in tangible embodiments of any Work Product, the right to secure patents or copyright registration therefor anywhere in the world, in Consultant's name or otherwise, and the right to use, publish, license, exploit, sell, create derivative works of or otherwise dispose of any Work Product in the sole discretion of the Company. Consultant waives all rights of attribution or moral rights with respect to any Work Product.

Consultant, without charge to the Company (other than reasonable charges for time and out-of-pocket expenses in the event this Agreement shall have terminated), shall execute, acknowledge, and deliver to the Company all further papers, including applications for patents and copyrights, and shall take all further actions, as the Company may reasonably request to enable the Company to register, publish, record, protect, defend, or enforce or assert its rights in any Work Product worldwide and to vest title to such Work Product in the Company or its nominees, their successors or assigns. Consultant shall render assistance as the Company may reasonably require (at the Company's expense for Consultant's reasonable time and out-of-pocket expenses) in any proceeding or litigation involving any Work Product. Consultant, as part of the Services, shall keep written notebook records of his work, properly witnessed for use as invention records, which records shall be included as part of the Work Product, and Consultant shall submit such records to the Company when requested or at the termination of the applicable work. Consultant hereby appoints the Company as its attorney-in-fact authorized to execute any documents in the event that Consultant fails to execute the same pursuant to this Section 3(b) within thirty (30) days following the Company's request to do so, or within such other reasonable time as the Company may request and as may be necessitated by the circumstances then in place (it being understood that such appointment is a power coupled with an interest and therefore irrevocable) with full power of substitution and delegation.

Any work and the results of any work performed by Consultant in connection with this Agreement shall not be published in written or oral form without the prior written consent of the Company, which may be withheld by the Company for any reason in its sole and exclusive discretion. When publication of results is sought by Consultant, Consultant shall submit to the Company for written approval the material sought to be published or a draft of such proposed oral presentation. The Company shall notify Consultant of its approval or disapproval within thirty (30) days of the Company's receipt thereof, except that, in the case of abstracts or oral presentations, the Company will in good faith attempt to provide such approval or disapproval in a shorter time period. In addition to the right to approve or disapprove such publication, the Company shall have the right to delete any Confidential and Proprietary Information or any other information derived from experimental research. Any changes made by Consultant to material or presentations previously approved by the Company shall be resubmitted to the Company for its prior written approval in accordance with the terms of this Section 3(c).

Work Only by Consultant. No individuals or entities other than Consultant shall undertake any work in connection with this Agreement, except as may be approved by the Company in writing in advance. Each such person or entity approved by the Company also shall, for the benefit of the Company, execute an agreement reasonably acceptable to the Company and containing provisions of the character and scope of Sections 2 and 3.

Term; Termination. The term of this Agreement (the "Term") shall commence on the Effective Date and continue for a period of one (1) year unless earlier terminated by the Company or Consultant pursuant to this Section 5. The Company reserves the right at any time and for any reason, immediately upon written notice to Consultant, to discontinue any work upon which Consultant shall have

been engaged for the Company and any of the Services (or portion of the Services), or to terminate this Agreement, provided that if Consultant is not in breach of this Agreement at the time of such discontinuance or termination, then the Company shall be obligated to pay Consultant only for the Services (or portion of the Services) performed by Consultant, and cost of materials for which Consultant has become obligated in connection with the discontinued Services, up to the date of such discontinuance or termination. This Agreement shall continue in full force and effect with respect to any work or Services (or portion thereof) not discontinued by the Company. Consultant may not terminate this Agreement or otherwise discontinue any of the Services except upon thirty (30) days prior written notice to the Company or immediately upon the occurrence of a material breach by the Company which has not been cured within thirty (30) days after written notice to the Company of such breach. Upon completion or discontinuance of any work or Services, Consultant shall deliver to the Company all Work Product (or all Work Product with respect to such work or Services that were discontinued) that then exists. Upon completion or discontinuance of any work or Services, Consultant shall return to the Company any property or material belonging to the Company, including, but not limited to, any material containing Confidential and Proprietary Information, and any tangible embodiments thereof, in Consultant's possession or control.

Non-Competition. At all times during Consultant's engagement with the Company and for a period of one (1) year thereafter, Consultant shall not, directly or indirectly (and whether or not for compensation), perform any services for a third party (whether as an employee, consultant, or otherwise) related to the manufacture, sale, development, evaluation and/or promotion of any product related to GSK-3β, including with respect to any such product under development or commercialization for treatment of advanced solid tumors or neurodegenerative diseases, without the Company's prior written consent which may be withheld for any reason in the Company's sole and exclusive discretion. Consultant agrees that the restrictions imposed under this Section 6 are fair and reasonable. To the extent any portion of this Section 6 is held invalid or unenforceable, it shall be construed by limiting or reducing such Section so as to be enforceable to the extent compatible with applicable law.

Consulting Fee. In consideration of the Services to be performed by Consultant hereunder, the Company shall pay Consultant an amount equal to $20,000 per month (the "Service Fee"). In exchange for the Service Fee, Consultant shall devote at least 20 hours per week to performance of the Services. The Company shall also reimburse Consultant for his reasonable out-of-pocket expenses incurred directly at the request of the Company in accordance with the Company's policies in effect at the time such expenses are incurred; provided that, Consultant obtains the Company's prior written approval of such expenses and provides reasonable documentation to the Company of all such expenses. All Service Fees shall be payable in arrears on the last business day of each month during the Term.

Consultant's Representations and Additional Obligations. Consultant represents that he is not an employee of any third party, including any university, and is available to do consulting on his own account, and he does not have an obligation, whether express or implied, to any third party, that would interfere, hamper or limit his ability to comply with his obligations under this Agreement or to render any of the Services. Consultant represents that Consultant does not have any agreement, duty, commitment or responsibility or obligation of any kind or nature whatsoever with any third party which would conflict in any manner whatsoever with any of Consultant's duties, obligations or responsibilities to the Company pursuant to this Agreement or which could interfere with Consultant's performance under this Agreement or providing the Services, including, without limitation, any provisions of any agreement which may still be in effect: (a) to keep in confidence any proprietary information Consultant acquired in confidence prior to Consultant's engagement with the Company; (b) to refrain from competitive engagement or conduct; and/or (c) which would otherwise have a bearing on Consultant's engagement with the Company or providing the Services. In conducting other activities, Consultant will not take a position or represent interests that conflict with the Company's interest during the Term.

Non-Assignment by Consultant. This Agreement is for personal services and Consultant shall not assign this Agreement or any part thereof without the Company's prior written approval, which may be withheld for any reason in the Company's sole and exclusive discretion, and any such attempted assignment shall be null and void. The Company may, without Consultant's consent, assign this Agreement including all rights and obligations hereunder at any time to any of its affiliates, or to any entity in a merger, consolidation, or reorganization, or that acquires substantially all of the Company's assets to which this Agreement relates. This Agreement shall be binding upon, and inure to the benefit of, the parties and their respective successors and permitted assigns.

Independent Contractor Status. The parties acknowledge and agree that Consultant is an independent contractor and not the agent, employee, joint venturer, or partner of the Company. Consultant shall be solely responsible for determining the method, manner and means of rendering the Services. Consultant shall be solely responsible for the payment, when applicable, of any licenses, taxes, or any other costs, including, but no limited to, withholding and income taxes, associated with Consultant's performance of the Services. Consultant agrees that Consultant will not be entitled under this Agreement or otherwise to participate in any benefit plans that the Company or its affiliates sponsor for their employees.

Non-Infringement Representations; Indemnification. It is the Company's policy to respect competitors' trade secrets and other intellectual property rights and to comply with all relevant state and federal laws regarding trade secrets and other intellectual property. Consultant represents that it does not, and will not in the performance of the Services and its obligations under this Agreement, employ any information-gathering methods that violate state or federal laws governing trade secrets or that will use any confidential or proprietary information of any third party, and that the performance of the Services and the Work Product (and all portions thereof) will not infringe or otherwise violate the intellectual property rights of any third party. Consultant further represents that Consultant will not seek to learn, and that it will not disclose to the Company, any third party trade secrets or confidential or proprietary information in the performance of the Services and its obligations under this Agreement. Consultant shall indemnify and hold harmless the Company, and its affiliates, directors, officers, managers, employees, and agents, against any and all losses, expenses, damages, liabilities, and claims, arising out of or resulting from (i) Consultant's violation of state or federal laws regarding trade secrets, (ii) any third party claims that the performance of the Services or the Work Product (or portion thereof) infringes or otherwise violates the intellectual property or other rights of such third parties, (iii) Consultant's gross negligence or willful misconduct; (iv) Consultant's breach of any of the provisions of this Agreement; or (v) Consultant's failure to make any of the payments required under Section 10 hereof.

Dispute Resolution. Any controversy or claim arising out of or relating to this Agreement shall be resolved by arbitration before a single arbitrator in accordance with the Commercial Arbitration Rules of the American Arbitration Association ("AAA") then pertaining (available at www.adr.org), except where those rules conflict with this Section 12, in which case the terms of this Section 12 shall control. Any court with competent jurisdiction shall enforce the terms of this Section 12 and enter judgment on any award. The arbitrator shall be selected within twenty business days from commencement of the arbitration from the AAA's National Roster of Arbitrators pursuant to mutual written agreement or through selection procedures administered by the AAA. Within 45 days of initiation of arbitration, the parties shall reach agreement upon and thereafter follow procedures, including limits on discovery, assuring that the arbitration will be concluded and the award rendered within no more than eight months from selection of the arbitrator or, failing agreement, procedures meeting such time limits will be designed by the AAA and adhered to by the parties. The arbitration shall be held in Chicago, Illinois and the arbitrator shall apply the substantive law of Delaware, except that the interpretation and enforcement of this arbitration provision shall be governed by the Federal Arbitration Act. Notwithstanding anything to the contrary herein, prior to commencement or during the pendency of arbitration, in addition to any and all other remedies of law and consequences under this Agreement, any party may seek injunctive relief against the other from any court of competent jurisdiction for breach of this Agreement or in aid of arbitration. THE PARTIES HERETO WAIVE ANY RIGHTS TO PUNITIVE, EXEMPLARY, MULTIPLIED OR CONSEQUENTIAL DAMAGES, OR ATTORNEYS' FEES OR COSTS FROM THE OTHER PARTY HERETO.

Governing Law. Except as provided in Section 12, the validity and interpretation of this Agreement and the legal relations of the parties to it shall be governed by the laws of the State of Delaware, without regard to its conflict of law provisions.

Miscellaneous. This Agreement (and any schedules or exhibits hereto) contains the entire agreement between the parties and supersedes all preexisting agreements between the parties respecting the subject matter hereof. Modification of this Agreement shall only be effective if made in writing and signed by both parties. No waiver by either party of any breach shall be deemed to be a waiver of a prior or subsequent breach of the same or other provisions of this Agreement. If any term, clause or provision hereof is held invalid or unenforceable, such invalidity shall not affect the validity or operation of any other term, clause or provision, and such invalid term, clause or provision shall be deemed severed from this Agreement. All notices, consents, and communications required or permitted under this Agreement shall be delivered, if to Consultant, to the address set forth on the first page of this Agreement, and, if to the Company, to

Actuate Therapeutics, Inc., 1751 River Run, Suite 400, Fort Worth, TX 76107. Such addresses may be changed from time to time upon written notice to the other party. Unless otherwise specified in this Agreement, any consent or approval of a party required hereunder may be given or withheld in such party's sole discretion. For purposes of this Agreement, "including" shall mean "including without limitation" and "hereunder," "hereof" and words of similar import shall mean this Agreement in its entirety. Section headings are only for convenience and shall not affect the interpretation of this Agreement. Consultant agrees that he has had the opportunity to consult with legal counsel with respect to this Agreement and the interpretation of any terms hereof shall not be construed against the drafter. This Agreement may be executed in counterparts, each of which shall be deemed an original but which shall together constitute one and the same instrument binding on the parties.

[*remainder of this page intentionally left blank*]
[*signatures on next page*]

This Agreement is signed below in duplicate on the dates set forth below by an authorized representative for the Company, and by Consultant.

CONSULTANT	ACTUATE THERAPEUTICS, INC.
/s/ Paul Lytle	By: /s/ Daniel Schmitt Daniel Schmitt Chief Executive Officer
Date: 02 / 17 / 2024	Date: 02 / 17 / 2024

Schedule 1

Services

- Assistance with respect to new securities offerings
- Support with respect to the negotiation and execution of financing documents
- Performance of all accounting functions, including quarterly reviews, annual audits, internal controls over month end close
- Performance of financial reporting, including as required pursuant to SEC rules and regulations
- Support to the Company's Chief Executive and Chief Operating Officer consistent with that provided by a full time Chief Financial Officer

[*Signature Page to First Amendment to Consulting Agreement*]

IN WITNESS WHEREOF, the parties hereto have duly executed this Amendment effective as of the date set forth above.

CONSULTANT	ACTUATE THERAPEUTICS, INC.
/s/ Paul Lytle	By: /s/ Daniel M. Schmitt

Paul Lytle

Name: Daniel M. Schmitt

Title: Chief Executive Officer

Exhibit 10.9

This **EMPLOYMENT AGREEMENT** (this "Agreement"), is entered into to be effective as of June 1, 2024 (the "Effective Date"), by and between Actuate Therapeutics, Inc., a Delaware corporation (the "Company"), and Paul Lytle, an individual currently residing at [●] (the "Employee").

WHEREAS, Company desires to employ the Employee on the terms, conditions and for the consideration hereinafter set forth, and the Employee is willing to serve as an employee of the Company on such terms and conditions and for such consideration.

NOW THEREFORE, for and in consideration of the mutual promises, covenants and obligations contained herein, the Company and the Employee hereby agree as follows:

1. **Employment and Duties**. Beginning on the Effective Date, the Employee shall serve as an employee of the Company with the title of Chief Financial Officer, reporting to the Company's Chief Executive Officer. The Employee shall perform the duties and responsibilities set forth on Exhibit A, attached hereto and made a part hereof, in addition to those that may be reasonably assigned to the Employee from time to time.

2. **Term of Employment**. The term of this Agreement (the "Initial Term") shall commence on the Effective Date and shall continue until terminated in accordance with the provisions of this Agreement. Subject to the provisions of Section 4 of this Agreement, this Agreement may be terminated by the Company or the Employee, at any time, upon thirty (30) days' prior written notice thereof to the other party. Following any termination of this Agreement, Employee shall be entitled to receive any unpaid Base Salary (as defined below) accrued through the date of termination. All other benefits, if any, due to Employee following Employee's termination shall be determined in accordance with the plans, policies and practices of the Company; provided, however, that except as described in Section 4, Employee shall not be entitled to any payments or benefits under any other agreement or any severance plan, policy or program of the Company or any of its affiliates (excluding any medical or dental insurance plans) and Employee shall not accrue any additional compensation (including any Base Salary) or other benefits under this Agreement following any such termination of employment.

3. **Compensation and Other Benefits**. Subject to the provisions of this Agreement, the Company shall pay and provide the following compensation and other benefits to the Employee during the Term as compensation for services rendered hereunder:

(a) Base Salary. The Company shall pay to the Employee a salary at the annual rate of $360,000 (as modified from time to time in accordance with this Section 3(a), the "Base Salary"), payable in substantially equal installments on a no less than monthly basis. The Base Salary shall be reviewed by the Compensation Committee of the Board, based upon the Employee's performance, not less often than annually.

(b) Annual Bonus. In addition to the compensation set forth in Section 3(a), the Executive shall be eligible to receive a bonus equal to up to 40% of the Executive's Base Salary, which shall be payable upon the achievement of milestones that shall be mutually agreed upon between the Company and the Executive on an annual basis.

(c) Employee Benefits. The Employee shall be entitled to participate in all employee benefit arrangements for which he meets the eligibility requirements that the Company may offer to its employees of a like status from time to time, and as may be amended from time to time.

(d) Expenses. The Company shall reimburse the Employee for reasonable travel and other business-related expenses incurred by the Employee in the fulfillment of his duties hereunder upon presentation of written documentation thereof, in accordance with the applicable expense reimbursement policies and procedures of the Company as in effect from time to time.

(e) Option Award. In addition to the foregoing, the Company shall award to the Employee options to purchase that number of shares of the Company's common stock, par value $0.000001 per share ("Common Stock"), equal to 1.0% of the Company's issued and outstanding capital stock on a fully diluted basis as of the closing date of the Company's initial public offering, pursuant to the Company's 2024 Stock Incentive Plan, as amended (or any successor plan thereto as in effect as of the date such award is made) (the

"Plan"), with such award to be made effective on such closing date (the "Option Award"). The options subject to the Option Award will be unvested as of the date of grant and will be subject to vesting as follows in accordance with the terms of a Stock Option Agreement:

(i) 25% of the options shall vest on the one year anniversary of the Effective Date (the "Anniversary Date"); and

(ii) the remaining unvested options shall vest in equal installments on a monthly basis during the thirty-six (36) months following the Anniversary Date.

4. **Termination of Employment**.

(a) Termination of Employment in Absence of a Change in Control. Subject to satisfaction of Section 4(d), if the Employee's employment is terminated by the Company for any reason other than the Employee's death, the Employee's Disability (as defined below) or Cause (as defined below), or is terminated by the Employee for Good Reason, then the Employee shall be entitled to receive a payment equal to fifty percent (50%) his then current Base Salary (the "Standard Severance Benefits"). The Employee shall have no further right to receive any other compensation or benefits after such termination or resignation of employment, except as described in Section 2 or, if applicable, Section 4(b). Except as otherwise required under Section 6(b), the Standard Severance Benefits shall be paid to the Employee in a lump sum no later than the forty-fifth (45th) day immediately following the Employee's Separation from Service (as defined below), provided that the Employee first executes a release of any and all claims against the Company (set forth in Section 4(d), below) and the revocation period specified therein has expired without the Employee revoking such release. Notwithstanding the foregoing and for avoidance of doubt, if the Employee's employment is terminated by the Company for the Employee's death, the Employee's Disability or Cause or by the Employee without Good Reason at any time, then the Employee shall not be entitled to or receive the Standard Severance Benefits.

(i) For purposes of this Agreement, the term "Separation from Service" shall have the meaning ascribed under Section 409A of the Internal Revenue Code of 1986, as amended (the "Code").

(ii) For purposes of this Agreement, the term "Cause" shall mean a termination of the Employee's employment with the Company because of: (1) any act or omission by the Employee that constitutes a material breach by the Employee of any of his obligations under this Agreement; (2) the Employee's conviction of, or plea of *nolo contendere* to, (A) any felony, or (B) another crime involving dishonesty or moral turpitude or which could reflect negatively upon the Company or otherwise impair or impede its operations; (3) the Employee's engaging in any misconduct, negligence, act of dishonesty, violence or threat of violence (including any violation of federal securities laws) that is injurious to the Company or any of its subsidiaries or affiliates; (4) the Employee's material breach of a written policy of the Company or the rules of any governmental or regulatory body applicable to the Company; (5) the Employee's refusal to follow the directions of the Board; or (6) any other willful misconduct by the Employee that is materially injurious to the financial condition or business reputation of the Company or any of its subsidiaries or affiliates. Notwithstanding anything in this Section 4(a)(ii) to the contrary, no event or condition described in Sections 4(a)(ii)(1), (4), (5) or (6) shall constitute Cause unless (x) within 90 days from the Board first acquiring actual knowledge of the existence of the Cause condition, the Board provides the Employee written notice of its intention to terminate his employment for Cause and the grounds for such termination; (y) such grounds for termination (if susceptible to correction) are not corrected by the Employee within 20 days of his receipt of such notice (or, in the event that such grounds cannot be corrected within such 20-day period, the Employee has not taken all reasonable steps within such 20-day period to correct such grounds as promptly as practicable thereafter); and (z) the Board terminates the Employee's employment with the Company promptly following expiration of such 20-day period. For purposes of this Section 4(a)(ii), any attempt by the Employee to correct a stated Cause shall not be deemed an admission by the Employee that the Board's assertion of Cause is valid. Notwithstanding anything in this Agreement to the contrary, if the Employee's employment with the Company is terminated by the Company hereunder without Cause, within 90 days of termination the Company shall have the sole discretion to later use after-acquired evidence to retroactively re-characterize the prior termination as a termination for Cause if such after-acquired evidence supports such an action.

(iii) For purposes of this Agreement, the term "Good Reason" shall mean: (1) a material diminution in the Employee's Base Salary or a failure by the Company to pay material compensation due and payable to the Employee in connection with his employment; (2) a material diminution in the nature or scope of the Employee's authority, duties, responsibilities, or title from those applicable to him as of the Effective Date; (3) the Company requiring the Employee to be based at any office or location more than 50

miles from his home address; or (4) a material breach by the Company of any term or provision of this Agreement. Notwithstanding anything in this Section 4(a)(iii) to the contrary, no event or condition described in this Section 4(a)(iii) shall constitute Good Reason unless, (x) within 90 days from the Employee first acquiring actual knowledge of the existence of the Good Reason condition described in this Section 4(a)(iii), the Employee provides the Board written notice of his intention to terminate his employment for Good Reason and the grounds for such termination; (y) such grounds for termination (if susceptible to correction) are not corrected by the Company within 20 days of the Board's receipt of such notice (or, in the event that such grounds cannot be corrected within such 20-day period, the Company has not taken all reasonable steps within such 20-day period to correct such grounds as promptly as practicable thereafter); and (z) the Employee terminates his employment with the Company promptly following expiration of such 20-day period. For purposes of this Section 4(a)(iii), any attempt by the Company to correct a stated Good Reason shall not be deemed an admission by the Company that the Employee's assertion of Good Reason is valid.

(iv) For purposes of this Agreement, the term "Disability" shall mean the Employee's inability, due to physical or mental incapacity, taking into account any reasonable accommodations, to perform his duties under this Agreement for a period of at least ninety (90) consecutive days or at least one-hundred twenty (120) days during any consecutive six-month period, in any such case as determined by the Board in good faith. In conjunction with determining Disability for purposes of this Agreement, the Employee hereby (A) consents to any such examinations, to be performed by a qualified medical provider selected by the Company and approved by the Employee (which approval shall not be unreasonably withheld), which are relevant to a determination of whether the Employee has incurred a Disability; and (B) agrees to furnish such medical information as may be reasonably requested by the Company.

(b) Termination of Employment after a Change in Control. Subject to satisfaction of Section 4(d), if a Change in Control occurs and the Employee's employment is terminated by the Company for any reason other than the Employee's death, the Employee's Disability or Cause, or is terminated by the Employee for Good Reason, in any such case within the six (6) months immediately preceding or the twelve (12) months immediately following such Change in Control, then the Employee shall be entitled to receive a payment equal to 50% of his then current Base Salary (or, if applicable, the Base Salary in effect on the date of the Employee's prior Separation from Service), reduced by the Standard Severance Benefits, if any, to which Employee was entitled under Section 4(a) (the "Change in Control Severance Benefits"). Except as otherwise required under Section 6(b), Change in Control Severance Benefits shall be paid to the Employee in a lump sum no later than the forty-fifth (45th) day immediately following the later of the Employee's Separation from Service and the Change in Control, provided the Employee first executes a release of any and all claims against the Company (set forth in Section 4(d), below) and the revocation period specified therein has expired without the Employee revoking such release. Notwithstanding the foregoing and for the avoidance of doubt, if the Employee's employment is terminated by the Company for the Employee's death, the Employee's Disability or Cause or by the Employee without Good Reason, in any such case any time prior to or following a Change in Control, then the Employee shall not be entitled to or receive the Change in Control Severance Benefits. Furthermore, for the avoidance of doubt, in no event shall the Employee be entitled to receive both Standard Severance Benefits and Change in Control Severance Benefits in excess of 50% of his then current Base Salary (or, if applicable, the Base Salary in effect on the date of the Employee's prior Separation from Service).

(i) For purposes of this Agreement the term "Change in Control" shall mean any of the following transactions, as determined in the sole and absolute discretion of the Board:

(A) The date that any one Person (other than existing stockholders of the Company), or more than one such Persons acting as a group, acquires ownership of the Company's voting stock that, together with the Company's voting stock held by such Person or group, constitutes more than fifty percent (50%) of the total voting power of the Company's capital stock. However, if any one Person (other than existing stockholders of the Company), or more than one such Persons acting as a group, is considered to own more than fifty percent (50%) of the total voting stock of the Company, the acquisition of additional shares of stock by the same Person or Persons will not be considered to cause a Change in Control.

(B) The consummation of a consolidation or merger of the Company in which the Company is not the surviving entity or pursuant to which the Company's equity interests would be converted into cash, securities or other property; except that, the foregoing provisions of this Section 4(a)(ii)(B) shall not apply if the majority of the board of directors of the surviving corporation are, and for a one-year period after the merger continue to be, persons who were directors of the Company immediately prior to the merger or were elected as directors, or nominated for election as a director, by a vote of at least two-thirds of the directors then still in office who were directors of the Company immediately prior to the merger; and

(C) The date that any one Person or more than one Person acting as a group acquires all or substantially all of the assets of the Company.

Notwithstanding the foregoing, a Change in Control shall not be deemed to have occurred in the event the Company forms a holding company and, as a result thereof, the holders of the Company's voting securities immediately prior to the transaction hold, in approximately the same relative proportions as they held prior to the transaction, substantially all of the voting securities of the holding company that owns all of the Company's voting securities immediately after completion of the transaction. Further, a Change in Control shall not be deemed to have occurred due to any acquisition of voting stock by an employee stock ownership plan sponsored by the Company.

(c) Resignation from Directorships and Officerships. The termination of the Employee's employment for any reason shall constitute the Employee's immediate resignation from (i) any director, officer or employee position the Employee has with the Company, and (ii) all fiduciary positions (including as a trustee) the Employee holds with respect to any employee benefit plans or trusts established by the Company. The Employee agrees that this Agreement shall serve as written notice of resignation in this circumstance.

(d) Waiver and Release. Notwithstanding any other provision of this Agreement to the contrary, unless expressly waived in writing by the Board in its sole discretion, the Company shall not make or provide any Standard Severance Benefits or Change in Control Severance Benefits (collectively referred to as the "Severance Benefits") under this Section 4 (other than accrued Base Salary as of the termination date) unless the Employee timely executes and delivers to the Company a general release which shall be provided by the Company not later than five (5) days from the date on which the Employee's employment is terminated and be substantially in the form attached hereto as Exhibit B whereby the Employee (or his estate or legally appointed personal representative, as applicable) releases the Company (and affiliates of the Company and other designated persons as described in Exhibit B) from all employment based or related claims of the Employee and all obligations of the Company to the Employee other than with respect to (x) the Company's obligations to make and provide the Severance Benefits and other payments provided by this Agreement, and (y) any vested benefits to which the Employee is entitled under the terms of any Company benefit or equity plan, and the Employee does not revoke such release within any applicable revocation period following the Employee's delivery of the executed release to the Company. If the requirements of this Section 4(d) are not satisfied by the Employee (or his estate or legally appointed personal representative, as applicable), then no Severance Benefits other than accrued Base Salary as of the termination date shall be due to the Employee (or his estate or legally appointed personal representative) pursuant to this Agreement.

(e) Notice of Termination. Any termination of employment by the Company or the Employee shall be communicated by a written "Notice of Termination" to the other party hereto given in accordance with Section 8(k) of this Agreement. In the event of a termination by the Company for Cause, the Notice of Termination shall (i) indicate the specific termination provision in this Agreement relied upon, (ii) set forth in reasonable detail the facts and circumstances claimed to provide a basis for termination of the Employee's employment under the provision so indicated, and (iii) specify the date of termination. The failure by the Employee or the Company to set forth in the Notice of Termination any fact or circumstance which contributes to a showing of Cause shall not waive any right of the Employee or the Company, respectively, hereunder or preclude the Employee or the Company, respectively, from asserting such fact or circumstance in enforcing the Employee's or the Company's rights hereunder.

5. **Section 280G Payments**. Notwithstanding anything in this Agreement to the contrary, if the Employee is a "disqualified individual" (as defined in Section 280G(c) of the Code), and the payments and benefits provided for in this Agreement, together with any other payments and benefits which the Employee has the right to receive from the Company or any other Person, would constitute a "parachute payment" (as defined in Section 280G(b)(2) of the Code), then the payments and benefits provided for in this Agreement shall be either (a) reduced (but not below zero) so that the present value of such total amounts and benefits received by the Employee from the Company and/or such person(s) will be $1.00 less than three (3) times the Employee's "base amount" (as defined in

Section 280G(b)(3) of the Code) and so that no portion of such amounts and benefits received by the Employee shall be subject to the excise tax imposed by Section 4999 of the Code, or (b) paid in full, whichever produces the better "net after-tax position" to the Employee (taking into account any applicable excise tax under Section 4999 of the Code and any other applicable taxes). The reduction of payments and benefits hereunder, if applicable, shall be made by reducing, first, payments or benefits to be paid in cash hereunder in the order in which such payment or benefit would be paid or provided (beginning with such payment or benefit that would be made last in time and continuing, to the extent necessary, through to such payment or benefit that would be made first in time) and, then, reducing any benefit to be provided in-kind hereunder in a similar order. The determination as to whether any such reduction in the amount of the payments and benefits provided hereunder is necessary shall be made by the Board in good faith in consultation with the Employee. If a reduced payment or benefit is made or provided and through error or otherwise that payment or benefit, when aggregated with other payments and benefits from the Company (or its affiliates) used in determining if a "parachute payment" exists, exceeds $1.00 less than three (3) times the Employee's base amount, then the Employee shall immediately repay such excess to the Company upon notification that an overpayment has been made. Nothing in this paragraph shall require the Company to be responsible for, or have any liability or obligation with respect to, the Employee's excise tax liabilities under Section 4999 of the Code.

6. **Section 409A of the Code**. This Agreement is intended to either avoid the application of, or comply with, Section 409A of the Code. To that end this Agreement shall at all times be interpreted in a manner that is consistent with Section 409A of the Code. Notwithstanding any other provision in this Agreement to the contrary, the Company shall have the right, in its sole discretion, to adopt such amendments to this Agreement or take such other actions (including amendments and actions with retroactive effect) as it determines to be necessary or appropriate for this Agreement to comply with Section 409A of the Code. Further:

(a) Any reimbursement of any costs and expenses by the Company to the Employee under this Agreement shall be made by the Company in no event later than the close of the Employee's taxable year following the taxable year in which the cost or expense is incurred by the Employee. The expenses incurred by the Employee in any calendar year that are eligible for reimbursement under this Agreement shall not affect the expenses incurred by the Employee in any other calendar year that are eligible for reimbursement hereunder and the Employee's right to receive any reimbursement hereunder shall not be subject to liquidation or exchange for any other benefit.

(b) Any payment following a Separation from Service that would be subject to Section 409A(a)(2)(A)(i) of the Code as a distribution following a Separation from Service of a "specified employee" (as defined under Section 409A(a)(2)(B)(i) of the Code) shall be made on the first to occur of (i) ten (10) days after the expiration of the six month period following such Separation from Service, (ii) death, or (iii) such earlier date that complies with Section 409A.

(c) Each payment that the Employee may receive under this Agreement shall be treated as a "separate payment" for purposes of Section 409A of the Code.

7. **Confidential Information, Trade Secrets and Restrictive Covenants**. The Company agrees to: (i) disclose, and to continue to disclose, its confidential information and trade secrets to the Employee; (ii) provide initial and continued training, education and development to the Employee; and (iii) provide the Employee with confidential information and trade secrets about, and the opportunity to develop relationships with, the Company's employees, customers and suppliers, and employees and agents of the Company's customers and suppliers. In consideration thereof, the Employee hereby agrees to comply with the restrictive covenants prescribed in Exhibit C. A default under or breach of Exhibit C shall constitute a material breach of this Agreement.

8. **Miscellaneous**.

(a) Defense of Claims. The Employee agrees that, during the Term, and for a period of twelve (12) months after termination of the Employee's employment, upon request from the Company, the Employee will cooperate with the Company in the defense of any claims or actions that may be made by or against the Company that affect the Employee's prior areas of responsibility, except if the Employee's reasonable interests are adverse to the Company in such claim or action. The Company agrees to promptly

reimburse the Employee for all of the Employee's reasonable legal fees, travel and other direct expenses reasonably incurred to comply with the Employee's obligations under this Section 8(a).

(b) Non-Disparagement. The Employee and the Company agree that at no time during the Employee's employment by the Company or thereafter shall either the Employee or the Company make, or cause or assist any other Person to make, any statement or other communication to any third party which impugns or attacks, or is otherwise critical of, the reputation, business or character of the other party, or any of his or its affiliates or, if such other party is the Company, any of its directors, officers or employees.

(c) Source of Payments. All payments provided under this Agreement, other than payments made pursuant to a plan or agreement which provides otherwise, shall be paid in cash from the general funds of the Company, and no special or separate fund shall be established, and no other segregation of assets shall be made, to assure payment. The Employee shall have no right, title or interest whatsoever in or to any investments which the Company may make to aid the Company in meeting its obligations hereunder. To the extent that any Person acquires a right to receive payments from the Company hereunder, such right shall be no greater than the right of an unsecured creditor of the Company.

(d) Arbitration. Any dispute or controversy arising under or in connection with this Agreement or otherwise in connection with the Employee's employment by the Company that cannot be mutually resolved by the parties to this Agreement and their respective advisors and representatives shall be settled exclusively by arbitration in Tarrant County, Texas in accordance with the rules of the American Arbitration Association before one arbitrator of exemplary qualifications and stature, who shall be selected jointly by an individual to be designated by the Company and an individual to be selected by the Employee, or if such two individuals cannot agree on the selection of the arbitrator, who shall be selected by the American Arbitration Association.

(e) Amendment. Waiver. This Agreement (together with the Exhibits hereto) may not be modified, amended or waived in any manner, except by an instrument in writing signed by both parties hereto. The waiver by either party of compliance with any provision of this Agreement by the other party shall not operate or be construed as a waiver of any other provision of this Agreement, or of any subsequent breach by such party of a provision of this Agreement.

(f) Entire Agreement. This Agreement and the agreements specifically incorporated herein are the entire agreement and understanding of the parties hereto with respect to the matters covered herein and supersedes all prior or contemporaneous negotiations, commitments, agreements and writings with respect to the subject matter hereof, all such other negotiations, commitments, agreements and writings shall have no further force or effect, and the parties to any such other negotiation, commitment, agreement or writing shall have no further rights or obligations thereunder.

(g) Governing Law/Venue. This Agreement shall be governed by and construed in accordance with the laws of the State of Delaware, without regard to conflict of laws principles thereof. Each party to this Agreement hereby irrevocably submits to the exclusive jurisdiction of the state and federal courts in Tarrant County, Texas, for the purposes of any proceeding arising out of or based upon this Agreement.

(h) No Waiver. The failure of a party to insist upon strict adherence to any term of this Agreement on any occasion shall not be considered a waiver of such party's rights or deprive such party of the right thereafter to insist upon strict adherence to that term or any other term of this Agreement.

(i) Severability. In the event that any one or more of the provisions of this Agreement shall be or become invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions of this Agreement shall not be affected thereby.

(j) Successors: Binding Agreement. This Agreement shall inure to the benefit of and be binding upon personal or legal representatives, executors, administrators, successors, heirs, distributees, devisees and legatees.

(k) Notices. For the purpose of this Agreement, notices and all other communications provided for in the Agreement shall be in writing and shall be deemed to have been duly given (i) when delivered by hand to the other party (which, in the case of the Company, shall be to the individual identified below), or (ii) if sent by nationally-recognized overnight courier, one

(1) business day after deposit with such nationally-recognized overnight courier, or (iii) three (3) days after it has been mailed by United States registered mail, return receipt requested, postage prepaid, addressed to the respective addresses set forth below in this Agreement, or to such other address as either party may have furnished to the other in writing in accordance herewith, except that notice of change of address shall be effective only upon receipt, or (iv) when sent, if sent by electronic mail or facsimile during normal business hours of the recipient, and if not sent during normal business hours, then on the recipient's next business day.

If to the Company: Actuate Therapeutics, Inc.
1751 River Run, Suite 400
Fort Worth, Texas 76107
Attn: Board of Directors
Email: dschmittt@actuatetherapeutics.com

If to Employee: Paul Lytle
[●]

(m) Prior Employment. The Company has employed the Employee for the Employee's general skills, management abilities and experience in the Company's business or related industries. The Employee acknowledges that he has been specifically instructed not to bring, disclose or use in any fashion any confidential information, trade secrets, proprietary information, data or technology, nor any confidential pricing information, belonging to any prior employer. In no event is the Employee authorized to use or disclose any such information to the Company or any of its employees.

(n) Employee's Representations. The Employee hereby represents to the Company that (i) all confidential information, trade secrets or proprietary information, data or technology, belonging to any prior employer, including, without limitation, those that might have been contained on the Employee's personal computer, cell phone or other electronic communications or storage device have been returned and/or deleted in accordance with any policy of or agreement with the Employee's prior employer, and (ii) the execution and delivery of this Agreement by the Employee and the Company and the performance by the Employee of his duties hereunder shall not constitute a breach of, or otherwise contravene, the terms of any employment agreement or other agreement or policy to which the Employee is a party or otherwise bound.

(o) Assignment; Assumption by Successor. This Agreement is binding upon and shall inure to the benefit of the parties hereto, together with their respective executors, administrators, successors, personal representatives, heirs, and assigns. Notwithstanding the foregoing, the rights and duties of and benefits to the Employee hereunder are personal to the Employee, and no such right or benefit may be assigned by him. The Company shall have the right to assign or transfer this Agreement to its successors or assigns. The terms "successors" and "assigns" shall include any Person who or which buys all or substantially all of Company's assets or all of its stock, or with which Company merges or consolidates. Any purported assignment of this Agreement, other than as provided above, shall be void. The failure of any successor entity to the Company to expressly assume in writing the terms of this Agreement shall be deemed a material breach of this Agreement.

(p) Withholding of Taxes. The Company may withhold from any amounts or benefits payable under this Agreement all taxes it may be required to withhold pursuant to any applicable law or regulation.

(q) Counterparts. This Agreement may be executed in two (2) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. This Agreement shall become effective when each party hereto shall have received counterparts thereof signed and delivered by each other party hereto. Counterparts may be delivered via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, e.g., www.docusign.com) or other transmission method and any counterpart so delivered shall be deemed to have been duly and validly delivered and be valid and effective for all purposes.

(r) Survival. This Agreement shall terminate upon the termination of employment of the Employee; however, the following shall survive the termination of the Employee's employment and/or the expiration or termination of this Agreement, regardless of the reasons for such expiration or termination: Section 4 ("Termination of Employment") and the corresponding Exhibit B ("Waiver and Release"), Section 7 ("Confidential Information, Trade Secrets and Restrictive Covenants") and the corresponding Exhibit C ("Confidentiality, Non- Competition and Non-Solicitation Agreement"), Section 8(a) ("Defense of Claims"), Section 8(b) ("Non-Disparagement"), Section 8(d) ("Arbitration"), Section 8(f) ("Entire Agreement"), Section 8(g) ("Governing Law/ Venue"), Section 8(k) ("Notices"), Section 8(o) ("Assignment; Assumption by Successor"), and Section 8(n) ("Employee's Representations").

[*remainder of page intentionally left blank*]
[*signatures on next page*]

[*Signature Page to Employment Agreement*]

IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement effective as of the Effective Date.

EMPLOYEE	ACTUATE THERAPEUTICS, INC.
/s/Paul Lytle	By: /s/Daniel M. Schmitt
Paul Lytle	Name: Daniel M. Schmitt
	Title: President & CEO

Exhibit A

DUTIES AND RESPONSIBILITIES

OVERVIEW:

The Chief Financial Officer is a key member of the executive team, responsible for overseeing all financial aspects of the Company and providing leadership, strategic guidance, and direction to ensure the financial health and stability of the Company.

Specific responsibilities include, but are not limited to, the following:

- Partner with the CEO to develop and implement financial strategies to support the Company's short-term and long-term goals, including developing and monitoring KPI's in support thereof;
- Identify, in collaboration with the executive and senior management team, key actions necessary to achieve the Company's financial goals;
- Provide insights and recommendations to the CEO regarding financial planning, budgeting, cash flow, and policy matters;
- Work closely with the CEO and management team creating the corporate strategy and assessing future growth opportunities and market;
- Responsible for corporate governance/compliance with SEC and other government laws as they relate to this function;
- Lead the annual budgeting process and ensure alignment with strategic objectives;

- Develop and implement policies and procedures to safeguard the Company's assets;
- Ensure effective internal controls are in place and ensure compliance with GAAP and applicable federal, state, and local regulatory laws and rules for financial and tax reporting.
- Oversee the Company’s financial decision-making systems and processes, including accounting, reporting, and budgeting. This includes responsibility for the preparation, presentation, and appropriate certification of all financial plans, reports, and statements prepared and issued by the Company;
- Provide leadership, mentorship, and guidance to the finance and accounting team;
- Oversee and/or preparation of month-end, quarter-end and year-end financial statements;
- Prepare, in collaboration with external legal counsel, all filings with the SEC;
- Define, prepare, distribute, and present financial information necessary and appropriate for management to make effective and timely decisions;
- Establish and maintain relationships with investment bankers and investors;
- Arrange for debt financing and equity financing as required by the Company;
- Monitor open legal issues involving the Company, if applicable;
- Partner with CEO to determine and maintain appropriate insurance coverage;
- Ensure that record keeping meets the requirements of the auditors;
- Report appropriate risk issues to the audit committee of the board;

- Enhance and implement financial and accounting systems, processes, tools and internal controls;
- Oversee independent financial and tax audits; and
- Other duties as assigned.

Exhibit B

WAIVER AND RELEASE

Pursuant to the terms of the Employment Agreement (the “Agreement”) by and between Actuate Therapeutics, Inc., a Delaware corporation, and myself, and in exchange for any severance benefit payable under the Agreement (the “Severance Benefits”), I hereby waive all claims against and release (i) Actuate Therapeutics, Inc., its officers, employees, agents, insurers, predecessors, successors and assigns (collectively referred to as the “Company”), (ii) all of the affiliates of the Company and their respective directors, officers, employees, agents, insurers, predecessors, successors and assigns, and (iii) the Company’s and its affiliates’ respective employee benefit plans and the fiduciaries and agents of said plans (collectively referred to as the “Benefit Plans”) from any and all claims, demands,

actions, liabilities and damages arising out of or relating in any way to my employment with or separation from employment with the Company and its affiliates other than amounts due pursuant to the Agreement and the rights and benefits I am entitled to under the Benefit Plans (the Company, its affiliates, their respective directors, officers, employees, agents, insurers, predecessors, successors and assigns, and the Benefit Plans are sometimes hereinafter collectively referred to as the "Released Parties").

I understand that signing this Waiver and Release is an important legal act. I acknowledge that I have been advised in writing to consult an attorney before signing this Waiver and Release. I understand that, in order to be eligible for the Severance Benefits, I must sign (and return to the Company) this Waiver and Release before I will receive the Severance Benefits. I acknowledge that I have been given at least 21 days to consider whether to accept the Severance Benefits and whether to execute this Waiver and Release.

In exchange for the payment to me of the Severance Benefits, (1) I agree not to sue the Released Parties in any local, state and/or federal court regarding or relating in any way to my employment with or separation from employment with the Company and its affiliates, and (2) I knowingly and voluntarily waive all claims and release the Released Parties from any and all claims, demands, actions, liabilities, and damages, whether known or unknown, arising out of or relating in any way to my employment with or separation from employment with the Company and its affiliates, except to the extent that my rights are vested under the terms of the Agreement or any employee benefit plans sponsored by the Company or any of its affiliates and except with respect to such rights or claims as may arise after the date this Waiver and Release is executed. This Waiver and Release includes, but is not limited to, claims and causes of action under: Title VII of the Civil Rights Act of 1964, as amended; the Age Discrimination in Employment Act of 1967, as amended, including the Older Workers Benefit Protection Act of 1990; the Civil Rights Act of 1866, as amended; the Civil Rights Act of 1991; the Americans with Disabilities Act of 1990; the Workers Adjustment and Retraining Notification Act of 1988; the Pregnancy Discrimination Act of 1978; the Employee Retirement Income Security Act of 1974, as amended; the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended; the Family and Medical Leave Act of 1993; the Occupational Safety and Health Act; the Texas Labor Code et. seq.; claims in connection with retaliation or "whistle blower" statutes; and/or contract, tort, defamation, slander, wrongful termination or any other state or federal regulatory, statutory or common law. Further, I expressly represent that no promise or agreement which is not expressed in this Waiver and Release has been made to me in executing this Waiver and Release, and that I am relying on my own judgment in executing this Waiver and Release, and that I am not relying on any statement or representation of the Company or any of its affiliates or any of their respective agents. I agree that this Waiver and Release is valid, fair, adequate and reasonable, is with my full knowledge and consent, was not procured through fraud, duress or mistake and has not had the effect of misleading, misinforming or failing to inform me. This release does not include, and is not intended to include, any claims that cannot be released as a matter of law.

Notwithstanding the foregoing and anything in this Waiver and Release to the contrary, I do not release and expressly retain (a) all rights to payment or providing for post-employment benefits under the Agreement or qualified retirement plans or health plans sponsored by the Company, (b) all rights to indemnity, contribution, and a defense of directors and officers and other liability coverage that I may have under any statute, Company policy or by this or any other agreement, and (c) the right to any unpaid reasonable business expenses and any accrued benefits payable under any Company welfare plan or tax-qualified plan. Additionally, and notwithstanding the release of liability contained herein, nothing in this Waiver and Release prevents me from filing any non-legal waivable claim (including a challenge to the validity of this Waiver and Release) with the Equal Employment Opportunity Commission ("EEOC") or comparable state or local agency or participating in any investigation or proceeding conducted by the EEOC or comparable state or local agency; however, I understand and agree that I am waiving any and all rights to recover any monetary or personal relief or recovery as a result of such EEOC or comparable state or local agency proceeding or subsequent legal actions

I acknowledge that payment of the Severance Benefits is not an admission by any one or more of the Released Parties that they engaged in any wrongful or unlawful act or that they violated any federal or state law or regulation. I acknowledge that neither the Company nor any of its affiliates have promised me continued employment or represented to me that I will be rehired in the future. I acknowledge that the Company and I contemplate an unequivocal, complete and final dissolution of my employment relationship. I acknowledge that this Waiver and Release does not create any right on my part to be rehired by the Company or any of its affiliates, and I hereby waive any right to future employment by the Company or any of its affiliates.

I understand that for a period of 7 calendar days following the date that I sign this Waiver and Release, I may revoke my acceptance of this Waiver and Release, provided that my written statement of revocation is received on or before that seventh day by [Name and/or Title], [address], facsimile number: [_____], in which case the Waiver and Release will not become effective. If I timely revoke my acceptance of this Waiver and Release, the Company shall have no obligation under this Waiver and Release nor the

Agreement to provide the Severance Benefits to me. I understand that failure to revoke my acceptance of the offer within 7 calendar days from the date I sign this Waiver and Release will result in this Waiver and Release being permanent and irrevocable.

Should any of the provisions set forth in this Waiver and Release be determined to be invalid by a court, agency or other tribunal of competent jurisdiction, it is agreed that such determination shall not affect the enforceability of other provisions of this Waiver and Release. I acknowledge that this Waiver and Release sets forth the entire understanding and agreement between me and the Company and its affiliates concerning the subject matter of this Waiver and Release and supersedes any prior or contemporaneous oral and/or written agreements or representations, if any, between me and the Company and/or any of its affiliates.

I acknowledge that I have read this Waiver and Release, have had an opportunity to ask questions and have it explained to me and that I understand that this Waiver and Release will have the effect of knowingly and voluntarily waiving any action I might pursue, including breach of contract, personal injury, retaliation, discrimination on the basis of race, age, sex, national origin, or disability and any other claims arising prior to the date of this Waiver and Release. By execution of this document, I do not waive or release or otherwise relinquish any legal rights I may have which are attributable to or arise out of acts, omissions, or events of the Company or any of its affiliates which occur after the date of the execution of this Waiver and Release.

EMPLOYEE

Paul Lytle

ACTUATE THERAPEUTICS, INC.

By: _____

Name: _____

Title: _____

Exhibit C

CONFIDENTIALITY, NON COMPETITION AND NON-SOLICITATION AGREEMENT

As a condition of employment with Actuate Therapeutics, Inc., a Delaware corporation, its subsidiaries, affiliates, successors, or assigns (together, the "Company"), the receipt by Paul Lytle (the "Employee") of compensation now and hereafter paid to Employee by the Company, and in exchange for the Company's agreement to provide Employee with access to the Company's Confidential Information and Trade Secrets (as defined below) and the grant of stock options to Employee, Employee and the Company enter into this Confidentiality, Non-Competition and Non-Solicitation Agreement (the "Agreement"), effective as of May [●], 2024.

1. **Confidential Information and Trade Secrets of the Company**. During the term of and in connection with Employee's employment with the Company, the Company will provide Employee with access to and the opportunity to become familiar with information concerning the business and affairs of the Company and/or its affiliates which is not generally known to persons who are not employees of the Company, and which the Company generally does not share other than with its employees, or with its customers and suppliers on an individual transactional basis (herein collectively referred to as the "Confidential Information and Trade Secrets"). Confidential Information and Trade Secrets may be written, oral or recorded by electronic, magnetic or other methods, whether or not expressly identified as "Confidential" by the Company.

(a) Confidential Information and Trade Secrets includes, but is not limited to, the following information and materials:

(i) Financial information of any kind pertaining to the Company or any of its affiliates, including, without limitation, information about the profit margins, profitability, pricing, income and expenses of the Company, any of its affiliates, or any of its or their respective products or lines of business;

(ii) All information about and all communications received from, sent to or exchanged between the Company or any of its affiliates, on the one hand, and any person or entity who or which has purchased, licensed, exchanged or otherwise entered into a transaction with the Company or any of its affiliates, or to which the Company or any of its affiliates has made a proposal with respect to the purchase, sale, license, exchange or other transaction involving any component, products or services which form any part of the Company Business (defined below) (such person or entity being hereinafter referred to as customer or customers), on the other hand;

(iii) Any and all information and records relating to the Company's or any of its affiliates' contracts or transactions with, or charges, prices or sales to, its customers, including invoices, proposals, confirmations, bills of lading, statements, accounting records, bids, payment records or any other information or documents regarding amounts charged to or paid by customers, for any software, products or services which form any part of the Company Business; and

(iv) trade secrets, technology, discoveries and improvements, know-how, proprietary rights, formulae, confidential and proprietary information, technical information, techniques, inventions, designs, drawings, procedures, processes, models, formulations, manuals and systems, whether or not patentable or copyrightable, including all biological, chemical, biochemical, toxicological, pharmacological and metabolic material and information and data relating thereto and formulation, clinical, analytical and stability information and data which have actual or potential commercial value and are not available in the public domain.

The term "Confidential Information and Trade Secrets" shall also include all notes, analyses, compilations, studies, summaries, and other material prepared by Employee containing or based, in whole or in part, on any information included in the foregoing.

(b) "Company Business" shall mean development and commercialization of drugs of specific mechanisms of action on defined biological targets that are licensed or may be licensed during the Employee's employment with the Company.

2. **Employee Confidentiality Obligations**. Employee agrees to keep all Confidential Information and Trade Secrets confidential and to not disclose any such Confidential Information and Trade Secrets, directly or indirectly, to any person or entity without the prior express written consent of an authorized representative of the Company (other than Employee), except as required in the course and scope of his employment with the Company. Employee also agrees not to use such Confidential Information and Trade Secrets in any way, either during the term of his employment with the Company or at any time thereafter, except as required in the course and scope of his employment with the Company. All such Confidential Information and Trade Secrets, including, but not limited to, files, records, customer lists, manuals, documents, drawings, specifications, personal notes, personal property, and similar items related to the business of the Company, whether or not prepared by Employee, shall remain the exclusive property of the Company.

3. **Return of Documents, Equipment. Etc**. Immediately upon the termination of Employee's employment with the Company or whenever requested by the Company, Employee shall return to an authorized representative of the Company (other than Employee) all Confidential Information and Trade Secrets (whether prepared by Employee or otherwise and whether in Employee's possession or under Employee's reasonable control), and will not retain any copies, extracts or other reproductions in whole or in part of such Confidential Information and Trade Secrets. Upon the Company's written request, all documents, memoranda, notes and other writings whatsoever (including all copies, extracts or other reproductions), prepared by Employee based on the information contained in the Confidential Information and Trade Secrets shall be destroyed, and such destruction shall be certified in writing to the Company by Employee. The return of such material shall not relieve the obligation of confidentiality or any other obligations created hereunder.

4. **Confidential Data of Customers of the Company**. In the course of performing duties under this Agreement, Employee will have access to and be handling substantial information concerning customers and clients of the Company. All information is considered confidential by the Company and shall not be disclosed, directly or indirectly, to any person or entity prior to termination of Employee's employment with the Company or thereafter without the prior written consent of the Company.

5. **Inventions, Patents, and Copyright Works**. "Intellectual Property" includes, but is not limited to: patents, patent applications, inventions (whether patentable or not), discoveries, improvements, designs, ideas (whether or not shown or described in writing or reduced to practice), scientific and technical information, data and know-how of any nature, including, and in addition to, any Confidential Information and Trade Secrets, and certain trademarks, service marks, brand names, trade names, trade dress, names, logos, slogans, domain names, and copyrights, copyright registrations, copyright applications, original works of authorship fixed in any tangible medium of expression, including, but not limited to, literary works (including all written material), books, brochures, catalogs, manuals, training materials, directories, compilations of information, compilations of inspection or testing procedures, computer programs, software (object and source code), protocols, system architectures, advertisements, artistic and graphic works (including designs, graphs, drawings, blueprints, and other works), recordings, models, photographs, slides, motion pictures, audio visual works, and the like, regardless of the form or manner in which documented or recorded, and all other intellectual property or proprietary rights, in each case whether or not subject to statutory registration or protection. As between the Company and Employee, Employee recognizes, acknowledges, and agrees that the Company is the owner of (x) all Intellectual Property related to the Company Business, (y) all Intellectual Property made, conceived, expressed, developed, or actually or constructively reduced to practice by Employee, solely or jointly with others, during the term of Employee's employment with the Company, and (z) all Intellectual Property that uses, refers to, improves on, is derived from, is suggested by, results from or otherwise relates to the Company Business or any of the Company's Intellectual Property. Further, Employee agrees as follows:

(a) Keep Records. Employee agrees to keep and maintain adequate and current written records of all Intellectual Property made by Employee (solely or jointly with others) during the term of Employee's employment with the Company. The records will be in the form of notes, sketches, drawings and any other format that may be specified by the Company. The records will be available to and remain the sole property of the Company at all times.

(b) Notification of the Company. Employee agrees to promptly disclose to the Company all Intellectual Property and other proprietary information which Employee may author, create, make, conceive, or develop, either solely or jointly with others, whether inside or outside normal working hours or on or off the Company premises, during the term of Employee's employment with the Company.

(c) Transfer of Rights. Employee agrees that all Intellectual Property that Employee develops (in whole or in part, either alone or jointly with others) shall be the sole property of the Company and its assigns, and the Company and its assigns shall be the sole owner of all patents, copyrights, mask-work rights, and registrations and other rights in connection therewith. Employee acknowledges that all original works of authorship that are made by Employee (solely or jointly with others) within the scope of and during the period of Employee's employment with the Company shall be considered "works made for hire" under applicable copyright law, to the extent possible. Employee agrees to and does hereby assign, grant, and convey to the Company, its successors and assigns, Employee's entire right, title, and interest in and to all Intellectual Property and other proprietary rights and information which Employee may author, create, make, receive, or develop, either solely or jointly with others, whether inside or outside normal working hours or on or off the Company premises, during the term of Employee's employment with the Company. To perfect the Company's ownership of such Intellectual Property, Employee hereby assigns to the Company all rights that Employee may have or acquire in such Intellectual Property, including the right to modify such Intellectual Property, and otherwise waives and/or releases all rights of restraint and moral rights in the Intellectual Property.

(d) Assistance in Preparation of Applications. As to all such Intellectual Property, Employee further agrees to assist the Company in every proper way (but at the Company's expense) to obtain and from time to time enforce patents, copyrights, trade secrets, or other intellectual property or propriety rights, mask-work rights or other rights in such Intellectual Property in any and all countries, and Employee will execute all documents for use in applying for and obtaining such rights and enforcing them as the Company may desire, together with any assignments of them to the Company or persons designated by the Company. If the Company is unable for any reason whatsoever to secure Employee's signature to any lawful and necessary document required to apply for or execute any application with respect to such Intellectual Property (including renewals, extensions, continuations, divisions or continuations in whole or in part thereof), Employee hereby irrevocably designates and appoints the Company and its duly authorized officers and agents, as Employee's agents and attorneys-in-fact to act for and on Employee's behalf and to execute and file any such application and to do all other lawfully permitted acts to further the prosecution and issuance of patents, copyrights, trade secrets or other intellectual property or propriety rights, mask work rights or other rights thereon, with the same legal force and effect as if executed by Employee.

6. **Non-Competition and Non-Solicitation of Customers and Clients**. Employee hereby acknowledges and recognizes that, throughout Employee's employment with the Company, the Company agrees to give Employee access to certain of its Confidential Information and Trade Secrets concerning the Company, its affiliates, and the Company Business. The Company agrees to provide this information to Employee in order to allow Employee to perform Employee's duties as an employee for and on behalf of the Company, and to develop relationships with customers, customer representatives, suppliers and supplier representatives of the Company.

(a) The Company agrees to provide, and to continue to provide, Employee with both specialized knowledge and education in the Company's Business, in order to allow Employee to perform Employee's duties as an employee for and on behalf of the Company in an efficient, proper and effective manner. Such knowledge and education may consist of oral instructions and information, the furnishing of written materials, consultation and counseling, sales, staff and employee meetings, training sessions and seminars, in addition to formal or informal information and orientation methodologies and procedures. Employee will have access to certain of the Company's transactional histories, and the details of prior purchases, sales, trades or exchanges, in order that Employee can learn the Company's Business and/or improve Employee's skills, experience and knowledge.

(b) In consideration of the Company's employment of Employee as a highly valued employee, the Company's agreement to provide Employee with access to certain Confidential Information and Trade Secrets, and the Company's agreement to provide specialized knowledge and education, Employee agrees to refrain from competing with the Company or otherwise engaging in Restricted Activities, as defined below, during the Restricted Period.

(c) Employee agrees that during the term of his employment with the Company and for a period of two (2) years after the Employee's employment with the Company terminates (the "Restricted Period"), regardless of whether the termination occurs with or without cause and regardless of which party terminates such employment, Employee will not, directly or indirectly, on Employee's own behalf or as a shareholder, partner, member, investor, lender, principal, director, officer, employee, consultant or agent of any other person or entity, engage in any of the Restricted Activities.

(d) "Restricted Activities" means and includes the following:

(i) Conducting, engaging or participating, directly or indirectly, as an employee, agent, independent contractor, consultant, partner, shareholder, investor, lender, underwriter, supplier, customer or in any other similar capacity, in any business that is developing a therapeutic agent directed against Glycogen synthase kinase-3beta; and

(ii) Recruiting, hiring, and/or attempting to recruit or hire, directly or by assisting others, any other employee, temporary or permanent, contract, part time or full time of the Company. For purposes of this covenant "any other employee" shall refer to employees who are under contract to provide services to the Company and who are still actively employed by the Company at the time of the attempted recruiting or hiring, or were so employed at any time within six (6) months prior to the time of such attempted recruiting or hiring.

(e) The Company and Employee acknowledge that the provisions contained in this Section 6 shall not prevent Employee from owning, solely as an investment, directly or indirectly, securities of any publicly traded corporation engaged in the Company Business if Employee does not, directly or indirectly, beneficially own in the aggregate more than 5% of all classes of outstanding equity securities of such entity.

(f) Employee and the Company agree that the limitations as to time and scope of activity to be restrained are reasonable and do not impose a greater restraint on Employee than is necessary to protect the property rights and other business interests of the Company.

7. **Extraordinary Remedies and Attorneys' Fees**. The Company and Employee agree that any breach by Employee of any of the provisions or covenants contained in the Agreement would cause irreparable harm and damage to the Company, in an amount that

would be difficult to quantify, measure, or ascertain. Therefore, in the event of a breach of this Agreement by Employee, the Company shall be entitled to seek relief through restraining order, injunction, and all other available remedies, including claims for monetary damages incurred because of such breach. These remedies may be pursued concurrently and in any order, and the pursuit of any of these remedies shall not be deemed to limit the other remedies available to the Company in law or in equity. If any action at law or in equity, including an action for declaratory or injunctive relief, is brought to enforce or interpret the provisions of this Agreement, the prevailing party shall be entitled to recover costs of court and reasonable attorneys' fees from the other party or parties to such action, which fees may be set by the court in the trial of such action or may be enforced in a separate action brought for that purpose, and which fees shall be in addition to any other relief that may be awarded.

8. **Survival of Provisions and Covenants**. Each and every provision or covenant contained in this Agreement shall survive the termination of Employee's employment with the Company as expressly provided herein, and shall constitute an independent agreement between Employee and the Company. Further, the existence of any claim by Employee against the Company shall not constitute a defense to the enforcement of its rights by the Company.

9. **Severability**. It is the intent and agreement of the parties to this Agreement that, in case any one or more of the provisions of this Agreement shall, for any reason, be held to be invalid, illegal or unenforceable, such invalidity, illegality or unenforceability shall not affect any other provision of this Agreement and this Agreement shall be construed as if such invalid, illegal or unenforceable provision had never been contained herein except that this shall not prohibit any modification allowed or agreed upon pursuant to the terms of this Agreement or any right of reformation.

10. **Assignment**. This Agreement is binding upon and shall inure to the benefit of the parties hereto, together with their respective executors, administrators, successors, personal representatives, heirs, and assigns. Notwithstanding the foregoing, the rights, duties and benefits to Employee hereunder are personal to Employee, and no such right or benefit may be assigned by it. The Company shall have the right to assign or transfer this Agreement to its successors or assigns. The terms "successors" and "assigns" shall include any person, corporation, partnership or other entity that buys all or substantially all of the Company's assets or all of its stock, or with which the Company merges or consolidates. Any purported assignment of this Agreement, other than as provided above, shall be void.

11. **Previously Received Information**. Employee hereby represents to the Company that Employee is under no obligation or agreement that would prevent Employee from becoming an employee of the Company or carrying out the duties of Employee's proposed position of employment with the Company.

12. **Governing Law and Venue**. This Agreement shall be governed by, and construed in accordance with, the procedural and substantive laws of the State of Delaware. The Company and Employee irrevocably and unconditionally consent to submit to the exclusive jurisdiction of the state or federal courts located in Tarrant County, Texas as the sole venue and location for any actions, suits, or proceedings arising out of or relating to any aspect of this Agreement and all issues arising out of or relating to the employment relationship between the Company and Employee.

13. **Employee Acknowledgement**. Employee recognizes and acknowledges that Employee has freely entered into this Agreement for the full consideration expressed herein, the sufficiency and receipt of which Employee hereby acknowledges, and that Employee has had the opportunity to consult with counsel of Employee's choice with full knowledge and careful consideration of the consequences and meaning of execution of this Agreement.

14. **Entire Agreement**. Upon Employee's acceptance, this Agreement will contain the entire agreement and understanding between Employee and the Company with respect to the matters addressed herein and shall supersede any prior or contemporaneous agreements, understandings, communications, offers, representations, warranties, or commitments by or on behalf of the Company and its affiliates (oral or written). The terms of Employee's employment may in the future be amended, but only in writing signed by both Employee and a duly authorized officer of the Company.

IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement effective as of the Effective Date.

EMPLOYEE	ACTUATE THERAPEUTICS, INC.
/s/Paul Lytle	By: /s/Daniel M. Schmitt

Exhibit 10.10

FORM OF INDEMNIFICATION AGREEMENT

This INDEMNIFICATION AGREEMENT is made this [●]th day of [●], 2024 (the "Agreement") by and between Actuate Therapeutics, Inc., a Delaware corporation (the "Company"), and [●] ("Indemnitee").

WHEREAS, the Company believes that in order to attract and retain highly competent persons to serve as directors or in other capacities, including as officers, it must provide such persons with adequate protection through indemnification against the risks of claims and actions against them arising out of their services to and activities on behalf of the Company;

WHEREAS, the Company desires and has requested Indemnitee to serve as a director or officer and may also desire and request the Indemnitee to serve in the future in other Positions (as hereinafter defined);

WHEREAS, in order to induce the Indemnitee to serve as a director or officer of the Company or in any other Position, the Company is willing to grant the Indemnitee the indemnification provided for herein. Indemnitee is willing to so serve on the basis that such indemnification be provided. The indemnification provided herein is a supplement to and in furtherance of any rights granted under the Company's and any applicable Affiliated Entity's certificate of incorporation and bylaws and shall not be deemed to be a substitute therefor nor to diminish or abrogate any rights of Indemnitee thereunder.

NOW, THEREFORE, in consideration of the premises and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Company and Indemnitee do hereby covenant and agree as follows:

Section 1. Definitions. For purposes of this Agreement:

(a) "Change of Control" means, and shall be deemed to have occurred if, on or after the date of this Agreement, (i) any "person" (as such term is used in Sections 13(d) and 14(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act")), other than (A) a trustee or other fiduciary holding securities under an employee benefit plan of the Company or any of its subsidiaries acting in such capacity, or (B) a corporation owned directly or indirectly by the stockholders of the Company in substantially the same proportions as their ownership of stock of the Company, is or becomes the "beneficial owner" (as defined in Rule 13d-3 under the Exchange Act), directly or indirectly, of securities of the Company representing more than 20% of the total voting power represented by the Company's then outstanding Voting Securities (as hereinafter defined) , (ii) during any period of two consecutive years, individuals who at the beginning of such period constitute the board of directors of the Company (the "Board") and any new director whose election by the Board or nomination for election by the Company's stockholders was approved by a vote of at least two-thirds ($^{2}/_{3}$) of the directors then still in office who either were directors at the beginning of the period or whose election or nomination for election was previously so approved, cease for any reason to constitute a majority thereof, (iii) the stockholders of the Company approve a merger or consolidation of the Company with any other corporation other than a merger or consolidation that would result in the Voting Securities of the Company outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into Voting Securities of the surviving entity) more than 50% of the total voting power represented by the Voting Securities of the Company or such surviving entity outstanding immediately after such merger or consolidation, (iv) the stockholders of the Company approve a plan of complete liquidation of the Company or an agreement for the sale or disposition by the Company of (in one transaction or a series of related transactions) all or substantially all of its assets, or (v) the Company shall file or have filed against it, and such filing shall not be dismissed, any bankruptcy, insolvency or dissolution proceedings, or a trustee, administrator or creditors committee shall be appointed to manage or supervise the affairs of the Company; provided that the beneficial ownership by those certain funds affiliated with each of Aaron G.L. Fletcher and Les Kreis, Jr. (the "Bios Equity Affiliated Funds") of those shares of common stock beneficially owned by the Bios Equity Affiliated Funds as of the date hereof (as increased solely by any shares issued to either Aaron G.L. Fletcher or Les Kreis, Jr. as compensation for service as a director of the Company) shall not be deemed a Change of Control hereunder.

(b) "Expenses" shall include all out of pocket fees, costs and expenses, including, without limitation, attorneys' fees, retainers, court costs, transcript costs, fees of experts, witness fees, travel expenses, duplicating costs, printing and binding costs, postage, delivery service fees, and all other disbursements or expenses of the types customarily incurred if Indemnitee is involved in any manner (including, without limitation, as a party or a witness) in any Proceeding (as hereinafter defined) and the fees and costs incurred in seeking to enforce, interpret or construe an indemnification, reimbursement or payment right under this Agreement, the Company's or any Affiliated Entity's certificate of incorporation or bylaws, any other agreement to which Indemnitee and the Company or any Affiliated Entity is party, any vote of stockholders or directors of the Company or any of its Affiliated Entities, the Delaware General Corporation Law (the "DGCL"), any other applicable law or any liability insurance policy or in connection with a determination contemplated by Section 5 of this Agreement.

(c) "Position" is (i) service as a director, officer, partner, trustee, fiduciary, manager or employee of the Company or of any other corporation, limited liability company, public limited company, partnership, joint venture, trust, employee benefit plan, fund or other enterprise as to which the Company beneficially owns, directly or indirectly, at least a majority of the voting power of equity or membership interests, or in the case of employee benefit plans, is sponsored or maintained by the Company or one of the foregoing (any of the foregoing, an "Affiliated Entity") or (ii) service at the request of the Company as a director, officer, partner, trustee, fiduciary, manager or employee of a corporation, limited liability company, public limited company, partnership, joint venture, trust, employee benefit plan, fund or other enterprise which is not an Affiliated Entity (an "Unaffiliated Entity"), provided, however, that such request for service has been approved in writing by the Board or a committee thereof or by the Chairman of the Board or the Chief Executive Officer of the Company.

(d) "Proceeding" shall mean any civil, criminal, administrative or investigative action, suit, proceeding or procedure in which the Indemnitee is involved in any manner by reason of the fact of the Indemnitee's Position or Positions, including, without limitation, as a party or a witness.

(e) "Undertaking" shall mean an undertaking by Indemnitee to repay Expenses if it shall ultimately be determined by a court of competent jurisdiction from which no appeal can be taken that Indemnitee is not entitled to be indemnified by the Company.

(f) "Voting Securities" means any securities of the Company that vote generally in the election of directors.

Section 2. Indemnification — General. The Company shall indemnify, subject to the terms of this Agreement, Indemnitee against all judgments, awards, fines, ERISA excise taxes, penalties, amounts paid in settlement, liabilities and losses and shall pay or reimburse all Expenses incurred by Indemnitee, subject to the terms of this Agreement, to the fullest extent permitted by Delaware law in effect on the date hereof or as amended to increase the scope of permitted indemnification, if Indemnitee is involved in any manner (including, without limitation, as a party or a witness) in any Proceeding by reason of the fact of Indemnitee's Position or Positions, including, without limitation, any Proceeding by or in the right of the Company to procure a judgment in its favor, but excluding any Proceeding initiated by Indemnitee other than (a) Proceedings initiated by Indemnitee which are consented to in advance in writing by the majority vote of the directors of the Company (excluding any directors who are parties to the Proceeding, even though less than a quorum; or if there are no such directors, or if such directors so direct, by independent legal counsel in a written opinion) and (b) counterclaims made by Indemnitee in a Proceeding which directly respond to and negate the affirmative claim made against Indemnitee in such Proceeding. In the event Indemnitee incurs Expenses or settles a Proceeding under circumstances in which the Company would have an obligation to indemnify Indemnitee for the Expenses or settlement amount, the Company may discharge its indemnification obligation by making payments on behalf of Indemnitee directly to the parties to whom such Expenses or settlement amounts are owed by Indemnitee. Notwithstanding the foregoing, the Company will also, to the fullest extent permitted by Delaware law in effect on the date hereof or as amended to increase the scope of permitted indemnification, indemnify, reimburse and pay Indemnitee for Expenses incurred in seeking to enforce, interpret or construe an indemnification, reimbursement or payment right under this Agreement, the Company's certificate of incorporation or bylaws or similar organizational documents of any Affiliated Entity, any other agreement to which Indemnitee and the Company or any of its Affiliated Entities are party, any vote of stockholders or directors of the Company or any of its Affiliated Entities, the DGCL or other corporate or entity law governing any Affiliated Entities, any other applicable law relating to the Positions or any liability insurance policy.

Section 3. Expenses. Upon receipt by the Company of an Undertaking by Indemnitee, the Company shall pay or reimburse Expenses incurred by Indemnitee in connection with a Proceeding, any action or proceeding contemplated by the last sentence of Section 2 of this Agreement and any determination contemplated by Section 5 of this Agreement, in each case in advance of its final disposition. The

Company shall not impose other conditions to advancement and shall not seek or agree to any order that would prohibit Indemnitee from enforcing such right to advancement. Such payment shall be made within thirty (30) days after the receipt by the Company of a written request from Indemnitee requesting reimbursement or payment of such Expenses. Such request shall reasonably evidence the Expenses incurred by Indemnitee. The burden of proving that the Company is not liable for reimbursement or payment of Expenses shall be on the Company.

Section 4. Limitations. The Company shall not indemnify Indemnitee (a) if such indemnification or payment would be prohibited under any applicable laws, rules or regulations, (b) for an accounting of profits arising from the purchase and sale by the Indemnitee of securities under Section 16(b) of the Exchange Act, or (c) for violations of federal or state insider trading laws, unless, in each such case, Indemnitee has been successful on the merits, received the Company's written consent prior to incurring an Expense or, after receiving the Company's written consent to incurring the cost of settlement, settled the Proceeding. This Section 4 shall not limit the Company's obligation to advance Expenses to Indemnitee pursuant to Section 3 of this Agreement.

Section 5. Standard of Conduct. No claim for indemnification shall be paid by the Company unless it has been determined that Indemnitee acted in good faith and in a manner Indemnitee reasonably believed to be in or not opposed to the best interests of the Company and, with respect to any criminal action or proceeding, had no reasonable cause to believe his or her conduct was unlawful, which is the standard of conduct set forth in Section 145 of the DGCL (as such, the "Standard of Conduct", with such Standard of Conduct to be automatically revised to conform to any successor provision of the DGCL that is more favorable to Indemnitee) except that no indemnification shall be made with respect to any Proceeding by or in right of the Company as to which the Indemnitee shall have been adjudged to be liable to the Company, except as determined by the court or other tribunal adjudicating the Proceeding. Unless (a) a Change of Control has occurred or (b) ordered by a court or other tribunal, such determinations of whether the Standard of Conduct has been satisfied shall be made by (i) a majority vote of the directors of the Company who are not parties to the Proceeding, even though less than a quorum, or (ii) by a committee of such directors designated by a majority vote of such directors, even though less than a quorum, or (iii) if there are no such directors, or if such directors so direct, by independent legal counsel in a written opinion, or (iv) by stockholders of the Company. If a Change of Control has occurred, such determination of whether the Standard of Conduct has been satisfied shall be made by independent legal counsel in a written opinion to the Company and Indemnitee. Such independent legal counsel shall be selected by Indemnitee and approved by the Company (which approval shall not be unreasonably conditioned, withheld or delayed). The Company shall pay the fees and expenses of the independent legal counsel and indemnify the independent legal counsel against any and all expenses (including attorneys' fees), claims, liabilities and damages arising out of or relating to its engagement and shall indemnify, reimburse and pay Indemnitee for Expenses incurred in connection with such determination. Indemnitee shall be deemed to have met the Standard of Conduct if the determination is not made by the Company within sixty days of receipt by the Chief Executive Officer of a written request by Indemnitee for indemnity. If the Indemnitee has been determined not to have met the Standard of Conduct, Indemnitee may commence litigation in any court in the State of Delaware having subject matter jurisdiction thereof and in which venue is proper seeking an initial de novo determination by the court or challenging any such determination or any aspect thereof, including the legal or factual bases therefor, and the Company hereby consents to service of process and agrees to appear in any such proceeding. Any determination under this Section 5 otherwise shall be conclusive and binding on the Company and Indemnitee. In no event shall a determination be a prerequisite to or affect the Company's obligation to advance Expenses to Indemnitee pursuant to Section 3 of this Agreement.

Section 6. Contribution. If the full indemnification and payment or reimbursement of Expenses provided by this Agreement may not be paid to Indemnitee because it has been finally adjudicated that such indemnification or payment or reimbursement of Expenses incurred by Indemnitee is prohibited by Delaware or other law, or if it has been determined as provided above that the Standard of Conduct has not been met, and if and to the extent that Indemnitee is not entitled to coverage under the Company's directors and officers liability insurance policy, then in respect of any such actual or threatened Proceeding in which the Company or an Affiliated Entity is jointly liable with Indemnitee (or would be if joined in such Proceeding), as determined:

(a) if no Change of Control has occurred, by (i) majority vote of the directors of the Company who are not parties to the Proceeding, even though less than a quorum, or (ii) by a committee of such directors designated by a majority vote of such directors, even though less than a quorum, or (iii) if there are no such directors, or if such directors so direct, by independent legal counsel in a written opinion, or (iv) by stockholders of the Company, or

(b) if a Change of Control has occurred, by independent legal counsel in a written opinion to the Company and Indemnitee (such independent legal counsel to be selected by Indemnitee and approved by the Company (which approval shall not be unreasonably withheld or delayed)), the Company shall contribute to the amount of loss, liability or Expenses incurred by

Indemnitee in such proportion as appropriate to reflect (i) the relative benefits received by the Company and any Affiliated Entity on the one hand and Indemnitee on the other hand from the transaction from which such Proceeding arose and (ii) the relative fault of the Company, any Affiliated Entity or Unaffiliated Entity, including other persons indemnified by the Company, on the one hand, and Indemnitee, on the other hand, in connection with the events which resulted in such Proceeding, as well as any other relevant equitable considerations. The relative fault of the Company, any Affiliated Entity or Unaffiliated Entity, including other persons indemnified by the Company, on the one hand, and of Indemnitee, on the other hand, shall be determined by reference to, among other things, the parties' relative intent, knowledge, access to information and opportunity to correct or prevent the circumstances resulting in such Proceeding. The Company acknowledges that it would not be just and equitable if contribution pursuant to this Section 6 were determined by pro rata allocation or any other method of allocation which does not take into account the foregoing equitable considerations.

Section 7. Defense of Claim. If any Proceeding asserted or commenced against Indemnitee is also asserted or commenced against the Company or an Affiliated Entity, the Company or the Affiliated Entity shall be entitled, except as otherwise provided herein below, to assume the defense thereof. After notice from the Company or any Affiliated Entity to Indemnitee of its election to assume the defense of any such Proceeding, Indemnitee shall have the right to employ Indemnitee's own counsel in such Proceeding, but the Expenses of such counsel incurred after notice from the Company or any Affiliated Entity to Indemnitee of its assumption of the defense thereof shall be at the expense of Indemnitee and the Company shall not be obligated to Indemnitee under this Agreement for any Expenses subsequently incurred by Indemnitee in connection therewith other than reasonable costs of investigation and reasonable travel and lodging expenses arising out of Indemnitee's participation in the defense of such Proceeding, unless (a) otherwise notified by the Company, (b) Indemnitee's counsel shall have reasonably concluded and so notified the Company that there is a conflict of interest between the Company or any Affiliated Entity and Indemnitee in the conduct of defense of such Proceeding, or (c) the Company or any Affiliated Entity shall not in fact have employed counsel to assume the defense of such Proceeding, in any of which cases the Expenses of Indemnitee in such Proceeding shall be reimbursed or paid by the Company. The Company or any Affiliated Entity shall not be entitled to assume the defense of any Proceeding brought by or on behalf of the Company by its stockholders or as to which Indemnitee's counsel shall have made the conclusion set forth in clause (b) of the preceding sentence of this Section 7.

Section 8. Settlement. The Company will not, without the prior written consent of the Indemnitee, which may be provided or withheld in Indemnitee's sole discretion, effect any settlement of any Proceeding against Indemnitee unless such settlement solely involves the payment of money by persons other than Indemnitee and includes an unconditional release of Indemnitee from all liability arising from or relating to any matters that are the subject of such Proceeding. The Company shall not be obligated to indemnify Indemnitee against amounts paid in settlement of a Proceeding against Indemnitee if such settlement is effected by Indemnitee without the Company's prior written consent, which shall not be unreasonably withheld.

Section 9. Duration of Agreement. This Agreement will be considered to be in effect on the first day of the Indemnitee's Position or Positions, even if such date occurs prior to the date of this Agreement, and will continue for so long as Indemnitee may be subject to any possible Proceeding by reason of the fact of Indemnitee's Position or Positions, whether or not Indemnitee ceases to hold such Position or Positions.

Section 10. Confidentiality. Except as required by law or as otherwise becomes public (other than in violation of this Agreement) or as communicated to Indemnitee's counsel or to Indemnitee's or the Company's insurer, in seeking indemnification or reimbursement or payment of Expenses hereunder, Indemnitee agrees to keep confidential any information that arises in connection with this Agreement, including but not limited to, claims for indemnification or payment or reimbursement of Expenses, amounts paid or payable under this Agreement and any communications between the Indemnitee and the Company. Nothing in this Agreement limits the Indemnitee's rights under applicable law to provide truthful information to regulatory, judicial, administrative or other governmental authorities, including the filing of a charge with or participation in any investigation or proceeding conducted by federal, state or local authorities.

Section 11. Applicability to Other Indemnification Provisions. This Agreement is entered into pursuant to Section 145(f) of the DGCL and to the fullest extent permitted by law shall be in addition to indemnification and reimbursement or payment of Expenses provided by the DGCL. To the fullest extent permitted by law, the Company shall apply this Agreement in considering requests for indemnification or reimbursement or payment of Expenses under its certificate of incorporation, bylaws, or any other agreement or undertaking of the Company or similar constituent documents of an Affiliated Entity that provides rights to indemnification or reimbursement or payment of Expenses.

Section 12. No Duplication of Payments. The Company shall indemnify and pay or reimburse Expenses of the Indemnitee in accordance with the provisions of this Agreement, provided, however, that the Company shall not be liable under this Agreement to make any payment under this Agreement to the extent that Indemnitee (a) is otherwise entitled to receive reimbursement or payment of amounts otherwise payable hereunder from an Unaffiliated Entity (including insurance maintained by an Unaffiliated Entity) as a result of Indemnitee's Position or Positions at or with respect to an Unaffiliated Entity, (b) receives payment or reimbursement under an insurance policy maintained by the Company or by or out of a fund created by the Company and under the control of a trustee or otherwise, or (c) receives payment from other sources provided by the Company. If Indemnitee has a right of recovery from an Unaffiliated Entity (including insurance maintained by an Unaffiliated Entity), Indemnitee shall take all actions reasonably necessary to recover payment (or insurance) from such Unaffiliated Entity before seeking payment from the Company under this Agreement, including initiating a civil, criminal, administrative or investigation action, suit, proceeding or procedure; provided, however, that to the extent recovery of such payment requires meeting a prior deductible or other financial outlay, such payment or financial outlay shall be deemed to be an Expense hereunder.

Section 13. Insurance. The Company shall purchase and maintain a policy or policies of insurance with reputable insurance companies with A.M. Best ratings of "A" or better, providing Indemnitee with coverage for any liability asserted against, and incurred by, Indemnitee or on Indemnitee's behalf by reason of the fact of Indemnitee's Position or Positions, whether or not the Company would have the power to indemnify Indemnitee against such liability under the provisions of this Agreement. Such insurance policies shall have coverage terms and policy limits that are reasonable in scope and amount, as determined by the Company in its reasonable discretion. Notwithstanding the foregoing, the Company shall have no obligation to obtain or maintain such insurance if the Company determines in good faith that such insurance is not reasonably available, if the premium costs for such insurance are disproportionate to the amount of the coverage provided, if the coverage provided by such insurance is limited by exclusions so as to provide an insufficient benefit, or if the Company otherwise determines in good faith that obtaining or maintaining such insurance is not in the best interests of the Company. At the time the Company receives from Indemnitee any notice of the commencement of an action, suit or proceeding, the Company shall give prompt notice of the commencement of such action, suit or proceeding to the insurers in accordance with the procedures set forth in the policy. The Company shall thereafter take all necessary or desirable action to cause such insurers to pay, on behalf of Indemnitee, all amounts payable as a result of such proceeding in accordance with the terms of such policy. The Company agrees that if there is a change in control of the Company, the Company shall maintain (or cause to be maintained) for the benefit of Indemnitee, the same policy or policies of insurance maintained in accordance with this Section 13 immediately prior to such change in control for a period of six years after the change in control or the termination of this Agreement in accordance with Section 9, whichever is later.

Section 14. Subrogation. In the event of payment under this Agreement, the Company shall be subrogated to the extent of such payment to all of the rights of recovery of Indemnitee under any insurance policy held by the Company or an Affiliated Entity or otherwise. Indemnitee shall execute all documents reasonably required and shall do everything reasonably necessary to secure such rights, including the execution of such documents necessary to enable the Company to effectively bring suit to enforce such rights.

Section 15. Notice by Indemnitee. Indemnitee shall promptly notify the Company in writing in accordance with Section 21 of this Agreement upon the earlier of (a) becoming aware of a Proceeding where indemnity or reimbursement or payment of Expenses may be sought or (b) receiving or being served with any summons, citation, subpoena, complaint, indictment, information, inquiry or other document relating to any Proceeding which may be subject to indemnification or reimbursement or payment of Expenses covered hereunder. As a condition to indemnification or reimbursement or payment of Expenses, any demand for payment by Indemnitee hereunder shall be in writing. The failure to promptly notify the Company of the commencement of the action, suit or proceeding, or of Indemnitee's request for indemnification, will not relieve the Company from any liability that it may have to Indemnitee hereunder, except to the extent the Company is actually and materially prejudiced in its defense of such action, suit or proceeding as a result of such failure.

Section 16. Severability. If any provision of this Agreement shall be held to be invalid, inoperative or unenforceable as applied to any particular Proceeding or in any particular jurisdiction, for any reason, such circumstances shall not have the effect of rendering the provision in question invalid, inoperative or unenforceable in any other distinguishable Proceeding or jurisdiction, or of rendering any other provision or provisions herein contained invalid, inoperative or unenforceable to any extent whatsoever. The invalidity, inoperability or unenforceability of any one or more phrases, sentences, clauses or sections contained in this Agreement shall not affect any other remaining part of this Agreement.

Section 17. Binding Effect. This Agreement shall be binding upon, and inure to the benefit of, Indemnitee and Indemnitee's heirs, personal representatives, executors and administrators and upon the Company and its successors and assigns.

Section 18. Counterparts. This Agreement may be executed in one or more counterparts, each of which shall for all purposes be deemed to be an original but all of which together shall constitute one and the same Agreement.

Section 19. Headings. The headings of the paragraphs of this Agreement are inserted for convenience only and shall not be deemed to constitute part of this Agreement or to affect the construction thereof.

Section 20. Modification and Waiver. No supplement, modification or amendment of this Agreement shall be binding unless executed in writing by both of the parties hereto. No waiver of any of the provisions of this Agreement shall be deemed or shall constitute a waiver of any other provisions hereof (whether or not similar) nor shall such waiver constitute a continuing waiver.

Section 21. Notices. All notices, requests, demands and other communications hereunder shall be in writing and shall be deemed to have been duly given if (a) delivered by hand, on the date delivered, (b) mailed by certified or registered mail, with postage prepaid, on the third business day after the date on which it is mailed or (c) sent by guaranteed overnight courier service, with postage prepaid, on the business day after the date on which it is sent:

(i) If to Indemnitee, to the address set forth on the signature page of this Agreement;

(ii) If to the Company, to:
Actuate Therapeutics, Inc.
1751 River Run, Suite 400
Fort Worth, Texas 76107
Attention: Chief Executive Officer

or to such other address as may have been furnished to Indemnitee by the Company or to the Company by Indemnitee, as the case may be.

Section 22. Governing Law. The parties agree that this Agreement shall be governed by, and construed and enforced in accordance with, the laws of the State of Delaware. If a court of competent jurisdiction shall make a final determination that the provisions of the law of any state other than Delaware govern indemnification by the Company of Indemnitee, then the indemnification provided under this Agreement shall in all instances be enforceable to the fullest extent permitted under such law, notwithstanding any provision of this Agreement to the contrary.

Section 23. Venue. Any Proceeding relating to or arising from this Agreement, including without limitation, any Proceeding regarding indemnification or reimbursement or payment of Expenses arising out of this Agreement, shall only be brought and heard in the Chancery Court in and for the State of Delaware (the "Delaware Court"), and may not be brought in any other judicial forum. The Company hereby irrevocably and unconditionally (a) agrees that any action or proceeding arising out of or in connection with this Agreement may brought in the Delaware Court, (b) consents to submit to the non-exclusive jurisdiction of the Delaware Court for purposes of any action or proceeding arising out of or in connection with this Agreement, (c) consents to service of process at the Company's address set forth in Section 21 of this Agreement with the same legal force and validity as if served upon the Company personally within the State of Delaware, (d) waives any objection to the laying of venue of any such action or proceeding in the Delaware Court and (e) waives, and agrees not to plead or to make, any claim that any such action or proceeding brought in the Delaware Court has been brought in an improper or inconvenient forum.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year first above written.

ACTUATE THERAPEUTICS, INC.

By: _____
Name:
Title:

AGREED TO AND ACCEPTED BY:

_____

Name: [●]
Address: _____

Exhibit 10.11

ACTUATE THERAPEUTICS, INC.
INDEMNIFICATION AGREEMENT

THIS INDEMNIFICATION AGREEMENT (the "Agreement") is made and entered into as of February 17, 2024 between ACTUATE THERAPEUTICS, INC., a Delaware corporation (the "Company"), and Paul Lytle ("Indemnitee").

WHEREAS, highly competent persons have become more reluctant to serve corporations as directors or in other capacities unless they are provided with adequate protection through insurance or adequate indemnification against inordinate risks of claims and actions against them arising out of their service to and activities on behalf of the corporation;

WHEREAS, although the furnishing of liability insurance to protect persons serving the corporation and its subsidiaries from certain liabilities has been a customary and widespread practice among United States-based corporations and other business enterprises, the Company believes that, given current market conditions and trends, such insurance may be available to it in the future only at higher premiums and with more exclusions. At the same time, directors, officers, and other persons in service to corporations or business enterprises are being increasingly subjected to expensive and time-consuming litigation relating to, among other things, matters that traditionally would have been brought only against the Company or business enterprise itself;

WHEREAS, the Bylaws and Certificate of Incorporation of the Company require indemnification of the officers and directors of the Company;

WHEREAS, Indemnitee may also be entitled to indemnification pursuant to the General Corporation Law of the State of Delaware ("DGCL");

WHEREAS, the Bylaws and Certificate of Incorporation and the DGCL expressly provide that the indemnification provisions set forth therein are not exclusive, and thereby contemplate that contracts may be entered into between the Company and members of the board of directors, officers and other persons with respect to indemnification;

WHEREAS, the uncertainties relating to liability insurance and to indemnification have increased the difficulty of attracting and retaining such persons;

WHEREAS, the Board has determined that the increased difficulty in attracting and retaining such persons is detrimental to the best interests of the Company's stockholders and that the Company should act to assure such persons that there will be increased certainty of such protection in the future;

WHEREAS, it is reasonable, prudent and necessary for the Company contractually to obligate itself to indemnify, and to advance expenses on behalf of, such persons to the fullest extent permitted by applicable law so that they will serve or continue to serve the Company free from undue concern that they will not be so indemnified;

WHEREAS, this Agreement is a supplement to and in furtherance of the Bylaws and Certificate of Incorporation of the Company and any resolutions adopted pursuant thereto, and shall not be deemed a substitute therefor, nor to diminish or abrogate any rights of Indemnitee thereunder;

WHEREAS, Indemnitee does not regard the protection available under the Company's Bylaws and Certificate of Incorporation and insurance as adequate in the present circumstances, and may not be willing to provide services to the Company without adequate protection, and the Company desires Indemnitee to serve in such capacity;

WHEREAS, Indemnitee is willing to serve, continue to serve and to take on additional service for or on behalf of the Company on the condition that he be so indemnified; and

WHEREAS, Indemnitee has or may have certain rights to indemnification and/or insurance provided by other entities and/or organizations which Indemnitee and such other entities and/or organizations intend to be secondary to the primary obligation of the Company to indemnify Indemnitee as provided herein, with the Company's acknowledgement and agreement to the foregoing being a material condition to Indemnitee's willingness to provide services to the Company.

NOW, THEREFORE, in consideration of Indemnitee's agreement to provide services to the Company from and after the date hereof, the parties hereto agree as follows.

1. Indemnity of Indemnitee.

The Company hereby agrees to hold harmless and indemnify Indemnitee to the fullest extent permitted by law, as such may be amended from time to time. In furtherance of the foregoing indemnification, and without limiting the generality thereof:

(a) Proceedings Other Than Proceedings by or in the Right of the Company. Indemnitee shall be entitled to the rights of indemnification provided in this Section l(a) if, by reason of his Corporate Status (as hereinafter defined), the Indemnitee is, or is threatened to be made, a party to or participant in any Proceeding (as hereinafter defined) other than a Proceeding by or in the right of the Company. Pursuant to this Section 1(a), Indemnitee shall be indemnified against all Expenses (as hereinafter defined), judgments, penalties, fines and amounts paid in settlement actually and reasonably incurred by him, or on his behalf, in connection with such Proceeding or any claim, issue or matter therein, if the Indemnitee acted in good faith and in a manner the Indemnitee reasonably believed to be in or not opposed to the best interests of the Company, and with respect to any criminal Proceeding, had no reasonable cause to believe the Indemnitee's conduct was unlawful.

(b) Proceedings by or in the Right of the Company. Indemnitee shall be entitled to the rights of indemnification provided in this Section 1(b) if, by reason of his Corporate Status, the Indemnitee is, or is threatened to be made, a party to or participant in any Proceeding brought by or in the right of the Company. Pursuant to this Section 1(b), Indemnitee shall be indemnified against all Expenses actually and reasonably incurred by the Indemnitee, or on the Indemnitee's behalf, in connection with such Proceeding if the Indemnitee acted in good faith and in a manner the Indemnitee reasonably believed to be in or not opposed to the best interests of the Company; provided, however, if applicable law so provides, no indemnification against such Expenses shall be made in respect of any claim, issue or matter in such Proceeding as to which Indemnitee shall have been adjudged to be liable to the Company unless and to the extent that the Court of Chancery of the State of Delaware shall determine that such indemnification may be made.

(c) Indemnification for Expenses of a Party Who is Wholly or Partly Successful. Notwithstanding any other provision of this Agreement, to the extent that Indemnitee is, by reason of his Corporate Status, a party to and is successful, on the merits or otherwise, in any Proceeding, he shall be indemnified to the maximum extent permitted by law, as such may be amended from time to time, against all Expenses actually and reasonably incurred by him or on his behalf in connection therewith. If Indemnitee is not wholly successful in such Proceeding but is successful, on the merits or otherwise, as to one or more but less than all claims, issues or matters in such Proceeding, the Company shall indemnify Indemnitee against all Expenses actually and reasonably incurred by him or on his behalf in connection with each successfully resolved claim, issue or matter. For purposes of this Section and without limitation, the termination of any claim, issue or matter in such a Proceeding by dismissal, with or without prejudice, shall be deemed to be a successful result as to such claim, issue or matter. If a reasonably competent counsel engaged to defend solely the successfully resolved claim, issue or matter would have incurred an item of Expense in defending the successfully resolved claim, issue or matter that item of Expense is covered irrespective of whether the item also benefited the defense of an unsuccessfully resolved claim, issue or matter.

2. Additional Indemnity.

In addition to, and without regard to any limitations on, the indemnification provided for in Section 1 of this Agreement, the Company shall and hereby does indemnify and hold harmless Indemnitee against all Expenses, judgments, penalties, fines and amounts paid in settlement actually and reasonably incurred by him or on his behalf if, by reason of his Corporate Status, he is, or is threatened to be made, a party to or participant in any Proceeding (including a Proceeding by or in the right of the Company), including, without limitation, all liability arising out of the negligence or active or passive wrongdoing of Indemnitee. The only limitation that shall exist upon the Company's obligations pursuant to this Agreement shall be that the Company shall not be obligated to make any payment to Indemnitee that is finally determined (under the procedures, and subject to the presumptions, set forth in Sections 6 and 7 hereof) to be unlawful.

3. Contribution.

(a) Whether or not the indemnification provided in Sections 1 and 2 hereof is available, in respect of any threatened, pending or completed action, suit or proceeding in which the Company is jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), the Company shall pay, in the first instance, the entire amount of any judgment or settlement of such action, suit or proceeding without requiring Indemnitee to contribute to such payment and the Company hereby waives and relinquishes any right of contribution it may have against Indemnitee. The Company shall not enter into any settlement of any action, suit or proceeding in which the Company is jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding) unless such settlement provides for a full and final release of all claims asserted against Indemnitee.

(b) Without diminishing or impairing the obligations of the Company set forth in this Agreement, including, but not limited to, the obligations set forth in the preceding subparagraph and in Section 1, if, for any reason, Indemnitee shall elect or be required to pay all or any portion of any judgment or settlement in any threatened, pending or completed action, suit or proceeding in which the Company is jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), the Company shall contribute to the amount of Expenses, judgments, fines and amounts paid in settlement actually and reasonably incurred and paid or payable by Indemnitee in proportion to the relative benefits received by the Company and all officers, directors or employees of the Company, other than Indemnitee, who are jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), on the one hand, and Indemnitee, on the other hand, from the transaction from which such action, suit or proceeding arose; provided, however, that the proportion determined on the basis of relative benefit may, to the extent necessary to conform to law, be further adjusted by reference to the relative fault of the Company and all officers, directors or employees of the Company other than Indemnitee who are jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), on the one hand, and Indemnitee, on the other hand, in connection with the events that resulted in such expenses, judgments, fines or settlement amounts, as well as any other equitable considerations which the law may require to be considered. The relative fault of the Company and all officers, directors or employees of the Company, other than Indemnitee, who are jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), on the one hand, and Indemnitee, on the other hand, shall be determined by reference to, among other things, the degree to which their actions were motivated by intent to gain personal profit or advantage, the degree to which their liability is primary or secondary and the degree to which their conduct is active or passive.

(c) The Company hereby agrees to fully indemnify and hold Indemnitee harmless from any claims of contribution which may be brought by officers, directors or employees of the Company, other than Indemnitee, who may be jointly liable with Indemnitee.

(d) To the fullest extent permissible under applicable law, if the indemnification provided for in this Agreement is unavailable to Indemnitee for any reason whatsoever, the Company, in lieu of indemnifying Indemnitee, shall contribute to the amount incurred by Indemnitee, whether for judgments, fines, penalties, excise taxes, amounts paid or to be paid in settlement and/or for Expenses, in connection with any claim relating to an indemnifiable event under this Agreement, in such proportion as is deemed fair and reasonable in light of all of the circumstances of such Proceeding in order to reflect (i) the relative benefits received by the Company and Indemnitee as a result of the event(s) and/or transaction(s) giving cause to such Proceeding; and/or (ii) the relative fault of the Company (and its directors, officers, employees and agents) and Indemnitee in connection with such event(s) and/or transaction(s).

4. Indemnification for Expenses of a Witness.

Notwithstanding any other provision of this Agreement, to the extent that Indemnitee is, by reason of his Corporate Status, a witness, or is made (or asked to) respond to discovery requests, in any Proceeding to which Indemnitee is not a party, he shall be indemnified against all Expenses actually and reasonably incurred by him or on his behalf in connection therewith.

5. Advancement of Expenses.

Notwithstanding any other provision of this Agreement, the Company shall advance all Expenses incurred by or on behalf of Indemnitee in connection with any Proceeding by reason of Indemnitee's Corporate Status within thirty (30) days after the receipt by the Company of a statement or statements from Indemnitee requesting such advance or advances from time to time, whether prior to or after final disposition of such Proceeding. Such statement or statements shall reasonably evidence the Expenses incurred by Indemnitee and shall include or be preceded or accompanied by a written undertaking by or on behalf of Indemnitee to repay any Expenses advanced if it shall ultimately be determined that Indemnitee is not entitled to be indemnified against such Expenses. Any advances and undertakings to repay pursuant to this Section 5 shall be unsecured and interest free.

6. Procedures and Presumptions for Determination of Entitlement to Indemnification.

It is the intent of this Agreement to secure for Indemnitee rights of indemnity that are as favorable as may be permitted under the DGCL and public policy of the State of Delaware. Accordingly, the parties agree that the following procedures and presumptions shall apply in the event of any question as to whether Indemnitee is entitled to indemnification under this Agreement:

(a) To obtain indemnification under this Agreement, Indemnitee shall submit to the Company a written request, including therein or therewith such documentation and information as is reasonably available to Indemnitee and is reasonably necessary to determine whether and to what extent Indemnitee is entitled to indemnification. The Secretary of the Company shall, promptly upon receipt of such a request for indemnification, advise the Board of Directors in writing that Indemnitee has requested indemnification. Notwithstanding the foregoing, any failure of Indemnitee to provide such a request to the Company, or to provide such a request in a timely fashion, shall not relieve the Company of any liability that it may have to Indemnitee unless, and to the extent that, such failure actually and materially prejudices the interests of the Company.

(b) Upon written request by Indemnitee for indemnification pursuant to the first sentence of Section 6(a) hereof, a determination with respect to Indemnitee's entitlement thereto shall be made in the specific case by one of the following four methods, which shall be at the election of the board: (1) by a majority vote of the disinterested directors, even though less than a quorum, (2) by a committee of disinterested directors designated by a majority vote of the disinterested directors, even though less than a quorum, (3) if there are no disinterested directors or if the disinterested directors so direct, by the Independent Counsel in a written opinion to the Board of Directors, a copy of which shall be delivered to the Indemnitee, or (4) if so directed by the Board of Directors, by the stockholders of the Company. For purposes hereof, disinterested directors are those members of the board of directors of the Company who are not parties to the action, suit or proceeding in respect of which indemnification is sought by Indemnitee.

(c) If the determination of entitlement to indemnification is to be made by Independent Counsel pursuant to Section 6(b) hereof, the Independent Counsel shall be selected as provided in this Section 6(c). The Independent Counsel shall be selected by the Board of Directors. Indemnitee may, within 10 days after such written notice of selection shall have been given, deliver to the Company a written objection to such selection; provided, however, that such objection may be asserted only on the ground that the Independent Counsel so selected does not meet the requirements of "Independent Counsel" as defined in Section 13 of this Agreement, and the objection shall set forth with particularity the factual basis of such assertion. Absent a proper and timely objection, the person so selected shall act as Independent Counsel. If a written objection is made and substantiated, the Independent Counsel selected may not serve as Independent Counsel unless and until such objection is withdrawn or a court has determined that such objection is without merit. If, within 20 days after submission by Indemnitee of a written request for indemnification pursuant to Section 6(b) hereof, no Independent Counsel shall have been selected and not objected to, either the Company or Indemnitee may petition the Court of Chancery of the State of Delaware or other court of competent jurisdiction for resolution of any objection which shall have been made by the Indemnitee to the Company's selection of Independent Counsel and/or for the appointment as Independent Counsel of a person selected by the court or by such other person as the court shall designate, and the person with respect to whom all objections are so resolved or the person so appointed shall act as Independent Counsel under Section 6(b) hereof. The Company shall pay any and all reasonable fees and expenses of Independent Counsel incurred by such Independent Counsel in connection with acting pursuant to Section 6(b) hereof, and the Company shall pay all reasonable fees and expenses incident to the procedures of this Section 6(c), regardless of the manner in which such Independent Counsel was selected or appointed.

(d) In making a determination with respect to entitlement to indemnification hereunder, the person or persons or entity making such determination shall presume that Indemnitee is entitled to indemnification under this Agreement. Anyone seeking to overcome this presumption shall have the burden of proof and the burden of persuasion by clear and convincing evidence. Neither the

failure of the Company (including by its directors or independent legal counsel) to have made a determination prior to the commencement of any action pursuant to this Agreement that indemnification is proper in the circumstances because Indemnitee has met the applicable standard of conduct, nor an actual determination by the Company (including by its directors or independent legal counsel) that Indemnitee has not met such applicable standard of conduct, shall be a defense to the action or create a presumption that Indemnitee has not met the applicable standard of conduct.

(e) Indemnitee shall be deemed to have acted in good faith if Indemnitee's action is based on the records or books of account of the Enterprise (as hereinafter defined), including financial statements, or on information supplied to Indemnitee by the officers of the Enterprise in the course of their duties, or on the advice of legal counsel for the Enterprise or on information or records given or reports made to the Enterprise by an independent certified public accountant or by an appraiser or other expert selected with reasonable care by the Enterprise. In addition, the knowledge and/or actions, or failure to act, of any director, officer, agent or employee of the Enterprise shall not be imputed to Indemnitee for purposes of determining the right to indemnification under this Agreement. Whether or not the foregoing provisions of this Section 6(e) are satisfied, it shall in any event be presumed that Indemnitee has at all times acted in good faith and in a manner he reasonably believed to be in or not opposed to the best interests of the Company. Anyone seeking to overcome this presumption shall have the burden of proof and the burden of persuasion by clear and convincing evidence.

(f) If the person, persons or entity empowered or selected under Section 6 to determine whether Indemnitee is entitled to indemnification shall not have made a determination within sixty (60) days after receipt by the Company of the request therefor, the requisite determination of entitlement to indemnification shall be deemed to have been made and Indemnitee shall be entitled to such indemnification absent (i) a misstatement by Indemnitee of a material fact, or an omission of a material fact necessary to make Indemnitee's statement not materially misleading, in connection with the request for indemnification, or (ii) a prohibition of such indemnification under applicable law; provided, however, that such 60-day period may be extended for a reasonable time, not to exceed an additional thirty (30) days, if the person, persons or entity making such determination with respect to entitlement to indemnification in good faith requires such additional time to obtain or evaluate documentation and/or information relating thereto; and provided, further, that the foregoing provisions of this Section 6(f) shall not apply if the determination of entitlement to indemnification is to be made by the stockholders pursuant to Section 6(b) of this Agreement and if (A) within fifteen (15) days after receipt by the Company of the request for such determination, the Board of Directors or the Disinterested Directors, if appropriate, resolve to submit such determination to the stockholders for their consideration at an annual meeting thereof to be held within seventy-five (75) days after such receipt and such determination is made thereat, or (B) a special meeting of stockholders is called within fifteen (15) days after such receipt for the purpose of making such determination, such meeting is held for such purpose within sixty (60) days after having been so called and such determination is made thereat.

(g) Indemnitee shall cooperate with the person, persons or entity making such determination with respect to Indemnitee's entitlement to indemnification, including providing to such person, persons or entity upon reasonable advance request any documentation or information which is not privileged or otherwise protected from disclosure and which is reasonably available to Indemnitee and reasonably necessary to such determination. Any Independent Counsel, member of the Board of Directors or stockholder of the Company shall act reasonably and in good faith in making a determination regarding the Indemnitee's entitlement to indemnification under this Agreement. Any costs or expenses (including attorneys' fees and disbursements) incurred by Indemnitee in so cooperating with the person, persons or entity making such determination shall be borne by the Company (irrespective of the determination as to Indemnitee's entitlement to indemnification) and the Company hereby indemnifies and agrees to hold Indemnitee harmless therefrom.

(h) The Company acknowledges that a settlement or other disposition short of final judgment may be successful if it permits a party to avoid expense, delay, distraction, disruption and uncertainty. In the event that any action, claim or proceeding to which Indemnitee is a party is resolved in any manner other than by adverse judgment against Indemnitee (including, without limitation, settlement of such action, claim or proceeding with or without payment of money or other consideration) it shall be presumed that Indemnitee has been successful on the merits or otherwise in such action, suit or proceeding. Anyone seeking to overcome this presumption shall have the burden of proof and the burden of persuasion by clear and convincing evidence.

(i) The termination of any Proceeding or of any claim, issue or matter therein, by judgment, order, settlement or conviction, or upon a plea of nolo contendere or its equivalent, shall not (except as otherwise expressly provided in this Agreement) of itself adversely affect the right of Indemnitee to indemnification or create a presumption that Indemnitee did not act in good faith and

in a manner which he reasonably believed to be in or not opposed to the best interests of the Company or, with respect to any criminal Proceeding, that Indemnitee had reasonable cause to believe that his conduct was unlawful.

7. Remedies of Indemnitee.

(a) In the event that (i) a determination is made pursuant to Section 6 of this Agreement that Indemnitee is not entitled to indemnification under this Agreement, (ii) advancement of Expenses is not timely made pursuant to Section 5 of this Agreement, (iii) no determination of entitlement to indemnification is made pursuant to Section 6(a) of this Agreement within 90 days after receipt by the Company of the request for indemnification, (iv) payment of indemnification is not made pursuant to this Agreement within ten (10) days after receipt by the Company of a written request therefor, or (v) payment of indemnification is not made within ten (10) days after a determination has been made that Indemnitee is entitled to indemnification or such determination is deemed to have been made pursuant to Section 6 of this Agreement, Indemnitee shall be entitled to an adjudication in an appropriate court of the State of Delaware, or in any other court of competent jurisdiction, of Indemnitee's entitlement to such indemnification. Indemnitee shall commence such proceeding seeking an adjudication within 180 days following the date on which Indemnitee first has the right to commence such proceeding pursuant to this Section 7(a). The Company shall not oppose Indemnitee's right to seek any such adjudication.

(b) In the event that a determination shall have been made pursuant to Section 6(a) of this Agreement that Indemnitee is not entitled to indemnification, any judicial proceeding commenced pursuant to this Section 7 shall be conducted in all respects as a de novo trial on the merits, and Indemnitee shall not be prejudiced by reason of the adverse determination under Section 6(a).

(c) If a determination shall have been made pursuant to Section 6(a) of this Agreement that Indemnitee is entitled to indemnification, the Company shall be bound by such determination in any judicial proceeding commenced pursuant to this Section 7, absent (i) a misstatement by Indemnitee of a material fact, or an omission of a material fact necessary to make Indemnitee's misstatement not materially misleading in connection with the application for indemnification, or (ii) a prohibition of such indemnification under applicable law.

(d) In the event that Indemnitee, pursuant to this Section 7, seeks a judicial adjudication of his rights under, or to recover damages for breach of, this Agreement, or to recover under any directors' and officers' liability insurance policies maintained by the Company, the Company shall pay on his behalf, in advance, any and all expenses (of the types described in the definition of Expenses in Section 13 of this Agreement) actually and reasonably incurred by him in such judicial adjudication, regardless of whether Indemnitee ultimately is determined to be entitled to such indemnification, advancement of expenses or insurance recovery.

(e) The Company shall be precluded from asserting in any judicial proceeding commenced pursuant to this Section 7 that the procedures and presumptions of this Agreement are not valid, binding and enforceable and shall stipulate in any such court that the Company is bound by all the provisions of this Agreement. The Company shall indemnify Indemnitee against any and all Expenses and, if requested by Indemnitee, shall (within ten (10) days after receipt by the Company of a written request therefore) advance, to the extent not prohibited by law, such expenses to Indemnitee, which are incurred by Indemnitee in connection with any action brought by Indemnitee for indemnification or advance of Expenses from the Company under this Agreement or under any directors' and officers' liability insurance policies maintained by the Company, regardless of whether Indemnitee ultimately is determined to be entitled to such indemnification, advancement of Expenses or insurance recovery, as the case may be.

(f) Notwithstanding anything in this Agreement to the contrary, no determination as to entitlement to indemnification under this Agreement shall be required to be made prior to the final disposition of the Proceeding.

8. Non-Exclusivity; Survival of Rights; Insurance; Primacy of Indemnification; Subrogation.

(a) The rights of indemnification as provided by this Agreement shall not be deemed exclusive of any other rights to which Indemnitee may at any time be entitled under applicable law, the Certificate of Incorporation, the Bylaws, any agreement, a

vote of stockholders, a resolution of directors or otherwise, of the Company. No amendment, alteration or repeal of this Agreement or of any provision hereof shall limit or restrict any right of Indemnitee under this Agreement in respect of any action taken or omitted by such Indemnitee in his Corporate Status prior to such amendment, alteration or repeal. To the extent that a change in the DGCL, whether by statute or judicial decision, permits greater indemnification than would be afforded currently under the Certificate of Incorporation, Bylaws and this Agreement, it is the intent of the parties hereto that Indemnitee shall enjoy by this Agreement the greater benefits so afforded by such change. No right or remedy herein conferred is intended to be exclusive of any other right or remedy, and every other right and remedy shall be cumulative and in addition to every other right and remedy given hereunder or now or hereafter existing at law or in equity or otherwise. The assertion or employment of any right or remedy hereunder, or otherwise, shall not prevent the concurrent assertion or employment of any other right or remedy.

(b) To the extent that the Company maintains an insurance policy or policies providing liability insurance for directors, officers, employees, or agents or fiduciaries of the Company or of any other corporation, partnership, joint venture, trust, employee benefit plan or other enterprise that such person serves at the request of the Company, Indemnitee shall be covered by such policy or policies in accordance with its or their terms to the maximum extent of the coverage available for any director, officer, employee, agent or fiduciary under such policy or policies. If, at the time of the receipt of a notice of a claim pursuant to the terms hereof, the Company has director and officer liability insurance in effect, the Company shall give prompt notice of the commencement of such proceeding to the insurers in accordance with the procedures set forth in the respective policies. The Company shall thereafter take all necessary or desirable action to cause such insurers to pay, on behalf of the Indemnitee, all amounts payable as a result of such proceeding in accordance with the terms of such policies.

(c) In the event of any payment under this Agreement, the Company shall be subrogated to the extent of such payment to all of the rights of recovery of Indemnitee, who shall execute all papers required and take all action necessary to secure such rights, including execution of such documents as are necessary to enable the Company to bring suit to enforce such rights.

(e) Except as provided in paragraph (c) above, the Company shall not be liable under this Agreement to make any payment of amounts otherwise indemnifiable hereunder if and to the extent that Indemnitee has otherwise actually received such payment under any insurance policy, contract, agreement or otherwise.

(f) Except as provided in paragraph (c) above, the Company's obligation to indemnify or advance Expenses hereunder to Indemnitee who is or was serving at the request of the Company as a director, officer, employee or agent of any other corporation, partnership, joint venture, trust, employee benefit plan or other enterprise shall be reduced by any amount Indemnitee has actually received as indemnification or advancement of expenses from such other corporation, partnership, joint venture, trust, employee benefit plan or other enterprise.

9. Exception to Right of Indemnification.

Notwithstanding any provision in this Agreement, the Company shall not be obligated under this Agreement to make any indemnity in connection with any claim made against Indemnitee:

(a) for which payment has actually been made to or on behalf of Indemnitee under any insurance policy or other indemnity provision, except with respect to any excess beyond the amount paid under any insurance policy or other indemnity provision;

(b) for an accounting of profits made from the purchase and sale (or sale and purchase) by Indemnitee of securities of the Company within the meaning of Section 16(b) of the Securities Exchange Act of 1934, as amended, or similar provisions of state statutory law or common law;

(c) in connection with any Proceeding (or any part of any Proceeding) initiated by Indemnitee, including any Proceeding (or any part of any Proceeding) initiated by Indemnitee against the Company or its directors, officers, employees or other indemnitees, unless (i) the Board of Directors of the Company authorized the Proceeding (or any part of any Proceeding) prior to its initiation, or (ii) the Company provides the indemnification, in its sole discretion, pursuant to the powers vested in the Company under applicable law;

(d) with respect to remuneration paid to Indemnitee if it is determined by final judgment or other final adjudication that such remuneration was in violation of law (and, in this respect, both the Company and Indemnitee have been advised that the Securities and Exchange Commission believes that indemnification for liabilities arising under the federal securities laws is against public policy and is, therefore, unenforceable and that claims for indemnification should be submitted to appropriate courts for adjudication, as indicated in the last paragraph of this Section 9 below);

(e) a final judgment or other final adjudication is made that Indemnitee's conduct was in bad faith, knowingly fraudulent or deliberately dishonest or constituted willful misconduct (but only to the extent of such specific determination); or

(f) on account of conduct that is established by a final judgment as constituting a breach of Indemnitee's duty of loyalty to the Company or resulting in any personal profit or advantage to which Indemnitee is not legally entitled.

For purposes of this Section 9, a final judgment or other adjudication may be reached in either the underlying proceeding or action in connection with which indemnification is sought or a separate proceeding or action to establish rights and liabilities under this Agreement.

Any provision herein to the contrary notwithstanding, the Company shall not be obligated pursuant to the terms of this Agreement to indemnify Indemnitee or otherwise act in violation of any undertaking appearing in and required by the rules and regulations promulgated under the Securities Act of 1933, as amended (the "Act"), or in any registration statement filed with the SEC under the Act. Indemnitee acknowledges that paragraph (h) of Item 512 of Regulation S-K currently generally requires the Company to undertake in connection with any registration statement filed under the Act to submit the issue of the enforceability of Indemnitee's rights under this Agreement in connection with any liability under the Act on public policy grounds to a court of appropriate jurisdiction and to be governed by any final adjudication of such issue. Indemnitee specifically agrees that any such undertaking shall supersede the provisions of this Agreement and to be bound by any such undertaking.

10. Duration of Agreement.

All agreements and obligations of the Company contained herein shall be effective during the period Indemnitee is an officer or director of the Company (or is or was serving at the request of the Company as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise) and shall continue in effect at all times thereafter. This Agreement shall be binding upon and inure to the benefit of and be enforceable by the parties hereto and their respective successors (including any direct or indirect successor by purchase, merger, consolidation or otherwise to all or substantially all of the business or assets of the Company), assigns, spouses, heirs, executors and personal and legal representatives.

11. Security.

To the extent requested by Indemnitee and approved by the Board of Directors of the Company, the Company may at any time and from time to time provide security to Indemnitee for the Company's obligations hereunder through an irrevocable bank line of credit, funded trust or other collateral. Any such security, once provided to Indemnitee, may not be revoked or released without the prior written consent of the Indemnitee.

12. Enforcement.

(a) The Company expressly confirms and agrees that it has entered into this Agreement and assumes the obligations imposed on it hereby in order to induce Indemnitee to provide services to the Company, and the Company acknowledges that Indemnitee is relying upon this Agreement in providing services to the Company.

(b) This Agreement constitutes the entire agreement between the parties hereto with respect to the subject matter hereof and supersedes all prior agreements and understandings, oral, written and implied, between the parties hereto with respect to the subject matter hereof.

13. Definitions.

For purposes of this Agreement:

(a) "Corporate Status" describes the status of a person who is or was a director, officer, employee, agent or fiduciary of the Company or of any other corporation, partnership, joint venture, trust, employee benefit plan or other enterprise that such person is or was serving at the request of the Company.

(b) "Disinterested Director" means a director of the Company who is not and was not a party to the Proceeding in respect of which indemnification is sought by Indemnitee.

(c) "Enterprise" shall mean the Company and any other corporation, partnership, joint venture, trust, employee benefit plan or other enterprise that Indemnitee is or was serving at the express written request of the Company as a director, officer, employee, agent or fiduciary.

(d) "Expenses" shall include all reasonable attorneys' fees, retainers, court costs, transcript costs, fees of experts, witness fees, travel expenses, duplicating costs, printing and binding costs, telephone charges, postage, delivery service fees and all other disbursements or expenses of the types customarily incurred in connection with prosecuting, defending, preparing to prosecute or defend, investigating, participating, or being or preparing to be a witness in a Proceeding, or responding to, or objecting to, a request to provide discovery in any Proceeding. Expenses also shall include Expenses incurred in connection with any appeal resulting from any Proceeding and any federal, state, local or foreign taxes imposed on the Indemnitee as a result of the actual or deemed receipt of any payments under this Agreement, including, without limitation, the premium, security for, and other costs relating to any cost bond, supersedeas bond, or other appeal bond or its equivalent. Expenses, however, shall not include amounts paid in settlement by Indemnitee or the amount of judgments or fines against Indemnitee.

(e) "Independent Counsel" means a law firm, or a member of a law firm, that is experienced in matters of corporation law and neither presently is, nor in the past five years has been, retained to represent: (i) the Company or Indemnitee in any matter material to either such party (other than with respect to matters concerning Indemnitee under this Agreement, or of other indemnitees under similar indemnification agreements), or (ii) any other party to the Proceeding giving rise to a claim for indemnification hereunder. Notwithstanding the foregoing, the term "Independent Counsel" shall not include any person who, under the applicable standards of professional conduct then prevailing, would have a conflict of interest in representing either the Company or Indemnitee in an action to determine Indemnitee's rights under this Agreement. The Company agrees to pay the reasonable fees of the Independent Counsel referred to above and to fully indemnify such counsel against any and all Expenses, claims, liabilities and damages arising out of or relating to this Agreement or its engagement pursuant hereto.

(f) "Proceeding" includes any threatened, pending or completed action, suit, arbitration, alternate dispute resolution mechanism, investigation, inquiry, administrative hearing or any other actual, threatened or completed proceeding, whether brought by or in the right of the Company or otherwise and whether civil, criminal, administrative or investigative, in which Indemnitee was, is or will be involved as a party or otherwise, by reason of the fact that Indemnitee is or was an officer or director of the Company, by reason of any action taken by him or of any inaction on his part while acting as an officer or director of the Company, or by reason of the fact that he is or was serving at the request of the Company as a director, officer, employee, agent or fiduciary of another corporation, partnership, joint venture, trust or other Enterprise; in each case whether or not he is acting or serving in any such capacity at the time any liability or expense is incurred for which indemnification can be provided under this Agreement; including one pending on or before the date of this Agreement, but excluding one initiated by an Indemnitee pursuant to Section 7 of this Agreement to enforce his rights under this Agreement.

14. Severability.

The invalidity or unenforceability of any provision hereof shall in no way affect the validity or enforceability of any other provision. Without limiting the generality of the foregoing, this Agreement is intended to confer upon Indemnitee indemnification rights to the fullest extent permitted by applicable laws. In the event any provision hereof conflicts with any applicable law, such provision shall be deemed modified, consistent with the aforementioned intent, to the extent necessary to resolve such conflict.

15. Modification and Waiver.

No supplement, modification, termination or amendment of this Agreement shall be binding unless executed in writing by both of the parties hereto. No waiver of any of the provisions of this Agreement shall be deemed or shall constitute a waiver of any other provisions hereof (whether or not similar) nor shall such waiver constitute a continuing waiver.

16. Notice By Indemnitee.

Indemnitee agrees promptly to notify the Company in writing upon being served with or otherwise receiving any summons, citation, subpoena, complaint, indictment, information or other document relating to any Proceeding or matter which may be subject to indemnification covered hereunder. The failure to so notify the Company shall not relieve the Company of any obligation which it may have to Indemnitee under this Agreement or otherwise unless and only to the extent that such failure or delay materially prejudices the Company.

17. Notices.

All notices and other communications given or made pursuant to this Agreement shall be in writing and shall be deemed effectively given: (a) upon personal delivery to the party to be notified, (b) when sent by confirmed electronic mail or facsimile if sent during normal business hours of the recipient, and if not so confirmed, then on the next business day, (c) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid, or (d) one (1) day after deposit with a nationally recognized overnight courier, specifying next day delivery, with written verification of receipt. All communications shall be sent:

(a) To Indemnitee at the address set forth below Indemnitee signature hereto.

(b) To the Company at:

1751 River Run
Suite 400
Fort Worth, TX 76107
Attention: Chief Executive Officer

or to such other address as may have been furnished to Indemnitee by the Company or to the Company by Indemnitee, as the case may be.

18. Counterparts.

This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same Agreement binding on the parties. This Agreement may also be executed and delivered by facsimile signature and in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument binding on the parties.

19. Headings.

The headings of the paragraphs of this Agreement are inserted for convenience only and shall not be deemed to constitute part of this Agreement or to affect the construction thereof.

20. Governing Law, Consent to Jurisdiction, and Interpretation.

This Agreement and the legal relations among the parties shall be governed by, and construed and enforced in accordance with, the laws of the State of Delaware, without regard to its conflict of laws rules. The Company and Indemnitee hereby irrevocably and unconditionally (i) agree that any action or proceeding arising out of or in connection with this Agreement shall be brought only in the Chancery Court of the State of Delaware (the "Delaware Court"), and not in any other state or federal court in the United States of America or any court in any other country, (ii) consent to submit to the exclusive jurisdiction of the Delaware Court for purposes of any action or proceeding arising out of or in connection with this Agreement, (iii) appoint, to the extent such party is not otherwise subject to service of process in the State of Delaware, irrevocably Capitol Services, Inc., 675 South State Street, Suite B, Dover, DE 19901, as its agent in the State of Delaware as such party's agent for acceptance of legal process in connection with any such action or proceeding against such party with the same legal force and validity as if served upon such party personally within the State of Delaware, (iv) waive any objection to the laying of venue of any such action or proceeding in the Delaware Court, and (v) waive, and agree not to plead or to make, any claim that any such action or proceeding brought in the Delaware Court has been brought in an improper or inconvenient forum. Any interpretation or construction of this Agreement shall be made in accordance with the intent of this Agreement as expressed in the first sentence of Section 6. Any ambiguity shall be interpreted in favor of indemnification and advancement of expenses. Grants of indemnification and advancement of expenses shall be interpreted broadly. Limitations on indemnification and advancement of expenses shall be interpreted narrowly.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year first indicated above.

COMPANY:

ACTUATE THERAPEUTICS, INC.

By: /s/ Daniel Schmitt
Name: Daniel Schmitt
Title: President and Chief Executive Officer

Address:

1751 River Run
Suite 400
Fort Worth, TX 76107

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year first indicated above.

By: /s/ Paul Lytle
Paul Lytle

Address:

Exhibit 10.12

ACTUATE THERAPEUTICS, INC.
INDEMNIFICATION AGREEMENT

THIS INDEMNIFICATION AGREEMENT (the "Agreement") is made and entered into as of March 17, 2017 between ACTUATE THERAPEUTICS, INC., a Delaware corporation (the "Company"), and [___] ("Indemnitee").

WHEREAS, highly competent persons have become more reluctant to serve corporations as directors or in other capacities unless they are provided with adequate protection through insurance or adequate indemnification against inordinate risks of claims and actions against them arising out of their service to and activities on behalf of the corporation;

WHEREAS, although the furnishing of liability insurance to protect persons serving the corporation and its subsidiaries from certain liabilities has been a customary and widespread practice among United States-based corporations and other business enterprises, the Company believes that, given current market conditions and trends, such insurance may be available to it in the future only at higher premiums and with more exclusions. At the same time, directors, officers, and other persons in service to corporations or business enterprises are being increasingly subjected to expensive and time-consuming litigation relating to, among other things, matters that traditionally would have been brought only against the Company or business enterprise itself;

WHEREAS, the Bylaws and Certificate of Incorporation of the Company require indemnification of the officers and directors of the Company;

WHEREAS, Indemnitee may also be entitled to indemnification pursuant to the General Corporation Law of the State of Delaware ("DGCL");

WHEREAS, the Bylaws and Certificate of Incorporation and the DGCL expressly provide that the indemnification provisions set forth therein are not exclusive, and thereby contemplate that contracts may be entered into between the Company and members of the board of directors, officers and other persons with respect to indemnification;

WHEREAS, the uncertainties relating to liability insurance and to indemnification have increased the difficulty of attracting and retaining such persons;

WHEREAS, the Board has determined that the increased difficulty in attracting and retaining such persons is detrimental to the best interests of the Company's stockholders and that the Company should act to assure such persons that there will be increased certainty of such protection in the future;

WHEREAS, it is reasonable, prudent and necessary for the Company contractually to obligate itself to indemnify, and to advance expenses on behalf of, such persons to the fullest extent permitted by applicable law so that they will serve or continue to serve the Company free from undue concern that they will not be so indemnified;

WHEREAS, this Agreement is a supplement to and in furtherance of the Bylaws and Certificate of Incorporation of the Company and any resolutions adopted pursuant thereto, and

shall not be deemed a substitute therefor, nor to diminish or abrogate any rights of Indemnitee thereunder;

WHEREAS, Indemnitee does not regard the protection available under the Company's Bylaws and Certificate of Incorporation and insurance as adequate in the present circumstances, and may not be willing to serve as a director and/or officer without adequate protection, and the Company desires Indemnitee to serve in such capacity;

WHEREAS, Indemnitee is willing to serve, continue to serve and to take on additional service for or on behalf of the Company on the condition that he be so indemnified; and

WHEREAS, Indemnitee has or may have certain rights to indemnification and/or insurance provided by other entities and/or organizations which Indemnitee and such other entities and/or organizations intend to be secondary to the primary obligation of the Company to indemnify Indemnitee as provided herein, with the Company's acknowledgement and agreement to the foregoing being a material condition to Indemnitee's willingness to serve on the Board.

NOW, THEREFORE, in consideration of Indemnitee's agreement to serve as a director and/or officer from and after the date hereof, the parties hereto agree as follows.

1. Indemnity of Indemnitee.

The Company hereby agrees to hold harmless and indemnify Indemnitee to the fullest extent permitted by law, as such may be amended from time to time. In furtherance of the foregoing indemnification, and without limiting the generality thereof:

(a) Proceedings Other Than Proceedings by or in the Right of the Company. Indemnitee shall be entitled to the rights of indemnification provided in this Section l(a) if, by reason of his Corporate Status (as hereinafter defined), the Indemnitee is, or is threatened to be made, a party to or participant in any Proceeding (as hereinafter defined) other than a Proceeding by or in the right of the Company. Pursuant to this Section 1(a), Indemnitee shall be indemnified against all Expenses (as hereinafter defined), judgments, penalties, fines and amounts paid in settlement actually and reasonably incurred by him, or on his behalf, in connection with such Proceeding or any claim, issue or matter therein, if the Indemnitee acted in good faith and in a manner the Indemnitee reasonably believed to be in or not opposed to the best interests of the Company, and with respect to any criminal Proceeding, had no reasonable cause to believe the Indemnitee's conduct was unlawful.

(b) Proceedings by or in the Right of the Company. Indemnitee shall be entitled to the rights of indemnification provided in this Section 1(b) if, by reason of his Corporate Status, the Indemnitee is, or is threatened to be made, a party to or participant in any Proceeding brought by or in the right of the Company. Pursuant to this Section 1(b), Indemnitee shall be indemnified against all Expenses actually and reasonably incurred by the Indemnitee, or on the Indemnitee's behalf, in connection with such Proceeding if the Indemnitee acted in good faith and in a manner the Indemnitee reasonably believed to be in or not opposed to the best interests of the Company; provided, however, if applicable law so provides, no indemnification against such Expenses shall be made in respect of any claim, issue or matter in such Proceeding as to which Indemnitee shall have been adjudged to be liable to the Company unless and to the extent that the Court of Chancery of the State of Delaware shall determine that such indemnification may be made.

(c) Indemnification for Expenses of a Party Who is Wholly or Partly Successful. Notwithstanding any other provision of this Agreement, to the extent that Indemnitee is, by reason of his Corporate Status, a party to and is successful, on the merits or otherwise, in any Proceeding, he shall be indemnified to the maximum extent permitted by law, as such may be amended from time to time, against all Expenses actually and reasonably incurred by him or on his behalf in connection therewith. If Indemnitee is not wholly successful in such Proceeding but is successful, on the merits or otherwise, as to one or more but less than all claims, issues or matters in such Proceeding, the Company shall indemnify Indemnitee against all Expenses actually and reasonably incurred by him or on his behalf in connection with each successfully resolved claim, issue or matter. For purposes of this Section and without limitation, the termination of any claim, issue or matter in such a Proceeding by dismissal, with or without prejudice, shall be deemed to be a successful result as to such claim, issue or matter. If a reasonably competent counsel engaged to defend solely the successfully resolved claim, issue or matter would have incurred an item of Expenses in defending the successfully resolved claim, issue or matter that item of Expenses is covered irrespective of whether the item also benefited the defense of an unsuccessfully resolved claim, issue or matter.

(d) Indemnification of Related Parties. If (i) Indemnitee is or was affiliated with one or more venture capital funds that has invested in the Company (an "Appointing Stockholder"), (ii) the Appointing Stockholder is, or is threatened to be made, a party to or a participant in any proceeding, then the Appointing Stockholder will be entitled to indemnification hereunder for Expenses to the same extent as Indemnitee, but only to the extent that Indemnitee is or would be entitled to indemnification hereunder in the same or any related action or proceeding, and provided that any such indemnification shall be subject to the same limitations set forth herein with respect to Indemnitee.

2. Additional Indemnity.

In addition to, and without regard to any limitations on, the indemnification provided for in Section 1 of this Agreement, the Company shall and hereby does indemnify and hold harmless Indemnitee against all Expenses, judgments, penalties, fines and amounts paid in settlement actually and reasonably incurred by him or on his behalf if, by reason of his Corporate Status, he is, or is threatened to be made, a party to or participant in any Proceeding (including a Proceeding by or in the right of the Company), including, without limitation, all liability arising out of the negligence or active or passive wrongdoing of Indemnitee. The only limitation that shall exist upon the Company's obligations pursuant to this Agreement shall be that the Company shall not be obligated to make any payment to Indemnitee that is finally determined (under the procedures, and subject to the presumptions, set forth in Sections 6 and 7 hereof) to be unlawful.

3. Contribution.

(a) Whether or not the indemnification provided in Sections 1 and 2 hereof is available, in respect of any threatened, pending or completed action, suit or proceeding in which the Company is jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), the Company shall pay, in the first instance, the entire amount of any judgment or settlement of such action, suit or proceeding without requiring Indemnitee to contribute to such payment and the Company hereby waives and relinquishes any right of contribution it may have against Indemnitee. The Company shall not enter into any settlement of any action, suit or proceeding in which the Company is jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding) unless such settlement provides for a full and final release of all claims asserted against Indemnitee.

(b) Without diminishing or impairing the obligations of the Company set forth in this Agreement, including, but not limited to, the obligations set forth in the preceding subparagraph and in Section 1, if, for any reason, Indemnitee shall elect or be required to pay all or any portion of any judgment or settlement in any threatened, pending or completed action, suit or proceeding in which the Company is jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), the Company shall contribute to the amount of Expenses, judgments, fines and amounts paid in settlement actually and reasonably incurred and paid or payable by Indemnitee in proportion to the relative benefits received by the Company and all officers, directors or employees of the Company, other than Indemnitee, who are jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), on the one hand, and Indemnitee, on the other hand, from the transaction from which such action, suit or proceeding arose; provided, however, that the proportion determined on the basis of relative benefit may, to the extent necessary to conform to law, be further adjusted by reference to the relative fault of the Company and all officers, directors or employees of the Company other than Indemnitee who are jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), on the one hand, and Indemnitee, on the other hand, in connection with the events that resulted in such expenses, judgments, fines or settlement amounts, as well as any other equitable considerations which the law may require to be considered. The relative fault of the Company and all officers, directors or employees of the Company, other than Indemnitee, who are jointly liable with Indemnitee (or would be if joined in such action, suit or proceeding), on the one hand, and Indemnitee, on the other hand, shall be determined by reference to, among other things, the degree to which their actions were motivated by intent to gain personal profit or advantage, the degree to which their liability is primary or secondary and the degree to which their conduct is active or passive.

(c) The Company hereby agrees to fully indemnify and hold Indemnitee harmless from any claims of contribution which may be brought by officers, directors or employees of the Company, other than Indemnitee, who may be jointly liable with Indemnitee.

(d) To the fullest extent permissible under applicable law, if the indemnification provided for in this Agreement is unavailable to Indemnitee for any reason whatsoever, the Company, in lieu of indemnifying Indemnitee, shall contribute to the amount incurred by Indemnitee, whether for judgments, fines, penalties, excise taxes, amounts paid or to be paid in settlement and/or for Expenses, in connection with any claim relating to an indemnifiable event under this Agreement, in such proportion as is deemed fair and reasonable in light of all of the circumstances of such Proceeding in order to reflect (i) the relative benefits received by the Company and Indemnitee as a result of the event(s) and/or transaction(s) giving cause to such Proceeding; and/or (iii) the relative fault of the Company (and its directors, officers, employees and agents) and Indemnitee in connection with such event(s) and/or transaction(s).

4. Indemnification for Expenses of a Witness.

Notwithstanding any other provision of this Agreement, to the extent that Indemnitee is, by reason of his Corporate Status, a witness, or is made (or asked to) respond to discovery requests, in any Proceeding to which Indemnitee is not a party, he shall be indemnified against all Expenses actually and reasonably incurred by him or on his behalf in connection therewith.

5. Advancement of Expenses.

Notwithstanding any other provision of this Agreement, the Company shall advance all Expenses incurred by or on behalf of Indemnitee in connection with any Proceeding by reason of Indemnitee's Corporate Status within thirty (30) days after the receipt by the Company of a statement or statements from Indemnitee requesting such advance or advances from time to time, whether prior to or after final disposition of such Proceeding. Such statement or statements shall reasonably evidence the Expenses incurred by Indemnitee and shall include or be preceded or accompanied by a written undertaking by or on behalf of Indemnitee to repay any Expenses advanced if it shall ultimately be determined that Indemnitee is not entitled to be indemnified against such Expenses. Any advances and undertakings to repay pursuant to this Section 5 shall be unsecured and interest free.

6. Procedures and Presumptions for Determination of Entitlement to Indemnification. It is the intent of this Agreement to secure for Indemnitee rights of indemnity that are as favorable as may be permitted under the DGCL and public policy of the State of Delaware. Accordingly, the parties agree that the following procedures and presumptions shall apply in the event of any question as to whether Indemnitee is entitled to indemnification under this Agreement:

(a) To obtain indemnification under this Agreement, Indemnitee shall submit to the Company a written request, including therein or therewith such documentation and information as is reasonably available to Indemnitee and is reasonably necessary to determine whether and to what extent Indemnitee is entitled to indemnification. The Secretary of the Company shall, promptly upon receipt of such a request for indemnification, advise the Board of Directors in writing that Indemnitee has requested indemnification. Notwithstanding the foregoing, any failure of Indemnitee to provide such a request to the Company, or to provide such a request in a timely fashion, shall not relieve the Company of any liability that it may have to Indemnitee unless, and to the extent that, such failure actually and materially prejudices the interests of the Company.

(b) Upon written request by Indemnitee for indemnification pursuant to the first sentence of Section 6(a) hereof, a determination with respect to Indemnitee's entitlement thereto shall be made in the specific case by one of the following four methods, which shall be at the election of the board: (1) by a majority vote of the disinterested directors, even though less than a quorum, (2) by a committee of disinterested directors designated by a majority vote of the disinterested directors, even though less than a quorum, (3) if there are no disinterested directors or if the disinterested directors so direct, by independent legal counsel in a written opinion to the Board of Directors, a copy of which shall be delivered to the Indemnitee, or (4) if so directed by the Board of Directors, by the stockholders of the Company. For purposes hereof, disinterested directors are those members of the board of directors of the Company who are not parties to the action, suit or proceeding in respect of which indemnification is sought by Indemnitee.

(c) If the determination of entitlement to indemnification is to be made by Independent Counsel pursuant to Section 6(b) hereof, the Independent Counsel shall be selected as provided in this Section 6(c). The Independent Counsel shall be selected by the Board of Directors. Indemnitee may, within 10 days after such written notice of selection shall have been given, deliver to the Company a written objection to such selection; provided, however, that such objection may be asserted only on the ground that the Independent Counsel so selected does not meet the requirements of "Independent Counsel" as defined in Section 13 of this Agreement, and the objection shall set forth with particularity the factual basis of such assertion. Absent a proper and timely objection, the person so selected shall act as Independent Counsel. If a written objection is made and substantiated, the Independent Counsel selected may not serve as Independent Counsel unless and until such objection is withdrawn or a court has determined that such objection is without merit. If, within 20 days after submission by Indemnitee of a written request for indemnification pursuant to Section 6(b) hereof, no Independent Counsel shall have been selected and not objected to, either the Company or Indemnitee

may petition the Court of Chancery of the State of Delaware or other court of competent jurisdiction for resolution of any objection which shall have been made by the Indemnitee to the Company's selection of Independent Counsel and/or for the appointment as Independent Counsel of a person selected by the court or by such other person as the court shall designate, and the person with respect to whom all objections are so resolved or the person so appointed shall act as Independent Counsel under Section 6(b) hereof. The Company shall pay any and all reasonable fees and expenses of Independent Counsel incurred by such Independent Counsel in connection with acting pursuant to Section 6(b) hereof, and the Company shall pay all reasonable fees and expenses incident to the procedures of this Section 6(c), regardless of the manner in which such Independent Counsel was selected or appointed.

(d) In making a determination with respect to entitlement to indemnification hereunder, the person or persons or entity making such determination shall presume that Indemnitee is entitled to indemnification under this Agreement. Anyone seeking to overcome this presumption shall have the burden of proof and the burden of persuasion by clear and convincing evidence. Neither the failure of the Company (including by its directors or independent legal counsel) to have made a determination prior to the commencement of any action pursuant to this Agreement that indemnification is proper in the circumstances because Indemnitee has met the applicable standard of conduct, nor an actual determination by the Company (including by its directors or independent legal counsel) that Indemnitee has not met such applicable standard of conduct, shall be a defense to the action or create a presumption that Indemnitee has not met the applicable standard of conduct.

(e) Indemnitee shall be deemed to have acted in good faith if Indemnitee's action is based on the records or books of account of the Enterprise (as hereinafter defined), including financial statements, or on information supplied to Indemnitee by the officers of the Enterprise in the course of their duties, or on the advice of legal counsel for the Enterprise or on information or records given or reports made to the Enterprise by an independent certified public accountant or by an appraiser or other expert selected with reasonable care by the Enterprise. In addition, the knowledge and/or actions, or failure to act, of any director, officer, agent or employee of the Enterprise shall not be imputed to Indemnitee for purposes of determining the right to indemnification under this Agreement. Whether or not the foregoing provisions of this Section 6(e) are satisfied, it shall in any event be presumed that Indemnitee has at all times acted in good faith and in a manner he reasonably believed to be in or not opposed to the best interests of the Company. Anyone seeking to overcome this presumption shall have the burden of proof and the burden of persuasion by clear and convincing evidence.

(f) If the person, persons or entity empowered or selected under Section 6 to determine whether Indemnitee is entitled to indemnification shall not have made a determination within sixty (60) days after receipt by the Company of the request therefor, the requisite determination of entitlement to indemnification shall be deemed to have been made and Indemnitee shall be entitled to such indemnification absent (i) a misstatement by Indemnitee of a material fact, or an omission of a material fact necessary to make Indemnitee's statement not materially misleading, in connection with the request for indemnification, or (ii) a prohibition of such indemnification under applicable law; provided, however, that such 60-day period may be extended for a reasonable time, not to exceed an additional thirty (30) days, if the person, persons or entity making such determination with respect to entitlement to indemnification in good faith requires such additional time to obtain or evaluate documentation and/or information relating thereto; and provided, further, that the foregoing provisions of this Section 6(f) shall not apply if the determination of entitlement to indemnification is to be made by the stockholders pursuant to Section 6(b) of this Agreement and if (A) within fifteen (15) days after receipt by the Company of the request for such determination, the Board of Directors or the Disinterested Directors, if appropriate, resolve to submit such determination to the stockholders for their consideration at an annual meeting thereof to be held within seventy-five (75) days after such receipt and such determination is made thereat, or (B) a special meeting of stockholders is called within fifteen (15) days after such receipt for the purpose of making such determination, such meeting is held for such purpose within sixty (60) days after having been so called and such determination is made thereat.

(g) Indemnitee shall cooperate with the person, persons or entity making such determination with respect to Indemnitee's entitlement to indemnification, including providing to such person, persons or entity upon reasonable advance request any documentation or information which is not privileged or otherwise protected from disclosure and which is reasonably available to Indemnitee and reasonably necessary to such determination. Any Independent Counsel, member of the Board of Directors or stockholder of the Company shall act reasonably and in good faith in making a determination regarding the Indemnitee's entitlement to indemnification under this Agreement. Any costs or expenses (including attorneys' fees and disbursements) incurred by Indemnitee in so cooperating with the person, persons or entity making such determination shall be borne by the Company (irrespective of the determination as to Indemnitee's entitlement to indemnification) and the Company hereby indemnifies and agrees to hold Indemnitee harmless therefrom.

(h) The Company acknowledges that a settlement or other disposition short of final judgment may be successful if it permits a party to avoid expense, delay, distraction, disruption and uncertainty. In the event that any action, claim or proceeding to which Indemnitee is a party is resolved in any manner other than by adverse judgment against Indemnitee (including, without limitation, settlement of such action, claim or proceeding with or without payment of money or other consideration) it shall be presumed that Indemnitee has been successful on the merits or otherwise in such action, suit or proceeding. Anyone seeking to overcome this presumption shall have the burden of proof and the burden of persuasion by clear and convincing evidence.

(i) The termination of any Proceeding or of any claim, issue or matter therein, by judgment, order, settlement or conviction, or upon a plea of nolo contendere or its equivalent, shall not (except as otherwise expressly provided in this Agreement) of itself adversely affect the right of Indemnitee to indemnification or create a presumption that Indemnitee did not act in good faith and in a manner which he reasonably believed to be in or not opposed to the best interests of the Company or, with respect to any criminal Proceeding, that Indemnitee had reasonable cause to believe that his conduct was unlawful.

7. Remedies of Indemnitee.

(a) In the event that (i) a determination is made pursuant to Section 6 of this Agreement that Indemnitee is not entitled to indemnification under this Agreement, (ii) advancement of Expenses is not timely made pursuant to Section 5 of this Agreement, (iii) no determination of entitlement to indemnification is made pursuant to Section 6(a) of this Agreement within 90 days after receipt by the Company of the request for indemnification, (iv) payment of indemnification is not made pursuant to this Agreement within ten (10) days after receipt by the Company of a written request therefor, or (v) payment of indemnification is not made within ten (10) days after a determination has been made that Indemnitee is entitled to indemnification or such determination is deemed to have been made pursuant to Section 6 of this Agreement, Indemnitee shall be entitled to an adjudication in an appropriate court of the State of Delaware, or in any other court of competent jurisdiction, of Indemnitee's entitlement to such indemnification. Indemnitee shall commence such proceeding seeking an adjudication within 180 days following the date on which Indemnitee first has the right to commence such proceeding pursuant to this Section 7(a). The Company shall not oppose Indemnitee's right to seek any such adjudication.

(b) In the event that a determination shall have been made pursuant to Section 6(a) of this Agreement that Indemnitee is not entitled to indemnification, any judicial proceeding commenced pursuant to this Section 7 shall be conducted in all respects as a de novo trial on the merits, and Indemnitee shall not be prejudiced by reason of the adverse determination under Section 6(a).

(c) If a determination shall have been made pursuant to Section 6(a) of this Agreement that Indemnitee is entitled to indemnification, the Company shall be bound by such determination in any judicial proceeding commenced pursuant to this Section 7, absent (i) a misstatement by Indemnitee of a material fact, or an omission of a material fact necessary to make Indemnitee's misstatement not materially misleading in connection with the application for indemnification, or (ii) a prohibition of such indemnification under applicable law.

(d) In the event that Indemnitee, pursuant to this Section 7, seeks a judicial adjudication of his rights under, or to recover damages for breach of, this Agreement, or to recover under any directors' and officers' liability insurance policies maintained by the Company, the Company shall pay on his behalf, in advance, any and all expenses (of the types described in the definition of Expenses in Section 13 of this Agreement) actually and reasonably incurred by him in such judicial adjudication, regardless of whether Indemnitee ultimately is determined to be entitled to such indemnification, advancement of expenses or insurance recovery.

(e) The Company shall be precluded from asserting in any judicial proceeding commenced pursuant to this Section 7 that the procedures and presumptions of this Agreement are not valid, binding and enforceable and shall stipulate in any

such court that the Company is bound by all the provisions of this Agreement. The Company shall indemnify Indemnitee against any and all Expenses and, if requested by Indemnitee, shall (within ten (10) days after receipt by the Company of a written request therefore) advance, to the extent not prohibited by law, such expenses to Indemnitee, which are incurred by Indemnitee in connection with any action brought by Indemnitee for indemnification or advance of Expenses from the Company under this Agreement or under any directors' and officers' liability insurance policies maintained by the Company, regardless of whether Indemnitee ultimately is determined to be entitled to such indemnification, advancement of Expenses or insurance recovery, as the case may be.

(f) Notwithstanding anything in this Agreement to the contrary, no determination as to entitlement to indemnification under this Agreement shall be required to be made prior to the final disposition of the Proceeding.

8. Non-Exclusivity; Survival of Rights; Insurance; Primacy of Indemnification; Subrogation.

(a) The rights of indemnification as provided by this Agreement shall not be deemed exclusive of any other rights to which Indemnitee may at any time be entitled under applicable law, the Certificate of Incorporation, the Bylaws, any agreement, a vote of stockholders, a resolution of directors or otherwise, of the Company. No amendment, alteration or repeal of this Agreement or of any provision hereof shall limit or restrict any right of Indemnitee under this Agreement in respect of any action taken or omitted by such Indemnitee in his Corporate Status prior to such amendment, alteration or repeal. To the extent that a change in the DGCL, whether by statute or judicial decision, permits greater indemnification than would be afforded currently under the Certificate of Incorporation, Bylaws and this Agreement, it is the intent of the parties hereto that Indemnitee shall enjoy by this Agreement the greater benefits so afforded by such change. No right or remedy herein conferred is intended to be exclusive of any other right or remedy, and every other right and remedy shall be cumulative and in addition to every other right and remedy given hereunder or now or hereafter existing at law or in equity or otherwise. The assertion or employment of any right or remedy hereunder, or otherwise, shall not prevent the concurrent assertion or employment of any other right or remedy.

(b) To the extent that the Company maintains an insurance policy or policies providing liability insurance for directors, officers, employees, or agents or fiduciaries of the Company or of any other corporation, partnership, joint venture, trust, employee benefit plan or other enterprise that such person serves at the request of the Company, Indemnitee shall be covered by such policy or policies in accordance with its or their terms to the maximum extent of the coverage available for any director, officer, employee, agent or fiduciary under such policy or policies. If, at the time of the receipt of a notice of a claim pursuant to the terms hereof, the Company has director and officer liability insurance in effect, the Company shall give prompt notice of the commencement of such proceeding to the insurers in accordance with the procedures set forth in the respective policies. The Company shall thereafter take all necessary or desirable action to cause such insurers to pay, on behalf of the Indemnitee, all amounts payable as a result of such proceeding in accordance with the terms of such policies.

(c) The Company hereby acknowledges that Indemnitee has or may have in the future certain rights to indemnification, advancement of expenses and/or insurance provided by other entities and/or organizations (collectively, the "Fund Indemnitors"). The Company hereby agrees (i) that it is the indemnitor of first resort (i.e., its obligations to Indemnitee are primary and any obligation of the Fund Indemnitors to advance expenses or to provide indemnification for the same expenses or liabilities incurred by Indemnitee are secondary), (ii) that it shall be required to advance the full amount of expenses incurred by Indemnitee and shall be liable for the full amount of all Expenses, judgments, penalties, fines and amounts paid in settlement to the extent legally permitted and as required by the terms of this Agreement and the Certificate of Incorporation or Bylaws of the Company (or any other agreement between the Company and Indemnitee), without regard to any rights Indemnitee may have against the Fund Indemnitors, and (iii) that it irrevocably waives, relinquishes and releases the Fund Indemnitors from any and all claims against the Fund Indemnitors for contribution, subrogation or any other recovery of any kind in respect thereof. The Company further agrees that no advancement or payment by the Fund Indemnitors on behalf of Indemnitee with respect to any claim for which Indemnitee has sought indemnification from the Company shall affect the foregoing and the Fund Indemnitors shall have a right of contribution and/or be subrogated to the extent of such advancement or payment to all of the rights of recovery of Indemnitee against the Company. The Company and Indemnitee agree that the Fund Indemnitors are express third party beneficiaries of the terms of this Section 8(c). For the avoidance of doubt, nothing in this Agreement or Section 8(c) limits or is intended to limit the obligations of the Company's directors and officer liability insurance provider, if any, to the Company pursuant to any policy of directors and officers liability insurance paid for by the Company.

(d) Except as provided in paragraph (c) above, in the event of any payment under this Agreement, the Company shall be subrogated to the extent of such payment to all of the rights of recovery of Indemnitee (other than against the Fund Indemnitors), who shall execute all papers required and take all action necessary to secure such rights, including execution of such documents as are necessary to enable the Company to bring suit to enforce such rights.

(e) Except as provided in paragraph (c) above, the Company shall not be liable under this Agreement to make any payment of amounts otherwise indemnifiable hereunder if and to the extent that Indemnitee has otherwise actually received such payment under any insurance policy, contract, agreement or otherwise.

(f) Except as provided in paragraph (c) above, the Company's obligation to indemnify or advance Expenses hereunder to Indemnitee who is or was serving at the request of the Company as a director, officer, employee or agent of any other corporation, partnership, joint venture, trust, employee benefit plan or other enterprise shall be reduced by any amount Indemnitee has actually received as indemnification or advancement of expenses from such other corporation, partnership, joint venture, trust, employee benefit plan or other enterprise.

9. Exception to Right of Indemnification.

Notwithstanding any provision in this Agreement, the Company shall not be obligated under this Agreement to make any indemnity in connection with any claim made against Indemnitee:

(a) for which payment has actually been made to or on behalf of Indemnitee under any insurance policy or other indemnity provision, except with respect to any excess beyond the amount paid under any insurance policy or other indemnity provision, provided, that the foregoing shall not affect the rights of Indemnitee or the Fund Indemnitors set forth in Section 8(c) above;

(b) for an accounting of profits made from the purchase and sale (or sale and purchase) by Indemnitee of securities of the Company within the meaning of Section 16(b) of the Securities Exchange Act of 1934, as amended, or similar provisions of state statutory law or common law;

(c) in connection with any Proceeding (or any part of any Proceeding) initiated by Indemnitee, including any Proceeding (or any part of any Proceeding) initiated by Indemnitee against the Company or its directors, officers, employees or other indemnitees, unless (i) the Board of Directors of the Company authorized the Proceeding (or any part of any Proceeding) prior to its initiation, or (ii) the Company provides the indemnification, in its sole discretion, pursuant to the powers vested in the Company under applicable law;

(d) with respect to remuneration paid to Indemnitee if it is determined by final judgment or other final adjudication that such remuneration was in violation of law (and, in this respect, both the Company and Indemnitee have been advised that the Securities and Exchange Commission believes that indemnification for liabilities arising under the federal securities laws is against public policy and is, therefore, unenforceable and that claims for indemnification should be submitted to appropriate courts for adjudication, as indicated in the last paragraph of this Section 9 below);

(e) a final judgment or other final adjudication is made that Indemnitee's conduct was in bad faith, knowingly fraudulent or deliberately dishonest or constituted willful misconduct (but only to the extent of such specific determination); or

(f) on account of conduct that is established by a final judgment as constituting a breach of Indemnitee's duty of loyalty to the Company or resulting in any personal profit or advantage to which Indemnitee is not legally entitled.

For purposes of this Section 9, a final judgment or other adjudication may be reached in either the underlying proceeding or action in connection with which indemnification is sought or a separate proceeding or action to establish rights and liabilities under this Agreement.

Any provision herein to the contrary notwithstanding, the Company shall not be obligated pursuant to the terms of this Agreement to indemnify Indemnitee or otherwise act in violation of any undertaking appearing in and required by the rules and regulations promulgated under the Securities Act of 1933, as amended (the "Act"), or in any registration statement filed with the SEC under the Act. Indemnitee acknowledges that paragraph (h) of Item 512 of Regulation S-K currently generally requires the Company to undertake in connection with any registration statement filed under the Act to submit the issue of the enforceability of Indemnitee's rights under this Agreement in connection with any liability under the Act on public policy grounds to a court of appropriate jurisdiction and to be governed by any final adjudication of such issue. Indemnitee specifically agrees that any such undertaking shall supersede the provisions of this Agreement and to be bound by any such undertaking.

10. Duration of Agreement.

All agreements and obligations of the Company contained herein shall be effective during the period Indemnitee is an officer or director of the Company (or is or was serving at the request of the Company as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise) and shall continue in effect at all times thereafter. This Agreement shall be binding upon and inure to the benefit of and be enforceable by the parties hereto and their respective successors (including any direct or indirect successor by purchase, merger, consolidation or otherwise to all or substantially all of the business or assets of the Company), assigns, spouses, heirs, executors and personal and legal representatives.

11. Security.

To the extent requested by Indemnitee and approved by the Board of Directors of the Company, the Company may at any time and from time to time provide security to Indemnitee for the Company's obligations hereunder through an irrevocable bank line of credit, funded trust or other collateral. Any such security, once provided to Indemnitee, may not be revoked or released without the prior written consent of the Indemnitee.

12. Enforcement.

(a) The Company expressly confirms and agrees that it has entered into this Agreement and assumes the obligations imposed on it hereby in order to induce Indemnitee to serve as an officer or director of the Company, and the Company acknowledges that Indemnitee is relying upon this Agreement in serving as an officer or director of the Company.

(b) This Agreement constitutes the entire agreement between the parties hereto with respect to the subject matter hereof and supersedes all prior agreements and understandings, oral, written and implied, between the parties hereto with respect to the subject matter hereof.

13. Definitions.

For purposes of this Agreement:

(a) "Corporate Status" describes the status of a person who is or was a director, officer, employee, agent or fiduciary of the Company or of any other corporation, partnership, joint venture, trust, employee benefit plan or other enterprise that such person is or was serving at the request of the Company.

(b) "Disinterested Director" means a director of the Company who is not and was not a party to the Proceeding in respect of which indemnification is sought by Indemnitee.

(c) "Enterprise" shall mean the Company and any other corporation, partnership, joint venture, trust, employee benefit plan or other enterprise that Indemnitee is or was serving at the express written request of the Company as a director, officer, employee, agent or fiduciary.

(d) "Expenses" shall include all reasonable attorneys' fees, retainers, court costs, transcript costs, fees of experts, witness fees, travel expenses, duplicating costs, printing and binding costs, telephone charges, postage, delivery service fees and all other disbursements or expenses of the types customarily incurred in connection with prosecuting, defending, preparing to prosecute or defend, investigating, participating, or being or preparing to be a witness in a Proceeding, or responding to, or objecting to, a request to provide discovery in any Proceeding. Expenses also shall include Expenses incurred in connection with any appeal resulting from any Proceeding and any federal, state, local or foreign taxes imposed on the Indemnitee as a result of the actual or deemed receipt of any payments under this Agreement, including, without limitation, the premium, security for, and other costs relating to any cost bond, supersede as bond, or other appeal bond or its equivalent. Expenses, however, shall not include amounts paid in settlement by Indemnitee or the amount of judgments or fines against Indemnitee.

(e) "Independent Counsel" means a law firm, or a member of a law firm, that is experienced in matters of corporation law and neither presently is, nor in the past five years has been, retained to represent: (i) the Company or Indemnitee in any matter material to either such party (other than with respect to matters concerning Indemnitee under this Agreement, or of other indemnitees under similar indemnification agreements), or (ii) any other party to the Proceeding giving rise to a claim for indemnification hereunder. Notwithstanding the foregoing, the term "Independent Counsel" shall not include any person who, under the applicable standards of professional conduct then prevailing, would have a conflict of interest in representing either the Company or Indemnitee in an action to determine Indemnitee's rights under this Agreement. The Company agrees to pay the reasonable fees of the Independent Counsel referred to above and to fully indemnify such counsel against any and all Expenses, claims, liabilities and damages arising out of or relating to this Agreement or its engagement pursuant hereto.

(f) "Proceeding" includes any threatened, pending or completed action, suit, arbitration, alternate dispute resolution mechanism, investigation, inquiry, administrative hearing or any other actual, threatened or completed proceeding, whether brought by or in the right of the Company or otherwise and whether civil, criminal, administrative or investigative, in which Indemnitee was, is or will be involved as a party or otherwise, by reason of the fact that Indemnitee is or was an officer or director of the Company, by reason of any action taken by him or of any inaction on his part while acting as an officer or director of the Company, or by reason of the fact that he is or was serving at the request of the Company as a director, officer, employee, agent or fiduciary of another corporation, partnership, joint venture, trust or other Enterprise; in each case whether or not he is acting or serving in any such capacity at the time any liability or expense is incurred for which indemnification can be provided under this Agreement; including one pending on or before the date of this Agreement, but excluding one initiated by an Indemnitee pursuant to Section 7 of this Agreement to enforce his rights under this Agreement.

14. Severability.

The invalidity or unenforceability of any provision hereof shall in no way affect the validity or enforceability of any other provision. Without limiting the generality of the foregoing, this Agreement is intended to confer upon Indemnitee indemnification rights to the fullest extent permitted by applicable laws. In the event any provision hereof conflicts with any applicable law, such provision shall be deemed modified, consistent with the aforementioned intent, to the extent necessary to resolve such conflict.

15. Modification and Waiver.

No supplement, modification, termination or amendment of this Agreement shall be binding unless executed in writing by both of the parties hereto. No waiver of any of the provisions of this Agreement shall be deemed or shall constitute a waiver of any other provisions hereof (whether or not similar) nor shall such waiver constitute a continuing waiver.

16. Notice By Indemnitee.

Indemnitee agrees promptly to notify the Company in writing upon being served with or otherwise receiving any summons, citation, subpoena, complaint, indictment, information or other document relating to any Proceeding or matter which may be subject to indemnification covered hereunder. The failure to so notify the Company shall not relieve the Company of any obligation which it may have to Indemnitee under this Agreement or otherwise unless and only to the extent that such failure or delay materially prejudices the Company.

17. Notices.

All notices and other communications given or made pursuant to this Agreement shall be in writing and shall be deemed effectively given: (a) upon personal delivery to the party to be notified, (b) when sent by confirmed electronic mail or facsimile if sent during normal business hours of the recipient, and if not so confirmed, then on the next business day, (c) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid, or (d) one (1) day after deposit with a nationally recognized overnight courier, specifying next day delivery, with written verification of receipt. All communications shall be sent:

(a) To Indemnitee at the address set forth below Indemnitee signature hereto.

(b) To the Company at:

1401 Foch Street, Suite 140
Fort Worth, Texas 76107
Attention: Chief Executive Officer

or to such other address as may have been furnished to Indemnitee by the Company or to the Company by Indemnitee, as the case may be.

18. Counterparts.

This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same Agreement. This Agreement may also be executed and delivered by facsimile signature and in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

19. Headings.

The headings of the paragraphs of this Agreement are inserted for convenience only and shall not be deemed to constitute part of this Agreement or to affect the construction thereof.

20. Governing Law, Consent to Jurisdiction, and Interpretation.

This Agreement and the legal relations among the parties shall be governed by, and construed and enforced in accordance with, the laws of the State of Delaware, without regard to its conflict of laws rules. The Company and Indemnitee hereby irrevocably and unconditionally (i) agree that any action or proceeding arising out of or in connection with this Agreement shall be brought only in the Chancery Court of the State of Delaware (the "Delaware Court"), and not in any other state or federal court in the United States of America or any court in any other country, (ii) consent to submit to the exclusive jurisdiction of the Delaware Court for purposes of any action or proceeding arising out of or in connection with this Agreement, (iii) appoint, to the extent such party is not otherwise subject to service of process in the State of Delaware, irrevocably Capitol Services, Inc., 675 South State Street, Suite B, Dover, DE 19901, as its agent in the State of Delaware as such party's agent for acceptance of legal process in connection with any such action or proceeding against such party with the same legal force and validity as if served upon such party personally within the State of Delaware, (iv) waive any objection to the laying of venue of any such action or proceeding in the Delaware Court, and (v) waive, and agree not to plead or to make, any claim that any such action or proceeding brought in the Delaware Court has been brought in an improper or inconvenient forum. Any interpretation or construction of this Agreement shall be made in accordance with the intent of this Agreement as expressed in the first sentence of Section 6. Any ambiguity shall be interpreted in favor of indemnification and advancement of expenses. Grants of indemnification and advancement of expenses shall be interpreted broadly. Limitations on indemnification and advancement of expenses shall be interpreted narrowly.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year first indicated above.

COMPANY:

ACTUATE THERAPEUTICS, INC.

By: _____
Name: Daniel Schmitt
Title: President and Chief Executive Officer

Address:

1401 Foch Street, Suite 140
Fort Worth, TX 76107

SIGNATURE PAGE TO INDEMNIFICATION AGREEMENT

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year first indicated above.

DIRECTOR:

[See Schedule 1]
[ ]

Address:

[ ]

SIGNATURE PAGE TO INDEMNIFICATION AGREEMENT

SCHEDULE 1
PARTIES TO THE INDEMNIFICATION AGREEMENTS

Name	Date
Daniel Schmitt	March 17, 2017
Leslie Kreis	March 17, 2017
Aaron Fletcher	March 17, 2017

Exhibit 21.1

Subsidiaries of the Registrant

Name of Subsidiary	Jurisdiction of Incorporation or Organization
Actuate Therapeutics LTD	Ireland

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the use in this Registration Statement on Form S-1 of Actuate Therapeutics, Inc. (the "Company") of our report dated February 29, 2024 (which report contains an explanatory paragraph relating to the Company's ability to continue as a going concern) relating to the consolidated financial statements of Actuate Therapeutics, Inc. and subsidiary.

We also consent to the reference to us under the heading "Experts" in such Registration Statement.

/s/ KMJ Corbin & Company LLP

Irvine, California
May 24, 2024

Exhibit 99.1

ACTUATE THERAPEUTICS, INC.

CLAWBACK POLICY

Introduction

The Board of Directors (the "**Board**") of Actuate Therapeutics, Inc. (the "**Company**") believes that it is in the best interests of the Company and its shareholders to create and maintain a culture that emphasizes integrity and accountability and that reinforces the Company's pay-for-performance compensation philosophy. The Board has therefore adopted this policy which provides for the recoupment of certain executive compensation in the event of an accounting restatement resulting from material noncompliance with financial reporting requirements under the federal securities laws (the "**Policy**"). This Policy is designed to comply with Section 10D of the Securities Exchange Act of 1934 (the "**Exchange Act**") and Nasdaq Listing Rule 5608 (the "**Clawback Listing Standards**").

Administration

This Policy shall be administered by the Board or, if so designated by the Board, the Compensation Committee, in which case references herein to the Board shall be deemed references to the Compensation Committee. Any determinations made by the Board shall be final and binding on all affected individuals.

Covered Executives

This Policy applies to the Company's current and former executive officers, as determined by the Board in accordance with the definition in Section 10D of the Exchange Act and the Clawback Listing Standards, and such other employees who may from time to time be deemed subject to the Policy by the Board ("**Covered Executives**").

Recoupment; Accounting Restatement

In the event the Company is required to prepare an accounting restatement of its financial statements due to the Company's material noncompliance with any financial reporting requirement under the securities laws, including any required accounting restatement to correct an error in previously issued financial statements that is material to the previously issued financial statements or that would result in a material misstatement if the error were corrected in the current period or left uncorrected in the current period, the Board will require reimbursement or forfeiture of any excess Incentive Compensation received by any Covered Executive during the three completed fiscal years immediately preceding the date on which the Company is required to prepare an accounting restatement.

Incentive Compensation

For purposes of this Policy, Incentive Compensation means any of the following; provided that, such compensation is granted, earned, or vested based wholly or in part on the attainment of a financial reporting measure:

- Annual bonuses and other short- and long-term cash incentives.
- Stock options

- Stock appreciation rights
- Restricted stock
- Restricted stock units

- Performance shares
- Performance units

Financial reporting measures include:

- Company stock price
- Total shareholder return
- Revenues
- Net income
- Earnings before interest, taxes, depreciation, and amortization (EBITDA)
- Funds from operations
- Liquidity measures such as working capital or operating cash flow
- Return measures such as return on invested capital or return on assets
- Earnings measures such as earnings per share

Excess Incentive Compensation: Amount Subject to Recovery

The amount to be recovered will be the excess of the Incentive Compensation paid to the Covered Executive based on the erroneous data over the Incentive Compensation that would have been paid to the Covered Executive had it been based on the restated results, as determined by the Board, without regard to any taxes paid by the Covered Executive in respect of the Incentive Compensation paid based on the erroneous data.

If the Board cannot determine the amount of excess Incentive Compensation received by the Covered Executive directly from the information in the accounting restatement, then it will make its determination based on a reasonable estimate of the effect of the accounting restatement.

Method of Recoupment

The Board will determine, in its sole discretion, the method for recouping Incentive Compensation hereunder which may include, without limitation:

(a) requiring reimbursement of cash Incentive Compensation previously paid;

(b) seeking recovery of any gain realized on the vesting, exercise, settlement, sale, transfer, or other disposition of any equity-based awards;

(c) offsetting the recouped amount from any compensation otherwise owed by the Company to the Covered Executive;

(d) cancelling outstanding vested or unvested equity awards; and/or

(e) taking any other remedial and recovery action permitted by law, as determined by the Board.

No Indemnification

The Company shall not indemnify any Covered Executives against the loss of any incorrectly awarded Incentive Compensation.

Interpretation

The Board is authorized to interpret and construe this Policy and to make all determinations necessary, appropriate, or advisable for the administration of this Policy. It is intended that this Policy be interpreted in a manner that is consistent with the requirements of Section 10D of the Exchange Act, any applicable rules or standards adopted by the Securities and Exchange Commission, and the Clawback Listing Standards.

Effective Date

This Policy shall be effective as of the date it is adopted by the Board (the "**Effective Date**") and shall apply to Incentive Compensation that is received by Covered Executives on or after the Effective Date, even if such Incentive Compensation was approved, awarded, or granted to Covered Executives prior to the Effective Date.

Amendment; Termination

The Board may amend this Policy from time to time in its discretion and shall amend this Policy as it deems necessary to reflect final regulations adopted by the Securities and Exchange Commission under Section 10D of the Exchange Act and to comply with the Clawback Listing Standards and any other rules or standards adopted by a national securities exchange on which the Company's securities are listed. The Board may terminate this Policy at any time.

Other Recoupment Rights

Any right of recoupment under this Policy is in addition to, and not in lieu of, any other remedies or rights of recoupment that may be available to the Company pursuant to the terms of any similar policy in any employment agreement, equity award agreement, or similar agreement and any other legal remedies available to the Company.

Relationship to Other Plans and Agreements

The Board intends that this Policy will be applied to the fullest extent of the law. The Board may require that any employment agreement, equity award agreement, or similar agreement entered into on or after the Effective Date shall, as a condition to the grant of any benefit thereunder, require a Covered Executive to agree to abide by the terms of this Policy. In the event of any inconsistency between the terms of the Policy and the terms of any employment agreement, equity award agreement, or similar agreement under which Incentive Compensation has been granted, awarded, earned or paid to a Covered Executive, whether or not deferred, the terms of the Policy shall govern.

Acknowledgment

The Covered Executive shall sign an acknowledgment form in the form attached hereto as Exhibit A in which they acknowledge that they have read and understand the terms of the Policy and are bound by the Policy.

Impracticability

The Board shall recover any excess Incentive Compensation in accordance with this Policy unless such recovery would be impracticable, as determined by the Board in accordance with Rule 10D-1 of the Exchange Act and the listing standards of the national securities exchange on which the Company's securities are listed.

Successors

This Policy shall be binding and enforceable against all Covered Executives and their beneficiaries, heirs, executors, administrators or other legal representatives.

Exhibit A

ACKNOWLEDGMENT CONCERNING

CLAWBACK POLICY

I, _____ (employee name), acknowledge that I have read and understand the Clawback Policy of Actuate Therapeutics, Inc. (the "***Policy***"), dated [_____], 2024. For good and valuable consideration, the receipt of which is acknowledged, I agrees to the extent that the Policy is authorized and required by applicable law or regulation, that: (i) I am and shall be bound by and subject to the terms of the Policy; (ii) compensation received by me may be subject to reduction, cancellation, forfeiture and/or recoupment to the extent necessary to comply with the Policy, notwithstanding any other agreement to the contrary; (iii) I am not entitled to indemnification in connection with any enforcement of the Policy to the extent required by the Clawback Listing Standards (as defined in the Policy); and (iv) the undersigned expressly waives any rights to such indemnification under the Company's organizational documents or otherwise.

I understand that Actuate Therapeutics, Inc. has the maximum discretion permitted by law to interpret, administer, change, modify, or delete the Policy at any time with or without notice. The Policy is not promissory and does not create an employment contract.

Dated this____day of_____, 2024.

Signature:_____

Exhibit 99.2

Consent to be Named as a Director Nominee

In connection with the filing by Actuate Therapeutics, Inc. of the Registration Statement on Form S-1 with the Securities and Exchange Commission under the Securities Act of 1933, as amended (the "Securities Act"), I hereby consent, pursuant to Rule 438 of the Securities Act, to being named as a nominee to the board of directors of Actuate Therapeutics, Inc. in the Registration Statement and any and all amendments and supplements thereto. I also consent to the filing of this consent as an exhibit to such Registration Statement and any amendments thereto.

Dated: May 24, 2024

/s/ Jason Keyes
Jason Keyes

Exhibit 99.3

Consent to be Named as a Director Nominee

In connection with the filing by Actuate Therapeutics, Inc. of the Registration Statement on Form S-1 with the Securities and Exchange Commission under the Securities Act of 1933, as amended (the "Securities Act"), I hereby consent, pursuant to Rule 438 of the Securities Act, to being named as a nominee to the board of directors of Actuate Therapeutics, Inc. in the Registration Statement and any and all amendments and supplements thereto. I also consent to the filing of this consent as an exhibit to such Registration Statement and any amendments thereto.

Dated: May 24, 2024

/s/ Amy Ronneberg
Amy Ronneberg

Exhibit 99.4

Consent to be Named as a Director Nominee

In connection with the filing by Actuate Therapeutics, Inc. of the Registration Statement on Form S-1 with the Securities and Exchange Commission under the Securities Act of 1933, as amended (the "Securities Act"), I hereby consent, pursuant to Rule 438 of the Securities Act, to being named as a nominee to the board of directors of Actuate Therapeutics, Inc. in the Registration Statement and any and all amendments and supplements thereto. I also consent to the filing of this consent as an exhibit to such Registration Statement and any amendments thereto.

Dated: May 24, 2024

/s/ Roger Sawhney
Roger Sawhney

Exhibit 107

Calculation of Filing Fee Table

Form S-1

Actuate Therapeutics, Inc.

Table 1 - Newly Registered Securities

Security Type	Security Class Title	Fee Calculation Rule	Amount Registered	Proposed Maximum Offering Price Per Share	Maximum Aggregate Offering Price(1)(2)	Fee Rate	Amount of Registration Fee(3)
Equity	Common Stock, par value $0.000001 per share	Rule 457(o)	—	—	$50,000,000	0.00014760	$7,380.00
Total Offering Amounts				—	$50,000,000	—	$7,380.00
Total Fee Offsets				—	—	—	—
Net Fee Due				—	—	—	$7,380.00

(1) Estimated solely for the purpose of computing the amount of the registration fee pursuant to Rule 457(o) under the Securities Act of 1933, as amended.

(2) Includes the aggregate offering price of additional shares that the underwriters have the option to purchase solely to cover over-allotments, if any.

(3) Calculated pursuant to Rule 457(o) under the Securities Act based on an estimate of the proposed maximum aggregate offering price.