FORM POS AM

Post-Effective amendments for registration statement

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As filed with the Securities and Exchange Commission on January 28, 2013

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333-164326
333-168447
333-175769

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

Post-Effective Amendment No. 2 to Form S-3 on Form S-1
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

MARINA BIOTECH, INC.
(Exact name of registrant as specified in its charter)

Delaware	2834	11-2658569
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification No.)

P.O. Box 1559
Bothell, Washington 98041
(425) 892-4322
(Address, including zip code, and telephone number, including area code, of registrant's principal place of business)

J. Michael French
President and Chief Executive Officer
Marina Biotech, Inc.
P.O. Box 1559
Bothell, WA 98041
(425) 892-4322
(Name, address, including zip code, and telephone number, including area code, of registrant's agent for service)

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Approximate date of commencement of proposed sale to the public. As soon as practicable after the effective date of this registration statement.

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, as amended, 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, 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(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, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☐ (Do not check if a smaller reporting company)	Smaller reporting company	☒

The registrant filed a shelf registration statement on Form S-3 on January 22, 2008 (No. 333-148771) (the "First Shelf Registration Statement"), a registration statement on Form S-3 pursuant to Rule 462(b) of the Securities Act on January 14, 2010 (No. 333-164326) (the "Upsize Registration Statement"), a shelf registration statement on Form S-3 on August 2, 2010 (No. 333-168447) (the "Second Shelf Registration Statement"), and a registration statement on Form S-3 on July 25, 2011 (No. 333-175769) (the "Series A Warrant Registration Statement" and, together with the First Shelf Registration Statement, the Upsize Registration Statement and the Second Shelf Registration Statement, the "Registration Statements"). Commencing on February 2, 2012, the registrant's securities were delisted from the Nasdaq Global Market and began being quoted on the OTC Markets. Consequently, once the registrant became required under the Securities Act to update the Registration Statements, the registrant was no longer eligible to use the Registration Statements. This Post-Effective Amendment No. 2 to Form S-3 on Form S-1 is being filed to amend each of the Registration Statements into a registration statement on Form S-1 to maintain the registration of certain securities previously registered on each of such Registration Statements. Pursuant to Rule 429 under the Securities Act, the prospectus included in this registration statement is a combined prospectus, and this registration statement constitutes a post-effective amendment no. 2 to each of the Registration Statements. The Registration Statements registered the following securities:

(i) the offering of 114,757 shares of common stock, warrants to purchase up to 154,922 shares of common stock and 154,922 shares of common stock issuable from time to time upon exercise of these warrants, issued pursuant to the Prospectus Supplement dated April 30, 2008 (the "April 2008 Prospectus Supplement") filed with the SEC on April 30, 2008,

(ii) the offering of 131,250 shares of common stock, warrants to purchase up to 131,250 shares of common stock, and 131,250 shares of common stock issuable from time to time upon exercise of these warrants, issued pursuant to the Prospectus Supplement dated June 9, 2009 (the "June 2009 Prospectus Supplement") filed with the SEC on June 11, 2009,

(iii) the offering of warrants to purchase up to 26,882 shares of common stock, and 26,882 shares of common stock issuable from time to time upon exercise of these warrants, issued pursuant to the Prospectus Supplement dated December 24, 2009 (the "December 2009 Prospectus Supplement") filed with the SEC on December 24, 2009,

(iv) the offering of 134,639 shares of common stock, warrants to purchase up to 87,515 shares of common stock, and 87,515 shares of common stock issuable from time to time upon exercise of these warrants, issued pursuant to the Prospectus Supplement dated January 14, 2010 (the "January 2010 Prospectus Supplement") filed with the SEC on January 14, 2010,

(v) the offering of 179,500 shares of common stock, subscription investment units to purchase up to 242,355 shares of common stock, and 242,355 shares of common stock issuable from time to time upon exercise of these subscription investment units, issued pursuant to the Prospectus Supplement dated November 5, 2010 (the "First November 2010 Prospectus Supplement") filed with the SEC on November 5, 2010,

(vi) the issuance of warrants to purchase up to 68,627 shares of common stock, and 68,627 shares of common stock issuable from time to time upon exercise of these warrants, issued pursuant to the Prospectus Supplement Dated November 5, 2010 (the "Second November 2010 Prospectus Supplement") filed with the SEC on November 5, 2010,

(vii) the issuance of 637,500 shares of common stock, warrants to purchase up to 111,308 shares of common stock, and 111,308 shares of common stock issuable form time to time upon exercise of these warrants, issued pursuant to the Prospectus Supplement dated February 10, 2011 (the "February 2011 Prospectus Supplement") filed with the SEC on February 10, 2011,

(viii) the issuance from time to time of 4,461,200 shares of common stock upon exercise of the Series A Warrants offered pursuant to the registrant's May 2011 offering of common stock and warrants, issuable pursuant to the Prospectus dated November 2, 2011 (the "November 2011 Prospectus"), and

(ix) the issuance of 1,600,002 shares of common stock, warrants to purchase up to 880,001 shares of common stock, and 880,001 shares of common stock issuable from time to time upon exercise of these warrants, issued pursuant to the Prospectus Supplement dated March 22, 2012 (the "March 2012 Prospectus Supplement) filed with the SEC on March 22, 2012.

This Post-Effective Amendment is being filed to continue the registration of: (i) 130,568 shares of common stock issuable from time to time upon exercise of the warrants in the April 2008 offering subject to the April 2008 Prospectus Supplement, (ii) 68,750 shares of common stock issuable upon from time to time upon exercise of the warrants in the June 2009 offering subject to the June 2009 Prospectus Supplement, (iii) 26,882 shares of common stock issuable from time to time upon exercise of the warrants in the December 2009 offering subject to the December 2009 Prospectus Supplement, (iv) 86,345 shares of common stock issuable from time to time upon exercise of the warrants in the January 2010 offering subject to the January 2010 Prospectus Supplement, (v) 68,432 shares of common stock issuable from time to time upon exercise of the warrants issued in November 2010 subject to the Second November 2010 Prospectus Supplement, (vi) 111,308 shares of common stock issuable from time to time upon exercise of the warrants issued in the February 2011 offering subject to the February 2011 Prospectus Supplement, (vii) 3,651,200 shares of common stock issuable from time to time upon exercise of the Series A Warrants subject to the November 2011 Prospectus, (viii) 800,001 shares of common stock issuable from time to time upon exercise of the warrants issued in the March 2012 offering subject to the March 2012 Prospectus Supplement, and (ix) 80,000 shares of common stock issuable from time to time upon exercise of the warrants issued to the placement agent in the March 2012 offering subject to the March 2012 Prospectus Supplement. All filing fees payable in connection with the registration of these securities were previously paid in connection with the filing of the Registration Statements.

Deregistration of Unsold Securities

In addition and in accordance with an undertaking made by the registrant in the First Shelf Registration Statement and the Second Shelf Registration Statement, the registrant hereby removes from registration, by means of this Post-Effective Amendment, the unsold portion of securities registered under the First Shelf Registration Statement and the Second Shelf Registration Statement.

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 section 8(a) may determine.

PROSPECTUS

5,023,486 Shares of Common Stock

This prospectus covers the sale of up to:

- 130,568 shares of common stock issuable from time to time upon the exercise of warrants sold in our April 2008 offering, which may be exercised at a price of $86.80 per share;
- 68,750 shares of common stock issuable from time to time upon the exercise of warrants sold in our June 2009 offering, which may be exercised at a price of $0.28 per share;
- 26,882 shares of common stock issuable from time to time upon the exercise of warrants sold in our December 2009 offering, which may be exercised at a price of $18.40 per share;
- 86,345 shares of common stock issuable from time to time upon exercise of warrants sold in our January 2010 offering, which may be exercised at a price of $37.60 per share;
- 68,432 shares of common stock issuable from time to time upon exercise of warrants issued in November 2010, which may be exercised at a price of $10.60 per share;
- 111,308 shares of common stock issuable from time to time upon exercise of warrants sold in our February 2011 offering, which may be exercised at a price of $8.00 per share;
- 3,651,200 shares of common stock issuable from time to time upon exercise of warrants sold in our May 2011 offering, which may be exercised at a price of $0.28 per share;
- 800,001 shares of common stock issuable from time to time upon exercise of warrants sold in our March 2012 offering, which may be exercised at a price of $0.75 per share; and
- 80,000 shares of common stock issuable from time to time upon exercise of warrants issued to the placement agent in our March 2012 offering, which may be exercised at a price of $0.9375 per share.

Our common stock is traded on the OTC Pink tier of the OTC Markets under the symbol “MRNA.” On January 25, 2013, the last reported sale price for our common stock as reported on OTC Pink was $0.40 per share.

INVESTING IN OUR COMMON STOCK INVOLVES SUBSTANTIAL RISKS. SEE THE SECTION TITLED “RISK FACTORS” BEGINNING ON PAGE 6 OF THIS PROSPECTUS TO READ ABOUT FACTORS YOU SHOULD CONSIDER BEFORE BUYING SHARES OF OUR COMMON STOCK.

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.

The date of this prospectus is January 28, 2013.

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SUMMARY

This summary highlights information contained elsewhere in this prospectus. This summary does not contain all of the information that you should consider before making an investment decision with respect to our securities. You should read this entire prospectus carefully, especially the "Risk Factors" section beginning on page 6 of this prospectus and our financial statements and related notes contained in this prospectus before making an investment decision with respect to our securities. Please see the section titled, "Where You Can Find More Information," beginning on page 83 of this prospectus. Unless the context indicates otherwise, references to "Marina Biotech," "the Company," "we," "us," or "our," refers to Marina Biotech, Inc. and its wholly-owned subsidiaries.

You should rely only on the information contained in this prospectus or any related prospectus supplement. We have not authorized anyone to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. The information contained in this prospectus is accurate only on the date of this prospectus. Our business, financial condition, results of operations and prospects may have changed since such date. Other than as required under the federal securities laws, we undertake no obligation to publicly update or revise such information, whether as a result of new information, future events or any other reason.

Some of the industry data contained in this prospectus is derived from data from various third-party sources. We have not independently verified any of this information and cannot assure you of its accuracy or completeness. While we are not aware of any misstatements regarding any industry data presented herein, such data is subject to change based on various factors, including those discussed under the "Risk Factors" section beginning on page 6 of this prospectus.

Company Overview

We are a biotechnology company focused on the discovery, development and commercialization of nucleic acid-based therapies utilizing gene silencing approaches such as RNA interference ("RNAi") and blocking messenger RNA ("mRNA") translation. Our goal is to improve human health through the development, either through our own efforts or those of our collaboration partners and licensees, of these nucleic acid-based therapeutics as well as the delivery technologies that together provide superior treatment options for patients. We have multiple proprietary technologies integrated into a broad nucleic acid-based drug discovery platform, with the capability to deliver novel nucleic acid-based therapeutics via systemic, local and oral administration to target a wide range of human diseases, based on the unique characteristics of the cells and organs involved in each disease.

Our pipeline includes a clinical program in Familial Adenomatous Polyposis ("FAP") and preclinical programs in bladder cancer and myotonic dystrophy. During the past year, we have entered into the following agreements regarding our technology:

- In December 2011, we entered into an exclusive license agreement with Mirna Therapeutics, Inc., a privately-held biotechnology company pioneering microRNA replacement therapy for cancer, regarding the development and commercialization of microRNA-based therapeutics utilizing Mirna's proprietary microRNAs and our novel SMARTICLES®-based liposomal delivery technology.

- In March 2012, we entered into an exclusive license agreement with ProNAi Therapeutics, Inc., a privately-held biotechnology company pioneering DNA interference (DNAi) therapies for cancer, regarding the development and commercialization of DNAi-based therapeutics utilizing our novel SMARTICLES®-based liposomal delivery technology.

- In May 2012, we entered into a worldwide exclusive license agreement with Monsanto Company, a global leader in agriculture and crop sciences, regarding the agricultural applications for our delivery and chemistry technologies.

- In May 2012, we entered into a strategic alliance with Girindus Group, a recognized leader in process development, analytical method development and cGMP manufacture of oligonucleotide therapeutics, regarding the development, supply and commercialization of certain oligonucleotide constructs using our conformationally restricted nucleotide ("CRN") technology.

- In August 2012, we entered into a worldwide, non-exclusive license agreement with Novartis Institutes for Biomedical Research, Inc., a global leader in the development of human therapeutics, regarding the development of oligonucleotide therapeutics utilizing our CRN technology.

- In November 2012, we entered into a worldwide, non-exclusive license agreement with Protiva Biotherapeutics Inc., a wholly-owned subsidiary of Tekmira Pharmaceuticals Corporation (collectively, "Tekmira"), a leading oligonucleotide-based drug discovery and development company, regarding the development of oligonucleotide therapeutics using our Unlocked Nucleobase Analog (UNA) technology.

In addition to our own, internally developed technologies, we have strategically in-licensed and further developed nucleic acid- and delivery-related technologies, forming an integrated drug discovery platform. We are employing our platform, through our own efforts and those of our partners, for the discovery of multiple nucleic acid-based therapeutics including siRNA, microRNA and single stranded oligonucleotide-based drugs.

Our business strategy is two-fold. First, we strive to establish collaborations and strategic partnerships with pharmaceutical and biotechnology companies in the area of nucleic acid-based therapeutics to: (1) generate revenue through up-front, milestone and royalty payments related to our technology and/or the products that are developed using such technology; (2) gain access to technical resources; and (3) further validate our drug discovery platforms. Secondly, and pending receipt of sufficient funding, we plan to advance our own pipeline of nucleic acid-based therapeutics as a foundation upon which to improve all aspects of our drug discovery platform and to have the opportunity to commercialize drug therapies.

In terms of collaborations and strategic partnerships: (i) Mirna has the right to fund and develop specific microRNA-based nucleic acid therapeutics using our SMARTICLES®-based liposomal delivery technology, which arrangement includes the potential for milestone and royalty payments; (ii) ProNAi has the right to fund and develop DNAi-based nucleic acid therapeutics using our SMARTICLES®-based liposomal delivery technology, which arrangement includes the potential for milestone and royalty payments; (iii) Monsanto has the right to fund and develop applications in the agriculture field if any, using our delivery and chemistry technologies, which arrangement includes the potential for royalty payments; (iv) Girindus will fund the commercialization of CRN-based amidites and CRN-based oligonucleotides for sale to industry and academia, which arrangement includes the potential for royalty payments; (v) Novartis has the right to fund and develop CRN-based nucleic acid therapeutics; and (vi) Tekmira has the right to fund and develop oligonucleotide therapeutics using our UNA technology, which arrangement includes the potential for milestone and royalty payments. Furthermore, ProNAi is funding their Phase 1 clinical trial, and using our proprietary SMARTICLES®-based liposomal delivery technology for systemic administration, which arrangement does not provide any financial benefit to us but continues to validate and advance our SMARTICLES®-based liposomal delivery technology.

With these relationships facilitating the advancement of several of our proprietary delivery technologies for small interfering RNA ("siRNA") and other nucleic acid-based therapeutics, we have focused resources on the Phase 1b/2a clinical trial of CEQ508 in Familial Adenomatous Polyposis as well as the CRN technology for the development of double- and single-stranded nucleic acid-based therapies. In April 2012, we announced the completion of dosing for Cohort 2 in the Dose Escalation Phase of the START-FAP (Safety and Tolerability of An RNAi Therapeutic in Familial Adenomatous Polyposis) clinical trial of CEQ508. The CEQ508 trial is currently on hold pending the receipt of sufficient funding to continue. We expect to begin the dosing of Cohort 3 as soon as we secure sufficient funding to complete the trial.

With respect to collaborations and strategic partnerships our concept is to provide multiple therapeutic options based on a partner's disease target and indication. We can apply our broad capabilities to pursue the most appropriate nucleic acid-based therapeutic approach to a specific, often undruggable, target for a specific indication. Each approach, i.e. siRNA, microRNA or single-strand oligonucleotide, has its advantages and disadvantages and we can utilize our broad capabilities to screen across multiple modalities to identify the most effective therapeutic. We believe this capability makes us extremely unique in the sector. We have structured, and expect to continue to structure, certain of our collaborative agreements to receive upfront non-refundable payments, research and development funding, milestone payments and royalties on commercial sales of products.

In order to protect our innovations, which encompass a broad platform of both nucleic acid-based therapeutic constructs and delivery technologies, as well as the drug products that may emerge from that platform, we have aggressively built upon our extensive and enabling intellectual property ("IP") estate, and, pending receipt of adequate funding, plan to continue to do so.

We believe we have successfully leveraged our broad and proven expertise to create an industry-leading integrated nucleic acid-based drug discovery platform, which is protected by a strong IP position and validated through licensing agreements with Mirna and ProNAi using our SMARTICLES®-based liposomal delivery technology, licensing agreements with Girindus and Novartis using our CRN technology, a licensing agreement with Tekmira using our UNA technology, the Phase 1 clinical trial by ProNAi using our SMARTICLES®-based liposomal delivery technology, licensing agreements with three large international companies (i.e., Roche, Novartis and Monsanto) for certain chemistry and delivery technologies and our own FAP Phase 1b/2a clinical trial with the Trans Kingdom RNA interference ("*tk*RNAi") platform.

Reduction of Operations

On June 1, 2012, we announced that, due to our financial condition, we had implemented a furlough of approximately 90% of our employees and ceased substantially all day-to-day operations. Since that time substantially all of the furloughed employees have been terminated. As of January 9, 2013, we had approximately 9 remaining employees, including all of our executive officers, all of whom are either furloughed or working on reduced salary. We have also sold substantially all of our equipment, and have ceased operations at our facility located at 3830 Monte Villa Parkway in Bothell, WA. As a result, since June 1, 2012 our internal research and development ("R&D") efforts have been, and as of the date of this prospectus they continue to be, minimal, pending receipt of adequate funding.

Liquidity and Going Concern

The accompanying condensed consolidated financial statements have been prepared on the basis that we will continue as a going concern, which contemplates realization of assets and the satisfaction of liabilities in the normal course of business. As of September 30, 2012, we had an accumulated deficit of approximately $325.7 million, have incurred, and may in the future continue to incur, losses in the event that we obtain sufficient financing to continue our planned business operations and have had recurring negative cash flows from operations. Our operating expenses consumed the majority of our limited cash resources during the fourth quarter of 2012, and we expect that they will require ongoing funding. We have funded our losses primarily through the sale of common stock and warrants in the public markets and private placements, revenue provided by our collaboration partners and secured loans.

We plan to continue to work with large pharmaceutical companies regarding R&D collaboration agreements or investments, and to pursue public and private sources of financing to raise cash. However, there can be no assurance that we will be successful in such endeavors.

The market value and the volatility of our stock price, as well as general market conditions and our current financial condition, could make it difficult for us to complete a financing or collaboration transaction on favorable terms, or at all. Any financing we obtain may further dilute the ownership interest of our current stockholders, which dilution could be substantial, or provide new stockholders with superior rights than those possessed by our current stockholders. If we are unable to obtain additional capital when required, and in the amounts required, we may be forced to modify, delay or abandon some or all of our programs, or to discontinue operations altogether. Additionally, any collaboration may require us to relinquish rights to our technologies. These factors, among others, raise substantial doubt about our ability to continue as a going concern. The accompanying condensed consolidated financial statements do not include any adjustments that may result from the outcome of this uncertainty. The Report of Independent Registered Public Accounting Firm included elsewhere in this prospectus states that we have ceased substantially all day-to-day operations, including most research and development activities, have incurred recurring losses, have a working capital and accumulated deficit, and have had recurring negative cash flows from operations, that raise substantial doubt about our ability to continue as a going concern.

At September 30, 2012, we had a working capital deficit (current assets less current liabilities) of approximately $4.2 million and approximately $1.1 million in cash, including approximately $0.7 million in restricted cash.

We are currently in default in the repayment of our outstanding secured indebtedness. Renegotiations of the debt agreements to address the default are ongoing. Assuming our secured lenders continue to engage in these negotiations and do not exercise their right to demand repayment of the principal and interest, we believe that our resources as of the date of this prospectus will be sufficient to fund our planned limited operations through the end of February 2013.

General

We were incorporated in the State of Delaware on September 23, 1983. We currently do not maintain any office facilities. Our mailing address is c/o Marina Biotech, Inc., P.O. Box 1559, Bothell, WA 98041, and our telephone number is (425) 892-4322. We maintain an Internet website at www.marinabio.com. We have not incorporated by reference into this prospectus the information in, or that can be accessed through, our website, and you should not consider it to be a part of this prospectus.

THE OFFERING

Securities Offered:	This prospectus covers the sale of up to: • 130,568 shares of common stock issuable from time to time upon the exercise of warrants sold in our April 2008 offering, which may be exercised at a price of $86.80 per share, • 68,750 shares of common stock issuable from time to time upon the exercise of warrants sold in our June 2009 offering, which may be exercised at a price of $0.28 per share, • 26,882 shares of common stock issuable from time to time upon the exercise of warrants sold in our December 2009 offering, which may be exercised at a price of $18.40 per share, • 86,345 shares of common stock issuable from time to time upon exercise of warrants sold in our January 2010 offering, which may be exercised at a price of $37.60 per share, • 68,432 shares of common stock issuable from time to time upon exercise of warrants issued in November 2010, which may be exercised at a price of $10.60 per share, • 111,308 shares of common stock issuable from time to time upon exercise of warrants sold in our February 2011 offering, which may be exercised at a price of $8.00 per share, • 3,651,200 shares of common stock issuable from time to time upon exercise of warrants sold in our May 2011 offering, which may be exercised at a price of $0.28 per share, • 800,001 shares of common stock issuable from time to time upon exercise of warrants sold in our March 2012 offering, which may be exercised at a price of $0.75 per share, and • 80,000 shares of common stock issuable from time to time upon exercise of warrants issued to the placement in our March 2012 offering, which may be exercised at a price of $0.9375 per share.
Common stock to be outstanding after this offering:	21,961,147 shares (assuming all of the warrants are exercised)
Use of proceeds:	We will receive proceeds from the exercise of the warrants if the warrants are exercised for cash. See “Use of Proceeds” on page 23 of this prospectus.
Risk Factors:	The purchase of our common stock involves a high degree of risk. See “Risk Factors” beginning on page 6 and other information included in this prospectus for a discussion of factors you should carefully consider before deciding to invest in our securities.
OTC Pink market symbol:	“MRNA”

The number of shares of our common stock outstanding after this offering, as set forth in the table above, is based on 16,937,661 shares outstanding as of January 9, 2013, and excludes:

- 1,303,536 shares of common stock issuable upon the exercise of warrants outstanding at January 9, 2013, with a weighted average exercise price of $13.32 per share;

- 10,613,265 shares of common stock issuable upon the exercise of warrants outstanding at January 9, 2013 with a price adjustable weighted average exercise price of $0.28 per share;
- 278,549 shares of common stock issuable upon the exercise of options outstanding at January 9, 2013 with a weighted average exercise price of $40.30 per share;
- 308,884 shares of common stock reserved for future grants, awards and issuance under our equity incentive plans, including our employee stock purchase plan, as of January 9, 2013; and
- our agreement to issue 1,500,000 shares of common stock to Ditty Properties Limited Partnership, and 87,254 shares of common stock to a vendor, in each case contingent upon and immediately prior to the first to occur of certain specified events.

Except as otherwise indicated, all information in this prospectus reflects: (i) the 1-for-4 reverse stock split of our outstanding common stock that was effective on July 21, 2010 and (ii) the 1-for-10 reverse stock split of our outstanding common stock that was effective on December 22, 2011. Our common stock began trading on a split-adjusted basis following the 1-for-4 reverse stock split on July 22, 2010, and it began trading on a split-adjusted basis following the 1-for-10 reverse stock split on December 23, 2011. Our common stock is currently traded on the OTC Pink tier of the OTC Markets.

RISK FACTORS

Investing in our securities has a high degree of risk. Before making an investment in our securities, you should carefully consider the following risks, as well as the other information contained in this prospectus, including our consolidated financial statements and related notes and "Management's Discussion and Analysis of Financial Condition and Results of Operations." The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties of which we are unaware or that we believe are not material at this time could also materially adversely affect our business, financial condition or results of operations. In any case, the value of our securities could decline and you could lose all or part of your investment. See also the information contained under the heading "Cautionary Statement Regarding Forward-Looking Statements" elsewhere in this prospectus.

Risks Relating to being an Early Stage Drug Development Company

Although we have ceased substantially all of our day-to-day operations and terminated substantially all of our employees, our cash and other sources of liquidity may only be sufficient to fund our limited operations through the end of February 2013, assuming that our secured lenders do not exercise their right to demand repayment of outstanding indebtedness prior to such time. We will require substantial additional funding in the immediate future to continue our operations. If additional capital is not available, we may have to curtail or cease operations, or take other actions that could adversely impact our shareholders.

Our business currently does not generate the cash that is necessary to finance our operations. We incurred net losses of approximately $27.8 million in 2010, $29.4 million in 2011 and $5.5 million during the nine months ended September 30, 2012. We will require significant additional capital in the immediate future to:

- fund research and development activities, including clinical and pre-clinical trials;
- pursue licensing opportunities for our technologies;
- protect our intellectual property;
- attract and retain highly-qualified scientists;
- respond effectively to competitive pressures; and
- acquire complementary businesses or technologies.

Our future capital needs depend on many factors, including:

- the scope, duration and expenditures associated with our research and development;
- continued scientific progress in these programs;
- the outcome of potential partnering or licensing transactions, if any;
- competing technological developments;
- our proprietary patent position, if any, in our products; and
- the regulatory approval process for our products.

As a result of insufficient capital, on June 1, 2012 we announced that we had ceased substantially all day-to-day operations, including most research and development activities, and implemented a furlough of approximately 90% of our employees. Since that time substantially all of the furloughed employees have been terminated. We have also sold substantially all of our equipment, and have ceased operations at our facility located at 3830 Monte Villa Parkway in Bothell, WA. As a result, since June 1, 2012 our internal research and development efforts have been, and as of the date of this prospectus they continue to be, minimal, pending receipt of adequate funding.

In addition, in February 2012 we issued promissory notes that are secured by substantially all of our assets to two investors, for which the payment of principal and interest was due and payable in full on December 31, 2012 (if not converted into shares of our common stock prior to such date). We are currently in default in the repayment of these secured obligations. Renegotiations of the debt agreements to address the default are ongoing. Assuming the noteholders continue to engage in these negotiations and do not exercise their right to demand the repayment of the notes prior to such time, we believe that our currently available cash and cash equivalents will be sufficient to fund our limited operations through the end of February 2013. As a result of our limited financial resources and our limited operations, we believe that there is substantial doubt about our ability to continue as a going concern. This doubt has also been expressed by our independent registered public accounting firm in its audit opinion issued in connection with our consolidated balance sheets as of December 31, 2011 and 2010 and our consolidated statements of operations, stockholders' equity (deficit) and cash flows for the years ended December 31, 2011 and 2010.

We will need to raise substantial additional funds through public or private equity offerings, debt financings or additional strategic alliances and licensing arrangements in the immediate future to continue our operations. We may not be able to obtain additional financing on terms favorable to us, if at all. General market conditions, as well as market conditions for companies that are facing financial distress, may make it very difficult for us to seek financing from the capital markets, and the terms of any financing may adversely affect the holdings or the rights of our stockholders. For example, if we raise additional funds by issuing equity securities, further dilution to our stockholders will result, which may substantially dilute the value of your investment. In addition, as a condition to providing additional funds to us, future investors may demand, and may be granted, rights superior to those of existing stockholders. Debt financing, if available, may involve restrictive covenants that could limit our flexibility in conducting future business activities and, in the event of insolvency, would be paid before holders of equity securities received any distribution of corporate assets. We may be required to relinquish rights to our technologies or drug candidates, or grant licenses on terms that are not favorable to us, in order to raise additional funds through alliance, joint venture or licensing arrangements. If adequate funds are not available, we may have to further delay, reduce or eliminate one or more of our planned activities. These actions would likely reduce the market price of our common stock.

We have no history of profitability and there is a potential for fluctuation in operating results.

We have experienced significant operating losses since inception. We currently have no revenues from product sales and will not have any such revenues unless and until a marketable product is successfully developed by us or our partners, receives regulatory approvals, and is successfully manufactured and distributed to the market. We expect to continue to experience losses for the foreseeable future. See “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and “Cautionary Statement Regarding Forward-Looking Statements”.

We and our partners are developing products based on modulation of coding and non-coding RNA targets. The process of developing such products requires significant research and development efforts, including basic research, pre-clinical and clinical development, and regulatory approval. These activities, together with our sales, marketing, general and administrative expenses, have resulted in operating losses in the past, and there can be no assurance that we can achieve profitability in the future. Our ability to achieve profitability depends on our ability, alone or with our partners, to develop drug candidates, conduct pre-clinical development and clinical trials, obtain necessary regulatory approvals, and manufacture, distribute, market and sell drug products. We cannot assure you of the success of any of these activities or predict if or when we will ever become profitable.

If we are unable to raise sufficient additional capital, we may seek to merge with or be acquired by another entity, and that transaction may adversely affect our business and the value of our securities.

If we are unable to raise sufficient additional capital, we may seek to merge or combine with, or otherwise be acquired by, another entity with a stronger cash position, complementary work force, or product candidate portfolio or for other reasons. We believe the market price for our common stock may not accurately reflect the value of our business. While we will continue to seek to maximize the value of our business to our stockholders, the most attractive option for doing so may require us to consummate a transaction involving a merger or combination of our company with, or an acquisition of our company by, another entity. There are numerous risks associated with merging, combining or otherwise being acquired. These risks include, among others, incorrectly assessing the quality of a prospective acquirer or merger-partner, encountering greater than anticipated costs in integrating businesses, facing resistance from employees and being unable to profitably deploy the assets of the new entity. The operations, financial condition, and prospects of the post-transaction entity depend in part on our and our acquirer/merger-partner’s ability to successfully integrate the operations related to our product candidates, business and technologies. We may be unable to integrate operations successfully or to achieve expected cost savings, and any cost savings that are realized may be offset by losses in revenues or other charges to operations. As a result, our stockholders may not realize the full value of their investment.

If we lose our remaining key personnel, or if we are unable to attract and retain additional personnel, then we may be unable to successfully develop our business.

If we are unable to retain one or more of our executive officers, including J. Michael French, our President and Chief Executive Officer, and Richard T. Ho, M.D., Ph.D., our Executive Vice President of Research and Development, our business could be seriously harmed. We have entered into an employment agreement with each of Mr. French and Dr. Ho, as well as certain other members of our management team. Whether or not a member of management has executed an employment agreement, there can be no assurance that we will be able to retain our key managers or key technical personnel or replace any of them if we lose their services for any reason. This uncertainty is particularly true given our current financial condition. Failure to attract and retain our key personnel may compromise our ability to negotiate and enter into additional collaborative arrangements, delay our research and development efforts, delay testing of our

product candidates, delay the regulatory approval process or prevent us from successfully commercializing our product candidates. In addition, if we have to replace any of these individuals, which would be difficult given the current environment and our financial condition, we may not be able to replace knowledge that they have about our operations.

If we make strategic acquisitions, we will incur a variety of costs and might never realize the anticipated benefits.

Despite our acquisition of Cequent Pharmaceuticals, Inc. in July 2010, we have limited experience in independently identifying acquisition candidates and integrating the operations of acquisition candidates with our company. If appropriate opportunities become available, we might attempt to acquire approved products, additional drug candidates, technologies or businesses that we believe are a strategic fit with our business. If we pursue any transaction of that sort, the process of negotiating the acquisition and integrating an acquired product, drug candidate, technology or business might result in operating difficulties and expenditures and might require significant management attention that would otherwise be available for ongoing development of our business, whether or not any such transaction is ever consummated. Moreover, we might never realize the anticipated benefits of any acquisition. Future acquisitions could result in potentially dilutive issuances of equity securities, the incurrence of debt, contingent liabilities, or impairment expenses related to goodwill, and impairment or amortization expenses related to other intangible assets, which could harm our financial condition.

Failure of our internal control over financial reporting could harm our business and financial results.

Our management is responsible for establishing and maintaining effective internal control over financial reporting. Internal control over financial reporting is a process to provide reasonable assurance regarding the reliability of financial reporting for external purposes in accordance with accounting principles generally accepted in the United States. Internal control over financial reporting includes maintaining records that in reasonable detail accurately and fairly reflect our transactions; providing reasonable assurance that transactions are recorded as necessary for preparation of the financial statements; providing reasonable assurance that receipts and expenditures of our assets are made in accordance with management authorization; and providing reasonable assurance that unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements would be prevented or detected on a timely basis. Because of its inherent limitations, internal control over financial reporting is not intended to provide absolute assurance that a misstatement of our financial statements would be prevented or detected. Any failure to maintain an effective system of internal control over financial reporting could limit our ability to report our financial results accurately and timely or to detect and prevent fraud. Our current financial condition, the closure of our facilities and the loss of personnel have placed pressure on our system of internal control over financial reporting, thereby contributing to the material weaknesses further described in the "Management Report on Internal Control" contained in paragraph (c) of Item 9A of our Annual Report on form 10-K for the fiscal year ended December 31, 2011, which have not been remediated.

Our business and operations could suffer in the event of system failures.

Despite the implementation of security measures, our internal computer systems and those of our contractors and consultants are vulnerable to damage from computer viruses, unauthorized access, natural disasters, terrorism, war and telecommunication and electrical failures. Such events could cause interruption of our operations. For example, the loss of pre-clinical trial data or data from completed or ongoing clinical trials for our product candidates, if any, could result in delays in our regulatory filings and development efforts and significantly increase our costs. To the extent that any disruption or security breach were to result in a loss of or damage to our data, or inappropriate disclosure of confidential or proprietary information, we could incur liability and the development of our product candidates could be delayed.

Risks Related to the Development and Regulatory Approval of our Drug Candidates

RNAi- and microRNA-based drug development is unproven and may never lead to marketable products.

Our future success depends on the successful development, by us or our partners, of products based on RNAi and microRNA technologies. Neither we nor any other company, including any of our partners, has received regulatory approval to market siRNA, antagomir or microRNA mimics as therapeutic agents. The scientific discoveries that form the basis for our efforts to discover and develop new siRNA and microRNA drugs are relatively new. The scientific evidence to support the feasibility of developing drugs based on these discoveries is both preliminary and limited. Skepticism as to the feasibility of developing RNAi and microRNA therapeutics has been expressed in scientific literature.

Relatively few product candidates based on RNAi or micoRNA approaches have ever been tested in animals or humans, none of which have received regulatory approval. We currently have only limited data suggesting that we can introduce typical drug-like properties and characteristics into siRNAs or micoRNA oligonucleotides, such as favorable distribution within the body or tissues or the ability to enter cells and exert their intended effects. In addition, RNA-based compounds may not demonstrate in patients the chemical and pharmacological properties ascribed to them in laboratory studies, and they may interact with human biological systems in unforeseen, ineffective or harmful ways. We may make significant expenditures trying to develop RNA-based technologies without

success. As a result, we and our partners may never succeed in developing a marketable product utilizing our technologies. If neither we nor any of our partners develops and commercializes drugs based upon our technologies, we may not become profitable and the value of our common stock will likely decline.

Further, our focus on oligonucleotide-based drug discovery and development, as opposed to more proven technologies for drug development, increases the risks associated with the ownership of our common stock. If neither we nor any of our partners is successful in developing a product candidate using our technology, we may be required to change the scope and direction of our activities. In that case, we may not be able to identify and implement successfully an alternative business strategy.

All of our programs, other than our program for CEQ508, are in pre-clinical studies or early stage research. If we are unable to develop and commercialize our product candidates, our business will be adversely affected.

A key element of our strategy is to discover, develop and commercialize a portfolio of new products through our internal research programs and through those of our current or future strategic partnerships. Whether or not any product candidates are ultimately identified, research programs to identify new disease targets and product candidates require substantial technical, financial and human resources, which we currently do not have. These research programs may initially show promise in identifying potential product candidates, yet fail to yield a successful commercial product for many reasons, including the following:

- competitors may develop alternatives that render our product candidates (or those of our partners) obsolete;
- a product candidate may not have a sustainable intellectual property position in major markets;
- a product candidate may, after additional studies, be shown to have harmful side effects or other characteristics that indicate it is unlikely to be effective;
- a product candidate may not receive regulatory approval;
- a product candidate may not be capable of production in commercial quantities at an acceptable cost, or at all; or
- a product candidate may not be accepted by patients, the medical community or third-party payors.

Upon entering into clinical trials, clinical trials of product candidates utilizing our technologies would be expensive and time-consuming, and the results of any of these trials would be uncertain.

The research and development programs of our company and our partners with respect to oligonucleotide-based products are at an early stage. Before obtaining regulatory approval for the sale of any product candidates, we and our partners must conduct expensive and extensive pre-clinical tests and clinical trials to demonstrate the safety and efficacy in humans of such product candidates. Pre-clinical and clinical testing in patients is a long, expensive and uncertain process, and the historical failure rate for product candidates is high. The length of time generally varies substantially according to the type of drug, complexity of clinical trial design, regulatory compliance requirements, intended use of the drug candidate and rate of patient enrollment for the clinical trials.

A failure of one or more pre-clinical studies or clinical trials can occur at any stage of testing. We and our partners may experience numerous unforeseen events during, or as a result of, the pre-clinical testing and the clinical trial process that could delay or prevent the receipt of regulatory approval or the commercialization of our product candidates, including:

- regulators may not authorize us to commence a clinical trial or conduct a clinical trial at a prospective trial site;
- pre-clinical tests or clinical trials may produce negative or inconclusive results, and we or a partner may decide, or a regulator may require us, to conduct additional pre-clinical testing or clinical trials, or we or a partner may abandon projects that were previously expected to be promising;
- enrollment in clinical trials may be slower than anticipated or participants may drop out of clinical trials at a higher rate than anticipated, resulting in significant delays;
- third party contractors may fail to comply with regulatory requirements or meet their contractual obligations in a timely manner;
- product candidates may have very different chemical and pharmacological properties in humans than in laboratory testing and may interact with human biological systems in unforeseen, ineffective or harmful ways;
- the suspension or termination of clinical trials if the participants are being exposed to unacceptable health risks;
- regulators, including the FDA, may require that clinical research be held, suspended or terminated for various reasons, including noncompliance with regulatory requirements;
- the cost of clinical trials may be greater than anticipated;
- the supply or quality of drug candidates or other materials necessary to conduct clinical trials may be insufficient or inadequate; and
- effects of product candidates may not have the desired effects or may include undesirable side effects or the product candidates may have other unexpected characteristics.

Further, even if the results of pre-clinical studies or clinical trials are initially positive, it is possible that we or a partner will obtain different results in the later stages of drug development or that results seen in clinical trials will not continue with longer term treatment. Drugs in late stages of clinical development may fail to show the desired safety and efficacy traits despite having progressed through initial clinical testing. For example, positive results in early Phase 1 or Phase 2 clinical trials may not be repeated in larger Phase 2 or Phase 3 clinical trials. It is expected that all of the drug candidates that may be developed by us or our partners based on our technologies will be prone to the risks of failure inherent in drug development. The clinical trials of any or all of the drug candidates of us or our partners could be unsuccessful, which would prevent the commercialization of these drugs. The FDA conducts its own independent analysis of some or all of the pre-clinical and clinical trial data submitted in a regulatory filing and often comes to different and potentially more negative conclusions than the analysis performed by the drug sponsor. The failure to develop safe, commercially viable drugs approved by the FDA would substantially impair our ability to generate revenues and sustain our operations and would materially harm our business and adversely affect our stock price. In addition, significant delays in pre-clinical studies and clinical trials will impede the ability of us or a partner to seek regulatory approvals, commercialize drug candidates and generate revenue, as well as substantially increase development costs.

Even if regulatory approvals are obtained for our products, such products will be subject to ongoing regulatory review. If we or a partner fail to comply with continuing U.S. and foreign regulations, the approvals to market drugs could be lost and our business would be materially adversely affected.

Following any initial FDA or foreign regulatory approval of any drugs we or a partner may develop, such drugs will continue to be subject to regulatory review, including the review of adverse drug experiences and clinical results that are reported after such drugs are made available to patients. This would include results from any post marketing tests or vigilance required as a condition of approval. The manufacturer and manufacturing facilities used to make any drug candidates will also be subject to periodic review and inspection by regulatory authorities, including the FDA. The discovery of any new or previously unknown problems with the product, manufacturer or facility may result in restrictions on the drug or manufacturer or facility, including withdrawal of the drug from the market. Marketing, advertising and labeling also will be subject to regulatory requirements and continuing regulatory review. The failure to comply with applicable continuing regulatory requirements may result in fines, suspension or withdrawal of regulatory approval, product recalls and seizures, operating restrictions and other adverse consequences.

We and our partners are subject to extensive U.S. and foreign government regulation, including the requirement of approval before products may be manufactured or marketed.

We, our present and future collaboration partners, and the drug product candidates developed by us or in collaboration with partners are subject to extensive regulation by governmental authorities in the U.S. and other countries. Failure to comply with applicable requirements could result in, among other things, any of the following actions: warning letters, fines and other civil penalties, unanticipated expenditures, delays in approving or refusal to approve a product candidate, product recall or seizure, interruption of manufacturing or clinical trials, operating restrictions, injunctions and criminal prosecution.

The product candidates of us and our partners cannot be marketed in the U.S. without FDA approval or clearance, and they cannot be marketed in foreign countries without applicable regulatory approval. Neither the FDA nor any foreign regulatory authority has approved any of the product candidates being developed by us or our partners based on our technologies. These product candidates are in pre-clinical and early clinical development, and will have to be approved by the FDA or applicable foreign regulatory authorities before they can be marketed in the U.S. or abroad. Obtaining regulatory approval requires substantial time, effort, and financial resources, and may be subject to both expected and unforeseen delays, including, without limitation, citizen's petitions or other filings with the FDA, and there can be no assurance that any approval will be granted on a timely basis, if at all, or that delays will be resolved favorably or in a timely manner. If our product candidates are not approved in a timely fashion, or are not approved at all, our business and financial condition may be adversely affected.

In addition, both before and after regulatory approval, we, our collaboration partners and our product candidates are subject to numerous requirements by the FDA and foreign regulatory authorities covering, among other things, testing, manufacturing, quality control, labeling, advertising, promotion, distribution and export. These requirements may change and additional government regulations may be promulgated that could affect us, our collaboration partners or our product candidates. We cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action, either in the U.S. or abroad. There can be no assurance that neither we nor any of our partners will be required to incur significant costs to comply with such laws and regulations in the future or that such laws or regulations will not have a material adverse effect upon our business.

We have used, and may continue to use, hazardous chemicals and biological materials in our business. Any disputes relating to improper use, handling, storage or disposal of these materials could be time-consuming and costly.

Our research and development operations have involved, and if continued in the future will likely continue to involve, the use of hazardous and biological, potentially infectious, materials. Such use subjects us to the risk of accidental contamination or discharge or any resultant injury from these materials. Federal, state and local laws and regulations govern the use, manufacture, storage, handling and disposal of these materials and specific waste products. We could be subject to damages, fines or penalties in the event of an improper or unauthorized release of, or exposure of individuals to, these hazardous materials, and our liability could be substantial. The costs of complying with these current and future environmental laws and regulations may be significant, thereby impairing our business.

We are also subject to numerous environmental, health and workplace safety laws and regulations, including those governing laboratory procedures, exposure to blood-borne pathogens and the handling of biohazardous materials. We maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of these materials. The limits of our workers' compensation insurance are mandated by state law, and our workers' compensation liability is capped at these state-mandated limits. We do not maintain insurance for environmental liability or toxic tort claims that may be asserted against us in connection with our storage or disposal of biological, hazardous or radioactive materials. 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.

Failure to comply with foreign regulatory requirements governing human clinical trials and marketing approval for drugs could prevent the sale of drug candidates based on our technologies in foreign markets, which may adversely affect our operating results and financial condition.

The requirements governing the conduct of clinical trials, product licensing, pricing and reimbursement for marketing drug candidates based on our technologies outside the U.S. vary greatly from country to country. We have, and our partners may have, limited experience in obtaining foreign regulatory approvals. The time required to obtain approvals outside the U.S. may differ from that required to obtain FDA approval. Neither we nor our partners may be able to obtain foreign regulatory approvals on a timely basis, if at all. Approval by the FDA does not ensure approval by regulatory authorities in other countries, and approval by one foreign regulatory authority does not ensure approval by regulatory authorities in other countries or by the FDA. Failure to comply with these regulatory requirements or obtain required approvals could restrict the development of foreign markets for our drug candidates and may have a material adverse effect on our financial condition or results of operations.

Risks Related to our Dependence on Third Parties

We may become dependent on our collaborative arrangements with third parties for a substantial portion of our revenue, and our development and commercialization activities may be delayed or reduced if we fail to initiate, negotiate or maintain successful collaborative arrangements.

We are, in part, dependent on current and possible future collaborators to develop and commercialize products based on our technologies, and to provide the regulatory compliance, sales, marketing and distribution capabilities required for the success of our business. If we fail to secure or maintain successful collaborative arrangements, our development and commercialization activities will be delayed, reduced or terminated, and our revenues could be materially and adversely impacted.

Over the next several years, we may depend on these types of collaboration partnerships for a significant portion of our revenue. The expected future milestone and royalty payments and cost reimbursements from collaboration agreements could provide an important source of financing for our research and development programs, thereby facilitating the application of our technology to the development and commercialization of our products. These collaborative agreements might be terminated either by us or by our partners upon the satisfaction of certain notice requirements. Our partners may not be precluded from independently pursuing competing products and drug delivery approaches or technologies. Even if our partners continue their contributions to our collaborative arrangements, of which there can be no assurance, they may nevertheless determine not to actively pursue the development or commercialization of any resulting products. Our partners may fail to perform their obligations under the collaborative arrangements or may be slow in performing their obligations. In addition, our partners may experience financial difficulties at any time that could prevent them from having available funds to contribute to these collaborations. If our collaboration partners fail to conduct their commercialization, regulatory compliance, sales and marketing or distribution activities successfully and in a timely manner, or if they terminate or materially modify their agreements with us, the development and commercialization of one or more product candidates

could be delayed, curtailed or terminated because we may not have sufficient financial resources or capabilities to continue such development and commercialization on our own.

For example, during the past year, we have entered into agreements with Mirna Therapeutics, Inc., ProNAi Therapeutics, Inc., Monsanto Company, Girindus Group, Novartis Institutes for Biomedical Research, Inc. and Tekmira Pharmaceuticals Corporation regarding the development and/or commercialization of certain programs and technologies in specified fields of use. We may receive milestone and/or royalty payments as a result of each of these agreements, with the exception of our agreement with Novartis. If our partner with respect to any agreement terminates the applicable agreement or fails to perform its obligations thereunder, we may not receive any revenues from the technology that we have licensed pursuant to the agreement, including any milestone or royalty payments.

An interruption in the supply of raw and bulk materials needed for the development of our product candidates could cause product development to be slowed or stopped.

We and our partners may obtain supplies of critical raw and bulk materials used in research and development efforts from several suppliers, and long-term contracts may not be in place with any or all of these suppliers. While existing arrangements may supply sufficient quantities of raw and bulk materials needed to accomplish the current preclinical and clinical development of product candidates, there can be no assurance that sufficient quantities of product candidates could be manufactured if our suppliers are unable or unwilling to supply such materials. Any delay or disruption in the availability of raw or bulk materials could slow or stop research and development of the relevant product.

We rely and anticipate that we will continue to rely on third parties to conduct clinical trials, and those third parties may not perform satisfactorily, including failing to meet established deadlines for the completion of such clinical trials.

We are, and anticipate that we and certain of our partners will continue to be, dependent on contract research organizations, third-party vendors and investigators for pre-clinical testing and clinical trials related to drug discovery and development efforts. These parties are not employed by us or our partners, and neither we nor our partners can control the amount or timing of resources that they devote to our programs. If they fail to devote sufficient time and resources to our drug development programs or if their performance is substandard, it will delay the development and commercialization of our product candidates. The parties with which we and our partners contract for execution of clinical trials play a significant role in the conduct of the trials and the subsequent collection and analysis of data. Their failure to meet their obligations could adversely affect clinical development of our product candidates. Moreover, these parties also may have relationships with other commercial entities, some of which may compete with us and our partners. If they assist our competitors, it could harm our competitive position.

If we or our partners were to lose our relationship with any one or more of these parties, there could be a significant delay in both identifying another comparable provider and then contracting for its services. An alternative provider may not be available on reasonable terms, if at all. Even if we locate an alternative provider, is it likely that this provider may need additional time to respond to our needs and may not provide the same type or level of service as the original provider. In addition, any alternative provider will be subject to Good Laboratory Practices, or cGLP, and similar foreign standards and neither we nor our partners have control over compliance with these regulations by these providers. Consequently, if these providers do not adhere to these practices and standards, the development and commercialization of our product candidates could be delayed.

We have very limited experience in marketing, selling or distributing our products, and we may need to rely on marketing partners or contract sales companies.

Even if we are able to develop our products and obtain necessary regulatory approvals, we have very limited experience or capabilities in marketing, selling or distributing our products. We currently have no sales, marketing and distribution infrastructure. Accordingly, we will be dependent on our ability to build this capability ourselves, which would require the investment of significant financial and management resources, or to find collaborative marketing partners or contract sales companies for commercial sale of our internally-developed products. Even if we find a potential marketing partner, of which there can be no assurance, we may not be able to negotiate a licensing contract on favorable terms to justify our investment or achieve adequate revenues.

We have very limited manufacturing experience or resources, and we must incur significant costs to develop this expertise or rely on third parties to manufacture our products.

We have very limited manufacturing experience. Prior to the cessation of substantially all of our business activities in June 2012, our internal manufacturing capabilities were limited to small-scale production of non-cGMP material for use in in vitro and in vivo experiments. Some of our product candidates utilize specialized formulations whose scale-up and manufacturing could be very difficult. We also have very limited experience in such scale-up and manufacturing, requiring us to depend on a limited number of third parties, who might not be able to deliver in a timely manner, or at all. In order to develop products, apply for regulatory approvals and commercialize our products, we will need to develop, contract for, or otherwise arrange for the necessary manufacturing capabilities. We may manufacture clinical trial materials ourselves or we may rely on others to manufacture the materials we will require for any clinical trials that we initiate. There are a limited number of manufacturers that supply synthetic siRNAs. We have relied on several contract manufacturers for our supply of synthetic siRNAs. There are risks inherent in pharmaceutical manufacturing that could affect the ability of our contract manufacturers to meet our delivery time requirements or provide adequate amounts of material to meet our needs. Included in these risks are synthesis and purification failures and contamination during the manufacturing process, which could result in unusable product and cause delays in our development process, as well as additional expense to us. To fulfill our siRNA

requirements, if any, we may also need to secure alternative suppliers of synthetic siRNAs. In addition to the manufacture of the synthetic siRNAs, we may have additional manufacturing requirements related to the technology required to deliver the siRNA to the relevant cell or tissue type. In some cases, the delivery technology we utilize is highly specialized or proprietary, and for technical and legal reasons, we may have access to only one or a limited number of potential manufacturers for such delivery technology. Failure by these manufacturers to properly formulate our siRNAs for delivery could also result in unusable product and cause delays in our discovery and development process, as well as additional expense to us.\

The manufacturing process for any products based on our technologies that we or our partners may develop is subject to the FDA and foreign regulatory authority approval process and we (or our partners) will need to contract with manufacturers who can meet all applicable FDA and foreign regulatory authority requirements on an ongoing basis. In addition, if we receive the necessary regulatory approval for any product candidate, we also expect to rely on third parties, including our commercial collaborators, to produce materials required for commercial supply. We may experience difficulty in obtaining adequate manufacturing capacity for our needs. If we are unable to obtain or maintain contract manufacturing for these product candidates, or to do so on commercially reasonable terms, we may not be able to successfully develop and commercialize our products.

To the extent that we enter into manufacturing arrangements with third parties, we will depend on these third parties to perform their obligations in a timely manner and consistent with regulatory requirements, including those related to quality control and quality assurance. The failure of a third-party manufacturer to perform its obligations as expected could adversely affect our business in a number of ways, including:

- we may not be able to initiate or continue pre-clinical and clinical trials of products that are under development;
- we may be delayed in submitting regulatory applications, or receiving regulatory approvals, for our product candidates;
- we may lose the cooperation of our collaborators;
- our products could be the subject of inspections by regulatory authorities;
- we may be required to cease distribution or recall some or all batches of our products; and
- ultimately, we may not be able to meet commercial demands for our products.

If a third-party manufacturer with whom we contract fails to perform its obligations, we may be forced to manufacture the materials ourselves, for which we may not have the capabilities or resources, or enter into an agreement with a different third-party manufacturer, which we may not be able to do on reasonable terms, if at all. In some cases, the technical skills required to manufacture our product may be unique to the original manufacturer and we may have difficulty transferring such skills to a back-up or alternate supplier, or we may be unable to transfer such skills at all. In addition, if we are required to change manufacturers for any reason, we will be required to verify that the new manufacturer maintains facilities and procedures that comply with quality standards and with all applicable regulations and guidelines. The delays associated with the verification of a new manufacturer could negatively affect our ability to develop product candidates in a timely manner or within budget. Furthermore, a manufacturer may possess technology related to the manufacture of our product candidate that such manufacturer owns independently. This would increase our reliance on such manufacturer or require us to obtain a license from such manufacturer in order to have another third party manufacture our products.

Risks Related to our Intellectual Property and Other Legal Matters

If we are unable to adequately protect our proprietary technology from legal challenges, infringement or alternative technologies, our competitive position may be hurt and our operating results may be negatively impacted.

Our business is based upon the development and delivery of RNA-based therapeutics, and we rely on the issuance of patents, both in the U.S. and internationally, for protection against competitive technologies. Although we believe we exercise the necessary due diligence in our patent filings, our proprietary position is not established until the appropriate regulatory authorities actually issue a patent, which may take several years from initial filing or may never occur.

Moreover, even the established patent positions of pharmaceutical companies are generally uncertain and involve complex legal and factual issues. Although we believe our issued patents are valid, third parties may infringe our patents or may initiate proceedings challenging the validity or enforceability of our patents. The issuance of a patent is not conclusive as to its claim scope, validity or enforceability. Challenges raised in patent infringement litigation we initiate or in proceedings initiated by third parties may result in determinations that our patents have not been infringed or that they are invalid, unenforceable or otherwise subject to limitations. In the event of any such determinations, third parties may be able to use the discoveries or technologies claimed in our patents without paying us licensing fees or royalties, which could significantly diminish the value of these discoveries or technologies. As a result of such determinations, we may be enjoined from pursuing research, development or commercialization of potential products or may be required to obtain licenses, if available, to the third party patents or to develop or obtain alternative technology. Responding to challenges initiated by third parties may require significant expenditures and divert the attention of our management and key personnel from other business concerns.

Furthermore, it is possible others will infringe or otherwise circumvent our issued patents and that we will be unable to fund the cost of litigation against them or that we would elect not to pursue litigation. In addition, enforcing our patents against third parties may require significant expenditures regardless of the outcome of such efforts. We also cannot assure you that others have not filed patent applications for technology covered by our pending applications or that we were the first to invent the technology. There may also exist third party patents or patent applications relevant to our potential products that may block or compete with the technologies covered by our patent applications and third parties may independently develop IP similar to our patented IP, which could result in, among other things, interference proceedings in the U.S. Patent and Trademark Office to determine priority of invention.

In addition, we may not be able to protect our established and pending patent positions from competitive technologies, which may provide more effective therapeutic benefit to patients and which may therefore make our products, technology and proprietary position obsolete.

We also rely on copyright and trademark protection, trade secrets, know-how, continuing technological innovation and licensing opportunities. In an effort to maintain the confidentiality and ownership of our trade secrets and proprietary information, we require our employees, consultants, advisors and others to whom we disclose confidential information to execute confidentiality and proprietary information agreements. However, it is possible that these agreements may be breached, invalidated or rendered unenforceable, and if so, there may not be an adequate corrective remedy available. Furthermore, like many companies in our industry, we may from time to time hire scientific personnel formerly employed by other companies involved in one or more areas similar to the activities we conduct. In some situations, our confidentiality and proprietary information agreements may conflict with, or be subject to, the rights of third parties with whom our employees, consultants or advisors have prior employment or consulting relationships. Although we require our employees and consultants to maintain the confidentiality of all confidential information of previous employers, we or these individuals may be subject to allegations of trade secret misappropriation or other similar claims as a result of their prior affiliations. Finally, others may independently develop substantially equivalent proprietary information and techniques, or otherwise gain access to our trade secrets. Our failure to protect our proprietary information and techniques may inhibit or limit our ability to exclude certain competitors from the market and execute our business strategies.

If we are unable to adequately protect our proprietary intellectual property from legal challenges, infringement or alternative technologies, we will not be able to compete effectively in the drug discovery and development business.

Because intellectual property rights are of limited duration, expiration of intellectual property rights and licenses will negatively impact our operating results.

Intellectual property rights, such as patents and license agreements based on those patents, generally are of limited duration. Our operating results depend on our patents and IP licenses. Therefore, the expiration or other loss of rights associated with IP and IP licenses can negatively impact our business.

Our patent applications may be inadequate in terms of priority, scope or commercial value.

We apply for patents covering our discoveries and technologies as we deem appropriate. However, we or our partners may fail to apply for patents on important discoveries or technologies in a timely fashion or at all. Also, our pending patent applications may not result in the issuance of any patents. These applications may not be sufficient to meet the statutory requirements for patentability, and therefore we may be unable to obtain enforceable patents covering the related discoveries or technologies we may want to commercialize. In addition, because patent applications are maintained in secrecy for approximately 18 months after filing, other parties may have filed patent applications relating to inventions before our applications covering the same or similar inventions. In addition,

foreign patent applications are often published initially in local languages, and until an English language translation is available it can be impossible to determine the significance of a third party invention. Any patent applications filed by third parties may prevail over our patent applications or may result in patents that issue alongside patents issued to us, leading to uncertainty over the scope of the patents or the freedom to practice the claimed inventions.

Although we have in-licensed a number of issued patents, the discoveries or technologies covered by these patents may not have any therapeutic or commercial value. Also, issued patents may not provide commercially meaningful protection against competitors. Other parties may be able to design around our issued patents or independently develop products having effects similar or identical to our patented product candidates. In addition, the scope of our patents is subject to considerable uncertainty and competitors or other parties may obtain similar patents of uncertain scope.

We are dependent on technologies we license, and if we lose the right to license such technologies or we fail to license new technologies in the future, our ability to develop new products would be harmed.

We currently are dependent on licenses from third parties for certain of our key technologies relating to fundamental RNAi technologies. Our current licenses impose, and any future licenses we enter into are likely to impose, various development, funding, royalty, diligence, sublicensing, insurance and other obligations on us. If our license with respect to any of these technologies is terminated for any reason, the development of the products contemplated by the licenses would be delayed, or suspended altogether, while we seek to license similar technology or develop new non-infringing technology. The costs of obtaining new licenses are high, and many patents in the RNAi field have already been exclusively licensed to third parties, including our competitors. If any of our existing licenses is terminated, the development of the products contemplated by the licenses could be delayed or terminated and we may not be able to negotiate additional licenses on acceptable terms, if at all, which would have a material adverse effect on our business.

We may be required to defend lawsuits or pay damages for product liability claims.

Our business inherently exposes us to potential product liability claims. We may face substantial product liability exposure in human clinical trials that we may initiate and for products that we sell, or manufacture for others to sell, after regulatory approval. The risk exists even with respect to those drugs that are approved by regulatory agencies for commercial distribution and sale and are manufactured in facilities licensed and regulated by regulatory agencies. Any product liability claims, regardless of their merits, could be costly, divert management's attention, delay or prevent completion of our clinical development programs, and adversely affect our reputation and the demand for our products. We currently have product liability insurance that we believe is appropriate for our stage of development and may need to obtain higher levels of such insurance if we were ever to market any of our product candidates. Any insurance we have or may obtain may not provide sufficient coverage against potential liabilities. Furthermore, clinical trial and product liability insurance is becoming increasingly expensive. As a result, we may be unable to obtain sufficient insurance at a reasonable cost to protect us against losses caused by product liability claims that could have a material adverse effect on our business.

Risks Related to the Commercialization of our Product Candidates

Our product development efforts may not result in commercial products.

Our future results of operations depend, to a significant degree, upon our and any collaboration partners' ability to successfully develop and commercialize pharmaceutical products. The development and commercialization process, particularly with respect to innovative products, is both time consuming and costly and involves a high degree of business risk. Successful product development in the pharmaceutical industry is highly uncertain, and very few research and development projects result in a commercial product. Product candidates that appear promising in the early phases of development, such as in preclinical testing or in early human clinical trials, may fail to reach the market for a number of reasons, such as:

- a product candidate may not perform as expected in later or broader trials in humans and limit marketability of such product candidate;
- necessary regulatory approvals may not be obtained in a timely manner, if at all;
- a product candidate may not be able to be successfully and profitably produced and marketed;
- third parties may have proprietary rights to a product candidate, and do not allow sale on reasonable terms; or
- a product candidate may not be financially successful because of existing therapeutics that offer equivalent or better treatments.

Only two product candidates utilizing our technologies have commenced human clinical studies, and such product candidates have not been approved by the FDA or any foreign regulatory authority. The CEQ508 trial is currently on hold pending the receipt of sufficient funding to continue. There can be no assurance that any product candidates based on our technologies currently in research or development, or that may enter research or development, will ever be successfully commercialized, and delays in any part of the process

or the inability to obtain regulatory approval could adversely affect our operating results by restricting introduction of new products by us or any future collaboration partners.

Even if we are successful in developing and commercializing a product candidate, it is possible that the commercial opportunity for oligonucleotide-based therapeutics will be limited.

The product candidates based on our technologies that are being developed are based on new technologies and therapeutic approaches, none of which have yet been brought to market. Key participants in pharmaceutical marketplaces, such as physicians, third-party payors and consumers, may not accept a product intended to improve therapeutic results based on oligonucleotide-based technology. Accordingly, while we believe there will be a commercial market for oligonucleotide-based therapeutics utilizing our technologies, there can be no assurance that this will be the case, in particular given the novelty of the field. Many factors may affect the market acceptance and commercial success of any potential products, including:

- establishment and demonstration of the effectiveness and safety of the drugs;
- timing of market entry as compared to competitive products and alternative treatments;
- the benefits of our drugs relative to their prices, and the comparative price of competing products and treatments;
- the availability of adequate government and third-party payor reimbursement;
- marketing and distribution support of our products;
- the safety, efficacy and ease of administration of our product candidates;
- the willingness of patients to accept, and the willingness of medical professionals to prescribe, relatively new therapies; and
- any restrictions on labeled indications.

Risks Related to our Industry

Any drugs based on our technologies that we or any of our partners develop may become subject to unfavorable pricing regulations, third-party reimbursement practices or healthcare reform initiatives, which could have a material adverse effect on our business and financial results.

The success of the products based on our technologies will depend upon the extent to which third-party payors, such as Medicare, Medicaid and other domestic and international government programs, private insurance plans and managed care programs, provide reimbursement for the use of such products. Most third-party payors may deny reimbursement if they determine that a medical product was not used in accordance with cost-effective treatment methods, as determined by the third-party payor, or was used for an unapproved indication.

Third-party payors also may refuse to reimburse for experimental procedures and devices. Furthermore, because our programs are in the early stages of development, we are unable at this time to determine their cost-effectiveness and the level or method of reimbursement. Increasingly, the third-party payors, who reimburse patients, such as government and private insurance plans, are requiring that drug companies provide them with predetermined discounts from list prices, and are challenging the prices charged for medical products. If the price charged for any products based on our technologies that we or our partners develop is inadequate in light of our development and other costs, our profitability could be adversely affected.

We expect that drugs based on our technologies that we or a partner develop may need to be administered under the supervision of a physician. Under currently applicable law, drugs that are not usually self-administered may be eligible for coverage by the Medicare program if:

- they are “incidental” to a physician’s services;
- they are “reasonable and necessary” for the diagnosis or treatment of the illness or injury for which they are administered according to accepted standards of medical practice;
- they are not excluded as immunizations; and
- they have been approved by the FDA.

There may be significant delays in obtaining insurance coverage for newly-approved drugs, and insurance coverage may be more limited than the purpose for which the drug is approved by the FDA. Moreover, eligibility for insurance coverage does not imply that any drug will be reimbursed in all cases or at a rate that covers costs, including research, development, manufacture, sale and distribution. Interim payments for new drugs, if applicable, may also not be sufficient to cover costs and may not be made permanent. Reimbursement may be based on payments for other services and may reflect budgetary constraints or imperfections in Medicare data. Net prices for drugs may be reduced by mandatory discounts or rebates required by government health care programs or private payors

and by any future relaxation of laws that presently restrict imports of drugs from countries where they may be sold at lower prices than in the United States. Third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own reimbursement rates. The inability to promptly obtain coverage and profitable reimbursement rates from both government-funded and private payors for new drugs based on our technologies that we or our partners develop could have a material adverse effect on our operating results, our ability to raise capital, and our overall financial condition.

We believe that the efforts of governments and third-party payors to contain or reduce the cost of healthcare and legislative and regulatory proposals to broaden the availability of healthcare will continue to affect the business and financial condition of pharmaceutical and biopharmaceutical companies. A number of legislative and regulatory changes in the healthcare system in the United States and other major healthcare markets have been proposed in recent years, and such efforts have expanded substantially in recent years. These developments have included prescription drug benefit legislation that was enacted and took effect in January 2006, healthcare reform legislation recently enacted by certain states, and major healthcare reform legislation that was passed by Congress and enacted into law in the United States in 2010. These developments could, directly or indirectly, affect our ability to sell our products, if approved, at a favorable price.

The full effects of the U.S. healthcare reform legislation cannot be known until the new law is implemented through regulations or guidance issued by the Centers for Medicare & Medicaid Services and other federal and state healthcare agencies. The financial impact of the U.S. healthcare reform legislation over the next few years will depend on a number of factors, including but not limited to the policies reflected in implementing regulations and guidance, and changes in sales volumes for products affected by the new system of rebates, discounts and fees. The new legislation may also have a positive impact on our future net sales, if any, by increasing the aggregate number of persons with healthcare coverage in the United States.

Moreover, we cannot predict what healthcare reform initiatives may be adopted in the future. Further federal and state legislative and regulatory developments are likely, and we expect ongoing initiatives in the United States to increase pressure on drug pricing. Such reforms could have an adverse effect on anticipated revenues from product candidates based on our technologies that are successfully developed and for which regulatory approval is obtained, and may affect our overall financial condition and ability to develop drug candidates.

The pharmaceutical market is intensely competitive. If we are unable to compete effectively with existing drugs, new treatment methods and new technologies, we may be unable to commercialize successfully any drugs that we develop.

The pharmaceutical market is intensely competitive and rapidly changing. Many large pharmaceutical and biotechnology companies, academic institutions, governmental agencies and other public and private research organizations are pursuing the development of novel drugs for the same diseases that we are targeting or expect to target. Many of our competitors have:

- much greater financial, technical and human resources than we have at every stage of the discovery, development, manufacture and commercialization of products;
- more extensive experience in pre-clinical testing, conducting clinical trials, obtaining regulatory approvals, and in manufacturing, marketing and selling pharmaceutical products;
- product candidates that are based on previously tested or accepted technologies;
- products that have been approved or are in late stages of development; and
- collaborative arrangements in our target markets with leading companies and research institutions.

Products based on our technologies will face intense competition from drugs that have already been approved and accepted by the medical community for the treatment of the conditions for which we may develop drugs. We also expect to face competition from new drugs that enter the market. We believe a significant number of drugs are currently under development, and may become commercially available in the future, for the treatment of conditions for which we and our partners may try to develop drugs. These drugs may be more effective, safer, less expensive, or marketed and sold more effectively, than any products we and our partners develop.

If we and our partners successfully develop product candidates based on our technologies, and obtain approval for them, we will face competition based on many different factors, including:

- the safety and effectiveness of such products;
- the ease with which such products can be administered and the extent to which patients accept relatively new routes of administration;
- the timing and scope of regulatory approvals for these products;
- the availability and cost of manufacturing, marketing and sales capabilities;
- price;

- reimbursement coverage; and
- patent position.

Our competitors may develop or commercialize products with significant advantages over any products we develop based on any of the factors listed above or on other factors. Our competitors may therefore be more successful in commercializing their products than we are, which could adversely affect our competitive position and business. Competitive products may make any products we develop obsolete or noncompetitive before we can recover the expenses of developing and commercializing our product candidates. Such competitors could also recruit our employees, which could negatively impact our level of expertise and the ability to execute on our business plan. Furthermore, we also face competition from existing and new treatment methods that reduce or eliminate the need for drugs, such as the use of advanced medical devices. The development of new medical devices or other treatment methods for the diseases we are targeting could make our product candidates noncompetitive, obsolete or uneconomical.

We may be unable to compete successfully against other companies that are working to develop novel drugs and technology platforms using technology similar to ours.

In addition to the competition we face from competing drugs in general, we also face competition from other biotechnology and pharmaceutical companies and medical institutions that are working to develop novel drugs using technology that competes more directly with our own. Among those companies that are working in this field are: Alnylam Pharmaceuticals, Benitec Biopharma, Dicerna Pharmaceuticals, miRagen Therapeutics, Mirna Therapeutics, Quark Pharmaceuticals, Regulus Therapeutics, Silence Therapeutics, and Tekmira Pharmaceuticals, as well as a number of the multinational pharmaceutical companies. Any of these companies may develop its technology more rapidly and more effectively than us.

In addition to competition with respect to our technology and with respect to specific products, we and our partners face substantial competition to discover and develop safe and effective means to deliver the drugs based on our technologies that are developed to the relevant cell and tissue types. Substantial resources are being expended by third parties, both in academic laboratories and in the corporate sector, in the effort to discover and develop a safe and effective means of delivery into the relevant cell and tissue types. If safe and effective means of delivery to the relevant cell and tissue types were developed by our competitors, our ability to successfully commercialize a competitive product would be adversely affected.

Many of our competitors have substantially greater research and development capabilities and financial, scientific, technical, manufacturing, marketing, distribution, and other resources than us. Even if we and our partners are successful in developing product candidates based on our technologies, in order to compete successfully we may need to be first to market or to demonstrate that our products are superior to therapies based on different technologies. If we are not first to market or are unable to demonstrate such superiority, any products for which we are able to obtain approval may not be successful.

Risks Related to our Common Stock

The trading price of our common stock has been volatile, and investors in our common stock may experience substantial losses.

The trading price of our common stock has been volatile and may become volatile again in the future. The trading price of our common stock could decline or fluctuate in response to a variety of factors, including:

- our general financial condition, and ability to maintain sufficient capital to continue operations;
- our ability to satisfy our filing requirements under the rules and regulations of the SEC;
- our ability to enter into and maintain collaborative arrangements with third parties;
- our ability to meet the performance estimates of securities analysts;
- changes in buy/sell recommendations by securities analysts;
- negative results from clinical and pre-clinical trials;
- fluctuation in our quarterly operating results;
- reverse splits or increases in authorized shares;
- substantial sales of our common stock;
- general stock market conditions; or
- other economic or external factors.

The stock markets in general, and the markets for the securities of companies in our industry in particular, have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. These broad market fluctuations may adversely affect the trading price of our common stock.

We may not be able to achieve secondary trading of our stock in certain states because our common stock is not nationally traded.

Because our common stock is not listed for trading on a national securities exchange, our common stock is subject to the securities laws of the various states and jurisdictions of the U.S. in addition to federal securities law. This regulation covers any primary offering we might attempt and all secondary trading by our stockholders. If we fail to take appropriate steps to register our common stock or qualify for exemptions for our common stock in certain states or jurisdictions of the U.S., the investors in those jurisdictions where we have not taken such steps may not be allowed to purchase our stock or those who presently hold our stock may not be able to resell their shares without substantial effort and expense. These restrictions and potential costs could be significant burdens on our stockholders.

Our common stock is traded on the OTC Pink tier of the OTC Markets, which may limit the ability of our stockholders to sell their securities, and may cause volatility in the price of our common stock.

Our common stock currently trades on the OTC Pink tier of the OTC Markets. Securities trading on the OTC Pink markets often experience a lack of liquidity as compared to securities trading on a national securities exchange or the OTC Bulletin Board. Such securities also have experienced extreme price and volume fluctuations in recent years, which have particularly affected the market prices of many smaller companies like ours. We anticipate that our common stock will be subject to the lack of liquidity and this volume and price volatility that is characteristic of the OTC Pink markets.

Our common stock may be considered a "penny stock," and thereby be subject to additional sale and trading regulations that may make it more difficult to sell.

Our common stock may be considered to be a "penny stock" if it does not qualify for one of the exemptions from the definition of "penny stock" under Section 3a51-1 of the Exchange Act. The principal result or effect of being designated a "penny stock" is that securities broker-dealers participating in sales of our common stock will be subject to the "penny stock" regulations set forth in Rules 15-2 through 15g-9 promulgated under the Exchange Act. For example, Rule 15g-2 requires broker-dealers dealing in penny stocks to provide potential investors with a document disclosing the risks of penny stocks and to obtain a manually signed and dated written receipt of the document at least two business days before effecting any transaction in a penny stock for the investor's account.

Moreover, Rule 15g-9 requires broker-dealers in penny stocks to approve the account of any investor for transactions in such stocks before selling any penny stock to that investor. This procedure requires the broker-dealer to (i) obtain from the investor information concerning his or her financial situation, investment experience and investment objectives; (ii) reasonably determine, based on that information, that transactions in penny stocks are suitable for the investor and that the investor has sufficient knowledge and experience as to be reasonably capable of evaluating the risks of penny stock transactions; (iii) provide the investor with a written statement setting forth the basis on which the broker-dealer made the determination in (ii) above; and (iv) receive a signed and dated copy of such statement from the investor, confirming that it accurately reflects the investor's financial situation, investment experience and investment objectives. Compliance with these requirements may make it more difficult and time consuming for holders of our common stock to resell their shares to third parties or to otherwise dispose of them in the market or otherwise.

Various restrictions in our charter documents and Delaware law could prevent or delay a change in control of us that is not supported by our board of directors.

We are subject to a number of provisions in our charter documents and Delaware law that may discourage, delay or prevent a merger, acquisition or change of control that a stockholder may consider favorable. These anti-takeover provisions include:

- advance notice procedures for nominations of candidates for election as directors and for stockholder proposals to be considered at stockholders' meetings; and
- the Delaware anti-takeover statute contained in Section 203 of the Delaware General Corporation Law.

Section 203 of the Delaware General Corporation Law prohibits a merger, consolidation, asset sale or other similar business combination between us and any stockholder of 15% or more of our voting stock for a period of three years after the stockholder acquires 15% or more of our voting stock, unless (1) the transaction is approved by our board of directors before the stockholder acquires 15% or more of our voting stock, (2) upon completing the transaction the stockholder owns at least 85% of our voting stock

outstanding at the commencement of the transaction, or (3) the transaction is approved by our board of directors and the holders of 66 2/3% of our voting stock, excluding shares of our voting stock owned by the stockholder.

We have never paid dividends on our common stock and we do not anticipate paying cash dividends in the foreseeable future.

We have not paid any dividends on our common stock to date, and we currently intend to retain our future earnings, if any, to fund the development and growth of our business. In addition, the terms of any financing arrangements that we may enter into may restrict our ability to pay any dividends.

The anti-takeover provisions of our stockholder rights plan may entrench management, may delay or prevent beneficial takeover bids by third parties and may prevent or frustrate any stockholder attempt to replace or remove the current management even if the stockholders consider it beneficial to do so.

We have a stockholder rights plan designed to protect our stockholders from coercive or unfair takeover tactics. Under the plan, we declared a dividend of one preferred stock purchase right for each share of common stock outstanding on March 17, 2000. Each preferred stock purchase right entitles the holder to purchase from us 1/1000th of a share of Series A Junior Participating Preferred Stock for $50.00. In the event any acquiring entity or group accumulates or initiates a tender offer to purchase 15% or more of our common stock, then each holder of a preferred stock purchase right, other than the acquiring entity and its affiliates, will have the right to receive, upon exercise of the preferred stock purchase right, shares of our common stock or shares in the acquiring entity having a value equal to two times the exercise price of the preferred stock purchase right. The preferred stock purchase rights will expire on March 17, 2013, unless we extend the expiration date or in certain limited circumstances, we redeem or exchange such rights prior to such date.

The intent of the stockholder rights plan is to protect our stockholders' interests by encouraging anyone seeking control of our company to negotiate with our board of directors. However, our stockholder rights plan could make it more difficult for a third party to acquire us without the consent of our board of directors, even if doing so may be beneficial to our stockholders. This plan may discourage, delay or prevent a tender offer or takeover attempt, including offers or attempts that could result in a premium over the market price of our common stock. This plan could reduce the price that investors might be willing to pay for shares of our common stock in the future. Furthermore, the anti-takeover provisions of our stockholder rights plan may entrench management and make it more difficult for stockholders to replace management even if the stockholders consider it beneficial to do so.

A significant number of shares of our common stock are subject to options, warrants and conversion rights, and we expect to sell additional shares of our common stock in the future. The issuance of these shares will dilute the interests of other security holders and may depress the price of our common stock.

As of January 9, 2013, there were 16,937,661 shares of common stock outstanding. As of January 9, 2013, there were vested outstanding options to purchase 196,556 shares of common stock with a weighted average exercise price of $55.92 per share, unvested outstanding options to purchase 81,993 shares of common stock at a weighted average exercise price of $2.86 per share, outstanding warrants to purchase 11,916,801 shares of common stock at a weighted average exercise price of $1.71 per share (of which warrants to purchase 10,613,265 shares of common stock, with a weighted average exercise price of $0.28 per share, are price-adjustable as a result of certain subsequent financing events), and 308,884 shares of common stock available for future issuance under our stock compensation plans. Also, assuming that unpaid principal and accrued interest on the notes that we issued in February 2012 converted into shares of our common stock on January 18, 2013 at a conversion price of $0.28 per share, we would have issued to the holders of such notes an aggregate of 5,636,311 shares of common stock. In addition, we may issue a significant number of additional shares of common stock and warrants from time to time to finance our operations, to fund potential acquisitions, or in connection with additional stock options or restricted stock granted to our employees, officers, directors and consultants under our equity compensation plans. The issuance, perception that issuance may occur, or exercise of warrants or options will have a dilutive impact on other stockholders and could have a material negative effect on the market price of our common stock.

There are outstanding a significant number of shares available for future sales under Rule 144.

As of January 9, 2013, of the issued and outstanding shares of our common stock, approximately 4.1 million shares may be deemed "restricted shares" and, in the future, may be sold in compliance with Rule 144 promulgated under the Securities Act. In general, under Rule 144, a person (or persons whose shares are aggregated) who is not deemed to have been an affiliate of ours at any time during the three months preceding a sale, and who has beneficially owned restricted securities within the meaning of Rule 144 for at least six months (including any period of consecutive ownership of preceding non-affiliated holders) would be entitled to sell those shares, subject only to the availability of current public information about us. A non-affiliated person who has beneficially owned restricted securities within the meaning of Rule 144 for at least one year would be entitled to sell those shares without regard to the provisions of Rule 144. A person who is deemed to be an affiliate of ours and who has beneficially owned restricted securities within the meaning of

Rule 144 for at least six months would be entitled to sell within any three-month period a number of shares that does not exceed the greater of one percent of the then outstanding shares of our common stock or the average weekly trading volume of our common stock during the four calendar weeks preceding such sale. Such sales are also subject to certain manner of sale provisions, notice requirements and the availability of current public information about us. Possible or actual sales of our common stock by certain of our present shareholders under Rule 144 may, in the future, have a depressive effect on the price of our common stock in any market which may develop for such shares. Such sales at that time may have a depressive effect on the price of our common stock in the open market.

We have issued secured indebtedness to certain investors, which we may not be able to repay.

On February 10, 2012, we issued 15% secured promissory notes in the aggregate principal amount of $1,500,000 to two accredited investors. The notes, as amended, were due and payable on December 31, 2012. We are currently in default in the repayment of these notes. As a result, the secured lenders may foreclose on substantially all of our assets under the notes and the related security agreements, which would have a material adverse effect on our business and our stockholders. Renegotiations of the debt agreements to address the default are ongoing.

Our Board of Directors has the ability to issue "blank check" Preferred Stock.

Our Certificate of Incorporation authorizes the issuance of up to 100,000 shares of "blank check" preferred stock, with such designation rights and preferences as may be determined from time to time by our Board of Directors. As of the date of this prospectus, 90,000 shares had been designated as Series A Junior participating preferred stock and 1,000 shares had been designated as Series B Preferred Stock, none of which are issued and outstanding. Our Board is empowered, without shareholder approval, to issue shares of preferred stock with dividend, liquidation, conversion, voting or other rights which could adversely affect the voting power or other rights of the holders of our common stock. In the event of such issuances, the preferred stock could be utilized, under certain circumstances, as a method of discouraging, delaying or preventing a change in control of our company. Although we have no present intention to issue any additional shares of our preferred stock, there can be no assurance that we will not do so in the future.

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements that are based on current management expectations. Statements other than statements of historical fact included in this prospectus, including statements about us and the future of our respective clinical trials, research programs, product pipelines, current and potential corporate partnerships, licenses and intellectual property, the adequacy of capital reserves and anticipated operating results and cash expenditures, are forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. When used in this prospectus the words "anticipate," "objective," "may," "might," "should," "could," "can," "intend," "expect," "believe," "estimate," "predict," "potential," "plan" or the negative of these and similar expressions identify forward-looking statements. These statements reflect our current views with respect to uncertain future events and are based on imprecise estimates and assumptions and subject to risk and uncertainties. Given these uncertainties, you should not place undue reliance on these forward-looking statements. While we believe our plans, intentions and expectations reflected in those forward-looking statements are reasonable, these plans, intentions or expectations may not be achieved. Our actual results, performance or achievements could differ materially from those contemplated, expressed or implied by the forward-looking statements contained in this prospectus for a variety of reasons.

We have included more detailed descriptions of these risks and uncertainties and other risks and uncertainties applicable to our business in "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Business," and include, among others:

- our ability to obtain additional and substantial funding for our company in the immediate future;
- our ability to attract and/or maintain research, development, commercialization and manufacturing partners;
- the ability of our company and/or a partner to successfully complete product research and development, including pre-clinical and clinical studies and commercialization;
- the ability of our company and/or a partner to obtain required governmental approvals, including product and patent approvals;
- the ability of our company and/or a partner to develop and commercialize products that can compete favorably with those of, our competitors;
- the timing of costs and expenses related to the research and development programs of our company and/or our partners;
- the timing and recognition of revenue from milestone payments and other sources not related to product sales;
- our ability to make payments as and when required under our secured lending arrangements;
- our ability to file reports with the Securities and Exchange Commission as and when required;
- our ability to attract and retain our key officers and employees; and
- costs associated with any product liability claims, patent prosecution, patent infringement lawsuits and other lawsuits.

We urge investors to review carefully the section of this prospectus entitled "Risk Factors" in evaluating the forward-looking statements contained in this prospectus. We caution investors not to place significant reliance on forward-looking statements contained in this document; such statements need to be evaluated in light of all the information contained herein.

All forward-looking statements attributable to us or persons acting on our behalf are expressly qualified in their entirety by the risk factors and other cautionary statements set forth in this prospectus. Other than as required by applicable securities laws, we are under no obligation, and we do not intend, to update any forward-looking statement, whether as result of new information, future events or otherwise.

USE OF PROCEEDS

We may receive up to approximately $1.7 million upon exercise of the warrants covered by this prospectus that have an exercise price of less than $1.00 per share in the event that such warrants are exercised for cash. We may receive up to approximately $16.7 million upon exercise of the warrants covered by this prospectus that have an exercise price greater than or equal to $1.00 per share in the event that such warrants are exercised for cash. We intend to use any proceeds from the exercise of warrants for general corporate and working capital purposes.

MARKET PRICE OF OUR COMMON STOCK AND RELATED STOCKHOLDER MATTERS

Market Information

Our common stock has traded on the OTC Pink Tier of the OTC Markets under the symbol "MRNA" since July 11, 2012, having previously traded on the OTCQX Tier of the OTC Markets from February 2, 2012 until July 10, 2012. Prior to February 2, 2012, our common stock was listed on the NASDAQ Global Market. Table 1 below sets forth, for each of the quarterly periods indicated during which our common stock was listed on the NASDAQ Global Market, the range of high and low sales prices of our common stock, as reported on the NASDAQ Global Market. Table 2 below sets forth, for each of the quarterly periods indicated during which our common stock was traded on the OTC Markets, the range of high and low bid prices of our common stock, as reported by the OTC Markets. The prices set forth in Table 2 below reflect inter-dealer prices, without retail mark-up, mark-down or commission, and may not represent actual transactions.

The prices set forth in the tables below reflect the 1-for-4 reverse split of our common stock that became effective beginning on July 22, 2010, and the 1-for-10 reverse split of our common stock that became effective beginning on December 23, 2011.

Table 1

Quarter	High	Low
2010:		
First Quarter	$ 74.80	$ 32.80
Second Quarter	56.80	35.60
Third Quarter	40.00	21.80
Fourth Quarter	25.90	13.10
2011:		
First Quarter	$ 16.90	$ 6.00
Second Quarter	7.60	1.90
Third Quarter	2.88	1.31
Fourth Quarter	2.10	0.77
2012:		
First Quarter	$ 1.03	$ 0.71

Table 2

Quarter	High	Low
2012:		
First Quarter	$ 1.24	$ 0.41
Second Quarter	0.92	0.20
Third Quarter	0.40	0.21
Fourth Quarter	0.70	0.26
2013:		
First Quarter(1)	$ 0.50	$ 0.35

(1) Through January 22, 2013

On January 25, 2013, the closing price of our common stock reported by the OTC Markets was $0.40 per share.

Holders

As of September 26, 2012, there were approximately 13,000 beneficial holders of record of our common stock.

Dividends

Payment of dividends and the amount of dividends depend on matters deemed relevant by our Board, such as our results of operations, financial condition, cash requirements, future prospects and any limitations imposed by law, credit agreements and debt securities. To date, we have not paid any cash dividends or stock dividends on our common stock. In addition, we currently anticipate that we will not pay any cash dividends in the foreseeable future and intend to use retained earnings, if any, for working capital purposes. Furthermore, the terms of any financing arrangements that we may enter into may restrict our ability to pay any dividends.

DILUTION

If you invest in our common stock, your interest in the common stock contained therein will be diluted to the extent of the difference between the public offering price per share of our common stock and the net tangible book value per share of our common stock after this offering. Our net tangible book value on September 30, 2012 was approximately $(9.1) million, or approximately ($0.56) per share of common stock. Net tangible book value per share is determined by dividing our net tangible book value, which consists of tangible assets less total liabilities, by the number of shares of common stock outstanding on that date. Dilution in net tangible book value per share represents the difference between the amount per share paid by purchasers of common stock in this offering and the net tangible book value per share of common stock immediately after the completion of this offering. The following table illustrates this per share dilution:

Public offering price per unit (April 2008 warrant exercise price):		$ 86.80
Net tangible book value per share as of September 30, 2012:	(0.56)	
Increase in net tangible book value per share attributable to this offering:	0.70	
Pro forma net tangible book value per share as of September 30, 2012 after giving effect to this offering:		0.14
Dilution per share to new investors in this offering:		$ 86.66
Public offering price per unit (June 2009 warrant exercise price):		$ 0.28
Net tangible book value per share as of September 30, 2012:	(0.56)	
Increase in net tangible book value per share attributable to this offering:	—	
Pro forma net tangible book value per share as of September 30, 2012 after giving effect to this offering:		(0.56)
Dilution per share to new investors in this offering:		$ 0.84
Public offering price per unit (December 2009 warrant exercise price):		$ 18.40
Net tangible book value per share as of September 30, 2012:	(0.56)	
Increase in net tangible book value per share attributable to this offering:	0.03	
Pro forma net tangible book value per share as of September 30, 2012 after giving effect to this offering:		(0.53)
Dilution per share to new investors in this offering:		$ 18.93
Public offering price per unit (January 2010 warrant exercise price):		$ 37.60
Net tangible book value per share as of September 30, 2012:	(0.56)	
Increase in net tangible book value per share attributable to this offering:	0.20	
Pro forma net tangible book value per share as of September 30, 2012 after giving effect to this offering:		(0.36)
Dilution per share to new investors in this offering:		$ 37.96
Public offering price per unit (November 2010 warrant exercise price):		$ 10.60
Net tangible book value per share as of September 30, 2012:	(0.56)	
Increase in net tangible book value per share attributable to this offering:	0.05	
Pro forma net tangible book value per share as of September 30, 2012 after giving effect to this offering:		(0.51)
Dilution per share to new investors in this offering:		$ 11.11
Public offering price per unit (February 2011 warrant exercise price):		$ 8.00
Net tangible book value per share as of September 30, 2012:	(0.56)	
Increase in net tangible book value per share attributable to this offering:	0.06	
Pro forma net tangible book value per share as of September 30, 2012 after giving effect to this offering:		(0.50)
Dilution per share to new investors in this offering:		$ 8.50
Public offering price per unit (Series A Warrant exercise price):		$ 0.28
Net tangible book value per share as of September 30, 2012:	(0.56)	
Increase in net tangible book value per share attributable to this offering:	0.15	

Pro forma net tangible book value per share as of September 30, 2012 after giving effect to this offering:		(0.41)
Dilution per share to new investors in this offering:	$	0.69
Public offering price per unit (March 2012 warrant exercise price):	$	0.75
Net tangible book value per share as of September 30, 2012:	(0.56)	
Increase in net tangible book value per share attributable to this offering:	0.06	
Pro forma net tangible book value per share as of September 30, 2012 after giving effect to this offering:		(0.50)
Dilution per share to new investors in this offering:	$	1.25
Public offering price per unit (March 2012 warrant exercise price):	$	0.94
Net tangible book value per share as of September 30, 2012:	(0.56)	
Increase in net tangible book value per share attributable to this offering:	0.01	
Pro forma net tangible book value per share as of September 30, 2012 after giving effect to this offering:		(0.55)
Dilution per share to new investors in this offering:	$	1.49

The information in the table above is based on 16,166,756 shares of our common stock outstanding on September 30, 2012, assumes all of the warrants are exercised at the exercise prices set forth in the table above, and does not include:

- our agreement to issue 1,500,000 shares of common stock to Ditty Properties Limited Partnership, and 87,254 shares of common stock to a vendor, in each case contingent upon and immediately prior to the first to occur of certain specified events;
- 1,303,536 shares of common stock issuable upon the exercise of warrants outstanding at September 30, 2012 with a weighted average exercise price of $13.32 per share and 9,947,550 shares of common stock issuable upon the exercise of warrants outstanding at September 30, 2012 with a price adjustable weighted average exercise price of $0.28 per share;
- 358,373 shares of common stock issuable upon the exercise of options outstanding at September 30, 2012 with a weighted average exercise price of $38.41 per share; and
- 568,429 shares of common stock reserved for future grants and awards under our equity incentive plans and 46,859 shares of common stock reserved for future issuance under our employee stock purchase plan, each as of September 30, 2012.

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

You should read the following discussion in conjunction with our consolidated financial statements and related notes included elsewhere in this prospectus. Statements made in this discussion other than statements of historical fact, including statements about us and our subsidiaries and our respective clinical and pre-clinical trials, research programs, current and potential partnerships, licenses and intellectual property, the adequacy of capital reserves and anticipated operating results and cash expenditures, are forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934 (the "Exchange Act"). As such, they are subject to a number of uncertainties that could cause actual results to differ materially from the statements made, including risks associated with the success of research and product development programs, the issuance and validity of patents, the development and protection of proprietary technologies, the ability to raise capital, operating expense levels and the ability to establish and retain partnerships. We do not undertake any obligation to update forward-looking statements.

Background

We are a biotechnology company focused on the discovery, development and commercialization of nucleic acid-based therapies utilizing gene silencing approaches such as RNA interference ("RNAi") and blocking messenger RNA ("mRNA") translation. Our goal is to improve human health through the development, either through our own efforts or those of our collaboration partners and licensees, of these nucleic acid-based therapeutics as well as the delivery technologies that together provide superior treatment options for patients. We have multiple proprietary technologies integrated into a broad nucleic acid-based drug discovery platform, with the capability to deliver novel nucleic acid-based therapeutics via systemic, local and oral administration to target a wide range of human diseases, based on the unique characteristics of the cells and organs involved in each disease.

Our pipeline includes a clinical program in Familial Adenomatous Polyposis ("FAP") and preclinical programs in bladder cancer and myotonic dystrophy. During the past year, we have entered into the following agreements regarding our technology:

- In December 2011, we entered into an exclusive license agreement with Mirna Therapeutics, Inc., a privately-held biotechnology company pioneering microRNA replacement therapy for cancer, regarding the development and commercialization of microRNA-based therapeutics utilizing Mirna's proprietary microRNAs and our novel SMARTICLES®-based liposomal delivery technology.

- In March 2012, we entered into an exclusive license agreement with ProNAi Therapeutics, Inc., a privately-held biotechnology company pioneering DNA interference (DNAi) therapies for cancer, regarding the development and commercialization of DNAi-based therapeutics utilizing our novel SMARTICLES®-based liposomal delivery technology.

- In May 2012, we entered into a worldwide exclusive license agreement with Monsanto Company, a global leader in agriculture and crop sciences, regarding the agricultural applications for our delivery and chemistry technologies.

- In May 2012, we entered into a strategic alliance with Girindus Group, a recognized leader in process development, analytical method development and cGMP manufacture of oligonucleotide therapeutics, regarding the development, supply and commercialization of certain oligonucleotide constructs using our conformationally restricted nucleotide ("CRN") technology.

- In August 2012, we entered into a worldwide, non-exclusive license agreement with Novartis Institutes for Biomedical Research, Inc., a global leader in the development of human therapeutics, regarding the development of oligonucleotide therapeutics utilizing our CRN technology.

- In November 2012, we entered into a worldwide, non-exclusive license agreement with Protiva Biotherapeutics Inc., a wholly-owned subsidiary of Tekmira Pharmaceuticals Corporation, a leading oligonucleotide-based drug discovery and development company, regarding the development of oligonucleotide therapeutics using our Unlocked Nucleobase Analog (UNA) technology.

In addition to our own, internally developed technologies, we have strategically in-licensed and further developed nucleic acid- and delivery-related technologies, forming an integrated drug discovery platform. We are employing our platform, through our own efforts and those of our partners, for the discovery of multiple nucleic acid-based therapeutics including siRNA, microRNA and single stranded oligonucleotide-based drugs.

Our business strategy is two-fold. First, we strive to establish collaborations and strategic partnerships with pharmaceutical and biotechnology companies in the area of nucleic acid-based therapeutics to: (1) generate revenue through up-front, milestone and royalty payments related to our technology and/or the products that are developed using such technology; (2) gain access to technical resources; and (3) further validate our drug discovery platforms. Secondly, and pending receipt of sufficient funding, we plan to advance our own pipeline of nucleic acid-based therapeutics as a foundation upon which to improve all aspects of our drug discovery platform and to have the opportunity to commercialize drug therapies.

In terms of collaborations and strategic partnerships: (i) Mirna has the right to fund and develop specific microRNA-based nucleic acid therapeutics using our SMARTICLES®-based liposomal delivery technology, which arrangement includes the potential for milestone and royalty payments; (ii) ProNAi has the right to fund and develop DNAi-based nucleic acid therapeutics using our SMARTICLES®-based liposomal delivery technology, which arrangement includes the potential for milestone and royalty payments; (iii) Monsanto has the right to fund and develop applications in the agriculture field if any, using our delivery and chemistry technologies, which arrangement includes the potential for royalty payments; (iv) Girindus will fund the commercialization of CRN-based amidites and CRN-based oligonucleotides for sale to industry and academia, which arrangement includes the potential for royalty payments; (v) Novartis has the right to fund and develop CRN-based nucleic acid therapeutics; and (vi) Tekmira has the right to fund and develop oligonucleotide therapeutics using our UNA technology, which arrangement includes the potential for milestone and royalty payments. Furthermore, ProNAi is funding their Phase 1 clinical trial, and using our proprietary SMARTICLES®-based liposomal delivery technology for systemic administration, which arrangement does not provide any financial benefit to us but continues to validate and advance our SMARTICLES®-based liposomal delivery technology.

With these relationships facilitating the advancement of several of our proprietary delivery technologies for small interfering RNA ("siRNA") and other nucleic acid-based therapeutics, we have focused resources on the Phase 1b/2a clinical trial of CEQ508 in Familial Adenomatous Polyposis as well as the CRN technology for the development of double- and single-stranded nucleic acid-based therapies. In April 2012, we announced the completion of dosing for Cohort 2 in the Dose Escalation Phase of the START-FAP (Safety and Tolerability of An RNAi Therapeutic in Familial Adenomatous Polyposis) clinical trial of CEQ508. The CEQ508 trial is currently on hold pending the receipt of sufficient funding to continue. We expect to begin the dosing of Cohort 3 as soon as we secure sufficient funding to complete the trial.

With respect to collaborations and strategic partnerships our concept is to provide multiple therapeutic options based on a partner's disease target and indication. We can apply our broad capabilities to pursue the most appropriate nucleic acid-based therapeutic approach to a specific, often undruggable, target for a specific indication. Each approach, i.e. siRNA, microRNA or single-strand oligonucleotide, has its advantages and disadvantages and we can utilize our broad capabilities to screen across multiple modalities to identify the most effective therapeutic. We believe this capability makes us extremely unique in the sector. We have structured, and expect to continue to structure, certain of our collaborative agreements to receive upfront non-refundable payments, research and development funding, milestone payments and royalties on commercial sales of products.

In order to protect our innovations, which encompass a broad platform of both nucleic acid-based therapeutic constructs and delivery technologies, as well as the drug products that may emerge from that platform, we have aggressively built upon our extensive and enabling intellectual property ("IP") estate, and, pending receipt of adequate funding, plan to continue to do so.

We believe we have successfully leveraged our broad and proven expertise to create an industry-leading integrated nucleic acid-based drug discovery platform, which is protected by a strong IP position and validated through licensing agreements with Mirna and ProNAi using our SMARTICLES®-based liposomal delivery technology, licensing agreements with Girindus and Novartis using our CRN technology, a licensing agreement with Tekmira using our UNA technology, the Phase 1 clinical trial by ProNAi using our SMARTICLES®-based liposomal delivery technology, licensing agreements with three large international companies (i.e., Roche, Novartis and Monsanto) for certain chemistry and delivery technologies and our own FAP Phase 1b/2a clinical trial with the Trans Kingdom RNA interference ("*tk*RNAi") platform.

Reduction of Operations

On June 1, 2012, we announced that, due to our financial condition, we had implemented a furlough of approximately 90% of our employees and ceased substantially all day-to-day operations. Since that time substantially all of the furloughed employees have been terminated. As of January 9, 2013, we had approximately 9 remaining employees, including all of our executive officers, all of whom are either furloughed or working on reduced salary. We have also sold substantially all of our equipment, and have ceased operations at our facility located at 3830 Monte Villa Parkway in Bothell, WA. As a result, since June 1, 2012 our internal research and development ("R&D") efforts have been, and as of the date of this prospectus they continue to be, minimal, pending receipt of adequate funding.

Cash Position and Going Concern

The accompanying condensed consolidated financial statements have been prepared on the basis that we will continue as a going concern, which contemplates realization of assets and the satisfaction of liabilities in the normal course of business. As of September 30, 2012, we had an accumulated deficit of approximately $325.7 million, have incurred, and may in the future continue to incur, losses in the event that we obtain sufficient financing to continue our planned business operations and have had recurring negative cash flows from operations. Our operating expenses consumed the majority of our limited cash resources during the fourth quarter of 2012, and we expect that they will require ongoing funding. We have funded our losses primarily through the sale of common stock and warrants in the public markets and private placements, revenue provided by our collaboration partners and secured loans.

We plan to continue to work with large pharmaceutical companies regarding R&D collaboration agreements or investments, and to pursue public and private sources of financing to raise cash. However, there can be no assurance that we will be successful in such endeavors.

The market value and the volatility of our stock price, as well as general market conditions and our current financial condition, could make it difficult for us to complete a financing or collaboration transaction on favorable terms, or at all. Any financing we obtain may further dilute the ownership interest of our current stockholders, which dilution could be substantial, or provide new stockholders with superior rights than those possessed by our current stockholders. If we are unable to obtain additional capital when required, and in the amounts required, we may be forced to modify, delay or abandon some or all of our programs, or to discontinue operations altogether. Additionally, any collaboration may require us to relinquish rights to our technologies. These factors, among others, raise substantial doubt about our ability to continue as a going concern. The accompanying condensed consolidated financial statements do not include any adjustments that may result from the outcome of this uncertainty. The Report of Independent Registered Public Accounting Firm included elsewhere in this prospectus states that we have ceased substantially all day-to-day operations, including most research and development activities, have incurred recurring losses, have a working capital and accumulated deficit, and have had recurring negative cash flows from operations, that raise substantial doubt about our ability to continue as a going concern.

At September 30, 2012, we had a working capital deficit (current assets less current liabilities) of approximately $4.2 million and approximately $1.1 million in cash, including approximately $0.7 million in restricted cash.

We are currently in default in the repayment of our outstanding secured indebtedness. Renegotiations of the debt agreements to address the default are ongoing. Assuming our secured lenders continue to engage in these negotiations and do not exercise their right to demand repayment of the principal and interest, we believe that our resources as of the date of this prospectus will be sufficient to fund our planned limited operations through the end of February 2013.

Recent Financing Activities

In February 2012, we received net proceeds of approximately $1.5 million by issuance of secured promissory notes and warrants to purchase up to 3,690,944 shares of our common stock. Through a series of amendments to the purchase agreement and the notes issued pursuant thereto, we extended the maturity date of the notes to December 31, 2012, and in connection with such extensions we issued to the secured parties additional warrants to purchase up to 3,199,848 shares of our common stock. The warrants are exercisable at $0.28 per share, which is subject to adjustment (including as a result of subsequent financings), and are exercisable for a period of five years beginning six months and one day following the issuance of the warrants. The notes are secured by the assets of our company and our wholly-owned subsidiaries, Cequent Pharmaceuticals, Inc. and MDRNA Research, Inc. The security agreement that we entered into in connection with this transaction provides a security interest in, but not limited to, all of the property, equipment and fixtures, accounts, negotiable collateral, cash, and cash equivalents of our company and our wholly-owned subsidiaries, Cequent and MDRNA Research, subject to certain exceptions. The security interest created in the collateral is first priority, subject to the permitted encumbrances provided in the security agreement, and is perfected to the extent such security interest can be perfected by the filing of a financing statement and filings with the U.S. Patent and Trademark Office. The security interest created in the collateral will be removed at such time as the notes are paid in full.

As a result of amendments to the purchase agreement and the notes issued pursuant thereto, we and the holders of the notes agreed that if we, at any time prior to December 31, 2012, effect any merger or consolidation of our company whereby the holders of the issued and outstanding shares of our common stock immediately prior to the consummation of such transaction hold less than fifty percent (50%) of the issued and outstanding shares of the voting securities of the surviving corporation immediately following the consummation of such transaction, we will have fully satisfied the obligation to repay the entire unpaid principal balance under the

notes and all accrued and unpaid interest thereon through the issuance to the noteholders of an aggregate number of shares of common stock calculated by converting the then total outstanding principal and interest under the notes at a value of $0.28 per share of common stock.

We are currently in default in the repayment of the principal and interest due on the notes. As a result, the noteholders currently have the right to demand repayment of the notes in full. Renegotiations of the debt agreements to address the default are ongoing.

In March 2012, we received net proceeds of approximately $1.1 million by issuance of 1,600,002 shares of our common stock and warrants to purchase up to 800,001 shares of our common stock. The warrants have an exercise price of $0.75 per share, are immediately exercisable (subject to registration or the availability of an exemption under federal and state securities laws), and will be exercisable for a period of five years from the date of issuance. The exercise price and the number of shares issuable upon exercise of the warrants are subject to adjustment in the event of stock splits or dividends, business combinations, sale of assets or other similar transactions, but not as a result of future securities offerings at lower prices.

In May and July, 2012, we received an aggregate of $1.5 million as an upfront payment in connection with the Intellectual Property License Agreement that we entered into with Monsanto Company. At the same time that we entered into the Intellectual Property License Agreement, we and Monsanto also entered into a Security Agreement pursuant to which we granted to Monsanto a security interest in that portion of our intellectual property that is the subject of the license agreement in order to secure the performance of our obligations under the license agreement.

In August 2012 we received $1 million in a one-time upfront payment in connection with the License Agreement that we entered into with Novartis Institutes for Biomedical Research, Inc. Between September and November 2012, we received additional funds as a result of the sale of certain equipment at our corporate headquarters, the receipt of the upfront payment in connection with the license agreement that we entered into with ProNAi Therapeutics, and the receipt of an accelerated milestone payment in connection with the license agreement that we entered into with Mirna Therapeutics. In addition, on November 28, 2012, we entered into a license agreement with Protiva Biotherapeutics Inc., a wholly-owned subsidiary of Tekmira Pharmaceuticals Corporation, in connection with which we received an upfront payment in the amount of $300,000.

Critical Accounting Policies and Estimates

We prepare our consolidated financial statements in conformity with accounting principles generally accepted in the United States of America. As such, we are required to make certain estimates, judgments and assumptions that we believe are reasonable based upon the information available. These estimates and assumptions affect the reported amounts of assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenue and expenses during the periods presented. Actual results could differ significantly from those estimates under different assumptions and conditions. We believe that the following discussion addresses our most critical accounting estimates, which are those that we believe are most important to the portrayal of our financial condition and results of operations and which require our most difficult and subjective judgments, often as a result of the need to make estimates about the effect of matters that are inherently uncertain. Other key estimates and assumptions that affect reported amounts and disclosures include depreciation and amortization. We also have key accounting policies; however, these policies do not meet the definition of critical accounting estimates because they do not generally require us to make estimates or judgments that are difficult or subjective.

Revenue Recognition

Revenue is recognized when persuasive evidence that an arrangement exists, delivery has occurred, collectability is reasonably assured, and fees are fixed or determinable. Deferred revenue expected to be recognized within the next 12 months is classified as current. Substantially all of our revenues are generated from research and development collaborations and licensing arrangements with partners that may involve multiple deliverables. For multiple-deliverable arrangements, judgment is required to evaluate, (a) whether an arrangement involving multiple deliverables contains more than one unit of accounting, and (b) how the arrangement consideration should be measured and allocated to the separate units of accounting in the arrangement. Our research and development collaborations may include upfront non-refundable payments, development milestone payments, R&D funding, patent-based or product sale royalties, and product sales. In addition, we may receive revenues from licensing arrangements. For each separate unit of accounting, we have determined that the delivered item has value to the customer on a stand-alone basis, we have objective and reliable evidence of fair value using available internal evidence for the undelivered item(s) and our arrangements generally do not contain a general right of return relative to the delivered item.

Revenue from research and development collaborations is recorded when earned based on the specific terms of the contracts. Upfront non-refundable payments, where we are not providing any continuing services as in the case of a license to our IP, are recognized when delivery of the license has occurred. Upfront nonrefundable payments, where we are providing continuing services related to a research and development effort, are deferred and recognized as revenue over the collaboration period. The ability to estimate the total research and development effort and costs can vary significantly for each contract due to the inherent complexities and uncertainties of drug research and development. The estimated period of time over which we recognize certain revenues is based upon structured detailed project plans completed by our project managers, who meet with scientists and collaborative counterparts on a regular basis and schedule the key project activities and resources including headcount, facilities and equipment and budgets. These periods generally end on projected milestone dates typically associated with the stages of drug development, i.e. filing of an IND, initiation of a Phase 1 human clinical trial or filing of an NDA. We typically do not disclose the specific project planning details of a research and development collaboration for competitive reasons and due to confidentiality clauses in our contracts. As drug candidates and drug compounds move through the research and development process, it is necessary to revise these estimates to consider changes to the project plan, portions of which may be outside of our control. The impact on revenue of changes in our estimates and the timing thereof is recognized prospectively over the remaining estimated development period.

Milestone payments typically represent nonrefundable payments to be received in conjunction with the achievement of a specific event identified in the contract, such as initiation or completion of specified development activities or specific regulatory actions such as the filing of an IND. We believe a milestone payment represents the culmination of a distinct earnings process when it is not associated with ongoing research, development or other performance on our part and it is substantive in nature. We recognize such milestone payments as revenue when they become due and collection is reasonably assured.

Revenue from R&D funding is generally received for services performed under research and development collaboration agreements and is recognized as services are performed. Payments received in excess of amounts earned are recorded as deferred revenue. Reimbursements received for direct out-of-pocket expenses related to contract R&D costs are recorded as revenue in the consolidated statements of operations rather than as a reduction in expenses.

Royalty and earn-out payment revenue is generally recognized upon product sale by the licensee as reported by the licensee.

Research and Development Costs

All research and development ("R&D") costs are charged to operations as incurred. Our R&D expenses consist of costs incurred for internal and external R&D. These costs include direct and research-related overhead expenses. We recognize clinical trial expenses, which are included in research and development expenses, based on a variety of factors, including actual and estimated labor hours, clinical site initiation activities, patient enrollment rates, estimates of external costs and other activity-based factors. We believe that this method best approximates the efforts expended on a clinical trial with the expenses recorded. We adjust our rate of clinical expense recognition if actual results differ from our estimates. As clinical trial activities continue, it is necessary to revise these estimates to consider changes such as changes in the clinical development plan, regulatory requirements, or various other factors, many of which may be outside of our control. The impact of changes in our estimates of clinical trial expenses and the timing thereof, is recognized prospectively over the remaining estimated clinical trial period. The ability to estimate total clinical trial costs can vary significantly due to the inherent complexities and uncertainties of drug development.

Stock-Based Compensation

We use the Black-Scholes-Merton option pricing model as our method of valuation for stock-based awards. Stock-based compensation expense is based on the value of the portion of the stock-based award that will vest during the period, adjusted for expected forfeitures. Our determination of the fair value of stock-based awards on the date of grant using an option pricing model is affected by our stock price as well as assumptions regarding a number of highly complex and subjective variables. These variables include, but are not limited to, the expected life of the award, expected stock price volatility over the term of the award and historical and projected exercise behaviors. The estimation of stock-based awards that will ultimately vest requires judgment, and to the extent actual or updated results differ from our current estimates, such amounts will be recorded in the period estimates are revised. The Black-Scholes-Merton option pricing model requires the input of highly subjective assumptions, and other reasonable assumptions could provide differing results.

Stock-based compensation expense is recognized on a straight-line basis over the applicable vesting periods, based on the fair value of such stock-based awards on the grant date. We anticipate the expected term and estimated volatility will remain relatively constant in the near term, however, unanticipated business or other conditions may change, which could result in differing future results.

Valuation of Intangible Assets and Loss on Impairment of Intangible Assets

A substantial portion of assets acquired in the Cequent merger were allocated to identifiable intangible assets related to in-process research and development ("IPR&D") projects identified by management. Our management estimated acquisition-date fair values of these intangible assets. These identified intangible assets were valued based on a number of factors. Utilizing the income approach, a discounted cash flow model using forecasted operating results related to the identified intangible assets, the acquisition-date fair value was $19.3 million for Familial Adenomatous Polyposis and $3.4 million for Transkingdom RNAi, a total of $22.7 million.

We estimated the acquisition-date fair value of these intangible assets using a discount rate of 23%, which was based on the estimated weighted-average cost of capital for companies with profiles substantially similar to ours. We then determined the present value of the expected future cash flows using the discount rate. The projected cash flows from the projects were based on key assumptions such as estimates of revenues and operating profits related to the projects considering their stages of development; the time and resources needed to complete development and receive approval; the life of the potential commercialized products and associated risks, including the inherent difficulties and uncertainties in development such as obtaining marketing approval from the U.S. Food and

Drug Administration and other regulatory agencies; and risks related to the viability of and potential alternative treatments in any future target markets.

Accounting guidance requires that the fair value of IPR&D acquired in a business combination be recorded on the balance sheet regardless of the likelihood of success as of the acquisition date. Intangible assets related to IPR&D projects are considered to be indefinite-lived until completion or abandonment of the related project. During the period the assets are considered indefinite-lived, they will not be amortized but will be tested for impairment on an annual basis and between annual tests if we become aware of any events occurring or changes in circumstances that would indicate a reduction in the fair value of the projects below their respective carrying amounts. We perform our annual impairment tests at the end of our fiscal year. If and when it were determined that identified intangible assets were impaired, an impairment charge would be recorded then. If and when development is complete, which generally occurs if and when regulatory approval to market a product is obtained, the associated assets would be deemed finite-lived and would then be amortized based on their respective estimated useful lives at that date.

During 2011 we tested the carrying value of our intangible assets for impairment utilizing the income approach and estimated the fair value of Familial Adenomatous Polyposis at $5.7 million and $1.0 million for Transkingdom RNAi, for a total of $6.7 million. We estimated the fair value of these intangible assets using a discount rate of 26%, which was based on the estimated weighted-average cost of capital for companies with profiles substantially similar to ours. We then determined the present value of the expected future cash flows using the discount rate. The projected cash flows from the projects were based on key assumptions such as estimates of revenues and operating profits related to the projects considering their stages of development; the time and resources needed to complete development and receive approval; the life of the potential commercialized products and associated risks, including the inherent difficulties and uncertainties in development such as obtaining marketing approval from the U.S. Food and Drug Administration and other regulatory agencies; and risks related to the viability of and potential alternative treatments in any future target markets. As a result of the impairment test, we recorded a loss on impairment of intangible assets of approximately $16.0 million in 2011.

Impairment of Long-Lived Assets

Long-lived assets, such as property and equipment, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Conditions that would necessitate an impairment include a significant decline in the observable market value of an asset, a significant change in the extent or manner in which an asset is used, or any other significant adverse change that would indicate that the carrying amount of an asset or group of assets is not recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to estimated undiscounted future cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated future cash flows, an impairment charge is recognized in the amount by which the carrying amount of the asset exceeds the fair value of the asset.

Fair Value Liability for Price Adjustable Warrants and Subscription Investment Units

We use the Black-Scholes-Merton option pricing model as our method of valuation for price adjustable warrants and subscription investment units. Our determination of the fair value of price adjustable securities as of the reporting date is affected by our stock price as well as assumptions regarding a number of highly complex and subjective variables. These variables include, but are not limited to, expected stock price volatility over the term of the security and risk-free interest rate. In addition, the Black-Scholes-Merton option pricing model requires the input of an expected life for the securities for which we have used the remaining contractual life. The fair value liability is revalued each balance sheet date utilizing Black-Scholes-Merton valuation model computations with the decrease or increase in fair value being reported in the statement of operations as other income or expense, respectively. The primary factor affecting the fair value liability is our stock price. In addition, the Black-Scholes-Merton option pricing model requires the input of highly subjective assumptions, and other reasonable assumptions could provide differing results.

The following illustrates the effect that reasonably likely changes in our stock price would have on the estimated fair value liability for price adjustable securities that were outstanding as of December 31, 2011.

	- 10% change in stock price	**Weighted average variables used in valuation as of December 31, 2011**	**+ 10% change in stock price**
Effect of a 10% change in stock price			
Condition changed			
Stock price	$ 0.80	$ 0.89	$ 0.98
Assumptions and conditions held constant			
Exercise price	$ 0.76	$ 0.76	$ 0.76
Exercise life in years	5.3	5.3	5.3
Expected dividend yield	0%	0%	0%

Risk free rate	0.9%	0.9%	0.9%
Expected stock volatility	124%	124%	124%
Estimated fair value liability for price adjustable securities	$ 3,106,000	$ 3,485,000	$ 3,861,000

Our reported net loss was approximately $29.4 million for 2011. If our December 31, 2011 closing stock price had been 10% lower, our net loss would have been approximately $0.4 million lower. If our December 31, 2011 closing stock price had been 10% higher, our net loss would have been approximately $0.4 million higher.

The following illustrates the effect of changing the volatility assumptions on the estimated fair value liability for price adjustable securities that were outstanding as of December 31, 2011:

	- 10% change in volatility	Weighted average variables used in valuation as of December 31, 2011	+ 10% change in volatility
Effect of a 10% change in volatility			
Condition changed			
Expected stock volatility	114%	124%	134%
Assumptions and conditions held constant			
Stock price	$ 0.89	$ 0.89	$ 0.89
Exercise price	$ 0.76	$ 0.76	$ 0.76
Exercise life in years	5.3	5.3	5.3
Expected dividend yield	0%	0%	0%
Risk free rate	0.9%	0.9%	0.9%
Estimated fair value liability for price adjustable securities	$ 3,349,000	$ 3,485,000	$ 3,597,000

Our reported net loss was approximately $29.4 million for 2011. If our December 31, 2011 volatility assumption had been 10% lower, our net loss would have been approximately $0.1 million lower. If our December 31, 2011 volatility assumption had been 10% higher, our net loss would have been approximately $0.1 million higher.

Accrued Restructuring Charges

We ceased using our facility at 3450 Monte Villa Parkway, Bothell, Washington ("3450 Monte Villa"), in 2008. We recorded an accrued liability for remaining lease termination costs at fair value, based on the remaining payments due under the lease and other costs, reduced by sublease rental income that could be reasonably obtained from the property, and discounted using a credit-adjusted risk-free interest rate. We used a credit-adjusted risk-free interest rate of 23%, and we based our estimated future payments, net of estimated future sublease payments, on current rental rates available in the local real estate market, and our evaluation of the ability to sublease the facility. In September 2011 we entered into an agreement with the landlord for the exited facility, whereby we terminated the lease and issued a total of 780,000 shares of our common stock to two affiliates of the landlord at a settlement price of $2.30 per share. In connection with issuing the shares, the remaining accrued restructuring liability was eliminated and we have no further obligations with respect to the facility.

Income Taxes

We account for income taxes under the asset and liability method under which deferred income taxes are provided for the temporary differences between the financial reporting basis and the tax basis of our assets and liabilities and operating losses and tax credit carryforwards. This process involves assessing the nature and measurements of temporary differences resulting from differing treatment of items for tax and accounting purposes. These differences result in deferred tax assets and liabilities. In each period, we assess the likelihood that our deferred tax assets will be recovered from existing deferred tax liabilities or future taxable income. Factors we considered in making such an assessment include, but are not limited to, estimated utilization limitations of operating loss on tax credit carryforwards, expected reversals of deferred tax liabilities, past performance, including our history of operating results, our recent history of generating taxable income, our history of recovering net operating loss carryforwards for tax purposes and our expectation of future taxable income. If required, we will recognize a valuation allowance to reduce such deferred tax assets to amounts that are more likely than not to be ultimately realized. To the extent that we establish a valuation allowance or change this allowance, we would recognize a tax provision or benefit in the consolidated statements of operations. We use our judgment to determine estimates associated with the calculation of our provision or benefit for income taxes, and in our evaluation of the need for a valuation allowance recorded against our net deferred tax assets.

Recently Issued Accounting Standards

In March 2010, the FASB ratified the final consensus that offers an alternative method of revenue recognition for milestone payments. The guidance states that an entity can make an accounting policy election to recognize a payment that is contingent upon the achievement of a substantive milestone in its entirety in the period in which the milestone is achieved. The guidance was effective for fiscal years, and interim periods within those years, beginning on or after June 15, 2010 with early adoption permitted, provided that the revised guidance is applied retrospectively to the beginning of the year of adoption. The adoption of this guidance did not have a material effect on our consolidated financial statements.

In September 2009, the FASB revised the authoritative guidance for revenue arrangements with multiple deliverables. The guidance addresses how to determine whether an arrangement involving multiple deliverables contains more than one unit of accounting and how the arrangement consideration should be allocated among the separate units of accounting. The guidance was effective beginning January 1, 2011 with early adoption permitted. The adoption of this guidance did not have a material effect on our consolidated financial statements.

Consolidated Results of Operations

Comparison of the Three and Nine Months Ended September 30, 2011 to the Three and Nine Months Ended September 30, 2012

All amounts, except amounts expressed as a percentage, are presented in thousands in the following table.

	Three Months Ended September 30,		Change		Nine months ended September 30,		Change	
	2011	2012	$	%	2011	2012	$	%
Revenue								
License and other revenue	$ 286	$ 1,106	$ 820	287%	$ 629	$ 2,895	$ 2,266	360%
Operating expenses								
Research and development	2,955	753	(2,202)	(75)%	9,077	4,506	(4,571)	(50)%
Selling, general and administrative	1,852	598	(1,254)	(68)%	6,503	3,306	(3,197)	(49)%
Restructuring	1,104	1,446	342	31%	1,390	1,481	91	7%
Total operating expenses	5,911	2,797	(3,114)	(53)%	16,970	9,293	(7,677)	(45)%
Interest and other expense	—	(201)	(201)	—	—	(2,466)	(2,466)	—
Change in fair value liability for price adjustable warrants and subscription investment units	1,238	50	(1,188)	(96)%	4,704	3,278	(1,426)	(30)%
Gain on settlement of liabilities, net	—	92	92	—	—	92	92	—
Net loss	$ (4,387)	$ (1,750)	$ 2,637	(60)%	$ (11,637)	$ (5,494)	$ 6,143	(53)%

Revenue. We had revenue from certain customers, as a percentage of total revenue, as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2011	2012	2011	2012
Novartis	—	95%	—	36%
Monsanto	—	5%		54%
Mirna	—	—	—	4%
Debiopharm	91%	—	63%	1%
Astra Zeneca	—	—	9%	—
Undisclosed Partner #1	—	—	8%	—
Other	9%	—	20%	5%
Total	100%	100%	100%	100%

Revenue. Revenue was approximately $1.1 million and $2.9 million in the three and nine months ended September 30, 2012 compared to approximately $0.3 million and $0.6 million in the three and nine months ended September 30, 2011. In the three and nine months ended September 30, 2012, we earned $1.0 million in license revenue from our license agreement with Novartis and in addition, in the nine month period, we earned $1.5 million in license revenue from our agreement with Monsanto. Revenue for the three and nine months ended September 30, 2011 consisted primarily of R&D services under our various agreements. We expect that our license revenue will increase in 2012 as compared to 2011 as a result of our license agreements with Monsanto, Novartis, ProNAi and Protiva.

Research and Development. R&D expense consists primarily of salaries and other personnel-related expenses, costs of clinical trials and pre-clinical studies, consulting and other outside services, laboratory supplies, patent license fees, facilities costs and other costs. We expense all R&D costs as incurred. R&D expense for the three and nine months ended September 30, 2012 decreased 74% to approximately $0.8 million and decreased 50% to approximately $4.5 million compared to the same periods of 2011, due to the following:

- Personnel-related expenses decreased by 94% and 65% to approximately $0.1 million and $1.5 million in the three and nine months ended September 30, 2012, compared to approximately $1.4 million and $4.2 million in the three and nine months ended September 30, 2011. Due to our financial condition, on June 1, 2012 we announced that we had implemented a furlough of approximately 90% of our employees and ceased substantially all day-to-day operations. Since that time substantially all of the furloughed employees have been terminated.

- Costs of clinical trials, pre-clinical studies, lab supplies, consulting, and outside testing and services decreased by 93% and 55% to approximately $40,000 and $0.7 million in the three and nine months ended September 30, 2012, compared to approximately $0.6 million and $1.7 million in the prior year periods. Since June 1, 2012 our internal research and development efforts have been minimal, pending receipt of adequate funding.

- Patent license fees included in R&D expense were approximately $25,000 in the three months ended September 30, 2012 and 2011 and approximately $0.2 million in the nine months ended September 30, 2012 and 2011.

- Facilities and equipment costs decreased by 31% and 28% to approximately $0.6 million and $1.9 million in the three and nine months ended September 30, 2012 compared to approximately $0.8 million and $2.6 million in the same periods of 2011. The decreases were due primarily to lower expenses as a result of the closure of our facility in Cambridge in March 2012, decreases in depreciation expense due to the retirement of equipment and other cost containment measures.

- Stock-based compensation included in R&D expense decreased by approximately 67% and 37% in the three and nine months ended September 30, 2012 to approximately $30,000 and $0.2 million compared to approximately $0.1 million and $0.3 million in the same periods of 2011 due primarily to employee terminations.

We expect that our R&D expenses will decrease in 2012 compared to 2011 due to our limited business operations, particularly during the period following our June 1, 2012 announcement that we had ceased substantially all day-to-day operations.

Selling, general and administrative. Selling, general and administrative expense consists primarily of salaries and other personnel-related expenses to support our R&D activities, stock-based compensation for selling, general and administrative personnel and non-employee members of our Board, professional fees, such as accounting and legal, corporate insurance and facilities costs. Selling, general and administrative costs decreased by 68% to approximately $0.6 million and 49% to approximately $3.3 million in the three and nine months ended September 30, 2012 compared to the prior year periods due to the following:

- Personnel-related expenses decreased by 89% and 66% to approximately $0.1 million and $0.7 million in the three and nine months ended September 30, 2012, compared to approximately $0.7 and $2.2 million in the three and nine months ended September 30, 2011. Due to our financial condition, on June 1, 2012 we announced that we had implemented a furlough of approximately 90% of our employees and ceased substantially all day-to-day operations. Since that time substantially all of the furloughed employees have been terminated.

- Costs of legal and accounting fees, consulting, corporate insurance and other administrative costs decreased by 47% and 21% to approximately $0.5 million and $2.2 million for the three and nine months ended September 30, 2012, compared to approximately $0.9 million and $2.7 million in the same periods of 2011, due primarily to cost containment measures.

- Included in selling, general and administrative expense in the three and nine months ended September 30, 2011 were approximately $0.1 million and $0.8 million in transaction costs associated with the issuance of our warrants in May and July 2011. We did not incur any warrant issuance costs in 2012.

- Facilities and equipment costs decreased by 30% and 32% to approximately $0.1 million and $0.2 million in the three and nine months ended September 30, 2012, compared to approximately $0.1 million and $0.4 million in the prior year periods due to cost containment measures.

- Stock-based compensation included in selling, general and administrative expense was not material in the three month periods ended September 30, 2012 and 2011 and was approximately $0.2 million and $0.4 million in the nine months ended September 30, 2012 and 2011. The decrease in the nine month period ended September 30, 2012 compared to the same period of 2011 was due primarily to employee terminations.

We expect selling, general and administrative expenses to decrease in 2012 compared to 2011, due to cost reduction measures.

Restructuring. Restructuring expense increased by 31% and 7% to approximately $1.4 million and $1.5 million in the three and nine months ended September 30, 2012, respectively compared to approximately $1.1 million and $1.4 million the prior year periods. In September 2012, we sold most of the remaining property and equipment at our facility at 3830 Monte Villa Parkway and abandoned the leasehold improvements at that facility. We recorded approximately $1.4 million as restructuring expense, net of proceeds for the asset sales, relating to these asset sales and abandonments. We terminated our lease for this facility effective October 1, 2012 and expect to record restructuring expense in Q4 2012 related to the remaining payments on the lease of approximately $0.9 million, offset by the remaining deferred rent liability of approximately $1.1 million. Earlier in 2012, we closed our Cambridge site, entered into a sublease with a third party for the remainder of the lease term and recorded restructuring expenses of approximately $35,000 related to that facility. In 2011, we recorded expenses related to our exited facility at 3450 Monte Villa Parkway, which lease we terminated on September 30, 2011, and as a result we had no restructuring expenses related to that facility in 2012.

Interest and other expense. In 2012, we incurred interest and other expense due to interest on our notes payable and due to non-cash amortization of the fair value of the warrants issued in connection with notes payable, which were recorded as debt discount.

Change in fair value liability for price adjustable warrants and subscription investment units. We use the Black-Scholes-Merton option pricing model as our method of valuation for price adjustable securities. The fair value liability is revalued each balance sheet date utilizing Black-Scholes-Merton valuation model computations with the decrease or increase in fair value being reported in the statement of operations as other income or expense, respectively. The change in fair value liability for price adjustable warrants and subscription investment units resulted in the recognition of income of approximately $50,000 and $3.3 million in the three and nine months ended September 30, 2012, compared to income of approximately $1.2 million and $4.7 million in the same periods of 2011. In the three months ended September 30, 2012, our stock price was $0.28 per share at both the beginning and end of the quarter, which did not impact the fair value liability significantly. In the nine months ended September 30, 2012, our stock price decreased from $0.89 per share to $0.28 per shares, which decreased the fair value liability, which represented income for us. In the three months ended September 30, 2011, our stock price decreased from $1.90 per share to $1.40 per share, which decreased the fair value liability, which represented income for us. In the nine months ended September 30, 2011, our stock price decreased from $15.50 per share to $1.40 per share, which decreased the fair value liability, which represented income for us.

Comparison of the Year Ended December 31, 2010 to the Year Ended December 31, 2011

All amounts, except amounts expressed as a percentage, are presented in thousands in the following table.

	Years Ended December 31,		Change	
	2010	**2011**	**$**	**%**
Revenue				
License and other revenue	$ 2,460	$ 2,236	$ (224)	(9)%
Operating expenses				
Research and development	18,105	11,438	(6,667)	(37)%
Selling, general and administrative	10,359	8,369	(1,990)	(19)%
Loss on impairment of intangible assets	—	16,034	16,034	—
Restructuring	3,526	1,390	(2,136)	(61)%
Total operating expenses	31,990	37,231	5,241	16%
Interest and other income	244	—	(244)	(100)%
Interest and other expense	(2,827)	—	2,827	(100)%
Change in fair value liability for price adjustable warrants and subscription investment units	4,360	6,714	2,354	54%
Net loss before income tax expense	(27,753)	(28,281)	(528)	2%
Income tax expense	—	1,143	1,143	—

Net loss	$ (27,753)	$ (29,424)	$ (1,671)	6%

Revenue. We had revenue from certain customers, as a percentage of total revenue, as follows:

	Years Ended December 31,	
	2010	2011
Roche	—	45%
Debiopharm S.A.	—	21%
Mirna Therapeutics	—	19%
Par Pharmaceuticals	47%	—
Cypress Bioscience	31%	—
Astra Zeneca	3%	3%
Pfizer	2%	—
Undisclosed partner #1	4%	2%
Undisclosed partner #2	1%	—
Novartis	—	1%
Other	12%	9%
Total	100%	100%

License and other revenue. License and other revenue decreased by approximately $0.2 million in 2011 compared to 2010. In 2011, we recognized revenue in the amount of $1.0 million relating to a payment to us in consideration for our agreement to the assignment and delegation of Roche's non-exclusive license rights to certain technology which Roche originally licensed from us on a non-exclusive basis in 2009. In addition, we recognized approximately $0.5 million under our agreement with Debiopharm for the development and commercialization of the bladder cancer program and approximately $0.4 million relating to a license agreement that we entered into with Mirna Therapeutics regarding the development and commercialization of microRNA-based therapeutics utilizing Mirna's propriety microRNAs and our novel SMARTICLES® liposomal delivery technology. In 2010 we recognized approximately $0.5 million in earn-out payments related to commercial sales of calcitonin-salmon nasal spray under our agreement with Par Pharmaceuticals. We entered into an amendment to our agreement with Par Pharmaceuticals under which Par paid us a lump sum of $0.7 million in lieu of profit-sharing for the remainder of the earn out period, which we recognized as revenue in 2010. In 2010, we also recognized revenue of approximately $0.8 million arising from the sale of our patent rights and technology related to carbetocin, a long-acting analog of oxytocin, a naturally produced hormone that may benefit individuals with autism, to Cypress Bioscience, Inc. We expect that our license revenue will increase in 2012 as compared to 2011 as a result of our license agreements with ProNAi, Monsanto and Novartis.

Research and Development. R&D expense consists primarily of salaries and other personnel-related expenses, costs of pre-clinical studies and clinical trials, consulting and other outside services, laboratory supplies, facilities costs and other costs. We expense all R&D costs as incurred. R&D expense decreased approximately $6.7 million to $11.4 million in 2011 compared to $18.1 million in 2010, due primarily to the following:

- Personnel-related expenses decreased by 10% to approximately $5.0 million in 2011 compared to $5.6 million in 2010, due primarily cost reduction measures.

- Costs of pre-clinical studies and clinical trials, lab supplies, consulting, and outside testing and services decreased by 26% to approximately $2.3 million in 2011 compared to $3.2 million in 2010. Our clinical trial costs increased in 2011 due to our clinical trial for FAP which began dosing patients in 2011. Other R&D costs decreased in 2011 compared to 2010 due to cost containment measures.

- Patent license fees were approximately $0.3 million in 2011 compared to $5.1 million in 2010. Included in the 2010 expense is approximately $3.8 million, which was paid in company stock, related to licensing Novosom's SMARTICLES® liposomal-based delivery system, which significantly broadens the number of approaches we may take for systemic and local delivery of our proprietary UsiRNA therapeutics. Also included in 2010 were $0.5 million in license fees for our acquisition of the intellectual property related to Conformationally Restricted Nucleotides from Valeant Pharmaceuticals and $0.8 million in license fees to expand our rights licensed from Ribotask.

- Facilities and equipment costs decreased by 4% to approximately $3.4 million in 2011 compared to $3.5 million in 2010 as a result of a decrease in depreciation expense for equipment, offset in part by an increase in rent expense. Depreciation

expense included as facilities and equipment costs for R&D was approximately $0.8 million and $1.1 million in 2011 and 2010, respectively.

- Stock-based compensation included in R&D expense decreased by approximately $0.3 million to $0.4 million in 2011 compared to $0.7 million in 2010. The decrease was due primarily to a decrease in the weighted average fair value of stock option awards which were being amortized in the 2011 periods.

We expect that our research and development expenses will decrease in 2012 compared to 2011 due to our limited business operations, particularly during the period following our press release on June 1, 2012 announcing that we had ceased substantially all day-to-day operations.

Selling, general and administrative. Selling, general and administrative expense consists primarily of salaries and other personnel-related expenses to support our R&D activities, stock-based compensation for selling, general and administrative personnel and non-employee members of our Board, professional fees, such as accounting and legal, corporate insurance and facilities costs. The 19% decrease in selling, general and administrative expenses in 2011 compared to 2010 resulted primarily from the following:

- Costs of legal and accounting fees, corporate insurance and other administrative costs decreased by 10% to approximately $3.8 million in 2011 compared to $4.2 million in 2010.
- Included in selling, general and administrative expense in 2011 is approximately $1.1 million in transaction costs associated with the issuance of our warrants in May, July and December 2011. In the prior year, we incurred approximately $1.4 million in transaction costs in connection with our acquisition of Cequent. Transaction costs are expensed as incurred and no merger-related transaction costs were incurred in 2011.
- Personnel-related expenses decreased by 13% to $2.5 million in 2011 compared to $2.9 million in 2010. The decreases were due to severance costs incurred in 2010 in connection with the Cequent acquisition.
- Stock-based compensation expense included in general and administrative expense decreased by 62% to approximately $0.5 million in 2011 from approximately $1.3 million in 2010. The decrease was due primarily to a decrease in the weighted average fair value of stock option awards which were being amortized in the 2011 periods.
- Facilities and equipment costs decreased by 25% to approximately $0.5 million in 2011, compared to $0.6 million in 2010 due primarily to cost containment measures.

We expect selling, general and administrative expenses to decrease in 2012 compared to 2011, which included approximately $1.1 million in expenses recorded related to the issuances of warrants.

Loss on impairment of intangible assets. During 2011 we tested the carrying value of our intangible assets for impairment utilizing the income approach. As a result of the impairment test, we recorded a loss on impairment of intangible assets of approximately $16.0 million in 2011.

Restructuring. We have recorded restructuring charges related to our facilities consolidation and impairment of assets. Restructuring expense was approximately $1.4 million in 2011, compared to approximately $3.5 million in 2010. In September 2011 we entered into an agreement with the landlord for our exited facility at 3450 Monte Villa, whereby we terminated the lease and issued a total of 780,000 shares of our common stock to two affiliates of the landlord at a settlement price of $2.30 per share. In connection with issuing the shares, the remaining accrued restructuring liability was eliminated and we have no further obligations with respect to the facility. We also entered into an amendment of our lease for our exited facility in 2010, which reduced our future lease obligations by approximately $4.1 million, and we issued 211,573 shares of our common stock to the landlord in 2010 which was valued at approximately $3.3 million.

Interest and Other Income. In 2010 we recorded other income of approximately $0.2 million which consisted primarily of a grant under the Qualified Therapeutic Discovery Grant funds under section 48D of the Internal Revenue Code. In 2010, we also received payments for two Qualified Therapeutic Discovery Grants totaling approximately $0.5 million for Cequent Pharmaceuticals. Amounts to be received under these Cequent grants were included in prepaid and other assets on the schedule of acquired assets as of the date we acquired Cequent, July 21, 2010.

Interest and Other Expense. In November 2010, we issued warrants to purchase up to 68,626 shares of our common stock in consideration for amendments to certain of our Securities Purchase Agreements. The estimated fair value of the warrants of approximately $1.2 million was recorded as other expense and an increase in fair value liability of price adjustable warrants. In addition, in 2010 we incurred interest expense on our notes payable and expense related to the amortization of debt issuance costs and amortization of the fair value of the warrants issued in connection with the notes payable, which were recorded as debt discount. We did not incur any interest expense in 2011. We expect to incur interest and other expense in 2012 in connection with the notes that we issued in February 2012.

Change in fair value liability for price adjustable warrants and subscription investment units. We use the Black-Scholes-Merton option pricing model as our method of valuation for price adjustable securities. The fair value liability is revalued each balance sheet date utilizing Black-Scholes-Merton valuation model computations with the decrease or increase in fair value being reported in the statement of operations as other income or expense, respectively. The change in fair value liability for price adjustable warrants and subscription investment units was a net gain of approximately $6.7 million in 2011, compared to a net gain of approximately $4.4 million in 2010. In 2011, our stock price decreased from $15.49 per share to $0.89 per share, which decreased the fair value liability, which represented income for us. In 2010, our stock price decreased from $32.40 per share to $15.49 per share, which decreased the fair value liability, which represented income for us.

Income Tax Expense. We account for income taxes under the asset and liability method under which deferred income taxes are provided for the temporary differences between the financial reporting basis and the tax basis of our assets and liabilities and operating losses and tax credit carryforwards. In 2011, we reviewed the deferred tax liabilities related to intangible assets and determined that because of the increased uncertainty in timing of reversal, the deferred tax liabilities did not support realization of our deferred tax assets. Therefore, we recorded an increase to the valuation allowance against deferred tax assets of approximately $1.1 million which was also recorded as income tax expense.

Liquidity and Capital Resources

Cash flows for Nine Months Ended September 30, 2012

Our operating activities used cash of approximately $3.4 million in the nine months ended September 30, 2012, compared to approximately $14.2 million in the nine months ended September 30, 2011. In the nine months ended September 30, 2012, cash used in operating activities related primarily to funding our net loss, adjusted for changes in the liability for fair value of price adjustable warrants and subscription investment units and changes in accounts payable, offset by non-cash amortization of the discount on notes payable, non-cash restructuring expense, stock-based compensation, depreciation and amortization and changes in prepaid and other assets. In the nine months ended September 30, 2011, cash used in operating activities related primarily to funding our net loss, adjusted for changes in the liability for fair value of price adjustable warrants and subscription investment units, and changes in accounts payable and accrued expenses, offset in part by non-cash restructuring charges, stock-based compensation, depreciation and amortization and changes in deferred revenues. To the extent that we obtain sufficient funding, we expect to use cash for operating activities in the foreseeable future as we continue our R&D activities.

Our investing activities provided cash of approximately $0.4 million in the nine months ended September 30, 2012, compared to using cash of approximately $0.1 million in the nine months ended September 30, 2011. In the nine months ended September 30, 2012 cash used in investing activities was the result of proceeds from sales of property and equipment. In the nine months ended September 30, 2011 cash used in investing activities was the result of changes in restricted cash.

Our financing activities provided cash of approximately $2.5 million in the nine months ended September 30, 2012, compared to approximately $14.3 million in the nine months ended September 30, 2011. Changes in cash from financing activities are primarily due to issuance of common stock and warrants, proceeds and repayment of notes payable and proceeds from exercises of stock options, warrants and subscription investment units. In February 2012, we received net proceeds of $1.5 million from the issuance of notes payable and warrants to purchase shares of common stock. In March 2012, we raised net proceeds of approximately $1.1 million through an offering of shares of common stock and warrants to purchase shares of common stock. In February 2011, we raised net proceeds of approximately $4.5 million through an offering of shares of common stock and warrants to purchase shares of common stock and in May 2011, we raised net proceeds of approximately $6.3 million through an offering of shares of common stock and warrants. In the nine months ended September 30, 2011, we received proceeds of approximately $3.6 million from the exercise of warrants and subscription investment units.

Cash flows for Fiscal Year Ended December 31, 2011

Our operating activities used cash of approximately $16.1 million in 2011, compared to $16.8 million in 2010. Cash used in operating activities relates primarily to funding net losses and changes in accounts payable and other accrued liabilities, deferred revenue, accrued restructuring and asset accounts, partially offset by non-cash changes in the fair value liability for price adjustable warrants and subscription investment units, non-cash restructuring charges, depreciation and amortization and stock-based compensation. We expect to use cash for operating activities in the foreseeable future as we continue our business operations including – to the extent that sufficient funding is available – our R&D activities.

Our investing activities provided cash of approximately $3,000 in 2011, compared to $4.6 million in 2010. Changes in cash from investing activities result from changes in restricted cash, and purchases of property and equipment. In 2010, cash provided by investing activities was primarily the result of $5.1 million of cash acquired upon the acquisition of Cequent Pharmaceuticals.

Our financing activities provided cash of approximately $16.0 million in 2011 compared to approximately $12.5 million in 2010. Changes in cash from financing activities are primarily due to issuance of common stock, warrants, and subscription investment units, proceeds and repayment of notes payable and proceeds from exercises of stock options and warrants. We raised net proceeds of approximately $12.4 million in 2011 and $7.8 million in 2010 through offerings of shares of common stock and warrants and subscription investment units to purchase shares of common stock. We received proceeds of approximately $3.6 million in 2011 and $2.7 million in 2010 from the exercise of warrants, subscription investment units and options. We borrowed $3.0 million from Cequent to fund our operations prior to the merger. On July 21, 2010, we consummated the merger with Cequent, and as a result the loans of $3.0 million plus accrued interest were settled and the warrants to purchase our common stock which were issued to Cequent in connection with the Loan Agreement terminated. In 2010 we made payments on notes payable of approximately $1.0 million.

Summary

We believe that our resources as of the date of this prospectus are sufficient to fund our planned limited operations through the end of February 2013, assuming our secured lenders do not exercise their right to demand repayment of principal and interest as we are currently in default in the repayment of our outstanding secured indebtedness. The market value and the volatility of our stock price, as well as our current financial situation and general market conditions, could make it difficult for us to complete a financing or collaboration transaction on favorable terms, or at all. Any financing we obtain may further, and substantially, dilute or otherwise impair the ownership interests of our current stockholders. If we fail to obtain significant additional capital in the immediate future, we will be forced to further delay, reduce or eliminate some or all of our planned activities.

Off-Balance Sheet Arrangements

As of September 30, 2012, we did not have any off-balance sheet arrangements, as defined in Item 303(a)(4)(ii) of SEC Regulation S-K.

BUSINESS

Company Overview

We are a biotechnology company focused on the discovery, development and commercialization of nucleic acid-based therapies utilizing gene silencing approaches such as RNA interference ("RNAi") and blocking messenger RNA ("mRNA") translation. Our goal is to improve human health through the development, either through our own efforts or those of our collaboration partners and licensees, of these nucleic acid-based therapeutics as well as the delivery technologies that together provide superior treatment options for patients. We have multiple proprietary technologies integrated into a broad nucleic acid-based drug discovery platform, with the capability to deliver novel nucleic acid-based therapeutics via systemic, local and oral administration to target a wide range of human diseases, based on the unique characteristics of the cells and organs involved in each disease.

Our pipeline includes a clinical program in Familial Adenomatous Polyposis ("FAP") and preclinical programs in bladder cancer and myotonic dystrophy. During the past year, we have entered into the following agreements regarding our technology:

- In December 2011, we entered into an exclusive license agreement with Mirna Therapeutics, Inc., a privately-held biotechnology company pioneering microRNA replacement therapy for cancer, regarding the development and commercialization of microRNA-based therapeutics utilizing Mirna's proprietary microRNAs and our novel SMARTICLES®-based liposomal delivery technology.

- In March 2012, we entered into an exclusive license agreement with ProNAi Therapeutics, Inc., a privately-held biotechnology company pioneering DNA interference (DNAi) therapies for cancer, regarding the development and commercialization of DNAi-based therapeutics utilizing our novel SMARTICLES®-based liposomal delivery technology.

- In May 2012, we entered into a worldwide exclusive license agreement with Monsanto Company, a global leader in agriculture and crop sciences, regarding the agricultural applications for our delivery and chemistry technologies.

- In May 2012, we entered into a strategic alliance with Girindus Group, a recognized leader in process development, analytical method development and cGMP manufacture of oligonucleotide therapeutics, regarding the development, supply and commercialization of certain oligonucleotide constructs using our conformationally restricted nucleotide ("CRN") technology.

- In August 2012, we entered into a worldwide, non-exclusive license agreement with Novartis Institutes for Biomedical Research, Inc., a global leader in the development of human therapeutics, regarding the development of oligonucleotide therapeutics utilizing our CRN technology.

- In November 2012, we entered into a worldwide, non-exclusive license agreement with Protiva Biotherapeutics Inc., a wholly-owned subsidiary of Tekmira Pharmaceuticals Corporation, a leading oligonucleotide-based drug discovery and development company, regarding the development of oligonucleotide therapeutics using our Unlocked Nucleobase Analog (UNA) technology.

In addition to our own, internally developed technologies, we have strategically in-licensed and further developed nucleic acid- and delivery-related technologies, forming an integrated drug discovery platform. We are employing our platform, through our own efforts and those of our partners, for the discovery of multiple nucleic acid-based therapeutics including siRNA, microRNA and single stranded oligonucleotide-based drugs.

Our business strategy is two-fold. First, we strive to establish collaborations and strategic partnerships with pharmaceutical and biotechnology companies in the area of nucleic acid-based therapeutics to: (1) generate revenue through up-front, milestone and royalty payments related to our technology and/or the products that are developed using such technology; (2) gain access to technical resources; and (3) further validate our drug discovery platforms. Secondly, and pending receipt of sufficient funding, we plan to advance our own pipeline of nucleic acid-based therapeutics as a foundation upon which to improve all aspects of our drug discovery platform and to have the opportunity to commercialize drug therapies.

In terms of collaborations and strategic partnerships: (i) Mirna has the right to fund and develop specific microRNA-based nucleic acid therapeutics using our SMARTICLES®-based liposomal delivery technology, which arrangement includes the potential for milestone and royalty payments; (ii) ProNAi has the right to fund and develop DNAi-based nucleic acid therapeutics using our SMARTICLES®-based liposomal delivery technology, which arrangement includes the potential for milestone and royalty payments; (iii) Monsanto has the right to fund and develop applications in the agriculture field if any, using our delivery and chemistry technologies, which arrangement includes the potential for royalty payments; (iv) Girindus will fund the commercialization of CRN-based amidites and CRN-based oligonucleotides for sale to industry and academia, which arrangement includes the potential for royalty payments; (v) Novartis has the right to fund and develop CRN-based nucleic acid therapeutics; and (vi) Tekmira has the right to fund and develop oligonucleotide therapeutics using our UNA technology, which arrangement includes the potential for milestone and royalty payments. Furthermore, ProNAi is funding their Phase 1 clinical trial, and using our proprietary SMARTICLES®-based liposomal delivery technology for systemic administration, which arrangement does not provide any financial benefit to us but continues to validate and advance our SMARTICLES®-based liposomal delivery technology.

With these relationships facilitating the advancement of several of our proprietary delivery technologies for small interfering RNA ("siRNA") and other nucleic acid-based therapeutics, we have focused resources on the Phase 1b/2a clinical trial of CEQ508 in Familial Adenomatous Polyposis as well as the CRN technology for the development of double- and single-stranded nucleic acid-based therapies. In April 2012, we announced the completion of dosing for Cohort 2 in the Dose Escalation Phase of the START-FAP (Safety and Tolerability of An RNAi Therapeutic in Familial Adenomatous Polyposis) clinical trial of CEQ508. The CEQ508 trial is currently on hold pending the receipt of sufficient funding to continue. We expect to begin the dosing of Cohort 3 as soon as we secure sufficient funding to complete the trial.

With respect to collaborations and strategic partnerships our concept is to provide multiple therapeutic options based on a partner's disease target and indication. We can apply our broad capabilities to pursue the most appropriate nucleic acid-based therapeutic approach to a specific, often undruggable, target for a specific indication. Each approach, i.e. siRNA, microRNA or single-strand oligonucleotide, has its advantages and disadvantages and we can utilize our broad capabilities to screen across multiple modalities to identify the most effective therapeutic. We believe this capability makes us extremely unique in the sector. We have structured, and expect to continue to structure, certain of our collaborative agreements to receive upfront non-refundable payments, research and development funding, milestone payments and royalties on commercial sales of products.

In order to protect our innovations, which encompass a broad platform of both nucleic acid-based therapeutic constructs and delivery technologies, as well as the drug products that may emerge from that platform, we have aggressively built upon our extensive and enabling intellectual property ("IP") estate, and, pending receipt of adequate funding, plan to continue to do so.

We believe we have successfully leveraged our broad and proven expertise to create an industry-leading integrated nucleic acid-based drug discovery platform, which is protected by a strong IP position and validated through licensing agreements with Mirna and ProNAi using our SMARTICLES®-based liposomal delivery technology, licensing agreements with Girindus and Novartis using our CRN technology, a licensing agreement with Tekmira using our UNA technology, the Phase 1 clinical trial by ProNAi using our SMARTICLES®-based liposomal delivery technology, licensing agreements with three large international companies (i.e., Roche, Novartis and Monsanto) for certain chemistry and delivery technologies and our own FAP Phase 1b/2a clinical trial with the Trans Kingdom RNA interference ("*tk*RNAi") platform.

Reduction of Operations

On June 1, 2012, we announced that, due to our financial condition, we had implemented a furlough of approximately 90% of our employees and ceased substantially all day-to-day operations. Since that time substantially all of the furloughed employees have been terminated. As of January 9, 2013, we had approximately 9 remaining employees, including all of our executive officers, all of whom are either furloughed or working on reduced salary. We have also sold substantially all of our equipment, and have ceased operations at our facility located at 3830 Monte Villa Parkway in Bothell, WA. As a result, since June 1, 2012 our internal research and development ("R&D") efforts have been, and as of the date of this prospectus they continue to be, minimal, pending receipt of adequate funding.

Liquidity and Going Concern

The accompanying condensed consolidated financial statements have been prepared on the basis that we will continue as a going concern, which contemplates realization of assets and the satisfaction of liabilities in the normal course of business. As of September 30, 2012, we had an accumulated deficit of approximately $325.7 million, have incurred, and may in the future continue to incur, losses in the event that we obtain sufficient financing to continue our planned business operations and have had recurring negative cash flows

from operations. Our operating expenses consumed the majority of our limited cash resources during the fourth quarter of 2012, and we expect that they will require ongoing funding. We have funded our losses primarily through the sale of common stock and warrants in the public markets and private placements, revenue provided by our collaboration partners and secured loans.

We plan to continue to work with large pharmaceutical companies regarding R&D collaboration agreements or investments, and to pursue public and private sources of financing to raise cash. However, there can be no assurance that we will be successful in such endeavors.

The market value and the volatility of our stock price, as well as general market conditions and our current financial condition, could make it difficult for us to complete a financing or collaboration transaction on favorable terms, or at all. Any financing we obtain may further dilute the ownership interest of our current stockholders, which dilution could be substantial, or provide new stockholders with superior rights than those possessed by our current stockholders. If we are unable to obtain additional capital when required, and in the amounts required, we may be forced to modify, delay or abandon some or all of our programs, or to discontinue operations altogether. Additionally, any collaboration may require us to relinquish rights to our technologies. These factors, among others, raise substantial doubt about our ability to continue as a going concern. The accompanying condensed consolidated financial statements do not include any adjustments that may result from the outcome of this uncertainty. The Report of Independent Registered Public Accounting Firm included elsewhere in this prospectus states that we have ceased substantially all day-to-day operations, including most research and development activities, have incurred recurring losses, have a working capital and accumulated deficit, and have had recurring negative cash flows from operations, that raise substantial doubt about our ability to continue as a going concern.

At September 30, 2012, we had a working capital deficit (current assets less current liabilities) of approximately $4.2 million and approximately $1.1 million in cash, including approximately $0.7 million in restricted cash.

We are currently in default in the repayment of our outstanding secured indebtedness. Renegotiations of the debt agreements to address the default are ongoing. Assuming our secured lenders continue to engage in these negotiations and do not exercise their right to demand repayment of the principal and interest, we believe that our resources as of the date of this prospectus will be sufficient to fund our planned limited operations through the end of February 2013.

Nucleic Acid-Based Therapeutics

Overview

Nucleic acid-based therapeutics act on messenger RNA (“mRNA”) to regulate protein expression and/or activity, and can target any gene with a high degree of specificity; these approaches include siRNA, microRNA (mimetics and antagomirs), and single stranded oligonucleotides which function through a translational inhibition mechanism.

We have developed and, pending receipt of adequate funding, plan to continue to develop novel single- and double-stranded oligonucleotide therapeutics targeting the regulation of coding and non-coding RNA. The Nobel Prize winning discovery of RNA interference (RNAi), in 1998, has led not only to its widespread use in the research of biological mechanisms and target validation but also to its application in down regulating the expression of certain disease-causing proteins found in a wide spectrum of diseases including inflammation, cancer, and metabolic dysfunction. RNAi-based therapeutics, typically double-stranded oligonucleotides, work through a naturally occurring process within cells that has the effect of reducing levels of mRNA required for the production of proteins. RNAi enables the targeting of disease at a genetic level and thus is highly specific to particular disease-causing proteins. Like RNAi-based therapeutics, single stranded oligonucleotides can also interact with mRNA and interfere with protein translation. MicroRNAs (“miRNA”), on the other hand, are small non-coding RNAs that are important in gene regulation and protein translation. Antagomir (or microRNA antagonist) therapeutics, targeting a specific miRNA, can potentially down regulate multiple proteins associated with the genes under the control of a single miRNA target. Conversely, microRNA mimetics increase the level of a miRNA in the cell and can thereby potentially up-regulate multiple proteins associated with the genes under the control of that miRNA target. The advantage of a mimetic is significant in that few human therapeutics are designed to increase proteins, where a protein deficiency has led to disease. In summary, nucleic acid-based therapeutics target a gene to prevent the expression or increase the expression of the protein, unlike small molecules or antibody-based drugs which are aimed at inhibiting the unwanted protein after production has occurred, or blocking the receptor on which the protein acts.

The strategy behind our acquisition of key intellectual property and technologies has been to position us to provide multiple nucleic acid-based therapeutic alternatives to meet the difficult to target and undruggable target needs of pharmaceutical companies. We feel we have established one of the broadest nucleic acid drug discovery platforms in the sector with validation on several fronts: (1) ProNAi using our SMARTICLES®-based liposomal delivery technology for systemic administration of a DNAi oligonucleotide in a Phase 1 trial to treat solid tumors; (2) Mirna licensing our SMARTICLES®-based liposomal delivery technology in connection with the development and commercialization of microRNA-based therapeutics; (3) ProNAi licensing our SMARTICLES®-based liposomal delivery technology in connection with the development and commercialization of DNAi-based therapeutics; (4) Monsanto licensing certain of our delivery and chemistry technologies for agricultural applications; (5) Girindus entering into a strategic alliance with us regarding the development, supply and commercialization of certain oligonucleotide constructs using our CRN technology; (6) Novartis licensing our CRN technology in connection with the development of both single and double-stranded oligonucleotide therapeutics; (7) Tekmira licensing our UNA technology in connection with the development of oligonucleotide therapeutics; and (8) our own Phase 1

program in Familial Adenomatous Polyposis using our tkRNAi system. In addition, we plan to continue to advance our proprietary chemistries and delivery technologies for the development of double- and single-stranded therapeutics (microRNA mimetics or antagomirs, and single-stranded oligonucleotides) targeting coding and non-coding RNA.

Together with our partners, and pending receipt of adequate funding, we intend to build on our understanding of the CRN chemistry to advance a preclinical program in myotonic dystrophy. In addition, we plan to continue to increase the breadth and capabilities of our drug discovery platform including further demonstration of the unique advantages and potency of the UsiRNA construct, CRN substitution to increase the affinity and potency of double- and single-stranded constructs, increasing the breadth of the delivery platform for oral and systemic administration, and advancing additional proprietary chemistry and delivery technologies. Our business model anticipates that the advancement of a therapeutic pipeline, either through partnerships or on our own, will continue to provide proof of concept for our drug discovery platform as well as value for shareholders.

Nucleic Acid-Based Drug Discovery Platform

We and our partners have made, and plan to continue to make, advances in both areas crucial to the development of nucleic acid-based therapeutics: constructs and delivery technologies. Although each area is equally important to the development of an effective therapeutic, the scientific challenges of delivery appear to be one of the most significant obstacles to the broad use of nucleic acid-based therapeutics in the treatment of human diseases.

UsiRNA Constructs. Our UsiRNAs, which are siRNAs with substitution of UNA bases in place of RNA bases in key regions of the duplex, have shown important advantages in terms of efficacy and safety, when compared to standard siRNA molecules and modifications. UsiRNAs are highly active in rodent-based disease models, non-disease rodent models, and non-human primates. UsiRNAs function by RNAi to cleave their mRNA target and decrease the production of the protein associated with the gene target, and in the case of bladder cancer, liver cancer and malignant ascites, the UsiRNAs decrease tumor growth. UsiRNAs have demonstrated a lower potential for cytokine induction and provide resistance to nuclease degradation, two effects that are often prominent with standard siRNAs. Most important, substitution with UNA at specific sites greatly increases the specificity for RNAi and improves their profile for therapeutic use. Substitution in the passenger strand can eliminate the ability of this strand to participate in RNAi and thereby the potential for unwanted effects on other targets or to compete with guide strand activity by loading into the intracellular RNAi machinery. Substitution of UNA within the guide strand can eliminate microRNA-like effects that occur with standard siRNA; microRNA-like off-target activity cannot often be addressed by bioinformatics and can result in severe loss of activity if addressed with standard chemical modification of RNA. Overall, these data indicate that the appropriate substitution of UNA in place of RNA, in a double-stranded construct, maintains potent activity and could ultimately lead to effective protein down-regulation with lower total doses and under conditions of greater specificity and safety.

Conformationally Restricted Nucleotides (CRN). CRNs are novel nucleotide analogs in which the flexible ribose sugar is locked into a rigid conformation by a small chemical linker. By restricting the flexibility of the ribose ring, CRNs can impart a helix-type structure typically found in naturally occurring RNA. For single stranded oligonucleotide therapeutics, the impact of CRN substitution dramatically increases the therapeutics' affinity for the target mRNA or microRNA while imparting significant resistance to nuclease degradation. Additionally, CRNs can significantly improve the thermal stability of double-stranded constructs, such as siRNAs.

Delivery. We have two liposomal-based delivery platforms. The first platform utilizes amino-based liposomal delivery technology and incorporates a novel and proprietary molecule we call DiLA2 (Di-Alkylated Amino Acid). Our scientists designed this molecule based on amino acid (e.g., peptide/protein-based) chemistry. A DiLA2-based liposome has several potential advantages over other liposomes, such as: (1) a structure that may enable safe and natural metabolism by the body; (2) the ability to adjust liposome size, shape, and circulation time, to influence bio-distribution; and (3) the ability to attach molecules that can influence other delivery-related attributes such as cell specific targeting and cellular uptake. Our formulations for delivery of UsiRNAs, using different members of the DiLA2 family, have demonstrated safe and effective delivery in rodents with metabolic targets (e.g., ApoB) and in cancer models using both local and systemic routes of administration. Safe and effective delivery with DiLA2-based formulations has also been achieved in non-human primates.

The second platform, SMARTICLES®-based liposomal delivery, defines a novel class of liposomes that are fully charge-reversible particles allowing delivery of active substance (siRNA, single-stranded oligonucleotides, etc.) inside the cell either by local or systemic administration. SMARTICLES®-based liposomes are designed to ensure stable passage through the bloodstream and release of the nucleic acid payload within the target cell where it can exert its therapeutic effect by engaging either the RNAi pathway or directly with mRNA.

In addition to our liposomal-based delivery platforms, we have used peptides for both the formation of stable siRNA nanoparticles as well as targeting moieties for siRNA molecules. Research includes the use of peptide technology to "condense" siRNAs into compact and potent nanoparticles; screening of our proprietary Trp Cage phage display library for targeting peptides; and internal discovery and development of peptides and other compounds recognized as having targeting or cellular uptake properties. The goal, in the use of such

technologies, is to minimize the amount of final drug required to produce a therapeutic response by increasing the potency of the siRNA as well as directing more of the final drug product to the intended site of action.

tauRNAi Platform. tauRNA interference (tauRNAi) provides an avenue across potential biological barriers by incorporating our proprietary and highly effective DiLA2-based liposome and UsiRNA construct technologies into a single platform for RNAi. By merging these technologies, we are able to tailor both UsiRNA construct and DiLA2-based liposome characteristics to target specific tissues and diseases resulting from over expression of proteins in those tissues. Maximal therapeutic effect can result from optimization of the UsiRNA to provide stability to nucleases, mitigation of cytokine responses, and reduction of off-target effects, while maintaining exceptional activity against the intended target. Appropriate choice of the DiLA2 molecule enables the optimization of charge, size, and other characteristics of the liposome for delivery to a particular tissue or tumor type. Further improvements can arise from the selection of liposome components as well as the manufacturing processes for the drug product.

TransKingdom RNA™ interference (tkRNAi) platform. tkRNAi is a broad-reaching platform that can be used to develop highly specific drug products for a diverse set of diseases. The tkRNAi platform involves the modification of bacteria to deliver short-hairpin RNA (shRNA) to cells of the gastrointestinal tract. A significant advantage of the tkRNAi platform is oral (by mouth) delivery making this platform extremely patient friendly while harnessing the full potential of the RNAi process. The tkRNAi platform has demonstrated in vivo mRNA down-regulation of both inflammatory and cancer targets thus providing a unique opportunity to develop RNAi-based therapeutics against such diseases as Familial Adenomatous Polyposis, Crohn's Disease, ulcerative colitis and colon cancer. The tkRNAi platform was used to discovery CEQ508, which is currently in clinical development for the treatment of FAP.

Clinical Program. CEQ508 is being developed for the treatment of Familial Adenomatous Polyposis ("FAP"), a hereditary condition that occurs in approximately 1:10,000 persons worldwide. FAP is caused by mutations in the Adenomatous Polyposis Coli (APC) gene. As a result of these mutations, epithelial cells lining the intestinal tract have increased levels of the protein ß-catenin, which in turn, results in uncontrolled cell growth. Proliferation (uncontrolled cell growth) of the epithelial cells results in the formation of numerous (hundreds to thousands) non-cancerous growths (polyps) throughout the large intestine. By age 35, 95% of individuals with FAP have developed polyps and most will experience adverse effects including increased risk of bleeding and the potential for anemia. In more severe cases, obstruction of the intestines, abdominal pain, and severe bouts of diarrhea or constipation can occur. FAP patients are also at an increased risk of various cancers but specifically colon cancer. If measures are not taken to prevent the formation of polyps or to remove the polyps, nearly 100% of FAP patients will develop colon cancer. For many patients, complete colectomy (surgical removal of the entire large intestine), usually performed in the late teenage years or early twenties, is the only viable option for treatment. However, surgical intervention is not curative as the risk of polyps forming in the remaining portions of the intestinal tract and in the small intestine continues after colectomy.

CEQ508 is the first drug candidate in a novel class of therapeutic agents utilizing the tkRNAi platform and the first orally administered RNAi-based therapeutic. CEQ508 comprises attenuated bacteria that are engineered to enter into dysplastic tissue and release a payload of short-hairpin RNA (shRNA), a mediator in the RNAi pathway. The shRNA targets the mRNA of ß-catenin, which is known to be dysregulated in classical FAP. CEQ508 is being developed as an orally administered treatment to reduce the levels of ß-catenin protein in the epithelial cells of the small and large intestine. Upon enrollment in the Phase 1b/2a clinical trial, patients will be placed in one of four dose-escalating cohorts. Following completion of the dose escalation phase, the trial plan calls for a stable-dose phase in which patients will receive the highest safe dose. CEQ508 will be administered daily in an oral suspension for 28 consecutive days. In April 2012, we announced the completion of dosing for Cohort 2 in the Dose Escalation Phase of the START-FAP (Safety and Tolerability of An RNAi Therapeutic in Familial Adenomatous Polyposis) clinical trial of CEQ508. The CEQ508 trial is currently on hold pending the receipt of sufficient funding to continue. We expect to begin the dosing of Cohort 3 when adequate funding is available to complete the trial.

The FDA granted orphan drug designation to CEQ508 for the treatment of FAP. Orphan drug designation entitles Marina Biotech to seven years of marketing exclusivity for CEQ508 for the treatment of FAP upon regulatory approval, as well as the opportunity to apply for grant funding from the U.S. government to defray costs of clinical trial expenses, tax credits for clinical research expenses, and potential exemption from the FDA's prescription drug application fee.

Market for Familial Adenomatous Polyposis (FAP) Therapeutics

FAP is a hereditary, precancerous condition that occurs in approximately 1:10,000 persons worldwide for which there is no generally acceptable pharmaceutical treatment option and for which surgical resection, a colectomy, is the only viable option for treatment. However, even with surgical intervention, the risk of developing extra-colonic tumors remains very high. The goal of a therapeutic approach is to prevent or delay rapid disease progression. FAP manifests itself in early teens with the appearance of hundreds to thousands of polyps in the colorectal region, which have a high rate of carcinoma transformation. By age 35, 95% of individuals with FAP have developed polyps. Without surgical intervention, the mean age of colon cancer onset is 39 years of age. Most people with the genetic condition are in registries maintained in clinics and state institutions. Based on limited prevalence data we believe the U.S. FAP and European patient population are each approximately 30,000 patients with another 40,000 patients in Asia.

Market for Bladder Cancer Therapeutics

Bladder cancer is the 4th most common cancer in men and 9th most common in women in the U.S., making this disease the 5th most common cancer overall in the U.S. Estimated new cases and deaths in 2009 were approximately 71,000 and 14,000, respectively. Bladder cancer has a similar incidence throughout the world, with estimates of 350,000 new patients each year. The majority of cases, approximately 70%, are classified as non-muscle invasive disease in which the tumor is confined to the cells (urothelium) and immediate supporting structures lining the interior of the bladder. Surgical resection of tumors is the primary therapy for non-muscle invasive bladder cancer and long-term survival rates are quite high compared to many other cancers. However, surgery is not curative with 50% to 70% of patients having recurrence of disease and 10% to 50% having progression to more severe disease. The combination of long-term survival but persistent monitoring for recurrence or progression renders bladder cancer one of the most expensive cancers on a cost per patient basis and one of the most expensive cancers in terms of total health care expenditures.

Market for Myotonic Dystrophy

Myotonic dystrophy is part of a group of inherited disorders called muscular dystrophies. It is the most common form of muscular dystrophy that begins in adulthood and is characterized by progressive muscle wasting and weakness. Individuals with this disorder often have prolonged muscle contractions (myotonia) and are not able to relax certain muscles after use. There are two major types of myotonic dystrophy: type 1 and type 2. Their signs and symptoms overlap, although type 2 tends to be milder than type 1. Myotonic dystrophy affects at least 1 in 8,000 people worldwide. The prevalence of the two types of myotonic dystrophy varies among different geographic and ethnic populations. In most populations, type 1 appears to be more common than type 2.

RNAi Partnering and Licensing Agreements

Our business strategy is to enter into collaborations and strategic partnerships with pharmaceutical and biotechnology companies to: (1) generate revenue through up-front, milestone and royalty payments related to our technology and/or the products that are developed using such technology; (2) gain access to technical resources or intellectual property (IP); and (3) validate our drug discovery platform.

Tekmira – On November 28, 2012, we entered into a License Agreement with Protiva Biotherapeutics Inc., a wholly-owned subsidiary of Tekmira Pharmaceuticals Corporation (collectively, "Tekmira"), whereby we will provide Tekmira a worldwide, non-exclusive license to our unlocked nucleobase analog ("UNA") technology for the development of RNA interference therapeutics. Tekmira will have full responsibility for the development and commercialization of any products arising under the License Agreement. In consideration for entering into the agreement, we received an upfront payment in the amount of $300,000, plus milestone payments upon the satisfaction of certain clinical and regulatory milestone events and royalty payments in the low single digit percentages on products developed by Tekmira that use UNA technology. Tekmira may terminate the agreement for convenience in its entirety, or in respect of any particular country or countries, by giving 90 days prior written notice to us, provided that no such termination shall be effective sooner than August 28, 2013. Either party may terminate the agreement immediately upon the occurrence of certain bankruptcy events involving the other party, or, following the expiration of a 120 day cure period (60 days in the event of a default of a payment obligation by Tekmira), upon the occurrence of a material breach of the agreement by the other party.

Novartis – On August 2, 2012, we and Novartis Institutes for Biomedical Research, Inc. ("Novartis") entered into a worldwide, non-exclusive License Agreement for our CRN technology for the development of both single and double-stranded oligonucleotide therapeutics. We received $1 million in a one-time upfront payment for the non-exclusive license. In addition, in March 2009, we entered into an agreement with Novartis pursuant to which we granted to Novartis a worldwide, non-exclusive, irrevocable, perpetual, royalty-free, fully paid-up license, with the right to grant sublicenses, to our DiLA^2 -based siRNA delivery platform in consideration of a one-time, non-refundable fee of $7.25 million, which was recognized as license fee revenue in 2009. Novartis may terminate this

agreement immediately upon written notice to us. In connection with the March 2009 license agreement, we also entered into a separate agreement with Novartis to provide them with an exclusive period in which to negotiate a potential research and development collaboration as well as possible broader licensing rights related to our RNAi drug delivery platform. This exclusive period expired in 2009. Approximately $0.3 million was recognized as license fee revenue in 2009 under this separate agreement.

Girindus – On May 18, 2012, we and Girindus Group ("Girindus") entered into a strategic alliance pursuant to which Girindus will have exclusive rights to develop, supply and commercialize certain oligonucleotide constructs using our CRN chemistry and in return, we will receive royalties in the single digit percentages from the sale of CRN-based oligonucleotide reagents as well as a robust supply of cGMP material for us and our partners' pre-clinical, clinical and commercialization needs.

Monsanto – On May 3, 2012, we and Monsanto Company ("Monsanto") entered into a worldwide exclusive Intellectual Property License Agreement for our delivery and chemistry technologies. On May 3, 2012, we and Monsanto also entered into a Security Agreement pursuant to which we granted to Monsanto a security interest in that portion of our intellectual property that is the subject of the License Agreement in order to secure the performance of our obligations under the License Agreement. Under the terms of the license agreement, we received $1.5 million in initiation fees, and may receive royalties on product sales in the low single digit percentages. Monsanto may terminate the License Agreement at any time in whole or as to any rights granted thereunder by giving prior written notice thereof to us, with termination becoming effective three (3) months from the date of the notice.

ProNAi Therapeutics, Inc. — On March 13, 2012, we entered into an Exclusive License Agreement with ProNAi Therapeutics, Inc. ("ProNAi") regarding the development and commercialization of ProNAi's proprietary DNAi-based therapeutics utilizing our novel SMARTICLES® liposomal delivery technology. The License Agreement provides that ProNAi will have full responsibility for the development and commercialization of any products arising under the License Agreement. Under terms of the License Agreement, we could receive up to $14 million for each gene target in total upfront, clinical and commercialization milestone payments, as well as royalties in the single digit percentages on sales, with ProNAi having the option to select any number of gene targets. Either party may terminate the License Agreement upon the occurrence of a default by the other party (subject to standard cure periods), or upon certain events involving the bankruptcy or insolvency of the other party. ProNAi may also terminate the License Agreement without cause upon ninety (90) days' prior written notice to us, provided that no such termination shall be effective sooner than December 13, 2012.

Mirna Therapeutics — On December 22, 2011, we entered into a License Agreement with Mirna Therapeutics, Inc. ("Mirna") regarding the development and commercialization of microRNA-based therapeutics utilizing Mirna's proprietary microRNAs and our novel SMARTICLES® liposomal delivery technology. The License Agreement provides that Mirna will have full responsibility for the development and commercialization of any products arising under the License Agreement and that we will support pre-clinical and process development efforts. Under terms of the License Agreement, we could receive up to approximately $63 million in total upfront, clinical and commercialization milestone payments, as well as royalties in the low single digit percentages on sales, based on the successful outcome of the collaboration. Either party may terminate the License Agreement upon the occurrence of a default by the other party. Commencing on June 22, 2012, Mirna may also terminate the License Agreement without cause upon sixty (60) days prior written notice to us.

Debiopharm S.A. — In February 2011, we entered into a Research and License Agreement with Debiopharm S.A. pursuant to which we granted to Debiopharm an exclusive license to develop and commercialize our pre-clinical program in bladder cancer, for all uses in humans and animals for the prevention and treatment of superficial (non-muscle invasive) bladder cancer, in consideration of the payment by Debiopharm to us of up to $24 million based on predefined research and development milestones, plus royalties in the low double digit percentages from the sales of products resulting under the agreement and sublicensing payments. The agreement provided that Debiopharm would have full responsibility for the development and commercialization of any products arising from the partnership. On November 2, 2012, Debiopharm provided notice that the agreement would be terminated effective December 5, 2012 due to its own operational reasons. The bladder cancer program will be returned to us without obligations beyond those minor activities associated with the termination period and will be reincorporated into our internal preclinical pipeline with the intention of advancing the program once either appropriate funding or a new partner is obtained.

Valeant Pharmaceuticals — In March 2010, we acquired intellectual property related to Conformationally Restricted Nucleotides ("CRN") from Valeant Pharmaceuticals North America in consideration of payment of a non-refundable licensing fee of $0.5 million which was included in research and development expense in 2010. Subject to meeting certain milestones triggering the obligation to make any such payments, we may be obligated to make a product development milestone payment of $5.0 million within 180 days of FDA approval of a New Drug Application for our first CRN related product and another product development milestone payment of $2.0 million within 180 days of FDA approval of a New Drug Application covering our second CRN related product. As of September 30, 2012, we have not made, and are not under any current obligation to make, any such milestone payments, as the conditions triggering any such milestone payment obligations have not been satisfied. Valeant is entitled to receive earn-outs based upon a percentage in the low single digits of future commercial sales and earn-outs based upon a percentage in the low double digits of future revenue from sublicensing. Under the agreement we are required to use commercially reasonable efforts to develop and commercialize at least one covered product. If we have not made earn-out payments of at least $5.0 million prior to the sixth anniversary of the date of the agreement, we are required to pay Valeant an annual amount equal to $50,000 per assigned patent which shall be creditable against other payment obligations. The term of our financial obligations under the agreement shall end, on a country-by-country basis, when there no longer exists any valid claim in such country. We may terminate the agreement upon 30 days' notice, or upon 10 days' notice in the event of adverse results from clinical studies. Upon termination, we are obligated to make all payments accrued as of the effective date of such termination but shall have no future payment obligations.

Novosom — In July 2010, we entered into an agreement pursuant to which we acquired the intellectual property of Novosom AG ("Novosom") of Halle, Germany for Novosom's SMARTICLES®-based liposomal delivery system, which significantly broadens the number of approaches we may take for systemic and local delivery of our proprietary UNA and CRN-based oligonucleotide therapeutics. We issued an aggregate of 141,949 shares of our common stock to Novosom as consideration for the acquired assets. The shares had an aggregate value equal to approximately $3.8 million, which was recorded as research and development expense. As additional consideration for the acquired assets, we will pay to Novosom an amount equal to 30% of the value of each upfront (or combined) payment actually received by us in respect of the license of liposomal-based delivery technology or related product or disposition of the liposomal-based delivery technology by us, up to a maximum of $3.3 million, which amount will be paid in shares of our common stock, or a combination of cash and shares of our common stock, at our discretion. In December 2011 we recognized approximately $0.1 million as research and development expense for additional consideration paid to Novosom as a result of the License Agreement that we entered into with Mirna Therapeutics. During 2012 we issued 340,906 shares of common stock to Novosom as additional consideration as a result of the license agreements that we entered into with Mirna and Monsanto.

Roche — In February 2009, we entered into an agreement with F. Hoffmann-La Roche Inc., a New Jersey corporation, and F. Hoffmann-La Roche Ltd., a Swiss corporation (collectively, "Roche"), pursuant to which we granted to Roche a worldwide, irrevocable, non-exclusive license to a portion of our technology platform, for the development of RNAi-based therapeutics, in consideration of the payment of a one-time, non-refundable licensing fee of $5.0 million. On September 30, 2011, we agreed to the assignment and delegation by Roche of its non-exclusive license rights in the Licensed Technology upon Roche's successful divestment of its RNA interference assets. On October 21, 2011, Roche successfully divested its RNA interference assets, including the Licensed Technology, and made a one-time non-refundable payment of $1.0 million to us in consideration for our agreement to the assignment and delegation of Roche's non-exclusive license rights in the licensed technology. This payment was recognized as revenue in 2011.

University of Michigan — In May 2008, we entered into an exclusive license agreement to intellectual property ("IP") from the University of Michigan covering cationic peptides for enhanced delivery of nucleic acids. In connection with the agreement, we paid a license issue fee of $120,000. An additional fee of $25,000 is payable annually and creditable against royalty payments. Results from continued internal development efforts made this exclusive license agreement unnecessary and the agreement was terminated on August 7, 2012 with no further financial obligation.

University of Helsinki — In June 2008, we entered into a collaboration agreement with Dr. Pirjo Laakkonen and the Biomedicum Helsinki. The goal of the work involves our patented phage display library, the Trp Cage library, for the identification of peptides to target particular tissues or organs for a given disease. In December 2009, we received a patent allowance in the U.S. covering a targeting peptide for preferential delivery to lung tissues that was identified by us using the Trp Cage Library. We believe the Trp Cage library will be a source of additional peptides for evaluation in our delivery programs, and we will have a strong IP position for these peptides and their use. This agreement terminated by its terms in June 2012. Under this agreement, we may be obligated to make product development milestone payments of up to €275,000 in the aggregate for each product developed under this research agreement if certain milestones are met. As of September 30, 2012, we have not made, and are not under any current obligation to make, any such milestone payments, as the conditions that would trigger any such milestone payment obligations have not been satisfied. In addition, upon the first commercial sale of a product, we are required to pay an advance of €250,000 against which future royalties will be credited. The percentage royalty payment required to be made by us to the University of Helsinki under the terms of this agreement is a percentage of gross revenues derived from work performed under the Helsinki Agreement in the low single digits.

Ribotask ApS. — In June 2009, we announced the revision of the October 2008 agreement in which we had acquired the intellectual property related to Unlocked Nucleobase Analogs ("UNA") from Ribotask ApS, a privately held Danish company. The original agreement provided us with exclusive rights for the development and commercialization of therapeutics incorporating UNAs. The amended agreement eliminated our obligation to pay all milestone and royalty payments and provided full financial and transactional control of our proprietary UNA technology.

Under the October 2008 agreement we made payments to Ribotask totaling $500,000. We sublicensed the IP under this agreement to Roche on a nonexclusive basis in February 2009, at which time we paid an additional $250,000 to Ribotask, which eliminated the obligation to pay Ribotask any future royalties or milestones with respect to the Roche sublicense. In connection with the June 2009 amendment, we issued 15,152 shares of our common stock valued at approximately $1.0 million to Ribotask ApS and agreed to pay $1.0 million in four installments of $250,000 each due at various intervals through July 2010.

In June 2010, we expanded our rights under the previous agreement with Ribotask to include exclusive rights to the development and commercialization of UNA-based diagnostics. In connection with this amendment, we agreed to pay Ribotask $750,000 in three equal payments of $250,000. In March 2011, the agreement was amended to change the payment terms for the diagnostic rights. The first payment of $250,000 was made in November 2010, a payment of $50,000 was made upon the execution of the amendment, and the remaining $400,000 was paid in eight equal monthly installments beginning on May 1, 2011. In addition we issued 11,377 shares of our common stock valued at approximately $80,000 to Ribotask on March 3, 2011.

In connection with our agreements, as amended, we granted Ribotask a royalty-bearing, world-wide exclusive license to use the assigned patents to develop and sell products intended solely for use as reagents or for testing. The royalty rates to be paid to us by Ribotask are a percentage in the low single digits.

With the exclusive rights to UNA technology that we acquired from Ribotask combined with the exclusive rights to Conformationally Restricted Nucleotide (CRN) technology for both therapeutics and diagnostics acquired in March 2010 from Valeant Pharmaceuticals, we have established one of the few intellectual property portfolios supporting a nucleic acid-based personalized medicine platform with the ability to pursue proprietary nucleic acid-based therapeutics and diagnostics.

Proprietary Rights and Intellectual Property

We rely primarily on patents and contractual obligations with employees and third parties to protect our proprietary rights. We have sought, and intend to continue to seek, appropriate patent protection for important and strategic components of our proprietary technologies by filing patent applications in the U.S. and certain foreign countries. There can be no assurance that any of our patents will guarantee protection or market exclusivity for our products and product candidates. We also use license agreements both to access external technologies and to convey certain intellectual property rights to others. Our financial success will be dependent in part on our ability to obtain commercially valuable patent claims and to protect our intellectual property rights and to operate without infringing upon the proprietary rights of others. As of September 13, 2012, we owned or controlled 78 issued or allowed patents, as described in the following table, and we also owned or controlled 37 pending U.S. patent applications, including provisional patent applications, to protect our RNAi proprietary technologies.

Estimated Expiration	No. of Issued/Allowed Patents	Jurisdiction
2014	1	U.S.
2018	1	U.S.
2019	2	U.S.
2020	1	U.S.
2021	1	U.S.
2022	2	U.S.
	2	Australia
	3	Austria
	1	Belgium
	2	Canada
	2	China
	3	France
	3	Germany
	1	Ireland
	1	Italy
	1	Japan
	3	Netherlands
	2	Singapore
	1	Spain
	3	Switzerland
	3	U.K.
2023	3	U.S.
	1	Austria
	1	France
	1	Germany
	1	Italy
	1	Netherlands
	1	Switzerland
	1	U.K.
2024	2	U.S.
	1	China
2025	3	U.S.
	1	France
	1	Germany
	1	Italy
	1	Japan
	1	Korea
	1	Mexico
	1	Spain
	1	U.K.
	1	New Zealand
2026	1	Australia
2027	3	U.S.

2028	2	U.S.
	1	New Zealand
2029	1	France
	1	Germany
	1	Italy
	1	Spain
	1	Switzerland
	1	U.K.
2031	1	U.S.

The patents listed in the table above will expire generally between 2014 and 2031, subject to any potential patent term extensions and/or supplemental protection certificates that would extend the terms of the patents in countries where such extensions may become available.

Our patents and patent applications are directed to compositions of matter, formulations, methods of use and/or methods of manufacturing, as appropriate. The patent positions of pharmaceutical and biotechnology companies, including ours, are generally uncertain and involve complex legal and factual questions. Our business could be negatively impacted by any of the following:

- the claims of any patents that are issued may not provide meaningful protection, may not provide a basis for commercially viable products or may not provide us with any competitive advantages;
- our patents may be challenged by third parties;
- others may have patents that relate to our technology or business or may independently develop similar or alternative therapies that may prevent us from marketing our product candidates unless we are able to obtain a license to those patents;
- the pending patent applications to which we have rights may not result in issued patents; and
- we may not be successful in developing additional proprietary technologies that are patentable.

In addition, we could incur substantial costs in litigation if we have to defend ourselves in patent suits brought by third parties or if we initiate such suits.

Competition

There are a number of biotechnology companies in this space and a few large pharmaceutical companies with internal programs. The competition includes companies focused on constructs (double-stranded {siRNA and miRNA mimetics} or single-stranded {antagomirs and translational inhibition oligonucleotides}) or delivery. However, we believe only a small number can claim a drug discovery platform (constructs and delivery), and only Marina Biotech is in the unique position of having multiple drug discovery platforms directed at multiple RNA-based therapeutic modalities and thereby have the ability to develop the most appropriate therapeutic for a specific undruggable target for a specific indication.

A sampling of competitors includes Alnylam Pharmaceuticals, Benitec Biopharma, Dicerna Pharmaceuticals, miRagen Therapeutics, Mirna Therapeutics, Quark Pharmaceuticals, Regulus Therapeutics, Silence Therapeutics, and Tekmira Pharmaceuticals. The pharmaceutical companies with internal oligonucleotide R&D programs include AstraZeneca, GlaxoSmithKline, Novartis, Merck and Sanofi.

Universities and public and private research institutions are also potential competitors. While these organizations primarily have educational objectives, they may develop proprietary technologies related to the drug delivery field or secure protection that we may need for development of our technologies and products. We may attempt to license one or more of these proprietary technologies, but these licenses may not be available to us on acceptable terms, if at all.

Some of our competitors have substantially greater resources, manufacturing capabilities, regulatory expertise, sales and marketing resources, and established collaborative arrangements with pharmaceutical companies. Our competitors, either alone or with their collaboration partners, may succeed in developing product candidates that are similar or preferable in effectiveness, safety, cost and ease of commercialization, and our competitors may obtain IP protection or commercialize competitive products sooner than we do.

Legacy Intranasal Technologies and Therapeutics

Our efforts to divest and monetize our legacy nasal drug delivery programs and capabilities include the following:

Cypress Bioscience, Inc. — In August 2010, we entered into an Asset Purchase Agreement with Cypress Bioscience, Inc. ("Cypress") under which Cypress acquired our patent rights and technology related to carbetocin, a long-acting analog of oxytocin, a naturally produced hormone that may benefit individuals with autism. Under the agreement, we received an upfront payment of $750,000 and we could receive milestone payments up to $27 million. In 2011, the carbetocin asset was spun out to create Kyalin Bioscience. Kyalin Bioscience will be responsible for all future development and IP related expenses as well as all milestone payments due to us. In addition, Kyalin will pay us royalties, in single-digit percentages, based on commercial sales.

Par Pharmaceutical — In 2009, we entered into an Asset Purchase Agreement with Par Pharmaceutical ("Par") pursuant to which, among other things, a 2004 License and Supply Agreement with Par was terminated. Under the Asset Purchase Agreement, Par acquired certain assets pertaining to calcitonin nasal spray for osteoporosis. We received $0.8 million in cash and were entitled to receive earn-out payments for five years based on commercial sales of calcitonin. Calcitonin received full FDA approval and was launched in June 2009. In December 2010, we entered into an amendment of the Asset Purchase Agreement under which Par agreed to pay us a lump-sum cash payment of $0.7 million in lieu of profit sharing for the remainder of the earn-out payment period, which we recognized as revenue in 2010.

Amylin Pharmaceuticals, Inc. — In January 2009 we amended our 2006 License Agreement with Amylin Pharmaceuticals, Inc. for the development of intranasal exenatide. The License Agreement, as amended, provides for an accelerated $1.0 million milestone payment to us in January 2009, a reduction in the aggregate amount of milestone payments that could be due to us from $89 million to $80 million, and a reduction in the percentage royalty rate payable upon commercial sales of a product to the low single digits. Additionally, as a result of the amendment, we are no longer responsible for any further development of the nasal spray formulation of intranasal exenatide or its manufacture. Either party may terminate the agreement for breach of any material provision of the agreement upon 60 days' notice of the breach and subject to a 60 day cure period. Amylin may also terminate the agreement upon 90 days' written notice.

Government Regulation

Government authorities in the U.S. and other countries extensively regulate the research, development, testing, manufacture, labeling, promotion, advertising, distribution and marketing, among other things, of drugs and biologic products. All of our foreseeable product candidates (including those for human use that may be developed by our partners based on our licensed technologies) are expected to be regulated as drug products.

In the U.S., the FDA regulates drug products under the Federal Food, Drug and Cosmetic Act (the "FDCA"), and other laws within the Public Health Service Act. Failure to comply with applicable U.S. requirements, both before and after approval, may subject us to administrative and judicial sanctions, such as a delay in approving or refusal by the FDA to approve pending applications, warning letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, and/or criminal prosecutions. Before our drug products are marketed they must be approved by the FDA. The steps required before a novel drug product is approved by the FDA include: (1) pre-clinical laboratory, animal, and formulation tests; (2) submission to the FDA of an Investigational New Drug Application ("IND") for human clinical testing, which must become effective before human clinical trials may begin; (3) adequate and well-controlled clinical trials to establish the safety and effectiveness of the product for each indication for which approval is sought; (4) submission to the FDA of a New Drug Application ("NDA"); (5) satisfactory completion of an FDA inspection of the manufacturing facility or facilities at which the drug product is produced to assess compliance with cGMP; and FDA review and finally (6) approval of an NDA.

Pre-clinical tests include laboratory evaluations of product chemistry, toxicity and formulation, as well as animal studies. The results of the pre-clinical tests, together with manufacturing information and analytical data, are submitted to the FDA as part of an IND, which must become effective before human clinical trials may begin. An IND will automatically become effective 30 days after receipt by the FDA, unless before that time the FDA raises concerns or questions, such as the conduct of the trials as outlined in the IND. In such a case, the IND sponsor and the FDA must resolve any outstanding FDA concerns or questions before clinical trials can proceed. There can be no assurance that submission of an IND will result in FDA authorization to commence clinical trials. Once an IND is in effect, each clinical trial to be conducted under the IND must be submitted to the FDA, which may or may not allow the trial to proceed.

Clinical trials involve the administration of the investigational drug to human subjects under the supervision of qualified physician-investigators and healthcare personnel. Clinical trials are typically conducted in three defined phases, but the phases may overlap or be combined. Phase 1 usually involves the initial administration of the investigational drug or biologic product to healthy individuals to evaluate its safety, dosage tolerance and pharmacodynamics. Phase 2 usually involves trials in a limited patient population, with the disease or condition for which the test material is being developed, to evaluate dosage tolerance and appropriate dosage; identify possible adverse side effects and safety risks; and preliminarily evaluate the effectiveness of the drug or biologic for specific indications. Phase 3 trials usually further evaluate effectiveness and test further for safety by administering the drug or biologic candidate in its final form in an expanded patient population. Our product development partners, the FDA, or we may suspend clinical trials, if any, at any time on various grounds, including any situation where we or our partners believe that patients are being exposed to an unacceptable health risk or are obtaining no medical benefit from the test material.

Assuming successful completion of the required clinical testing, the results of the pre-clinical trials and the clinical trials, together with other detailed information, including information on the manufacture and composition of the product, are submitted to the FDA in the form of an NDA requesting approval to market the product for one or more indications. Before approving an application, the FDA will usually inspect the facilities where the product is manufactured, and will not approve the product unless cGMP compliance is satisfactory. If the FDA determines the NDA is not acceptable, the FDA may outline the deficiencies in the NDA and often will request additional information. If the FDA approves the NDA, certain changes to the approved product, such as adding new indications, manufacturing changes or additional labeling claims are subject to further FDA review and approval. The testing and approval process requires substantial time, effort and financial resources, and we cannot be sure that any approval will be granted on a timely basis, if at all.

Under the Orphan Drug Act, the FDA may grant orphan drug designation to a drug intended to treat a rare disease or condition, which is generally a disease or condition that affects fewer than 200,000 individuals in the United States, or more than 200,000 individuals in the U.S. and for which there is no reasonable expectation that the cost of developing and making available in the U.S. a drug for this type of disease or condition will be recovered from sales in the U.S. for that drug. Orphan drug designation must be requested before submitting an NDA. After the FDA grants orphan drug designation, the identity of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA. If a product that has orphan drug designation subsequently receives the first FDA approval for the disease for which it has such designation, the product is entitled to orphan product exclusivity, which means that the FDA may not approve any other applications, including a full BLA, to market the same drug for the same indication, except in very limited circumstances, for seven years. The FDA granted orphan drug designation to CEQ508 for the treatment of FAP in December 2010.

In addition, regardless of the type of approval, we and our partners are required to comply with a number of FDA requirements both before and after approval. For example, we and our partners are required to report certain adverse reactions and production problems, if any, to the FDA, and to comply with certain requirements concerning advertising and promotion for products. In addition, quality control and manufacturing procedures must continue to conform to cGMP after approval, and the FDA periodically inspects manufacturing facilities to assess compliance with cGMP. Accordingly, manufacturers must continue to expend time, money and effort in all areas of regulatory compliance, including production and quality control to comply with cGMP. In addition, discovery of problems, such as safety problems, may result in changes in labeling or restrictions on a product manufacturer or NDA holder, including removal of the product from the market.

Product Liability

We currently have product liability insurance coverage in the amount of $1 million per occurrence and a $1 million aggregate limitation, subject to a deductible of $10,000 per occurrence, with an aggregate deductible of $50,000.

Environmental Compliance

Our research and development activities have involved the controlled use of potentially harmful biological materials as well as hazardous materials, chemicals and various radioactive compounds. We are subject to federal, state and local laws and regulations governing the use, storage, handling and disposal of these materials and specific waste products. We are also subject to numerous environmental, health and workplace safety laws and regulations, including those governing laboratory procedures, exposure to blood-borne pathogens and the handling of bio-hazardous materials. The cost of compliance with these laws and regulations could be significant and may adversely affect capital expenditures to the extent we are required to procure expensive capital equipment to meet regulatory requirements.

Employees

On June 1, 2012, we announced that, due to our financial condition, we had implemented a furlough of approximately 90% of our employees and ceased substantially all day-to-day operations. Since that time substantially all of the furloughed employees have been terminated. As of January 9, 2013, we had approximately 9 remaining employees, including all of our executive officers, all of whom are either furloughed or working on reduced salary. None of our employees are covered by collective bargaining agreements.

Company Information

We are a reporting company and file annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy these reports, proxy statements and other information at the SEC's Public Reference Room at 100 F Street N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 or e-mail the SEC at publicinfo@sec.gov for more information on the operation of the public reference room. Our SEC filings are also available at the SEC's website at http://www.sec.gov. Our Internet address is http://www.marinabio.com. There we make available, free of charge, our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and any amendments to those reports, as soon as reasonably practicable after we electronically file such material with, or furnish such material to, the SEC.

Properties

The following is a summary of our properties and related lease obligations. We do not own any real property, and we are not currently utilizing any leased facilities. Pending receipt of sufficient funding, we will need to obtain additional facilities in order to support our research and development, operational, manufacturing and administrative needs under our current operating plan.

3830 Monte Villa Parkway, Bothell, Washington. We lease approximately 63,200 square feet of research and development and office space in Bothell, Washington. We ceased using this facility in September 2012. Effective October 1, 2012, we entered into a Lease Termination Agreement (the "Termination Agreement") with the landlord. Pursuant to the Termination Agreement, we paid to the landlord $155,000 as rent for the premises for the month of October 2012. Thereafter, our obligation to pay further rent under the lease is being satisfied through the standby letter of credit that we established to support our obligations under the lease. The landlord will draw the amount of each month's rent by drawing on the letter of credit on or about the first day of each month from November 2012 through February 2013, with the landlord drawing the entire remaining amount available when it draws the February 2013 rent. We will have no obligation to replenish the letter of credit for amounts drawn by the landlord. The lease will terminate effective on March 1, 2013; provided that prior to March 1, 2013 the landlord may terminate the lease on 10 days' prior written notice, in which event landlord shall be entitled to immediately draw all remaining amounts under the Termination Agreement on the letter of credit.

One Kendall Square, Cambridge, Massachusetts. We leased approximately 5,000 square feet of research and development and office space in Cambridge, Massachusetts. In February 2012, we entered into an agreement with a third party to sublease all of this space through the termination of the lease in August 2012.

Legal Proceedings

We are subject to various legal proceedings and claims that arise in the ordinary course of business. Our management currently believes that resolution of such legal matters will not have a material adverse impact on our financial position, results of operations or cash flows.

Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

Not applicable.

MANAGEMENT

Executive Officers and Directors

The persons set forth below are our directors and executive officers as of the date of this prospectus.

Name	Age	Position	Director Since
J. Michael French	53	Chief Executive Officer, President and Chairman of the Board of Directors	September 2008
Stefan Loren, Ph.D.	48	Lead Independent Director	August 2012
Joseph W. Ramelli	44	Director	August 2012
Richard T. Ho, M.D., Ph.D.	50	Executive Vice President – Research & Development	N/A
Philip C. Ranker	53	Interim Chief Financial Officer and Secretary	N/A

Directors of Our Company

J. Michael French — Mr. French has served as our Chief Executive Officer ("CEO") since June 23, 2008, as our President since October 1, 2008, and as a member of our Board of Directors since September 11, 2008. Mr. French was appointed Chairman of our Board of Directors on August 21, 2012. Prior to joining us, Mr. French served as President of Rosetta Genomics, Inc. from May 2007 to August 2007. Mr. French also served as Senior Vice President of Corporate Development for Sirna Therapeutics, Inc. ("Sirna") from July 2005 to January 2007, when Sirna was acquired by Merck and Co., Inc., and he served in various executive positions, including Chief Business Officer, Senior Vice President of Business Development and Vice President of Strategic Alliances, of Entelos, Inc., a pre-IPO biotechnology company, from 2000 to 2005. Mr. French, holds a B.S. in aerospace engineering from the U.S. Military Academy at West Point and a M.S. in physiology and biophysics from Georgetown University.

Stefan Loren, Ph.D. – Dr. Loren has served as a director of our company since August 2012. Dr. Loren is currently Managing Director at Westwicke Partners. Dr. Loren has over 20 years of experience as a research and investment professional in the healthcare space, including roles at Perceptive Advisors, MTB Investment Advisors, Legg Mason, and Abbott Laboratories. Prior to industry, Dr. Loren served as a researcher at The Scripps Research Institute working with Nobel Laureate K. Barry Sharpless on novel synthetic routes to chiral drugs. Dr. Loren received a doctorate degree in Organic/Pharmaceutical Chemistry from the University of California at Berkeley and a bachelor's degree in Chemistry from the University of California San Diego. His scientific work has been featured in Scientific American, Time, Newsweek and Discover, as well as other periodicals and journals. Dr. Loren currently serves on the board of PolyMedix, Inc.

Joseph W. Ramelli – Mr. Ramelli has served as a director of our company since August 2012. Mr. Ramelli currently works as a consultant for several investment funds providing in-depth due diligence and investment recommendations. He has over 20 years of experience in the investment industry, having worked as both an institutional equity trader and as an equity analyst at Eos Funds, Robert W. Duggan & Associates and Seneca Capital Management. Mr. Ramelli graduated with honors from U.C. Santa Barbara, with a BA in Business Economics.

Executive Officers of Our Company

Biographical information concerning J. Michael French, our President and CEO, is set forth above. Biographical information concerning our remaining executive officers is set forth below.

Richard T. Ho, M.D., Ph.D. — Dr. Ho has served as our Executive Vice President – Research & Development since September 1, 2011. Dr. Ho most recently served as Senior Medical Director at Entelos, Inc. from 2008 to 2011 where he oversaw academic and governmental collaborations including a Cooperative Research and Development Agreement with the FDA. From 2007 to 2008, he was a Principal at Rosa and Co. where he worked with pharmaceutical and biotechnology companies on physiological modeling efforts in several disease areas including metabolic disorders, respiratory disease, and bioterrorism agents. Dr. Ho began his industry career at Johnson & Johnson Pharmaceutical Research & Development starting as a fellow in Medical Informatics and advancing to the position of Director of Disease Modeling. Over a ten year period at J&J, he built and led a team which championed systems biology and personalized medicine approaches to understanding and treating human disease. In this position, he coordinated model-based analysis and research with global clinical and preclinical teams developing both small and large molecule compounds. Before joining J&J, Dr. Ho completed a residency in Internal Medicine and a fellowship in Rheumatology at Yale School of Medicine. Dr. Ho received his

M.D.-Ph.D. from the University at Buffalo School of Medicine with his thesis work at the Grace Cancer Drug Center of Roswell Park Cancer Institute and received his A.B. in physics from Harvard College.

Philip C. Ranker — Mr. Ranker served as our Chief Accounting Officer from September 7, 2011 until September 30, 2011, and he has served as our interim Chief Financial Officer and Secretary since October 1, 2011. Mr. Ranker most recently served as Chief Financial Officer of Suneva Medical, Inc., a start-up aesthetics company, from 2009 to 2011, and as Vice President of Finance at Amylin Pharmaceuticals, Inc. from 2008 to 2009. Prior to Amylin, Mr. Ranker held various positions with Nastech Pharmaceutical Company Inc. (the predecessor to Marina Biotech) from 2004 to 2008, including Vice President of Finance from August 2004 until September 2005, and Chief Financial Officer and Secretary from September 2005 until January 2008. From September 2001 to August 2004, Mr. Ranker served as Director of Finance for ICOS Corporation. Prior to working at ICOS, Mr. Ranker served in various positions in corporate accounting, managed care contracting and research and development, including Senior Finance Director, at Aventis Pharma and its predecessor companies during his nearly fifteen year tenure with the organization. From February 2006 until 2010, Mr. Ranker also served as a member of the Board of Directors and as the chair of the Audit Committee of ImaRx Therapeutics, Inc., which executed an initial public offering during his tenure. Prior to Aventis, Mr. Ranker was employed by Peat Marwick (currently KPMG) as a Certified Public Accountant. Mr. Ranker holds a B.S. in Accounting from the University of Kansas.

Director's Qualifications

In selecting a particular candidate to serve on our Board of Directors, we consider the needs of our company based on particular attributes that we believe would be advantageous for our Board members to have and would qualify such candidate to serve on our Board given our business profile and the environment in which we operate. The table below sets forth such attributes and identifies which attributes each director possesses.

Attributes	Mr. French	Dr. Loren	Mr. Ramelli
Financial Experience	X	X	X
Public Board Experience	X	X	
Industry Experience	X	X	
Scientific Experience		X	
Commercial Experience	X		X
Corporate Governance Experience	X	X	
Capital Markets Experience	X	X	X
Management Experience	X		X

Certain Relationships and Related Transactions

Current Directors. Pursuant to the terms and conditions of Mr. French's employment agreement, we agreed, for the term of Mr. French's employment with us, to nominate Mr. French for successive terms as a member of the Board of Directors, and to use all best efforts to cause Mr. French to be elected by our shareholders as a member of the Board of Directors.

Former Directors. On July 21, 2010, in connection with the consummation of our merger with Cequent Pharmaceuticals, Inc., we entered into a Stockholders' Agreement with certain of the principal stockholders of Cequent Pharmaceuticals pursuant to which we granted to such stockholders the right to designate a total of three (3) members of our Board of Directors during the period beginning at the effective time of the merger with Cequent Pharmaceuticals and ending immediately prior to our 2011 Annual Meeting of Stockholders. The initial director nominees of such stockholders were Peter D. Parker, Chiang J. Li, M.D. and Michael D. Taylor, Ph.D., each of whom was appointed to serve as a member of our Board of Directors beginning on July 21, 2010. Dr. Li retired from the Board effective at the 2011 Annual Meeting of Stockholders, Mr. Parker resigned from the Board effective August 17, 2012, and Dr. Taylor resigned from the Board effective August 21, 2012.

Family Relationships

There are no familial relationships between any of our officers and directors.

Director or Officer Involvement in Certain Legal Proceedings

Our directors and executive officers were not involved in any legal proceedings as described in Item 401(f) of Regulation S-K in the past ten years.

Code of Ethics

We have adopted a Code of Business Conduct and Ethics that applies to all of our employees and officers, and the members of our Board of Directors. The Code of Business Conduct and Ethics is available on our website at www.marinabio.com. You can access the Code of Business Conduct and Ethics on our website by first clicking "About Marina Biotech" and then "Corporate Governance." Printed copies are available upon request without charge. Any amendment to or waiver of the Code of Business Conduct and Ethics will be disclosed on our website promptly following the date of such amendment or waiver.

Independence of the Board of Directors

The Board of Directors utilizes NASDAQ's standards for determining the independence of its members and believes that it interprets these requirements conservatively. In applying these standards, the Board considers commercial, industrial, banking, consulting, legal, accounting, charitable and familial relationships, among others, in assessing the independence of directors, and must disclose any basis for determining that a relationship is not material. The Board has determined that a majority of its current members, namely Stephen Loren, Ph.D. and Joseph W. Ramelli, are independent directors within the meaning of the NASDAQ independence standards. In addition, the Board previously determined that a majority of those persons who served as a director during any part of 2011, namely R. John Fletcher, James M. Karis, Chiang J. Li, M.D., Michael D. Taylor, Ph.D. and Gregory Sessler, were independent directors within the meaning of the NASDAQ independence standards. In making these independence determinations, the Board did not exclude from consideration as immaterial any relationship potentially compromising the independence of any of the above directors.

EXECUTIVE COMPENSATION

Summary Compensation Table

The following table sets forth information regarding compensation earned during 2012 and 2011 by our CEO and our other most highly compensated executive officers as of the end of the 2012 fiscal year ("Named Executive Officers").

Name and Principal Position	Year	Salary ($) (5)	Bonus ($)	Stock Awards ($)	Option Awards ($) (1)	All Other Compensation ($) (2)	Total ($)
J. Michael French,	2012	141,478	—	—	—	—	141,478
President, CEO and Director	2011	340,000	—	—	74,429	81,600	496,029
Richard T. Ho, M.D., Ph.D.,	2012	102,385	—	—	—	—	102,385
EVP – R&D (3)	2011	100,000	—	—	53,910	45,000	198,910
Philip C. Ranker,	2012	135,343	—	—	—	—	135,343
Interim CFO and Secretary (4)	2011	87,612	—	—	4,705	17,000	109,317

(1) The amounts listed in the "Option Awards" column reflect the dollar amount of the aggregate grant date fair value, in accordance with FASB ASC Topic 718, for all option awards granted in the applicable fiscal year. The assumptions used to calculate the stock option awards value may be found in Note 6 to our audited Consolidated Financial Statements for the fiscal year ended December 31, 2011included elsewhere in this prospectus. The dollar amounts do not necessarily reflect the dollar amounts of compensation actually realized or that may be realized by our Named Executive Officers.

(2) The amounts listed in the "All Other Compensation" column are: (i) a retention payment to Mr. French in the amount of $81,600 in 2011; (ii) a relocation allowance in the amount of $45,000 to Dr. Ho in 2011; and (iii) a relocation allowance in the amount of $17,000 to Mr. Ranker in 2011. The retention payment to Mr. French, which was made in September 2011, was originally recommended by the Compensation Committee and ratified by the Board in March 2010, and was payable on the first date on or after May 15, 2010 when we had in excess of $5 million in unrestricted cash.

(3) Dr. Ho joined our company as Executive Vice President – Research and Development effective September 1, 2011.

(4) Mr. Ranker jointed our company as Chief Accounting Officer on September 7, 2011. Mr. Ranker served as Chief Accounting Officer from September 7, 2011 through September 30, 2011, at which time he began to serve as interim Chief Financial Officer and Secretary.

(5) Although the employment agreements for Mr. French, Dr. Ho and Mr. Ranker provide for an annual base salary of $340,000, $300,000 and $275,000, respectively, due to our company's financial challenges in 2012, such officers worked for a reduced wage during a significant portion of the year.

Employment Agreements

We have entered into employment agreements with each of our Named Executive Officers. These agreements are summarized below and provide that such Named Executive Officers shall receive certain payments from us in the event of certain change of control and/or termination events. For a description of the potential payments upon termination or change of control to be paid to our Named Executive Officers, please see "Potential payments upon termination or change in control arrangements" and "2011 Potential Payments upon Termination or Change in Control Tables" below. In addition, and as noted in the Summary Compensation Table and the footnotes thereto above, although our agreements with our Named Executive Officers provide for base salary and other payments to be made to such officers, we did not make certain of these payments in 2012 due to our financial condition.

J. Michael French

On June 10, 2008, we entered into an employment agreement (the "French Agreement") with J. Michael French pursuant to which Mr. French serves as our Chief Executive Officer. The initial term began on June 23, 2008 and ended on June 9, 2011, and has continued since that date per its terms on a quarter-to-quarter basis provided that Mr. French remains in full-time employment by our company at that time.

Mr. French was elected President effective October 1, 2008, and became a Director after election by the Board on September 11, 2008. A copy of the French Agreement was filed as Exhibit 10.2 to our Current Report on Form 8-K dated June 10, 2008.

Pursuant to the French Agreement, Mr. French is entitled to annual base compensation of $340,000, with any increase in base compensation to be set by the Board from time to time as determined by the Board or the Compensation Committee thereof, with the target for each year being the 50th percentile of the Radford survey. He is also eligible to receive annual performance-based incentive cash compensation, with the targeted amount of such incentive cash compensation being 40% of his annual base compensation for the year, but with the actual amount to be determined by the Board or the Compensation Committee. Mr. French also received a relocation allowance in the amount of $102,000.

Under the French Agreement, we granted options to Mr. French to purchase up to 31,500 shares of common stock, of which 10,500 options are exercisable at $50.80 per share, 10,500 options are exercisable at $90.80 per share, and 10,500 options are exercisable at $130.80 per share. The options have a term of 10 years beginning on June 23, 2008.

If Mr. French's employment is terminated without cause or he chooses to terminate his employment for good reason, all of Mr. French's options that are outstanding on the date of termination shall be fully vested and exercisable upon such termination and shall remain exercisable for the remainder of their terms. In addition, he will receive (i) base salary, (ii) incentive cash compensation determined on a pro-rated basis as to the year in which the termination occurs, (iii) pay for accrued but unused paid time off, and (iv) reimbursement for expenses through the date of termination, plus an amount equal to 12 months of his specified base salary at the rate in effect on the date of termination.

If Mr. French's employment is terminated for cause or he chooses to terminate his employment other than for good reason, vesting of the options shall cease on the date of termination and any then unvested options shall terminate, however the then-vested options shall remain vested and exercisable for the remainder of their respective terms. He will also receive salary, a pro-rated amount of incentive cash compensation for the fiscal year in which the termination occurs, pay for accrued but unused paid time off, and reimbursement of expenses through the date of termination.

If Mr. French's employment is terminated due to death or disability, Mr. French or his estate, as applicable, is entitled to receive (i) salary, reimbursement of expenses, and pay for accrued but unused paid time off; (ii) incentive cash compensation determined on a pro-rated basis as to the year in which the termination occurs; and (iii) a lump sum equal to base salary at the rate in effect on the date of termination for the remaining term of the French Agreement at the time of such termination. In addition, vesting of all of Mr. French's options that are outstanding on the date of termination shall cease, and any then vested options shall remain exercisable as specified in the applicable grant agreements.

If Mr. French's employment is terminated by us (other than for cause) or by Mr. French (for good reason), and in either case other than because of death or disability, during the one-year period following a change in control of our company, then Mr. French will be entitled to receive as severance: (i) salary, expense reimbursement and pay for unused paid time off through the date of termination; (ii) a lump-sum amount equal to twelve (12) months of base salary at the rate in effect on the date of termination; (iii) the amount of his incentive cash compensation for the fiscal year in which the date of termination occurs (determined on a pro-rated basis); and (iv) an additional lump-sum payment equal to fifty percent (50%) of his base salary for such year. In addition, all of Mr. French's outstanding stock options shall be fully vested and exercisable upon a change of control and shall remain exercisable as specified in the option grant agreements.

Pursuant to the French Agreement, a change in control generally means (i) the acquisition by any person or group of 40% or more of our voting securities, (ii) our reorganization, merger or consolidation, or sale of all or substantially all of our assets, following which our stockholders prior to the consummation of such transaction hold 60% or less of the voting securities of the surviving or acquiring entity, as applicable, (iii) a turnover of the majority of the Board as currently constituted, provided that under most circumstances any individual approved by a majority of the incumbent Board shall be considered as a member of the incumbent Board of Directors for this purpose, or (iv) a complete liquidation or dissolution of us. As a result of the Waiver Agreement that Mr. French entered into with us on

March 31, 2010, Mr. French waived any and all right, title, claim and interest that he may have to receive any payments or accelerated vesting of equity awards under the French Agreement or under any equity compensation plan of our company, in each case as a result of our merger with Cequent Pharmaceuticals being deemed a change of control.

The French Agreement also provides that we will, in connection with each election of our directors during the term of the French Agreement, nominate, recommend and use our best efforts to cause the election to the Board of Directors of Mr. French. In general, Mr. French has agreed not to compete with us for six months following the end of the employment term or to solicit our partners, clients or employees for one year following the end of the employment term.

On August 2, 2012, we amended the French Agreement to provide that, notwithstanding anything to the contrary contained in the French Agreement, Mr. French may engage in consulting and other similar work, not directly competitive with our company, while employed by our company.

Richard T. Ho, M.D., Ph.D.

On September 2, 2011, we entered into an employment agreement (the "Ho Agreement") with Richard T. Ho, M.D., Ph.D. pursuant to which Dr. Ho shall serve as Executive Vice President – Research and Development for a three year term effective September 1, 2011. A copy of the Ho Agreement was filed as Exhibit 10.1 to our Current Report on Form 8-K dated September 1, 2011.

Pursuant to the Ho Agreement, Dr. Ho is entitled to an annual base salary of $300,000, which will be reviewed annually by the Board of Directors. For the fiscal year beginning on January 1, 2012, and for each subsequent fiscal year or portion thereof, Dr. Ho will also be eligible to receive annual incentive cash compensation, with a target of 40% of his annual base salary for the year (the "Annual Bonus Target"), with the actual amount to be determined by the Board of Directors.

Moreover, we agreed to pay to Dr. Ho a total of $90,000 in connection with his relocation to the Seattle, WA metropolitan area in two equal payments of $45,000 through our regular payroll practices on October 1, 2011 and January 1, 2012. We and Dr. Ho have agreed that the second $45,000 payment will not be made. We also reimbursed Dr. Ho for his reasonable travel expenses from his home residence to our headquarters in Bothell, WA until October 1, 2011.

Under the Ho Agreement, we granted to Dr. Ho options to purchase up to 30,000 shares of our common stock. The options have a term of 10 years, are exercisable at $2.10 per share, and will vest according to the following schedule:

- 10,000 options vested and became exercisable on September 2, 2012;
- 2,500 options vest and become exercisable on each of December 1, 2012, March 1, 2013, June 1, 2013 and September 1, 2013 (for an aggregate of 10,000 options during such period); and
- 2,500 options vest and become exercisable on each of December 1, 2013, March 1, 2014, June 1, 2014 and September 1, 2014 (for an aggregate of 10,000 options during such period).

If we terminate Dr. Ho's employment without Cause (as defined in the Ho Agreement), or if upon the expiration of the employment term set forth in the Ho Agreement we shall fail to offer to renew or extend the employment term, or if Dr. Ho terminates his employment for good reason (as defined in the Ho Agreement), then: (i) Dr. Ho shall be entitled to receive base salary, a pro-rated amount of the Annual Bonus Target for the fiscal year in which the termination date occurs, pay for accrued but unused paid time off and reimbursement for expenses through the termination date (collectively, "Accrued Salary and Benefits"); (ii) a lump sum equal to twelve (12) months of Dr. Ho's specified base salary at the rate in effect on the termination date; and (iii) all common stock purchase options granted to Dr. Ho shall be fully vested and exercisable upon such termination and shall remain exercisable in accordance with the grant agreements.

If we terminate Dr. Ho's employment for Cause or Dr. Ho terminates his employment other than for good reason, then Dr. Ho shall be entitled to receive Accrued Salary and Benefits only. The vesting of any outstanding common stock purchase options shall cease on the termination date, and any then un-vested outstanding options shall terminate (with any then-vested outstanding options vested and exercisable as specified in the applicable option grant agreements).

If Dr. Ho's employment is terminated due to death or Disability (as defined in the Ho Agreement), Dr. Ho (or his estate or legal representative as the case may be) shall be entitled to receive: (i) Accrued Salary and Benefits and (ii) a lump sum equal to twelve (12) months of Dr. Ho's specified base salary at the rate in effect on the termination date. In addition, vesting of any outstanding common stock purchase options shall cease on the termination date, and any then un-vested outstanding options shall terminate (with the then-vested outstanding options vested and exercisable as specified in the applicable option grant agreements).

In general, Dr. Ho has agreed: (i) not to compete with us during the employment term and for six (6) months thereafter; (ii) not to solicit our partners, consultants, certified research organizations, principal vendors, licensees or employees for twelve (12) months following the end of the employment term; and (iii) not to solicit or accept business from, or perform or supervise the performance of any services related to such business from, certain clients, former clients and prospective clients of our company during the employment term and for six (6) months thereafter. In addition, these non-compete and non-solicitation agreements are not applicable if Dr. Ho's employment is terminated by us without Cause, or by Dr. Ho for good reason.

On August 2, 2012, we amended the Ho Agreement to provide that, notwithstanding anything to the contrary contained in the Ho Agreement, Dr. Ho may engage in consulting and other similar work, not directly competitive with our company, while employed by our company.

If Dr. Ho's employment is terminated either by us or by Dr. Ho (other than because of Dr. Ho's death or Disability) within one (1) year following the occurrence of a Change of Control (as defined in the Ho Agreement), and such termination is without Cause if by us or for good reason if by Dr. Ho, or if upon the expiration of the then-applicable employment term we shall fail to offer to renew or extend the employment term, then Dr. Ho shall be entitled to receive from us, in lieu of the severance payment otherwise payable pursuant to the Ho Agreement: (i) Accrued Salary and Benefits; (ii) a lump sum amount equal to the greater of (x) twelve (12) months of Dr. Ho's specified base salary under the Ho Agreement and (y) the balance of Dr. Ho's specified base salary under the Ho Agreement to the end of the employment term; (iii) a lump sum amount equal to fifty percent (50%) of Dr. Ho's specified base salary under the Ho Agreement; and (iv) a pro-rata amount of Dr. Ho's Annual Bonus Target for the fiscal year in which the date of termination occurs. Furthermore, all outstanding common stock purchase options shall be fully vested and exercisable upon a Change of Control, and shall remain exercisable as specified in the applicable option grant agreements.

Philip C. Ranker

On September 7, 2011, we entered into an employment agreement (the "Ranker Agreement") with Philip C. Ranker pursuant to which Mr. Ranker served as Chief Accounting Officer for the period beginning on September 7, 2011 through September 30, 2011, and as interim Chief Financial Officer and Secretary for the period beginning on October 1, 2011 through March 7, 2012. The Ranker Agreement was amended on March 16, 2012 to extend the employment period to September 7, 2012. A copy of the Ranker Agreement was filed as Exhibit 10.2 to our Current Report on Form 8-K dated September 1, 2011.

Pursuant to the Ranker Agreement, Mr. Ranker is entitled to an annual base salary of $275,000. Mr. Ranker is also eligible to receive annual incentive cash compensation, with a target of 30% of his annual base salary for the year, with the actual amount to be determined by the Board of Directors. Moreover, we agreed to pay to Mr. Ranker in two equal payments of $8,500 through our regular payroll practices a total of $17,000 in connection with his relocation to the Seattle, WA metropolitan area. We also agreed to reimburse Mr. Ranker for reasonable travel expenses to and from his home residence to and from our headquarters in Bothell, WA.

Under the Ranker Agreement, we granted to Mr. Ranker options to purchase up to 2,500 shares of our common stock. The options have a term of 10 years, are exercisable at a price equal to $2.20 per share, and vested in full on September 7, 2012.

If we terminate Mr. Ranker's employment without Cause (as defined in the Ranker Agreement), or if Mr. Ranker terminates his employment for good reason (as defined in the Ranker Agreement), then: (i) Mr. Ranker shall be entitled to receive base salary, pay for accrued but unused paid time off and reimbursement for expenses through the termination date; provided that if Mr. Ranker's employment was terminated at any time prior to March 7, 2012, Mr. Ranker would have been entitled to receive payments of base salary in an amount such that the aggregate amount of base salary payments made to Mr. Ranker (including any such payments that were made prior to the termination date) would have equaled $137,500; and (ii) all common stock purchase options granted to Mr. Ranker shall be fully vested and exercisable upon such termination and shall remain exercisable in accordance with the applicable grant agreements.

If we terminate Mr. Ranker's employment for Cause or Mr. Ranker terminates his employment other than for good reason, then Mr. Ranker shall be entitled to receive base salary, pay for accrued but unused paid time off and reimbursement for expenses through the termination date. The vesting of any outstanding common stock purchase options shall cease on the termination date, and any then un-vested outstanding options shall terminate (with any then-vested outstanding options vested and exercisable as specified in the applicable option grant agreements).

If Mr. Ranker's employment is terminated due to death or Disability (as defined in the Ranker Agreement), Mr. Ranker (or his estate or legal representative as the case may be) shall be entitled to receive base salary, pay for accrued but unused paid time off and reimbursement for expenses through the termination date. In addition, vesting of any outstanding common stock purchase options shall cease on the termination date, and any then un-vested outstanding options shall terminate (with the then-vested outstanding options vested and exercisable as specified in the applicable option grant agreements).

In general, Mr. Ranker has agreed: (i) not to compete with us during the employment term and for six (6) months thereafter; (ii) not to solicit our employees for six (6) months following the end of the employment term; and (iii) not to solicit or accept business from, or perform or supervise the performance of any services related to such business from, certain clients, former clients and prospective clients of our company during the employment term and for six (6) months thereafter. The non-compete and non-solicitation agreements described in (i) and (iii) above are only applicable if Mr. Ranker's employment is terminated for Cause, and the non-solicitation agreement described in (ii) above is not applicable if Mr. Ranker's employment is terminated by us without Cause or by Mr. Ranker for good reason.

On August 2, 2012, we amended the Ranker Agreement to provide that, notwithstanding anything to the contrary contained in the Ranker Agreement, Mr. Ranker may engage in consulting and other similar work, not directly competitive with our company, while employed by our company.

Outstanding Equity Awards

2012 Outstanding Equity Awards at Fiscal Year-end Table

The following table sets forth information regarding the outstanding equity awards held by our Named Executive Officers as of December 31, 2012:

		Option Awards					Stock Awards			
Name		Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Equity Incentive Plan Awards: Number of Securities Underlying Unexercised Unearned Options (#)	Option Exercise Price ($)	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested (#)	Market Value of Shares or Units of Stock That Have Not Vested ($)	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 ($)
J. Michael French™	(1)	10,501	—	—	$ 50.80	6/23/18	—	—	—	—
	(2)	10,501	—	—	$ 90.80	6/23/18	—	—	—	—
	(3)	10,500	—	—	$ 130.80	6/23/18	—	—	—	—
	(4)	6,000	—	—	$ 60.80	5/20/19	—	—	—	—
	(5)	5,313	2,657	—	$ 24.50	10/14/20	—	—	—	—
	(6)	19,332	24,168	—	$ 2.00	8/26/21				
Richard T. Ho, M.D., Ph.D.	(7)	12,500	17,500	—	$ 2.10	9/2/21	—	—	—	—
Philip C. Ranker	(8)	2,500	—	—	$ 2.20	9/7/21	—	—	—	—

(1) The options became exercisable on June 23, 2009.

(2) The options vested in four equal quarterly increments on September 10, 2009, December 10, 2009, March 10, 2010 and June 10, 2010.

(3) The options vested in four equal quarterly increments on September 10, 2010, December 10, 2010, March 10, 2011 and June 10, 2011.

(4) One-third of the options vested on May 20, 2010. The remaining options vested quarterly in equal installments during the two-year period commencing after May 20, 2010.

(5) One-third of the options vested on October 14, 2011. The remaining options vest quarterly in equal installments during the two-year period commencing after October 14, 2011.

(6) One-third of these options vested on August 26, 2012. The remaining options vest in 24 equal monthly installments during the two-year period commencing after August 26, 2012.

(7) One-third of these options vested on September 2, 2012. The remaining options vest quarterly in equal installments during the two-year period commencing after September 2, 2012.

(8) The options vested on September 7, 2012.

Option repricings

We have not engaged in any option repricings or other modifications to any of our outstanding equity awards to our Named Executive Officers during fiscal year 2012.

Potential payments upon termination or change in control arrangements

The discussion below sets forth the potential termination or change-in-control payments that would be due to those of our Named Executive Officers who are currently serving with our company upon the occurrence of certain specified events. All information described below is presented as if a triggering event occurred on December 31, 2012. Please see "Employment Agreements" above for a description of the severance and change in control arrangements for our Named Executive Officers. Each of our Named Executive Officers will be eligible to receive severance payments only if each officer signs a general release of claims. Our Board of Directors (or the Compensation Committee thereof, as plan administrator of our Stock Option Plans), has the authority to provide for accelerated vesting of options in connection with certain changes in control of our company.

In those employment agreements with our Named Executive Officers containing a change in control provision, subject to certain exceptions, a change in control is generally defined as (i) the acquisition by any individual, entity or group of 40% or more of our voting securities, (ii) our reorganization, merger or consolidation, or sale of all or substantially all of our assets, following which our stockholders prior to the consummation of such transaction hold 60% or less of the voting securities of the surviving or acquiring entity, as applicable, (iii) a turnover of the majority of the Board as currently constituted, provided that under most circumstances any individual approved by a majority of the incumbent Board shall be considered as a member of the incumbent Board for this purpose, or (iv) a complete liquidation or dissolution of our company.

Estimated payments and benefits upon termination

The amount of compensation and benefits payable to each Named Executive Officer under various termination events and circumstances has been estimated in the table below. The amounts shown assume that such termination was effective as of December 31, 2012, and thus includes amounts earned through such time and are estimates of the amounts that would be paid out to such persons upon their termination. Amounts under equity awards are determined based on the closing price of our common stock on December 31, 2012, which was $0.43 per share. The actual amounts to be paid out can only be determined at the time of such executive officer's separation from our company.

Unless otherwise provided by our plan administrator in grant agreements or in employment contracts with our Named Executive Officers, upon termination of a participant's employment or service, participants generally will forfeit any outstanding awards, except that a participant will have (i) 90 days (but in no event after the original expiration date of the award) following termination of employment or service to exercise any then-vested options and (ii) the earlier of one year or the original expiration of the grant if termination of employment or service is as a result of the participant's disability or death. In the event of the death or disability of a Named Executive Officer, the Named Executive Officer will receive benefits under our disability plan or payments under our life insurance plan, as appropriate. The terms "cause", "good reason", "change of control" and "disability" have the meanings given to such terms in the applicable employment agreements.

2012 Potential Payments Upon Termination or Change in Control Table

	Involuntary Not For Cause Termination or For Good Reason	Voluntary or For Cause	Death or Disability	Termination following Change-in-Control
Mr. French				
Lump-sum payment	$ 340,000	$ —	$ 85,000	$ 510,000
Accrued Vacation	24,519	24,519	24,519	24,519
Bonus	136,000	136,000	136,000	136,000
Stock Options	—	—	—	—
Cobra reimbursement	18,000	—	18,000	—
Total	$ 518,519	$ 160,519	$ 263,519	$ 670,519
Dr. Ho				
Lump-sum payment	$ 300,000	$ —	$ 300,000	$ 650,000
Accrued Vacation	28,800	28,800	28,800	28,800
Bonus	120,000	—	—	120,000
Stock Options	—	—	—	—
Cobra reimbursement	18,000	—	—	—
Total	$ 466,800	$ 28,800	$ 328,800	$ 798,800
Mr. Ranker (1)				
Lump-sum payment	$ —	$ —	$ —	$ —
Accrued Vacation	19,831	19,831	19,831	—
Bonus	—	—	—	—
Stock Options	—	—	—	—
Cobra reimbursement	—	—	—	—
Total	$ 19,831	$ 19,831	$ 19,831	$ —

(1) Mr. Ranker's employment agreement does not separately provide for severance payments following a change-in-control of our company.

Lump Sum Payment : The lump sum payments represent contractual payments due to the Named Executive Officers in accordance with their employment contracts based upon their base salaries in effect as of December 31, 2012:

- The amounts of $340,000, $85,000 and $510,000 for Mr. French represent either: (i) in the case of termination without cause or for good reason, one year's base salary at the rate in effect on December 31, 2012; (ii) in the case of death or disability, the amount due through the end of his employment contract. The original term of Mr. French's employment contract expired on June 9, 2011, and it has continued since that date per its terms on a quarter-to-quarter basis. The amount of $85,000 represents salary for one quarter; or (iii) in the case of a termination following a change-in-control, an amount equal to 150% of one year's base salary at the rate in effect on December 31, 2012.

- The amounts of $300,000, $300,000 and $650,000 for Dr. Ho represent either: (i) in the case of termination without cause or for good reason, or in the case of death or disability, one year's base salary at the rate in effect on December 31, 2012 or (ii) in the case of a termination following a change-in-control, the amount of base salary due through the end of the employment term at the rate in effect on December 31, 2012, plus an additional amount equal to 50% of his specified base salary for the year in which the termination occurs.

Accrued Vacation : Accrued vacation amounts represent the unpaid days of personal time off accrued for each Named Executive Officer as of December 31, 2012.

Bonus : All bonus amounts are based upon employment contracts, and are calculated using base salaries in effect as of December 31, 2012. Bonus amounts are 40% of base salary for each of Mr. French and Dr. Ho.

Stock Options : Stock option amounts are valued at $0.43, the closing price on December 31, 2012, less the applicable option exercise price, multiplied by the number of outstanding unvested options assumed to vest on such date. As of December 31, 2012, none of the outstanding options held by the Named Executive Officers were in-the-money.

Cobra Reimbursement : Cobra reimbursements represent estimated contributions for employer-paid medical insurance. Upon a termination not for cause or for good reason, cobra reimbursements are for 12 months for Mr. French and Dr. Ho.

Compensation of Directors

2012 Director Compensation Table

The following Director Compensation table sets forth information concerning compensation for services rendered by our independent directors for fiscal year 2012:

Name	Fees Earned or Paid in Cash ($)(1)	Stock Awards ($)	Option Awards ($)	All Other Compensation ($)	Total ($)
Current Directors (6)					
Stefan Loren, Ph.D. (5)	$ —	—	$ —	—	$ —
Joseph W. Ramelli (5)	—	—	—	—	—
Subtotal	$ —	—	$ —	—	$ —
Former Directors (6)					
R. John Fletcher (2)	$ —	—	$ —	—	$ —
James M. Karis (2)	—	—	—	—	—
Peter D. Parker (3)	—	—	—	—	—
Gregory Sessler (4)	—	—	—	—	—
Michael D. Taylor, Ph.D. (2)	—	—	—	—	—
Subtotal	—	—	—	—	—
Total	$ —	—	$ —	—	$ —

(1) Prior to their resignation, our former non-employee directors waived receipt of 75% of the annual cash retainer that was to have been paid to them in connection with their service during the term beginning at the 2011 Annual Meeting of Stockholders and ending at the 2012 Annual Meeting of Stockholders, which amounts were to have been paid to them in 2012. In addition, due to our financial condition, none of our current non-employee directors, who were appointed in August 2012, have received any cash payments during 2012 in connection with their service to our company, and no fees have been accrued with respect thereto.

(2) Each of Mr. Fletcher, Mr. Karis and Dr. Taylor resigned as a director of our company effective as of August 21, 2012.

(3) Mr. Parker resigned as a director of our company effective as of August 17, 2012.

(4) Mr. Sessler resigned as a director of our company effective as of August 8, 2012.

(5) Each of Dr. Loren and Mr. Ramelli was appointed as a director of our company effective as of August 20, 2012.

(6) None of our current or former directors held any options to purchase shares of our common stock as of December 31, 2012.

J. Michael French, current director, President and CEO, has not been included in the Director Compensation Table because he is a Named Executive Officer and does not receive any additional compensation for services provided as a director.

In September 2011, we established an annual cash retainer and an annual equity grant for non-employee members of the Board of Directors as follows:

Annual Cash Retainer : The annual cash retainer was: (i) $26,000 for non-employee members of the Board, (ii) $15,000 for the Chairman of the Audit Committee, (iii) $12,000 for the Chairman of the Compensation Committee, (iv) $10,000 for the Chairman of the Nominating and Corporate Governance Committee and the Chairman of the Strategy and Deal Committee, and (v) $22,000 for the Chairman of the Board. In addition, each non-employee director who served as a member of any of the standing committees of the Board of Directors (other than the chair of any such committee) was entitled to an annual cash retainer of $5,000 for service on each such committee. The cash payments to non-employee directors were scheduled to be made on a quarterly basis. Due to our financial condition, we only paid the first quarterly payment for the amounts due following the 2011 Annual Meeting of Stockholders. The directors waived receipt of the remaining quarterly payments prior to their resignation from the Board in August 2012. Due to our financial condition, none of the non-employee members of the Board who were appointed in August 2012 received any cash payments during 2012 in connection with their service to our company, and no fees have been accrued with respect thereto.

Annual Equity Grant : Non-employee members of the Board were to have received a grant of options to purchase 7,500 shares of common stock, with the Chairman of the Board receiving a grant of options to purchase 10,000 shares of common stock. No additional equity grants were to be made to non-employee directors in their capacities as the chair of any of the standing committees of the Board of Directors. Notwithstanding this policy, we have not made any equity grants to any of our current non-employee directors.

Directors' Stock Compensation Plans . We maintain three compensation plans under which equity compensation awards may be made to directors: the Marina Biotech, Inc. 2002 Stock Option Plan (the "2002 Plan"), the Marina Biotech, Inc. 2004 Stock Incentive Plan (the "2004 Plan"), and the Marina Biotech, Inc. 2008 Stock Incentive Plan (the "2008 Plan"). References to the "Director Option Plans" herein refer to the 2002 Plan, the 2004 Plan and the 2008 Plan, collectively. The discretionary stock option grants under the Director Option Plans are made at an exercise price per share of no less than the "fair market value" (as defined under the Director Option Plans) of a share of common stock on the date the option is granted, and are generally subject to a vesting period determined by the Compensation Committee in accordance with the applicable Director Option Plan. The Board of Directors may amend, suspend or terminate the Director Option Plans at any time, subject to applicable stockholder approval requirements. In 2012, we did not grant equity awards to the non-employee members of the Board of Directors pursuant to the Director Option Plans.

Equity Compensation Plan Information

The following table provides aggregate information as of December 31, 2012 with respect to all of the compensation plans under which our common stock is authorized for issuance, including our Amended and Restated 2000 Nonqualified Stock Option Plan (the "2000 Plan"), our 2002 Stock Option Plan (the "2002 Plan"), our 2004 Stock Incentive Plan (the "2004 Plan"), our 2008 Stock Incentive Plan (the "2008 Plan") and our 2007 Employee Stock Purchase Plan (the "ESPP"), along with options granted outside of our equity compensation plans.

	(a) Number of Securities to be Issued Upon Exercise of Outstanding Options	(b) Weighted-Average Exercise Price of Outstanding Options	(c) Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column(a))
Equity compensation plans approved by security holders	236,581(1)(4)	$ 32.35	302,605(3)
Equity compensation plans not approved by security holders	29,928(2)	$ 93.57	—
Total	266,509	$ 99.41	302,605

(1) Consists of: (i) 13,851 shares of common stock underlying awards made pursuant to the 2002 Plan; (ii) 4,692 shares of common stock underlying awards made pursuant to the 2004 Plan and (iii) 218,038 shares of common stock underlying awards made pursuant to the 2008 Plan.

(2) Consists of 2,428 shares of common stock underlying awards made pursuant to the 2000 Plan and 27,500 shares of common stock underlying options awarded to J. Michael French, CEO and President, as an inducement to enter into his employment contract with us in June 2008. Under the 2000 Plan, we were authorized to grant non-qualified stock options to purchase a maximum of 25,000 shares of common stock (subject to adjustment in the event of stock splits, stock dividends, recapitalization and other capital adjustments) to our employees, officers, directors and consultants. The 2000 Plan also provided that options shall be exercisable during a period of no more than ten years from the date of grant, and that the option exercise price shall be at least equal to 100% of the fair market value of the common stock on the date of grant.

(3) Includes 46,859 shares of common stock available for future issuance under the ESPP as of December 31, 2012.

(4) This table does not include equity awards that have been assumed by us in connection with our acquisition of Cequent Pharmaceuticals, Inc. As of December 31, 2012, an additional 5,806 shares of our common stock were subject to outstanding stock options assumed in connection with our acquisition of Cequent Pharmaceuticals, Inc., with a weighted average exercise price of $32.40 per share. We will not make any future grants of equity awards under this assumed equity compensation plan.

PRINCIPAL STOCKHOLDERS

The following table sets forth certain information regarding the ownership of our common stock as of January 18, 2013 (the "Determination Date") by: (i) each director of our company; (ii) each of our Named Executive Officers; (iii) all current executive officers and directors of our company as a group; and (iv) all those known by us to be beneficial owners of more than five percent (5%) of our common stock.

Beneficial ownership and percentage ownership are determined in accordance with the rules of the SEC. Under these rules, beneficial ownership generally includes any shares as to which the individual or entity has sole or shared voting power or investment power and includes any shares that an individual or entity has the right to acquire beneficial ownership of within 60 days of the Determination Date, through the exercise of any option, warrant or similar right (such instruments being deemed to be "presently exercisable"). In computing the number of shares beneficially owned by a person and the percentage ownership of that person, shares of our common stock that could be issued upon the exercise of presently exercisable options and warrants are considered to be outstanding. These shares, however, are not considered outstanding as of the Determination Date when computing the percentage ownership of each other person.

To our knowledge, except as indicated in the footnotes to the following table, and subject to state community property laws where applicable, all beneficial owners named in the following table have sole voting and investment power with respect to all shares shown as beneficially owned by them. Percentage of ownership is based on 16,937,661 shares of common stock outstanding as of the Determination Date. Unless otherwise indicated, the business address of each person in the table below is c/o Marina Biotech, Inc., P.O. Box 1559, Bothell, WA 98041. No shares identified below are subject to a pledge.

Name	Number of Shares	Percent of Shares Outstanding (%)
Officers and Directors:		
J. Michael French, Director, President and CEO	68,321(1)	*
Stefan Loren, Ph.D. Director	4,032(2)	*
Joseph W. Ramelli, Director	—	*
Richard T. Ho, M.D., Ph.D., CSO	15,000(3)	*
Philip C. Ranker, Interim CFO and Secretary	2,750(4)	*
All directors and executive officers as a group (5 persons)	90,103(5)	*
5% Shareholders:		
Genesis Capital Management, LLC 227 W. Trade Street #1980 Charlotte, NC 28202	4,696,926(6)	21.7%
Pryor Cashman LLP 7 Times Square New York, N.Y. 10036	1,800,000(7)	10.6%
Ditty Properties Limited Partnership c/o Voldal Wartelle & Co. 13343 Bel-Red Road Bellevue, WA 98005-2333	1,500,000(8)	8.1%
BioMed Realty, L.P. 17190 Bernardo Center Drive San Diego, California 92128	991,573(9)	5.9%
Peak Capital Advisory Limited 16A Li Dong Building No. 9 Li Yuen Street East Central, Hong Kong	939,385(10)	5.3%

* Beneficial ownership of less than 1.0% is omitted.

(1) Includes presently exercisable options to purchase 66,983 shares of common stock. Pursuant to a settlement agreement, all of the securities beneficially owned by Mr. French are held in constructive trust by Mr. French for the benefit of Mr. French and his former spouse.

(2) Consists of presently exercisable warrants to purchase 4,032 shares of common stock.

(3) Consists of presently exercisable options to purchase 15,000 shares of common stock.

(4) Includes presently exercisable options to purchase 2,500 shares of common stock.

(5) Includes presently exercisable options to purchase 83,265 shares of common stock and presently exercisable warrants to purchase 4,032 shares of common stock.

(6) On February 10, 2012, we issued to Genesis Capital Management, LLC ("Genesis") a 15% secured promissory note in the aggregate principal amount of $1,250,000. If our company, at any time prior to December 31, 2012, effects any merger or consolidation whereby the holders of the issued and outstanding shares of our common stock immediately prior to the consummation of such transaction hold less than fifty percent (50%) of the issued and outstanding shares of the voting securities of the surviving corporation immediately following the consummation of such transaction, we will have fully satisfied our obligation to repay the entire unpaid principal balance under the note and all accrued and unpaid interest thereon through the issuance to Genesis of an aggregate number of shares of common stock calculated by converting the then total outstanding principal and interest under the note at a value of $0.28 per share of common stock. If the note that we issued to Genesis automatically converted on the Determination Date, such conversion would have resulted in the issuance of an aggregate of 4,696,926 shares of common stock. As of the Determination Date, Genesis also holds warrants to purchase up to 5,742,328 shares of common stock, which warrants are not exercisable to the extent that after giving effect to such exercise Genesis would beneficially own in excess of 4.99% of the number of shares of common stock outstanding immediately after giving effect to such exercise. Negotiations to amend key aspects of the notes are ongoing.

(7) The information in the table above is based on a Schedule 13G filed on August 31, 2012. The shares shall be forfeited on August 1, 2022, unless any one of the following events or transactions have theretofore occurred: (i) a transaction that results in a "change in control" of our company (as defined in our 2008 Stock Incentive Plan) where our shareholders will receive primarily cash and/or marketable securities; (ii) a listing of our common stock on NASDAQ, NYSE Amex or any equivalent exchange in the United States or any foreign jurisdiction; or (iii) the receipt by our company, in aggregate, in excess of $3,000,000 in any combination of capital raises, asset sales or research, license, partnership or other third-party agreements. The holder may not transfer the shares while the shares are subject to forfeiture in accordance with the above.

(8) As additional consideration for that certain Lease Termination Agreement, effective as of October 1, 2012, between our company and Ditty Properties Limited Partnership ("Ditty") with respect to that certain Lease Agreement dated March 1, 2006 between our company and Ditty regarding our facilities located at 3830 Monte Villa Parkway, Bothell, WA, we agreed to issue 1,500,000 shares of our common stock to Ditty contingent upon and immediately prior to the first to occur of any of the following events: (i) the closing by our company of an equity financing in a transaction or series of related transactions where such financing yields gross proceeds to our company of at least $4 million in the aggregate, including amounts converted under any convertible promissory notes; (ii) a merger of our company with or into another entity if the combined market capitalization of the merging entities is at least $18 million or, if not, upon the market capitalization of our company as the surviving entity of a merger being at least $18 million at any time after the merger; (iii) a sale of all or substantially all of our company's assets; or (iv) a sale of our company's stock after which sale a majority of the outstanding equity of our company is held by persons or entities who were not shareholders of our company prior to the sale. The percentage ownership calculation in the table above assumes that these shares were issued to Ditty on the Determination Date.

(9) The information in the table above is based on an Amendment No. 1 to Schedule 13G filed on October 4, 2011, and a Schedule 13G filed on February 28, 2011, in each case by BioMed Realty Trust, Inc. ("BioMed Trust") and BioMed Realty, L.P. ("BioMed Realty"). BioMed Trust is the sole general partner of BioMed Realty, its operating partnership subsidiary, and conducts substantially all of its business in or through BioMed Realty. The number of shares in the table above includes 880,210 shares owned by BioMed Realty, and 111,363 shares owned by a wholly-owned subsidiary of BioMed Realty. The address for BioMed Trust is 17190 Bernardo Center Drive, San Diego, California 92128.

(10) On February 10, 2012, we issued to Peak Capital Advisory Limited ("Peak") a 15% secured promissory note in the aggregate principal amount of $250,000. If our company, at any time prior to December 31, 2012, effects any merger or consolidation whereby the holders of the issued and outstanding shares of our common stock immediately prior to the consummation of such transaction hold less than fifty percent (50%) of the issued and outstanding shares of the voting securities of the surviving corporation immediately following the consummation of such transaction, we will have fully satisfied our obligation to repay the entire unpaid principal balance under the note and all accrued and unpaid interest thereon through the issuance to Peak of an aggregate number of shares of common stock calculated by converting the then total outstanding principal and interest under the note at a value of $0.28 per share of common stock. If the note that we issued to Peak automatically converted on the Determination Date, such conversion would have resulted in the issuance of an aggregate of 939,385 shares of common stock. As of the Determination Date, Peak also holds warrants to purchase up to 1,148,464 shares of common stock, which warrants are not exercisable to the extent that after giving effect to such exercise Peak would beneficially own in excess of 4.99% of the number of shares of common stock outstanding immediately after giving effect to such exercise. Negotiations to amend key aspects of the notes are ongoing.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

Approval for Related Party Transactions

It has been our practice and policy to comply with all applicable laws, rules and regulations regarding related-person transactions. Our Code of Business Conduct and Ethics requires that all employees, including officers and directors, disclose to the CFO the nature of any company business that is conducted with any related party of such employee, officer or director (including any immediate family member of such employee, officer or director, and any entity owned or controlled by such persons). If the transaction involves an officer or director of our company, the CFO must bring the transaction to the attention of the Audit Committee or, in the absence of an Audit Committee the full Board, which must review and approve the transaction in writing in advance. In considering such transactions, the Audit Committee (or the full Board, as applicable) takes into account the relevant available facts and circumstances.

DESCRIPTION OF CAPITAL STOCK

The following is a summary of all material characteristics of our capital stock as set forth in our certificate of incorporation and bylaws. The summary does not purport to be complete and is qualified in its entirety by reference to our certificate of incorporation and bylaws, and to the provisions of the General Corporation Law of the State of Delaware, as amended, or the DGCL.

Common Stock

We are authorized to issue up to 180,000,000 shares of common stock, par value $0.006 per share. As of January 9, 2013, 16,937,661 shares of our common stock were issued and outstanding, 587,433 unissued shares of common stock were reserved for future issuance under our equity compensation plans, and 11,916,801 unissued shares of common stock were reserved for issuance upon the exercise of outstanding warrants, leaving approximately 150,203,105 shares of common stock unissued and unreserved.

All shares of common stock issued will be duly authorized, fully paid and non-assessable. The holders of our common stock are entitled to one vote for each share held of record on all matters submitted to a vote of the holders of our common stock. Under Delaware law, stockholders generally are not liable for our debts or obligations. Our certificate of incorporation does not authorize cumulative voting for the election of directors. Subject to the rights of the holders of any class of our capital stock having any preference or priority over our common stock, the holders of shares of our common stock are entitled to receive dividends that are declared by the board of directors out of legally available funds. In the event of our liquidation, dissolution or winding-up, the holders of common stock are entitled to share ratably in our net assets remaining after payment of liabilities, subject to prior rights of preferred stock, if any, then outstanding. Our common stock has no preemptive rights, conversion rights, redemption rights or sinking fund provisions, and there are no dividends in arrears or default. All shares of our common stock have equal distribution, liquidation and voting rights, and have no preferences or exchange rights.

Stockholder Rights Plan

On February 22, 2000, our board of directors adopted a stockholder rights plan and declared a dividend of one preferred share purchase right for each outstanding share of common stock. Each right entitles the holder, once the right becomes exercisable, to purchase from us one one-thousandth of a share of our Series A Junior Participating Preferred Stock, par value $.01 per share. We issued these rights on March 17, 2000 to each stockholder of record on such date, and these rights attach to shares of common stock subsequently issued. The rights will cause substantial dilution to a person or group that attempts to acquire us on terms not approved by our board of directors and could, therefore, have the effect of delaying or preventing someone from taking control of us, even if a change of control were in the best interest of our stockholders.

Holders of our preferred share purchase rights are generally entitled to purchase from us one one-thousandth of a share of Series A preferred stock at a price of $50.00, subject to adjustment as provided in the Stockholder Rights Agreement. These preferred share purchase rights will generally be exercisable only if a person or group becomes the beneficial owner of 15 percent or more of our outstanding common stock or announces a tender offer for 15 percent or more of our outstanding common stock. Each holder of a preferred share purchase right, excluding an acquiring entity or any of its affiliates, will have the right to receive, upon exercise, shares of our common stock, or shares of stock of the acquiring entity, having a market value equal to two times the purchase price paid for one one-thousandth of a share of Series A preferred stock. The preferred share purchase rights expire on March 17, 2013, unless we extend the expiration date or in certain limited circumstances, we redeem or exchange such rights prior to such date.

Preferred Stock

As of the date of this prospectus, we are authorized to issue 100,000 shares of preferred stock, par value $.01 per share, with 9,000 shares undesignated, 90,000 shares of previously undesignated preferred stock designated as Series A Junior Participating Preferred Stock, and 1,000 shares of previously undesignated preferred stock designated as Series B Preferred Stock. No shares of preferred stock are outstanding as of the date of this prospectus.

We may issue shares of our authorized but unissued preferred stock in one or more series having the rights, privileges, and limitations, including voting rights, conversion rights, liquidation preferences, dividend rights and redemption rights, as may, from time to time, be determined by our board of directors. Preferred stock may be issued in the future in connection with acquisitions, financings, or other matters, as our board of directors deems appropriate. In the event that we determine to issue any shares of our authorized but unissued preferred stock, a certificate of designation containing the rights, privileges and limitations of this series of preferred stock will be filed with the Secretary of State of the State of Delaware. The effect of this preferred stock designation power is that our board of directors alone, subject to Federal securities laws, applicable blue sky laws, and Delaware law, may be able to authorize the issuance of preferred stock which could have the effect of delaying, deferring, or preventing a change in control without further action by our stockholders, and may adversely affect the voting and other rights of the holders of our common stock.

Warrants

Description of Warrants issued in our April 2008 Offering

Each warrant represents the right to purchase one share of common stock at an exercise price equal $86.80 per share, which is subject to adjustment. The warrants may be exercised at any time and from time to time during the seven-year period beginning on October 25, 2008.

Exercise. Holders of the warrants may exercise their warrants to purchase shares of our common stock on or before the expiration date by delivering (i) an exercise notice, appropriately completed and duly signed, and (ii) if such holder is not utilizing the cashless exercise provisions, payment of the exercise price for the number of shares with respect to which the warrant is being exercised. Warrants may be exercised in whole or in part, but only for full shares of common stock, and any portion of a warrant not exercised prior to the expiration date shall be and become void and of no value. We provide certain buy-in rights to a holder if we fail to deliver the shares of common stock underlying the warrants by the third business day after the date on which delivery of such stock certificate is required by the warrant. The buy-in rights apply if after such third business day, but prior to cure by us, the holder purchases (in an open market transaction or otherwise) shares of our common stock to deliver in satisfaction of a sale by the holder of the warrant shares that the holder anticipated receiving from us upon exercise of the warrant. In this event, at the request of and in the holder's discretion, we will:

- pay cash to the holder in an amount equal to (i) the buy-in price, meaning the holder's total purchase price (including brokerage commissions, if any) for the shares of common stock so purchased minus (ii) the aggregate sale price of the shares of common stock giving rise to the buy-in purchase which the holder had attempted to obtain through exercise; and

- at the holder's option, either (a) deliver to the holder a certificate or certificates representing the shares of common stock underlying the exercised warrant or (b) reinstate the portion of the warrant and equivalent number of shares of common stock underlying the warrant for which such exercise was not honored.

In addition, the warrant holders are entitled to a "cashless exercise" option if, at any time of exercise, there is no effective registration statement registering, or no current prospectus available for, the resale of the shares underlying the warrant. This option entitles the warrant holder to elect to receive fewer shares of common stock without paying the cash exercise price. The number of shares to be issued would be determined by a formula based on the total number of shares to which the warrant holder is entitled, the volatility-weighted average price of the common stock on the trading day before the date of exercise and the applicable exercise price of the warrants.

The shares of common stock issuable on exercise of the warrants will be, when issued in accordance with the warrants, duly and validly authorized, issued and fully paid and non-assessable. We will authorize and reserve at least that number of shares of common stock equal to the number of shares of common stock issuable upon exercise of all outstanding warrants.

Fundamental Transaction. If, at any time while the warrant is outstanding, (1) we effect any merger or consolidation with or into another person or entity after which our shareholders as of immediately prior to the transaction own less than a majority of the outstanding stock of the surviving entity, (2) we effect any sale of all or substantially all of our assets in one or a series of related transactions, (3) any tender offer or exchange offer (whether by us or another person or entity) is completed pursuant to which holders of common stock are permitted to tender or exchange their shares for other securities, cash or property, or (4) we effect any reclassification of the common stock or any compulsory share exchange pursuant to which the common stock is effectively converted into or exchanged for other securities, cash or property (in any such case, a "Fundamental Transaction"), then the holder shall have the right thereafter to receive, upon exercise of the warrant, the same amount and kind of securities, cash or property as it would have been entitled to receive upon the occurrence of such Fundamental Transaction if it had been, immediately prior to such Fundamental Transaction, the holder of the number of warrant shares then issuable upon exercise of the warrant (the "Alternate Consideration"). We shall not effect any such Fundamental Transaction unless prior to or simultaneously with the consummation thereof, any successor to us, surviving entity or the corporation purchasing or otherwise acquiring such assets shall assume the obligation to deliver to the holder such Alternate Consideration as the Holder may be entitled to purchase, and the other obligations under the warrant.

Delivery of Certificates. Upon the holder's exercise of a warrant, we will promptly, but in no event later than three business days after the exercise date, issue and deliver, or cause to be issued and delivered, a certificate for the shares of common stock issuable upon exercise of the warrant or deliver the shares electronically through The Depository Trust Corporation through its Deposit Withdrawal Agent Commission System or another established clearing corporation performing similar functions.

If we have not obtained shareholder approval that may be required under applicable law, rules or regulations, then we may not issue upon exercise of the warrant a number of shares of common stock, which, when aggregated with any shares of common stock issued upon prior exercise of the warrant or any other warrant issued pursuant to the subscription agreements, would exceed 4.99% of the total number of issued and outstanding shares of common stock. However, by written notice to us, which notice will not be effective until the 61st day after such notice is delivered to us, the holder of the warrant may change the beneficial ownership limitation to 9.99%.

If we at any time on or after the issue date of the warrant subdivide (by any stock split, stock dividend, recapitalization or otherwise) one or more classes of our outstanding shares of common stock into a greater number of shares, the exercise price in effect immediately prior to such subdivision will be the same thereafter and the number of warrant shares will be increased in proportion to the total outstanding shares immediately prior to such subdivision divided by the total outstanding shares immediately after the subdivision. If we at any time on or after the issue date of the warrant combine (by combination, reverse stock split or otherwise) one or more classes of our outstanding shares of common stock into a smaller number of shares, the exercise price in effect immediately prior to such combination will be the same thereafter and the number of warrant shares will be decreased in proportion to the total outstanding shares immediately prior to such combination divided by the total outstanding shares immediately after the combination.

Other Adjustments. The exercise price and the number of shares of common stock purchasable upon the exercise of the warrants are subject to adjustment upon the occurrence of specific events, including stock dividends, stock splits, and combinations of our common stock.

Additional Provisions. We are not required to issue fractional shares upon the exercise of the warrants. No holders of the warrants will possess any rights as a shareholder under those warrants until the holder exercises those warrants. The warrants may be transferred independent of the common stock they were issued with, on a form of assignment, subject to all applicable laws.

Description of Warrants issued in our June 2009 Offering

Each warrant represents the right to purchase one share of common stock at an exercise price equal to $0.28 per share, which is subject to adjustment. The warrants may be exercised at any time and from time to time during the five-year period beginning on December 13, 2009.

Exercise. Holders of the warrants may exercise their warrants to purchase shares of our common stock on or before the expiration date by delivering (i) an exercise notice, appropriately completed and duly signed, and (ii) if such holder is not utilizing the cashless exercise provisions, payment of the exercise price for the number of shares with respect to which the warrant is being exercised. Warrants may be exercised in whole or in part, but only for full shares of common stock, and any portion of a warrant not exercised prior to the expiration date shall be and become void and of no value. We provide certain buy-in rights to a holder if we fail to deliver the shares of common stock underlying the warrants by the third business day after the date on which delivery of such stock certificate is required by the warrant. The buy-in rights apply if after such third business day, but prior to cure by us, the holder purchases (in an open market transaction or otherwise) shares of our common stock to deliver in satisfaction of a sale by the holder of the warrant shares

that the holder anticipated receiving from us upon exercise of the warrant. In this event, at the request of and in the holder's discretion, we will:

- pay cash to the holder in an amount equal to (i) the buy-in price, meaning the holder's total purchase price (including brokerage commissions, if any) for the shares of common stock so purchased minus (ii) the aggregate sale price of the shares of common stock giving rise to the buy-in purchase which the holder had attempted to obtain through exercise; and

at the holder's option, either (a) deliver to the holder a certificate or certificates representing the shares of common stock
- underlying the exercised warrant or (b) reinstate the portion of the warrant and equivalent number of shares of common stock underlying the warrant for which such exercise was not honored.

In addition, the warrant holders are entitled to a "cashless exercise" option if, at any time of exercise, there is no effective registration statement registering, or no current prospectus available for, the issuance or resale of the shares underlying the warrant. This option entitles the warrant holder to elect to receive fewer shares of common stock without paying the cash exercise price. The number of shares to be issued would be determined by a formula based on the total number of shares to which the warrant holder is entitled, the volatility-weighted average price of the common stock on the trading day before the date of exercise and the applicable exercise price of the warrants.

The shares of common stock issuable on exercise of the warrants will be, when issued in accordance with the warrants, duly and validly authorized, issued and fully paid and non-assessable. We will authorize and reserve at least that number of shares of common stock equal to the number of shares of common stock issuable upon exercise of all outstanding warrants.

Fundamental Transaction. If, at any time while the warrant is outstanding, (1) we effect any merger or consolidation with or into another person or entity after which our shareholders as of immediately prior to the transaction own less than a majority of the outstanding stock of the surviving entity, (2) we effect any sale of all or substantially all of our assets in one or a series of related transactions, (3) any tender offer or exchange offer (whether by us or another person or entity) is completed pursuant to which holders of common stock are permitted to tender or exchange their shares for other securities, cash or property, or (4) we effect any reclassification of the common stock or any compulsory share exchange pursuant to which the common stock is effectively converted into or exchanged for other securities, cash or property (in any such case, a "Fundamental Transaction"), then the holder shall have the right thereafter to receive, upon exercise of the warrant, the same amount and kind of securities, cash or property as it would have been entitled to receive upon the occurrence of such Fundamental Transaction if it had been, immediately prior to such Fundamental Transaction, the holder of the number of warrant shares then issuable upon exercise of the warrant (the "Alternate Consideration"). We shall not effect any such Fundamental Transaction unless prior to or simultaneously with the consummation thereof, any successor to us, surviving entity or the corporation purchasing or otherwise acquiring such assets shall assume the obligation to deliver to the holder such Alternate Consideration as the Holder may be entitled to purchase, and the other obligations under the warrant.

Delivery of Certificates. Upon the holder's exercise of a warrant, we will promptly, but in no event later than three business days after the exercise date, issue and deliver, or cause to be issued and delivered, a certificate for the shares of common stock issuable upon exercise of the warrant or deliver the shares electronically through The Depository Trust Corporation through its Deposit Withdrawal Agent Commission System or another established clearing corporation performing similar functions.

If we at any time on or after the issue date of the warrant subdivide (by any stock split, stock dividend, recapitalization or otherwise) one or more classes of our outstanding shares of common stock into a greater number of shares, the exercise price shall be multiplied by a fraction of which the numerator shall be the number of shares of common stock (excluding treasury shares, if any) outstanding immediately before such event and of which the denominator shall be the number of shares of common stock outstanding immediately after such event and the number of shares issuable upon exercise of the warrant shall be proportionately adjusted such that the aggregate exercise price of the warrant shall remain unchanged.

Other Adjustments. The exercise price and the number of shares of common stock purchasable upon the exercise of the warrants are subject to adjustment upon the occurrence of specific events, including stock dividends, stock splits, and combinations of our common stock. If we at any time on or after the issue date of the warrant issue any shares of common stock at a price per share less than the exercise price of the warrant, the exercise price of the warrant will be reduced to the issuance price. In addition, if we at any time on or after the issue date of the warrant issue any rights, options, warrants, indebtedness or assets (including cash and dividends) to all holders of common stock to the exclusion of the holders of the warrants, the exercise price will be subject to further adjustment.

Additional Provisions. We are not required to issue fractional shares upon the exercise of the warrants. No holders of the warrants will possess any rights as a shareholder under those warrants until the holder exercises those warrants. The warrants may be transferred independent of the common stock they were issued with, on a form of assignment, subject to all applicable laws.

Description of Warrants issued in our December 2009 Offering

Each warrant represents the right to purchase one share of common stock at an exercise price equal to $18.40 per share, which is subject to adjustment. The warrants may be exercised at any time and from time to time during the five-year period beginning on December 23, 2009.

Exercise. Holders of the warrants may exercise their warrants to purchase shares of our common stock on or before the expiration date by delivering (i) an exercise notice, appropriately completed and duly signed, and (ii) if such holder is not utilizing the cashless exercise provisions, payment of the exercise price for the number of shares with respect to which the warrant is being exercised. Warrants may be exercised in whole or in part, but only for full shares of common stock, and any portion of a warrant not exercised prior to the expiration date shall be and become void and of no value. We provide certain buy-in rights to a holder if we fail to deliver the shares of common stock underlying the warrants by the third business day after the date on which delivery of such stock certificate is required by the warrant. The buy-in rights apply if after such third business day, but prior to cure by us, the holder purchases (in an open market transaction or otherwise) shares of our common stock to deliver in satisfaction of a sale by the holder of the warrant shares that the holder anticipated receiving from us upon exercise of the warrant. In this event, at the request of and in the holder's discretion, we will:

- pay cash to the holder in an amount equal to (i) the buy-in price, meaning the holder's total purchase price (including brokerage commissions, if any) for the shares of common stock so purchased minus (ii) the aggregate sale price of the shares of common stock giving rise to the buy-in purchase which the holder had attempted to obtain through exercise; and

- at the holder's option, either (a) deliver to the holder a certificate or certificates representing the shares of common stock underlying the exercised warrant or (b) reinstate the portion of the warrant and equivalent number of shares of common stock underlying the warrant for which such exercise was not honored.

In addition, the warrant holders are entitled to a "cashless exercise" option if, at any time of exercise, there is no effective registration statement registering, or no current prospectus available for, the issuance or resale of the shares underlying the warrant. This option entitles the warrant holder to elect to receive fewer shares of common stock without paying the cash exercise price. The number of shares to be issued would be determined by a formula based on the total number of shares to which the warrant holder is entitled, the volatility-weighted average price of the common stock on the trading day before the date of exercise and the applicable exercise price of the warrants.

The shares of common stock issuable on exercise of the warrants will be, when issued in accordance with the warrants, duly and validly authorized, issued and fully paid and non-assessable. We will authorize and reserve at least that number of shares of common stock equal to the number of shares of common stock issuable upon exercise of all outstanding warrants.

Fundamental Transaction. If, at any time while the warrant is outstanding, (1) we effect any merger or consolidation with or into another person or entity after which our shareholders as of immediately prior to the transaction own less than a majority of the outstanding stock of the surviving entity, (2) we effect any sale of all or substantially all of our assets in one or a series of related transactions, (3) any tender offer or exchange offer (whether by us or another person or entity) is completed pursuant to which holders of common stock are permitted to tender or exchange their shares for other securities, cash or property, or (4) we effect any reclassification of the common stock or any compulsory share exchange pursuant to which the common stock is effectively converted into or exchanged for other securities, cash or property (in any such case, a "Fundamental Transaction"), then the holder shall have the right thereafter to receive, upon exercise of the warrant, the same amount and kind of securities, cash or property as it would have been entitled to receive upon the occurrence of such Fundamental Transaction if it had been, immediately prior to such Fundamental Transaction, the holder of the number of warrant shares then issuable upon exercise of the warrant (the "Alternate Consideration"). We shall not effect any such Fundamental Transaction unless prior to or simultaneously with the consummation thereof, any successor to us, surviving entity or the corporation purchasing or otherwise acquiring such assets shall assume the obligation to deliver to the holder such Alternate Consideration as the Holder may be entitled to purchase, and the other obligations under the warrant.

Delivery of Certificates. Upon the holder's exercise of a warrant, we will promptly, but in no event later than three business days after the exercise date, issue and deliver, or cause to be issued and delivered, a certificate for the shares of common stock issuable upon exercise of the warrant or deliver the shares electronically through The Depository Trust Corporation through its Deposit Withdrawal Agent Commission System or another established clearing corporation performing similar functions.

If we at any time on or after the issue date of the warrant subdivide (by any stock split, stock dividend, recapitalization or otherwise) one or more classes of our outstanding shares of common stock into a greater number of shares, the exercise price shall be multiplied by a fraction of which the numerator shall be the number of shares of common stock (excluding treasury shares, if any) outstanding immediately before such event and of which the denominator shall be the number of shares of common stock outstanding immediately after such event and the number of shares issuable upon exercise of the warrant shall be proportionately adjusted such that the aggregate exercise price of the warrant shall remain unchanged.

Other Adjustments. The exercise price and the number of shares of common stock purchasable upon the exercise of the warrants are subject to adjustment upon the occurrence of specific events, including stock dividends, stock splits, and combinations of our common stock.

Additional Provisions. We are not required to issue fractional shares upon the exercise of the warrants. No holders of the warrants will possess any rights as a shareholder under those warrants until the holder exercises those warrants. The warrants may be transferred on a form of assignment, subject to all applicable laws.

Description of Warrants issued in our January 2010 Offering

Each warrant represents the right to purchase one share of common stock at an exercise price equal to $37.60 per share, which is subject to adjustment. The warrants may be exercised at any time and from time to time during the five-year period beginning on January 19, 2010.

Exercise. Holders of the warrants may exercise their warrants to purchase shares of our common stock on or before the expiration date by delivering (i) an exercise notice, appropriately completed and duly signed, and (ii) if such holder is not utilizing the cashless exercise provisions, payment of the exercise price for the number of shares with respect to which the warrant is being exercised. Warrants may be exercised in whole or in part, but only for full shares of common stock, and any portion of a warrant not exercised prior to the expiration date shall be and become void and of no value. We provide certain buy-in rights to a holder if we fail to deliver the shares of common stock underlying the warrants by the third business day after the date on which delivery of such stock certificate is required by the warrant. The buy-in rights apply if after such third business day, but prior to cure by us, the holder purchases (in an open market transaction or otherwise) shares of our common stock to deliver in satisfaction of a sale by the holder of the warrant shares that the holder anticipated receiving from us upon exercise of the warrant. In this event, at the request of and in the holder's discretion, we will:

- pay cash to the holder in an amount equal to (i) the buy-in price, meaning the holder's total purchase price (including brokerage commissions, if any) for the shares of common stock so purchased minus (ii) the aggregate sale price of the shares of common stock giving rise to the buy-in purchase which the holder had attempted to obtain through exercise; and

- at the holder's option, either (a) deliver to the holder a certificate or certificates representing the shares of common stock underlying the exercised warrant or (b) reinstate the portion of the warrant and equivalent number of shares of common stock underlying the warrant for which such exercise was not honored.

In addition, the warrant holders are entitled to a "cashless exercise" option if, at any time of exercise, there is no effective registration statement registering, or no current prospectus available for, the issuance or resale of the shares underlying the warrant. This option entitles the warrant holder to elect to receive fewer shares of common stock without paying the cash exercise price. The number of shares to be issued would be determined by a formula based on the total number of shares to which the warrant holder is entitled, the volatility-weighted average price of the common stock on the trading day before the date of exercise and the applicable exercise price of the warrants.

The shares of common stock issuable on exercise of the warrants will be, when issued in accordance with the warrants, duly and validly authorized, issued and fully paid and non-assessable. We will authorize and reserve at least that number of shares of common stock equal to the number of shares of common stock issuable upon exercise of all outstanding warrants.

Fundamental Transaction. If, at any time while the warrant is outstanding, (1) we effect any merger or consolidation with or into another person or entity after which our shareholders as of immediately prior to the transaction own less than a majority of the outstanding stock of the surviving entity, (2) we effect any sale of all or substantially all of our assets in one or a series of related transactions, (3) any tender offer or exchange offer (whether by us or another person or entity) is completed pursuant to which holders of common stock are permitted to tender or exchange their shares for other securities, cash or property, or (4) we effect any reclassification of the common stock or any compulsory share exchange pursuant to which the common stock is effectively converted into or exchanged for other securities, cash or property (in any such case, a "Fundamental Transaction"), then the holder shall have the right thereafter to receive, upon exercise of the warrant, the same amount and kind of securities, cash or property as it would have been entitled to receive upon the occurrence of such Fundamental Transaction if it had been, immediately prior to such Fundamental Transaction, the holder of the number of warrant shares then issuable upon exercise of the warrant (the "Alternate Consideration"). We shall not effect any such Fundamental Transaction unless prior to or simultaneously with the consummation thereof, any successor to us, surviving entity or the corporation purchasing or otherwise acquiring such assets shall assume the obligation to deliver to the holder such Alternate Consideration as the Holder may be entitled to purchase, and the other obligations under the warrant.

Delivery of Certificates. Upon the holder's exercise of a warrant, we will promptly, but in no event later than three business days after the exercise date, issue and deliver, or cause to be issued and delivered, a certificate for the shares of common stock issuable upon

exercise of the warrant or deliver the shares electronically through The Depository Trust Corporation through its Deposit Withdrawal Agent Commission System or another established clearing corporation performing similar functions.

If we at any time on or after the issue date of the warrant subdivide (by any stock split, stock dividend, recapitalization or otherwise) one or more classes of our outstanding shares of common stock into a greater number of shares, the exercise price shall be multiplied by a fraction of which the numerator shall be the number of shares of common stock (excluding treasury shares, if any) outstanding immediately before such event and of which the denominator shall be the number of shares of common stock outstanding immediately after such event and the number of shares issuable upon exercise of the warrant shall be proportionately adjusted such that the aggregate exercise price of the warrant shall remain unchanged.

Other Adjustments. The exercise price and the number of shares of common stock purchasable upon the exercise of the warrants are subject to adjustment upon the occurrence of specific events, including stock dividends, stock splits, and combinations of our common stock.

Additional Provisions. We are not required to issue fractional shares upon the exercise of the warrants. No holders of the warrants will possess any rights as a shareholder under those warrants until the holder exercises those warrants. The warrants may be transferred independent of the common stock they were issued with, on a form of assignment, subject to all applicable laws.

Description of Warrants issued in November 2010

Each warrant represents the right to purchase one share of common stock at an exercise price equal to $10.60 per share, which is subject to adjustment. The warrants may be exercised at any time and from time to time during the five-year period beginning on November 4, 2010.

Exercise. Holders of the warrants may exercise their warrants to purchase shares of our common stock on or before the expiration date by delivering (i) an exercise notice, appropriately completed and duly signed, and (ii) if such holder is not utilizing the cashless exercise provisions, payment of the exercise price for the number of shares with respect to which the warrant is being exercised. Warrants may be exercised in whole or in part, but only for full shares of common stock, and any portion of a warrant not exercised prior to the expiration date shall be and become void and of no value. We provide certain buy-in rights to a holder if we fail to deliver the shares of common stock underlying the warrants by the third business day after the date on which delivery of such stock certificate is required by the warrant. The buy-in rights apply if after such third business day, but prior to cure by us, the holder purchases (in an open market transaction or otherwise) shares of our common stock to deliver in satisfaction of a sale by the holder of the warrant shares that the holder anticipated receiving from us upon exercise of the warrant. In this event, at the request of and in the holder's discretion, we will:

- pay cash to the holder in an amount equal to (i) the buy-in price, meaning the holder's total purchase price (including brokerage commissions, if any) for the shares of common stock so purchased minus (ii) the aggregate sale price of the shares of common stock giving rise to the buy-in purchase which the holder had attempted to obtain through exercise; and
- at the holder's option, either (a) deliver to the holder a certificate or certificates representing the shares of common stock underlying the exercised warrant or (b) reinstate the portion of the warrant and equivalent number of shares of common stock underlying the warrant for which such exercise was not honored.

In addition, the warrant holders are entitled to a "cashless exercise" option if, at any time of exercise, there is no effective registration statement registering, or no current prospectus available for, the issuance or resale of the shares underlying the warrant. This option entitles the warrant holder to elect to receive fewer shares of common stock without paying the cash exercise price. The number of shares to be issued would be determined by a formula based on the total number of shares to which the warrant holder is entitled, the volatility-weighted average price of the common stock on the trading day before the date of exercise and the applicable exercise price of the warrants.

The shares of common stock issuable on exercise of the warrants will be, when issued in accordance with the warrants, duly and validly authorized, issued and fully paid and non-assessable. We will authorize and reserve at least that number of shares of common stock equal to the number of shares of common stock issuable upon exercise of all outstanding warrants.

Fundamental Transaction. If, at any time while the warrant is outstanding, (1) we effect any merger or consolidation with or into another person or entity after which our shareholders as of immediately prior to the transaction own less than a majority of the outstanding stock of the surviving entity, (2) we effect any sale of all or substantially all of our assets in one or a series of related transactions, (3) any tender offer or exchange offer (whether by us or another person or entity) is completed pursuant to which holders of common stock are permitted to tender or exchange their shares for other securities, cash or property, or (4) we effect any reclassification of the common stock or any compulsory share exchange pursuant to which the common stock is effectively converted into or exchanged for other securities, cash or property (in any such case, a "Fundamental Transaction"), then the holder shall have the right thereafter to receive, upon exercise of the warrant, the same amount and kind of securities, cash or property as it would have been entitled to receive upon the occurrence of such Fundamental Transaction if it had been, immediately prior to such Fundamental Transaction, the holder of the number of warrant shares then issuable upon exercise of the warrant (the "Alternate Consideration"). We shall not effect any such Fundamental Transaction unless prior to or simultaneously with the consummation thereof, any successor to us, surviving entity or the corporation purchasing or otherwise acquiring such assets shall assume the obligation to deliver to the holder such Alternate Consideration as the Holder may be entitled to purchase, and the other obligations under the warrant.

Delivery of Certificates. Upon the holder's exercise of a warrant, we will promptly, but in no event later than three business days after the exercise date, issue and deliver, or cause to be issued and delivered, a certificate for the shares of common stock issuable upon exercise of the warrant or deliver the shares electronically through The Depository Trust Corporation through its Deposit Withdrawal Agent Commission System or another established clearing corporation performing similar functions.

If we at any time on or after the issue date of the warrant subdivide (by any stock split, stock dividend, recapitalization or otherwise) one or more classes of our outstanding shares of common stock into a greater number of shares, the exercise price shall be multiplied by a fraction of which the numerator shall be the number of shares of Common Stock (excluding treasury shares, if any) outstanding immediately before such event and of which the denominator shall be the number of shares of Common Stock outstanding immediately after such event and the number of shares issuable upon exercise of the warrant shall be proportionately adjusted such that the aggregate Exercise Price of this Warrant shall remain unchanged.

Other Adjustments. The exercise price and the number of shares of common stock purchasable upon the exercise of the warrants are subject to adjustment upon the occurrence of specific events, including stock dividends, stock splits, and combinations of our common stock.

Additional Provisions. We are not required to issue fractional shares upon the exercise of the warrants. No holders of the warrants will possess any rights as a shareholder under those warrants until the holder exercises those warrants. The warrants may be transferred independent of the common stock they were issued with, on a form of assignment, subject to all applicable laws.

Description of Warrants issued in our February 2011 Offering

Exercise Price; Warrant Agent. The warrants entitle the holders thereof to purchase shares of our common stock during the period beginning on February 15, 2011 and ending on February 15, 2018 at an exercise price of $8.00 per whole share of common stock, subject to adjustment. The warrants were issued pursuant to a Warrant Agreement entered into between us and American Stock Transfer & Trust Company, LLC, as warrant agent. The warrants were issued separately from the common stock included in the units sold in our February 2011 offering, and may be transferred separately immediately thereafter. Warrants may be in certificated form or represented by one or more book-entry certificates.

Exercise and Duration of Warrants. Warrants may be exercised by delivering, not later than 5:00 P.M., New York time, on any business day during the exercise period to the warrant agent the certificate representing the warrant or, in the case of book-entry warrants, the warrants being exercised free on the records of the Depositary Trust Company (DTC) to an account of the warrant agent at DTC along with a completed election to purchase and the payment of the exercise price for each warrant to be exercised by certified or official bank check or by bank wire transfer in immediately available funds.

If we are unable to issue the shares of common stock upon exercise of the warrants because the registration statement covering the shares is subject to a stop order or has had its effectiveness suspended or withdrawn or if we are otherwise unable to issue the shares, and no exemption from registration is available by virtue of a cashless exercise as described below or otherwise, the warrants will not be exercisable. In such event, the warrants will not expire until five days after the date we are first able to issue the shares of common stock. In no event may the warrants be net cash settled.

Cashless Exercise. If a registration statement, or an exemption from registration, is not available for the resale of the shares underlying the warrants, the warrants may also be exercised on a cashless basis pursuant to which the holder will receive a net number of shares of common stock determined according to the following formula:

$$\text{Net number of shares} = \frac{(A \times B) - (A \times C)}{B}$$

where:

A = the total number of shares with respect to which the warrant is then being exercised;

B = the arithmetic average of the closing sale prices of the shares of common stock for the five consecutive trading days ending on the date immediately preceding the date of exercise; and

C = the exercise price then in effect.

Delivery of Shares Upon Exercise. Shares of common stock issuable upon exercise of the warrants will be issued to the holder no later than 5:00 P.M., New York time, on the third business day after the proper exercise of the warrants. In lieu of delivering physical certificates representing shares of common stock issuable upon the exercise of warrants, if our transfer agent is participating in DTC's Fast Automated Securities Transfer program, we will use our reasonable best efforts to cause the transfer agent to electronically transmit the shares by crediting the account of the registered holder's prime broker with DTC or of a participant through DTC's Deposit Withdrawal Agent Commission system.

Certain Adjustments. The exercise price and number of shares of common stock issuable on exercise of the warrants is subject to adjustment in the event of any stock split, reverse stock split, stock dividend, recapitalization, reorganization or similar transaction. However, the warrants will not be adjusted for issuances of shares of common stock at a price below their respective exercise prices. In the event of a fundamental transaction involving our consolidation or merger with or into another entity where we are not the surviving entity, the sale or all or substantially all of our properties or assets or the reorganization, recapitalization or reclassification of our common stock, it is a condition to such fundamental transaction that any successor to us whose common stock is traded on an eligible market assume or remain bound by the warrants to deliver in exchange for the warrants a written instrument substantially similar to the warrants entitling the holder to acquire the successor's capital stock at an exercise price that reflects the terms of the transaction. In the event that the successor does not have common stock traded on an eligible market, a holder of warrants will be entitled to receive an instrument substantially similar to the warrants exercisable for the consideration that would have been issuable in the fundamental transaction had the warrants been exercised immediately prior thereto. In the event of a fundamental transaction that is (1) an all cash transaction, (2) a "Rule 13e-3 transaction" as defined in Rule 13e-3 under the Exchange Act or (3) with certain limited exceptions, a fundamental transaction involving a person or entity not traded on The New York Stock Exchange, Inc., The NYSE Amex, LLC, The NASDAQ Global Select Market, The NASDAQ Global Market or The NASDAQ Capital Market, the holder of the warrant will have the right to require us or any successor entity to pay to such holder the Black Scholes value of the warrant upon surrender of the warrant to us within 30 days of the effective date of the fundamental transaction.

Limitations on Exercise. The number of shares of common stock that may be acquired by the registered holder upon any exercise of warrants shall be limited to the extent necessary to insure that, following such exercise, the total number of shares of common stock then beneficially owned by such holder and its affiliates and any other persons whose beneficial ownership of common stock would be aggregated with the holder's for purposes of Section 13(d) of the Exchange Act, does not exceed 9.999% of the total number of issued and outstanding shares of common stock (including for such purpose the shares of common stock issuable upon such exercise). This restriction may not be waived.

No Rights as Shareholders. Warrant holders do not have the rights or privileges of holders of common stock, including voting rights, until they exercise their warrants and receive shares of common stock. After the issuance of shares of common stock upon exercise of the warrants, each holder will be entitled to one vote for each share held of record on all matters to be voted on by stockholders.

Amendments. The warrants provide that the terms of the warrants may be amended without the consent of any holder to cure any ambiguity, to cure, correct or supplement any defective provision, or to add or change any other provisions that do not adversely affect the interest of the warrant holders. All other changes require the written consent of the underwriter and the holders of a majority of the then outstanding warrants.

Fractional Shares. No fractional shares will be issued upon exercise of the warrants. If a holder exercises warrants and would be entitled to receive a fractional interest of a share, we will round up or down the number of common stock to be issued to the warrant holder to the nearest whole number of shares.

Transfer Taxes. We will not pay any stamp or other tax or governmental charge required to be paid in connection with any transfer involved in the issue of shares of common stock issuable upon the exercise of warrants. In the event of any such transfer, we will not issue or deliver any shares until such tax or other charge shall have been paid or it has been established to our satisfaction that no such tax or other charge is due.

Description of Series A Warrants

Duration and Exercise Price. The Series A Warrants issued in connection with our May 2011 public offering entitle the holders thereof to purchase shares of our common stock at an exercise price of $0.28 per share during the five-year period beginning on May 21, 2012. The Series A Warrants have been issued in certificated form only.

Anti-Dilution Protection. The Series A Warrants contain full-ratchet anti-dilution protection upon the issuance of any common stock, securities convertible into common stock or certain other issuances at a price below the then-existing exercise price of the Series A Warrants, with certain exceptions. The terms of the Series A Warrants, including these anti-dilution protections, may make it difficult for us to raise additional capital at prevailing market terms in the future.

Exercisability. The Series A Warrants will be exercisable, at the option of each holder, in whole or in part, by delivering to us a duly executed exercise notice accompanied by payment in full for the number of shares of our common stock purchased upon such exercise (except in the case of a cashless exercise as discussed below). A holder (together with its affiliates) may not exercise any portion of the warrant to the extent that the holder would own more than 4.9% of the outstanding common stock after exercise, except that upon at least 61 days' prior notice from the holder to us, the holder may increase the amount of ownership of outstanding stock after exercising the holder's warrants up to 9.9% of the number of shares of our common stock outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the Series A Warrants.

Cashless Exercise. If, at the time a holder exercises its Series A Warrant, there is no effective registration statement registering, or the prospectus contained therein is not available for an issuance of the shares underlying the Series A Warrant to the holder, then in lieu of making the cash payment otherwise contemplated to be made to us upon such exercise in payment of the aggregate exercise price, the holder may elect instead to receive upon such exercise (either in whole or in part) the net number of shares of common stock determined according to a formula set forth in the Series A Warrant.

Transferability. Subject to applicable laws and the restriction on transfer set forth in the Series A Warrant, the Series A Warrant may be transferred at the option of the holder upon surrender of the Series A Warrant to us together with the appropriate instruments of transfer.

Exchange Listing. We have not listed, and do not intend to list, the Series A Warrants on any securities exchange or other trading market.

Fundamental Transactions. In the event of any fundamental transaction, as described in the Series A Warrants and generally including any merger with or into another entity, sale of all or substantially all of our assets, tender offer or exchange offer, or reclassification of our common stock, then upon any subsequent exercise of a Series A Warrant, the holder will have the right to receive as alternative consideration, for each share of our common stock that would have been issuable upon such exercise immediately prior to the occurrence of such fundamental transaction, the number of shares of common stock of the successor or acquiring corporation or of our company, if it is the surviving corporation, and any additional consideration receivable upon or as a result of such transaction by a holder of the number of shares of our common stock for which the Series A Warrant is exercisable immediately prior to such event. In addition, in the event of a fundamental transaction, that is (1) an all cash transaction, (2) a "Rule 13e-3 transaction" as defined in Rule 13e-3 under the Exchange Act or (3) with certain limited exceptions, a fundamental transaction involving a person or entity not traded on The New York Stock Exchange, Inc., The NYSE Amex, LLC, The NASDAQ Global Select Market, The NASDAQ Global Market or The NASDAQ Capital Market, then we or any successor entity shall pay at the holder's option, exercisable at any time concurrently with or within forty-five (45) days after the consummation of the fundamental transaction, an amount of cash equal to the value of the Series A Warrant as determined in accordance with the Black Scholes option pricing model.

Right as a Stockholder. Except as otherwise provided in the Series A Warrants or by virtue of such holder's ownership of shares of our common stock, the holders of the Series A Warrants do not have the rights or privileges of holders of our common stock, including any voting rights, until they exercise their Series A Warrants.

Waivers and Amendments. Subject to certain exceptions, any term of the Series A Warrants may be amended or waived with our written consent and the written consent of the holders of at least 66 2/3% of the then-outstanding Series A Warrants and, in certain instances, with the prior written consent of the underwriter.

Description of Warrants issued in our March 2012 Offering

Each warrant represents the right to purchase one share of common stock at an exercise price equal to $0.75 per share (or, in the case of warrants issued to the placement agent, $0.9375 per share), which is subject to adjustment. The warrants may be exercised at any time and from time to time during the five-year period beginning on March 19, 2012.

Exercise. Holders of the warrants may exercise their warrants to purchase shares of our common stock on or before the expiration date by delivering (i) an exercise notice, appropriately completed and duly signed, and (ii) if such holder is not utilizing the cashless exercise provisions, payment of the exercise price for the number of shares with respect to which the warrant is being exercised. Warrants may be exercised in whole or in part, but only for full shares of common stock, and any portion of a warrant not exercised prior to the expiration date shall be and become void and of no value. We provide certain buy-in rights to a holder if we fail to deliver the shares of common stock underlying the warrants by the third business day after the date on which delivery of such stock certificate is required by the warrant. The buy-in rights apply if after such third business day, but prior to cure by us, the holder purchases (in an open market transaction or otherwise) shares of our common stock to deliver in satisfaction of a sale by the holder of the warrant shares that the holder anticipated receiving from us upon exercise of the warrant. In this event, at the request of and in the holder's discretion, we will:

- pay cash to the holder in an amount equal to (i) the buy-in price, meaning the holder's total purchase price (including brokerage commissions, if any) for the shares of common stock so purchased minus (ii) the aggregate sale price of the shares of common stock giving rise to the buy-in purchase which the holder had attempted to obtain through exercise; and
- at the holder's option, either (a) deliver to the holder a certificate or certificates representing the shares of common stock underlying the exercised warrant or (b) reinstate the portion of the warrant and equivalent number of shares of common stock underlying the warrant for which such exercise was not honored.

In addition, the warrant holders are entitled to a "cashless exercise" option if, at any time of exercise, there is no effective registration statement registering, or no current prospectus available for, the issuance or resale of the shares underlying the warrant. This option entitles the warrant holder to elect to receive fewer shares of common stock without paying the cash exercise price. The number of shares to be issued would be determined by a formula based on the total number of shares to which the warrant holder is entitled, the volatility-weighted average price of the common stock on the trading day before the date of exercise and the applicable exercise price of the warrants.

The shares of common stock issuable on exercise of the warrants will be, when issued in accordance with the warrants, duly and validly authorized, issued and fully paid and non-assessable. We will authorize and reserve at least that number of shares of common stock equal to the number of shares of common stock issuable upon exercise of all outstanding warrants.

Fundamental Transaction. If, at any time while the warrant is outstanding, (1) we effect any merger or consolidation with or into another person or entity, (2) we effect any sale of all or substantially all of our assets in one or a series of related transactions, (3) any tender offer or exchange offer (whether by us or another person or entity) is completed pursuant to which holders of common stock are permitted to tender or exchange their shares for other securities, cash or property and has been accepted by the holders of 50% or more of the outstanding common stock, (4) we effect any reclassification of the common stock or any compulsory share exchange pursuant to which the common stock is effectively converted into or exchanged for other securities, cash or property or (5) we consummate a stock or share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with another person or group whereby such other person or group acquires more than 50% of the outstanding shares of common stock (in any such case, a "Fundamental Transaction"), then the holder shall have the right thereafter to receive, upon exercise of the warrant, the same amount and kind of securities, cash or property as it would have been entitled to receive upon the occurrence of such Fundamental Transaction if it had been, immediately prior to such Fundamental Transaction, the holder of the number of warrant shares then issuable upon exercise of the warrant (the "Alternate Consideration"). We shall not effect any such Fundamental Transaction unless prior to or simultaneously with the consummation thereof, any successor to us, surviving entity or the corporation purchasing or otherwise acquiring such assets shall assume the obligation to deliver to the holder such Alternate Consideration as the Holder may be entitled to purchase, and the other obligations under the warrant.

Delivery of Certificates. Upon the holder's exercise of a warrant, we will promptly, but in no event later than three business days after the exercise date, issue and deliver, or cause to be issued and delivered, a certificate for the shares of common stock issuable upon exercise of the warrant or deliver the shares electronically through The Depository Trust Corporation through its Deposit Withdrawal Agent Commission System or another established clearing corporation performing similar functions.

If we at any time on or after the issue date of the warrant subdivide (by any stock split, stock dividend, recapitalization or otherwise) one or more classes of our outstanding shares of common stock into a greater number of shares, the exercise price shall be multiplied by a fraction of which the numerator shall be the number of shares of common stock (excluding treasury shares, if any) outstanding immediately before such event and of which the denominator shall be the number of shares of common stock outstanding

immediately after such event and the number of shares issuable upon exercise of the warrant shall be proportionately adjusted such that the aggregate exercise price of the warrant shall remain unchanged.

Other Adjustments. The exercise price and the number of shares of common stock purchasable upon the exercise of the warrants are subject to adjustment upon the occurrence of specific events, including stock dividends, stock splits, and combinations of our common stock. In addition, if we at any time on or after the issue date of the warrant issue any rights, options, warrants, indebtedness or assets (including cash and dividends) to all holders of common stock, the holders of the warrants shall be entitled to participate in such distributions or rights offering as if they had exercised their warrants as of the record date of such distribution or rights offering.

Additional Provisions. We are not required to issue fractional shares upon the exercise of the warrants. No holders of the warrants will possess any rights as a shareholder under those warrants until the holder exercises those warrants. The warrants may be transferred independent of the common stock they were issued with, on a form of assignment, subject to all applicable laws.

Delaware Anti-Takeover Statute

We are subject to Section 203 of the DGCL. This law prohibits a publicly held Delaware corporation from engaging in any business combination with any interested stockholder for a period of three years following the date that the stockholder became an interested stockholder unless:

- prior to the date of the transaction, the board of directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;

- upon consummation of the transaction which resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the number of shares outstanding those shares owned by persons who are directors and also officers and by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or

- on or subsequent to the date of the transaction, the business combination is approved by the board of directors and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least two-thirds of the outstanding voting stock which is not owned by the interested stockholder.

Section 203 defines "business combination" to include:

- Any merger or consolidation involving the corporation and the interested stockholder;

- Any sale, transfer, pledge or other disposition of 10% or more of our assets involving the interested stockholder;

- In general, any transaction that results in the issuance or transfer by a corporation of any of its stock to the interested stockholder; or

- The receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

In general, Section 203 defines an "interested stockholder" as an entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with or controlling or controlled by the entity or person.

Common Stock Listing

Our common stock currently is trading on OTC Pink tier of the OTC Markets under the symbol "MRNA".

Transfer Agent and Registrar

American Stock Transfer & Trust Company, LLC is the transfer agent and registrar for our common stock.

LEGAL MATTERS

The validity of the issuance of the common stock described in this prospectus has been passed upon for us by Pryor Cashman LLP, New York, New York. Pryor Cashman beneficially owns 1,800,000 shares of our common stock, which are subject to forfeiture.

EXPERTS

The consolidated financial statements of Marina Biotech, Inc. as of December 31, 2011 and 2010, and for each of the years in the two-year period ended December 31, 2011, have been included herein in reliance upon the report of KPMG LLP, independent registered public accounting firm, included herein, and upon the authority of said firm as experts in accounting and auditing. The audit report covering the December 31, 2011 consolidated financial statements contains an explanatory paragraph that states that we have ceased substantially all day-to-day operations, including most research and development activities, have incurred recurring losses, have a working capital and accumulated deficit, and have had recurring negative cash flows from operations, that raise substantial doubt about our ability to continue as a going concern. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement under the Securities Act of 1933 that registers the distribution of the securities offered under this prospectus. The registration statement, including the attached exhibits and schedules, contains additional relevant information about us and the securities. The rules and regulations of the SEC allow us to omit from this prospectus certain information included in the registration statement.

In addition, we file annual, quarterly and special reports, proxy statements and other information with the SEC. You may read and copy this information and the registration statement at the SEC public reference room located at 100 F Street, N.E., Washington D.C. 20549. Please call the SEC at 1-800-SEC-0330 for more information about the operation of the public reference room.

In addition, any information we file with the SEC is also available on the SEC's website at http://www.sec.gov. We also maintain a web site at www.marinabio.com, which provides additional information about our company and through which you can also access our SEC filings. The information set forth on our web site is not part of this prospectus.

INDEX TO FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders
Marina Biotech, Inc.

We have audited the accompanying consolidated balance sheets of Marina Biotech, Inc. and subsidiaries (the "Company") as of December 31, 2010 and 2011, and the related consolidated statements of operations, stockholders' equity (deficit), and cash flows for each of the years in the two-year period ended December 31, 2011. 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 conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Marina Biotech, Inc. and subsidiaries as of December 31, 2010 and 2011, and the results of their operations and their cash flows for each of the years in the two-year period ended December 31, 2011, in conformity with U.S. generally accepted accounting principles.

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the consolidated financial statements, the Company has ceased substantially all day-to-day operations, including most research and development activities, has incurred recurring losses, has a working capital and accumulated deficit and has had recurring negative cash flows from operations, that raise substantial doubt about its 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 this uncertainty.

/s/ KPMG LLP

Seattle, WA

October 10, 2012

MARINA BIOTECH, INC. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS

	December 31, 2010	December 31, 2011
	(In thousands, except share and per share data)	
ASSETS		
Current assets:		
Cash	$ 1,066	$ 976
Restricted cash	1,017	1,011
Accounts receivable	59	0
Prepaid expenses and other current assets	818	589
Total current assets	2,960	2,576
Property and equipment, net	3,695	2,429
Intangible assets	22,734	6,700
Other assets	54	45
Total assets	$ 29,443	$ 11,750
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 3,922	$ 2,536
Accrued payroll and employee benefits	781	376
Other accrued liabilities	1,225	879
Accrued restructuring — current portion	312	0
Deferred revenue	34	848
Total current liabilities	6,274	4,639
Accrued restructuring, net of current portion	148	0
Deferred rent and other liabilities	1,384	1,243
Fair value liability for price adjustable subscription investment units	1,483	4
Fair value liability for price adjustable warrants	1,783	3,481
Deferred tax liabilities	1,202	2,345
Total liabilities	12,274	11,712
Commitments and contingencies		
Stockholders' equity :		
Preferred stock, $.01 par value; 100,000 shares authorized: no shares issued and outstanding	0	0
Common stock and additional paid-in capital, $0.006 par value; 90,000,000 shares authorized, 2,780,075 shares issued and outstanding as of December 31, 2010 and 180,000,000 shares authorized, 10,438,912 shares issued and outstanding as of December 31, 2011	307,939	320,232
Accumulated deficit	(290,770)	(320,194)
Total stockholders' equity	17,169	38
Total liabilities and stockholders' equity	$ 29,443	$ 11,750

See accompanying notes to consolidated financial statements

MARINA BIOTECH, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF OPERATIONS

	Years Ended December 31,	
	2010	2011
	(In thousands, except per share data)	
License and other revenue	$ 2,460	$ 2,236
Operating expenses:		
Research and development	18,105	11,438
Selling, general and administrative	10,359	8,369
Loss on impairment of intangible assets	0	16,034
Restructuring	3,526	1,390
Total operating expenses	31,990	37,231
Loss from operations	(29,530)	(34,995)
Other income (expense):		
Interest and other income	244	0
Interest and other expense	(2,827)	0
Change in fair value liability for price adjustable warrants and subscription investment units	4,360	6,714
Total other income (expense), net	1,777	6,714
Net loss before income tax expense	(27,753)	(28,281)
Income tax expense	0	1,143
Net loss	$ (27,753)	$ (29,424)
Net loss per common share — basic and diluted	$ (15.80)	$ (4.65)
Shares used in computing net loss per share — basic and diluted	1,757	6,328

See accompanying notes to consolidated financial statements

MARINA BIOTECH, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENT OF STOCKHOLDERS' EQUITY (DEFICIT)

	Common Stock and Additional Paid-In Capital		Accumulated	Total Stockholders'
	Shares	Amount	Deficit	Equity (Deficit)
	(In thousands, except share data)			
Balance January 1, 2010	1,020,174	$ 256,131	$ (263,017)	$ (6,886)
Proceeds from the issuance of common shares, net	314,139	1,693	0	1,693
Shares issued in connection with acquisition of Cequent Pharmaceuticals and termination of notes payable and warrants issued to Cequent	988,285	30,337	0	30,337
Shares issued in connection with settlement of liabilities	244,266	3,916	0	3,916
Shares issued in connection with license agreement	141,949	3,790	0	3,790
Proceeds from the exercise of options, warrants and employee stock purchase plan purchases	71,284	2,719	0	2,719
Reclassification of fair value of warrants exercised	0	2,878	0	2,878
Reclassification of fair value for price adjustable warrants from liability to equity upon elimination of price adjustment feature	0	4,459	0	4,459
Compensation related to stock options, restricted stock and employee stock purchase plan, net of forfeitures	0	2,016	0	2,016
Fractional shares redeemed in reverse stock split	(22)	0	0	0
Net loss	0	0	(27,753)	(27,753)
Balance December 31, 2010	2,780,075	307,939	(290,770)	17,169
Proceeds from the issuance of common shares and warrants, net	4,414,251	6,227	0	6,227
Shares issued in connection with amendment of license agreement	11,377	80	0	80
Shares issued in connection with termination of lease	780,000	1,482	0	1,482
Proceeds from the exercise of subscription investment units and warrants	2,446,705	2,630	0	2,630
Reclassification of fair value of price adjustable subscription investment units from liability to equity upon exercise	0	302	0	302
Reclassification of fair value of price adjustable warrants from liability to equity upon elimination of price adjustment feature	0	620	0	620
Proceeds from employee stock purchase plan purchases	6,504	25	0	25
Compensation related to restricted stock, stock options and employee stock purchase plan, net of forfeitures	0	927	0	927
Net loss	0	0	(29,424)	(29,424)
Balance December 31, 2011	10,438,912	$ 320,232	$ (320,194)	$ 38

See accompanying notes to consolidated financial statements

MARINA BIOTECH, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS

	Years Ended December 31,	
	2010	2011
	(In thousands)	
Operating activities:		
Net loss	$ (27,753)	$ (29,424)
Adjustments to reconcile net loss to net cash used in operating activities:		
Compensation related to stock options, restricted stock and employee stock purchase plan	2,016	927
Depreciation and amortization	1,580	1,251
Non-cash loss on impairment of intangible assets	0	16,034
Deferred income tax expense	0	1,143
Non-cash research and development expense	3,790	30
Non-cash amortization of discount on notes payable and debt issuance costs	1,578	0
Non-cash expense for fair value of warrants issued in connection with amendments to securities purchase agreements	1,161	0
Accretion of restructuring liability	135	92
Loss on disposition of property and equipment	0	18
Non-cash restructuring charges	3,407	1,298
Net loss on settlement of liabilities	18	0
Change in fair value of price adjustable warrants and subscription investment units	(4,360)	(6,714)
Changes in assets and liabilities, net of amounts relating to acquisition of Cequent:		
Accounts receivable	152	59
Prepaid expenses and other assets	234	238
Accounts payable	1,638	(673)
Deferred revenue	34	814
Accrued and other liabilities	14	(842)
Accrued restructuring	(445)	(368)
Net cash used in operating activities	(16,801)	(16,117)
Investing activities:		
Change in restricted cash	(19)	6
Cash acquired upon acquisition of Cequent Pharmaceuticals	5,063	0
Purchases of property and equipment	(404)	(3)
Net cash provided by investing activities	4,640	3
Financing activities:		
Proceeds from sales of common shares, warrants and subscription investment units, net	7,760	12,433
Borrowings on note payable	3,000	0
Payments on notes payable	(1,000)	0
Proceeds from exercise of warrants, subscription investment units, stock options and employee stock purchase plan purchases	2,719	3,591
Net cash provided by financing activities	12,479	16,024
Net increase (decrease) in cash	318	(90)
Cash and cash equivalents — beginning of year	748	1,066
Cash and cash equivalents — end of year	$ 1,066	$ 976
Non-cash financing activities:		
Issuance of stock to acquire Cequent Pharmaceuticals and termination of notes payable, accrued interest and warrants issued to Cequent	$ 30,337	$ 0
Issuance of common stock to settle liabilities	$ 3,916	$ 1,562

Supplemental disclosure:		
Cash paid for interest	$ 10	$ 0

See accompanying notes to consolidated financial statements

Note 1 — Business, Going Concern and Summary of Significant Accounting Policies

Business

We are a biotechnology company focused on the discovery, development and commercialization of nucleic acid-based therapies utilizing gene silencing approaches such as RNA interference ("RNAi") and blocking messenger RNA ("mRNA") translation. Our goal is to improve human health through the development, either through our own efforts or those of our collaboration partners and licensees, of these nucleic acid-based therapeutics as well as the delivery technologies that together provide superior treatment options for patients. We have multiple proprietary technologies integrated into a broad nucleic acid-based drug discovery platform, with the capability to deliver novel nucleic acid-based therapeutics via systemic, local and oral administration to target a wide range of human diseases, based on the unique characteristics of the cells and organs involved in each disease.

Our pipeline includes a clinical program in Familial Adenomatous Polyposis ("FAP") and preclinical programs in bladder cancer and myotonic dystrophy. In 2011 and 2012 we have entered into the following agreements regarding our technology:

- In February 2011, we entered into an exclusive agreement with Debiopharm S.A. ("Debiopharm") for the development and commercialization of the bladder cancer program.
- In December 2011, we entered into an exclusive license agreement with Mirna Therapeutics, Inc. ("Mirna"), a privately-held biotechnology company pioneering microRNA replacement therapy for cancer, regarding the development and commercialization of microRNA-based therapeutics utilizing Mirna's proprietary microRNAs and our novel SMARTICLES®-based liposomal delivery technology.
- In March 2012, we entered into an exclusive license agreement with ProNAi Therapeutics, Inc. ("ProNAi"), a privately-held biotechnology company pioneering DNA interference (DNAi) therapies for cancer, regarding the development and commercialization of DNAi-based therapeutics utilizing our novel SMARTICLES®-based liposomal delivery technology.
- In May 2012, we entered into a worldwide exclusive license agreement with Monsanto Company ("Monsanto"), a global leader in agriculture and crop sciences, regarding the agricultural applications for our delivery and chemistry technologies.
- In May 2012, we entered into a strategic alliance with Girindus Group ("Girindus"), a recognized leader in process development, analytical method development and cGMP manufacture of oligonucleotide therapeutics, regarding the development, supply and commercialization of certain oligonucleotide constructs using our conformationally restricted nucleotide ("CRN") technology.
- In August 2012, we entered into a worldwide, non-exclusive license agreement with Novartis Institutes for Biomedical Research, Inc. ("Novartis"), a global leader in the development of human therapeutics, regarding the development of oligonucleotide therapeutics utilizing our CRN technology.

In addition to our own, internally developed technologies, we have strategically in-licensed and further developed nucleic acid- and delivery-related technologies, forming an integrated drug discovery platform. We are employing our platform, through our own efforts and those of our partners, for the discovery of multiple nucleic acid-based therapeutics including siRNA-, microRNA- and single stranded oligonucleotide-based drugs.

Reverse Splits of Common Stock

On July 21, 2010, we effected a one-for-four reverse split of our issued and outstanding shares of common stock effective as of 4:30 p.m. Eastern Time. Our common stock commenced trading on the NASDAQ Global Market on a split-adjusted basis as of the opening of trading on Thursday, July 22, 2010. Any fraction of a share of common stock that would otherwise have resulted from the reverse split was converted into the right to receive cash payment from us for such fractional shares, in an amount to be determined by multiplying (x) the fractional amount of the share of common stock by (y) $29.824 (i.e., an amount equal to four times the per share closing price of our common stock on July 21, 2010).

On December 22, 2011, we effected a one-for-ten reverse split of our issued and outstanding shares of common stock effective as of 4:30 p.m. Eastern Time. Our common stock commenced trading on the NASDAQ Global Market on a split-adjusted basis as of the opening of trading on Friday, December 23, 2011. Any fraction of a share of common stock that would otherwise have resulted from the reverse split was converted into the right to receive cash payment from us for such fractional shares, in an amount to be determined by multiplying (x) the fractional amount of the share of common stock by (y) $1.21 (i.e., an amount equal to ten times the per share closing price of our common stock on December 22, 2011).

Following each reverse split, the total number of shares outstanding was proportionately reduced in accordance with the applicable reverse split. Further, any outstanding options, warrants and rights as of the effective date that are subject to adjustment were adjusted accordingly. There was no change to the number of authorized shares of our common stock as a result of either reverse stock split.

Liquidity and Going Concern

The accompanying consolidated financial statements have been prepared on the basis that we will continue as a going concern, which contemplates realization of assets and the satisfaction of liabilities in the normal course of business. As of December 31, 2011, we had an accumulated deficit of approximately $320.2 million, have incurred, and may in the future continue to incur, losses as we continue, to the extent that sufficient funding is available, our research and development ("R&D") activities, and have had recurring negative cash flows from operations. We expect that our operating expenses will consume the majority of our cash resources during 2012, and will require ongoing funding. We have funded our losses primarily through the sale of common stock and warrants in the public markets and private placements, revenue provided by our collaboration partners, and, to a lesser extent, equipment financing facilities and secured loans.

At December 31, 2011, we had a working capital deficit (current assets less current liabilities) of approximately $2.1 million and approximately $2.0 million in cash, including approximately $1.0 million in restricted cash.

On February 1, 2012, we were notified that the Listing Qualifications Panel of The NASDAQ Stock Market ("NASDAQ") had determined to delist our common stock from the Nasdaq Stock Market, and to suspend trading in the shares effective at the open of business on February 2, 2012 because we were unable to gain compliance with the minimum $1.00 per share minimum bid price requirement set forth in NASDAQ Marketplace Rule 5450(a)(1). Our common stock began trading on the OTCQX tier of the OTC Markets commencing on February 2, 2012. Our common stock traded on the OTCQX Tier of the OTC Markets until July 10, 2012, and it began trading on the OTC Pink Tier of the OTC Markets on July 11, 2012.

In February 2012, we received net proceeds of approximately $1.5 million by issuance of secured promissory notes and warrants to purchase up to 3,690,944 shares of our common stock. Through a series of amendments to the purchase agreement and the notes issued pursuant thereto, we have extended the maturity date of the notes to December 31, 2012, and in connection with such extensions have issued to the secured parties additional warrants to purchase up to 3,199,848 shares of our common stock. The warrants are exercisable at $0.28 per share, which is subject to adjustment (including as a result of subsequent financings), and are exercisable for a period of five years beginning six months and one day following the issuance of the warrants. The notes are secured by the assets of our company and our wholly-owned subsidiaries, Cequent Pharmaceuticals, Inc. and MDRNA Research, Inc. The security agreement that we entered into in connection with this transaction provides a security interest in, but not limited to, all of the property, equipment and fixtures, accounts, negotiable collateral, cash, and cash equivalents of our company and our wholly-owned subsidiaries, Cequent and MDRNA Research, subject to certain exceptions. The security interest created in the collateral is first priority, subject to the permitted encumbrances provided in the security agreement, and is perfected to the extent such security interest can be perfected by the filing of a financing statement and filings with the U.S. Patent and Trademark Office. The security interest created in the collateral will be removed at such time as the notes are paid in full.

As a result of amendments to the purchase agreement and the notes issued pursuant thereto, we and the holders of the notes agreed that if we, at any time prior to December 31, 2012, effect any merger or consolidation of our company whereby the holders of the issued and outstanding shares of our common stock immediately prior to the consummation of such transaction hold less than fifty percent (50%) of the issued and outstanding shares of the voting securities of the surviving corporation immediately following the consummation of such transaction, we will have fully satisfied the obligation to repay the entire unpaid principal balance under the notes and all accrued and unpaid interest thereon through the issuance to the noteholders of an aggregate number of shares of common stock calculated by converting the then total outstanding principal and interest under the notes at a value of $0.28 per share of common stock.

In March 2012, we received net proceeds of approximately $1.1 million by issuance of 1,600,002 shares of our common stock and warrants to purchase up to 800,001 shares of our common stock. The warrants have an exercise price of $0.75 per share, are immediately exercisable (subject to registration or the availability of an exemption under federal and state securities laws), and will be exercisable for a period of five years from the date of issuance. The exercise price and the number of shares issuable upon exercise of the warrants are subject to adjustment in the event of stock splits or dividends, business combinations, sale of assets or other similar transactions, but not as a result of future securities offerings at lower prices.

In May and July, 2012, we received an aggregate of $1.5 million as an upfront payment in connection with the Intellectual Property License Agreement that we entered into with Monsanto Company. At the same time that we entered into the Intellectual Property License Agreement, we and Monsanto also entered into a Security Agreement pursuant to which we granted to Monsanto a security interest in that portion of our intellectual property that is the subject of the license agreement in order to secure the performance of our obligations under the license agreement. In addition, in August 2012 we received $1.0 million in a one-time upfront payment in connection with the License Agreement that we entered into with Novartis Institutes for Biomedical Research, Inc. In September and October 2012, we received, or were scheduled to receive, additional funds as a result of the sale of certain equipment at our corporate headquarters, and the receipt of the upfront payment in connection with the license agreement that we entered into with ProNAi Therapeutics.

On June 1, 2012, we announced that, due to our financial condition, we had implemented a furlough of approximately 90% of our employees and ceased substantially all day-to-day operations. Since that time substantially all of the furloughed employees have been terminated. As of September 30, 2012, we had approximately 11 remaining employees, including all of our executive officers, all of whom are either furloughed or working on reduced salary. As a result, since June 1, 2012 our internal research and development efforts have been minimal, pending receipt of adequate funding. We believe that our current resources will be sufficient to fund our planned limited operations until October 31, 2012.

We plan to continue to work with large pharmaceutical companies regarding research and development collaboration agreements or investments, and to pursue public and private sources of financing to raise cash. However, there can be no assurance that we will be successful in such endeavors. The market value and the volatility of our stock price, as well as our current financial situation and general market conditions, could make it difficult for us to complete a financing transaction on favorable terms, or at all. Any financing we obtain may further dilute the ownership interest of our current stockholders, which dilution could be substantial, or provide new stockholders with superior rights than those possessed by our current stockholders. If we are unable to obtain additional capital when required, and in the amounts required, we may be forced to further delay, reduce or eliminate some or all of our planned activities. These factors, among others, raise substantial doubt about our ability to continue as a going concern. The accompanying consolidated financial statements do not include any adjustments that may result from the outcome of this uncertainty.

Summary of Significant Accounting Policies

Principles of Consolidation — The financial statements include the accounts of Marina Biotech, Inc. and our wholly-owned subsidiaries, Cequent Pharmaceuticals, Inc., Atossa HealthCare, Inc. (“Atossa”) and MDRNA Research, Inc. All inter-company balances and transactions have been eliminated in consolidation.

Use of Estimates — The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires our management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements, and reported amounts of revenues and expenses during the reporting periods. Estimates having relatively higher significance include revenue recognition, research and development costs, stock-based compensation, valuation of warrants and subscription investment units, valuation and estimated lives of identifiable intangible assets, impairment of long-lived assets, estimated accrued restructuring charges and income taxes. Actual results could differ from those estimates.

Restricted Cash — Amounts pledged as collateral underlying letters of credit for facility lease deposits are classified as restricted cash. Changes in restricted cash have been presented as investing activities in the consolidated statements of cash flows.

Fair Value of Financial Instruments — We consider the fair value of cash, restricted cash, accounts receivable, accounts payable and accrued liabilities to not be materially different from their carrying value. These financial instruments have short-term maturities. We follow authoritative guidance with respect to fair value reporting issued by the Financial Accounting Standards Board ("FASB"), for financial assets and liabilities, which defines fair value, provides guidance for measuring fair value and requires certain disclosures. The guidance does not apply to measurements related to share-based payments. The guidance discusses valuation techniques, such as the market approach (comparable market prices), the income approach (present value of future income or cash flow), and the cost approach (cost to replace the service capacity of an asset or replacement cost). The guidance establishes a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value into three broad levels. The following is a brief description of those three levels:

Level 1: Observable inputs such as quoted prices (unadjusted) in active markets for identical assets or liabilities.

Level 2: Inputs other than quoted prices that are observable for the asset or liability, either directly or indirectly. These include quoted prices for similar assets or liabilities in active markets and quoted prices for identical or similar assets or liabilities in markets that are not active.

Level 3: Unobservable inputs in which little or no market data exists, therefore developed using estimates and assumptions developed by us, which reflect those that a market participant would use.

All of our financial assets, which consist of cash and restricted cash, are subject to fair value measurement are valued determined by Level 1 inputs. We measure and report at fair value our accrued restructuring liability using discounted estimated cash flows, and the liability for price adjustable warrants and subscription investment units using the Black-Scholes-Merton valuation model, using Level 3 inputs. The following tables summarize our liabilities measured at fair value on a recurring basis as of December 31, 2010 and 2011 (in thousands):

	Balance at December 31, 2010	Level 1 Quoted prices in active markets for identical assets	Level 2 Significant other observable inputs	Level 3 Significant unobservable inputs
Liabilities:				
Accrued restructuring	$ 460	—	—	$ 460
Fair value liability for price adjustable warrants	1,783	—	—	1,783
Fair value liability for price adjustable subscription investment units	1,483	—	—	1,483
Total liabilities at fair value	$ 3,726	—	—	$ 3,726

	Balance at December 31, 2011	Level 1 Quoted prices in active markets for identical assets	Level 2 Significant other observable inputs	Level 3 Significant unobservable inputs
Liabilities:				
Fair value liability for price adjustable warrants	$ 3,481	—	—	$ 3,481
Fair value liability for price adjustable subscription investment units	4	—	—	4
Total liabilities at fair value	$ 3,485	—	—	$ 3,485

The following presents activity in our accrued restructuring liability determined by Level 3 inputs for each of the years ended December 31, 2010 and 2011 (in thousands):

	Facility Related Charges
Balance, January 1, 2010	$ 706
Accruals	3,407
Payments in cash and other decreases	(445)

Payments in common stock	(3,343)
Accretion	135
Balance, December 31, 2010	$ 460
Accruals	1,298
Payments in cash and other decreases	(368)
Common stock issued to terminate lease	(1,482)
Accretion	92
Balance, December 31, 2011	$ —

The following presents activity of the fair value liability of price adjustable warrants determined by Level 3 inputs for each of the years ended December 31, 2010 and 2011 (in thousands, except share data):

	Fair value liability for price adjustable warrants (in thousands)	Weighted average as of each measurement date				
		Exercise Price	Stock Price	Volatility	Contractual life in years	Risk free rate
Balance at January 1, 2010	$ 7,243	$ 61.60	$ 32.40	116%	5.3	2.8%
Reclassification upon exercise of warrants	(2,878)	40.80	55.50	111%	4.9	2.6%
Fair value of warrants issued	6,759	34.00	40.50	119%	5.0	1.9%
Reclassification to equity upon elimination of price adjustment feature	(4,459)	61.80	24.90	123%	4.6	1.3%
Fair value of warrants terminated upon Cequent acquisition	(995)	46.0	29.80	122%	4.9	1.7%
Fair value of warrants assumed in Cequent acquisition	28	17.50	29.80	102%	8.2	2.6%
Change in fair value included in statement of operations	(3,915)	—	—	—	—	—
Balance at December 31, 2010	1,783	14.30	15.50	127%	4.4	1.8%
Reclassification to equity upon elimination of price adjustment feature	(620)	10.60	10.90	122%	4.8	2.3%
Fair value of warrants issued	7,855	3.00	2.30	116%	6.0	2.1%
Change in fair value included in statement of operations	(5,537)	—	—	—	—	—
Balance at December 31, 2011	$ 3,481	$ 0.76	$ 0.89	124%	5.4	0.9%

The following presents activity of the fair value liability of price adjustable subscription investment units determined by Level 3 inputs (in thousands):

	Fair value liability for price adjustable subscription investment units (in thousands)	Weighted average as of each measurement date				
		Exercise Price	Stock Price	Volatility	Contractual life in years	Risk free rate
Balance at January 1, 2010	$ —	$ —	$ —	—	—	—
Fair value of subscription investment units issued	1,928	18.60	20.30	81%	1.3	0.2%
Change in fair value included in statement of operations	(445)	—	—	—	—	—
Balance at December 31, 2010	1,483	13.30	15.50	79%	1.2	0.3%
Reclassification to equity upon exercise	(302)	2.30	3.20	103%	0.7	0.2%
Change in fair value included in statement of operations	(1,177)	—	—	—	—	—
Balance at December 31, 2011	$ 4	$ 0.89	$ 0.89	115%	0.2	0.0%

Property and Equipment — Long-lived assets include property and equipment. These assets are recorded at our original cost and are increased by the cost of any significant improvements after purchase. Property and equipment assets are depreciated using the straight-line method over the estimated useful life of the individual assets, ranging from three to five years. Leasehold improvements are stated at cost and amortized using the straight-line method over the lesser of the estimated useful life or remaining lease term. Depreciation begins when the asset is ready for its intended use. For tax purposes, accelerated depreciation methods are used as allowed by tax laws.

Business combinations and allocation of purchase consideration — Accounting guidance requires that most assets acquired and liabilities assumed be recognized at their fair values, as determined in accordance with ASC 820, Fair Value Measurements, as of the acquisition date. Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. This is an exit price concept for the valuation of the asset or liability. Market participants are assumed to be buyers and sellers in the principal (or the most advantageous) market for the asset or liability. Fair value measurements for an asset assume the highest and best use by these market participants. As a result of these standards, we may be required to value assets at fair value measures that do not reflect our intended use of those assets. Many of these fair value measurements can be highly subjective and it is also possible that other professionals, applying reasonable judgment to the same facts and circumstances, could develop and support a range of alternative estimated amounts.

Accounting guidance requires that the fair value of in-process research and development ("IPR&D") projects acquired in a business combination be recorded on the balance sheet regardless of the likelihood of success as of the acquisition date. Intangible assets related to IPR&D projects are considered to be indefinite-lived until completion or abandonment of the related project. During the period the assets are considered indefinite-lived, they will not be amortized but will be tested for impairment on an annual basis and between annual tests if we become aware of any events occurring or changes in circumstances that would indicate a reduction in the fair value of the projects below their respective carrying amounts. If and when it were determined that identified intangible assets were impaired, an impairment charge would be recorded then. If and when development is complete, which generally occurs if and when regulatory approval to market a product is obtained, the associated assets would be deemed finite-lived and would then be amortized based on their respective estimated useful lives at that date.

Identifiable intangible assets — Intangible assets associated with in-process research and development ("IPR&D") projects acquired in business combinations are not amortized until approval is obtained in a major market, typically either the U.S. or the European Union (EU), or in a series of other countries, subject to certain specified conditions and management judgment. The useful life of an amortizing asset generally is determined by identifying the period in which substantially all of the cash flows are expected to be generated.

Impairment of long-lived assets — We review all of our long-lived assets for impairment indicators throughout the year and we perform detailed testing whenever impairment indicators are present. In addition, we perform detailed impairment testing for indefinite-lived intangible assets at least annually at the end of our fiscal year. When necessary, we record charges for impairments. Specifically:

- For finite-lived intangible assets, such as developed technology rights, and for other long-lived assets, such as property and equipment, we calculate the undiscounted amount of the projected cash flows associated with the asset, or asset group, and compare this estimated amount to the carrying amount. If the carrying amount is found to be greater, we record an impairment loss for the excess of book value over fair value. In addition, in all cases of an impairment review, we re-evaluate the remaining useful lives of the assets and modify them, as appropriate.

- For indefinite-lived intangible assets, such as IPR&D assets, each year and whenever impairment indicators are present, we determine the fair value of the asset and record an impairment loss for the excess of book value over fair value, if any.

Accrued Restructuring — We ceased using one of our two leased facilities in Bothell, Washington ("the exited facility") in 2008. We recorded an accrued liability for remaining lease termination costs at fair value, based on the remaining payments due under the lease and other costs, reduced by estimated sublease rental income that could be reasonably obtained from the property, and discounted using a credit-adjusted risk-free interest rate. We based our estimated future payments, net of estimated future sublease payments, on current rental rates available in the local real estate market, and our evaluation of the ability to sublease the facility. For a further discussion of our restructuring charges, see Note 4 — Accrued Restructuring.

Concentration of Credit Risk and Significant Customers — We operate in an industry that is highly regulated, competitive and rapidly changing and involves numerous risks and uncertainties. Significant technological and/or regulatory changes, the emergence of competitive products and other factors could negatively impact our consolidated financial position or results of operations.

We have been dependent on our collaborative and license agreements with a limited number of third parties for a substantial portion of our revenue, and our discovery and development activities may be delayed or reduced if we do not maintain successful collaborative arrangements. We had revenue from customers, as a percentage of total revenue, as follows:

	Years Ended December 31,	
	2010	2011
Roche	—	45%
Debiopharm S.A.	—	21%
Mirna Therapeutics	—	19%
Par Pharmaceuticals	47%	—
Cypress Bioscience	31%	—
Astra Zeneca	3%	3%
Pfizer	2%	—
Undisclosed partner #1	4%	2%
Undisclosed partner #2	1%	—
Novartis	—	1%
Other	12%	9%
Total	100%	100%

Revenue Recognition — Revenue is recognized when persuasive evidence that an arrangement exists, delivery has occurred, collectability is reasonably assured, and fees are fixed or determinable. Deferred revenue expected to be recognized within the next 12 months is classified as current. Substantially all of our revenues are generated from research and development collaborations and licensing arrangements with partners that may involve multiple deliverables. For multiple-deliverable arrangements, judgment is required to evaluate, (a) whether an arrangement involving multiple deliverables contains more than one unit of accounting, and (b) how the arrangement consideration should be measured and allocated to the separate units of accounting in the arrangement. Our research and development collaborations may include upfront non-refundable payments, development milestone payments, R&D funding, patent-based or product sale royalties, and product sales. In addition, we may receive revenues from licensing arrangements. For each separate unit of accounting, we have determined that the delivered item has value to the customer on a stand-alone basis, we have objective and reliable evidence of fair value using available internal evidence for the undelivered item(s) and our arrangements generally do not contain a general right of return relative to the delivered item.

Revenue from research and development collaborations is recorded when earned based on the specific terms of the contracts. Upfront non-refundable payments, where we are not providing any continuing services as in the case of a license to our intellectual property ("IP"), are recognized when delivery of the license has occurred. Upfront nonrefundable payments, where we are providing continuing services related to a research and development effort, are deferred and recognized as revenue over the collaboration period. The ability to estimate the total research and development effort and costs can vary significantly for each contract due to the inherent complexities and uncertainties of drug research and development. The estimated period of time over which we recognize certain revenues is based upon structured detailed project plans completed by our project managers, who meet with scientists and collaborative counterparts on a regular basis and schedule the key project activities and resources including headcount, facilities and equipment and budgets. These periods generally end on projected milestone dates typically associated with the stages of drug development, i.e. filing of an Investigational New Drug Application ("IND"), initiation of a Phase 1 human clinical trial or filing of a New Drug Application ("NDA"). We typically do not disclose the specific project planning details of a research and development collaboration for competitive reasons and due to confidentiality clauses in our contracts. As drug candidates and drug compounds move through the research and development process, it is necessary to revise these estimates to consider changes to the project plan, portions of which may be outside of our control. The impact on revenue of changes in our estimates and the timing thereof is recognized prospectively over the remaining estimated development period.

Milestone payments typically represent nonrefundable payments to be received in conjunction with the achievement of a specific event identified in the contract, such as initiation or completion of specified development activities or specific regulatory actions such as the filing of an IND. We believe a milestone payment represents the culmination of a distinct earnings process when it is not associated with ongoing research, development or other performance on our part and it is substantive in nature. We recognize such milestone payments as revenue when they become due and collection is reasonably assured.

Revenue from R&D funding is generally received for services performed under research and development collaboration agreements and is recognized as services are performed. Payments received in excess of amounts earned are recorded as deferred revenue. Reimbursements received for direct out-of-pocket expenses related to contract R&D costs are recorded as revenue in the consolidated statements of operations rather than as a reduction in expenses.

Royalty and earn-out payment revenue is generally recognized upon product sale by the licensee as reported by the licensee.

Research and Development Costs — All research and development ("R&D") costs are charged to operations as incurred. Our R&D expenses consist of costs incurred for internal and external R&D. These costs include direct and research-related overhead expenses. We recognize clinical trial expenses, which are included in research and development expenses, based on a variety of factors, including actual and estimated labor hours, clinical site initiation activities, patient enrollment rates, estimates of external costs and other activity-based factors. We believe that this method best approximates the efforts expended on a clinical trial with the expenses recorded. We adjust our rate of clinical expense recognition if actual results differ from our estimates. As clinical trial activities continue, it is necessary to revise these estimates to consider changes such as changes in the clinical development plan, regulatory requirements, or various other factors, many of which may be outside of our control. The impact of changes in our estimates of clinical trial expenses and the timing thereof, is recognized prospectively over the remaining estimated clinical trial period. The ability to estimate total clinical trial costs can vary significantly due to the inherent complexities and uncertainties of drug development.

Stock-Based Compensation — We use the Black-Scholes-Merton option pricing model as our method of valuation for stock-based awards. Stock-based compensation expense is based on the value of the portion of the stock-based award that will vest during the period, adjusted for expected forfeitures. The estimation of stock-based awards that will ultimately vest requires judgment, and to the extent actual or updated results differ from our current estimates, such amounts will be recorded in the period the estimates are revised. The Black-Scholes-Merton option pricing model requires the input of highly subjective assumptions, and other reasonable assumptions could provide differing results. Our determination of the fair value of stock-based awards on the date of grant using an option pricing model is affected by our stock price as well as assumptions regarding a number of highly complex and subjective variables. These variables include, but are not limited to, the expected life of the award and expected stock price volatility over the term of the award. Stock-based compensation expense is recognized on a straight-line basis over the applicable vesting periods of one to three years based on the fair value of such stock-based awards on the grant date.

Net Loss per Common Share — Basic and diluted net loss per common share is computed by dividing the net loss by the weighted average number of common shares outstanding during the period. Diluted loss per share excludes the effect of common stock equivalents (stock options, unvested restricted stock, warrants and subscription investment units) since such inclusion in the computation would be anti-dilutive. The following numbers of shares have been excluded:

	Years Ended December 31,	
	2010	**2011**
Stock options outstanding	264,106	578,257
Unvested restricted stock	94	—
Warrants	383,020	6,261,978
Subscription investment units	242,355	25,000
Total	889,575	6,865,235

Operating leases — We lease our facilities under operating leases. Our lease agreements may contain tenant improvement allowances, rent holidays, lease premiums, and lease escalation clauses. For purposes of recognizing incentives, premiums and minimum rental expenses on a straight-line basis over the terms of the leases, we use the date of initial possession to begin amortization, which is generally when we enter the space and begin to make improvements in preparation for intended use. For tenant improvement allowances and rent holidays, we record a deferred rent liability on the consolidated balance sheets and amortize the deferred rent over the terms of the leases as reductions to rent expense on the consolidated statements of operations. For scheduled rent escalation clauses over the course of the lease term or for rental payments commencing at a date other than the date of initial right to occupy, we record rental expense on a straight-line basis over the terms of the leases in the consolidated statements of operations.

Income Taxes — Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of assets and liabilities and their respective tax bases and operating loss and tax credit carry-forwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in years in which those temporary differences are expected to be recovered

or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. Tax benefits in excess of stock-based compensation expense recorded for financial reporting purposes relating to stock-based awards will be credited to additional paid-in capital in the period the related tax deductions are realized. Our policy for recording interest and penalties associated with audits is to record such items as a component of income (loss) before taxes.

We assess the likelihood that our deferred tax assets will be recovered from existing deferred tax liabilities or future taxable income. Factors we considered in making such an assessment include, but are not limited to, estimated utilization limitations of operating loss and tax credit carryforwards, expected reversals of deferred tax liabilities, past performance, including our history of operating results, our recent history of generating tax losses, our history of recovering net operating loss carryforwards for tax purposes and our expectation of future taxable income. We recognize a valuation allowance to reduce such deferred tax assets to amounts that are more likely than not to be ultimately realized. To the extent that we establish a valuation allowance or change this allowance, we would recognize a tax provision or benefit in the consolidated statements of operations. We use our judgment to determine estimates associated with the calculation of our provision or benefit for income taxes, and in our evaluation of the need for a valuation allowance recorded against our net deferred tax assets.

Recent Accounting Pronouncements — In March 2010, the FASB ratified the final consensus that offers an alternative method of revenue recognition for milestone payments. The guidance states that an entity can make an accounting policy election to recognize a payment that is contingent upon the achievement of a substantive milestone in its entirety in the period in which the milestone is achieved. The guidance was effective for fiscal years, and interim periods within those years, beginning on or after June 15, 2010 with early adoption permitted, provided that the revised guidance is applied retrospectively to the beginning of the year of adoption. The adoption of this guidance did not have a material effect on our consolidated financial statements.

In September 2009, the FASB revised the authoritative guidance for revenue arrangements with multiple deliverables. The guidance addresses how to determine whether an arrangement involving multiple deliverables contains more than one unit of accounting and how the arrangement consideration should be allocated among the separate units of accounting. The guidance was effective beginning January 1, 2011 with early adoption permitted. The adoption of this guidance did not have a material effect on our consolidated financial statements.

Note 2 — Acquisition of Cequent Pharmaceuticals, Inc. and Loss on impairment of intangible assets

On July 21, 2010, we acquired Cequent Pharmaceuticals, Inc. (“Cequent”), a privately-held company engaged in development of novel products to deliver RNAi-based therapeutics. We completed the transaction by issuance of 988,285 shares of our common stock in exchange for all outstanding equity securities of Cequent. Of the total shares issued, 111,044 were considered issued in exchange for the termination of the amounts loaned, including accrued interest, to us by Cequent and the termination of warrants issued by us to Cequent under the Loan Agreement and Warrant Agreement. We also assumed all of the stock options of Cequent outstanding as of the acquisition date.

Cequent is now our wholly-owned subsidiary. The merger was accounted for as a business combination utilizing the acquisition method of accounting. Under the acquisition method, the assets acquired and liabilities assumed were added to ours and recorded as of the acquisition date, at their respective fair values. The results of operations of Cequent since July 21, 2010 have been included in our consolidated statements of operations. As of December 31, 2011, acquisition accounting is final and a valuation allowance has been recorded in purchase accounting against all acquired deferred tax assets not otherwise offset by deferred tax liabilities.

Consideration transferred — Consideration transferred attributable to the acquisition of Cequent was approximately $27.0 million. Consideration transferred is comprised of approximately $26.1 million relating to shares we issued, which were valued at the acquisition date closing market price of $29.80 per share, and approximately $0.9 million relating to Cequent stock options we assumed.

In connection with the merger and pursuant to the terms of a separate Loan Agreement, our notes payable to Cequent in the aggregate principal amount of $3.0 million and accrued interest of approximately $45,000 were settled and warrants to purchase our common stock held by Cequent terminated. A portion of consideration transferred totaling approximately $3.3 million is deemed attributable to repayment of these notes payable and termination of warrants.

The following summarizes the allocation of assets acquired and liabilities assumed at July 21, 2010 (in thousands):

Cash	$	5,063
Prepaid and other assets		566
Property and equipment		302
Intangible assets — IPR&D		22,734
Accounts payable and accrued liabilities		(437)
Deferred tax liabilities, net		(1,202)
Total consideration transferred	$	27,026

Identifiable intangible assets — A substantial portion of the assets acquired have been allocated to identifiable intangible assets related to in-process research and development projects identified by management. Our management estimated acquisition-date fair values of these intangible assets based on a number of factors. Utilizing the income approach, a discounted cash flow model using forecasted operating results related to the identified intangible assets, fair value was determined to be $19.3 million for Familial Adenomatous Polyposis and $3.4 million for Transkingdom RNAi, a total of $22.7 million.

We estimated the acquisition date fair value of these intangible assets using a discount rate of 23%, which was based on the estimated weighted-average cost of capital for companies with profiles substantially similar to ours. We compensated for the differing phases of development of each project by probability-adjusting our estimation of the expected future cash flows associated with each project. We then determined the present value of the expected future cash flows using the discount rate. The projected cash flows from the projects were based on key assumptions such as estimates of revenues and operating profits related to the projects considering their stages of development; the time and resources needed to complete development and receive approval; the life of the potential commercialized products and associated risks, including the inherent difficulties and uncertainties in development such as obtaining marketing approval from the U.S. Food and Drug Administration and other regulatory agencies; and risks related to the viability of and potential alternative treatments in any future target markets.

Loss on impairment of intangible assets — Accounting guidance requires that the fair value of IPR&D acquired in a business combination be recorded on the balance sheet regardless of the likelihood of success as of the acquisition date. Intangible assets related to IPR&D projects are considered to be indefinite-lived until completion or abandonment of the related project. During the period the assets are considered indefinite-lived, they will not be amortized but will be tested for impairment on an annual basis and between annual tests if we become aware of any events occurring or changes in circumstances that would indicate a reduction in the fair value of the projects below their respective carrying amounts. We perform our annual impairment tests at the end of our fiscal year. If and when it were determined that identified intangible assets were impaired, an impairment charge would be recorded then. If and when development is complete, which generally occurs if and when regulatory approval to market a product is obtained, the associated assets would be deemed finite-lived and would then be amortized based on their respective estimated useful lives at that date.

During 2011 we tested the carrying value of our intangible assets for impairment utilizing the income approach and estimated the fair value of Familial Adenomatous Polyposis at $5.7 million and $1.0 million for Transkingdom RNAi, for a total of $6.7 million. We estimated the fair value of these intangible assets using a discount rate of 26%, which was based on the estimated weighted-average cost of capital for companies with profiles substantially similar to ours. We compensated for the differing phases of development of each project by probability-adjusting our estimation of the expected future cash flows associated with each project. We then determined the present value of the expected future cash flows using the discount rate. The projected cash flows from the projects were based on key assumptions such as estimates of revenues and operating profits related to the projects considering their stages of development; the time and resources needed to complete development and receive approval; the life of the potential commercialized products and associated risks, including the inherent difficulties and uncertainties in development such as obtaining marketing approval from the U.S. Food and Drug Administration and other regulatory agencies; and risks related to the viability of and potential alternative treatments in any future target markets. As a result of the impairment test, we recorded a loss on impairment of intangible assets of approximately $16.0 million in 2011.

Deferred Taxes — The merger was non-taxable. Acquired deferred tax assets were comprised of approximately $7.0 million for federal and state net operating loss carryforwards and $1.1 million for tax credit carryforwards. The tax basis for acquired intangible assets of $22.7 million is nil, which results in recording a deferred tax liability of approximately $8.0 million as there will be no tax deduction when the book basis is expensed and the deferred tax liability is reduced. At the time of the acquisition, our management determined that it was more likely than not that a substantial portion of acquired net operating loss and tax credit carryforwards would be realized prior to expiration through reversal of deferred tax liabilities during years of expected financial reporting expense for the

acquired intangible assets, and accordingly approximately $6.8 million of deferred tax liabilities support realization of acquired deferred tax assets. A valuation allowance of approximately $1.2 million was recorded related to the remainder of the acquired deferred tax assets. In 2011, we reviewed the deferred tax liabilities related to intangible assets and determined that because of the increased uncertainty in timing of reversal, the deferred tax liabilities did not support realization of our deferred tax assets. Therefore, in 2011, we recorded an increase to the valuation allowance against deferred tax assets of approximately $1.1 million which was also recorded as income tax expense.

Pro Forma Information (unaudited) — The following unaudited pro forma information presents the combined revenues and net loss of Marina Biotech and Cequent for the year ended December 31, 2010 as if the acquisition of Cequent had occurred as of the beginning of the year. This pro forma information does not include any adjustments related to restructuring or one-time charges, potential profit improvements, potential cost savings or other costs which may result from combining the operations. Accordingly, these unaudited pro forma revenues and net loss are presented for illustrative purposes and are not intended to represent or be indicative of the actual results of operations of the combined company that would have been achieved had the acquisition occurred as of the beginning of the period presented nor are they intended to represent or be indicative of future results of operations. The unaudited pro forma results of operations information is as follows (in thousands):

	2010
Revenue	$ 2,788
Net loss	$ (30,243)

Note 3 — Property and Equipment

Property and equipment at December 31, 2010 and 2011 are comprised of the following (in thousands):

	2010	2011
Furniture and fixtures	$ 873	$ 832
Machinery and equipment	5,402	5,374
Computer equipment and software	1,216	1,191
Leasehold improvements	4,285	4,285
	11,776	11,682
Less accumulated depreciation and amortization	8,081	9,253
Net property and equipment	$ 3,695	$ 2,429

Note 4 — Accrued Restructuring

In 2008, we restructured our operations to focus on our RNAi programs by reducing our workforce related to our former intranasal drug delivery business and by exiting one of our facilities. We recorded a restructuring liability, representing estimated future payments due under the lease, net of anticipated future sublease payments, which was discounted using a credit-adjusted risk-free interest rate. In September 2011 we entered into an agreement with the landlord for the exited facility, whereby we terminated the lease and issued a total of 780,000 shares of our common stock to two affiliates of the landlord at a settlement price of $2.30 per share. In connection with issuing the shares, the remaining accrued restructuring liability was eliminated and we have no further obligations with respect to the facility.

We recorded restructuring charges including accretion of the accrued restructuring liability and other facility-related costs in the amounts of $3.5 million and $1.4 million in 2010 and 2011, respectively.

The components of restructuring expense are summarized as follows (in thousands):

	Year ended December 31,		Cumulative to December 31,
	2010	2011	2011
Employee severance and termination benefits (including stock-based compensation charges)	$ —	$ —	$ 3,986
Property and equipment impairment	—	—	2,099
Facility related charges	3,526	1,390	7,249
Other restructuring charges	—	—	294
Total restructuring	$ 3,526	$ 1,390	$ 13,628

Note 5 — Stockholders' Equity

Preferred Stock — Our board of directors has the authority, without action by the stockholders, to designate and issue up to 100,000 shares of preferred stock in one or more series and to designate the rights, preferences and privileges of each series, any or all of which may be greater than the rights of our common stock. We have designated 1,000 shares as Series B Preferred Stock and 90,000 shares as Series A Junior Participating Preferred Stock. No shares of Series B Preferred Stock or Series A Junior Participating Preferred Stock are outstanding.

Series B Preferred Stock/Socius Purchase Agreement — On December 22, 2011, we entered into a Securities Purchase Agreement with Socius CG II, Ltd., or Socius, pursuant to and subject to the conditions of which, we had the right, in our sole discretion, over a term of two years, to demand through the delivery of separate tranche notices that Socius purchase up to a total of $5 million of Series B Preferred Stock. The delivery of a tranche notice by us to Socius would have triggered the automatic vesting and automatic exercise of both the additional investment right to purchase shares of our common stock that we granted to Socius in the purchase agreement, and the warrant to purchase shares of our common stock that we issued to Socius on December 29, 2011 upon the closing of the purchase agreement. On March 20, 2012, we notified Socius that we were terminating the purchase agreement, effective thirty (30) days from the date of such notice. We did not deliver any tranche notices to Socius during the term of the facility created by the purchase agreement, and as a result we did not issue, and are under no obligation to issue, any shares of Series B Preferred Stock, or any shares of our common stock issuable upon the automatic exercise of the additional investment right and the warrant, to Socius.

Upon the closing of the purchase agreement, on December 29, 2011 we delivered to Socius an unvested and therefore unexercisable warrant to purchase up to 1,305,970 shares of our common stock at an initial exercise price of $1.34 per share. The exercise price of the warrant and the number of shares of common stock issuable upon exercise thereof were subject to adjustment from time to time. In connection with each tranche notice delivered to Socius under the purchase agreement, a portion of the warrant equal to a number of shares calculated by dividing (1) 37% of the dollar amount of the tranche of Series B Preferred Stock by (2) the closing bid price of the common stock for the most recently completed trading day prior to the delivery or deemed delivery of the tranche notice would vest and be automatically exercised. At each time of delivery or deemed delivery of a tranche notice, the number of shares of common stock underlying the warrant would also be adjusted immediately prior to the automatic exercise such that after such adjustment the aggregate exercise price for the adjusted number of shares would be equal to the aggregate exercise price in effect immediately prior to such adjustment. The warrant expired unexercisable in April 2012 as a result of our termination of the facility created by the purchase agreement.

Stockholder Rights Plan — In 2000, our board of directors adopted a stockholder rights plan and declared a dividend of one preferred stock purchase right for each outstanding share of common stock. Each right entitles the holder, once the right becomes exercisable, to purchase from us one one-thousandth of a share of our Series A Junior Participating Preferred Stock, par value $.01 per share. We issued these rights in March 2000 to each stockholder of record on such date, and these rights attach to shares of common stock subsequently issued. The rights will cause substantial dilution to a person or group that attempts to acquire us on terms not approved by our board of directors and could, therefore, have the effect of delaying or preventing someone from taking control of us, even if a change of control were in the best interest of our stockholders.

Holders of our preferred share purchase rights are generally entitled to purchase from us one one-thousandth of a share of Series A preferred stock at a price of $50.00, subject to adjustment as provided in the Stockholder Rights Agreement. These preferred share purchase rights will generally be exercisable only if a person or group becomes the beneficial owner of 15 percent or more of our outstanding common stock or announces a tender offer for 15 percent or more of our outstanding common stock. Each holder of a preferred share purchase right, excluding an acquiring entity or any of its affiliates, will have the right to receive, upon exercise, shares of our common stock, or shares of stock of the acquiring entity, having a market value equal to two times the purchase price paid for one one-thousandth of a share of Series A preferred stock. The preferred share purchase rights expire on March 17, 2013. We have designated 90,000 shares of preferred stock as Series A Junior Participating Preferred stock.

Common Stock — Holders of our common stock are entitled to one vote for each share held of record on all matters submitted to a vote of the holders of our common stock. Subject to the rights of the holders of any class of our capital stock having any preference or priority over our common stock, the holders of shares of our common stock are entitled to receive dividends that are declared by our board of directors out of legally available funds. In the event of our liquidation, dissolution or winding-up, the holders of common stock are entitled to share ratably in our net assets remaining after payment of liabilities, subject to prior rights of preferred stock, if any, then outstanding. Our common stock has no preemptive rights, conversion rights, redemption rights or sinking fund provisions, and there are no dividends in arrears or default. All shares of our common stock have equal distribution, liquidation and voting rights, and have no

preferences or exchange rights. On July 14, 2011, our shareholders approved a proposal to change our capital structure by increasing the number of authorized shares of common stock from 90,000,000 to 180,000,000.

In February 2011, in connection with a public offering that we conducted utilizing a $50 million shelf registration statement which was declared effective by the SEC in September 2010, we received net proceeds of approximately $4.5 million from an offering of 637,500 units, each comprised of one share of our common stock and 0.1746 of a warrant, each to purchase one share of our common stock, at a purchase price of $8.00 per unit. We issued an aggregate of 637,500 shares of common stock and warrants to purchase up to an aggregate of 111,308 shares of our common stock in connection with this offering.

In May 2011, in connection with a public offering that we conducted utilizing a registration statement on Form S-1 which was declared effective by the SEC on May 11, 2011, we received net proceeds of approximately $6.3 million from an offering of an aggregate of (i) 2,231,850 units and (ii) 2,231,850 Series B Warrants, each to purchase one unit, at a purchase price of $3.90 per unit. Each unit consists of (x) one share of common stock and (y) one Series A Warrant to purchase one share of common stock. Prior to their July 12, 2011 expiration date, 2,229,350 Series B Warrants were exercised which resulted in additional net proceeds of approximately $3.1 million.

In September 2011, we entered into an agreement to terminate our lease for 3450 Monte Villa Parkway, Bothell, Washington, which eliminated our future lease obligations, and pursuant to which we issued 780,000 shares of our common stock to certain affiliates of the landlord. The estimated fair value of the shares issued was approximately $1.5 million on the date of issuance and was recorded as an increase in common stock and additional paid-in capital and as a decrease to the previously recorded restructuring liability. We agreed to prepare and file with the SEC, on or before February 1, 2012, a registration statement on Form S-3 covering the resale of all of such shares, and to use our continuing best efforts to cause such registration statement to be become and remain effective for so long as the landlord's affiliates hold any shares. If the resale registration statement is not initially filed on or before February 1, 2012, or declared effective by the SEC by April 1, 2012, each a registration default, we agreed to pay the landlord $10,000 for each month or portion thereof that the registration default continues. We have not filed a registration statement on Form S-3 and we have recorded a liability for $20,000 for the registration default for the months of February and March 2012.

On October 11, 2011, we entered into the Purchase Agreement with Lincoln Park Capital ("LPC"), whereby LPC agreed to purchase up to $15 million of our common stock over a thirty (30) month period. We also entered into a registration rights agreement with LPC pursuant to which we agreed to file a registration statement related to the transaction with the SEC covering the shares that have been issued or may be issued to LPC under the Purchase Agreement. The SEC declared the registration statement effective on October 31, 2011. Pursuant to the Purchase Agreement, we had the right, in our sole discretion, over a 30-month period following the effective date of the registration statement to sell up to $15 million of our common stock to LPC, depending on certain conditions as set forth in the Purchase Agreement.

There were no upper limits to the price LPC may pay to purchase shares of our common stock, and the purchase price of the shares related to the future funding under the Purchase Agreement was based on the prevailing market prices of the common stock immediately preceding the time of sales without any fixed discount. LPC did not have the right or the obligation to purchase any shares of our common stock on any business day that the price of the common stock was below the floor price of $1.00 per share as set forth in the Purchase Agreement. We could not issue more than 1,777,913 shares in connection with the Purchase Agreement, unless the average purchase price of all shares of common stock issued by us to LPC equaled or exceeded $2.25 per share.

In consideration for entering into the Purchase Agreement, we issued to LPC 145,279 shares of common stock as a commitment fee and were required to issue to LPC up to 290,557 shares of common stock pro rata when and if LPC purchased, at our discretion, the $15 million of common stock over the 30-month period. We also issued to LPC an additional 5,000 shares of common stock as an expense reimbursement. We terminated the Purchase Agreement effective March 20, 2012. Prior to the termination of the Purchase Agreement, we issued a total of 1,544,901 shares to LPC under this agreement and received proceeds of approximately $1.8 million.

In March 2012, in connection with a public offering that we conducted utilizing a $50 million shelf registration statement which was declared effective by the SEC in September 2010, we received net proceeds of approximately $1.1 million a registered direct offering of 1,600,002 units, each comprised of one share of our common stock and 0.5 of a warrant, each to purchase one share of our common stock, at a purchase price of $0.75 per unit. We issued an aggregate of 1,600,002 shares of common stock and warrants to purchase up to an aggregate of 800,001 shares of our common stock in connection with this offering.

During August 2012 we committed to issue to nine of our vendors an aggregate of approximately 3.6 million shares of our common stock to settle outstanding amounts due to such vendors in the aggregate amount of approximately $1.2 million.

As additional consideration for the Lease Termination Agreement, effective as of October 1, 2012, that we entered into with Ditty Properties Limited Partnership (the "Landlord") with respect to that certain Lease Agreement dated March 1, 2006 between our

company and the Landlord regarding our facilities located at 3830 Monte Villa Parkway, Bothell, WA, we agreed to issue 1,500,000 shares of our common stock to the landlord contingent upon and immediately prior to the first to occur of any of the following events: (i) the closing of an equity financing in a transaction or series of related transactions where such financing yields gross proceeds to us of at least $4 million in the aggregate, including amounts converted under any convertible promissory notes; (ii) a merger into another entity if the combined market capitalization of the merging entities is at least $18 million or, if not, upon our market capitalization as the surviving entity of a merger being at least $18 million at any time after the merger; (iii) a sale of all or substantially all of our assets; or (iv) a sale of our stock after which sale a majority of the outstanding equity is held by persons or entities who were our shareholders prior to the sale.

NASDAQ Deficiency Notice — On March 25, 2011, we received a letter from the Listing Qualifications Department of The NASDAQ Stock Market ("NASDAQ") notifying us that we were not in compliance with the minimum $1.00 per share minimum bid price requirement for continued inclusion on The NASDAQ Global Market set forth in NASDAQ Marketplace Rule 5450(a)(1) (the "Rule"), as a result of the bid price of our common stock having closed below $1.00 for the 30 consecutive business days prior to the date of the letter. NASDAQ's letter advised us that we were provided 180 calendar days, or until September 21, 2011, to regain compliance by having the bid price of our common stock close at or above $1.00 per share for a minimum of 10 consecutive business days.

We did not regain compliance with the Rule on or prior to September 21, 2011 and, accordingly, on September 22, 2011, we received a staff determination letter from NASDAQ stating that our common stock would be subject to delisting from The Nasdaq Global Market as a result of the deficiency. On September 28, 2011, we requested a hearing before the NASDAQ Listing Qualifications Panel to review the staff determination. Following the hearing, which was held on October 27, 2011, the Listing Qualifications Panel granted our request to remain listed on The NASDAQ Global Market, and allowed us until January 31, 2012 to regain compliance with the Rule. On February 1, 2012, we were notified that the Listing Qualifications Panel had determined to delist our common stock from the Nasdaq Stock Market, and to suspend trading in the shares effective at the open of business on February 2, 2012. Our common stock began trading on the OTCQX tier of the OTC Markets commencing on February 2, 2012, and it continued to trade on the OTCQX tier of the OTC Markets until July 10, 2012, following which it began trading on the OTC Pink tier of the OTC Markets.

Warrants — In connection with offerings of our common stock and notes payable, we have issued warrants to purchase shares of our common stock, some of which provide that the exercise price of the warrant will be reduced in the event of subsequent financings at an effective price per share less than the exercise price of the warrants, subject to certain exceptions and limitations.

On February 7, 2011, the exercise price of warrants to purchase 68,626 shares which we issued in November 2010 was adjusted to $10.60 per share. These warrants are no longer subject to adjustment except in connection with stock splits, dividends, and other similar events.

In February 2011, as part of a public offering, we issued warrants to purchase 111,308 shares of common stock at an exercise price of $8.00 per share. The warrants are exercisable until February 15, 2018, and the exercise price of such warrants is not subject to adjustment in connection with a subsequent financing at an effective price per share less than the exercise price of the warrants.

In May 2011, as part of a public offering, we issued 2,231,850 Series A Warrants to purchase shares of common stock at an initial exercise price of $3.90 per share, which exercise price is subject to adjustment in connection with a subsequent financing at an effective price per share less than the exercise price of such warrants. Our stockholders approved an amendment to our certificate of incorporation to increase the authorized number of shares of our common stock from 90,000,000 to 180,000,000 shares at our 2011 Annual Meeting of Stockholders held on July 14, 2011, and we filed the certificate of amendment of our certificate of incorporation to effectuate such increase on July 18, 2011. In the event that we had not increased the authorized number of shares of our common stock on or prior to the first anniversary of the issuance of the Series A Warrants, we would have been required to pay the holders of the Series A Warrants liquidated damages in the aggregate amount of $2,500,000. The Series A Warrants are exercisable during the period beginning on May 21, 2012 and ending on May 21, 2017 and we will not be required to pay liquidated damages to the holders of the Series A Warrants. As of the date of this report, the exercise price of the Series A Warrants is $0.28 per share.

In May 2011, we also issued 2,231,850 Series B Warrants, each to purchase one unit consisting of one share of common stock and one Series A Warrant, at an initial exercise price of $3.10 per unit, subject to adjustment, during the period ending on July 12, 2011. From May 20, 2011 to June 30, 2011, 712,150 of the Series B Warrants were exercised, resulting in proceeds of approximately $2.2 million and the issuance of an additional 712,150 Series A Warrants. As per the terms of the Series B Warrants, the exercise price of the Series B Warrants adjusted to $1.28 per unit at the close of trading on July 5, 2011, which adjustment was retroactively effective to June 29, 2011. Holders of the Series B Warrants that were exercised during the period beginning on June 29, 2011 and ending on July 5, 2011 were entitled to a refund of a portion of their previously paid exercise price if the exercise price adjusted to less than $3.10 per unit. The amount of the refund for each Series B Warrant was equal to the difference between the initial exercise price of the Series B Warrant ($3.10 per unit) and the adjusted exercise price of the Series B Warrant ($1.28 per unit). An aggregate of 600,500 Series B Warrants were exercised on June 29 and June 30, with respect to which we paid a refund in the aggregate amount of approximately $1.1 million to the warrant holders on July 6, 2011 and the remaining $0.4 million was reclassified to equity. From July 1, 2011 to the expiration date of July 12, 2011, 1,517,200 Series B Warrants were exercised resulting in additional net proceeds of approximately $2.0 million and the issuance of an additional 1,517,200 Series A Warrants. Total net proceeds received from the exercises of the Series B Warrants was approximately $3.1 million. On July 12, 2011, the remaining 2,500 Series B Warrants expired unexercised.

On February 10, 2012, we entered into a Note and Warrant Purchase Agreement pursuant to which we issued to certain accredited investors 15% secured promissory notes in the aggregate principal amount of $1.5 million and warrants to purchase up to 3,690,944 shares of common stock. The warrants had an initial exercise price of $0.508 per share, which was subject to adjustment (including in connection with subsequent financings), and are exercisable for a period of five years beginning six months and one day following the issuance of the warrants. The purchase agreement and the notes issued pursuant thereto have been amended to extend the maturity date of the notes from May 14, 2012 until December 31, 2012, to issue warrants to purchase up to an additional 3,199,848 shares of our common stock to the noteholders, and to decrease the exercise price of all of the warrants that we issued to the noteholders to $0.28 per share. In addition, we and the noteholders agreed that if we, at any time prior to December 31, 2012, effect any merger or consolidation of our company whereby the holders of the issued and outstanding shares of our common stock immediately prior to the consummation of such transaction hold less than fifty percent (50%) of the issued and outstanding shares of the voting securities of the surviving corporation immediately following the consummation of such transaction, we will have fully satisfied our obligation to repay the entire unpaid principal balance under the notes and all accrued and unpaid interest thereon through the issuance to the noteholders of an aggregate number of shares of common stock calculated by converting the then total outstanding principal and interest under the notes at a value of $0.28 per share of common stock.

On March 22, 2012, as part of a registered direct offering of shares of our common stock and warrants to purchase shares of our common stock, we entered into a Securities Purchase Agreement pursuant to which we issued warrants to purchase up to 800,001 shares of our common stock. The warrants have an exercise price of $0.75 per share, are immediately exercisable, and will be exercisable for a period of five years from the date of issuance. The exercise price and the number of shares issuable upon exercise of the warrants are subject to adjustment in the event of stock splits or dividends, business combinations, sale of assets or other similar transactions, but not as a result of future securities offerings at lower prices.

The following summarizes warrant activity during the years ended December 31, 2010 and 2011.

	Warrant Shares	Weighted Average Exercise Price
Warrants outstanding, January 1, 2010	288,698	$ 61.60
Warrants issued	198,547	34.50
Warrants assumed in Cequent acquisition	1,055	17.50
Warrants exercised	(62,875)	40.08
Warrants terminated upon Cequent acquisition	(42,405)	46.00
Warrants outstanding, December 31, 2010	383,020	$ 46.40
Warrants issued	8,111,798	3.32
Warrants exercised or cancelled	(2,232,840)	1.40
Warrants outstanding, December 31, 2011	6,261,978	$ 3.82
Warrants expiring in 2013	1,310,884	
Warrants expiring in 2014	95,632	
Warrants expiring in 2015	280,431	
Warrants expiring thereafter	4,575,031	

Subscription investment units — In November 2010, we issued subscription investment units to purchase during the 16-month period following the date of issuance, an aggregate of 242,355 shares of common stock at a per share exercise price equal to the lesser of (i) $22.10, and (ii) 90% of the quotient of (x) the sum of the three lowest volume-weighted average price ("VWAP") of the common stock for any three trading days during the ten (10) consecutive trading day period ending and including the trading day immediately prior to the applicable exercise date, divided by (y) three (3). If after 120 calendar days from the closing date certain conditions are satisfied, including that the closing price of our common stock exceeds $47.80 for 10 consecutive trading days, and the daily volume of our common stock on each of such 10 consecutive trading days is greater than 40,000 shares per day, we shall have the right to require the buyers to exercise their subscription units upon five days' written notice. The following summarizes subscription investment unit activity during the years ended December 31, 2010 and 2011. On March 5, 2012, the remaining 25,000 subscription investment units expired unexercised.

	Unit Shares	Weighted Average Exercise Price
Subscription investment units outstanding, January 1, 2010	—	$ —
Subscription investment units issued	242,355	22.10
Subscription investment units outstanding, December 31, 2010	242,355	12.50
Subscription investment units exercised	(217,355)	2.30
Subscription investment units outstanding, December 31, 2011	25,000	$ 0.89

Note 6 — Stock Incentive Plans

At December 31, 2011, options to purchase up to 578,257 shares of our common stock were outstanding, and 360,518 shares were reserved for future grants or awards under our various stock incentive plans.

Our stock incentive plans include the 2008 Stock Incentive Plan, 2004 Stock Incentive Plan and 2002 Stock Option Plan. At our 2011 annual shareholders' meeting, our shareholders approved the addition of 600,000 shares to our 2008 Stock Incentive Plan. We also maintain outstanding grants under our 2000 Nonqualified Stock Option Plan, which expired in 2010, and the 2006 Cequent Stock Incentive Plan under which stock options outstanding at the time of the Cequent acquisition were converted to options to purchase shares of our common stock. Under our stock compensation plans, we are authorized to grant options to purchase shares of common stock to our employees, officers and directors and other persons who provide services to us. The options to be granted are designated as either incentive stock options or non-qualified stock options by our board of directors, which also has discretion as to the person to be granted options, the number of shares subject to the options and the terms of the option agreements. Only employees, including officers and part-time employees, may be granted incentive stock options. Under our 2004 and 2008 plans, we are authorized to grant awards of restricted stock, stock appreciation rights and performance shares, in addition to stock options. As of December 31, 2011, no stock appreciation rights or performance shares have been granted. Options granted under the plans generally have terms of ten years from the date of grant, and generally vest over three years. We generally issue new shares for option exercises unless treasury shares are available for issuance. We had no treasury shares as of December 31, 2011 and have no plans to purchase any in the next year, however, we may accept the surrender of vested restricted shares from employees to cover tax requirements at our discretion.

Stock-based Compensation — Compensation expense is recognized on a straight-line basis over the applicable vesting periods based on the fair value on the grant date and is recorded net of forfeitures based on historical experience. Certain option and share awards provide for accelerated vesting if there is a change in control (as defined in the applicable plan and certain employment agreements we have with key employees). The following table summarizes stock-based compensation expense (in thousands):

	Years Ended December 31,	
	2010	2011
Research and development	$ 679	$ 422
Selling, general and administrative	1,337	505
Total	$ 2,016	$ 927

Stock Options — Option activity was as follows:

	Years Ended December 31,			
	2010		2011	
	Shares	Weighted Average Exercise Price	Shares	Weighted Average Exercise Price
Outstanding at beginning of year	210,750	$ 92.50	264,106	$ 69.30
Granted	21,861	26.30	392,976	2.03
Assumed in Cequent acquisition	58,083	23.20	—	—
Exercised	(4,058)	10.90	—	—
Expired	(19,058)	157.60	(47,016)	71.20
Forfeited	(3,472)	21.20	(31,809)	18.29
Outstanding at end of year	264,106	$ 69.30	578,257	$ 26.22
Exercisable at end of year	192,394	$ 74.50	193,404	$ 71.15

The following table summarizes additional information on our stock options outstanding at December 31, 2011:

	Options Outstanding			Options Exercisable	
Range of Exercise Prices	Number Outstanding	Weighted-Average Remaining Contractual Life (Years)	Weighted-Average Exercise Price	Number Exercisable	Weighted-Average Exercise Price
$2.00 – $ 2.20	368,268	9.7	$ 2.02	—	$ —
$5.51 – $ 5.51	718	9.3	5.51	—	—
$11.60 – $ 94.00	173,265	6.4	49.88	157,398	50.77
$127.60 – $617.20	36,006	6.2	160.26	36,006	160.26
Totals	578,257	8.4	$ 26.22	193,404	$ 71.15
Exercisable	193,404	6.2			

We use the Black-Scholes-Merton option pricing model to determine the fair value of our stock-based awards. The determination of the fair value of stock-based awards on the date of grant using an option-pricing model is affected by our stock price as well as by assumptions regarding a number of complex and subjective variables. These variables include the expected life of the award, expected stock price volatility over the term of the award, historical and projected exercise behaviors, risk-free interest rate and expected dividends. Staff Accounting Bulletins issued by the Securities and Exchange Commission provide for a simplified method for estimating expected term for “plain-vanilla” options, if a company met certain criteria. The mid-point between the vesting date and the expiration date is used as the expected term under this method. We have concluded that we meet the criteria to use the simplified method as we have had significant structural changes in our business such that our historical exercise data may no longer provide a reasonable basis upon which to estimate expected term. We estimate volatility of our common stock by using our stock price history to forecast stock price volatility. The risk-free interest rates used in the valuation model were based on U.S. Treasury issues with remaining terms similar to the expected term on the options. We do not anticipate paying any dividends in the foreseeable future and, therefore, use an expected dividend yield of nil. The per-share fair value of stock options granted was approximately $21.90 and $1.74 in 2010 and 2011, respectively, which were estimated at the date of grant using the Black-Scholes-Merton option valuation model with the following weighted average assumptions for the periods presented as follows:

	2010	2011
Risk free interest rate	1.6%	1.2%
Expected stock volatility	113%	118%
Expected option life	5.9 years	6.0 years

As of December 31, 2011, we had approximately $0.9 million of total unrecognized compensation cost related to unvested stock options. Total unrecognized compensation cost will be adjusted for future changes in estimated forfeitures. We expect to recognize this cost over a weighted average period of approximately 2.3 years.

At December 31, 2011, the aggregate intrinsic value of options outstanding or exercisable was zero as there were no options outstanding with an exercise price less than the December 31, 2011 closing market price of our common stock which was $0.89 per share. The total intrinsic value of options exercised in 2010 was approximately $0.1 million. No options were exercised in 2011. The total grant date fair value of options that vested during 2010 and 2011 was approximately $2.1 million and $1.3 million, respectively.

In 2010, in connection with our annual shareholders meeting, three members of our board of directors retired. Our board of directors approved a resolution to extend the amount of time two of the retiring directors have to exercise their vested options from 90 days to four years. Additional compensation expense recognized as a result of the modification was approximately $0.2 million. In 2011, in connection with our annual shareholders meeting, one member of our board of directors retired. Our board of directors approved a resolution to accelerate the vesting of the retiring director's outstanding stock options and to extend the amount of time he had to exercise his vested options from 90 days to four years. Additional compensation expense recognized as a result of the modification was not material.

Non-Employee Option Grants — We have granted stock options to non-employee members of our Scientific Advisory Board. In addition, as part of the Cequent acquisition, we assumed stock options granted to non-employees which were converted to stock options for 7,964 shares of our common stock. Non-employee option grants are recorded as expense over the vesting period of the underlying stock options. At the end of each financial reporting period prior to vesting, the value of these stock options, as calculated using the Black-Scholes-Merton option pricing model, is re-measured using the fair value of our common stock and the stock-based compensation recognized during the period is adjusted accordingly. Since the fair value of options granted to non-employees is subject to change in the future, the amount of future compensation expense will include fair value re-measurements until the stock options are fully vested. Expense recognized relating to options granted to non-employees was not material in 2010 or 2011.

Restricted Stock Awards — We have issued shares of restricted stock to certain employees and members of our Board pursuant to our 2004 Stock Incentive Plan. We did not grant any restricted stock awards during the 2009, 2010 and 2011 fiscal years. As of December 31, 2010, there were 94 unvested shares of restricted stock outstanding. These shares vested in January 2011 and there are no restricted stock awards remaining to vest.

Non-cash compensation expense for restricted stock awards is recognized on a straight-line basis over the applicable vesting periods based on the fair value of the restricted stock on the grant date. As of December 31, 2011, there is no unrecognized compensation cost related to unvested restricted stock awards. Stock-based compensation expense recorded and the fair value of restricted stock vested was not material for 2010 or 2011.

Employee Stock Purchase Plan — As of December 31, 2011, a total of 65,000 shares of common stock have been reserved for issuance under our 2007 Employee Stock Purchase Plan ("ESPP"), of which 14,233 have been issued to date. At our 2011 annual shareholders' meeting, our shareholders approved the addition of 50,000 shares to the plan. Under the terms of the ESPP, a participant may purchase shares of our common stock at a price equal to the lesser of 85% of the fair market value on the date of offering or on the date of purchase. Stock-based compensation expense related to the ESPP was not material in 2010 or 2011.

Note 7 — Employee Benefit Plan

Until July 2012, we maintained a 401(k) plan for employees meeting eligibility requirements under which eligible employees may contribute up to 100% of their eligible compensation, subject to IRS limitations. Our employer matching contributions to the plan were discretionary as determined by our board of directors. There were no employer contributions in 2010 or 2011. In June 2012 we terminated our 401(k) plan and the participants are eligible to take distributions in accordance with IRS limitations.

Note 8 — Income Taxes

We have identified our federal tax return and our state tax returns in New York and Massachusetts as "major" tax jurisdictions. The periods subject to examination for our federal income tax returns are the years ended in 2010 and thereafter, our New York income tax returns for years ended in 1997 and thereafter, and our Massachusetts tax returns for years ended in 2005 and thereafter. We believe our income tax filing positions and deductions will be sustained on audit and we do not anticipate any adjustments that would result in a material change to our financial position. Therefore, no liabilities for uncertain income tax positions have been recorded.

At December 31, 2011, we had available net operating loss carryforwards for federal and state income tax reporting purposes of approximately $298.2 million and $66.0 million, respectively, and had available tax credit carryforwards of approximately $11.1 million, which are available to offset future taxable income. A portion of these carryforwards will expire in 2012 and will continue to expire through 2030 if not otherwise utilized. Our ability to use such net operating losses and tax credit carryforwards is subject to annual limitations due to change of control provisions under Sections 382 and 383 of the Internal Revenue Code, and such limitation would be significant.

Our net deferred tax assets, liabilities and valuation allowance as of December 31, 2010 and 2011 are as follows (in thousands):

	Years Ended December 31,	
	2010	2011
Deferred tax assets:		
Net operating loss carryforwards	$ 104,173	$ 107,587
Tax credit carryforwards	10,758	11,089
Depreciation & amortization	3,655	4,917
Other	2,890	2,837
Total deferred tax assets	121,477	126,430
Valuation allowance	(114,722)	(126,430)
Net deferred tax assets	6,755	0
Deferred tax liabilities:		
Intangible assets	(7,957)	(2,345)
Net deferred tax liabilities	$ (1,202)	$ (2,345)

We continue to record a valuation allowance in the full amount of deferred tax assets not otherwise offset by deferred tax liabilities we expect to reverse since realization of such tax benefits has not been determined by our management to be more likely than not. The valuation allowance increased approximately $13.5 million and $11.7 million during 2010 and 2011, respectively. In 2010, approximately $1.2 million of the valuation allowance increase was a result of deferred taxes recorded in connection with the Cequent merger. The difference between the expected benefit computed using the statutory tax rate and the recorded benefit of nil in 2010 and income tax expense in 2011 is primarily due to the change in the valuation allowance.

Income Tax Expense. We account for income taxes under the asset and liability method under which deferred income taxes are provided for the temporary differences between the financial reporting basis and the tax basis of our assets and liabilities and operating losses and tax credit carryforwards. In 2011, we reviewed the deferred tax liabilities related to intangible assets and determined that because of the increased uncertainty in timing of reversal, the deferred tax liabilities did not support realization of our deferred tax assets. Therefore, in 2011, we recorded an increase to the valuation allowance against deferred tax assets of approximately $1.1 million which was also recorded as income tax expense.

Note 9 — Intellectual Property and Contractual Agreements

RNAi-related

Novartis – On August 2, 2012, we and Novartis Institutes for Biomedical Research, Inc. (“Novartis”) entered into a worldwide, non-exclusive License Agreement for our CRN technology for the development of both single and double-stranded oligonucleotide therapeutics. We received $1 million in a one-time upfront payment for the non-exclusive license. In addition, in March 2009, we entered into an agreement with Novartis pursuant to which we granted to Novartis a worldwide, non-exclusive, irrevocable, perpetual, royalty-free, fully paid-up license, with the right to grant sublicenses, to our DiLA^2 -based siRNA delivery platform in consideration of a one-time, non-refundable fee of $7.25 million, which was recognized as license fee revenue in 2009. Novartis may terminate this agreement immediately upon written notice to us. In connection with the March 2009 license agreement, we also entered into a separate agreement with Novartis to provide them with an exclusive period in which to negotiate a potential research and development collaboration as well as possible broader licensing rights related to our RNAi drug delivery platform. This exclusive period expired in 2009. Approximately $0.3 million was recognized as license fee revenue in 2009 under this separate agreement.

Girindus – On May 18, 2012, we and Girindus Group (“Girindus”) entered into a strategic alliance pursuant to which Girindus will have exclusive rights to develop, supply and commercialize certain oligonucleotide constructs using our CRN chemistry and in return, we will receive royalties in the single digit percentages from the sale of CRN-based oligonucleotide reagents as well as a robust supply of cGMP material for us and our partners' pre-clinical, clinical and commercialization needs.

Monsanto – On May 3, 2012, we and Monsanto Company (“Monsanto”) entered into a worldwide exclusive Intellectual Property License Agreement for our delivery and chemistry technologies. On May 3, 2012, we and Monsanto also entered into a Security Agreement pursuant to which we granted to Monsanto a security interest in that portion of our intellectual property that is the subject of the License Agreement in order to secure the performance of our obligations under the License Agreement. Under the terms of the license agreement, we received $1.5 million in initiation fees, and may receive royalties on product sales in the low single digit

percentages. Monsanto may terminate the License Agreement at any time in whole or as to any rights granted thereunder by giving prior written notice thereof to us, with termination becoming effective three (3) months from the date of the notice.

ProNAi Therapeutics, Inc. — On March 13, 2012, we entered into an Exclusive License Agreement with ProNAi Therapeutics, Inc. ("ProNAi") regarding the development and commercialization of ProNAi's proprietary DNAi-based therapeutics utilizing our novel SMARTICLES® liposomal delivery technology. The License Agreement provides that ProNAi will have full responsibility for the development and commercialization of any products arising under the License Agreement. Under terms of the License Agreement, we could receive up to $14 million for each gene target in total upfront, clinical and commercialization milestone payments, as well as royalties in the single digit percentages on sales, with ProNAi having the option to select any number of gene targets. Either party may terminate the License Agreement upon the occurrence of a default by the other party (subject to standard cure periods), or upon certain events involving the bankruptcy or insolvency of the other party. ProNAi may also terminate the License Agreement without cause upon ninety (90) days' prior written notice to us, provided that no such termination shall be effective sooner than December 13, 2012.

Mirna Therapeutics — On December 22, 2011, we entered into a License Agreement with Mirna Therapeutics, Inc. ("Mirna") regarding the development and commercialization of microRNA-based therapeutics utilizing Mirna's proprietary microRNAs and our novel SMARTICLES® liposomal delivery technology. The License Agreement provides that Mirna will have full responsibility for the development and commercialization of any products arising under the License Agreement and that we will support pre-clinical and process development efforts. Under terms of the License Agreement, we could receive up to $63 million in total upfront, clinical and commercialization milestone payments, as well as royalties in the low single digit percentages on sales, based on the successful outcome of the collaboration. Either party may terminate the License Agreement upon the occurrence of a default by the other party. Commencing on June 22, 2012, Mirna may also terminate the License Agreement without cause upon sixty (60) days prior written notice to us.

Debiopharm S.A. — In February 2011, we entered into a Research and License Agreement (as amended from time to time, the "Agreement") with Debiopharm S.A., a Swiss corporation, pursuant to which we granted to Debiopharm an exclusive license to develop and commercialize our pre-clinical program in bladder cancer, for all uses in humans and animals for the prevention and treatment of superficial (non-muscle invasive) bladder cancer, in consideration of the payment by Debiopharm to us of up to $24 million based on predefined research and development milestones, plus royalties in the low double digit percentages from the sales of products resulting under the Agreement and sublicensing payments. Among other things, the Agreement provides for certain licenses of our UsiRNA and liposomal technologies. Debiopharm will have full responsibility for the development and commercialization of any products arising from the partnership. In 2012, we completed and provided the results from our development activities to Debiopharm for review. No further work is required of us until Debiopharm completes an internal assessment of the program. Either party may terminate the Agreement for material breach by the other party (subject to a 60-day cure period) or upon certain events involving bankruptcy or insolvency of the other party. Debiopharm may terminate the Agreement without cause during the research period on 60 days' prior written notice to us (which notice period has been reduced to 30 days during the period that Debiopharm is reviewing the results of our development activities), and may also terminate the Agreement for scientific, technical, regulatory or economic reasons after the research period but before marketing authorization on 90 days' prior written notice to us or after a marketing authorization is granted on 180 days' prior written notice to us. Upon termination, Debiopharm is obligated to make all payments accrued as of the effective date of termination.

Valeant Pharmaceuticals — In March 2010, we acquired intellectual property related to Conformationally Restricted Nucleotides ("CRN") from Valeant Pharmaceuticals North America in consideration of payment of a non-refundable licensing fee of $0.5 million which was included in research and development expense in 2010. Subject to meeting certain milestones triggering the obligation to make any such payments, we may be obligated to make a product development milestone payment of $5.0 million within 180 days of FDA approval of a New Drug Application for our first CRN related product and another product development milestone payment of $2.0 million within 180 days of FDA approval of a New Drug Application covering our second CRN related product. As of December 31, 2011, we have not made, and are not under any current obligation to make, any such milestone payments, as the conditions triggering any such milestone payment obligations have not been satisfied. Valeant is entitled to receive earn-outs based upon a percentage in the low single digits of future commercial sales and earn-outs based upon a percentage in the low double digits of future revenue from sublicensing. Under the agreement we are required to use commercially reasonable efforts to develop and commercialize at least one covered product. If we have not made earn-out payments of at least $5.0 million prior to the sixth anniversary of the date of the agreement, we are required to pay Valeant an annual amount equal to $50,000 per assigned patent which shall be creditable against other payment obligations. The term of our financial obligations under the agreement shall end, on a country-by-country basis, when there no longer exists any valid claim in such country. We may terminate the agreement upon 30 days' notice, or upon 10 days' notice in the event of adverse results from clinical studies. Upon termination, we are obligated to make all payments accrued as of the effective date of such termination but shall have no future payment obligations.

Novosom — In July 2010, we entered into an agreement pursuant to which we acquired the intellectual property of Novosom AG ("Novosom") of Halle, Germany for Novosom's SMARTICLES®-based liposomal delivery system, which significantly broadens the number of approaches we may take for systemic and local delivery of our proprietary UNA and CRN-based oligonucleotide therapeutics. We issued an aggregate of 141,949 shares of our common stock to Novosom as consideration for the acquired assets. The shares had an aggregate value equal to approximately $3.8 million, which was recorded as research and development expense. As additional consideration for the acquired assets, we will pay to Novosom an amount equal to 30% of the value of each upfront (or combined) payment actually received by us in respect of the license of liposomal-based delivery technology or related product or disposition of the liposomal-based delivery technology by us, up to a maximum of $3.3 million, which amount will be paid in shares of our common stock, or a combination of cash and shares of our common stock, at our discretion. In December 2011 we recognized approximately $0.1 million as research and development expense for additional consideration paid to Novosom as a result of the License Agreement that we entered into with Mirna Therapeutics. During 2012 we issued 340,906 shares of common stock to Novosom as additional consideration as a result of the license agreements that we entered into with Mirna and Monstanto.

Roche — In February 2009, we entered into an agreement with F. Hoffmann-La Roche Inc., a New Jersey corporation, and F. Hoffmann-La Roche Ltd., a Swiss corporation (collectively, "Roche"), pursuant to which we granted to Roche a worldwide, irrevocable, non-exclusive license to a portion of our technology platform, for the development of RNAi-based therapeutics, in consideration of the payment of a one-time, non-refundable licensing fee of $5.0 million. On September 30, 2011, we agreed to the assignment and delegation by Roche of its non-exclusive license rights in the Licensed Technology upon Roche's successful divestment of its RNA interference assets. On October 21, 2011, Roche successfully divested its RNA interference assets, including the Licensed Technology, and made a one-time non-refundable payment of $1.0 million to us in consideration for our agreement to the assignment and delegation of Roche's non-exclusive license rights in the licensed technology. This payment was recognized as revenue in 2011.

University of Michigan — In May 2008, we entered into an exclusive license agreement to intellectual property ("IP") from the University of Michigan covering cationic peptides for enhanced delivery of nucleic acids. In connection with the agreement, we paid a license issue fee of $120,000. An additional fee of $25,000 is payable annually and creditable against royalty payments. Results from continued internal development efforts made this exclusive license agreement unnecessary and the agreement was terminated on August 7, 2012 with no further financial obligation.

University of Helsinki — In June 2008, we entered into a collaboration agreement with Dr. Pirjo Laakkonen and the Biomedicum Helsinki. The goal of the work involves our patented phage display library, the Trp Cage library, for the identification of peptides to target particular tissues or organs for a given disease. In December 2009, we received a patent allowance in the U.S. covering a targeting peptide for preferential delivery to lung tissues that was identified by us using the Trp Cage Library. We believe the Trp Cage library will be a source of additional peptides for evaluation in our delivery programs, and we will have a strong IP position for these peptides and their use. This agreement terminated by its terms in June 2012. Under this agreement, we may be obligated to make product development milestone payments of up to €275,000 in the aggregate for each product developed under this research agreement if certain milestones are met. As of December 31, 2011, we have not made, and are not under any current obligation to make, any such milestone payments, as the conditions that would trigger any such milestone payment obligations have not been satisfied. In addition, upon the first commercial sale of a product, we are required to pay an advance of €250,000 against which future royalties will be credited. The percentage royalty payment required to be made by us to the University of Helsinki under the terms of this agreement is a percentage of gross revenues derived from work performed under the Helsinki Agreement in the low single digits.

Ribotask ApS. — In June 2009, we announced the revision of the October 2008 agreement in which we had acquired the intellectual property related to Unlocked Nucleobase Analogs ("UNA") from Ribotask ApS, a privately held Danish company. The original agreement provided us with exclusive rights for the development and commercialization of therapeutics incorporating UNAs. The amended agreement eliminated our obligation to pay all milestone and royalty payments and provided full financial and transactional control of our proprietary UNA technology.

Under the October 2008 agreement we made payments to Ribotask totaling $500,000. We sublicensed the IP under this agreement to Roche on a nonexclusive basis in February 2009, at which time we paid an additional $250,000 to Ribotask, which eliminated the obligation to pay Ribotask any future royalties or milestones with respect to the Roche sublicense. In connection with the June 2009 amendment, we issued 15,152 shares of our common stock valued at approximately $1.0 million to Ribotask ApS and agreed to pay $1.0 million in four installments of $250,000 each due at various intervals through July 2010.

In June 2010, we expanded our rights under the previous agreement with Ribotask to include exclusive rights to the development and commercialization of UNA-based diagnostics. In connection with this amendment, we agreed to pay Ribotask $750,000 in three equal payments of $250,000. In March 2011, the agreement was amended to change the payment terms for the diagnostic rights. The first payment of $250,000 was made in November 2010, a payment of $50,000 was made upon the execution of the amendment, and the remaining $400,000 was paid in eight equal monthly installments beginning on May 1, 2011. In addition we issued 11,377 shares of our common stock valued at approximately $80,000 to Ribotask on March 3, 2011.

In connection with our agreements, as amended, we granted Ribotask a royalty-bearing, world-wide exclusive license to use the assigned patents to develop and sell products intended solely for use as reagents or for testing. The royalty rates to be paid to us by Ribotask are a percentage in the low single digits.

Intranasal related

Cypress Bioscience, Inc. — In August 2010, we entered into an Asset Purchase Agreement with Cypress Bioscience, Inc. ("Cypress") under which Cypress acquired our patent rights and technology related to carbetocin, a long-acting analog of oxytocin, a naturally produced hormone that may benefit individuals with autism. Under the agreement, we received an upfront payment of $750,000 and we could receive milestone payments up to $27 million. In 2011, the carbetocin asset was spun out to create Kyalin Bioscience. Kyalin Bioscience will be responsible for all future development and IP related expenses as well as all milestone payments due to us. In addition, Kyalin will pay us royalties, in single-digit percentages, based on commercial sales.

Par Pharmaceutical — In 2009, we entered into an Asset Purchase Agreement with Par Pharmaceutical ("Par") pursuant to which, among other things, a 2004 License and Supply Agreement with Par was terminated. Under the Asset Purchase Agreement, Par acquired certain assets pertaining to calcitonin nasal spray for osteoporosis. We received $0.8 million in cash and were entitled to receive earn-out payments for five years based on commercial sales of calcitonin. Calcitonin received full FDA approval and was launched in June 2009. In December 2010, we entered into an amendment of the Asset Purchase Agreement under which Par agreed to pay us a lump-sum cash payment of $0.7 million in lieu of profit sharing for the remainder of the earn-out payment period, which we recognized as revenue in 2010.

Amylin Pharmaceuticals, Inc. — In January 2009 we amended our 2006 License Agreement with Amylin Pharmaceuticals, Inc. for the development of intranasal exenatide. The License Agreement, as amended, provides for an accelerated $1.0 million milestone payment to us in January 2009, a reduction in the aggregate amount of milestone payments that could be due to us from $89 million to $80 million, and a reduction in the percentage royalty rate payable upon commercial sales of a product to the low single digits. Additionally, as a result of the amendment, we are no longer responsible for any further development of the nasal spray formulation of intranasal exenatide or its manufacture. Either party may terminate the agreement for breach of any material provision of the agreement upon 60 days' notice of the breach and subject to a 60 day cure period. Amylin may also terminate the agreement upon 90 days' written notice.

Note 10 — Commitments and Contingencies

Standby Letter of Credit — In connection with the terms of our lease of our Bothell, Washington facility we have provided our landlord with a stand-by letter of credit. During October 2011, the landlord drew $0.1 million on the $1.2 million standby letter of credit for that facility, which also resulted in a draw on our restricted cash, and as of December 31, 2011, approximately $1.0 million was outstanding on the remaining standby letter of credit.

Leases — We lease space for our research and development and corporate offices at 3830 Monte Villa Parkway in Bothell, Washington under an operating lease that was originally scheduled to terminate in 2016. On October 5, 2012, we entered into a Lease Termination Agreement (the "Termination Agreement"), effective as of October 1, 2012, with respect to our facilities at 3830 Monte Villa Parkway. Pursuant to the Termination Agreement, we paid $155,000 to the landlord as rent for the premises for the month of October 2012. Thereafter, our obligation to pay further rent will be satisfied through the letter of credit that we established to support our obligations under the lease. The landlord will draw the amount of each month's rent by drawing on the letter of credit on or about the first day of each month from November 2012 through February 2013, with the landlord drawing the entire remaining amount available to be drawn on the letter of credit when it draws the February 2013 rent. The lease will terminate effective on March 1, 2013; provided that prior to March 1, 2013 the landlord may terminate the Lease on 10 days' prior written notice, in which event the landlord shall be entitled to immediately draw all remaining amounts under the Termination Agreement on the letter of credit.

We leased space for research and development in Cambridge, Massachusetts under an operating lease expiring in 2012. In February 2012, we announced that we were closing our Cambridge site and we entered into a sublease with a third party for the remainder of the lease term. As further discussed in Note 4, in September 2011, we entered into an agreement to terminate our lease for our exited facility at 3450 Monte Villa Parkway in Bothell, Washington.

Rent expense was approximately $1.4 million in 2010 and $1.6 million in 2011. In addition, approximately $0.3 million and $0.2 million in rental payments decreased the restructuring liability during 2010 and 2011, respectively.

The following summarizes future annual minimum lease payments under operating leases as of December 31, 2011 (in thousands):

	3830 Monte Villa	Cambridge, MA	Total
2012	$ 1,384	$ 148	$ 1,532
2013	1,442	—	1,442
2014	1,501	—	1,501
2015	1,586	—	1,586
2016	267	—	267
Total	$ 6,180	$ 148	$ 6,328

Contingencies — We are subject to various legal proceedings and claims that arise in the ordinary course of business. Our management currently believes that resolution of such legal matters will not have a material adverse impact on our consolidated financial position, results of operations or cash flows.

Note 11 — Subsequent Events

As further described in Note 1, in February 2012, we received net proceeds of approximately $1.5 million by issuance of secured promissory notes and warrants to purchase up to 3,690,944 shares of our common stock. We have issued warrants to purchase up to an additional 3,199,848 shares of common stock in connection with certain amendments that, among other things, extended the maturity date of the notes to December 31, 2012.

As further described in Note 5, on February 1, 2012, we received notification from the NASDAQ Listing Qualifications Panel that it had determined to delist our common stock from the Nasdaq Stock Market, and to suspend trading in the shares effective at the open of business on February 2, 2012. Our common stock began trading on the OTCQX Tier of the OTC Markets commencing on February 2, 2012. Our common stock traded on the OTCQX Tier of the OTC Markets until July 10, 2012, and it began trading on the OTC Pink Tier of the OTC Markets on July 11, 2012.

As further described in Note 5, on March 20, 2012 we notified Lincoln Park Capital Fund, LLC, or LPC, that we were terminating that certain Purchase Agreement, dated as of October 11, 2011, that we entered into with LPC, effective immediately. Also on March 20, 2012, we notified Socius CG II, Ltd., or Socius, that we were terminating that certain Securities Purchase Agreement, dated as of December 22, 2011, that we entered into with Socius, effective thirty (30) days from the date of such notice. The termination of the securities purchase agreement with Socius also terminates that certain warrant initially exercisable for 1,305,970 shares of our common stock at an exercise price of $1.34 per share that we issued to Socius in connection with the closing of the purchase agreement. We issued a total of 1,544,901 shares of our common stock to LPC under the facility created by the purchase agreement with LPC, and we received proceeds of approximately $1.7 million in consideration for such sales. Other than the warrant to purchase shares of our common stock that we issued to Socius, which warrant expired unexercisable, we did not issue any securities to Socius pursuant to our purchase agreement with Socius. We terminated the purchase agreements with each of LPC and Socius in connection with the registered direct offering of our common stock and warrants in March 2012.

As further described in Note 1, in March 2012 we received net proceeds of approximately $1.1 million by issuance of 1,600,002 shares of our common stock and warrants to purchase up to 800,001 shares of our common stock.

As further described in Note 9: (i) in March 2012 we entered into an exclusive license agreement with ProNAi Therapeutics, Inc. regarding the development and commercialization of DNAi-based therapeutics utilizing our novel SMARTICLES® liposomal delivery technology; (ii) in May 2012 we entered into an exclusive license agreement with Monsanto Company for our delivery and chemistry technologies; (iii) in May 2012 we entered into a strategic alliance with Girindus Group regarding the development, supply and commercialization of certain oligonucleotide constructs using our CRN technology; and (iv) in August 2012 we entered into a worldwide, non-exclusive license agreement with Novartis Institutes for Biomedical Research, Inc. regarding the development of both single and double-stranded oligonucleotide therapeutics utilizing our CRN technology.

As further described in Note 10, in February 2012, we announced that we were closing our Cambridge site and that we entered into a sublease with a third party for the remainder of the lease term. We recorded a restructuring charge of approximately $30,000 relating to this facility closure.

As further described in Note 5, during August 2012 we committed to issue to nine of our vendors an aggregate of approximately 3.6 million shares of our common stock to settle outstanding amounts due to such vendors in the aggregate amount of approximately $1.2 million.

On June 1, 2012, we announced that, due to our financial condition, we had implemented a furlough of approximately 90% of our employees and ceased substantially all day-to-day operations. Since that time substantially all of the furloughed employees have been terminated. As of September 30, 2012, we had approximately 11 remaining employees, including all of our executive officers, all of whom are either furloughed or working on reduced salary. As a result, since June 1, 2012 our internal research and development efforts have been minimal, pending receipt of adequate funding.

As further described in Notes 5 and 10, effective October 1, 2012, we entered into a Lease Termination Agreement with the landlord for our facilities located at 3830 Monte Villa Parkway pursuant to which we reduced the term of the lease and we agreed to issue to the landlord 1.5 million shares of our common stock.

MARINA BIOTECH, INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED BALANCE SHEETS
(Unaudited)

	December 31, 2011	September 30, 2012
	(In thousands, except share and per share data)	
ASSETS		
Current assets:		
Cash	$ 976	$ 413
Restricted cash	1,011	692
Prepaid expenses and other current assets	589	208
Total current assets	2,576	1,313
Property and equipment, net	2,429	0
Intangible assets	6,700	6,700
Other assets	45	0
Total assets	$ 11,750	$ 8,013
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 2,536	$ 1,760
Accrued payroll and employee benefits	376	249
Deferred rent, current portion	0	1,096
Other accrued liabilities	879	553
Notes payable and accrued interest, net of discount	0	1,201
Deferred revenue	848	682
Total current liabilities	4,639	5,541
Deferred rent and other liabilities, net of current portion	1,243	0
Fair value liability for price adjustable warrants and subscription investment units	3,485	2,477
Deferred tax liabilities	2,345	2,345
Total liabilities	11,712	10,363
Commitments and contingencies		
Stockholders' equity :		
Preferred stock, $.01 par value; 100,000 shares authorized: no shares issued and outstanding	0	0
Common stock and additional paid-in capital, $0.006 par value; 180,000,000 shares authorized, 10,438,912 shares issued and outstanding as of December 31, 2011 and 180,000,000 shares authorized, 16,166,756 shares issued and outstanding as of September 30, 2012	320,232	323,338
Accumulated deficit	(320,194)	(325,688)
Total stockholders' equity (deficit)	38	(2,350)
Total liabilities and stockholders' equity	$ 11,750	$ 8,013

See accompanying notes to condensed consolidated financial statements

MARINA BIOTECH, INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(Unaudited)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2011	2012	2011	2012
	(In thousands, except per share data)			
Revenue	$ 286	$ 1,106	$ 629	$ 2,895
Operating expenses:				
Research and development	2,955	753	9,077	4,506
Selling, general and administrative	1,852	598	6,503	3,306
Restructuring	1,104	1,446	1,390	1,481
Total operating expenses	5,911	2,797	16,970	9,293
Loss from operations	(5,625)	(1,691)	(16,341)	(6,398)
Other income (expense):				
Interest and other expense	0	(201)	0	(2,466)
Change in fair value liability for price adjustable warrants and subscription investment units	1,238	50	4,704	3,278
Gain on settlement of liabilities, net	0	92	0	92
Total other income (expense), net	1,238	(59)	4,704	904
Net loss	$ (4,387)	$ (1,750)	$ (11,637)	$ (5,494)
Net loss per common share — basic and diluted	$ (0.55)	$ (0.12)	$ (2.22)	$ (0.44)
Shares used in computing net loss per share — basic and diluted	8,041	14,309	5,248	12,417

See accompanying notes to condensed consolidated financial statements

MARINA BIOTECH, INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENT OF STOCKHOLDERS' EQUITY (DEFICIT)
For the nine months ended September 30, 2012
(Unaudited)

	Common Stock and Additional Paid-In Capital		Accumulated	Total Stockholders'
	Shares	Amount	Deficit	Equity (Deficit)
	(In thousands, except share data)			
Balance December 31, 2011	10,438,912	$ 320,232	$ (320,194)	$ 38
Proceeds from the issuance of common shares and warrants, net	1,600,002	1,111	0	1,111
Shares issued in connection with license agreement	340,906	233	0	233
Fractional shares redeemed	(104)	0	0	0
Proceeds from employee stock purchase plan purchases	3,908	2	0	2
Reclassification of fair value liability for price adjustable warrants exercised	187,006	291	0	291
Shares issued in connection with settlement of liabilities	3,596,126	1,124	0	1,124
Compensation related to stock options and employee stock purchase plan, net of forfeitures	0	345	0	345
Net loss	0	0	(5,494)	(5,494)
Balance September 30, 2012	16,166,756	$ 323,338	$ (325,688)	$ (2,350)

See accompanying notes to condensed consolidated financial statements

MARINA BIOTECH, INC. AND SUBSIDIARIES

CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)

	Nine Months Ended September 30,	
	2011	2012
	(In thousands)	
Operating activities:		
Net loss	$ (11,637)	$ (5,494)
Adjustments to reconcile net loss to net cash used in operating activities:		
Compensation related to restricted stock, stock options and employee stock purchase plan	688	345
Depreciation and amortization	1,005	555
Non-cash research and development expense	30	0
Non-cash amortization of discount on notes payable	0	2,324
Non-cash restructuring expense	1,298	1,481
Accretion of restructuring liability	92	0
Change in fair value of price adjustable warrants and subscription investment units	(4,704)	(3,278)
Gain on settlement of liabilities, net	0	(92)
Loss on retirement of assets	0	17
Changes in assets and liabilities:		
Restricted cash	0	319
Accounts receivable	49	0
Prepaid expenses and other assets	372	456
Accounts payable	(1,012)	440
Deferred revenue	480	(166)
Accrued expenses and deferred rent and other liabilities	(488)	(314)
Accrued restructuring	(368)	0
Net cash used in operating activities	(14,195)	(3,407)
Investing activities:		
Change in restricted cash	(140)	0
Proceeds from sales of property and equipment	0	371
Net cash provided by (used in) investing activities	(140)	371
Financing activities:		
Proceeds from sales of common shares and warrants, net	10,726	1,111
Proceeds from issuance of notes payable and warrants	0	1,500
Payments on notes payable	0	(140)
Proceeds from exercise of warrants, subscription investment units, stock options and employee stock purchase plan purchases	3,587	2
Net cash provided by financing activities	14,313	2,473
Net decrease in cash	(22)	(563)
Cash — beginning of year	1,066	976
Cash — end of period	$ 1,044	$ 413
Non-cash financing activities:		
Issuance of common stock to settle liabilities	$ 1,562	$ 1,124
Issuance of common stock in connection with license agreement	0	233
Supplemental disclosure:		
Cash paid for interest	$ 0	$ 62

See accompanying notes to condensed consolidated financial statements

MARINA BIOTECH, INC. AND SUBSIDIARIES
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
For the nine months ended September 30, 2012 and 2011 (Unaudited)

Note 1 — Business, Reduction of Operations, Going Concern, Recent Financing Activities, and Basis of Preparation and Summary of Significant Accounting Policies

Business

We are a biotechnology company focused on the discovery, development and commercialization of nucleic acid-based therapies utilizing gene silencing approaches such as RNA interference ("RNAi") and blocking messenger RNA ("mRNA") translation. Our goal is to improve human health through the development, either through our own efforts or those of our collaboration partners and licensees, of these nucleic acid-based therapeutics as well as the delivery technologies that together provide superior treatment options for patients. We have multiple proprietary technologies integrated into a broad nucleic acid-based drug discovery platform, with the capability to deliver novel nucleic acid-based therapeutics via systemic, local and oral administration to target a wide range of human diseases, based on the unique characteristics of the cells and organs involved in each disease.

Our pipeline includes a clinical program in Familial Adenomatous Polyposis ("FAP") and preclinical programs in bladder cancer and myotonic dystrophy. During the past year we have entered into the following agreements regarding our technology:

- In December 2011, we entered into an exclusive license agreement with Mirna Therapeutics, Inc., a privately-held biotechnology company pioneering microRNA replacement therapy for cancer, regarding the development and commercialization of microRNA-based therapeutics utilizing Mirna's proprietary microRNAs and our novel SMARTICLES®-based liposomal delivery technology.

- In March 2012, we entered into an exclusive license agreement with ProNAi Therapeutics, Inc., a privately-held biotechnology company pioneering DNA interference (DNAi) therapies for cancer, regarding the development and commercialization of DNAi-based therapeutics utilizing our novel SMARTICLES®-based liposomal delivery technology.

- In May 2012, we entered into a worldwide exclusive license agreement with Monsanto Company, a global leader in agriculture and crop sciences, regarding the agricultural applications for our delivery and chemistry technologies.

- In May 2012, we entered into a strategic alliance with Girindus Group, a recognized leader in process development, analytical method development and cGMP manufacture of oligonucleotide therapeutics, regarding the development, supply and commercialization of certain oligonucleotide constructs using our conformationally restricted nucleotide ("CRN") technology.

- In August 2012, we entered into a worldwide, non-exclusive license agreement with Novartis Institutes for Biomedical Research, Inc., a global leader in the development of human therapeutics, regarding the development of oligonucleotide therapeutics utilizing our CRN technology.

- In November 2012, we entered into a worldwide, non-exclusive license agreement with Protiva Biotherapeutics Inc., a wholly owned subsidiary of Tekmira Pharmaceuticals Corporation ("Tekmira"), a leading oligonucleotide-based drug discovery and development company, regarding the development of oligonucleotide therapeutics using our Unlocked Nucleobase Analog (UNA) technology.

In addition to our own, internally developed technologies, we have strategically in-licensed and further developed nucleic acid- and delivery-related technologies, forming an integrated drug discovery platform. We are employing our platform, through our own efforts and those of our partners, for the discovery of multiple nucleic acid-based therapeutics including siRNA, microRNA and single stranded oligonucleotide-based drugs.

Reduction of Operations

On June 1, 2012, we announced that, due to our financial condition, we had implemented a furlough of approximately 90% of our employees and ceased substantially all day-to-day operations. Since that time substantially all of the furloughed employees have been terminated. As of November 30, 2012, we had approximately 10 remaining employees, including all of our executive officers, all of whom are either furloughed or working on reduced salary. We have also sold substantially all of our equipment, and have ceased

operations at our facility located at 3830 Monte Villa Parkway in Bothell, WA. As a result, since June 1, 2012 our internal research and development ("R&D") efforts have been, and as of the date of the filing of this report they continue to be, minimal, pending receipt of adequate funding.

Going Concern

The accompanying condensed consolidated financial statements have been prepared on the basis that we will continue as a going concern, which contemplates realization of assets and the satisfaction of liabilities in the normal course of business. As of September 30, 2012, we had an accumulated deficit of approximately $325.7 million, have incurred, and may in the future continue to incur, losses as we continue our planned business operations and have had recurring negative cash flows from operations. We expect that our operating expenses will consume the majority of our limited cash resources during the remainder of 2012, and will require ongoing funding. We have funded our losses primarily through the sale of common stock and warrants in the public markets and private placements, revenue provided by our collaboration partners and secured loans.

We plan to continue to work with large pharmaceutical companies regarding R&D collaboration agreements or investments, and to pursue public and private sources of financing to raise cash. However, there can be no assurance that we will be successful in such endeavors.

The market value and the volatility of our stock price, as well as general market conditions and our current financial condition, could make it difficult for us to complete a financing or collaboration transaction on favorable terms, or at all. Any financing we obtain may further dilute the ownership interest of our current stockholders, which dilution could be substantial, or provide new stockholders with superior rights than those possessed by our current stockholders. If we are unable to obtain additional capital when required, and in the amounts required, we may be forced to modify, delay or abandon some or all of our programs, or to discontinue operations altogether. Additionally, any collaboration may require us to relinquish rights to our technologies. These factors, among others, raise substantial doubt about our ability to continue as a going concern. The accompanying condensed consolidated financial statements do not include any adjustments that may result from the outcome of this uncertainty. The Report of Independent Registered Public Accounting Firm included in our Annual Report on Form 10-K for the year ended December 31, 2011 states that we have ceased substantially all day-to-day operations, including most research and development activities, have incurred recurring losses, have a working capital and accumulated deficit, and have had recurring negative cash flows from operations, that raise substantial doubt about our ability to continue as a going concern.

At September 30, 2012, we had a working capital deficit (current assets less current liabilities) of approximately $4.2 million and approximately $1.1 million in cash, including approximately $0.7 million in restricted cash.

We believe that our resources as of the date of the filing of this report will be sufficient to fund our planned limited operations until the end of 2012.

Recent Financing Activities

In February 2012, we received net proceeds of approximately $1.5 million by issuance of secured promissory notes and warrants to purchase up to 3,690,944 shares of our common stock. Through a series of amendments to the purchase agreement and the notes issued pursuant thereto, we have extended the maturity date of the notes to December 31, 2012, and in connection with such extensions have issued to the secured parties additional warrants to purchase up to 3,199,848 shares of our common stock. The warrants are exercisable at $0.28 per share, which is subject to adjustment (including as a result of subsequent financings), and are exercisable for a period of five years beginning six months and one day following the issuance of the warrants. The notes are secured by the assets of our company and our wholly-owned subsidiaries, Cequent Pharmaceuticals, Inc. and MDRNA Research, Inc. The security agreement that we entered into in connection with this transaction provides a security interest in, but not limited to, all of the property, equipment and fixtures, accounts, negotiable collateral, cash, and cash equivalents of our company and our wholly-owned subsidiaries, Cequent and MDRNA Research, subject to certain exceptions. The security interest created in the collateral is first priority, subject to the permitted encumbrances provided in the security agreement, and is perfected to the extent such security interest can be perfected by the filing of a financing statement and filings with the U.S. Patent and Trademark Office. The security interest created in the collateral will be removed at such time as the notes are paid in full.

As a result of amendments to the purchase agreement and the notes issued pursuant thereto, we and the holders of the notes agreed that if we, at any time prior to December 31, 2012, effect any merger or consolidation of our company whereby the holders of the issued and outstanding shares of our common stock immediately prior to the consummation of such transaction hold less than fifty percent (50%) of the issued and outstanding shares of the voting securities of the surviving corporation immediately following the consummation of such transaction, we will have fully satisfied the obligation to repay the entire unpaid principal balance under the notes and all accrued and unpaid interest thereon through the issuance to the noteholders of an aggregate number of shares of common

stock calculated by converting the then total outstanding principal and interest under the notes at a value of $0.28 per share of common stock.

In March 2012, we received net proceeds of approximately $1.1 million by issuance of 1,600,002 shares of our common stock and warrants to purchase up to 800,001 shares of our common stock. The warrants have an exercise price of $0.75 per share, are immediately exercisable (subject to registration or the availability of an exemption under federal and state securities laws), and will be exercisable for a period of five years from the date of issuance. The exercise price and the number of shares issuable upon exercise of the warrants are subject to adjustment in the event of stock splits or dividends, business combinations, sale of assets or other similar transactions, but not as a result of future securities offerings at lower prices.

In May and July, 2012, we received an aggregate of $1.5 million as an upfront payment in connection with the Intellectual Property License Agreement that we entered into with Monsanto Company. At the same time that we entered into the Intellectual Property License Agreement, we and Monsanto also entered into a Security Agreement pursuant to which we granted to Monsanto a security interest in that portion of our intellectual property that is the subject of the license agreement in order to secure the performance of our obligations under the license agreement.

In August 2012 we received $1 million in a one-time upfront payment in connection with the License Agreement that we entered into with Novartis Institutes for Biomedical Research, Inc. Between September and November 2012, we received additional funds as a result of the sale of certain equipment at our corporate headquarters, the receipt of the upfront payment in connection with the license agreement that we entered into with ProNAi Therapeutics, and the receipt of an accelerated milestone payment in connection with the license agreement that we entered into with Mirna Therapeutics. In addition, on November 28, 2012, we entered into a license agreement with Tekmira, in connection with which we received an upfront payment in the amount of $300,000.

Basis of Preparation and Summary of Significant Accounting Policies

Basis of Preparation — The accompanying unaudited condensed consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America for interim financial information and in accordance with the instructions to Form 10-Q and Article 10 of Regulation S-X. Accordingly, they do not include all of the information and note disclosures required by U.S. generally accepted accounting principles for complete financial statements. The accompanying unaudited financial information should be read in conjunction with the audited consolidated financial statements, including the notes thereto, as of and for the year ended December 31, 2011, included in our 2011 Annual Report on Form 10-K filed with the SEC. The information furnished in this report reflects all adjustments (consisting of normal recurring adjustments), which are, in the opinion of management, necessary for a fair presentation of our financial position, results of operations and cash flows for each period presented. The results of operations for the interim period ended September 30, 2012 are not necessarily indicative of the results for the year ending December 31, 2012 or for any future period.

Use of Estimates — The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires our management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements, and reported amounts of revenues and expenses during the reporting periods. Estimates having relatively higher significance include revenue recognition, research and development costs, stock-based compensation, valuation of warrants and subscription investment units, valuation and estimated lives of identifiable intangible assets, impairment of long-lived assets, estimated accrued restructuring charges and income taxes. Actual results could differ from those estimates.

Restricted Cash — Amounts pledged as collateral underlying letters of credit for facility lease deposits are classified as restricted cash.

Fair Value of Financial Instruments — We consider the fair value of cash, restricted cash, accounts payable and accrued liabilities to not be materially different from their carrying value. These financial instruments have short-term maturities.

We follow authoritative guidance with respect to fair value reporting issued by the Financial Accounting Standards Board ("FASB") for financial assets and liabilities, which defines fair value, provides guidance for measuring fair value and requires certain disclosures. The guidance establishes a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value into three broad levels. The following is a brief description of those three levels:

Level 1: Observable inputs such as quoted prices (unadjusted) in active markets for identical assets or liabilities.

Level 2: Inputs other than quoted prices that are observable for the asset or liability, either directly or indirectly. These include quoted prices for similar assets or liabilities in active markets and quoted prices for identical or similar assets or liabilities in markets that are not active.

Level 3: Unobservable inputs in which little or no market data exists, therefore developed using estimates and assumptions developed by us, which reflect those that a market participant would use.

We currently measure and report at fair value our liability for price adjustable warrants and subscription investment units using the Black-Scholes-Merton valuation model using Level 3 inputs. The following tables summarize our liabilities measured at fair value on a recurring basis as of September 30, 2012 (in thousands):

	Balance at September 30, 2012	Level 1 Quoted prices in active markets for identical assets	Level 2 Significant other observable inputs	Level 3 Significant unobservable inputs
Liabilities:				
Fair value liability for price adjustable warrants and subscription investment units	$ 2,477	—	—	$ 2,477
Total liabilities at fair value	$ 2,477	—	—	$ 2,477

The following presents activity of the fair value liability of price adjustable warrants and subscription investment units determined by Level 3 inputs (in thousands, except per share data):

		Weighted average as of each measurement date				
	Fair value liability for price adjustable warrants and subscription investment units (in thousands)	Exercise Price	Stock Price	Volatility	Contractual life in years	Risk free rate
Balance at December 31, 2011	$ 3,485	$ 0.76	$ 0.89	124%	5.4	0.9%
Fair value of warrants issued	2,561	0.28	0.49	127%	5.5	0.8%
Reclassification to equity upon exercise of warrants	(291)	0.51	0.74	135%	5.0	0.7%
Change in fair value included in statement of operations	(3,278)					
Balance at September 30, 2012	$ 2,447	$ 0.25	$ 0.28	143%	4.7	0.9%

Property and equipment — Long-lived assets include property and equipment. These assets are recorded at our original cost and are increased by the cost of any significant improvements after purchase. Property and equipment assets are depreciated evenly over the estimated useful life of the individual assets. Depreciation begins when the asset is ready for its intended use. For tax purposes, accelerated depreciation methods are used as allowed by tax laws.

Identifiable intangible assets — Intangible assets associated with in-process research and development ("IPR&D") projects acquired in business combinations are not amortized until approval is obtained in a major market, typically either the U.S. or the European Union, or in a series of other countries, subject to certain specified conditions and management judgment. The useful life of an amortizing asset generally is determined by identifying the period in which substantially all of the cash flows are expected to be generated.

Impairment of long-lived assets — We review all of our long-lived assets for impairment indicators throughout the year and we perform detailed testing whenever impairment indicators are present. In addition, we perform detailed impairment testing for indefinite-lived intangible assets at least annually. When necessary, we record charges for impairments. Specifically:

- For finite-lived intangible assets, such as developed technology rights, and for other long-lived assets, such as property and equipment, we calculate the undiscounted amount of the projected cash flows associated with the asset, or asset group, and compare this estimated amount to the carrying amount. If the carrying amount is found to be greater, we record an impairment loss for the excess of book value over fair value. In addition, in all cases of an impairment review, we re-evaluate the remaining useful lives of the assets and modify them, as appropriate.

- For indefinite-lived intangible assets, such as IPR&D assets, each year and whenever impairment indicators are present, we determine the fair value of the asset and record an impairment loss for the excess of book value over fair value, if any.

Net Loss Per Common Share — Basic and diluted net loss per common share is computed by dividing the net loss by the weighted average number of common shares outstanding during the period. Diluted net loss per share excludes the effect of common stock equivalents (stock options, unvested restricted stock, warrants and subscription investment units) since such inclusion in the computation would be anti-dilutive. The following numbers of shares have been excluded for periods ended September 30:

	2011	2012
Stock options outstanding	611,657	358,373
Warrants	4,956,005	11,251,086
Subscription investment units	25,000	0
Total	5,592,662	11,609,459

Note 2 — Concentration of Credit Risk and Significant Customers

We operate in an industry that is highly regulated, competitive and rapidly changing and involves numerous risks and uncertainties. Significant technological and/or regulatory changes, the emergence of competitive products and other factors could negatively impact our consolidated financial position or results of operations.

We have been dependent on our collaborative agreements with a limited number of third parties for a substantial portion of our revenue, and our discovery and development activities may be delayed or reduced if we do not maintain successful collaborative arrangements. We had revenue from customers, as a percentage of total revenue, as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2011	2012	2011	2012
Novartis	—	95%	—	36%
Monsanto	—	5%		54%
Mirna	—	—	—	4%
Debiopharm	91%	—	63%	1%
Astra Zeneca	—	—	9%	—
Undisclosed Partner #1	—	—	8%	—
Other	9%	—	20%	5%
Total	100%	100%	100%	100%

Note 3 — Notes Payable

In February 2012, we received net proceeds of approximately $1.5 million by issuance of secured promissory notes and warrants to purchase up to 3,690,944 shares of our common stock. The warrants had an initial exercise price of $0.508 per share, which was subject to adjustment (including in connection with subsequent financings), and are exercisable for a period of five years beginning six months and one day following the issuance of the warrants. Through a series of amendments to the purchase agreement and the notes issued pursuant thereto, we have extended the maturity date of the notes to December 31, 2012, have reduced the exercise price of all of the warrants that we issued to the noteholders to $0.28 per share and have removed the obligation to pay to the noteholders the sums received by us from the sale of our surplus equipment. In connection with such amendments, we have issued to the secured parties additional warrants to purchase up to 3,199,848 shares of our common stock as follows: (i) in April 2012 we issued 489,033 warrants at an initial exercise price of $0.56 per share; (ii) in May 2012 we issued 425,100 warrants at an initial exercise price of $0.64 per share; (iii) in August 2012 we issued 1,250,000 warrants at an initial exercise price of $0.28 per share and adjusted the exercise price of all of the outstanding warrants issued to the noteholders to $0.28; and (iv) in October 2012 we issued 1,035,715 warrants at an initial exercise price of $0.28 per share.

The notes are secured by the assets of our company and our wholly-owned subsidiaries, Cequent Pharmaceuticals, Inc. and MDRNA Research, Inc. The security agreement that we entered into in connection with this transaction provides a security interest in, but not limited to, all of the property, equipment and fixtures, accounts, negotiable collateral, cash, and cash equivalents of our company and our wholly-owned subsidiaries, Cequent and MDRNA Research, subject to certain exceptions. The security interest created in the collateral is first priority, subject to the permitted encumbrances provided in the security agreement, and is perfected to the extent such security interest can be perfected by the filing of a financing statement and filings with the U.S. Patent and Trademark Office. The security interest created in the collateral will be removed at such time as the notes are paid in full.

As a result of amendments to the purchase agreement and the notes issued pursuant thereto, we and the holders of the notes agreed that if we, at any time prior to December 31, 2012, effect any merger or consolidation of our company whereby the holders of the issued and outstanding shares of our common stock immediately prior to the consummation of such transaction hold less than fifty percent (50%) of the issued and outstanding shares of the voting securities of the surviving corporation immediately following the consummation of such transaction, we will have fully satisfied the obligation to repay the entire unpaid principal balance under the notes and all accrued and unpaid interest thereon through the issuance to the noteholders of an aggregate number of shares of common stock calculated by converting the then total outstanding principal and interest under the notes at a value of $0.28 per share of common stock.

In connection with the issuance of the secured promissory notes and warrants, we recorded a discount on notes payable representing the fair value of the warrants issued to the secured parties, as determined utilizing the Black-Scholes-Merton valuation model. The discount on notes payable was reported net of related notes payable and amortized as interest expense over the original term of the notes. The estimated fair value of the warrants was recorded as an increase in the fair value liability for price adjustable warrants. In connection with amendments to the purchase agreement and notes payable, we issued additional warrants to the secured parties and recorded the fair value of the warrants issued as additional discount on notes payable, as determined utilizing the Black-Scholes-Merton valuation model. The additional discount on notes payable was reported net of related notes payable and amortized as interest expense over the amended term of the notes. The estimated fair value of the warrants was recorded as an increase in the fair value liability for price adjustable warrants.

The following table presents the activity in notes payable and accrued interest and related discount for the nine months ended September 30, 2012 (in thousands):

	Notes Payable and accrued interest	Discount	Notes Payable and accrued interest, net
Balance at January 1, 2012	$ —	$ —	$ —
Issuances of notes payable and warrants	1,500	(1,651)	(151)
Issuances of warrants upon amendments	—	(910)	(910)
Accrued interest	138		138
Payments	(200)	—	(200)
Amortization of discount to interest expense	—	2,324	2,324
Balance at September 30, 2012	$ 1,438	$ (237)	$ 1,201

Note 4 — Stockholders' Equity

Preferred Stock — Our board of directors has the authority, without action by the stockholders, to designate and issue up to 100,000 shares of preferred stock in one or more series and to designate the rights, preferences and privileges of each series, any or all of which may be greater than the rights of our common stock. We have designated 1,000 shares of preferred stock as Series B Preferred Stock and 90,000 shares of preferred stock as Series A Junior Participating Preferred Stock. No shares of Series B Preferred Stock or Series A Junior Participating Preferred Stock are outstanding.

Series B Preferred Stock/Socius Purchase Agreement — On December 22, 2011, we entered into a Securities Purchase Agreement with Socius CG II, Ltd., or Socius, pursuant to and subject to the conditions of which, we had the right, in our sole discretion, over a term of two years, to demand through the delivery of separate tranche notices that Socius purchase up to a total of $5 million of Series B Preferred Stock. The delivery of a tranche notice by us to Socius would have triggered the automatic vesting and automatic exercise of both the additional investment right to purchase shares of our common stock that we granted to Socius in the purchase agreement, and the warrant to purchase shares of our common stock that we issued to Socius on December 29, 2011 upon the closing of the purchase agreement. On March 20, 2012, we notified Socius that we were terminating the purchase agreement, effective thirty (30) days from the date of such notice. We did not deliver any tranche notices to Socius during the term of the facility created by the purchase agreement, and as a result we did not issue, and are under no obligation to issue, any shares of Series B Preferred Stock, or any shares of our common stock issuable upon the automatic exercise of the additional investment right and the warrant, to Socius.

Upon the closing of the purchase agreement, on December 29, 2011 we delivered to Socius an unvested and therefore unexercisable warrant to purchase up to 1,305,970 shares of our common stock at an initial exercise price of $1.34 per share. The exercise price of the warrant and the number of shares of common stock issuable upon exercise thereof were subject to adjustment from time to time. In connection with each tranche notice delivered to Socius under the purchase agreement, a portion of the warrant equal to a number of

shares calculated by dividing (1) 37% of the dollar amount of the tranche of Series B Preferred Stock by (2) the closing bid price of the common stock for the most recently completed trading day prior to the delivery or deemed delivery of the tranche notice would vest and be automatically exercised. At each time of delivery or deemed delivery of a tranche notice, the number of shares of common stock underlying the warrant would also be adjusted immediately prior to the automatic exercise such that after such adjustment the aggregate exercise price for the adjusted number of shares would be equal to the aggregate exercise price in effect immediately prior to such adjustment. The warrant expired unexercisable in April 2012 as a result of our termination of the facility created by the purchase agreement.

Stockholder Rights Plan — In 2000, our board of directors adopted a stockholder rights plan and declared a dividend of one preferred stock purchase right for each outstanding share of common stock. Each right entitles the holder, once the right becomes exercisable, to purchase from us one one-thousandth of a share of our Series A Junior Participating Preferred Stock, par value $.01 per share. We issued these rights in March 2000 to each stockholder of record on such date, and these rights attach to shares of common stock subsequently issued. The rights will cause substantial dilution to a person or group that attempts to acquire us on terms not approved by our board of directors and could, therefore, have the effect of delaying or preventing someone from taking control of us, even if a change of control were in the best interest of our stockholders.

Holders of our preferred share purchase rights are generally entitled to purchase from us one one-thousandth of a share of Series A preferred stock at a price of $50.00, subject to adjustment as provided in the Stockholder Rights Agreement. These preferred share purchase rights will generally be exercisable only if a person or group becomes the beneficial owner of 15 percent or more of our outstanding common stock or announces a tender offer for 15 percent or more of our outstanding common stock. Each holder of a preferred share purchase right, excluding an acquiring entity or any of its affiliates, will have the right to receive, upon exercise, shares of our common stock, or shares of stock of the acquiring entity, having a market value equal to two times the purchase price paid for one one-thousandth of a share of Series A preferred stock. The preferred share purchase rights expire on March 17, 2013. We have designated 90,000 shares of preferred stock as Series A Junior Participating Preferred stock.

Common Stock — Holders of our common stock are entitled to one vote for each share held of record on all matters submitted to a vote of the holders of our common stock. Subject to the rights of the holders of any class of our capital stock having any preference or priority over our common stock, the holders of shares of our common stock are entitled to receive dividends that are declared by our board of directors out of legally available funds. In the event of our liquidation, dissolution or winding-up, the holders of common stock are entitled to share ratably in our net assets remaining after payment of liabilities, subject to prior rights of preferred stock, if any, then outstanding. Our common stock has no preemptive rights, conversion rights, redemption rights or sinking fund provisions, and there are no dividends in arrears or default. All shares of our common stock have equal distribution, liquidation and voting rights, and have no preferences or exchange rights. On July 14, 2011, our shareholders approved a proposal to change our capital structure by increasing the number of authorized shares of common stock from 90,000,000 to 180,000,000.

In February 2011, in connection with a public offering that we conducted utilizing a $50 million shelf registration statement which was declared effective by the SEC in September 2010, we received net proceeds of approximately $4.5 million from an offering of 637,500 units, each comprised of one share of our common stock and 0.1746 of a warrant, each to purchase one share of our common stock, at a purchase price of $8.00 per unit. We issued an aggregate of 637,500 shares of common stock and warrants to purchase up to an aggregate of 111,308 shares of our common stock in connection with this offering.

In May 2011, in connection with a public offering that we conducted utilizing a registration statement on Form S-1 which was declared effective by the SEC on May 11, 2011, we received net proceeds of approximately $6.3 million from an offering of an aggregate of (i) 2,231,850 units and (ii) 2,231,850 Series B Warrants, each to purchase one unit, at a purchase price of $3.90 per unit. Each unit consists of (x) one share of common stock and (y) one Series A Warrant to purchase one share of common stock. Prior to their July 12, 2011 expiration date, 2,229,350 Series B Warrants were exercised which resulted in additional net proceeds of approximately $3.1 million.

In September 2011, we entered into an agreement to terminate our lease for 3450 Monte Villa Parkway, Bothell, Washington, which eliminated our future lease obligations, and pursuant to which we issued 780,000 shares of our common stock to certain affiliates of the landlord. The estimated fair value of the shares issued was approximately $1.5 million on the date of issuance and was recorded as an increase in common stock and additional paid-in capital and as a decrease to the previously recorded restructuring liability. We agreed to prepare and file with the SEC, on or before February 1, 2012, a registration statement on Form S-3 covering the resale of all of such shares, and to use our continuing best efforts to cause such registration statement to be become and remain effective for so long as the landlord's affiliates hold any shares. If the resale registration statement is not initially filed on or before February 1, 2012, or declared effective by the SEC by April 1, 2012, each a registration default, we agreed to pay the landlord $10,000 for each month or portion thereof that the registration default continues. We have not filed a registration statement on Form S-3 and we have recorded a liability for $20,000 for the registration default for the months of February and March 2012.

On October 11, 2011, we entered into the Purchase Agreement with Lincoln Park Capital ("LPC"), whereby LPC agreed to purchase up to $15 million of our common stock over a thirty (30) month period. We also entered into a registration rights agreement with LPC pursuant to which we agreed to file a registration statement related to the transaction with the SEC covering the shares that have been issued or may be issued to LPC under the Purchase Agreement. The SEC declared the registration statement effective on October 31, 2011. Pursuant to the Purchase Agreement, we had the right, in our sole discretion, over a 30-month period following the

effective date of the registration statement to sell up to $15 million of our common stock to LPC, depending on certain conditions as set forth in the Purchase Agreement.

There were no upper limits to the price LPC may pay to purchase shares of our common stock, and the purchase price of the shares related to the future funding under the Purchase Agreement was based on the prevailing market prices of the common stock immediately preceding the time of sales without any fixed discount. LPC did not have the right or the obligation to purchase any shares of our common stock on any business day that the price of the common stock was below the floor price of $1.00 per share as set forth in the Purchase Agreement. We could not issue more than 1,777,913 shares in connection with the Purchase Agreement, unless the average purchase price of all shares of common stock issued by us to LPC equaled or exceeded $2.25 per share.

In consideration for entering into the Purchase Agreement, we issued to LPC 145,279 shares of common stock as a commitment fee and were required to issue to LPC up to 290,557 shares of common stock pro rata when and if LPC purchased, at our discretion, the $15 million of common stock over the 30-month period. We also issued to LPC an additional 5,000 shares of common stock as an expense reimbursement. We terminated the Purchase Agreement effective March 20, 2012. Prior to the termination of the Purchase Agreement, we issued a total of 1,544,901 shares to LPC under this agreement and received proceeds of approximately $1.8 million in 2011.

In March 2012, in connection with a public offering that we conducted utilizing a $50 million shelf registration statement which was declared effective by the SEC in September 2010, we received net proceeds of approximately $1.1 million from a registered direct offering of 1,600,002 units, each comprised of one share of our common stock and 0.5 of a warrant, each to purchase one share of our common stock, at a purchase price of $0.75 per unit. We issued an aggregate of 1,600,002 shares of common stock and warrants to purchase up to an aggregate of 800,001 shares of our common stock in connection with this offering.

In August, October and November 2012 we issued to eleven of our vendors an aggregate of approximately 3.8 million shares of our common stock to settle outstanding amounts due to such vendors in the aggregate amount of approximately $1.2 million. We also agreed to issue an additional 87,254 shares to settle approximately $20,000 in amounts due to one vendor contingent upon and immediately prior to the first to occur of any of the following events: (i) the closing of an equity financing in a transaction or series of related transactions where such financing yields gross proceeds to us of at least $4 million in the aggregate, including amounts converted under any convertible promissory notes; (ii) a merger into another entity if the combined market capitalization of the merging entities is at least $18 million or, if not, upon our market capitalization as the surviving entity of a merger being at least $18 million at any time after the merger; (iii) a sale of all or substantially all of our assets; or (iv) a sale of our stock after which sale a majority of the outstanding equity is held by persons or entities who were not our shareholders prior to the sale.

Effective as of October 1, 2012, we entered into a Lease Termination Agreement with Ditty Properties Limited Partnership (the "Landlord") with respect to our facilities located at 3830 Monte Villa Parkway, Bothell, WA. As additional consideration, we agreed to issue 1,500,000 shares of our common stock to the landlord contingent upon and immediately prior to the first to occur of any of the following events: (i) the closing of an equity financing in a transaction or series of related transactions where such financing yields gross proceeds to us of at least $4 million in the aggregate, including amounts converted under any convertible promissory notes; (ii) a merger into another entity if the combined market capitalization of the merging entities is at least $18 million or, if not, upon our market capitalization as the surviving entity of a merger being at least $18 million at any time after the merger; (iii) a sale of all or substantially all of our assets; or (iv) a sale of our stock after which sale a majority of the outstanding equity is held by persons or entities who were not our shareholders prior to the sale.

NASDAQ Deficiency Notice — On March 25, 2011, we received a letter from the Listing Qualifications Department of The NASDAQ Stock Market ("NASDAQ") notifying us that we were not in compliance with the minimum $1.00 per share minimum bid price requirement for continued inclusion on The NASDAQ Global Market set forth in NASDAQ Marketplace Rule 5450(a)(1) (the "Rule"), as a result of the bid price of our common stock having closed below $1.00 for the 30 consecutive business days prior to the date of the letter. NASDAQ's letter advised us that we had until September 21, 2011 to regain compliance with the Rule.

We did not regain compliance with the Rule on or prior to September 21, 2011 and, accordingly, on September 22, 2011, we received a staff determination letter from NASDAQ stating that our common stock would be subject to delisting from The Nasdaq Global Market as a result of the deficiency. Following a hearing before the NASDAQ Listing Qualifications Panel on October 27, 2011, the Listing Qualifications Panel allowed us until January 31, 2012 to regain compliance with the Rule. On February 1, 2012, we were notified that the Listing Qualifications Panel had determined to delist our common stock from the Nasdaq Stock Market, and to suspend trading in the shares effective at the open of business on February 2, 2012. Our common stock began trading on the OTCQX tier of the OTC Markets commencing on February 2, 2012, and it continued to trade on the OTCQX tier of the OTC Markets until July 10, 2012, following which it began trading on the OTC Pink tier of the OTC Markets.

Warrants — In connection with offerings of our common stock and notes payable, we have issued warrants to purchase shares of our common stock, some of which provide that the exercise price of the warrant will be reduced in the event of subsequent financings at an effective price per share less than the exercise price of the warrants, subject to certain exceptions and limitations.

On February 7, 2011, the exercise price of warrants to purchase 68,626 shares which we issued in November 2010 was adjusted to $10.60 per share. These warrants are no longer subject to adjustment except in connection with stock splits, dividends, and other similar events.

In February 2011, as part of a public offering, we issued warrants to purchase 111,308 shares of common stock at an exercise price of $8.00 per share. The warrants are exercisable until February 15, 2018, and the exercise price of such warrants is not subject to adjustment in connection with a subsequent financing at an effective price per share less than the exercise price of the warrants.

In May 2011, as part of a public offering, we issued 2,231,850 Series A Warrants to purchase shares of common stock at an initial exercise price of $3.90 per share, which exercise price is subject to adjustment in connection with a subsequent financing at an effective price per share less than the exercise price of such warrants. The Series A Warrants are exercisable during the period beginning on May 21, 2012 and ending on May 21, 2017. As a result of the issuance of warrants to the holders of our secured notes payable, the exercise price of the Series A Warrants adjusted to $0.508 per share in February 2012, and adjusted to $0.28 per share in August 2012. In May 2012, we issued 187,006 shares of common stock as a result of the exercise of 440,000 Series A Warrants on a cashless basis.

In May 2011, we also issued 2,231,850 Series B Warrants, each to purchase one unit consisting of one share of common stock and one Series A Warrant, at an initial exercise price of $3.10 per unit, subject to adjustment, during the period ending on July 12, 2011. From May 20, 2011 to June 30, 2011, 712,150 of the Series B Warrants were exercised, resulting in proceeds of approximately $2.2 million and the issuance of an additional 712,150 Series A Warrants. As per the terms of the Series B Warrants, the exercise price of the Series B Warrants adjusted to $1.28 per unit at the close of trading on July 5, 2011, which adjustment was retroactively effective to June 29, 2011. Holders of the Series B Warrants that were exercised during the period beginning on June 29, 2011 and ending on July 5, 2011 were entitled to a refund of a portion of their previously paid exercise price if the exercise price adjusted to less than $3.10 per unit. The amount of the refund for each Series B Warrant was equal to the difference between the initial exercise price of the Series B Warrant ($3.10 per unit) and the adjusted exercise price of the Series B Warrant ($1.28 per unit). An aggregate of 600,500 Series B Warrants were exercised on June 29 and June 30, with respect to which we paid a refund in the aggregate amount of approximately $1.1 million to the warrant holders on July 6, 2011 and the remaining $0.4 million was reclassified to equity. From July 1, 2011 to the expiration date of July 12, 2011, 1,517,200 Series B Warrants were exercised resulting in additional net proceeds of approximately $2.0 million and the issuance of an additional 1,517,200 Series A Warrants. Total net proceeds received from the exercises of the Series B Warrants was approximately $3.1 million. On July 12, 2011, the remaining 2,500 Series B Warrants expired unexercised.

On February 10, 2012, we entered into a Note and Warrant Purchase Agreement pursuant to which we issued to certain accredited investors 15% secured promissory notes in the aggregate principal amount of $1.5 million and warrants to purchase up to 3,690,944 shares of common stock. The warrants had an initial exercise price of $0.508 per share, which was subject to adjustment (including in connection with subsequent financings), and are exercisable for a period of five years beginning six months and one day following the issuance of the warrants. The purchase agreement and the notes issued pursuant thereto have been amended to extend the maturity date of the notes from May 14, 2012 until December 31, 2012, to issue warrants to purchase up to an additional 3,199,848 shares of our common stock to the noteholders, and to decrease the exercise price of all of the warrants that we issued to the noteholders to $0.28 per share. As a result of the amendments to the purchase agreement and notes we issued the following warrants: (i) in April 2012 we issued 489,033 warrants at an exercise price of $0.56 per share; (ii) in May 2012 we issued 425,100 warrants at an exercise price of $0.64 per share; (iii) in August 2012 we issued 1,250,000 warrants at an exercise price of $0.28 per share and adjusted the exercise price of all of the outstanding warrants issued to the noteholders to $0.28; and (iv) in October 2012 we issued 1,035,715 warrants at an exercise price of $0.28 per share. In addition, we and the noteholders agreed that if we, at any time prior to December 31, 2012, effect any merger or consolidation of our company whereby the holders of the issued and outstanding shares of our common stock immediately prior to the consummation of such transaction hold less than fifty percent (50%) of the issued and outstanding shares of the voting securities of the surviving corporation immediately following the consummation of such transaction, we will have fully satisfied our obligation to repay the entire unpaid principal balance under the notes and all accrued and unpaid interest thereon through the issuance to the noteholders of an aggregate number of shares of common stock calculated by converting the then total outstanding principal and interest under the notes at a value of $0.28 per share of common stock.

On March 22, 2012, as part of a registered direct offering of shares of our common stock and warrants to purchase shares of our common stock, we entered into a Securities Purchase Agreement pursuant to which we issued warrants to purchase up to 800,001 shares of our common stock. The warrants have an exercise price of $0.75 per share, are immediately exercisable, and will be exercisable for a period of five years from the date of issuance. The exercise price and the number of shares issuable upon exercise of the warrants are subject to adjustment in the event of stock splits or dividends, business combinations, sale of assets or other similar transactions, but not as a result of future securities offerings at lower prices.

The following summarizes warrant activity during the nine months ended September 30, 2012:

	Warrant Shares	Weighted Average Exercise Price
Warrants outstanding, December 31, 2011	6,261,978	$ 3.82
Warrants issued	6,809,705	0.52
Warrants expired	(1,380,597)	1.34
Warrants exercised	(440,000)	0.51
Warrants outstanding, September 30, 2012	11,251,086	$ 2.26

Subscription investment units — In November 2010, we issued subscription investment units to purchase during the 16-month period following the date of issuance, an aggregate of 242,355 shares of common stock at a per share exercise price equal to the lesser of (i) $22.10, and (ii) 90% of the quotient of (x) the sum of the three lowest volume-weighted average price of the common stock for any three trading days during the ten (10) consecutive trading day period ending and including the trading day immediately prior to the applicable exercise date, divided by (y) three (3). On March 5, 2012, the remaining 25,000 subscription investment units expired unexercised.

Note 5 — Stock Incentive Plans

At September 30, 2012 options to purchase up to 358,373 shares of our common stock were outstanding and 568,429 shares were available for future grants or awards under our various stock incentive plans. We generally issue new shares for option exercises unless treasury shares are available for issuance. We had no treasury shares as of September 30, 2012 and have no plans to purchase any in the next year.

Stock-based Compensation — The following table summarizes stock-based compensation expense (in thousands):

	Three Months ended September 30,		Nine months ended September 30,	
	2011	2012	2011	2012
Stock-based compensation:				
Research and development	$ 103	$ 34	$ 295	$ 186
Selling, general and administrative	13	(33)	393	159
Total stock-based compensation	$ 116	$ 1	$ 688	$ 345

Stock-based compensation expense is recognized on a straight-line basis over the applicable vesting periods, based on the fair value on the grant date. Certain option and share awards provide for accelerated vesting if there is a change in control (as defined in the applicable plan and certain employment agreements we have with key employees).

Stock Options — Stock options to purchase shares of our common stock are granted under our existing stock-based incentive plans to certain employees, at prices at or above the fair market value on the date of grant.

The following table summarizes stock option activity during the nine months ended September 30, 2012:

	Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life	Aggregate Intrinsic Value
				(in thousands)
Outstanding December 31, 2011	578,257	$ 26.22		
Options expired	(15,446)	60.43		
Options forfeited	(204,438)	2.27		
Outstanding at September 30, 2012	358,373	$ 38.41	5.9 years	$ —
Exercisable at September 30, 2012	254,860	$ 52.71	4.6 years	$ —

The per-share fair value of stock options granted was approximately $1.70 in both the three and nine months ended September 30, 2011, which was estimated at the date of grant using the Black-Scholes-Merton option valuation model using an expected dividend yield of 0%, a risk-free interest rate of 1.2%, expected stock volatility of 118% and an expected option life of 6.0 years. We did not grant any options during the three or nine months ended September 30, 2012.

As of September 30, 2012, we had approximately $0.2 million of total unrecognized compensation cost related to unvested stock options. Total unrecognized compensation cost will be adjusted for future changes in estimated forfeitures. We expect to recognize this cost over a weighted average period of approximately 1.8 years.

The intrinsic value of stock options outstanding and exercisable at September 30, 2012 is based on the $0.28 closing market price of our common stock on that date, and is calculated by aggregating the difference between $0.28 and the exercise price of each of the outstanding vested and unvested stock options. There were no stock options outstanding at September 30, 2012 which had an exercise price less than $0.28. There were no stock options exercised in the three or nine months ended September 30, 2011 or September 30, 2012.

Employee Stock Purchase Plan — As of September 30, 2012, a total of 65,000 shares of common stock have been reserved for issuance under our 2007 Employee Stock Purchase Plan ("ESPP") and 18,141 have been issued. Under the terms of the ESPP, a participant may purchase shares of our common stock at a price equal to the lesser of 85% of the fair market value on the date of offering or on the date of purchase. Stock-based compensation expense related to the ESPP was not material in the three and nine month periods ended September 30, 2011 and September 30, 2012.

Note 6 — Contractual Agreements

RNAi-related

Tekmira – On November 28, 2012, we and Tekmira entered into a license agreement whereby we will provide Tekmira a worldwide, non-exclusive license to our unlocked nucleobase analog ("UNA") technology for the development of RNA interference therapeutics. Tekmira will have full responsibility for the development and commercialization of any products arising under the License Agreement. In consideration for entering into the license agreement, we received an upfront payment in the amount of $300,000, and we will receive milestone payments upon the satisfaction of certain clinical and regulatory milestone events and royalty payments in the low single digits on products developed by Tekmira that use UNA technology. Tekmira may terminate the license agreement for convenience in its entirety, or in respect of any particular country or countries, by giving 90 days prior written notice to us, provided that no such termination shall be effective sooner than August 28, 2013. Either party may terminate the license agreement immediately upon the occurrence of certain bankruptcy events involving the other party, or, following the expiration of a 120 day cure period (60 days in the event of a default of a payment obligation by Tekmira), upon the occurrence of a material breach of the License Agreement by the other party.

Novartis – On August 2, 2012, we and Novartis Institutes for Biomedical Research, Inc. ("Novartis") entered into a worldwide, non-exclusive License Agreement for our CRN technology for the development of both single and double-stranded oligonucleotide therapeutics. We received $1 million in a one-time upfront payment for the non-exclusive license. In addition, in March 2009, we entered into an agreement with Novartis pursuant to which we granted to Novartis a worldwide, non-exclusive, irrevocable, perpetual, royalty-free, fully paid-up license, with the right to grant sublicenses, to our DiLA^2 -based siRNA delivery platform in consideration of a one-time, non-refundable fee of $7.25 million, which was recognized as license fee revenue in 2009. Novartis may terminate this agreement immediately upon written notice to us. In connection with the March 2009 license agreement, we also entered into a separate agreement with Novartis to provide them with an exclusive period in which to negotiate a potential research and development collaboration as well as possible broader licensing rights related to our RNAi drug delivery platform. This exclusive period expired in 2009. Approximately $0.3 million was recognized as license fee revenue in 2009 under this separate agreement.

Girindus – On May 18, 2012, we and Girindus Group ("Girindus") entered into a strategic alliance pursuant to which Girindus will have exclusive rights to develop, supply and commercialize certain oligonucleotide constructs using our CRN chemistry and in return, we will receive royalties in the single digit percentages from the sale of CRN-based oligonucleotide reagents as well as a robust supply of cGMP material for us and our partners' pre-clinical, clinical and commercialization needs.

Monsanto – On May 3, 2012, we and Monsanto Company ("Monsanto") entered into a worldwide exclusive Intellectual Property License Agreement for our delivery and chemistry technologies. On May 3, 2012, we and Monsanto also entered into a Security Agreement pursuant to which we granted to Monsanto a security interest in that portion of our intellectual property that is the subject of

the License Agreement in order to secure the performance of our obligations under the License Agreement. Under the terms of the license agreement, we received $1.5 million in initiation fees, and may receive royalties on product sales in the low single digit percentages. Monsanto may terminate the License Agreement at any time in whole or as to any rights granted thereunder by giving prior written notice thereof to us, with termination becoming effective three (3) months from the date of the notice.

ProNAi Therapeutics, Inc. — On March 13, 2012, we entered into an Exclusive License Agreement with ProNAi Therapeutics, Inc. ("ProNAi") regarding the development and commercialization of ProNAi's proprietary DNAi-based therapeutics utilizing our novel SMARTICLES® liposomal delivery technology. The License Agreement provides that ProNAi will have full responsibility for the development and commercialization of any products arising under the License Agreement. Under terms of the License Agreement, we could receive up to $14 million for each gene target in total upfront, clinical and commercialization milestone payments, as well as royalties in the single digit percentages on sales, with ProNAi having the option to select any number of gene targets. Either party may terminate the License Agreement upon the occurrence of a default by the other party (subject to standard cure periods), or upon certain events involving the bankruptcy or insolvency of the other party. ProNAi may also terminate the License Agreement without cause upon ninety (90) days' prior written notice to us, provided that no such termination shall be effective sooner than December 13, 2012.

Mirna Therapeutics — On December 22, 2011, we entered into a License Agreement with Mirna Therapeutics, Inc. ("Mirna") regarding the development and commercialization of microRNA-based therapeutics utilizing Mirna's proprietary microRNAs and our novel SMARTICLES® liposomal delivery technology. The License Agreement provides that Mirna will have full responsibility for the development and commercialization of any products arising under the License Agreement and that we will support pre-clinical and process development efforts. Under terms of the License Agreement, we could receive up to $63 million in total upfront, clinical and commercialization milestone payments, as well as royalties in the low single digit percentages on sales, based on the successful outcome of the collaboration. Either party may terminate the License Agreement upon the occurrence of a default by the other party. Commencing on June 22, 2012, Mirna may also terminate the License Agreement without cause upon sixty (60) days prior written notice to us.

Debiopharm S.A. — In February 2011, we entered into a Research and License Agreement with Debiopharm S.A. pursuant to which we granted to Debiopharm an exclusive license to develop and commercialize our pre-clinical program in bladder cancer, for all uses in humans and animals for the prevention and treatment of superficial (non-muscle invasive) bladder cancer, in consideration of the payment by Debiopharm to us of up to $24 million based on predefined research and development milestones, plus royalties in the low double digit percentages from the sales of products resulting under the agreement and sublicensing payments. The agreement provided that Debiopharm would have full responsibility for the development and commercialization of any products arising from the partnership. On November 2, 2012, Debiopharm provided notice that the agreement would be terminated effective December 5, 2012 due to its own operational reasons. The bladder cancer program will be returned to us without obligations beyond those minor activities associated with the termination period and will be reincorporated into our internal preclinical pipeline with the intention of advancing the program once either appropriate funding or a new partner is obtained.

Valeant Pharmaceuticals — In March 2010, we acquired intellectual property related to Conformationally Restricted Nucleotides ("CRN") from Valeant Pharmaceuticals North America in consideration of payment of a non-refundable licensing fee of $0.5 million which was included in research and development expense in 2010. Subject to meeting certain milestones triggering the obligation to make any such payments, we may be obligated to make a product development milestone payment of $5.0 million within 180 days of FDA approval of a New Drug Application for our first CRN related product and another product development milestone payment of $2.0 million within 180 days of FDA approval of a New Drug Application covering our second CRN related product. As of September 30, 2012, we have not made, and are not under any current obligation to make, any such milestone payments, as the conditions triggering any such milestone payment obligations have not been satisfied. Valeant is entitled to receive earn-outs based upon a percentage in the low single digits of future commercial sales and earn-outs based upon a percentage in the low double digits of future revenue from sublicensing. Under the agreement we are required to use commercially reasonable efforts to develop and commercialize at least one covered product. If we have not made earn-out payments of at least $5.0 million prior to the sixth anniversary of the date of the agreement, we are required to pay Valeant an annual amount equal to $50,000 per assigned patent which shall be creditable against other payment obligations. The term of our financial obligations under the agreement shall end, on a country-by-country basis, when there no longer exists any valid claim in such country. We may terminate the agreement upon 30 days' notice, or upon 10 days' notice in the event of adverse results from clinical studies. Upon termination, we are obligated to make all payments accrued as of the effective date of such termination but shall have no future payment obligations.

Novosom — In July 2010, we entered into an agreement pursuant to which we acquired the intellectual property of Novosom AG ("Novosom") of Halle, Germany for Novosom's SMARTICLES®-based liposomal delivery system, which significantly broadens the number of approaches we may take for systemic and local delivery of our proprietary UNA and CRN-based oligonucleotide therapeutics. We issued an aggregate of 141,949 shares of our common stock to Novosom as consideration for the acquired assets. The shares had an aggregate value equal to approximately $3.8 million, which was recorded as research and development expense. As additional consideration for the acquired assets, we will pay to Novosom an amount equal to 30% of the value of each upfront (or combined) payment actually received by us in respect of the license of liposomal-based delivery technology or related product or disposition of the liposomal-based delivery technology by us, up to a maximum of $3.3 million, which amount will be paid in shares of

our common stock, or a combination of cash and shares of our common stock, at our discretion. In December 2011 we recognized approximately $0.1 million as research and development expense for additional consideration paid to Novosom as a result of the License Agreement that we entered into with Mirna Therapeutics. During 2012 we issued 340,906 shares of common stock to Novosom as additional consideration as a result of the license agreements that we entered into with Mirna and Monstanto.

Roche — In February 2009, we entered into an agreement with F. Hoffmann-La Roche Inc., a New Jersey corporation, and F. Hoffmann-La Roche Ltd., a Swiss corporation (collectively, "Roche"), pursuant to which we granted to Roche a worldwide, irrevocable, non-exclusive license to a portion of our technology platform, for the development of RNAi-based therapeutics, in consideration of the payment of a one-time, non-refundable licensing fee of $5.0 million. On September 30, 2011, we agreed to the assignment and delegation by Roche of its non-exclusive license rights in the Licensed Technology upon Roche's successful divestment of its RNA interference assets. On October 21, 2011, Roche successfully divested its RNA interference assets, including the Licensed Technology, and made a one-time non-refundable payment of $1.0 million to us in consideration for our agreement to the assignment and delegation of Roche's non-exclusive license rights in the licensed technology. This payment was recognized as revenue in 2011.

University of Michigan — In May 2008, we entered into an exclusive license agreement to intellectual property ("IP") from the University of Michigan covering cationic peptides for enhanced delivery of nucleic acids. In connection with the agreement, we paid a license issue fee of $120,000. An additional fee of $25,000 is payable annually and creditable against royalty payments. Results from continued internal development efforts made this exclusive license agreement unnecessary and the agreement was terminated on August 7, 2012 with no further financial obligation.

University of Helsinki — In June 2008, we entered into a collaboration agreement with Dr. Pirjo Laakkonen and the Biomedicum Helsinki. The goal of the work involves our patented phage display library, the Trp Cage library, for the identification of peptides to target particular tissues or organs for a given disease. In December 2009, we received a patent allowance in the U.S. covering a targeting peptide for preferential delivery to lung tissues that was identified by us using the Trp Cage Library. We believe the Trp Cage library will be a source of additional peptides for evaluation in our delivery programs, and we will have a strong IP position for these peptides and their use. This agreement terminated by its terms in June 2012. Under this agreement, we may be obligated to make product development milestone payments of up to €275,000 in the aggregate for each product developed under this research agreement if certain milestones are met. As of September 30, 2012, we have not made, and are not under any current obligation to make, any such milestone payments, as the conditions that would trigger any such milestone payment obligations have not been satisfied. In addition, upon the first commercial sale of a product, we are required to pay an advance of €250,000 against which future royalties will be credited. The percentage royalty payment required to be made by us to the University of Helsinki under the terms of this agreement is a percentage of gross revenues derived from work performed under the Helsinki Agreement in the low single digits.

Ribotask ApS. — In June 2009, we announced the revision of the October 2008 agreement in which we had acquired the intellectual property related to Unlocked Nucleobase Analogs ("UNA") from Ribotask ApS, a privately held Danish company. The original agreement provided us with exclusive rights for the development and commercialization of therapeutics incorporating UNAs. The amended agreement eliminated our obligation to pay all milestone and royalty payments and provided full financial and transactional control of our proprietary UNA technology.

Under the October 2008 agreement we made payments to Ribotask totaling $500,000. We sublicensed the IP under this agreement to Roche on a nonexclusive basis in February 2009, at which time we paid an additional $250,000 to Ribotask, which eliminated the obligation to pay Ribotask any future royalties or milestones with respect to the Roche sublicense. In connection with the June 2009 amendment, we issued 15,152 shares of our common stock valued at approximately $1.0 million to Ribotask ApS and agreed to pay $1.0 million in four installments of $250,000 each due at various intervals through July 2010.

In June 2010, we expanded our rights under the previous agreement with Ribotask to include exclusive rights to the development and commercialization of UNA-based diagnostics. In connection with this amendment, we agreed to pay Ribotask $750,000 in three equal payments of $250,000. In March 2011, the agreement was amended to change the payment terms for the diagnostic rights. The first payment of $250,000 was made in November 2010, a payment of $50,000 was made upon the execution of the amendment, and the remaining $400,000 was paid in eight equal monthly installments beginning on May 1, 2011. In addition we issued 11,377 shares of our common stock valued at approximately $80,000 to Ribotask on March 3, 2011.

In connection with our agreements, as amended, we granted Ribotask a royalty-bearing, world-wide exclusive license to use the assigned patents to develop and sell products intended solely for use as reagents or for testing. The royalty rates to be paid to us by Ribotask are a percentage in the low single digits.

Intranasal related

Cypress Bioscience, Inc. — In August 2010, we entered into an Asset Purchase Agreement with Cypress Bioscience, Inc. ("Cypress") under which Cypress acquired our patent rights and technology related to carbetocin, a long-acting analog of oxytocin, a naturally produced hormone that may benefit individuals with autism. Under the agreement, we received an upfront payment of

$750,000 and we could receive milestone payments up to $27 million. In 2011, the carbetocin asset was spun out to create Kyalin Bioscience. Kyalin Bioscience will be responsible for all future development and IP related expenses as well as all milestone payments due to us. In addition, Kyalin will pay us royalties, in single-digit percentages, based on commercial sales.

Amylin Pharmaceuticals, Inc. — In January 2009 we amended our 2006 License Agreement with Amylin Pharmaceuticals, Inc. for the development of intranasal exenatide. The License Agreement, as amended, provides for an accelerated $1.0 million milestone payment to us in January 2009, a reduction in the aggregate amount of milestone payments that could be due to us from $89 million to $80 million, and a reduction in the percentage royalty rate payable upon commercial sales of a product to the low single digits. Additionally, as a result of the amendment, we are no longer responsible for any further development of the nasal spray formulation of intranasal exenatide or its manufacture. Either party may terminate the agreement for breach of any material provision of the agreement upon 60 days' notice of the breach and subject to a 60 day cure period. Amylin may also terminate the agreement upon 90 days' written notice.

Note 7 — Income Taxes

We continue to record a valuation allowance in the full amount of net deferred tax assets since realization of such tax benefits has not been determined by our management to be more likely than not. At the end of each interim period, we make our best estimate of the effective tax rate expected to be applicable for the full fiscal year, and the rate so determined is used in providing for income taxes on a current year-to-date basis. The difference between the expected provision or benefit computed using the statutory tax rate and the recorded provision or benefit of zero, is primarily due to the change in valuation allowance.

Note 8 — Commitments and Contingencies

Standby Letter of Credit — In connection with the terms of our lease of our Bothell, Washington facility we have provided our landlord with a stand-by letter of credit. The landlord has periodically drawn on the $1.2 million standby letter of credit for that facility, which has resulted in draws on our restricted cash, and we have periodically replenished the standby letter of credit and increased the restricted cash balance. As of September 30, 2012, approximately $0.7 million was outstanding on the standby letter of credit.

Leases — We lease space for our research and development and corporate offices at 3830 Monte Villa Parkway in Bothell, Washington under an operating lease that was originally scheduled to terminate in 2016. On October 5, 2012, we entered into a Lease Termination Agreement (the "Termination Agreement"), effective as of October 1, 2012, with respect to our facilities at 3830 Monte Villa Parkway. Pursuant to the Termination Agreement, we paid $155,000 to the landlord as rent for the premises for the month of October 2012. Thereafter, our obligation to pay further rent will be satisfied through the letter of credit that we established to support our obligations under the lease. The landlord will draw the amount of each month's rent by drawing on the letter of credit on or about the first day of each month from November 2012 through February 2013, with the landlord drawing the entire remaining amount available to be drawn on the letter of credit when it draws the February 2013 rent. The lease will terminate effective on March 1, 2013; provided that prior to March 1, 2013 the landlord may terminate the lease on 10 days' prior written notice, in which event the landlord shall be entitled to immediately draw all remaining amounts under the Termination Agreement on the letter of credit.

As additional consideration for the Termination Agreement we agreed to issue 1,500,000 shares of our common stock to the landlord contingent upon and immediately prior to the first to occur of any of the following events: (i) the closing of an equity financing in a transaction or series of related transactions where such financing yields gross proceeds to us of at least $4 million in the aggregate, including amounts converted under any convertible promissory notes; (ii) a merger into another entity if the combined market capitalization of the merging entities is at least $18 million or, if not, upon our market capitalization as the surviving entity of a merger being at least $18 million at any time after the merger; (iii) a sale of all or substantially all of our assets; or (iv) a sale of our stock after which sale a majority of the outstanding equity is held by persons or entities who were not our shareholders prior to the sale.

We leased space for research and development in Cambridge, Massachusetts under an operating lease expiring in 2012. In February 2012, we announced that we were closing our Cambridge site and we entered into a sublease with a third party for the remainder of the lease term.

Contingencies — We are subject to various legal proceedings and claims that arise in the ordinary course of business. Our management currently believes that resolution of such legal matters will not have a material adverse impact on our consolidated financial position, results of operations or cash flows.

Note 9 — Subsequent Events

As further described in Notes 4 and 8, effective October 1, 2012, we entered into a Lease Termination Agreement with the landlord for our facilities located at 3830 Monte Villa Parkway, Bothell, WA pursuant to which we reduced the term of the lease. As additional consideration for the Termination Agreement, we agreed to issue to the landlord 1,500,000 shares of our common stock contingent upon

and immediately prior to the first to occur of any of the following events: (i) the closing of an equity financing in a transaction or series of related transactions where such financing yields gross proceeds to us of at least $4 million in the aggregate, including amounts converted under any convertible promissory notes; (ii) a merger into another entity if the combined market capitalization of the merging entities is at least $18 million or, if not, upon our market capitalization as the surviving entity of a merger being at least $18 million at any time after the merger; (iii) a sale of all or substantially all of our assets; or (iv) a sale of our stock after which sale a majority of the outstanding equity is held by persons or entities who were not our shareholders prior to the sale.

As further described in Note 4, in October and November 2012 we issued to two of our vendors an aggregate of approximately 0.2 million shares of our common stock to settle outstanding amounts due to such vendors in the aggregate amount of approximately $60,000. We also agreed to issue an additional 87,254 shares to settle approximately $20,000 in amounts due to one vendor contingent upon and immediately prior to the first to occur of any of the following events: (i) the closing of an equity financing in a transaction or series of related transactions where such financing yields gross proceeds to us of at least $4 million in the aggregate, including amounts converted under any convertible promissory notes; (ii) a merger into another entity if the combined market capitalization of the merging entities is at least $18 million or, if not, upon our market capitalization as the surviving entity of a merger being at least $18 million at any time after the merger; (iii) a sale of all or substantially all of our assets; or (iv) a sale of our stock after which sale a majority of the outstanding equity is held by persons or entities who were not our shareholders prior to the sale.

As further described in Notes 3 and 4, in October 2012 we issued warrants to purchase up to an additional 1,035,715 shares of common stock to the holders of our secured promissory notes in connection with an amendment to the purchase agreement.

As further described in Note 6, on November 2, 2012, Debiopharm provided notice that our agreement for the bladder cancer program would be terminated effective December 5, 2012 due to its own operational reasons.

As further described in Notes 4 and 6, on November 28, 2012 we entered into a license agreement with Tekmira pursuant to which we granted to Tekmira a worldwide, non-exclusive license to our unlocked nucleobase analog technology for the development and commercialization of oligonucleotide therapeutics.

PART II - INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution.

The following table sets forth the costs and expenses, other than underwriting discounts and placement agent fees, payable by the registrant in connection with the sale of the shares of common stock being registered. All amounts are estimates except the fees payable to the SEC.

SEC registration fee (#)	$	—
Legal fees and expenses	$	25,000
Accounting fees and expenses	$	20,000
Miscellaneous fees and expenses	$	5,000
Total	$	50,000

Previously paid.

Item 14. Indemnification of Directors and Officers.

Our Certificate of Incorporation currently provides that our board of directors has the authority to utilize, to the fullest extent possible, the indemnification provisions of Sections 102(b)(7) and 145 of the Delaware General Corporation Law (the "DGCL"), and our directors and officers are provided with the broadest available indemnification coverage. Such indemnification for our directors and officers is mandatory. Our Certificate of Incorporation also expressly provides that the advancement of expenses is mandatory and not subject to the discretion of our board of directors, except that any of our directors or officers who request advancement must undertake to repay the advanced amounts if it is determined that such person is not entitled to be indemnified by us. Further, our Certificate of Incorporation contains provisions to eliminate the liability of our directors to us or our stockholders to the fullest extent permitted by Section 102(b)(7) of the DGCL, as amended from time to time.

Section 102(b)(7) of the DGCL permits a corporation to provide in its certificate of incorporation that 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, except for liability (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) for unlawful payments of dividends or unlawful stock repurchases, redemptions or other distributions, or (iv) for any transaction from which the director derived an improper personal benefit. Our Certificate of Incorporation provides for such limitation of liability.

Under Section 145 of the DGCL, a corporation may indemnify any individual made a party or threatened to be made a party to any type of proceeding, other than an action by or in the right of the corporation, because he or she is or was an officer, director, employee or agent of the corporation or was serving at the request of the corporation as an officer, director, employee or agent of another corporation or entity against expenses, judgments, fines and amounts paid in settlement actually and reasonably incurred in connection with such proceeding: (1) if he or she acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the corporation; or (2) in the case of a criminal proceeding, he or she had no reasonable cause to believe that his or her conduct was unlawful. A corporation may indemnify any individual made a party or threatened to be made a party to any threatened, pending or completed action or suit brought by or in the right of the corporation because he or she was an officer, director, 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 other entity, against expenses actually and reasonably incurred in connection with such action or suit if he or she acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the corporation, provided that such indemnification will be denied if the individual is found liable to the corporation unless, in such a case, the court determines the person is nonetheless entitled to indemnification for such expenses. A corporation must indemnify a present or former director or officer who successfully defends himself or herself in a proceeding to which he or she was a party because he or she was a director or officer of the corporation against expenses actually and reasonably incurred by him or her. Expenses incurred by an officer or director, or any employees or agents as deemed appropriate by the board of directors, in defending civil or criminal proceedings may be paid by the corporation in advance of the final disposition of such proceedings upon receipt of an undertaking by or on behalf of such director, officer, employee or agent to repay such amount if it shall ultimately be determined that he or she is not entitled to be indemnified by the corporation. The Delaware law regarding indemnification and expense advancement is not exclusive of any other rights which may be granted by our restated certificate of incorporation or restated bylaws, a vote of stockholders or disinterested directors, agreement or otherwise.

We maintain a policy of directors and officer's liability insurance covering certain liabilities incurred by our directors and officers in connection with the performance of their duties.

Insofar as indemnification for liabilities arising under the Securities Act is permitted for our directors, officers or controlling persons, pursuant to the above mentioned statutes or otherwise, we understand that the SEC is of the opinion that such indemnification may contravene federal public policy, as expressed in the Securities Act, and therefore, is unenforceable. Accordingly, in the event that a claim for such indemnification is asserted by any of our directors, officers or controlling persons, and the SEC is still of the same opinion, we (except insofar as such claim seeks reimbursement from us of expenses paid or incurred by a director, officer of controlling person in successful defense of any action, suit or proceeding) will, unless the matter has theretofore been adjudicated by precedent deemed by our counsel to be controlling, submit to a court of appropriate jurisdiction the question whether or not indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

At present, there is no pending litigation or proceeding involving any of our directors, officers or employees as to which indemnification is sought, nor are we aware of any threatened litigation or proceeding that may result in claims for indemnification.

Item 15. Recent Sales of Unregistered Securities.

General

During the last three years, the registrant has not issued unregistered securities to any person, except as described below. None of these transactions involved any underwriters, underwriting discounts or commissions, except as specified below, or any public offering, and the registrant believes that each transaction was exempt from the registration requirements of the Securities Act of 1933 by virtue of Section 4(2) thereof and/or Regulation D promulgated thereunder. All recipients had adequate access, though their relationships with the registrant, to information about the registrant.

As additional consideration for that certain Lease Termination Agreement, effective as of October 1, 2012, between the registrant and Ditty Properties Limited Partnership ("Ditty") with respect to that certain Lease Agreement dated March 1, 2006 between the registrant and Ditty regarding the registrant's facilities located at 3830 Monte Villa Parkway, Bothell, WA, the registrant agreed to issue 1,500,000 shares of common stock to Ditty contingent upon and immediately prior to the first to occur of any of the following events: (i) the closing by the registrant of an equity financing in a transaction or series of related transactions where such financing yields gross proceeds to the registrant of at least $4 million in the aggregate, including amounts converted under any convertible promissory notes; (ii) a merger of the registrant with or into another entity if the combined market capitalization of the merging entities is at least $18 million or, if not, upon the market capitalization of the registrant as the surviving entity of a merger being at least $18 million at any time after the merger; (iii) a sale of all or substantially all of the registrant's assets; or (iv) a sale of the registrant's stock after which sale a majority of the outstanding equity of the registrant is held by persons or entities who were not shareholders of the registrant prior to the sale.

In August, October and November 2012, the registrant issued to eleven of its vendors an aggregate of approximately 3.8 million shares of common stock to settle outstanding amounts due to such vendors in the aggregate amount of approximately $1.2 million. The registrant also agreed to issue an additional 87,254 shares to settle approximately $30,000 in amounts due to one vendor contingent upon and immediately prior to the first to occur of any of the following events: (i) the closing of an equity financing in a transaction or series of related transactions where such financing yields gross proceeds to the registrant of at least $4 million in the aggregate, including amounts converted under any convertible promissory notes; (ii) a merger into another entity if the combined market capitalization of the merging entities is at least $18 million or, if not, upon the market capitalization of the registrant as the surviving entity of a merger being at least $18 million at any time after the merger; (iii) a sale of all or substantially all of the registrant's assets; or (iv) a sale of the registrant's stock after which sale a majority of the outstanding equity is held by persons or entities who were not shareholders of the registrant prior to the sale.

In February 2012, in connection with the issuance by the registrant of secured promissory notes in the aggregate principal amount of $1.5 million, the registrant also issued warrants to purchase up to 3,690,944 shares of its common stock. The registrant has issued additional warrants to purchase up to 3,199,848 shares of its common stock to the secured parties in connection with a series of amendments to the notes and the purchase agreement pursuant to which the notes and the warrants were issued.

In connection with the Securities Purchase Agreement that the registrant entered into with Socius CG II, Ltd. in December 2011, the registrant issued to Socius a warrant to purchase up to 1,305,970 shares of its common stock at an exercise price of $1.34 per share. the registrant notified Socius on March 20, 2012 that it was terminating the Securities Purchase Agreement, which in turn terminated the warrant.

On October 11, 2011, the registrant executed a purchase agreement with Lincoln Park Capital Fund, LLC. Under the purchase agreement, the registrant has the right to sell to LPC up to $15,000,000 of its common stock, from time to time over a 30-month period, at its discretion. The registrant also issued 145,279 shares of its common stock to LPC as a commitment fee for entering into the purchase agreement, 5,000 shares of its common stock to LPC as an expense reimbursement, and it may issue up to 290,557 shares pro rata as LPC purchases up to $15,000,000 of its common stock as directed by the registrant.

On September 28, 2011, the registrant issued 668,637 shares of its common stock to BioMed Realty, L.P. ("BioMed"), the sole member of BMR-3450 Monte Villa Parkway LLC, and 111,363 shares of its common stock to BioMed Realty Holdings, Inc. ("Holdings"), a subsidiary of BioMed, pursuant to those certain Stock Purchase Agreements dated as of September 28, 2011 between the registrant and each of BioMed and Holdings. The parties entered into the Stock Purchase Agreements in connection with the termination of that certain Lease dated as of April 23, 2001 whereby the registrant leased certain premises from BMR-3450 Monte Villa Parkway LLC, the successor-in-interest to Phase 3 Science Center LLC, at 3450 Monte Villa Parkway in Bothell, Washington.

On March 3, 2011, the registrant issued an aggregate of 11,377 shares of its common stock to Ribotask ApS as consideration for Amendment No. 4, dated as of March 3, 2011, to that certain Patent Assignment and License Agreement, dated May 21, 2008, by and between the registrant and Ribotask ApS.

On December 31, 2010, pursuant to that certain Payment Acknowledgement between the registrant and Canaccord Genuity Inc. dated December 31, 2010, the registrant issued to Canaccord Genuity an aggregate of 28,944 shares of its common stock in full and complete satisfaction of any and all remaining liabilities owed to Canaccord Genuity by the registrant arising out of that certain letter agreement dated February 4, 2010 between the registrant and Canaccord Genuity. The services that Canaccord Genuity provided to the registrant pursuant to the letter agreement related to the merger between the registrant and Cequent Pharmaceuticals, Inc., which merger became effective on July 21, 2010.

On December 16, 2010, the registrant issued 211,575 shares of its common stock to BioMed Realty, L.P., the sole member of BMR-3450 Monte Villa Parkway LLC, pursuant to that certain Stock Purchase Agreement dated as of December 16, 2010 between the registrant and BioMed. The parties entered into the Stock Purchase Agreement in connection with the fifth amendment of that certain Lease dated as of April 23, 2002 whereby the registrant leases certain premises from BMR-3450 Monte Villa Parkway LLC, the successor-in-interest to Phase 3 Science Center LLC, at 3450 Monte Villa Parkway in Bothell, Washington.

On July 27, 2010, the registrant issued an aggregate of 141,949 shares of its common stock to Novosom AG as consideration for the purchase of the RNA delivery assets of Novosom pursuant to that certain Asset Purchase Agreement dated as of July 27, 2010 by and among the registrant, Novosom and Steffen Panzner, Ph.D. During 2012, the registrant issued an additional 340,906 shares of its common stock to Novosom as additional consideration under the Asset Purchase Agreement.

On July 21, 2010, in connection with the consummation of the merger contemplated by that certain Agreement and Plan of Merger dated as of March 31, 2010 by and among the registrant, Cequent Pharmaceuticals, Inc., Calais Acquisition Corp. and a representative of the stockholders of Cequent Pharmaceuticals, Inc., the registrant issued an aggregate of 988,285 unregistered shares of its common stock to the stockholders of Cequent Pharmaceuticals, Inc.

On each of April 30, 2010, May 31, 2010 and June 30, 2010, the registrant issued to Cequent Pharmaceuticals, Inc. a warrant to purchase up to 14,135 shares of its common stock at an exercise price of $45.98 per share. On July 21, 2010, the registrant consummated its merger with Cequent Pharmaceuticals, Inc., and, in accordance with the terms of the Loan Agreement dated as of March 31, 2010 between the registrant and Cequent Pharmaceuticals, Inc., the warrants terminated.

On January 25, 2010, the registrant issued to one of its vendors an aggregate of 1,250 shares of its common stock to settle outstanding amounts due to such vendors in the amount of $55,000 in total.

On June 18, 2009, the registrant issued 15,152 shares of its common stock to Ribotask ApS as consideration for Amendment No. 2, dated as of June 18, 2009, to that certain Patent Assignment and License Agreement, dated May 21, 2008, by and between the registrant and Ribotask ApS.

On March 20, 2009, the registrant issued to two of its vendors an aggregate of 5,750 shares of its common stock to settle outstanding amounts due to such vendors in the amount of $106,359 in total.

In connection with that certain Amendment, Acknowledgement and Mutual Release, dated as of March 16, 2009, between the registrant and its former chief scientific officer, the registrant issued to such former officer on March 20, 2009 an aggregate of 18,282 unregistered shares of its common stock in full and complete satisfaction of its severance obligations to such former officer.

On March 5, 2009, the registrant issued 37,500 shares of its common stock to BioMed Realty, L.P. ("BioMed"), the sole member of BMR-3450 Monte Villa Parkway LLC, pursuant to that certain Stock Purchase Agreement dated as of March 5, 2009 between the registrant and BioMed. The parties entered into the Stock Purchase Agreement in connection with the third amendment of that certain

Lease dated as of April 23, 2002 whereby the registrant leases certain premises from BMR-3450 Monte Villa Parkway LLC, the successor-in-interest to Phase 3 Science Center LLC, at 3450 Monte Villa Parkway in Bothell, Washington.

In February 2009, the registrant issued to six of its vendors an aggregate of 28,357 shares of common stock to settle outstanding amounts due to such vendors in the aggregate amount of $460,718.

Item 16. Exhibits and Financial Statement Schedules.

The exhibits listed on the Index to Exhibits of this Registration Statement are filed herewith or are incorporated herein by reference to other filings.

(a) *Exhibits.* The following exhibits are included herein or incorporated herein by reference.

Exhibit No.	Description
2.1	Agreement and Plan of Merger dated as of March 31, 2010 by and among the Registrant, Cequent Pharmaceuticals, Inc., Calais Acquisition Corp. and a representative of the stockholders of Cequent Pharmaceuticals, Inc. (filed as Exhibit 2.1 to our Current Report on Form 8-K dated March 31, 2010, and incorporated herein by reference).
3.1	Restated Certificate of Incorporation of the Registrant dated July 20, 2005 (filed as Exhibit 3.1 to our Current Report on Form 8-K dated July 20, 2005, and incorporated herein by reference).
3.2	Certificate of Amendment of the Amended and Restated Certificate of Incorporation of the Registrant, dated June 10, 2008 (filed as Exhibit 3.1 to our Current Report on Form 8-K dated June 10, 2008, and incorporated herein by reference).
3.3	Certificate of Amendment of the Amended and Restated Certificate of Incorporation of the Registrant, dated July 21, 2010 (filed as Exhibit 3.1 to our Current Report on Form 8-K dated July 21, 2010, and incorporated herein by reference).
3.4	Certificate of Amendment of the Amended and Restated Certificate of Incorporation of the Registrant, dated July 21, 2010 (filed as Exhibit 3.1 to our Current Report on Form 8-K dated July 21, 2010, and incorporated herein by reference).
3.5	Certificate of Amendment of the Amended and Restated Certificate of Incorporation of the Registrant, dated July 18, 2011 (filed as Exhibit 3.1 to our Current Report on Form 8-K dated July 14, 2011, and incorporated herein by reference).
3.6	Certificate of Amendment of the Amended and Restated Certificate of Incorporation of the Registrant, dated December 22, 2011 (filed as Exhibit 3.1 to our Current Report on Form 8-K dated December 22, 2011, and incorporated herein by reference).
3.7	Amended and Restated Bylaws of the Registrant dated August 21, 2012 (filed as Exhibit 3.7 to our Annual Report on Form 10-K for the fiscal year ended December 31, 2011, and incorporated herein by reference).
3.8	Certificate of Designation, Rights and Preferences of Series A Junior Participating Preferred Stock dated January 17, 2007 (filed as Exhibit 3.1 to our Current Report on Form 8-K dated January 19, 2007, and incorporated herein by reference).
3.9	Amended Designation, Rights, and Preferences of Series A Junior Participating Preferred Stock, dated June 10, 2008 (filed as Exhibit 3.2 to our Current Report on Form 8-K dated June 10, 2008, and incorporated herein by reference).
3.10	Certificate of Designations or Preferences, Rights and Limitations of Series B Preferred Stock dated December 22, 2011 (filed as Exhibit 3.1 to our Current Report on Form 8-K dated December 22, 2011, and incorporated herein by reference).
4.1	Rights Agreement, dated February 22, 2000, between the Registrant and American Stock Transfer & Trust Company, LLC as Rights Agent (filed as Exhibit 1 to our Current Report on Form 8-K dated February 22, 2000, and incorporated herein by reference).
4.2	Amendment No. 1 to Rights Agreement dated as of January 17, 2007 by and between the Registrant and American Stock Transfer & Trust Company, LLC (filed as Exhibit 4.1 to our Current Report on Form 8-K dated January 19, 2007, and incorporated herein by reference).

4.3	Amendment No. 2 to Rights Agreement dated as of March 17, 2010 by and between the Registrant and American Stock Transfer & Trust Company, LLC (filed as Exhibit 4.1 to our Current Report on Form 8-K dated March 5, 2010, and incorporated herein by reference).
4.4	Amendment No. 3 to Rights Agreement dated as of March 31, 2010 by and between the Registrant and American Stock Transfer & Trust Company, LLC (filed as Exhibit 4.3 to our Current Report on Form 8-K dated March 31, 2010, and incorporated herein by reference).
4.5	Form of Amended and Restated Common Stock Purchase Warrant originally issued by the Registrant in April 2008 (filed as Exhibit 10.2 to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2009, and incorporated herein by reference).
4.6	Form of Common Stock Purchase Warrant issued by the Registrant in June 2009 (filed as Exhibit 10.3 to our Current Report on Form 8-K dated June 10, 2009, and incorporated herein by reference).
4.7	Form of Common Stock Purchase Warrant issued by the Registrant in December 2009 (filed as Exhibit 4.2 to our Current Report on Form 8-K dated December 22, 2009, and incorporated herein by reference).
4.8	Form of Common Stock Purchase Warrant issued by the Registrant in January 2010 (filed as Exhibit 4.1 to our Current Report on Form 8-K dated January 13, 2010, and incorporated herein by reference).
4.9	Form of Subscription Investment Unit issued by the Registrant in November 2010 (filed as Exhibit 4.1 to our Current Report on Form 8-K dated November 4, 2010, and incorporated herein by reference).
4.10	Form of Common Stock Purchase Warrant issued by the Registrant in November 2010 (filed as Exhibit 4.2 to our Current Report on Form 8-K dated November 4, 2010, and incorporated herein by reference).
4.11	Form of Warrant Certificate issued by the Registrant in February 2011 (filed as Exhibit 4.1 to our Current Report on Form 8-K dated February 10, 2011, and incorporated herein by reference).
4.12	Form of Warrant Agreement by and between the Registrant and American Stock Transfer & Trust Company, LLC (filed as Exhibit 4.2 to our Current Report on Form 8-K dated February 10, 2011, and incorporated herein by reference).
4.13	Form of Series A Warrant (Common Stock Purchase Warrant) issued to the investors in the Registrant's underwritten offering of securities that closed in May 2011 (filed as Exhibit 4.13 to Amendment No. 2 to our Registration Statement on Form S-1 (No. 333-173108) filed with the SEC on May 10, 2011, and incorporated herein by reference).
4.14	Form of Series B Warrant (Unit Purchase Warrant) issued to the investors in the Registrant's underwritten offering of securities that closed in May 2011 (filed as Exhibit 4.2 to our Current Report on Form 8-K dated May 17, 2011, and incorporated herein by reference).
4.15	Form of Warrant to Purchase Common Stock issued by the Registrant to Socius CG II, Ltd. (filed as Exhibit 4.1 to our Current Report on Form 8-K dated December 22, 2011, and incorporated herein by reference).
4.16	Form of 15% Secured Promissory Note issued by the Registrant in February 2012 (filed as Exhibit 4.1 to our Current Report on Form 8-K dated February 10, 2012, and incorporated herein by reference).
4.17	Form of Common Stock Purchase Warrant issued by the Registrant in February 2012 (filed as Exhibit 4.2 to our Current Report on Form 8-K dated February 10, 2012, and incorporated herein by reference).
4.18	Form of Common Stock Purchase Warrant issued by the Registrant in March 2012 (filed as Exhibit 4.1 to our Current Report on Form 8-K dated March 19, 2012, and incorporated herein by reference).
10.1	Lease Agreement, dated April 23, 2002, with Phase 3 Science Center LLC, Ahwatukee Hills Investors LLC and J. Alexander's LLC (filed as Exhibit 10.26 to our Quarterly Report on Form 10-Q for the quarter ended March 31, 2002, and incorporated herein by reference).

10.2	First Amendment dated June 17, 2003, to Lease Agreement dated April 23, 2002, with Phase 3 Science Center LLC, Ahwatukee Hills Investors LLC and J. Alexander's LLC (filed as Exhibit 10.2 to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2003, and incorporated herein by reference).
10.3	Second Amendment, dated February 4, 2004, to Lease Agreement dated April 23, 2002, with Phase 3 Science Center LLC, Ahwatukee Hills Investors LLC and J. Alexander's LLC (filed as Exhibit 10.24 to our Annual Report on Form 10-K for the year ended December 31, 2003, and incorporated herein by reference).
10.4	Third Amendment, dated as of March 5, 2009, to Lease Agreement dated April 23, 2002, with BMR-3450 Monte Villa Parkway LLC (as successor-in-interest to Phase 3 Science Center LLC) (filed as Exhibit 10.1 to our Current Report on Form 8-K dated March 5, 2009, and incorporated herein by reference).
10.5	Fourth Amendment, dated as of July 27, 2009, to Lease Agreement dated April 23, 2002, with BMR-3450 Monte Villa Parkway LLC (as successor-in-interest to Phase 3 Science Center LLC) (filed as Exhibit 10.3 to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2009, and incorporated herein by reference).
10.6	Fifth Amendment, dated as of December 16, 2010, to Lease Agreement dated April 23, 2002, with BMR-3450 Monte Villa Parkway LLC (as successor-in-interest to Phase 3 Science Center LLC) (filed as Exhibit 10.1 to our Current Report on Form 8-K dated December 16, 2010, and incorporated herein by reference).
10.7	Lease Termination Agreement, dated as of September 27, 2011, by and between the Registrant and BMR-3450 Monte Villa Parkway LLC (as successor-in-interest to Phase 3 Science Center LLC) (filed as Exhibit 10.1 to our Current Report on Form 8-K dated September 28, 2011, and incorporated herein by reference).
10.8	Stock Purchase Agreement, dated as of March 5, 2009, between the Registrant and BioMed Realty, L.P. (filed as Exhibit 10.2 to our Current Report on Form 8-K dated March 5, 2009, and incorporated herein by reference).
10.9	Stock Purchase Agreement, dated as of December 16, 2010, between the Registrant and BioMed Realty, L.P. (filed as Exhibit 10.2 to our Current Report on Form 8-K dated December 16, 2010, and incorporated herein by reference).
10.10	Stock Purchase Agreement, dated as of September 27, 2011, between the Registrant and BioMed Realty, L.P. (filed as Exhibit 10.2 to our Current Report on Form 8-K dated September 28, 2011, and incorporated herein by reference).
10.11	Stock Purchase Agreement, dated as of September 27, 2011, between the Registrant and BioMed Realty Holdings, Inc. (filed as Exhibit 10.3 to our Current Report on Form 8-K dated September 28, 2011, and incorporated herein by reference).
10.12	Lease Agreement with Ditty Properties Limited Partnership for facilities at 3830 Monte Villa Parkway, Bothell, WA, effective as of March 1, 2006 (filed as Exhibit 10.1 to Amendment No. 1 to our Current Report on Form 8-K/A dated March 1, 2006 and filed on July 26, 2006, and incorporated herein by reference).(1)
10.13	First Amendment to Lease Agreement with Ditty Properties Limited Partnership for facilities at 3830 Monte Villa Parkway, Bothell, WA, effective as of July 17, 2006 (filed as Exhibit 10.7 to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2006, and incorporated herein by reference).
10.14	Lease Termination Agreement, effective as of October 1, 2012, between the Registrant and Ditty Properties Limited Partnership (filed as Exhibit 10.2 to our Current Report on Form 8-K dated October 4, 2012, and incorporated herein by reference).
10.15	Employment Agreement effective as of June 23, 2008 by and between the Registrant and J. Michael French (filed as Exhibit 10.2 to our Current Report on Form 8-K dated June 10, 2008, and incorporated herein by reference).**
10.16	Waiver Agreement dated as of March 31, 2010 by and between the Registrant and J. Michael French (filed as Exhibit 10.8 to our Current Report on Form 8-K dated March 31, 2010, and incorporated herein by reference).**

10.17	Letter Agreement, dated August 7, 2012, between the Registrant and J. Michael French (filed as Exhibit 10.2 to our Current Report on Form 8-K dated August 2, 1012, and incorporated herein by reference).**

10.18	Employment Agreement effective as of January 2, 2009 by and between the Registrant and Barry Polisky (filed as Exhibit 10.1 to our Current Report on Form 8-K dated October 27, 2008, and incorporated herein by reference).**
10.19	Waiver Agreement dated as of March 31, 2010 by and between the Registrant and Barry Polisky (filed as Exhibit 10.10 to our Current Report on Form 8-K dated March 31, 2010, and incorporated herein by reference).**
10.20	Amendment No. 1, effective September 1, 2011, to the Employment Agreement, effective as of January 2, 2009, by and between the Registrant and Barry Polisky (filed as Exhibit 10.2 to our Current Report on Form 8-K dated September 1, 2011, and incorporated herein by reference).**
10.21	Employment Agreement effective as of July 13, 2009 by and between the Registrant and Peter S. Garcia (filed as Exhibit 10.1 to our Current Report on Form 8-K dated July 13, 2009, and incorporated herein by reference).**
10.22	Waiver Agreement dated as of March 31, 2010 by and between the Registrant and Peter S. Garcia (filed as Exhibit 10.9 to our Current Report on Form 8-K dated March 31, 2010, and incorporated herein by reference).**
10.23	The Registrant's 1990 Stock Option Plan (filed as Exhibit 4.2 to our Registration Statement on Form S-8, File No. 333-28785, and incorporated herein by reference).**
10.24	The Registrant's Amended and Restated 2000 Nonqualified Stock Option Plan (filed as Exhibit 4.4 to our Registration Statement on Form S-8, File No. 333-49514, and incorporated herein by reference).**
10.25	Amendment No. 1 to the Registrant's Amended and Restated 2000 Nonqualified Stock Option Plan (filed as Exhibit 10.18 to our Annual Report on Form 10-K for the year ended December 31, 2005, and incorporated herein by reference).**
10.26	Amendment No. 2 to the Registrant's Amended and Restated 2000 Nonqualified Stock Option Plan (filed as Exhibit 10.19 to our Quarterly Report on Form 10-Q for the quarter ended September 30, 2006, and incorporated herein by reference).**
10.27	The Registrant's 2002 Stock Option Plan (filed as Exhibit 10.28 to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2002, and incorporated herein by reference).**
10.28	Amendment No. 1 to the Registrant's 2002 Stock Option Plan (filed as Exhibit 10.20 to our Annual Report on Form 10-K for the year ended December 31, 2005, and incorporated herein by reference).**
10.29	The Registrant's 2004 Stock Incentive Plan (filed as Exhibit 99 to our Registration Statement on Form S-8, File No. 333-118206, and incorporated herein by reference).**
10.30	Amendment No. 1 to the Registrant's 2004 Stock Incentive Plan (filed as Exhibit 10.4 to our Current Report on Form 8-K dated July 20, 2005, and incorporated herein by reference).**
10.31	Amendment No. 2 to the Registrant's 2004 Stock Incentive Plan (filed as Exhibit 10.18 to our Quarterly Report on Form 10-Q for the quarter ended September 30, 2005, and incorporated herein by reference).**
10.32	Amendment No. 3 to the Registrant's 2004 Stock Incentive Plan (filed as Exhibit 10.24 to our Annual Report on Form 10-K for the year ended December 31, 2005, and incorporated herein by reference).**
10.33	Amendment No. 4 to the Registrant's 2004 Stock Incentive Plan (filed as Exhibit 10.5 to our Registration Statement on Form S-8, File No 333-135724, and incorporated herein by reference).**
10.34	Amendment No. 5 to the Registrant's 2004 Stock Incentive Plan (filed as Exhibit 10.27 to our Quarterly Report on Form 10-K for the quarter ended September 30, 2006, and incorporated herein by reference).**
10.35	The Registrant's 2008 Stock Incentive Plan (filed as Appendix A to our Definitive Proxy Statement on Schedule 14A filed on April 29, 2008, and incorporated herein by reference).**

10.36	Development and License Agreement by and between the Registrant and Amylin Pharmaceuticals, Inc. dated June 23, 2006 (filed as Exhibit 10.66 to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2006, and incorporated herein by reference).
10.37	First Amendment, dated as of January 29, 2009, to the Development and License Agreement by and between the Registrant and Amylin Pharmaceuticals, Inc. (filed as Exhibit 10.5 to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2010, and incorporated herein by reference).
10.38	Patent Assignment and License Agreement, dated May 21, 2008, by and between the Registrant and Ribotask ApS (filed as Exhibit 10.1 to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2010, and incorporated herein by reference).
10.39	Amendment No. 1, dated October 9, 2008, to the Patent Assignment and License Agreement by and between the Registrant and Ribotask ApS (filed as Exhibit 10.2 to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2010, and incorporated herein by reference).
10.40	Amendment No. 2, dated June 18, 2009, to the Patent Assignment and License Agreement by and between the Registrant and Ribotask ApS (filed as Exhibit 10.3 to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2010, and incorporated herein by reference).
10.41	Amendment No. 3, dated June 4, 2010, to the Patent Assignment and License Agreement by and between the Registrant and Ribotask ApS (filed as Exhibit 10.4 to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2010, and incorporated herein by reference).
10.42	Form of Restricted Stock Grant Agreement (filed as Exhibit 10.1 to our Current Report on Form 8-K dated February 6, 2007, and incorporated herein by reference).**
10.43	Form of Stock Option Agreement (filed as Exhibit 10.2 to our Current Report on Form 8-K dated February 6, 2007, and incorporated herein by reference).**
10.44	Form of Omnibus Amendment to Certain Grant Agreements, dated May 4, 2007 (filed as Exhibit 10.42 to our Quarterly Report on Form 10-Q for the quarter ended March 31, 2007, and incorporated herein by reference).**
10.45	The Registrant's 2007 Employee Stock Purchase Plan (filed as Exhibit 10.1 to our Registration Statement on Form S-8, File No. 333-146183, and incorporated herein by reference).**
10.46	Cequent Pharmaceuticals, Inc.'s 2006 Stock Incentive Plan (filed as Exhibit 10.3 to our Registration Statement on Form S-8, File No. 333-170071, and incorporated herein by reference).**
10.47	Amendment No. 1, dated October 31, 2006, to Cequent Pharmaceuticals, Inc.'s 2006 Stock Incentive Plan (filed as Exhibit 10.4 to our Registration Statement on Form S-8, File No. 333-170071, and incorporated herein by reference).**
10.48	Placement Agency Agreement, dated March 7, 2008, between the Registrant and Maxim Group LLC (filed as Exhibit 10.1 to our Current Report on Form 8-K dated April 25, 2008, and incorporated herein by reference).
10.49	Securities Purchase Agreement, dated as of April 25, 2008, between the Registrant and the purchasers identified on the signature page thereto (filed as Exhibit 10.2 to our Current Report on Form 8-K dated April 25, 2008, and incorporated herein by reference).
10.50	Amendment No. 1 to the Securities Purchase Agreement, dated as of April 25, 2008, between the Registrant and the purchasers identified therein (filed as Exhibit 10.1 to our Quarterly Report on Form 10-Q for the quarter ended June 30, 2009, and incorporated herein by reference).
10.51	Non-Exclusive Patent License Agreement, effective as of February 12, 2009, by and between Hoffmann-La Roche Inc., F. Hoffmann-La Roche Ltd. and the Registrant (filed as Exhibit 10.2 to our Quarterly Report on Form 10-Q/A for the quarter ended March 31, 2009, and incorporated herein by reference). (1)

10.52	License Agreement dated as of March 20, 2009 by and between Novartis Institutes for BioMedical Research, Inc. and the Registrant (filed as Exhibit 10.3 to our Quarterly Report on Form 10-Q/A for the quarter ended March 31, 2009, and incorporated herein by reference). (1)
10.53	Placement Agency Agreement, dated June 9, 2009, between the Registrant and Canaccord Adams Inc. (filed as Exhibit 10.1 to our Current Report on Form 8-K dated June 10, 2009, and incorporated herein by reference).
10.54	Securities Purchase Agreement, dated as of June 9, 2009, between the Registrant and the purchasers identified on the signature page thereto (filed as Exhibit 10.2 to our Current Report on Form 8-K dated June 10, 2009, and incorporated herein by reference).
10.55	Note and Warrant Purchase Agreement, dated as of December 22, 2009, among the Registrant, MDRNA Research, Inc. and the purchasers identified in the signature pages thereto (filed as Exhibit 10.1 to our Current Report on Form 8-K dated December 22, 2009, and incorporated herein by reference).
10.56	Placement Agency Agreement, dated January 13, 2010, between the Registrant and Canaccord Adams, Inc. (filed as Exhibit 10.1 to our Current Report on Form 8-K dated January 13, 2010, and incorporated herein by reference).
10.57	Securities Purchase Agreement, dated as of January 13, 2010, between the Registrant and the purchasers identified on the signature page thereto (filed as Exhibit 10.2 to our Current Report on Form 8-K dated January 13, 2010, and incorporated herein by reference).
10.58	Registration Rights Agreement, dated as of July 21, 2010, by and between the Registrant and each of the investors set forth on Schedule I thereto (filed as Exhibit 10.1 to our Current Report on Form 8-K dated July 21, 2010, and incorporated herein by reference).
10.59	Stockholders' Agreement, dated as of July 21, 2010, by and among the Registrant and the holders identified on Annex I thereto (filed as Exhibit 10.2 to our Current Report on Form 8-K dated July 21, 2010, and incorporated herein by reference).
10.60	Amendment to Securities Purchase Agreements, dated as of November 4, 2010, by and among the Registrant and the signatories thereto (filed as Exhibit 10.1 to our Current Report on Form 8-K dated November 4, 2010, and incorporated herein by reference).
10.61	Securities Purchase Agreement, dated as of November 4, 2010, by and among the Registrant and the signatories thereto (filed as Exhibit 10.2 to our Current Report on Form 8-K dated November 4, 2010, and incorporated herein by reference).
10.62	Form of Director's and Officer's Indemnification Agreement (filed as Exhibit 10.45 to our Annual Report on Form 10-K for the fiscal year ended December 31, 2009, and incorporated herein by reference).**
10.63	Indenture of Lease, dated December 19, 2006, between Cequent Pharmaceuticals, Inc. and RB Kendall Fee, LLC (filed as Exhibit 10.57 to our Annual Report on Form 10-K for the fiscal year ended December 31, 2010, and incorporated herein by reference).
10.64	First Amendment of Lease, dated December 19, 2006, between Cequent Pharmaceuticals, Inc. and RB Kendall Fee, LLC (filed as Exhibit 10.58 to our Annual Report on Form 10-K for the fiscal year ended December 31, 2010, and incorporated herein by reference).
10.65	Second Amendment of Lease, dated March 23, 2007, between Cequent Pharmaceuticals, Inc. and RB Kendall Fee, LLC (filed as Exhibit 10.59 to our Annual Report on Form 10-K for the fiscal year ended December 31, 2010, and incorporated herein by reference).
10.66	Third Amendment of Lease, dated September 20, 2007, between Cequent Pharmaceuticals, Inc. and RB Kendall Fee, LLC (filed as Exhibit 10.60 to our Annual Report on Form 10-K for the fiscal year ended December 31, 2010, and incorporated herein by reference).

10.67	Fourth Amendment of Lease, dated March 30, 2010, between Cequent Pharmaceuticals, Inc. and RB Kendall Fee, LLC (filed as Exhibit 10.61 to our Annual Report on Form 10-K for the fiscal year ended December 31, 2010, and incorporated herein by reference).

10.68	Employment Agreement effective as of September 1, 2011 by and between the Registrant and Richard T. Ho, M.D., Ph.D. (filed as Exhibit 10.1 to our Current Report on Form 8-K dated September 1, 2011, and incorporated herein by reference).**
10.69	Letter Agreement, dated August 7, 2012, between the Registrant and Richard T. Ho, M.D., Ph.D. (filed as Exhibit 10.4 to our Current Report on Form 8-K dated August 2, 2012, and incorporated herein by reference).**
10.70	Employment Agreement effective as of September 7, 2011 by and between the Registrant and Philip C. Ranker (filed as Exhibit 10.3 to our Current Report on Form 8-K dated September 1, 2011, and incorporated herein by reference).**
10.71	Amendment No. 1, dated as of February 27, 2012, to the Employment Agreement, effective as of September 7, 2011, by and between the Registrant and Philip C. Ranker (filed as Exhibit 10.1 to our Current Report on Form 8-K dated February 27, 2012, and incorporated herein by reference).**
10.72	Letter Agreement, dated August 7, 2012, between the Registrant and Philip C. Ranker (filed as Exhibit 10.3 to our Current Report on Form 8-K dated August 2, 2012, and incorporated herein by reference).**
10.73	Purchase Agreement, dated as of October 11, 2011, by and between the Registrant and Lincoln Park Capital Fund, LLC (filed as Exhibit 10.1 to our Current Report on Form 8-K dated October 11, 2011, and incorporated herein by reference).
10.74	Registration Rights Agreement, dated as of October 11, 2011, by and between the Registrant and Lincoln Park Capital Fund, LLC (filed as Exhibit 10.2 to our Current Report on Form 8-K dated October 11, 2011, and incorporated herein by reference).
10.75	Securities Purchase Agreement, dated as of December 22, 2011, by and among the Registrant and Socius CG II, Ltd. (filed as Exhibit 10.1 to our Current Report on Form 8-K dated December 22, 2011, and incorporated herein by reference).
10.76	Amendment No. 1, dated as of January 9, 2012, to the Securities Purchase Agreement, dated as of December 22, 2011, by and among the Registrant and Socius CG II, Ltd. (filed as Exhibit 10.76 to our Annual Report on Form 10-K for the fiscal year ended December 31, 2011, and incorporated herein by reference).
10.77	Amendment No. 2, dated as of January 12, 2012, to the Securities Purchase Agreement, dated as of December 22, 2011, by and among the Registrant and Socius CG II, Ltd. (filed as Exhibit 10.77 to our Annual Report on Form 10-K for the fiscal year ended December 31, 2011, and incorporated herein by reference).
10.78	License Agreement, effective as of December 22, 2011, by and between the Registrant and Mirna Therapeutics, Inc. (filed as Exhibit 10.3 to our Current Report on Form 8-K/A filed on February 22, 2012, and incorporated herein by reference). (1)
10.79	Note and Warrant Purchase Agreement, dated as of February 10, 2012, among the Registrant, Cequent Pharmaceuticals, Inc., MDRNA Research, Inc., and the purchasers identified in the signature pages thereto (filed as Exhibit 10.1 to our Current Report on Form 8-K dated February 10, 2012, and incorporated herein by reference).
10.80	First Amendment to Note and Warrant Purchase Agreement and Secured Promissory Notes, dated April 30, 2012, among the Registrant, Cequent Pharmaceuticals, Inc., MDRNA Research, Inc., and the purchasers identified on the signature pages thereto (filed as Exhibit 10.80 to our Annual Report on Form 10-K for the fiscal year ended December 31, 2011, and incorporated herein by reference).
10.81	Second Amendment to Note and Warrant Purchase Agreement and Secured Promissory Notes, dated May 31, 2012, among the Registrant, Cequent Pharmaceuticals, Inc., MDRNA Research, Inc., and the purchasers identified on the signature pages thereto (filed as Exhibit 10.81 to our Annual Report on Form 10-K for the fiscal year ended December 31, 2011, and incorporated herein by reference).
10.82	Third Amendment to Note and Warrant Purchase Agreement and Secured Promissory Notes, dated August 3, 2012, among the Registrant, Cequent Pharmaceuticals, Inc., MDRNA Research, Inc., and the purchasers identified on the

signature pages thereto (filed as Exhibit 10.1 to our Current Report on Form 8-K dated August 2, 2012, and incorporated herein by reference).

10.83	Fourth Amendment to Note and Warrant Purchase Agreement and Secured Promissory Notes, dated October 4, 2012, among the Registrant, Cequent Pharmaceuticals, Inc., MDRNA Research, Inc., and the purchasers identified on the signature pages thereto (filed as Exhibit 10.1 to our Current Report on Form 8-K dated October 4, 2012, and incorporated herein by reference).
10.84	Security Agreement, dated as of February 10, 2012, among the Registrant, Cequent Pharmaceuticals, Inc., MDRNA Research, Inc. and Genesis Capital Management, LLC (filed as Exhibit 10.2 to our Current Report on Form 8-K dated February 10, 2012, and incorporated herein by reference).
10.85	Intellectual Property Security Agreement, dated as of February 10, 2012, by the Registrant, Cequent Pharmaceuticals, Inc. and MDRNA Research, Inc. in favor of Genesis Capital Management, LLC (filed as Exhibit 10.3 to our Current Report on Form 8-K dated February 10, 2012, and incorporated herein by reference).
10.86	Form of Securities Purchase Agreement, dated as of March 19, 2012, between and among the Registrant and the purchasers identified on the signature pages thereto (filed as Exhibit 10.1 to our Current Report on Form 8-K dated March 19, 2012, and incorporated herein by reference).
10.87	Placement Agent Agreement, dated March 19, 2012, between the Registrant and Rodman & Renshaw, LLC (filed as Exhibit 10.2 to our Current Report on Form 8-K dated March 19, 2012, and incorporated herein by reference).
10.88	Exclusive License Agreement, effective as of March 13, 2012, by and between the Registrant and ProNAi Therapeutics, Inc. (filed as Exhibit 10.2 to our Current Report on Form 8-K/A dated March 13, 2012, and incorporated herein by reference).(1)
10.89	Research & License Agreement, dated as of February 3, 2011, between the Registrant and Debiopharm S.A. (filed as Exhibit 10.1 to our Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2011, and incorporated herein by reference).(1)
10.90	Amendment No. 1 to Research and License Agreement between the Registrant and Debiopharm S.A. (filed as Exhibit 10.90 to our Annual Report on Form 10-K for the fiscal year ended December 31, 2011, and incorporated herein by reference).
10.91	Amendment No. 2 to Research and License Agreement between the Registrant and Debiopharm S.A. (filed as Exhibit 10.91 to our Annual Report on Form 10-K for the fiscal year ended December 31, 2011, and incorporated herein by reference).
10.92	Amendment No. 3 to Research and License Agreement between the Registrant and Debiopharm S.A. (filed as Exhibit 10.92 to our Annual Report on Form 10-K for the fiscal year ended December 31, 2011, and incorporated herein by reference).
10.93	Amendment No. 4 to Research and License Agreement between the Registrant and Debiopharm S.A. (filed as Exhibit 10.93 to our Annual Report on Form 10-K for the fiscal year ended December 31, 2011, and incorporated herein by reference).
10.94	Intellectual Property License Agreement, effective as of May 3, 2012, by and between the Registrant, MDRNA Research, Inc., Cequent Pharmaceuticals, Inc. and Monsanto Company (filed as Exhibit 10.1 to our Current Report on Form 8-K/A filed with the SEC on November 14, 2012, and incorporated herein by reference).(1)
10.95	License Agreement, dated as of August 2, 2012, by and between Novartis Institutes for BioMedical Research, Inc. and Marina Biotech, Inc. (filed as Exhibit 10.1 to our Quarterly Report on Form 10-Q for the fiscal quarter ended September 30, 2012, and incorporated herein by reference).
21.1	Subsidiaries of the Registrant.(2)
23.1	Consent of KPMG LLP, independent registered public accounting firm.(2)

101.INS	XBRL Instance Document (3)
101.SCH	XBRL Taxonomy Extension Schema Document (3)
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document (3)
101.DEF	XBRL Taxonomy Extension Definitions Linkbase Document (3)
101.LAB	XBRL Taxonomy Extension Label Linkbase Document (3)
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document (3)

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(1) Portions of this exhibit have been omitted pursuant to a request for confidential treatment under Rule 24b-2 of the Securities Exchange Act of 1934, amended, and the omitted material has been separately filed with the Securities and Exchange Commission.

(2) Filed herewith.

(3) Previously filed. In accordance with Regulation S-T, the XBRL-related information in Exhibit 101 to this registration statement shall be deemed to be "furnished" and not "filed".

** Indicates management contract or compensatory plan or arrangement.

(b) Financial Statement Schedules. All financial statement schedules are omitted because they are not applicable or not required or because the required information is included in the financial statements or notes thereto.

Item 17. Undertakings.

(a) The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment 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.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:

(i) If the registrant is subject to Rule 430C, each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A, shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such first use, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such date of first use.

(5) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities, in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

(i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;

(ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;

(iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and

(iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser.

(b) 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 a 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 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.

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 in the City of Bothell, State of Washington, on January 28, 2013.

MARINA BIOTECH, INC.

By: /s/ J. MICHAEL FRENCH
Name: **J. Michael French**
Title: **President, Chief Executive Officer and Director**

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.

Signature	Title	Date
/s/ J. Michael French **J. Michael French**	President, Chief Executive Officer and a Director (Principal Executive Officer)	January 28, 2013
/s/ Philip C. Ranker **Philip C. Ranker**	Interim Chief Financial Officer and Secretary (Principal Accounting and Financial Officer)	January 28, 2013
/s/ Stefan Loren, Ph.D.* **Stefan Loren, Ph.D.**	Director	January 28, 2013
/s/ Joseph W. Ramelli* **Joseph W. Ramelli**	Director	January 28, 2013

* By: /s/ Philip C. Ranker
Philip C. Ranker
Attorney-in-Fact

Exhibit 21.1

List of Subsidiaries

Name	State of Incorporation	Ownership
Cequent Pharmaceuticals, Inc.	Delaware	100%
MDRNA Research, Inc.	Delaware	100%
Atossa HealthCare, Inc.	Delaware	100%

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

The Board of Directors
Marina Biotech, Inc.

We consent to the use of our report with respect to the consolidated financial statements of Marina Biotech, Inc. included herein and to the reference to our firm under the heading “Experts” in the prospectus.

Our report dated October 10, 2012 contains an explanatory paragraph that states that the Company has ceased substantially all day-to-day operations, including most research and development activities, has incurred recurring losses, has a working capital and accumulated deficit, and has had recurring negative cash flows from operations, that raise substantial doubt about its ability to continue as a going concern. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

/s/ KPMG LLP

Seattle, Washington
January 28, 2013

BY EDGAR

January 28, 2013

U.S. Securities and Exchange Commission
Division of Corporation Finance
100 F Street, NE
Washington, D.C. 20549
Attn: Jeffrey P. Riedler
Amy Reischauer

Re: Marina Biotech, Inc.
Post-Effective Amendment No. 1
to Form S-3 on Form S-1
Filed December 19, 2012
File No. 333-148771

Dear Mr. Riedler:

On behalf of our client, Marina Biotech, Inc. (the "Company"), we hereby submit this letter in response to the comments set forth in that certain letter dated January 3, 2013 from the staff (the "Staff") of the U.S. Securities and Exchange Commission (the "Commission") to the Company, relating to the Post-Effective Amendment No. 1 to Form S-3 on Form S-1 that the Company filed with the Commission on December 19, 2012 (File No. 333-148771) (the "Registration Statement").

The Company is responding to the Staff's comments by revising the Registration Statement as set forth below. For your convenience, the Staff's comments have been retyped herein in bold.

Comment

1. Please update your disclosure to reflect the information required by Item 402 of Regulation S-K for the fiscal years ended December 31, 2011 and December 31, 2012. For additional information, please refer to Compliance & Disclosure Interpretation 117.05 of the Regulation S-K C&DIs.

Response

As requested, the Company has amended the Registration Statement to disclose the information required by Item 402 of Regulation S-K for the fiscal years ended December 31, 2011 and December 31, 2012.

Comment

2. We note your pending confidential treatment request and advise you that we will not be in a position to declare your post-effective amendment on Form S-1 (File No. 333-148771) effective until all comments on your confidential treatment request have been resolved. We will deliver any comments to your confidential treatment request under separate cover.

Response

As per the Order Granting Confidential Treatment Under the Securities Exchange Act of 1934, dated January 15, 2013, the Commission has granted the confidential treatment request that the Company submitted in connection with the filing of a Current Report on Form 8-K/A on November 14, 2012. The Company has no other confidential treatment requests pending before the Commission at this time.

If you have any further questions or comments, or would like to discuss this response letter or the amended Registration Statement, please feel free to call me at (212) 326-0468.

Sincerely,

/s/ Michael T. Campoli

Michael T. Campoli
Pryor Cashman LLP

cc: J. Michael French, Marina Biotech, Inc.
Philip C. Ranker, Marina Biotech, Inc.
Lawrence Remmel, Pryor Cashman LLP