

SECURITIES AND EXCHANGE COMMISSION

FORM 10-Q

Quarterly report pursuant to sections 13 or 15(d)

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HELICOS BIOSCIENCES CORP

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**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

Form 10-Q

(Mark One)

**QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES
EXCHANGE ACT OF 1934**

For the quarterly period ended June 30, 2008

OR

**TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES
EXCHANGE ACT OF 1934**

Commission File Number 001-33484

HELICOS BIOSCIENCES CORPORATION

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of
incorporation or organization)

05-0587367

(I.R.S. Employer
Identification No.)

One Kendall Square, Building 700, Cambridge, MA 02139

(617) 264-1800

(Address, including zip code, and telephone number, including
area code, of registrant's principal executive offices)

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period than the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes: No:

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

Large accelerated filer

Accelerated filer

Non-accelerated filer

(Do not check if a smaller reporting
company)

Smaller reporting company

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act) Yes: No:

The number of shares of the registrant's Common Stock, \$.001 par value, outstanding as of July 31, 2008, was 21,119,910 shares.

HELICOS BIOSCIENCES CORPORATION (a development stage company)

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Part I—Financial Information

Item 1. Consolidated Financial Statements

HELICOS BIOSCIENCES CORPORATION (a development stage company)

CONSOLIDATED BALANCE SHEETS

(unaudited)

(in thousands, except share and per share data)

	<u>December 31,</u> <u>2007</u>	<u>June 30,</u> <u>2008</u>
ASSETS		
Current assets		
Cash	\$ 52,683	\$ 24,362
Unbilled government grant receivable	117	251
Inventory	1,612	6,913
Prepaid expenses and other current assets	706	692
Total current assets	<u>55,118</u>	<u>32,218</u>
Property and equipment, net	3,400	4,858
Restricted cash	450	10,450
Other assets	241	133
	<u> </u>	<u> </u>

Total assets	\$ 59,209	\$ 47,659
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LIABILITIES AND STOCKHOLDERS' EQUITY

Current liabilities

Accounts payable	\$ 1,691	\$ 1,344
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Accrued expenses and other current liabilities	1,993	2,973
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Current portion of long-term debt	988	7,705
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Total current liabilities	4,672	12,022
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Long-term debt, net of current portion	10,786	13,111
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Other long-term liabilities	312	123
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Total liabilities	15,770	25,256
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Commitments and contingencies (Notes 5 and 6)

Stockholders' equity

Preferred stock: par value \$0.001 per share; 5,000,000 shares authorized at December 31, 2007 and June 30, 2008; no shares issued and outstanding at December 31, 2007 and June 30, 2008	—	—
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Common stock: par value \$0.001 per share; 120,000,000 shares authorized at December 31, 2007 and June 30, 2008; 20,983,638 shares and 20,985,691 shares issued and outstanding at December 31, 2007 and June 30, 2008, respectively	21	21
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Additional paid-in capital	137,472	140,121
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Deficit accumulated during the development stage	(94,054)	(117,739)
	<u> </u>	<u> </u>
Total stockholders' equity	43,439	22,403
	<u> </u>	<u> </u>
Total liabilities and stockholders' equity	\$ 59,209	\$ 47,659
	<u> </u>	<u> </u>

The accompanying notes are an integral part of the interim consolidated financial statements.

HELICOS BIOSCIENCES CORPORATION (a development stage company)**CONSOLIDATED STATEMENTS OF OPERATIONS****(unaudited)****(in thousands, except share and per share data)**

	Three months ended		Six months ended		Period from
	June 30,		June 30,		May 9, 2003
	2007	2008	2007	2008	(date of inception)
					through June 30, 2008
Grant revenue	\$ 143	\$ 251	\$ 235	\$ 364	1,105
Operating expenses					
Research and development	5,298	7,083	10,683	12,788	64,533
Selling, general and administrative	3,310	4,830	6,561	11,014	38,830
Total operating expenses	8,608	11,913	17,244	23,802	103,363
Operating loss	(8,465)	(11,662)	(17,009)	(23,438)	(102,258)
Interest income	427	145	694	483	3,872
Interest expense	(34)	(370)	(107)	(730)	(1,213)
Net loss	(8,072)	(11,887)	(16,422)	(23,685)	(99,599)
Beneficial conversion feature related to Series B redeemable convertible preferred stock	–	–	(18,140)	–	(18,140)

Net loss attributable to common stockholders	\$	(8,072)	\$	(11,887)	\$	(34,562)	\$	(23,685)	\$	(117,739)
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Net loss attributable to common stockholders per share—basic and diluted	\$	(0.87)	\$	(0.57)	\$	(6.42)	\$	(1.14)
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Weighted average number of common shares used in computation—basic and diluted	9,294,298	20,726,679	5,387,214	20,707,628
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The accompanying notes are an integral part of the interim consolidated financial statements.

HELICOS BIOSCIENCES CORPORATION (a development stage company)**CONSOLIDATED STATEMENTS OF CASH FLOWS****(unaudited)****(in thousands)**

	Six months ended		Period from May 9, 2003 (date of inception) through June 30, 2008
	June 30,		
	2007	2008	
Cash flows from operating activities:			
Net loss	\$(16,422)	\$(23,685)	\$ (99,599)
Adjustments to reconcile net loss to cash used in operating activities:			
Depreciation and amortization	737	1,177	4,380
Amortization of lease incentive	(24)	(74)	(290)
Common stock issued for licenses	–	–	147
Stock-based compensation expense	1,535	2,273	7,164
Noncash interest expense related to debt and warrants	(16)	139	287
Changes in operating assets and liabilities:			
Unbilled government grant receivable	16	(134)	(251)
Inventory	–	(5,301)	(6,913)

Prepaid expenses and other current assets	(148)	14	(692)
Accounts payable	(234)	(347)	1,344
Accrued expenses and other current liabilities	1,166	1,051	3,087
Other long-term liabilities	(19)	(115)	249
Net cash used in operating activities	(13,409)	(25,002)	(91,087)
Cash flows from investing activities:			
Purchases of property and equipment	(765)	(2,635)	(9,238)
Increase in restricted cash	–	(10,000)	(10,450)
Purchases of short-term investments	–	–	(34,709)
Maturities of short-term investments	795	–	34,709
Net cash provided by (used in) investing activities	30	(12,635)	(19,688)
Cash flows from financing activities:			
Proceeds from debt issuances	–	9,850	22,256
Payments on debt	(227)	(482)	(1,167)
Payments on debt issuance costs	–	(20)	(194)
Proceeds from initial public offering	49,011	–	49,011
Deferred initial public offering costs	(1,664)	–	(1,838)

Proceeds from issuance of redeemable convertible preferred stock, net of issuance costs	19,994	–	66,405
Proceeds from bridge loan	–	–	350
Proceeds from issuance of common stock	–	–	26
Proceeds from issuance of restricted common stock	4	–	339
Payments to employees for cancelled restricted common stock	(52)	(41)	(98)
Proceeds from exercise of stock options	5	9	47
Net cash provided by financing activities	67,071	9,316	135,137
Net increase (decrease) in cash and cash equivalents	53,692	(28,321)	24,362
Cash and cash equivalents, beginning of period	10,589	52,683	–
Cash and cash equivalents, end of period	\$ 64,281	\$ 24,362	\$ 24,362

Supplemental disclosure of cash flow information

Cash paid during the year for:

Interest	\$ 122	\$ 499	\$ 802
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Noncash financing activities:

Issuance of redeemable convertible preferred stock warrants	\$ –	\$ –	\$ 95
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Issuance of common stock warrants	\$ –	\$ 337	\$ 337
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Conversion of bridge loan to equity	\$ –	\$ –	\$ 350
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Beneficial conversion feature related to Series B redeemable convertible preferred stock	\$ 18,140	\$ -	\$ 18,140
Conversion of preferred stock to common stock	\$ 66,755	\$ -	\$ 66,755
Conversion of preferred stock warrants to common stock warrants	\$ 162	\$ -	\$ 162

The accompanying notes are an integral part of the interim consolidated financial statements.

HELICOS BIOSCIENCES CORPORATION (a development stage company)

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

(unaudited)

1. Nature of the Business and Basis of Presentation

Helicos BioSciences Corporation ("Helicos" or the "Company") is a life sciences company focused on innovative genetic analysis technologies for the research, drug discovery and clinical diagnostics markets. Helicos has developed a proprietary technology to enable the rapid analysis of large volumes of genetic material by directly sequencing single molecules of DNA or single DNA copies of RNA. Helicos is a Delaware corporation and was incorporated on May 9, 2003.

Although the Company shipped its first product in March 2008, it has had limited operations to date and its activities have consisted primarily of conducting research and development, early-stage manufacturing, initial sales related activities, recruiting personnel and raising capital. Accordingly, the Company is considered to be in the development stage at June 30, 2008, as defined by the Financial Accounting Standards Board ("FASB") in Statement of Financial Accounting Standards ("SFAS") No. 7, "Accounting and Reporting by Development Stage Enterprises." The Company's fiscal year ends on December 31. The Company operates as one reportable segment.

Since inception, the Company has incurred losses and has not generated positive cash flows from operations. The Company expects such losses to continue for at least two years as it continues to develop and commercialize its products. The Company believes that its existing cash and interest income earned on these balances will be sufficient into the first quarter of 2009. Prior to the end of the first quarter of 2009, the Company will seek to raise additional funds through public or private equity or debt financings, collaborative or other arrangements with corporate sources, or through other sources of financing. However, additional financing may not be available on a timely basis on terms acceptable to the Company, or at all. The Company's failure to raise capital as and when needed would have a negative impact on its financial condition and its ability to pursue its business strategies. If adequate funds are not available, the Company would have to delay, reduce or eliminate development and commercialization efforts, and may have to obtain funds through arrangements with collaborators or others on terms unfavorable to the Company or pursue merger or acquisition strategies.

The accompanying unaudited interim consolidated financial statements have been prepared in accordance with the instructions to Form 10-Q and do not include all of the information and note disclosures required by generally accepted accounting principles ("GAAP") in the United States of America. The consolidated financial statements include the accounts of the Company and its wholly-owned subsidiary. All intercompany accounts and transactions have been eliminated.

The preparation of financial statements in conformity with GAAP requires the Company to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent liabilities at the dates of the financial statements. Actual amounts may differ from these estimates, different assumptions or conditions.

It is management's opinion that the accompanying interim consolidated financial statements reflect all adjustments (which are normal and recurring) that are necessary for a fair statement of the results for the interim periods. The interim consolidated financial statements should be read in conjunction with the consolidated financial statements for the year ended December 31, 2007 included in the Company's Form 10-K.

Certain amounts reported in previous periods have been reclassified to conform to the current presentation.

HELICOS BIOSCIENCES CORPORATION (a development stage company)

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(unaudited)

1. Nature of the Business and Basis of Presentation (Continued)

The year-end balance sheet data was derived from the audited financial statements but does not include all disclosures required by accounting principles generally accepted in the United States of America.

2. Summary of Significant Accounting Policies

In the Company's Form 10-K for the fiscal year ended December 31, 2007, our significant accounting policies were identified. Effective January 1, 2008, the Company made a prospective change to its estimate associated with its useful lives for property and equipment. However, the change did not have a material impact on the Company's financial position, results of operations or cash flows.

Property and equipment

Property and equipment are recorded at cost. Expenditures for maintenance and repairs are charged to expense while the costs of significant improvements are capitalized. Depreciation is provided using the straight-line method over the following estimated useful lives: Machinery and equipment—three to five years, office furniture and equipment—three to seven years, leasehold improvements—the shorter of three years or the life of lease. Upon retirement or sale, the cost of the assets disposed of and the related accumulated depreciation are eliminated from the consolidated balance sheets and related gains or losses are reflected in the consolidated statements of operations. There have been no material retirements or sale of assets since May 9, 2003 (date of inception).

Other comprehensive income (loss)

Statement of Financial Accounting Standard ("SFAS") No. 130, "Reporting Comprehensive Income," establishes standards for reporting and displaying comprehensive income and its components in a full set of general-purpose financial statements. For each of the three and six months ended June 30, 2007 and 2008, and the period from May 9, 2003 (date of inception) to June 30, 2008, there was no material difference between the net loss and comprehensive loss.

Recent Accounting Pronouncements

In February 2007, the Financial Accounting Standards Board ("FASB") issued Statement of Financial Accounting Standards No. 159, "The Fair Value Option for Financial Assets and Financial Liabilities—Including an amendment of FASB Statement No. 115" ("SFAS No. 159"). SFAS No. 159 permits an entity to choose to measure many financial instruments and certain other items at fair value at specified election dates. Subsequent unrealized gains and losses on items for which the fair value option has been elected will be reported in earnings. The Company did not elect to re-measure any of its existing financial assets or liabilities under the provisions of SFAS No. 159.

In November 2007, the Emerging Issues Task Force ("EITF") issued EITF Issue 07-01 "Accounting for Collaborative Arrangements" ("EITF No. 07-01"). EITF No. 07-01 requires collaborators to present the results of activities for which they act as the principal on a gross basis and report any payments received from (made to) other collaborators based on other applicable GAAP or, in the absence of other applicable GAAP, based on analogy to authoritative accounting literature or a reasonable, rational, and consistently applied accounting policy election. Further, EITF No. 07-01 clarified that the

HELICOS BIOSCIENCES CORPORATION (a development stage company)**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)****(unaudited)****2. Summary of Significant Accounting Policies (Continued)**

determination of whether transactions within a collaborative arrangement are part of a vendor-customer (or analogous) relationship subject to Issue 01-9, "Accounting for Consideration Given by a Vendor to a Customer". EITF No. 07-01 is effective for fiscal years beginning after December 15, 2008, and interim periods within those years. The Company is currently evaluating the impact, if any, that the adoption of EITF No. 07-01 will have on its financial position, results of operations or cash flows.

Effective January 1, 2008, the Company implemented Statement of Financial Accounting Standards No. 157, "Fair Value Measurement" ("SFAS No. 157") for its financial assets and liabilities that are re-measured and reported at fair value at each reporting period, and non-financial assets and liabilities that are re-measured and reported at fair value at least annually. In accordance with the provisions of FSP No. FAS 157-2, "Effective Date of FASB Statement No. 157", the Company has elected to defer implementation of SFAS No. 157 as it relates to the Company's non-financial assets and non-financial liabilities that are recognized and disclosed at fair value in the financial statements on a nonrecurring basis until January 1, 2009. The Company is currently evaluating the impact, if any, that FSP No. FAS 157-2 will have on its non-financial assets and liabilities. The adoption of SFAS No. 157 to the Company's financial assets and liabilities and non-financial assets and liabilities that are re-measured and reported at fair value at least annually did not have an impact on the Company's financial results in any period.

In April 2008, the FASB issued EITF 07-05, "Determining whether an Instrument (or Embedded Feature) Is Indexed to an Entity's Own Stock", ("EITF 07-05"). EITF 07-05 provides guidance on determining what types of instruments or embedded features in an instrument held by a reporting entity can be considered indexed to its own stock for the purpose of evaluating the first criteria of the scope exception in paragraph 11(a) of SFAS 133. EITF 07-05 is effective for financial statements issued for fiscal years beginning after December 15, 2008 and early application is not permitted. Management is evaluating what effect, if any, EITF 07-05 might have on the Company's financial position and operating results.

3. Inventory

Inventories are stated at the lower of cost or market with cost determined under the first-in, first-out, or FIFO, method. The components of inventory are as follows (in thousands):

	December 31, 2007	June 30, 2008
Raw materials	\$ 799	\$ 2,596
Work in process	813	3,202
Finished goods	-	1,115

Inventory	\$	1,612	\$6,913
		=====	=====

4. Net Loss per Share

Basic net loss per share is computed by dividing net loss by the weighted average number of common shares outstanding for the period. The Company's potential dilutive shares, which include outstanding common stock options, unvested restricted stock, redeemable convertible preferred stock

HELICOS BIOSCIENCES CORPORATION (a development stage company)**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)****(unaudited)****4. Net Loss per Share (Continued)**

and warrants have not been included in the computation of diluted net loss per share for any of the periods as the result would be antidilutive. Such potentially dilutive shares are excluded when the effect would be to reduce net loss per share. Because the Company reported a net loss for the three and six months ended June 30, 2007 and 2008, all potential common shares have been excluded from the computation of the dilutive net loss per share for all periods presented because the effect would have been antidilutive. Such potential common shares at June 30, 2007 and 2008 consist of the following:

	June 30,	
	2007	2008
Stock options	1,723,929	2,456,011
Unvested restricted stock	362,409	250,485
Warrants	18,040	110,000

5. Commitments and Contingencies**License agreements and patents**

In November 2003, the Company entered into a license agreement with California Institute of Technology (the "Caltech License Agreement") that granted the Company a worldwide, exclusive, royalty-bearing license, with the right to grant sublicenses, under specified patents and patent applications, and a worldwide, non-exclusive royalty bearing license, with the right to grant sublicenses, under specified technology outside the scope of the licensed patents. In connection with the Caltech License Agreement, the Company issued 46,514 shares of common stock, and recorded a charge of \$20,000. In addition, the Company pays an annual license fee of \$10,000 per year. The license fee payments are creditable against royalties based upon sales of products covered by patents licensed under the agreement. Royalties are calculated based on a percentage of defined net sales. The Company is also obligated to pay California Institute of Technology a portion of specified license and sublicense income, proceeds from sales of specified intellectual property and specified service revenue amounts that it receives based on licenses and sublicenses that the Company grants, sales of intellectual property and services that are provided to third parties. The royalty obligation with respect to any licensed product extends until the later of the expiration of the last-to-expire of the licensed patents covering the licensed product and three years after the first commercial sale of the licensed product in any country for non-patented technology covered under the agreement. Through June 30, 2008, no royalty payments have been made. In March 2007, the Company amended the Caltech License Agreement to provide rights under an additional patent application under the terms of the existing license in exchange for a one-time payment of \$50,000 to the California Institute of Technology. All amounts paid to date and the value of the common stock issued have been expensed to research and development expense as technological feasibility had not been established and the technology had no alternative future use.

In June 2004, the Company entered into a license agreement with Roche Diagnostics (the "Roche License Agreement") that granted the Company a worldwide, semi-exclusive royalty-bearing license, with the right to grant sublicenses under a patent relating to sequencing methods. In connection with the Roche License Agreement, the Company paid an upfront fee of 175,000 Euros and committed to pay an annual license fee ranging from 10,000 to 40,000 Euros. The Company has an option to convert

HELICOS BIOSCIENCES CORPORATION (a development stage company)

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(unaudited)

5. Commitments and Contingencies (Continued)

the license to non-exclusive beginning in 2008, in which case the annual license fees would be reduced to 10,000 Euros beginning in 2008. The Company has the right to terminate the Roche License Agreement at any time for convenience upon 90 days prior written notice to Roche Diagnostics. Both the Company and Roche Diagnostics have the right to terminate the Roche License Agreement upon breach by the other party, subject to notice and an opportunity to cure. The Roche License Agreement also terminates upon the occurrence of specified bankruptcy events. As part of the Roche License Agreement, the Company agrees to pay royalties based on a percentage of defined net sales. The Company also agrees to pay a portion of specified sublicense income amounts that are received based on sublicenses that the Company grants to third parties. The Company's royalty obligation, if any, extends until the expiration of the last-to-expire of the licensed patents. Through June 30, 2008, no royalty payments have been made. All amounts paid to date have been expensed to research and development expense as technological feasibility had not established and the technology had no alternative future use.

In March 2005, the Company entered into a license agreement with Arizona Technology Enterprises (the "AZTE License Agreement") that granted the Company a worldwide, exclusive, irrevocable, royalty-bearing license, with the right to grant sublicenses, under specified patents and patent applications exclusively licensed by AZTE from Arizona State University and the University of Alberta. In connection with the AZTE License Agreement, the Company paid an upfront fee of \$350,000, committed to an annual license fee of \$50,000, which will increase to \$100,000 upon the successful issuance of a U.S. patent, committed to pay a three-year maintenance fee of \$50,000, payable in equal annual installments beginning in March 2006, and issued 88,888 shares of restricted common stock, which vest in two equal installments upon the achievement of separate milestones. The Company is obligated to use reasonable commercial efforts to develop, manufacture and commercialize licensed products. In addition, if the Company fails to meet specified development and commercialization deadlines, the AZTE License Agreement converts from exclusive to non-exclusive. The AZTE License Agreement will remain in force until terminated. The Company has the right to terminate the AZTE License Agreement at any time for convenience upon 60 days prior written notice to Arizona Technology Enterprises. Both the Company and Arizona Technology Enterprises have the right to terminate the agreement upon breach by the other party, subject to notice and an opportunity to cure. The AZTE License Agreement also terminates upon the occurrence of specified bankruptcy events.

As part of the AZTE License Agreement, the Company agrees to pay royalties based on a percentage of defined net sales. The Company also agrees to pay a portion of specified sublicense income amounts that are received based on sublicenses granted to third parties. The Company's royalty obligation, if any, extends until the expiration of the last-to-expire of the licensed patents. Through June 30, 2008, no royalty payments have been made. All amounts paid to date have been expensed to research and development expense as technological feasibility had not been established and the technology had no alternative future use. In May 2006, in accordance with the license agreement, due to the successful issuance of a U.S. patent, the committed annual license fee increased from \$50,000 to \$100,000 and 44,444 shares of the restricted common stock vested. The vesting of 44,444 shares of restricted common stock resulted in a charge to research and development expense of \$127,000 based on the fair value of the Company's common stock at the time the milestone was achieved. The remaining 44,444 shares of restricted common stock will vest immediately upon the successful issuance of a second U.S. patent.

HELICOS BIOSCIENCES CORPORATION (a development stage company)

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(unaudited)

5. Commitments and Contingencies (Continued)

In June 2006, the Company entered into an agreement to acquire certain U.S. and foreign patents and patent applications. In connection with the agreement, the Company paid an upfront fee of \$350,000, committed to a one-time payment of \$250,000 once technological feasibility has been established, and committed to a one-time payment of \$400,000 upon the first commercial sale of product. As part of the agreement, the Company agrees to pay royalties based on a percentage of defined net sales. Through June 30, 2008, no royalty payments have been made. All amounts paid to date have been expensed to research and development expense as technological feasibility had not established and the technology had no alternative future use.

In April 2007, the Company entered into an agreement with PerkinElmer LAS, Inc. ("PerkinElmer"), in which PerkinElmer granted the Company a worldwide, non-exclusive, non-transferable, non-sublicensable, royalty bearing license under specified patents. The license from PerkinElmer grants the Company rights under certain patents to produce and commercialize certain of the reagents used in some applications on the HeliScope system, which contain chemicals purchased from PerkinElmer. In exchange for rights licensed from PerkinElmer, the Company is obligated to pay PerkinElmer a portion of the Company's net revenue from the sale of reagents that contain chemicals covered by the patents licensed under the PerkinElmer agreement. The Company has the right to terminate the agreement at any time upon 90 days written notice to PerkinElmer. Each party has the right to terminate the agreement upon breach by the other party subject to notice and an opportunity to cure. The agreement also terminates upon the occurrence of specified bankruptcy events. PerkinElmer has the sole right under the agreement to enforce the licensed patents.

6. Long-Term Debt

Loan and security agreement

In December 2007, the Company entered into a loan and security agreement with two lenders including GE Capital Corporation, which is serving as agent. The loan agreement provided that the Company may borrow up to \$20.0 million at an interest rate equal to the sum of (i) the greater of (A) an interest rate based on the Federal Reserve's three year Treasury Constant Maturities Rate and (B) 3.84% plus (ii) 6.11%. The initial term loan was made on the closing date in an aggregate principal amount equal to \$10.0 million.

In June 2008, the Company entered into an amendment to the loan and security agreement with two lenders including GE Capital Corporation, which is serving as agent. A subsequent term loan was made upon execution of the amendment in an aggregate principal amount equal to \$10.0 million. The loan amendment provided that the interest rate for the subsequent term loan is equal to the sum of (i) the greater of (A) an interest rate based on the Federal Reserve's three year Treasury Constant Maturities Rate and (B) 3.17% plus (ii) 8.33%. The loan agreement, as amended, contains affirmative and negative covenants to which the Company and its subsidiaries must adhere. Pursuant to the amendment, the Company is required to maintain, at all times, unrestricted cash in its bank account equal to at least \$10.0 million. The proceeds of the loan agreement are collateralized by essentially all of the Company's assets. Payments are required to be made on a monthly basis. For the initial term loan, interest-only payments were required for the first five months. Thereafter, for the following 31 months, payments of principal and interest will be due. For the subsequent term loan, principal and interest payments are required for the 36 month term of the loan. As of June 30, 2008, advances on

HELICOS BIOSCIENCES CORPORATION (a development stage company)**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)****(unaudited)****6. Long-Term Debt (Continued)**

the loan agreement, as amended, were \$20.0 million at an interest rate of 9.95% for the initial term loan and 11.5% for the subsequent term loan.

As of June 30, 2008, loan payable payments are due as follows (in thousands):

2008	\$ 4,714
2009	9,421
2010	8,492
2011	1,977
Thereafter	—
Total future minimum payments	\$24,604
Less: amount representing interest	(3,298)
Less: debt discount	(610)
Add: amortization of debt discount	120
Carrying value of debt	\$20,816
Less: current portion	7,705

Long-term obligations \$13,111

Common stock warrants

In connection with the execution of the amendment to the loan and security agreement with two lenders including GE Capital Corporation, which is serving as agent, the Company issued warrants to the two lenders to purchase an aggregate of 110,000 shares of common stock. The warrants have an exercise price of \$4.80 per share and expire in June 2014. The fair value of the warrants was estimated at \$337,000 using a Black-Scholes model with the following assumptions: expected volatility of 65.4%, risk free interest rate of 3.4%, expected life of six years and no dividends. Expected volatility was based on the volatility of similar entities in the life sciences industry of comparable size of market capitalization and financial position that completed initial public offerings within the last ten years. The fair value of the warrants was recorded as equity and a debt discount and will be amortized to interest expense over the term of the loan.

7. Stock-Based Compensation

The Company recognized stock-based compensation expense on all employee and non-employee awards as follows:

(\$ in thousands)	Three months ended		Six months ended	
	June 30,	June 30,	June 30,	June 30,
	2007	2008	2007	2008
Research and development	\$ 188	\$ 340	\$ 472	\$ 652
Selling, general and administrative	632	700	1,063	1,621
Total stock-based compensation expense	\$ 820	\$ 1,040	\$ 1,535	\$ 2,273

HELICOS BIOSCIENCES CORPORATION (a development stage company)**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)****(unaudited)****7. Stock-Based Compensation (Continued)**

During the six months ended June 30, 2008, the Company granted 148,333 stock options at an exercise price of \$12.36 per share, 50,600 stock options at an exercise price of \$6.15 per share, 23,812 stock options at an exercise price of \$6.99 per share, 151,850 stock options at an exercise price of \$5.93 per share and 44,718 stock options at an exercise price of \$4.93 per share.

For the six months ended June 30, 2007 and 2008, the fair value of stock options was estimated on the date of grant using a Black-Scholes option valuation model with the following assumptions:

	Six months ended	
	June 30, 2007	June 30, 2008
Expected volatility	76.3%	65.6%
Expected option life	6.5 years	6 years
Weighted average risk-free interest rate	4.9%	3.0%
Expected annual dividend yield	none	none

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations

Forward Looking Statements

This quarterly report on Form 10-Q contains "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. In particular, statements contained in this Form 10-Q, including but not limited to, statements regarding our future results of operations and financial position, business strategy and plan prospects, projected revenue or costs and objectives of management for future research, development or operations, are forward-looking statements. These statements relate to our future plans, objectives, expectations and intentions and may be identified by words such as "may," "will," "should," "expects," "plans," "anticipates," "intends," "targets," "projects," "contemplates," "believes," "seeks," "goals," "estimates," "predicts," "potential" and "continue" or similar words. Readers are cautioned that these forward-looking statements are only predictions and are subject to risks, uncertainties, and assumptions that are difficult to predict, including those identified below, under Part II, Item 1A. "Risk Factors" and elsewhere herein. Therefore, actual results may differ materially and adversely from those expressed in any forward-looking statements. We undertake no obligation to revise or update any forward-looking statements for any reason.

Business Overview

We are a life sciences company focused on innovative genetic analysis technologies for the research, drug discovery and clinical diagnostics markets. We have developed our True Single Molecule Sequencing (tSMS)[™] technology to enable the rapid analysis of large quantities of genetic material by directly sequencing single molecules of DNA or single DNA copies of RNA. By enabling direct sequencing of single DNA molecules, we believe our technology represents a fundamental breakthrough in genetic analysis.

Our Helicos[™] Genetic Analysis System is comprised of an instrument, its associated reagents and disposable supplies. We shipped our first Helicos System on March 5, 2008 following assembly and completion of our initial verification and validation process. As a result, we believe that we have incurred the substantial majority of the costs related to the development of the initial version of our Helicos System. In anticipation of future orders and shipments, we are assembling and are testing multiple production units of our Helicos System, and are purchasing the subassemblies and components for future systems. In addition, we are taking other steps to scale the commercial manufacturing process of the system, including improvements to our manufacturing documentation and quality assurance and quality control procedures. We also are manufacturing the proprietary reagents and disposable supplies that are part of the system.

Because of the dynamic nature of the market for genetic analysis instruments, we expect to expend significant amounts of research and development expense on an ongoing basis to improve the performance of our HeliScope[™] Sequencer and tSMS technology. The goals of these performance improvements are to increase the throughput of the HeliScope Sequencer and to achieve a further approximate 100-fold reduction in the cost per base of sequencing. We also plan to explore other markets for the Helicos System in the longer term, such as diagnostics.

Although we shipped our first Helicos System on March 5, 2008 and plan to ship additional Helicos Systems during fiscal 2008, the initial shipments of this product will be subject to various customer evaluation periods with acceptance criteria, and we expect the customer evaluation period to extend beyond the fiscal quarters in which commercial units are shipped. While we continue to secure orders for the Helicos instrument system, we do not expect to recognize any revenue from product shipments until the second half of 2008 or later, and future revenues from sales of proprietary reagents and disposable supplies will depend on the timing of system placements, customers' use of the system and our ability to maintain our proprietary position on the reagents and disposable supplies. Because we have limited experience in the commercialization of our Helicos System, we cannot predict the

percentage of our revenues that we will derive from sales of proprietary reagents and disposable supplies. However, over time we would expect the sales of the reagents and disposable supplies to increase as our installed base of instruments grows and usage of these instruments increases.

We were incorporated in May 2003, and our activities to date have consisted primarily of conducting research and development. Accordingly, we are considered to be in the development stage at June 30, 2008, as defined by the Financial Accounting Standards Board ("FASB") in Statement of Financial Accounting Standards ("SFAS") No. 7, "Accounting and Reporting by Development Stage Enterprises." Our fiscal year ends on December 31, and we operate as one reportable segment.

We expect to continue to incur operating losses for at least the next two years, and will need additional financing to support our activities. If required, we will seek to fund our operations through public or private equity or debt financings or other sources, such as collaborations. Adequate additional funding may not be available to us on acceptable terms, or at all. Our failure to raise capital as and when needed would have a negative impact on our financial condition and our ability to pursue business strategies. If adequate funds are not available to us, we may be required to delay, reduce or eliminate research and development programs, reduce or eliminate commercialization efforts, obtain funds through arrangements with collaborators or others on terms unfavorable to us or pursue merger or acquisition strategies.

In May 2007, we completed an initial public offering ("IPO") of our common stock in which we sold and issued 5.4 million shares of our common stock at an issue price of \$9.00 per share. We raised a total of \$48.6 million in gross proceeds from the IPO, or \$43.9 million in net proceeds after deducting underwriting discounts and commissions of \$2.9 million and other offering costs of \$1.8 million. In June 2007, we sold an additional 397,000 shares of our common stock at \$9.00 per share resulting in net proceeds of \$3.3 million after deducting underwriting discounts and commissions of \$250,000, pursuant to the over-allotment option granted by us to the underwriters of our IPO. Upon the closing of our IPO, all outstanding shares of our preferred stock were converted into common stock.

Financial Overview

Grant revenue

In September 2006, we were awarded a grant from the National Human Genome Research Institute, a branch of the National Institutes of Health, pursuant to which we are eligible to receive reimbursement of our research expenses of up to \$2.0 million through August 2009. We recognized revenue during the three months ended June 30, 2007 and 2008 of \$143,000 and \$251,000, respectively, in connection with this award. During the six months ended June 30, 2007 and 2008, we recognized revenue of \$235,000 and \$364,000, respectively, in connection with this award. We will continue to recognize revenue under this grant as the related expenses are incurred.

Research and development expenses

Research and development expenses consist of costs associated with scientific research activities, and engineering development efforts. Such costs primarily include salaries, benefits and stock-based compensation; lab and engineering supplies; investment in equipment; consulting fees; and facility related costs, including rent and depreciation.

During 2007, we were focused on preparing for the launch of the initial version of the Helicos™ Genetic Analysis System. Substantially all research and development expenses since our inception have been in connection with this project and we believe that we have incurred the substantial majority of the development costs associated with the commercial launch of the first generation of the Helicos System prior to our first shipment on March 5, 2008. However, additional costs will be incurred to both

maintain and enhance the initial version of the Helicos System in addition to development of new and different genetic analysis assays which will extend the capability of the initial version.

Research and development expenses for the three months ended June 30, 2007 and 2008 were \$5.3 million and \$7.1 million, respectively. Research and development expenses for the six months ended June 30, 2007 and 2008 were \$10.7 million and \$12.8 million, respectively. From 2007 to 2008, expenses increased as our research progressed and we built infrastructure and hired additional employees with the requisite expertise to execute the next steps in the development process. Research and development expenses also increased during the three and six months ended June 30, 2008 by \$2.8 million for labor and overhead costs associated with the under-utilization of the manufacturing facility.

In 2007, in addition to our ongoing research and development efforts, we incurred start-up manufacturing costs related to the assembly, testing and performance validation of the Helicos System. These costs were accounted for as research and development expenses in our pre-commercialization phase as we prepared to ship the first Helicos System which occurred on March 5, 2008. We reached technological feasibility of the Helicos System in December 2007 and, as a result, we began to record the cost of the Helicos System in inventory.

We believe that the Helicos System can potentially access a wide range of genetic analysis tests useful to the basic, pharmaceutical, and biomedical research and diagnostic markets. In addition, we have envisioned a series of performance enhancements to the chemistries and consumables used on the initial Helicos System which potentially serve to greatly enhance the sequencing throughput. Each of these research and development projects is dependent upon achieving technical objectives, which are inherently uncertain. As a result of these uncertainties, we are unable to predict to what extent we will receive additional cash inflows from the commercialization and sale of these future tests or from the future enhanced throughput. Our inability to complete these new research and development projects in a timely manner would significantly increase our capital requirements and could adversely impact our liquidity. These uncertainties could force us to seek additional, external sources of financing from time to time in order to continue with our strategy. Our inability to raise additional capital, or to do so on terms reasonably acceptable to us, would jeopardize the future success of our business.

Selling, general and administrative expenses

Selling, general and administrative expenses consist principally of salaries, benefits and stock-based compensation, consulting and professional fees, including patent related costs, general corporate costs and facility costs not otherwise included in research and development expenses.

Selling, general and administrative expenses for the three months ended June 30, 2007 and 2008 were \$3.3 million and \$4.8 million, respectively. Selling, general and administrative expenses for the six months ended June 30, 2007 and 2008 were \$6.6 million and \$11.0 million, respectively. We expect that these expenses will increase as we hire our specialized sales, marketing and service personnel. We also anticipate that we will incur additional expenses for the costs associated with Sarbanes-Oxley compliance, continued ERP system enhancements, and investor relations programs.

Overview of Results of Operations

Three and six months ended June 30, 2007 compared to three and six months ended June 30, 2008

Grant revenue. We recognized \$143,000 and \$235,000 of grant revenue during the three and six months ended June 30, 2007, respectively, and \$251,000 and \$364,000 of grant revenue during the three and six months ended June 30, 2008, respectively. Grant revenue recognized during the three and six months ended June 30, 2007 and 2008 related to the reimbursement of expenses in connection with our government research grant.

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Research and development expenses. Research and development expenses during the three and six months ended June 30, 2007 and 2008 were as follows:

(\$ in thousands)	Three months			Six months				
	ended		Change	ended		Change		
	June 30,			June 30,				
	2007	2008		2007	2008			
Research and development	\$5,298	\$7,083	\$1,785	34%	\$10,683	\$12,788	\$2,105	20%

Research and development expenses increased by \$1.8 million from the three months ended June 30, 2007 to the three months ended June 30, 2008. The increase was primarily due to the \$2.8 million charge for labor and overhead costs associated with the under-utilization of the manufacturing facility. Contributing to the increase was the hiring of additional personnel which led to a \$198,000 increase in our salary and benefit expenses and stock based compensation expense. These increases were offset by a \$1.3 million decrease in product development costs, which included lab expenses, materials, supplies, temporary help and prototype expenses. Our product development costs decreased as we moved toward manufacturing and production activities.

In comparing the six months ended June 30, 2007 to the six months ended June 30, 2008, research and development expenses increased \$2.1 million. The increase was again primarily due to the \$2.8 million charge for labor and overhead costs associated with the under-utilization of the manufacturing facility. Contributing to the increase was the hiring of additional personnel which led to a \$210,000 increase in our salary and benefit expenses and stock based compensation expense. Increased headcount led to additional space requirements which raised our occupancy costs by \$126,000. These increases were offset by a \$1.3 million decrease in product development costs, which included lab expenses, materials, supplies, temporary help and prototype expenses. Our product development costs decreased as we moved toward manufacturing and production activities.

We expect our research and development expenses to continue to increase to support our start-up manufacturing efforts this year and as we continue to invest in future versions of our system.

Selling, general and administrative expenses. Selling, general and administrative expenses during the three and six months ended June 30, 2007 and 2008 were as follows:

(\$ in thousands)	Three months			Six months				
	ended		Change	ended		Change		
	June 30,			June 30,				
	2007	2008		2007	2008			
Selling, general and administrative	\$3,310	\$4,830	\$1,520	46%	\$6,561	\$11,014	\$4,453	68%

The increase in selling, general and administrative expenses of \$1.5 million from the three months ended June 30, 2007 to the three months ended June 30, 2008 was primarily due to hiring additional personnel which lead to an increase in our salary and benefit expenses and stock based compensation expense of \$602,000. The increase also included an additional \$334,000 related to public company activities, including investor relations expenses, business insurance and consulting fees. Increased headcount also led to additional space requirements which raised our occupancy costs by \$258,000.

Selling, general and administrative expenses increased by \$4.5 million from the six months ended June 30, 2007 to the six months ended June 30, 2008. The increase was primarily due to the hiring of additional personnel which led to a \$2.2 million increase in our salary and

benefit expenses and stock based compensation expense. The increase also included an additional \$640,000 related to public company activities, including investor relations expenses, business insurance and consulting fees. Patent expense also increased by \$559,000 from the six months ended June 30, 2007 to the six months ended June 30, 2008. In addition, increased headcount led to additional space requirements which raised our occupancy costs by \$310,000.

We expect our selling, general and administrative expenses to increase as we expand our sales and marketing functions, and incur additional administrative costs associated with Sarbanes-Oxley compliance, continued ERP system enhancements and investor relations programs.

Interest income. Interest income for the three and six months ended June 30, 2007 and 2008 was as follows:

(\$ in thousands)	Three months			Six months		
	ended		Change	ended		Change
	June 30,			June 30,		
	2007	2008		2007	2008	
Interest income	\$427	\$145	\$(282) (66)%	\$694	\$483	\$(211) (30)%

The decrease in interest income from the three and six months ended June 30, 2007 compared to the three and six months ended June 30, 2008 was due primarily to higher cash balances during the three and six months ended June 30, 2007 in connection with the receipt of proceeds from the IPO. In addition, proceeds received from the \$10.0 million subsequent term loan with GE Capital were not received until the end of the June 2008; therefore, interest income was not significantly impacted during the three and six months ended June 30, 2008. Decreased interest rates also contributed to the decline in interest earned during the three and six months ended June 30, 2007 compared to the three and six months ended June 30, 2008.

Interest expense. Interest expense for the three and six months ended June 30, 2007 and 2008 was as follows:

(\$ in thousands)	Three months			Six months		
	ended		Change	ended		Change
	June 30,			June 30,		
	2007	2008		2007	2008	
Interest expense	\$ 34	\$370	\$336 988%	\$107	\$730	\$623 582%

The increase in interest expense from the three and six months ended June 30, 2007 compared to the three and six months ended June 30, 2008 is attributable to the \$10.0 million term loan entered into on December 31, 2007.

Liquidity and Capital Resources

We have incurred losses since our inception in May 2003 and, as of June 30, 2008 we had an accumulated deficit of \$117.7 million. We have financed our operations to date principally through the sale of preferred stock and common stock, including our IPO, and to a lesser extent debt financing and interest earned on investments. Through June 30, 2008, we have received net proceeds of \$66.8 million from the issuance of preferred stock, \$47.5 million through the issuance of common stock, including our IPO, \$19.6 million in debt financing for working capital and \$2.5 million in debt financing to finance equipment purchases. Working capital as of December 31, 2007 was \$50.4 million, consisting of \$55.1 million in current assets and \$4.7 million in current liabilities. Working capital as of June 30, 2008 was \$20.2 million, consisting of \$32.2 million in current assets and \$12.0 million in current liabilities. Our cash is held in interest-bearing bank accounts. Cash in excess of immediate requirements is invested in accordance with our investment policy, primarily to achieve liquidity and capital preservation.

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The following table summarizes our net increase (decrease) in cash and cash equivalents for the six months ended June 30, 2007 and 2008:

(\$ in thousands)	Six months ended	
	June 30, 2007	June 30, 2008
Net cash provided by (used in):		
Operating activities	\$ (13,409)	\$ (25,002)
Investing activities	30	(12,635)
Financing activities	67,071	9,316
Net increase (decrease) in cash and cash equivalents	\$ 53,692	\$ (28,321)

Net cash used in operating activities was \$13.4 million for the six months ended June 30, 2007 compared to \$25.0 million for the six months ended June 30, 2008. The \$11.6 million increase was primarily due to a \$7.3 million increase in the net loss and a \$5.3 million increase in the change in inventory, partially offset by an increase in non-cash stock-based compensation expense of \$738,000 and an increase in non-cash depreciation and amortization expense of \$440,000.

Net cash provided by investing activities was \$30,000 for the six months ended June 30, 2007 compared to net cash used in investing activities of \$12.6 million for the six months ended June 30, 2008. The \$12.7 million decrease was primarily due to a \$10.0 million increase in restricted cash and a \$1.9 million increase in the cash used for purchases of property and equipment, as well as a \$795,000 decrease in cash provided by maturities of short-term investments.

Net cash provided by financing activities was \$67.1 million for the six months ended June 30, 2007 compared \$9.3 million for the six months ended June 30, 2008. The \$57.8 million decrease was primarily due to the receipt of \$49.0 million of cash proceeds from the initial public offering and the \$20.0 million of cash proceeds from the issuance of redeemable convertible preferred stock, net of issuance costs during the six months ended June 30, 2007. The decrease was slightly offset with the receipt of \$9.8 million of cash proceeds in debt financing, net of issuance costs during the six months ended June 30, 2008.

Operating capital and capital expenditure requirements

To date, we have shipped one HeliScope system and have not achieved profitability. We anticipate that we will continue to incur substantial net losses for at least two years as we continue our efforts in commercializing the HeliScope system and develop the corporate infrastructure required to manufacture and sell our products.

While we continue to secure orders for the Helicos instrument system, we do not expect to generate product revenue until the second half of 2008 or later. We believe that our existing cash and interest income we earn on these balances will be sufficient into the first quarter of 2009. It is difficult to predict the actual rate of product sales as a result of the complex nature of the HeliScope system and its expected long sales cycle. Prior to the end of the first quarter of 2009, we will seek to sell additional equity or debt securities or enter into another credit

facility. The sale of additional equity and debt securities may result in dilution to our stockholders. If we raise additional funds through the issuance of debt securities, these securities would have rights senior to those of our common stock and could contain covenants that would restrict our operations. We may require additional capital beyond our currently anticipated amounts. Any such required additional capital may not be available on reasonable terms, if at all. If adequate funds are not available, we would have to delay, reduce or eliminate development and commercialization efforts, curtail our future spending, and may have to obtain funds through arrangements with collaborators or others on terms unfavorable to us or pursue merger or acquisition strategies.

Our forecast of the period of time through which our financial resources will be adequate to support our operations, the costs to complete development of products and the cost to commercialize our future products are forward-looking statements and involve risks and uncertainties, and actual results could vary materially and negatively as a result of a number of factors, including the factors discussed in the "Risk Factors" section of this report. We have based these estimates on assumptions that may prove to be wrong, and we could utilize our available capital resources sooner than we currently expect.

Because of the numerous risks and uncertainties associated with the development of our product, we are unable to estimate the exact amounts of capital outlays and operating expenditures necessary to complete the development of our future products and successfully deliver any such products to the market. Our future capital requirements will depend on many factors, including, but not limited to, the following:

the rate of progress and cost of our commercialization activities;

the success of our research and development efforts;

the expenses we incur in marketing and selling our products;

the revenue generated by future sales of our products;

the timeliness of payments from our customers;

the emergence of competing or complementary technological developments;

the costs of filing, prosecuting, defending and enforcing any patent claims and other intellectual property rights;

the terms and timing of any collaborative, licensing or other arrangements that we may establish; and

the acquisition of businesses, products and technologies, although we currently have no commitments or agreements relating to any of these types of transactions.

Working capital as of December 31, 2007 was \$50.4 million, consisting of \$55.1 million in current assets and \$4.7 million in current liabilities. Working capital as of June 30, 2008 was \$20.2 million, consisting of \$32.2 million in current assets and \$12.0 million in current liabilities.

Contractual obligations

The following table summarizes our outstanding obligations as of June 30, 2008 and the effect those obligations are expected to have on our liquidity and cash flows in future periods:

Contractual Obligations

(\$ in thousands)	Total	Less than 1 year	1 - 3 years	3 - 5 years	More than 5 years
Operating Leases	\$ 2,239	\$ 1,600	\$ 639	\$ -	\$ -
Long-term debt (including interest)	25,405	9,522	15,883	-	-
License agreements(1)	1,780	181	362	347	890
	<u>\$29,424</u>	<u>\$11,303</u>	<u>\$ 16,884</u>	<u>\$ 347</u>	<u>\$ 890</u>

(1) Consists of fixed payments that we believe we are reasonably likely to make under the license agreements with third parties over the lives of the underlying existing patents.

The table above does not include possible royalties payable under our license agreements. Our commitments for operating leases relate to the lease for our corporate headquarters in Cambridge, Massachusetts.

License agreements and patents

We have fixed annual costs associated with license agreements into which we have entered. In addition, we may have to make contingent payments in the future upon realization of certain milestones or royalties payable under these agreements.

Line of credit facility and security agreement

In June 2006, we entered into a line of credit facility and security agreement with General Electric Capital Corporation ("GE Capital"). The credit facility provides that we may borrow up to \$8.0 million at an interest rate based on the Federal Reserve's three year Treasury Constant Maturities Rate. The end of the advance period was December 31, 2007. The proceeds of the credit facility may be used for the purchase of equipment and are collateralized by specific equipment assets. Payments are required to be made on a monthly basis. For the first six months interest-only payments are required. Thereafter, for the following 30 months, payments of principal and interest will be due for each advance. The outstanding balance is collateralized by the equipment purchased with the proceeds from each equipment advance. As of June 30, 2008, advances on the credit facility were \$2.5 million at a weighted-average interest rate of 10.1%.

Loan and security agreement

In December 2007, we entered into a loan and security agreement with two lenders including GE Capital Corporation, which is serving as agent. The loan agreement provided that we may borrow up to \$20.0 million at an interest rate equal to the sum of (i) the greater of (A) an interest rate based on the Federal Reserve's three year Treasury Constant Maturities Rate and (B) 3.84% plus (ii) 6.11%. The initial term loan was made on the closing date in an aggregate principal amount equal to \$10.0 million.

In June 2008, we entered into an amendment to the loan and security agreement with two lenders including GE Capital Corporation, which is serving as agent. A subsequent term loan was made upon execution of the amendment in an aggregate principal amount equal to \$10.0 million. The loan amendment provided that the interest rate for the subsequent term loan is equal to the sum of (i) the greater of (A) an interest rate based on the Federal Reserve's three year Treasury Constant Maturities Rate and (B) 3.17% plus (ii) 8.33%. The loan agreement, as amended, contains affirmative and

negative covenants to which we and our subsidiaries must adhere. Pursuant to the amendment, we are required to maintain, at all times, unrestricted cash in our bank account equal to at least \$10.0 million. The proceeds of the loan agreement are collateralized by essentially all of our assets. Payments are required to be made on a monthly basis. For the initial term loan, interest-only payments were required for the first five months. Thereafter, for the following 31 months, payments of principal and interest will be due. For the subsequent term loan, principal and interest payments are required for the 36 month term of the loan. As of June 30, 2008, advances on the loan agreement, as amended, were \$20.0 million at an interest rate of 9.95% for the initial term loan and 11.5% for the subsequent term loan.

Off-balance sheet arrangements

During the six months ended June 30, 2007 and 2008, we did not engage in any off-balance sheet arrangements.

Critical Accounting Policies and Estimates

In our Form 10-K for the fiscal year ended December 31, 2007, our most critical accounting policies and estimates upon which our financial status depends were identified as those relating to stock-based compensation; revenue recognition; inventory; allowance for doubtful accounts; net operating losses and tax credit carryforwards; and impairment of long-lived assets. We reviewed our policies and determined that those policies remain our most critical accounting policies for the six months ended June 30, 2008. We did not make any changes in those policies during the six months ended June 30, 2008.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

Our exposure to market risk is limited to our cash. The goals of our investment policy are preservation of capital, fulfillment of liquidity needs and fiduciary control of cash. We also seek to maximize income from our investments without assuming significant risk. To achieve our goals, we maintain our cash in interest-bearing bank accounts. As all of our investments are cash deposits in a global bank, it is subject to minimal interest rate risk.

Item 4. Controls and Procedures

Our management, with the participation of our chief executive officer and chief financial officer, has evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) or 15d-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act")) as of the end of the period covered by this report. Based on such evaluation, our principal executive officer and principal financial officer have concluded that, as of the end of such period, our disclosure controls and procedures were effective in ensuring that information required to be disclosed by Helicos in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, on a timely basis, and is accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate, to allow timely decisions regarding required disclosure.

No change in our internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) occurred during the period covered by this quarterly report that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Part II—Other Information

Item 1. Legal Proceedings

Not applicable.

Item 1A. Risk Factors

The following important factors could cause our actual business and financial results to differ materially from those contained in forward-looking statements made in this Quarterly Report on Form 10-Q or elsewhere by management from time to time. The risk factors in this report have been revised to incorporate changes to our risk factors from those included in our annual report on Form 10-K for the year ended December 31, 2007. The risk factors set forth below with an asterisk (*) next to the title are new risk factors or risk factors containing changes, including any material changes, from the risk factors previously disclosed in Item 1A of our Annual Report on Form 10-K for the year ended December 31, 2007, as filed with the Securities and Exchange Commission.

RISKS RELATED TO OUR BUSINESS

***Although we have shipped one Helicos™ Genetic Analysis System to our first customer, we may not be able to successfully scale the manufacturing process necessary to build and test multiple Helicos Genetic Analysis Systems on a full commercial basis, in which event our business would be materially harmed.**

To ship multiple Helicos Genetic Analysis Systems on a full production scale, we need to continue the testing and performance validation of the system. In order to sustain our commercial launch involving multiple shipments of the Helicos Systems, we need to take other steps to scale the manufacturing process of the system, including improvements to our manufacturing yields and cycle times, manufacturing documentation and quality assurance and quality control procedures. We also need to scale our manufacturing process of the proprietary reagents and disposable supplies that are part of the system. If we are unable to successfully complete these tasks, we may not be able to ship multiple Helicos Systems on a full production scale which would materially harm our business. In addition, although we believe that we have already incurred the substantial majority of the costs related to the development of the initial version of our Helicos System, if we experience unanticipated problems with our initial system placements, these costs could substantially increase, which would materially harm our business.

***We have a history of operating losses, expect to continue to incur substantial losses, might never achieve or maintain profitability and might have a going concern issue in the future.**

We are a development-stage company with limited operating history. We have incurred significant losses in each fiscal year since our inception, including net losses attributable to common stockholders of \$34.6 million and \$23.7 million in the six months ended June 30, 2007 and 2008, respectively. As of June 30, 2008, we had an accumulated deficit of \$117.7 million. These losses have resulted principally from costs incurred in our research and development programs and from our selling, general and administrative expenses. In the six months ended June 30, 2007, we used cash in operating activities of \$13.4 million and had capital expenditures totaling \$765,000. In the six months ended June 30, 2008, we used cash in operating activities of \$25.0 million and had capital expenditures totaling \$2.6 million. We expect our cash expenditures to decrease slightly during the second half of 2008. In addition, if our capital resources are not sufficient to fund our planned operations for a twelve month period at the time the audit for our 2008 financial results is complete, our independent registered public accounting firm will likely include in its audit report, to be included in our annual report on Form 10-K, an explanatory paragraph regarding substantial doubt relating to our ability to continue as a going concern.

Accordingly, we will need to generate significant revenue to achieve profitability. Because our products will be subject to acceptance testing by our customers we do not expect to have any recognizable revenue from the sales of our instruments until the second half of 2008 or later. As of August 14, 2008, we have shipped one Helicos System. Moreover, even after we begin selling our products on a commercial scale, we expect our losses to continue for at least the next two years as a result of ongoing research and development expenses, as well as increased manufacturing, sales and marketing expenses. These losses, among other things, have had and will continue to have an adverse effect on our working capital, total assets and stockholders' equity. Because of the numerous risks and uncertainties associated with our product development and commercialization efforts, we are unable to predict when we will become profitable, and we may never become profitable. Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. If we are unable to achieve and then maintain profitability, the market value of our common stock will decline.

***If our technology fails to achieve and sustain sufficient market acceptance, we will not generate expected revenue.**

Our success depends, in part, on our ability to develop products that displace current technology, as well as expand the market for genetic analysis to include new applications that are not practical with current technology. To accomplish this, we must develop and successfully commercialize our Helicos System for use in a variety of life science applications. In particular, while our early market focus is on DNA sequencing and gene expression applications, there can be no assurances that we will be successful at inducing potential customers to purchase our Helicos System. Furthermore, we cannot guarantee that the design of the Helicos System, including the initial specifications and any enhancements or improvements to those specifications, will be satisfactory to potential customers in the markets we seek to reach. These markets are new and emerging and there can be no assurances that they will develop as quickly as we expect or that they will reach their full potential. As a result, we may be required to refocus our marketing efforts from time to time and we may have to make changes to the specifications of our system to enhance our ability to more quickly enter particular markets. There is no guarantee, even if our technology is able to successfully reduce the cost and improve the performance of genetic analysis relative to existing products, that we will be able to induce customers with installed bases of conventional genetic analysis instruments to purchase our systems or to expand the market for genetic analysis to include new applications. Even if we are able to successfully implement our technology, we may fail to achieve or sustain market acceptance of our Helicos System by academic and government research laboratories and pharmaceutical, biotechnology and agriculture companies, among others, across the full range of our intended life science applications. Any such failure would materially harm our future sales and revenue. The price of the HeliScope™ instrument is significantly greater than the instrument cost of current market-leading sequencers, which may adversely affect our ability to penetrate or grow the market for genetic analysis. In addition, if our products are only utilized as a replacement for existing DNA sequencing technology, we may face a much smaller market than we currently anticipate.

We are aware of other companies that have developed, or are developing, emerging sequencing technologies. Even if our product demonstrates dramatic cost and throughput improvements over current market-leading technologies, we may fail to achieve market acceptance due to adoption of those emerging technologies by our potential customers, thereby reducing our market opportunity.

We have limited experience in selling and marketing and, as a result, may be unable to successfully commercialize our Helicos Genetic Analysis System.

We have limited sales experience and limited marketing experience. Our ability to achieve profitability depends on attracting customers for our Helicos System. Although members of our sales and marketing team have considerable industry experience and have engaged in pre-launch marketing

activities for our Helicos System, we must expand our sales, marketing, distribution and customer support capabilities with the appropriate technical expertise to effectively market our system. To successfully perform sales, marketing, distribution and customer support functions ourselves, we will face a number of risks, including:

our ability to attract and retain the specialized sales, marketing and service force necessary to commercialize and gain market acceptance for our technology;

the time and cost of establishing a specialized sales, marketing and service force for a particular application, which might not be justifiable by the revenues generated by our technology; and

the ability of our specialized sales, marketing and service force to initiate and execute successful commercialization activities.

In addition to the recruitment of our specialized sales, marketing and service force, we may seek to enlist one or more third parties to assist with sales, distribution and customer support globally or in certain regions of the world. There is no guarantee, if we do seek to enter into such arrangements, that we will be successful in attracting desirable sales and distribution partners, or that we will be able to enter into such arrangements on favorable terms. If our sales and marketing efforts, or those of any third-party sales and distribution partners, are not successful, our technologies and products may not gain market acceptance, which could materially impact our business operations.

If we are unable to timely establish manufacturing capacity by ourselves or with partners, commercialization of our products would be delayed, which could result in lost revenues and harm our business.

To commercialize our Helicos™ Genetic Analysis System, we need to either build internal manufacturing capacity or contract with one or more manufacturing partners, or both. We currently intend to manufacture our products using a combination of internal manufacturing resources and outsourced components and subassemblies. We have recently begun to manufacture our instruments, reagents and disposable supplies on a commercial scale. We may encounter difficulties in manufacturing our products and, due to the complexity of our technology and our manufacturing process, we cannot be sure we fully understand all of the factors that affect our manufacturing processes or product performance. There is no assurance that we will be able to continue to build manufacturing capacity internally or find one or more suitable manufacturing partners, or both, to meet the volume and quality requirements necessary to be successful in the market. Manufacturing and product quality issues may arise as we increase production rates of our Helicos System and associated proprietary reagents and disposable supplies. If our products do not consistently meet our customers' performance expectations, we may be unable to generate sufficient revenues to become profitable. Any delay in establishing or inability to expand our manufacturing capacity could delay our ability to develop or sell our products, which could result in lost revenue and seriously harm our business, financial condition and results of operations.

Future product sales will depend, in part, on research and development spending levels of academic, clinical and governmental research institutions and pharmaceutical, biotechnology and agriculture companies, and any reduction in such spending levels could limit our ability to sell our product.

We expect that our revenues in the foreseeable future will be derived primarily from sales of instruments, reagents and disposable supplies to a relatively small number of academic, clinical, governmental and other research institutions and pharmaceutical, biotechnology and agriculture companies that conduct large-scale genetic analyses. Our success will depend upon their demand for and use of our products. Accordingly, the spending policies of these customers could have a significant effect on the demand for our technology. These policies are based on a wide variety of factors, including the resources available to make purchases, the spending priorities among various types of

equipment, policies regarding spending during recessionary periods and changes in the political climate. In addition, academic, governmental and other research institutions that fund research and development activities may be subject to stringent budgetary constraints that could result in spending reductions, reduced allocations or budget cutbacks, which could jeopardize the ability of these customers to purchase our system. Our operating results may fluctuate substantially due to reductions and delays in research and development expenditures by these customers. For example, reductions in capital expenditures by these customers may result in lower than expected instrument sales and similarly, reductions in operating expenditures by these customers could result in lower than expected sales of reagents and disposable supplies. These reductions and delays may result from factors that are not within our control, such as:

changes in economic conditions;

changes in government programs that provide funding to research institutions and companies;

changes in the regulatory environment affecting life sciences companies and life sciences research;

market-driven pressures on companies to consolidate and reduce costs; and

other factors affecting research and development spending.

Any decrease in our customers' budgets or expenditures or in the size, scope or frequency of capital or operating expenditures as a result of the foregoing or other factors could materially adversely affect our operations or financial condition.

If the suppliers we rely on fail to supply the materials we use in the manufacturing of our products, we would be unable to satisfy product demand, which would negatively affect our business.

Some components used in the manufacturing of our Helicos™ Genetic Analysis System and certain raw materials used in the manufacturing of our reagents and disposable supplies are available from only a few suppliers. We acquire some of these components and raw materials on a purchase-order basis, which means that the supplier is not required to supply us with specified quantities of these components or raw materials over a certain period of time or to set aside part of its inventory for our anticipated requirements. If supplies from these vendors were delayed or interrupted for any reason, we may not be able to manufacture and sell our Helicos System and associated reagents and disposable supplies in a timely fashion or in sufficient quantities or under acceptable terms. Additionally, for certain of these components and raw materials, we currently purchase from sole-source suppliers and have not yet arranged for alternative suppliers. It might be difficult to find alternative suppliers in a timely manner and on terms acceptable to us. Consequently, as we begin our commercialization efforts, if we do not forecast properly, or if our suppliers are unable or unwilling to supply us in sufficient quantities or on commercially acceptable terms, we might not have access to sufficient quantities of these materials on a timely basis and might not be able to satisfy product demand. Moreover, if any of these components and raw materials becomes unavailable in the marketplace, we will be forced to further develop our technologies to incorporate alternate components or raw materials.

Our inability to continually enhance our product performance, including our planned improvements to the Helicos Genetic Analysis System, to keep pace with rapidly changing technology and customer requirements, would adversely affect our ability to compete effectively.

The success of any products utilizing our True Single Molecule Sequencing (tSMS)™ technology will depend on our ability to continue to increase the performance and decrease the price of sequencing using this technology. New technologies, techniques or products could emerge

which might allow the analysis of genomic information with similar or better price-performance than our Helicos Genetic Analysis System and could exert pricing pressures on or take market share from our products.

It is critical to our success for us to anticipate changes in technology and customer requirements and to successfully introduce new, enhanced and competitive technology to meet our customers' and prospective customers' needs on a timely basis. While we have planned substantial improvements to the Helicos System, including enhancing the performance of the system's reagents and disposable supplies and image processing subsystem and reducing the consumption of reagents, we may not be able to successfully implement these improvements. Even if we successfully implement some or all of these planned improvements, we could incur substantial development costs. We may not have adequate resources available to develop new technologies or be able to successfully introduce enhancements to our system. There can be no guarantee that we will be able to maintain technological advantages over emerging technologies in the future, and we will need to respond to technological innovation in a rapidly changing industry. If we fail to keep pace with emerging technologies, our system will become uncompetitive, our market share will decline and our business, revenue, financial condition and operating results could suffer materially.

We operate in a highly competitive industry and if we are not able to compete effectively, our business and operating results will likely be harmed.

Some of our current competitors, as well as many of our potential competitors, have greater name recognition, more substantial intellectual property portfolios, longer operating histories, significantly greater resources to invest in new technologies and more substantial experience in new product development, regulatory expertise, manufacturing capabilities and the distribution channels to deliver products to customers than we do. For example, companies such as Affymetrix, Inc., Agilent Technologies, the Applied Biosystems division of Applied Biosystems Corporation, the Life Sciences Division of GE Healthcare, Illumina, Inc., and Roche Diagnostics have products for genetic analysis which compete in certain segments of the market in which we plan to sell our Helicos Genetic Analysis System. Pharmaceutical and biotechnology companies have significant needs for genomic information and may also choose to develop or acquire competing technologies to meet these needs. In addition, a number of other companies and academic groups are in the process of developing novel techniques for genetic analysis, many of which have also received grants from the National Human Genome Research Institute, a branch of the National Institutes of Health, for the development of technologies that can achieve substantially lower costs, referred to as a "\$100,000 genome" or a "\$1,000 genome." These competitors may be able to respond more quickly and effectively than we can to new or changing opportunities, technologies, standards or customer requirements. Further, in light of these advantages, even if our technology is more effective than the product or service offerings of our competitors, current or potential customers might accept competitive products and services in lieu of purchasing our technology. We may not be able to compete effectively against these organizations. Increased competition is likely to result in pricing pressures, which could harm our sales, profitability or market share. Our failure to compete effectively could materially adversely affect our business, financial condition or results of operations.

In addition, to the extent that, in the long term, we commercialize any products utilizing our tSMS technology for use in future life science applications, such as clinical diagnostic or protein analysis applications, we will face additional competition. In the event that we develop new technology and products that compete with existing technology and products of well established companies, the marketplace might not adopt our technology and products.

***Failure to manage our rapid growth effectively would harm our business.**

We will need to add additional personnel and expand our capabilities to successfully pursue our commercialization strategy for our Helicos Genetic Analysis System as well as our research and development efforts. To manage our anticipated future growth effectively, we must enhance our manufacturing capabilities and operations, information technology infrastructure, and financial and accounting systems and controls. For instance, certain aspects of our operations, such as our

manufacturing capabilities, must be scaled up to increase the number of Helicos Systems we can manufacture per quarter. We also must attract, train and retain qualified sales, marketing and service personnel, engineers, scientists and other technical personnel and management personnel. Our failure to manage our rapid growth effectively could have a material adverse effect on our business, operating results or financial condition. Organizational growth and scale-up of operations could strain our existing managerial, operational, financial and other resources. Our growth could require significant capital expenditures and may divert financial resources from other projects, such as the development of new products or enhancements. If our management is unable to effectively manage our growth, our expenses may increase more than expected, our revenue could grow more slowly than expected and we may not be able to achieve our research and development and commercialization goals.

Our business would be harmed if we are not successful in entering into large contracts for the sale and installation of our Helicos Genetic Analysis Systems.

Our business may depend upon securing and maintaining large contracts for the sale and installation of our Helicos Genetic Analysis Systems to a limited number of customers each year. We expect the sales cycle for these large contracts to be longer than for other contracts because we will need to educate potential customers regarding the benefits of our system to a variety of constituencies within such customer organizations. Moreover, even after a purchase decision is made, these contracts may be delayed by factors outside our control, including financial and budget constraints of the customers purchasing our product. Accordingly, we may expend substantial funds and management effort with no assurance that an agreement will be reached with a potential customer. Our business, results of operations and financial condition could be materially adversely affected if we are unable to obtain major contracts for the sale and installation of our Helicos Systems, or if we experience delays in the performance of such contracts.

***We expect that our sales cycle will be lengthy and unpredictable, which will make it difficult for us to forecast revenue and increase the magnitude of quarterly fluctuations in our operating results.**

Potential customers for our Helicos Genetic Analysis System typically commit significant resources to evaluate genetic analysis technologies. The complexity of our product will require us to spend substantial time and effort to assist potential customers in evaluating our HeliScope system and in benchmarking it against available technologies. Because our Helicos System requires a significant investment of time and cost by our customers, we must target those senior managers within the customer's organization who are able to make these decisions on behalf of such organizations. We may face difficulty identifying and establishing contact with such decision makers. Even after initial acceptance, the negotiation and documentation processes can be lengthy. We expect our sales cycle to typically range between six and twelve months, but it may be longer. Any delay in completing sales in a particular quarter could cause our operating results to fall below expectations.

Our customers may purchase replacements for the reagents and disposable supplies that are a part of our Helicos Genetic Analysis System from third parties or discover a method that allows them to use less than the expected amounts of such products, which would materially and adversely affect our revenues.

The success of our business depends, in part, on the recurring sales of the proprietary reagents and disposable supplies for our system. Because we have not yet commercialized our Helicos Genetic Analysis System, we do not have the experience to predict the percentage of our revenues that we will derive from sales of proprietary reagents and disposable supplies. Nevertheless, we expect such sales to represent a material source of our future revenues. Our customers or competitors could potentially produce reagents and disposable supplies that are compatible with our Helicos System at a lower cost, which could exert pricing pressures on, or take market share from, our reagents and disposable supplies. Similarly, our customers or competitors may discover a method of utilizing smaller quantities of our proprietary

reagents and disposable supplies while achieving satisfactory results, which could reduce the amount of reagents and supplies we are able to sell. In either case, there could be a material adverse effect on our revenues and harm to our business, financial condition and results of operations.

If we are unable to recruit and retain key executives and scientists, we may be unable to achieve our goals.

We are substantially dependent on the performance of our senior management and key scientific and technical personnel. We do not maintain employment contracts with any of our employees. The loss of the services of any member of our senior management or our scientific or technical staff may significantly delay or prevent the development of our products and other business objectives by diverting management's attention to transition matters and identification of suitable replacements, if any, and could have a material adverse effect on our business, operating results and financial condition.

In addition, our product development and marketing efforts could be delayed or curtailed if we are unable to attract, train and retain highly skilled employees and scientific advisors, particularly our management team, senior scientists and engineers and sales, marketing and service personnel. To expand our research, product development and sales efforts we need additional people skilled in areas such as bioinformatics, manufacturing, sales, marketing and technical support. Because of the complex and technical nature of our system and the dynamic market in which we compete, any failure to attract and retain a sufficient number of qualified employees could materially harm our ability to develop and commercialize our technology. Competition for these people is intense. Further, our inability to attract, train and retain sales, marketing and service personnel could have a material adverse effect on our ability to generate sales or successfully commercialize our technology. Each of our executive officers and other key employees could terminate his or her relationship with us at any time. These persons' expertise would be difficult to replace and could have a material adverse effect on our ability to achieve our business goals. There can be no assurance that we will be successful in hiring or retaining qualified personnel and our failure to do so could have a material adverse effect on our business, financial condition and results of operations.

Ethical, legal and social concerns surrounding the use of genetic information could reduce demand for our technology.

One of the potential uses for our product is genetic testing for predisposition to certain conditions. Genetic testing has raised ethical, legal and social issues regarding privacy and the appropriate uses of the resulting information. Governmental authorities could, for social or other purposes, call for limits on or regulation of the use of genetic testing or prohibit testing for genetic predisposition to certain conditions, particularly for those that have no known cure. Similarly, such concerns may lead individuals to refuse to use genetics tests even if permissible. These and other ethical, legal and social concerns about genetic testing may limit market acceptance of our technology for certain applications or reduce the potential markets for our technology, either of which could have a material adverse effect on our business, financial condition and results of operations.

Our products could in the future be subject to regulation by the U.S. Food and Drug Administration or other regulatory agencies, which could increase our costs and delay our commercialization efforts, thereby materially and adversely affecting our business and results of operations.

Our products are not currently subject to U.S. Food and Drug Administration ("FDA") clearance or approval if they are not used for the diagnosis or treatment of disease. However, in the future, certain of our products or related applications could be subject to FDA regulation; the FDA's regulatory jurisdiction could be expanded to include our products, or both. Even where a product is exempted from FDA clearance or approval, the FDA may impose restrictions as to the types of

customers to which we can market and sell our products. Such regulation and restrictions may materially and adversely affect our business, financial condition and results of operations.

Laws and regulations are also in effect in many countries that could affect our products. The number and scope of these requirements are increasing. We may not be able to obtain regulatory approvals in such countries or may incur significant costs in obtaining or maintaining our foreign regulatory approvals. In addition, the export by us of certain of our products which have not yet been cleared for domestic commercial distribution may be subject to FDA or other export restrictions.

Our products could have unknown defects or errors, which may give rise to claims against us or divert application of our resources from other purposes.

Any product utilizing our True Single Molecule Sequencing (tSMS)[™] technology will be complex and may develop or contain undetected defects or errors. We cannot assure you that a material performance problem will not arise. Despite testing, defects or errors may arise in our system, which could result in a failure to achieve market acceptance or expansion, diversion of development resources, injury to our reputation and increased service and maintenance costs. Defects or errors in our products might also discourage customers from purchasing our system. The costs incurred in correcting any defects or errors may be substantial and could adversely affect our operating margins. In addition, such defects or errors could lead to the filing of product liability claims, which could be costly and time-consuming to defend and result in substantial damages. Although we plan to obtain product liability insurance prior to the commercial launch of our Helicos System, any future product liability insurance that we procure may not protect our assets from the financial impact of a product liability claim. Moreover, we may not be able to obtain adequate insurance coverage on acceptable terms. Any insurance that we do obtain will be subject to deductibles and coverage limits. A product liability claim could have a serious adverse effect on our business, financial condition and results of operations.

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

We have limited history operating as a public company. As a public company, we will incur legal, accounting and other expenses that we did not incur as a private company. In addition, the Sarbanes-Oxley Act of 2002, as well as new rules subsequently implemented by the Securities and Exchange Commission and the NASDAQ Global Market, have imposed various new requirements on public companies, including requiring changes in corporate governance practices. Our management and other personnel will need to devote a substantial amount of time to these new compliance initiatives. Moreover, these rules and regulations will increase our legal and financial compliance costs and will make some activities more time-consuming and costly.

In addition, the Sarbanes-Oxley Act requires, among other things, that we maintain effective internal control over financial reporting and disclosure controls and procedures. In particular, commencing in 2008, we must perform system and process evaluation and testing of our internal control over financial reporting to allow management to report on the effectiveness of our internal control over financial reporting, as required by Section 404(a) of the Sarbanes-Oxley Act. However, our testing may reveal deficiencies in our internal control over financial reporting that are deemed to be material weaknesses. Our compliance with Section 404 will require that we incur substantial accounting expense and expend significant management time on compliance-related issues. We currently do not have an internal audit group and we will evaluate the need to hire additional accounting and financial staff with appropriate public company experience and technical accounting knowledge. Moreover, if we are not able to comply with the requirements of Section 404 in a timely manner, or if we identify deficiencies in our internal control over financial reporting that are deemed to be material weaknesses, the market price of our stock could decline and we could be subject to sanctions or investigations by

the NASDAQ Global Market, the Securities and Exchange Commission or other regulatory authorities, which would require additional financial and management resources.

***We will need to raise additional funding, which may not be available on favorable terms, if at all, or without dilution to our stockholders. If we do not raise the necessary funds, we may need to cut back or terminate some or all aspects of our operations which would materially adversely affect our business prospects.**

Because our Helicos System is complex and will be new to the market and involve significant capital expenditures by customers and a long sales cycle, it is very difficult to predict the actual rate of product sales. We will need additional financing to execute on our current or future business strategies. We expect capital outlays and operating expenditures to increase over the next several years as we expand our infrastructure, commercialization, manufacturing and research and development activities. The amount of additional capital we may need to raise depends on many factors, including:

the level of research and development investment required to maintain and improve our technology position;

the amount and growth rate of our revenues;

changes in product development plans needed to address any difficulties in manufacturing or commercializing our Helicos System and enhancements to our system;

the costs of filing, prosecuting, defending and enforcing patent claims and other intellectual property rights;

competing technological and market developments;

our need or decision to acquire or license complementary technologies or acquire complementary businesses; and

changes in regulatory policies or laws that affect our operations.

We cannot be certain that additional capital will be available when and as needed or that our actual cash requirements will not be greater than anticipated. If we require additional capital at a time when investment in biotechnology or life sciences companies or in the marketplace in general is limited due to the then prevailing market or other conditions, we may not be able to raise such funds at the time that we desire or any time thereafter. In addition, if we raise additional funds through the issuance of equity or convertible debt securities, the percentage ownership of our stockholders could be significantly diluted, and these newly-issued securities may have rights, preferences or privileges senior to those of existing stockholders. If we obtain additional debt financing, a substantial portion of our operating cash flow may be dedicated to the payment of principal and interest on such indebtedness, and the terms of the debt securities issued could impose significant restrictions on our operations. If we raise additional funds through collaborations and licensing arrangements, we might be required to relinquish significant rights to our technologies or products, or grant licenses on terms that are not favorable to us. If we are unable to obtain financing on terms favorable to us, we may be unable to execute our business plan and we may be required to cease or reduce development or commercialization of our technology, sell some of all of our technology or assets or merge with another entity.

We use hazardous chemicals and biological materials in our business. Any claims relating to improper handling, storage or disposal of these materials could be time consuming and costly.

Our research and development processes involve the controlled use of hazardous materials, including chemicals and biological materials. Our operations produce hazardous waste products. We cannot eliminate the risk of accidental contamination or discharge and any resultant injury from these materials. We may be sued for any injury or contamination that results from our use or the use by third parties of these materials. We do not currently maintain separate environmental liability coverage. Federal, state and local laws and regulations govern the use, manufacture, storage, handling and disposal of hazardous materials. Compliance with environmental laws and regulations may be expensive, and current or future environmental regulations may impair our research, development and production efforts.

Because we are subject to existing and potential additional governmental regulation, we may become subject to burdens on our operations, and the markets for our products may be narrowed.

We are subject, both directly and indirectly, to the adverse impact of existing and potential future government regulation of our operations and markets. For example, export of our instruments is subject to strict regulatory control in a number of jurisdictions. The failure to satisfy export control criteria or obtain necessary clearances could delay or prevent shipment of products, which could adversely affect our revenues and profitability. Moreover, the life sciences industry, which is the market for our technology, has historically been heavily regulated. There are, for example, laws in several jurisdictions restricting research in genetic engineering, which can operate to narrow our markets. Given the evolving nature of this industry, legislative bodies or regulatory authorities may adopt additional regulation that adversely affects our market opportunities. Additionally, if ethical and other concerns surrounding the use of genetic information, diagnostics or therapies become widespread, we may have less demand for our products. Our business is also directly affected by a wide variety of government regulations applicable to business enterprises generally and to companies operating in the life science industry in particular. Failure to comply with these regulations or obtain or maintain necessary permits and licenses could result in a variety of fines or other censures or an interruption in our business operations which may have a negative impact on our ability to generate revenues and could increase the cost of operating our business.

If we make acquisitions in the future, we may encounter a range of problems that could harm our business.

We may acquire technologies, products or companies that we feel could accelerate our ability to compete in our core markets. Acquisitions involve numerous risks, including:

difficulties in integrating operations, technologies, accounting and personnel;

difficulties in supporting and transitioning customers of our acquired companies;

diversion of financial and management resources from existing operations;

risks of entering new markets;

potential loss of key employees; and

inability to generate sufficient revenue to offset acquisition costs.

Acquisitions also frequently result in the recording of goodwill and other intangible assets which are subject to potential impairments in the future that could harm our financial results. In addition, if we finance acquisitions by issuing convertible debt or equity securities, our existing stockholders may be diluted, which could affect the market price of our stock. As a result, if we fail to properly evaluate acquisitions or investments, we may not achieve the anticipated benefits of any such acquisitions, and we may incur costs in excess of what we anticipate.

RISKS RELATED TO OUR INTELLECTUAL PROPERTY

Our failure to establish a strong intellectual property position and enforce our intellectual property rights against others would enable competitors to develop similar or alternative technologies.

Our success depends in part on our ability to obtain and maintain intellectual property protection for our products, processes and technologies. Our policy is to seek to protect our intellectual property by, among other methods, filing U.S. patent applications related to our proprietary technology, inventions and improvements that are important to the development of our business.

Our patent portfolio relating to our proprietary technology is comprised of issued patents and pending patent applications which, in either case, we own directly or for which we are the exclusive or semi-exclusive licensee. Some of these patents and patent applications are foreign counterparts of U.S. patents or patent applications. We may not be able to maintain and enforce existing patents or obtain further patents for our products, processes and technologies. Even if we are able to maintain our existing patents or obtain further patents, these patents may not provide us with substantial protection or be commercially beneficial. The issuance of a patent is not conclusive as to its validity or enforceability, nor does it provide the patent holder with freedom to operate unimpeded by the patent rights of others. Patent law relating to the scope of claims in the technology fields in which we operate is still evolving and the extent of future protection is highly uncertain, so there can be no assurance that the patent rights that we have or may obtain will be valuable. Others have filed patent applications that are similar in scope to ours, and in the future are likely to file patent applications that are similar or identical in scope to ours or those of our licensors. We cannot predict whether any of our competitors' pending patent applications will result in the issuance of valid patents. Moreover, we cannot assure investors that any such patent applications will not have priority or dominate over our patents or patent applications. The invalidation of key patents owned by or licensed to us or non-approval of pending patent applications could increase competition, and materially adversely affect our business, financial condition and results of operations. Furthermore, there can be no assurance that others will not independently develop similar or alternative technologies, duplicate any of our technologies, or, if patents are issued to us, design around the patented technologies developed by us.

***We may be involved in lawsuits and administrative proceedings to protect or enforce our patents and proprietary rights and to determine the scope and validity of others' proprietary rights, which could result in substantial costs and diversion of resources and which, if unsuccessful, could harm our competitive position and our results of operations.**

Litigation and administrative proceedings may be necessary to enforce our patent and proprietary rights and/or to determine the scope and validity of others' proprietary rights. Litigation on these matters has been prevalent in our industry and we expect that this will continue. To determine the priority of inventions, we may have to initiate and participate in interference proceedings declared by the U.S. Patent and Trademark Office that could result in substantial costs in legal fees and could substantially affect the scope of our patent protection. Also, our intellectual property may be subject to significant administrative and litigation proceedings such as invalidity, opposition, reexamination, or reissue proceedings against our patents. The outcome of any litigation or administrative proceeding might not be favorable to us, and, in that case, we might be required to develop alternative technological approaches that we may not be able to complete successfully or require licenses from others that we may not be able to obtain. Even if such licenses are obtainable, they may not be available at a reasonable cost. We may also be held liable for money damages to third parties and could be enjoined from manufacturing or selling our products or technologies. In addition, if we resort to legal proceedings to enforce our intellectual property rights or to determine the validity and scope of the intellectual property or other proprietary rights of others, the proceedings could be burdensome and expensive, even if we were to prevail. These types of administrative proceedings and any litigation that may be necessary in the future could result in the Company's patent protection being significantly

modified or reduced, and could result in substantial costs and diversion of resources and could have a material adverse effect on our business, operating results or financial condition. In August 2006 we filed an opposition against EP 1 105 529 B1 in the European Patent Office, with respect to which we received a preliminary non-binding opinion upholding the patent. In August 2008 we decided not to participate further in the opposition.

We depend upon our ability to license technologies, and the failure to license or otherwise acquire necessary technologies could harm our ability to commercialize our products or defend our intellectual property position.

We hold various licenses to use certain technologies that we consider to be material to our business. Each of these licenses imposes a range of obligations on us and may be terminated if we breach the terms of any of the respective agreements. We may also be required to enter into additional licenses with third parties for other technologies that we consider to be necessary for our business. If we are unable to maintain our existing licenses or obtain additional technologies on acceptable terms, we could be required to develop alternative technologies, either alone or with others, in order to avoid infringing the intellectual property to which we no longer hold a license. This could require our product to be re-configured which could negatively impact its availability for commercial sale and increase our development costs. Failure to license or otherwise acquire necessary technologies would harm our ability to commercialize our products, which could materially adversely affect our business, financial condition and results of operations. In addition, any licenses we obtain from federally-funded institutions are subject to the march-in rights of the U.S. government.

***We may be the subject of costly and time-consuming lawsuits brought by third parties for alleged infringement of their proprietary rights, which could limit our ability to use certain technologies in the future, force us to redesign or discontinue our products, or pay royalties to continue to sell our products.**

Our success depends, in part, on us neither infringing patents or other proprietary rights of third parties nor breaching any licenses to which we are a party. We may be the subject of legal claims by third-parties that we infringe their patents or otherwise violate their intellectual property rights. In addition, the technology that we license from third parties for use in our system could become subject to similar infringement claims. Infringement claims asserted against us or our licensors may have a material adverse effect on our business, results of operations or financial condition. Any claims, either with or without merit, could be time-consuming and expensive to defend, and could divert our management's attention away from the execution of our business plan. Moreover, any settlement or adverse judgment resulting from the claim could require us to pay substantial amounts of money or obtain a license to continue to use the technology that is the subject of the claim, or otherwise restrict or prohibit our use of the technology. There can be no assurance that we would be able to obtain a license on commercially reasonable terms, if at all, from third parties asserting an infringement claim; that we would be able to develop alternative technology on a timely basis, if at all; or that we would be able to obtain a license to use a suitable alternative technology to permit us to continue offering, and our customers to continue using, our affected products. Accordingly, an adverse determination could prevent us from offering our instruments, reagents or disposable supplies to others. In addition, we may be required to indemnify our customers for third-party intellectual property infringement claims, which would increase the cost to us of an adverse ruling for such a claim. We believe that there may be significant litigation in the industry regarding patent and other intellectual property rights. If we become involved in such litigation, it could consume a substantial portion of our managerial and financial resources.

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be

compromised by disclosure during this type of litigation. In addition, during the course of this kind of litigation, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock.

The measures that we use to protect the security of our intellectual property and other proprietary rights may not be adequate, which could result in the loss of legal protection for, and thereby diminish the value of, such intellectual property and other rights.

Our success depends in part on our ability to protect our intellectual property and other proprietary rights. In addition to patent protection, we also rely upon a combination of trademark, trade secret, copyright and unfair competition laws, as well as license agreements and other contractual provisions, to protect our intellectual property and other proprietary rights. In addition, we attempt to protect our intellectual property and proprietary information by requiring our employees, consultants and certain academic collaborators to enter into confidentiality and assignment of inventions agreements. There can be no assurance, however, that such measures will provide adequate protection for our patents, copyrights, trade secrets or other proprietary information. In addition, there can be no assurance that trade secrets and other proprietary information will not be disclosed, that others will not independently develop substantially equivalent proprietary information and techniques or otherwise gain access to or disclose our trade secrets and other proprietary information. To the extent that our intellectual property and other proprietary rights are not adequately protected, third parties might gain access to our proprietary information, develop and market genetic analysis systems similar to our tSMS technology, or use trademarks similar to ours, each of which could materially harm our business. Existing U.S. federal and state intellectual property laws offer only limited protection. Moreover, the laws of other countries in which we may market our technology may afford little or no effective protection of our intellectual property. The failure to adequately protect our intellectual property and other proprietary rights could materially harm our business.

RISKS RELATED TO OWNERSHIP OF OUR COMMON STOCK

***Our directors and management will exercise significant control over our company, which will limit your ability to influence corporate matters.**

Certain of our directors and executive officers and their affiliates collectively control approximately 59% of our outstanding common stock. As a result, these stockholders, if they act together, will be able to influence our management and affairs and all matters requiring stockholder approval, including the election of directors and approval of significant corporate transactions. This concentration of ownership may have the effect of delaying or preventing a change in control of our company and might negatively affect the market price of our common stock.

The market price of our common stock may be volatile, which could result in substantial losses for our stockholders and subject us to securities class action litigation.

Market prices of technology and healthcare companies have been particularly volatile. Some of the factors that may cause the market price of our common stock to fluctuate include:

fluctuations in our quarterly operating results or the operating results of companies perceived to be similar to us;

changes in estimates of our financial results or recommendations by securities analysts;

failure of our technology to achieve or maintain market acceptance or commercial success;

changes in market valuations of similar companies;

success of competitive products and services;

changes in our capital structure, such as future issuances of securities or the incurrence of additional debt;

announcements by us or our competitors of significant products, contracts, acquisitions or strategic alliances;

regulatory developments in the United States, foreign countries or both;

litigation involving our company, our general industry or both;

additions or departures of key personnel;

investors' general perception of us; and

changes in general economic, industry and market conditions.

In addition, if the market for biotechnology and life sciences stocks or the stock market in general experiences a loss of investor confidence, the trading price of our common stock could decline for reasons unrelated to our business, financial condition or results of operations. If any of the foregoing occurs, it could cause our stock price to fall and may expose us to class action lawsuits that, even if unsuccessful, could be costly to defend and a distraction to management.

If equity research analysts do not publish research reports about our business or if they issue unfavorable commentary or downgrade our common stock, the price of our common stock could decline.

The trading market for our common stock may rely in part on the research and reports that equity research analysts publish about us and our business. We do not control the opinions of these analysts. The price of our stock could decline if one or more equity analysts downgrade our stock or if those analysts issue other unfavorable commentary or cease publishing reports about us or our business.

***A significant portion of our total outstanding shares may be sold into the public market in the near future, which could cause the market price of our common stock to drop significantly, even if our business is doing well.**

If our existing stockholders sell substantial amounts of our common stock in the public market, the market price of our common stock could decrease significantly. The perception in the public market that our stockholders might sell shares of common stock could also depress the market price of our common stock. Although, substantially all of our stockholders prior to the initial public offering were subject to lock-up agreements with the underwriters that restricted their ability to transfer their stock for 180 days following our initial public offering, these lock-ups expired on November 20, 2007. Accordingly, approximately 11 million shares of our common stock became eligible for sale in the public market. The market price of shares of our common stock may drop significantly upon resale of shares held prior to our initial public offering by our existing stockholders into the market. A decline in the price of shares of our common stock might impede our ability to raise capital through the issuance of additional shares of our common stock or other equity securities, and may cause you to lose part or all of your investment in our shares of common stock.

In addition, the holders of an aggregate of approximately of 13.5 million shares of our common stock, as of June 30, 2008, have rights, subject to some conditions, to require us to file registration statements covering their shares or to include their shares in registration statements that we may file for ourselves or other stockholders. We also have registered the issuance of all shares of common stock that we have issued and may issue under our employee option plans. Having registered the issuance of these shares, they can be freely sold in the public market upon issuance, subject to lock-up agreements. In

addition, as of June 30, 2008, there were 277,777 shares of common stock reserved for future issuance as charitable contribution to the Broad Institute of MIT and Harvard that will become eligible for sale in the public market to the extent permitted by Rule 144 under the Securities Act of 1933, as amended.

Due to these factors, sales of a substantial number of shares of our common stock in the public market could occur at any time. These sales, or the perception in the market that the holders of a large number of shares intend to sell shares, could reduce the market price of our common stock.

***Provisions in our certificate of incorporation and by-laws or Delaware law might discourage, delay or prevent a change of control of our company or changes in our management and, therefore, depress the trading price of our common stock.**

Provisions of our certificate of incorporation and by-laws and Delaware law may discourage, delay or prevent a merger, acquisition or other change in control that stockholders may consider favorable, including transactions in which you might otherwise receive a premium for your shares of our common stock. These provisions may also prevent or frustrate attempts by our stockholders to replace or remove our management. These provisions include:

a staggered board of directors;

limitations on the removal of directors;

advance notice requirements for stockholder proposals and nominations;

the inability of stockholders to act by written consent or to call special meetings; and

the ability of our board of directors to make, alter or repeal our by-laws.

The affirmative vote of the holders of at least 75% of our shares of capital stock entitled to vote is necessary to amend or repeal the above provisions of our certificate of incorporation. In addition, our board of directors has the ability to designate the terms of and issue new series of preferred stock without stockholder approval. Also, absent approval of our board of directors, our by-laws may only be amended or repealed by the affirmative vote of the holders of at least 75% of our shares of capital stock entitled to vote. Accordingly, given that our executive officers, directors and their affiliates collectively own approximately 59% of our outstanding common stock, certain of these persons acting together will have the ability to block any such amendment.

In addition, Section 203 of the Delaware General Corporation Law prohibits a publicly-held Delaware corporation from engaging in a business combination with an interested stockholder, generally a person which together with its affiliates owns, or within the last three years has owned, 15% of our voting stock, for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in a prescribed manner.

The existence of the foregoing provisions and anti-takeover measures could limit the price that investors might be willing to pay in the future for shares of our common stock. They could also deter potential acquirers of our company, thereby reducing the likelihood that you could receive a premium for your common stock in an acquisition.

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

We have never declared or paid any cash dividends on our common stock and do not currently intend to do so for the foreseeable future. We currently intend to invest our future earnings, if any, to fund our growth. Therefore, you are not likely to receive any dividends on your common stock for the foreseeable future and the success of an investment in shares of our common stock will depend upon

any future appreciation in its value. There is no guarantee that shares of our common stock will appreciate in value or even maintain the price at which our stockholders have purchased their shares.

Item 2. Unregistered Sale of Equity Securities and Use of Proceeds

Use of Proceeds from Public Offering of Common Stock

On May 24, 2007, we completed our initial public offering of 5,400,000 shares of our common stock at a price to the public of \$9.00 per share for an aggregate offering price of \$48.6 million. We received aggregate net proceeds of approximately \$43.9 million, after deducting underwriting discounts and commissions of \$2.9 million, and \$1.8 million of additional expenses, including legal, accounting and printing costs and various other fees associated with the registration and listing of our common stock. None of the underwriting discounts and commissions or offering expenses were incurred or paid, directly or indirectly, to directors or officers of ours or their associates or to persons owning 10% or more of our common stock or to any affiliates of ours. The offer and sale of all of the shares in the initial public offering were registered under the Securities Act of 1933, as amended, pursuant to a registration statement on Form S-1 (File No. 333-140973), which was declared effective by the Securities and Exchange Commission on May 24, 2007. UBS Investment Bank, JP Morgan, Leerink Swann & Company, and Pacific Growth Equities, LLC were the underwriters of the initial public offering. The offering commenced on May 24, 2007 and did not terminate until after the sale of all of the securities registered in the registration statement.

On June 27, 2007, we sold an additional 397,000 shares of our common stock at \$9.00 per share pursuant to the over-allotment option granted to the underwriters of our initial public offering. The net proceeds after deducting underwriters' discounts and commission related to the offering were \$3.3 million. UBS Securities, J.P. Morgan Securities, Inc., Leerink Swann & Co., Inc. and Pacific Growth Equities, LLC acted as representatives of the underwriters.

Of the \$52.2 million of gross proceeds we received in our initial public offering, including the exercise of the over-allotment options, through June 30, 2008, we have spent approximately \$3.2 million on underwriting discounts and commissions and approximately \$1.8 million for payment of expenses related to our initial public offering. Additionally, we have spent \$11.5 million on pre-production research and development expenses and \$6.9 million on inventory. None of these expenses were incurred or paid, directly or indirectly, to directors or officers of ours or their associates or to persons owning 10% or more of our common stock or to any affiliates of ours.

The proceeds remaining after paying the costs noted above are invested in interest bearing bank accounts.

We expect to use the remaining proceeds from our initial public offering for general corporate purposes which include ongoing research and development activities, funding the additional recruitment of our specialized sales, marketing and services force and marketing initiatives and funding manufacturing expenses associated with the commercial version of our HeliScope system. Our management has broad discretion as to the use of the net proceeds. We may use a portion of the net proceeds for the acquisition of, or investment in, technologies or products that complement our business. As required by the Securities Commission regulations, we will provide further detail on our use of the net proceeds from our initial public offering in future periodic reports.

Item 3. Defaults upon Senior Securities

Not applicable.

Item 4. Submission of Matters to a Vote of the Security Holders

At the Annual Meeting of Stockholders held on May 22, 2008 stockholders of the Company approved proposals to:

- (1) elect two Class I directors of the Company to serve until the 2011 Annual Meeting of Stockholders or until their successors are duly elected and qualified. The votes for such proposal were as follows:

	<u>FOR</u>	<u>WITHHELD</u>	<u>ABSTAIN</u>	<u>NON-VOTES</u>
Elisabeth K. Allison, PhD	19,304,044	5,941	–	–
Brian G. Atwood	19,306,645	3,340	–	–

- (2) ratify the appointment of PricewaterhouseCoopers LLP as the independent registered public accounting firm of the Company for the fiscal year ending December 31, 2008. The votes for such proposal were as follows:

FOR	19,306,024
AGAINST	1,087
ABSTAIN	2,874
NON-VOTES	–

Item 5. Other Information

None.

Item 6. Exhibits

The exhibits listed in the Exhibit Index immediately preceding such exhibits are filed as part of this report and such Exhibit Index is incorporated herein by reference.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

Dated: August 14, 2008

/s/ STANLEY N. LAPIDUS

Stanley N. Lapidus

Chairman and Chief Executive Officer

(Principal Executive Officer)

Dated: August 14, 2008

/s/ STEPHEN P. HALL

Stephen P. Hall

Senior Vice President and Chief Financial Officer

(Principal Financial and Accounting Officer)

EXHIBIT INDEX

- 10.1†* 2007 Stock Option and Incentive Plan and forms of agreement thereunder
- Offer Letter between the Company and Stephen P. Hall dated April 25, 2008
- 10.2 (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on May 1, 2008)
- Change in Control Agreement between the Company and Stephen P. Hall
- 10.3 dated April 30, 2008 (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed on May 1, 2008)
- Second Amendment to the Loan and Security Agreement among Helicos, the
- 10.4 Lenders and General Electric Capital Corporation, dated as of June 27, 2008 (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on June 30, 2008)
- Form of Warrant, between Helicos and the Lenders (incorporated by
- 10.5 reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed on June 30, 2008)
- 31.1* Certification pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
- 31.2* Certification pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
- 32.1* Certifications pursuant to 18 U.S.C. Section 1350
- * Filed herewith
- † Indicates a management contract or any compensatory plan, contract or arrangement

HELICOS BIOSCIENCES CORPORATION

2007 STOCK OPTION AND INCENTIVE PLAN

SECTION 1. *GENERAL PURPOSE OF THE PLAN; DEFINITIONS*

The name of the plan is the Helicos BioSciences Corporation 2007 Stock Option and Incentive Plan (the "Plan"). The purpose of the Plan is to encourage and enable the officers, employees, Non-Employee Directors and other key persons (including consultants and prospective employees) of Helicos BioSciences Corporation (the "Company") and its Subsidiaries upon whose judgment, initiative and efforts the Company largely depends for the successful conduct of its business to acquire a proprietary interest in the Company. It is anticipated that providing such persons with a direct stake in the Company's welfare will assure a closer identification of their interests with those of the Company and its stockholders, thereby stimulating their efforts on the Company's behalf and strengthening their desire to remain with the Company.

The following terms shall be defined as set forth below:

"*Act*" means the Securities Act of 1933, as amended, and the rules and regulations thereunder.

"*Administrator*" means either the Board or the compensation committee of the Board or a similar committee performing the functions of the compensation committee and which is comprised of not less than two Non-Employee Directors who are independent.

"*Award*" or "*Awards*," except where referring to a particular category of grant under the Plan, shall include Incentive Stock Options, Non-Qualified Stock Options, Stock Appreciation Rights, Deferred Stock Awards, Restricted Stock Awards, Unrestricted Stock Awards, Cash-based Awards and Dividend Equivalent Rights.

"*Award Agreement*" means a written or electronic agreement setting forth the terms and provisions applicable to an Award granted under the Plan. Each Award Agreement is subject to the terms and conditions of the Plan.

"*Board*" means the Board of Directors of the Company.

"*Cash-based Award*" means an Award entitling the recipient to receive a cash-denominated payment.

"*Code*" means the Internal Revenue Code of 1986, as amended, and any successor Code, and related rules, regulations and interpretations.

"*Covered Employee*" means an employee who is a "Covered Employee" within the meaning of Section 162(m) of the Code.

"*Deferred Stock Award*" means an Award of phantom stock units to a grantee.

"*Dividend Equivalent Right*" means an Award entitling the grantee to receive credits based on cash dividends that would have been paid on the shares of Stock specified in the Dividend Equivalent Right (or other award to which it relates) if such shares had been issued to and held by the grantee.

"*Effective Date*" means the date on which the Plan is approved by stockholders as set forth in Section 19.

"*Exchange Act*" means the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder.

"Fair Market Value" of the Stock on any given date means the fair market value of the Stock determined in good faith by the Administrator; provided, however, that if the Stock is admitted to quotation on the National Association of Securities Dealers Automated Quotation System ("NASDAQ"), NASDAQ Global Market or another national securities exchange, the determination

shall be made by reference to market quotations. If there are no market quotations for such date, the determination shall be made by reference to the last date preceding such date for which there are market quotations; provided further, however, that if the date for which Fair Market Value is determined is the first day when trading prices for the Stock are reported on a national securities exchange, the Fair Market Value shall be the "Price to the Public" (or equivalent) set forth on the cover page for the final prospectus relating to the Company's Initial Public Offering.

"Incentive Stock Option" means any Stock Option designated and qualified as an "incentive stock option" as defined in Section 422 of the Code.

"Initial Public Offering" means the consummation of the first fully underwritten, firm commitment public offering pursuant to an effective registration statement under the Act covering the offer and sale by the Company of its equity securities, or such other event as a result of or following which the Stock shall be publicly held.

"Non-Employee Director" means a member of the Board who is not also an employee of the Company or any Subsidiary.

"Non-Qualified Stock Option" means any Stock Option that is not an Incentive Stock Option.

"Option" or *"Stock Option"* means any option to purchase shares of Stock granted pursuant to Section 5.

"Restricted Stock Award" means an Award entitling the recipient to acquire, at such purchase price (which may be zero) as determined by the Administrator, shares of Stock subject to such restrictions and conditions as the Administrator may determine at the time of grant.

"Sale Event" shall mean (i) the sale of all or substantially all of the assets of the Company on a consolidated basis to an unrelated person or entity, (ii) a merger, reorganization or consolidation in which the outstanding shares of Stock are converted into or exchanged for securities of the successor entity and the holders of the Company's outstanding voting power immediately prior to such transaction do not own a majority of the outstanding voting power of the successor entity immediately upon completion of such transaction, or (iii) the sale of all of the Stock of the Company to an unrelated person or entity.

"Sale Price" means the value as determined by the Administrator of the consideration payable, or otherwise to be received by stockholders, per share of Stock pursuant to a Sale Event.

"Section 409A" means Section 409A of the Code and the regulations and other guidance promulgated thereunder.

"Stock" means the Common Stock, par value \$0.001 per share, of the Company, subject to adjustments pursuant to Section 3.

"Stock Appreciation Right" means an Award entitling the recipient to receive shares of Stock having a value equal to the excess of the Fair Market Value of the Stock on the date of exercise over the exercise price of the Stock Appreciation Right multiplied by the number of shares of Stock with respect to which the Stock Appreciation Right shall have been exercised.

"Subsidiary" means any corporation or other entity (other than the Company) in which the Company has at least a 50 percent interest, either directly or indirectly.

"Ten Percent Owner" means an employee who owns or is deemed to own (by reason of the attribution rules of Section 424(d) of the Code) more than 10 percent of the combined voting power of all classes of stock of the Company or any parent or subsidiary corporation.

"Unrestricted Stock Award" means an Award of shares of Stock free of any restrictions.

(a) *Administration of Plan.* The Plan shall be administered by the Administrator.

(b) *Powers of Administrator.* The Administrator shall have the power and authority to grant Awards consistent with the terms of the Plan, including the power and authority:

(i) to select the individuals to whom Awards may from time to time be granted;

(ii) to determine the time or times of grant, and the extent, if any, of Incentive Stock Options, Non-Qualified Stock Options, Stock Appreciation Rights, Restricted Stock Awards, Deferred Stock Awards, Unrestricted Stock Awards, Cash-based Awards and Dividend Equivalent Rights, or any combination of the foregoing, granted to any one or more grantees;

(iii) to determine the number of shares of Stock to be covered by any Award;

(iv) to determine and modify from time to time the terms and conditions, including restrictions, not inconsistent with the terms of the Plan, of any Award, which terms and conditions may differ among individual Awards and grantees, and to approve the form of written instruments evidencing the Awards;

(v) to accelerate at any time the exercisability or vesting of all or any portion of any Award;

(vi) subject to the provisions of Section 5(a)(ii), to extend at any time the period in which Stock Options may be exercised; and

(vii) at any time to adopt, alter and repeal such rules, guidelines and practices for administration of the Plan and for its own acts and proceedings as it shall deem advisable; to interpret the terms and provisions of the Plan and any Award (including related written instruments); to make all determinations it deems advisable for the administration of the Plan; to decide all disputes arising in connection with the Plan; and to otherwise supervise the administration of the Plan.

All decisions and interpretations of the Administrator shall be binding on all persons, including the Company and Plan grantees.

(c) *Delegation of Authority to Grant Options.* Subject to applicable law, the Administrator, in its discretion, may delegate to the Chief Executive Officer of the Company all or part of the Administrator's authority and duties with respect to the granting of Options, to individuals who are (i) not subject to the reporting and other provisions of Section 16 of the Exchange Act and (ii) not Covered Employees. Any such delegation by the Administrator shall include a limitation as to the amount of Options that may be granted during the period of the delegation and shall contain guidelines as to the determination of the exercise price and the vesting criteria. The Administrator may revoke or amend the terms of a delegation at any time but such action shall not invalidate any prior actions of the Administrator's delegate or delegates that were consistent with the terms of the Plan.

(d) *Award Agreement.* Awards under the Plan shall be evidenced by Award Agreements that set forth the terms, conditions and limitations for each Award which may include, without limitation, the term of an Award, the provisions applicable in the event employment or service terminates, and the Company's authority to unilaterally or bilaterally amend, modify, suspend, cancel or rescind an Award.

(e) *Indemnification.* Neither the Board nor the Administrator, nor any member of either or any delegate thereof, shall be liable for any act, omission, interpretation, construction or determination made in good faith in connection with the Plan, and the members of the Board and the Administrator (and any delegate thereof) shall be entitled in all cases to indemnification and reimbursement by the Company in respect of any claim, loss, damage or expense (including, without limitation, reasonable

attorneys' fees) arising or resulting therefrom to the fullest extent permitted by law and/or under the Company's articles or bylaws or any directors' and officers' liability insurance coverage which may be in effect from time to time and/or any indemnification agreement between such individual and the Company.

(f) *Foreign Award Recipients.* Notwithstanding any provision of the Plan to the contrary, in order to comply with the laws in other countries in which the Company and its Subsidiaries operate or have employees or other individuals eligible for Awards, the Administrator, in its sole discretion, shall have the power and authority to: (i) determine which Subsidiaries shall be covered by the Plan; (ii) determine which individuals outside the United States are eligible to participate in the Plan; (iii) modify the terms and conditions of any Award granted to individuals outside the United States to comply with applicable foreign laws; (iv) establish subplans and modify exercise procedures and other terms and procedures, to the extent the Administrator determines such actions to be necessary or advisable (and such subplans and/or modifications shall be attached to this Plan as appendices); provided, however, that no such subplans and/or modifications shall increase the share limitations contained in Section 3(a) hereof; and (v) take any action, before or after an Award is made, that the Administrator determines to be necessary or advisable to obtain approval or comply with any local governmental regulatory exemptions or approvals. Notwithstanding the foregoing, the Administrator may not take any actions hereunder, and no Awards shall be granted, that would violate the Exchange Act or any other applicable United States securities law, the Code, or any other applicable United States governing statute or law.

SECTION 3. STOCK ISSUABLE UNDER THE PLAN; MERGERS; SUBSTITUTION

(a) *Stock Issuable.* The maximum number of shares of Stock reserved and available for issuance under the Plan shall be the sum of (i) 6,481,198 shares, (ii) the number of Shares under the Company's 2003 Stock Option and Incentive Plan (the "2003 Plan") which are not needed to fulfill the Company's obligations for awards issued under the 2003 Plan as a result of forfeiture, expiration, cancellation, termination or net issuances of awards thereunder, and (iii) on January 1, 2008 and on each January 1 thereafter, an additional number of shares equal to the lower of (A) four and one-half percent (4.5%) of the outstanding number of shares of Stock on the immediately preceding December 31, or (B) such lower number of shares of Stock as may be determined by the Board of Directors, in each case subject to adjustment as provided in Section 3(b). For purposes of this limitation, the shares of Stock underlying any Awards that are forfeited, canceled, held back upon exercise of an Option or settlement of an Award to cover the exercise price or tax withholding, reacquired by the Company prior to vesting, satisfied without the issuance of Stock or otherwise terminated (other than by exercise) shall be added back to the shares of Stock available for issuance under the Plan. Subject to such overall limitations, shares of Stock may be issued up to such maximum number pursuant to any type or types of Award; provided, however, that (i) Incentive Stock Options may be granted with respect to no more than 6,431,434 shares, plus on each January 1, starting January 1, 2008, an additional number of shares equal to the lesser of (A) four and one-half percent (4.5%) of the outstanding number of shares of Stock on the immediately preceding December 31 and (B) 3,150,000 shares of Stock and (ii) Stock Options or Stock Appreciation Rights with respect to no more than 6,500,000 shares of Stock may be granted to any one individual grantee during any one calendar year period. The shares available for issuance under the Plan may be authorized but unissued shares of Stock or shares of Stock reacquired by the Company.

(b) *Changes in Stock.* Subject to Section 3(c) hereof, if, as a result of any reorganization, recapitalization, reclassification, stock dividend, stock split, reverse stock split or other similar change in the Company's capital stock, the outstanding shares of Stock are increased or decreased or are exchanged for a different number or kind of shares or other securities of the Company, or additional shares or new or different shares or other securities of the Company or other non-cash assets are

distributed with respect to such shares of Stock or other securities, or, if, as a result of any merger or consolidation, sale of all or substantially all of the assets of the Company, the outstanding shares of Stock are converted into or exchanged for securities of the Company or any successor entity (or a parent or subsidiary thereof), the Administrator shall make an appropriate or proportionate adjustment in (i) the maximum number of shares reserved for issuance under the Plan, (ii) the number of Stock Options or Stock Appreciation Rights that can be granted to any one individual grantee, (iii) the number and kind of shares or other securities subject to any then outstanding Awards under the Plan, (iv) the repurchase price, if any, per share subject to each outstanding Restricted Stock Award, and (v) the price for each share subject to any then outstanding Stock Options and Stock Appreciation Rights under the Plan, without changing the aggregate exercise price (i.e., the exercise price multiplied by the number of Stock Options and Stock Appreciation Rights) as to which such Stock Options and Stock Appreciation Rights remain exercisable. The Administrator shall also make equitable or proportionate adjustments in the number of shares subject to outstanding Awards and the exercise price and the terms of outstanding Awards to take into consideration cash dividends paid other than in the ordinary course or any other extraordinary corporate event. The adjustment by the Administrator shall be final, binding and conclusive. No fractional shares of Stock shall be issued under the Plan resulting from any such adjustment, but the Administrator in its discretion may make a cash payment in lieu of fractional shares.

(c) *Mergers and Other Transactions.* Except as the Administrator may otherwise specify with respect to particular Awards in the relevant Award documentation, in the case of and subject to the consummation of a Sale Event, the Administrator shall as to outstanding Awards (on the same basis or on different bases as the Administrator shall specify), make appropriate provision for the assumption or continuation of Awards theretofore granted by the successor entity, or the substitution of such Awards with new Awards of the successor entity or parent thereof, with appropriate adjustment as to the number and kind of shares and, if appropriate, the per share exercise prices, as the Administrator shall specify. In addition to or in lieu of the foregoing, the Administrator may provide that, upon the effective time of the Sale Event, the Plan and all outstanding Awards granted hereunder shall terminate. In the event of such termination, (i) the Company shall have the option (in its sole discretion) to make or provide for a cash payment to the grantees holding Options and Stock Appreciation Rights, in exchange for the cancellation thereof, in an amount equal to the difference between (A) the Sale Price multiplied by the number of shares of Stock subject to outstanding Options and Stock Appreciation Rights (to the extent then exercisable (after taking into account any acceleration hereunder) at prices not in excess of the Sale Price) and (B) the aggregate exercise price of all such outstanding Options and Stock Appreciation Rights; or (ii) each grantee shall be permitted, within a specified period of time prior to the consummation of the Sale Event as determined by the Administrator, to exercise all outstanding Options and Stock Appreciation Rights held by such grantee; provided, however, that, in the case of this clause (ii), all Options and Stock Appreciation Rights that are not exercisable immediately prior to the effective time of the Sale Event shall become fully exercisable as of the effective time of the Sale Event.

(d) *Substitute Awards.* The Administrator may grant Awards under the Plan in substitution for stock and stock based awards held by employees, directors or other key persons of another corporation in connection with the merger or consolidation of the employing corporation with the Company or a Subsidiary or the acquisition by the Company or a Subsidiary of property or stock of the employing corporation. The Administrator may direct that the substitute awards be granted on such terms and conditions as the Administrator considers appropriate in the circumstances. Any substitute Awards granted under the Plan shall not count against the share limitation set forth in Section 3(a).

SECTION 4. ELIGIBILITY

Grantees under the Plan will be such full or part-time officers and other employees, Non-Employee Directors and key persons (including consultants and prospective employees) of the Company and its Subsidiaries as are selected from time to time by the Administrator in its sole discretion.

SECTION 5. STOCK OPTIONS

Any Stock Option granted under the Plan shall be in such form as the Administrator may from time to time approve.

Stock Options granted under the Plan may be either Incentive Stock Options or Non-Qualified Stock Options. Incentive Stock Options may be granted only to employees of the Company or any Subsidiary that is a "subsidiary corporation" within the meaning of Section 424(f) of the Code. To the extent that any Option does not qualify as an Incentive Stock Option, it shall be deemed a Non-Qualified Stock Option.

(a) *Stock Options Granted to Employees and Key Persons.* The Administrator in its discretion may grant Stock Options to eligible employees and key persons of the Company or any Subsidiary. Stock Options granted pursuant to this Section 5(a) shall be subject to the following terms and conditions and shall contain such additional terms and conditions, not inconsistent with the terms of the Plan, as the Administrator shall deem desirable. If the Administrator so determines, Stock Options may be granted in lieu of cash compensation at the optionee's election, subject to such terms and conditions as the Administrator may establish.

(i) *Exercise Price.* The exercise price per share for the Stock covered by a Stock Option granted pursuant to this Section 5(a) shall be determined by the Administrator at the time of grant but shall not be less than 100 percent of the Fair Market Value on the date of grant. In the case of an Incentive Stock Option that is granted to a Ten Percent Owner, the option price of such Incentive Stock Option shall be not less than 110 percent of the Fair Market Value on the grant date.

(ii) *Option Term.* The term of each Stock Option shall be fixed by the Administrator, but no Stock Option shall be exercisable more than ten years after the date the Stock Option is granted. In the case of an Incentive Stock Option that is granted to a Ten Percent Owner, the term of such Stock Option shall be no more than five years from the date of grant.

(iii) *Exercisability; Rights of a Stockholder.* Stock Options shall become exercisable at such time or times, whether or not in installments, as shall be determined by the Administrator at or after the grant date. The Administrator may at any time accelerate the exercisability of all or any portion of any Stock Option. An optionee shall have the rights of a stockholder only as to shares acquired upon the exercise of a Stock Option and not as to unexercised Stock Options.

(iv) *Method of Exercise.* Stock Options may be exercised in whole or in part, by giving written notice of exercise to the Company, specifying the number of shares to be purchased. Payment of the purchase price may be made by one or more of the following methods to the extent provided in the Option Award Agreement:

(A) In cash, by certified or bank check or other instrument acceptable to the Administrator;

(B) Through the delivery (or attestation to the ownership) of shares of Stock that have been purchased by the optionee on the open market or that are beneficially owned by the optionee and are not then subject to restrictions under any Company plan. Such surrendered shares shall be valued at Fair Market Value on the exercise date. To the extent required to avoid variable accounting treatment under FAS 123R or other applicable accounting rules, such surrendered shares shall have been owned by the optionee for at least six months; or

(C) By the optionee delivering to the Company a properly executed exercise notice together with irrevocable instructions to a broker to promptly deliver to the Company cash or a check payable and acceptable to the Company for the purchase price; provided that in the event the optionee chooses to pay the purchase price as so provided, the optionee and the broker shall comply with such procedures and enter into such agreements of indemnity and other agreements as the Administrator shall prescribe as a condition of such payment procedure.

Payment instruments will be received subject to collection. The transfer to the optionee on the records of the Company or of the transfer agent of the shares of Stock to be purchased pursuant to the exercise of a Stock Option will be contingent upon receipt from the optionee (or a purchaser acting in his stead in accordance with the provisions of the Stock Option) by the Company of the full purchase price for such shares and the fulfillment of any other requirements contained in the Option Award Agreement or applicable provisions of laws (including the satisfaction of any withholding taxes that the Company is obligated to withhold with respect to the optionee). In the event an optionee chooses to pay the purchase price by previously-owned shares of Stock through the attestation method, the number of shares of Stock transferred to the optionee upon the exercise of the Stock Option shall be net of the number of shares attested to. In the event that the Company establishes, for itself or using the services of a third party, an automated system for the exercise of Stock Options, such as a system using an internet website or interactive voice response, then the paperless exercise of Stock Options may be permitted through the use of such an automated system.

(v) *Annual Limit on Incentive Stock Options.* To the extent required for "incentive stock option" treatment under Section 422 of the Code, the aggregate Fair Market Value (determined as of the time of grant) of the shares of Stock with respect to which Incentive Stock Options granted under this Plan and any other plan of the Company or its parent and subsidiary corporations become exercisable for the first time by an optionee during any calendar year shall not exceed \$100,000. To the extent that any Stock Option exceeds this limit, it shall constitute a Non-Qualified Stock Option.

(b) *Stock Options Granted to Non-Employee Directors.* The Administrator in its discretion may grant Non-Qualified Stock Options to Non-Employee Directors. Non-Qualified Stock Options granted pursuant to this Section 5(b) shall be subject to the following terms and conditions and shall contain such additional terms and conditions, not inconsistent with the terms of the Plan, as the Administrator shall deem desirable. If the Administrator so determines, Non-Qualified Stock Options may be granted in lieu of cash compensation at the optionee's election, subject to such terms and conditions as the Administrator may establish.

(i) *Exercise Price.* The exercise price per share for the Stock covered by a Stock Option granted pursuant to this Section 5(b) shall be no less than 100 percent of the Fair Market Value of the Stock on the date the Stock Option is granted.

(ii) *Exercise; Termination.*

(A) Options shall become exercisable at such time or times, whether or not in installments, as shall be determined by the Administrator at or after the grant date. The Administrator may at any time accelerate the exercisability of all or any portion of any Stock Option. A Stock Option issued under this Section 5(b) shall not be exercisable after the expiration of ten years from the date of grant.

(B) Stock Options granted under this Section 5(b) may be exercised only by written notice to the Company specifying the number of shares to be purchased. Payment of the full purchase price of the shares to be purchased may be made by one or more of the methods specified in Section 5(a)(iv). An optionee shall have the rights of a stockholder only as to shares acquired upon the exercise of a Stock Option and not as to unexercised Stock Options.

SECTION 6. STOCK APPRECIATION RIGHTS

(a) *Exercise Price of Stock Appreciation Rights.* The exercise price of a Stock Appreciation Right shall not be less than 100 percent of the Fair Market Value of the Stock on the date of grant (or more than the Stock Option exercise price per share, if the Stock Appreciation Right was granted in tandem with a Stock Option).

(b) *Grant and Exercise of Stock Appreciation Rights.* Stock Appreciation Rights may be granted by the Administrator in tandem with, or independently of, any Stock Option granted pursuant to Section 5 of the Plan. In the case of a Stock Appreciation Right granted in tandem with a Non-Qualified Stock Option, such Stock Appreciation Right may be granted either at or after the time of the grant of such Option. In the case of a Stock Appreciation Right granted in tandem with an Incentive Stock Option, such Stock Appreciation Right may be granted only at the time of the grant of the Option.

A Stock Appreciation Right or applicable portion thereof granted in tandem with a Stock Option shall terminate and no longer be exercisable upon the termination or exercise of the related Option.

(c) *Terms and Conditions of Stock Appreciation Rights.* Stock Appreciation Rights shall be subject to such terms and conditions as shall be determined from time to time by the Administrator, subject to the following:

- (i) Stock Appreciation Rights granted in tandem with Options shall be exercisable at such time or times and to the extent that the related Stock Options shall be exercisable.
- (ii) Upon exercise of a Stock Appreciation Right, the applicable portion of any related Option shall be surrendered.
- (iii) Stock Appreciation Rights may have a term of no more than ten years.

SECTION 7. RESTRICTED STOCK AWARDS

(a) *Nature of Restricted Stock Awards.* The Administrator shall determine the restrictions and conditions applicable to each Restricted Stock Award at the time of grant. Conditions may be based on continuing employment (or other service relationship) and/or achievement of pre-established performance goals and objectives. The grant of a Restricted Stock Award is contingent on the grantee executing the Restricted Stock Award Agreement. The terms and conditions of each such Award Agreement shall be determined by the Administrator, and such terms and conditions may differ among individual Awards and grantees.

(b) *Rights as a Stockholder.* Upon execution of the Restricted Stock Award Agreement and payment of any applicable purchase price, a grantee shall have the rights of a stockholder with respect to the voting of the Restricted Stock, subject to such conditions contained in the Restricted Stock Award Agreement. Unless the Administrator shall otherwise determine, (i) uncertificated Restricted Stock shall be accompanied by a notation on the records of the Company or the transfer agent to the effect that they are subject to forfeiture until such Restricted Stock are vested as provided in Section 7(d) below, and (ii) certificated Restricted Stock shall remain in the possession of the Company until such Restricted Stock is vested as provided in Section 7(d) below, and the grantee shall be required, as a condition of the grant, to deliver to the Company such instruments of transfer as the Administrator may prescribe.

(c) *Restrictions.* Restricted Stock may not be sold, assigned, transferred, pledged or otherwise encumbered or disposed of except as specifically provided herein or in the Restricted Stock Award Agreement. Except as may otherwise be provided by the Administrator either in the Award Agreement or, subject to Section 16 below, in writing after the Award Agreement is issued, if any, if a grantee's

employment (or other service relationship) with the Company and its Subsidiaries terminates for any reason, any Restricted Stock that has not vested at the time of termination shall automatically and without any requirement of notice to such grantee from or other action by or on behalf of, the Company be deemed to have been reacquired by the Company at its original purchase price (if any) from such grantee or such grantee's legal representative simultaneously with such termination of employment (or other service relationship), and thereafter shall cease to represent any ownership of the Company by the grantee or rights of the grantee as a stockholder. Following such deemed reacquisition of unvested Restricted Stock that are represented by physical certificates, a grantee shall surrender such certificates to the Company upon request without consideration.

(d) *Vesting of Restricted Stock.* The Administrator at the time of grant shall specify the date or dates and/or the attainment of pre-established performance goals, objectives and other conditions on which the non-transferability of the Restricted Stock and the Company's right of repurchase or forfeiture shall lapse. Subsequent to such date or dates and/or the attainment of such pre-established performance goals, objectives and other conditions, the shares on which all restrictions have lapsed shall no longer be Restricted Stock and shall be deemed "vested." Except as may otherwise be provided by the Administrator either in the Award Agreement or, subject to Section 16 below, in writing after the Award Agreement is issued, a grantee's rights in any shares of Restricted Stock that have not vested shall automatically terminate upon the grantee's termination of employment (or other service relationship) with the Company and its Subsidiaries and such shares shall be subject to the provisions of Section 7(c) above.

SECTION 8. DEFERRED STOCK AWARDS

(a) *Nature of Deferred Stock Awards.* The Administrator shall determine the restrictions and conditions applicable to each Deferred Stock Award at the time of grant. Conditions may be based on continuing employment (or other service relationship) and/or achievement of pre-established performance goals and objectives. The grant of a Deferred Stock Award is contingent on the grantee executing the Deferred Stock Award Agreement. The terms and conditions of each such Award Agreement shall be determined by the Administrator, and such terms and conditions may differ among individual Awards and grantees. At the end of the deferral period, the Deferred Stock Award, to the extent vested, shall be settled in the form of shares of Stock.

(b) *Election to Receive Deferred Stock Awards in Lieu of Compensation.* The Administrator may, in its sole discretion, permit a grantee to elect to receive a portion of future cash compensation otherwise due to such grantee in the form of a Deferred Stock Award. Any such election shall be made in writing and shall be delivered to the Company no later than the date specified by the Administrator and in accordance with Section 409A and such other rules and procedures established by the Administrator. Any such future cash compensation that the grantee elects to defer shall be converted to a fixed number of phantom stock units based on the Fair Market Value of Stock on the date the compensation would otherwise have been paid to the grantee if such payment had not been deferred as provided herein. The Administrator shall have the sole right to determine whether and under what circumstances to permit such elections and to impose such limitations and other terms and conditions thereon as the Administrator deems appropriate.

(c) *Rights as a Stockholder.* A grantee shall have the rights as a stockholder only as to shares of Stock acquired by the grantee upon settlement of a Deferred Stock Award; provided, however, that the grantee may be credited with Dividend Equivalent Rights with respect to the phantom stock units underlying his Deferred Stock Award, subject to such terms and conditions as the Administrator may determine.

(d) *Termination.* Except as may otherwise be provided by the Administrator either in the Award Agreement or, subject to Section 16 below, in writing after the Award Agreement is issued, a grantee's

right in all Deferred Stock Awards that have not vested shall automatically terminate upon the grantee's termination of employment (or cessation of service relationship) with the Company and its Subsidiaries for any reason.

SECTION 9. UNRESTRICTED STOCK AWARDS

Grant or Sale of Unrestricted Stock. The Administrator may, in its sole discretion, grant (or sell at par value or such higher purchase price determined by the Administrator) an Unrestricted Stock Award under the Plan. Unrestricted Stock Awards may be granted in respect of past services or other valid consideration, or in lieu of cash compensation due to such grantee.

SECTION 10. CASH-BASED AWARDS

Grant of Cash-based Awards. The Administrator may, in its sole discretion, grant Cash-based Awards to any grantee in such number or amount and upon such terms, and subject to such conditions, as the Administrator shall determine at the time of grant. The Administrator shall determine the maximum duration of the Cash-based Award, the amount of cash to which the Cash-based Award pertains, the conditions upon which the Cash-based Award shall become vested or payable, and such other provisions as the Administrator shall determine. Each Cash-based Award shall specify a cash-denominated payment amount, formula or payment ranges as determined by the Administrator. Payment, if any, with respect to a Cash-based Award shall be made in accordance with the terms of the Award and may be made in cash or in shares of Stock, as the Administrator determines.

SECTION 11. DIVIDEND EQUIVALENT RIGHTS

(a) *Dividend Equivalent Rights.* A Dividend Equivalent Right may be granted hereunder to any grantee as a component of another Award or as a freestanding award. The terms and conditions of Dividend Equivalent Rights shall be specified in the Award Agreement. Dividend equivalents credited to the holder of a Dividend Equivalent Right may be paid currently or may be deemed to be reinvested in additional shares of Stock, which may thereafter accrue additional equivalents. Any such reinvestment shall be at Fair Market Value on the date of reinvestment or such other price as may then apply under a dividend reinvestment plan sponsored by the Company, if any. Dividend Equivalent Rights may be settled in cash or shares of Stock or a combination thereof, in a single installment or installments. A Dividend Equivalent Right granted as a component of another Award may provide that such Dividend Equivalent Right shall be settled upon exercise, settlement, or payment of, or lapse of restrictions on, such other Award, and that such Dividend Equivalent Right shall expire or be forfeited or annulled under the same conditions as such other Award. A Dividend Equivalent Right granted as a component of another Award may also contain terms and conditions different from such other Award.

(b) *Interest Equivalents.* Any Award under this Plan that is settled in whole or in part in cash on a deferred basis may provide in the grant for interest equivalents to be credited with respect to such cash payment. Interest equivalents may be compounded and shall be paid upon such terms and conditions as may be specified by the grant.

(c) *Termination.* Except as may otherwise be provided by the Administrator either in the Award Agreement or, subject to Section 16 below, in writing after the Award Agreement is issued, a grantee's rights in all Dividend Equivalent Rights or interest equivalents granted as a component of another Award that has not vested shall automatically terminate upon the grantee's termination of employment (or cessation of service relationship) with the Company and its Subsidiaries for any reason.

SECTION 12. TRANSFERABILITY OF AWARDS

(a) *Transferability.* Except as provided in Section 12(b) below, during a grantee's lifetime, his or her Awards shall be exercisable only by the grantee, or by the grantee's legal representative or guardian in the event of the grantee's incapacity. No Awards shall be sold, assigned, transferred or otherwise encumbered or disposed of by a grantee other than by will or by the laws of descent and distribution. No Awards shall be subject, in whole or in part, to attachment, execution, or levy of any kind, and any purported transfer in violation hereof shall be null and void.

(b) *Administrator Action.* Notwithstanding Section 12(a), the Administrator, in its discretion, may provide either in the Award Agreement regarding a given Award or by subsequent written approval that the grantee (who is an employee or director) may transfer his or her Awards (other than any Incentive Stock Options) to his or her immediate family members, to trusts for the benefit of such family members, or to partnerships in which such family members are the only partners, provided that the transferee agrees in writing with the Company to be bound by all of the terms and conditions of this Plan and the applicable Award.

(c) *Family Member.* For purposes of Section 12(b), "family member" shall mean a grantee's child, stepchild, grandchild, parent, stepparent, grandparent, spouse, former spouse, sibling, niece, nephew, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law, including adoptive relationships, any person sharing the grantee's household (other than a tenant of the grantee), a trust in which these persons (or the grantee) have more than 50 percent of the beneficial interest, a foundation in which these persons (or the grantee) control the management of assets, and any other entity in which these persons (or the grantee) own more than 50 percent of the voting interests.

(d) *Designation of Beneficiary.* Each grantee to whom an Award has been made under the Plan may designate a beneficiary or beneficiaries to exercise any Award or receive any payment under any Award payable on or after the grantee's death. Any such designation shall be on a form provided for that purpose by the Administrator and shall not be effective until received by the Administrator. If no beneficiary has been designated by a deceased grantee, or if the designated beneficiaries have predeceased the grantee, the beneficiary shall be the grantee's estate.

SECTION 13. TAX WITHHOLDING

(a) *Payment by Grantee.* Each grantee shall, no later than the date as of which the value of an Award or of any Stock or other amounts received thereunder first becomes includable in the gross income of the grantee for Federal income tax purposes, pay to the Company, or make arrangements satisfactory to the Administrator regarding payment of, any Federal, state, or local taxes of any kind required by law to be withheld by the Company with respect to such income. The Company and its Subsidiaries shall, to the extent permitted by law, have the right to deduct any such taxes from any payment of any kind otherwise due to the grantee. The Company's obligation to deliver evidence of book entry (or stock certificates) to any grantee is subject to and conditioned on tax withholding obligations being satisfied by the grantee.

(b) *Payment in Stock.* Subject to approval by the Administrator, a grantee may elect to have the Company's minimum required tax withholding obligation satisfied, in whole or in part, by authorizing the Company to withhold from shares of Stock to be issued pursuant to any Award a number of shares with an aggregate Fair Market Value (as of the date the withholding is effected) that would satisfy the withholding amount due.

SECTION 14. ADDITIONAL CONDITIONS APPLICABLE TO NONQUALIFIED DEFERRED COMPENSATION UNDER SECTION 409A.

In the event any Stock Option or Stock Appreciation Right under the Plan is materially modified and deemed a new grant at a time when the Fair Market Value exceeds the exercise price, or any other Award is otherwise determined to constitute "nonqualified deferred compensation" within the meaning of Section 409A (a "409A Award"), the following additional conditions shall apply and shall supersede any contrary provisions of this Plan or the terms of any agreement relating to such 409A Award.

(a) *Exercise and Distribution.* Except as provided in Section 14(b) hereof, no 409A Award shall be exercisable or distributable earlier than upon one of the following:

(i) *Specified Time.* A specified time or a fixed schedule set forth in the written instrument evidencing the 409A Award.

(ii) *Separation from Service.* Separation from service (within the meaning of Section 409A) by the 409A Award grantee; provided, however, that if the 409A Award grantee is a "key employee" (as defined in Section 416(i) of the Code without regard to paragraph (5) thereof) and any of the Company's Stock is publicly traded on an established securities market or otherwise, exercise or distribution under this Section 14(a)(ii) may not be made before the date that is six months after the date of separation from service.

(iii) *Death.* The date of death of the 409A Award grantee.

(iv) *Disability.* The date the 409A Award grantee becomes disabled (within the meaning of Section 14(c)(ii) hereof).

(v) *Unforeseeable Emergency.* The occurrence of an unforeseeable emergency (within the meaning of Section 14(c)(iii) hereof), but only if the net value (after payment of the exercise price) of the number of shares of Stock that become issuable does not exceed the amounts necessary to satisfy such emergency plus amounts necessary to pay taxes reasonably anticipated as a result of the exercise, after taking into account the extent to which the emergency is or may be relieved through reimbursement or compensation by insurance or otherwise or by liquidation of the grantee's other assets (to the extent such liquidation would not itself cause severe financial hardship).

(vi) *Change in Control Event.* The occurrence of a Change in Control Event (within the meaning of Section 14(c)(i) hereof), including the Company's discretionary exercise of the right to accelerate vesting of such grant upon a Change in Control Event or to terminate the Plan or any 409A Award granted hereunder within 12 months of the Change in Control Event.

(b) *No Acceleration.* A 409A Award may not be accelerated or exercised prior to the time specified in Section 14(a) hereof, except in the case of one of the following events:

(i) *Domestic Relations Order.* The 409A Award may permit the acceleration of the exercise or distribution time or schedule to an individual other than the grantee as may be necessary to comply with the terms of a domestic relations order (as defined in Section 414(p)(1)(B) of the Code).

(ii) *Conflicts of Interest.* The 409A Award may permit the acceleration of the exercise or distribution time or schedule as may be necessary to comply with the terms of a certificate of divestiture (as defined in Section 1043(b)(2) of the Code).

(iii) *Change in Control Event.* The Administrator may exercise the discretionary right to accelerate the vesting of such 409A Award upon a Change in Control Event or to terminate the Plan or any 409A Award granted thereunder within 12 months of the Change in Control Event and cancel the 409A Award for compensation.

(c) *Definitions.* Solely for purposes of this Section 14 and not for other purposes of the Plan, the following terms shall be defined as set forth below:

(i) "Change in Control Event" means the occurrence of a change in the ownership of the Company, a change in effective control of the Company, or a change in the ownership of a substantial portion of the assets of the Company (as defined in Section 1.409A-3(g) of the proposed regulations promulgated under Section 409A by the Department of the Treasury on September 29, 2005 or any subsequent guidance).

(ii) "Disabled" means a grantee who (i) is unable to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment that can be expected to result in death or can be expected to last for a continuous period of not less than 12 months, or (ii) is, by reason of any medically determinable physical or mental impairment that can be expected to result in death or can be expected to last for a continuous period of not less than 12 months, receiving income replacement benefits for a period of not less than three months under an accident and health plan covering employees of the Company or its Subsidiaries.

(iii) "Unforeseeable Emergency" means a severe financial hardship to the grantee resulting from an illness or accident of the grantee, the grantee's spouse, or a dependent (as defined in Section 152(a) of the Code) of the grantee, loss of the grantee's property due to casualty, or similar extraordinary and unforeseeable circumstances arising as a result of events beyond the control of the grantee.

SECTION 15. TRANSFER, LEAVE OF ABSENCE, ETC.

For purposes of the Plan, the following events shall not be deemed a termination of employment:

(a) a transfer to the employment of the Company from a Subsidiary or from the Company to a Subsidiary, or from one Subsidiary to another; or

(b) an approved leave of absence for military service or sickness, or for any other purpose approved by the Company, if the employee's right to re-employment is guaranteed either by a statute or by contract or under the policy pursuant to which the leave of absence was granted or if the Administrator otherwise so provides in writing.

SECTION 16. AMENDMENTS AND TERMINATION

The Board may, at any time, amend or discontinue the Plan and the Administrator may, at any time, amend or cancel any outstanding Award for the purpose of satisfying changes in law or for any other lawful purpose, but no such action shall adversely affect rights under any outstanding Award without the holder's consent. Except as provided in Section 3(b) or 3(c), in no event may the Administrator exercise its discretion to reduce the exercise price of outstanding Stock Options or Stock Appreciation Rights or effect repricing through cancellation and re-grants. Any material Plan amendments (other than amendments that curtail the scope of the Plan), including any Plan amendments that (i) increase the number of shares reserved for issuance under the Plan, (ii) expand the type of Awards available under, materially expand the eligibility to participate in, or materially extend the term of, the Plan, or (iii) materially change the method of determining Fair Market Value, shall be subject to approval by the Company stockholders entitled to vote at a meeting of stockholders. In addition, to the extent determined by the Administrator to be required by the Code to ensure that Incentive Stock Options granted under the Plan are qualified under Section 422 of the Code or to ensure that compensation earned under Awards qualifies as performance-based compensation under Section 162(m) of the Code, Plan amendments shall be subject to approval by the Company stockholders entitled to vote at a meeting of stockholders. Nothing in this Section 16 shall limit the Administrator's authority to take any action permitted pursuant to Section 3(c).

SECTION 17. STATUS OF PLAN

With respect to the portion of any Award that has not been exercised and any payments in cash, Stock or other consideration not received by a grantee, a grantee shall have no rights greater than those of a general creditor of the Company unless the Administrator shall otherwise expressly determine in connection with any Award or Awards. In its sole discretion, the Administrator may authorize the creation of trusts or other arrangements to meet the Company's obligations to deliver Stock or make payments with respect to Awards hereunder, provided that the existence of such trusts or other arrangements is consistent with the foregoing sentence.

SECTION 18. GENERAL PROVISIONS

(a) *No Distribution.* The Administrator may require each person acquiring Stock pursuant to an Award to represent to and agree with the Company in writing that such person is acquiring the shares without a view to distribution thereof.

(b) *Delivery of Stock Certificates.* Stock certificates to grantees under this Plan shall be deemed delivered for all purposes when the Company or a stock transfer agent of the Company shall have mailed such certificates in the United States mail, addressed to the grantee, at the grantee's last known address on file with the Company. Uncertificated Stock shall be deemed delivered for all purposes when the Company or a Stock transfer agent of the Company shall have given to the grantee by electronic mail (with proof of receipt) or by United States mail, addressed to the grantee, at the grantee's last known address on file with the Company, notice of issuance and recorded the issuance in its records (which may include electronic "book entry" records). Notwithstanding anything herein to the contrary, the Company shall not be required to issue or deliver any certificates evidencing shares of Stock pursuant to the exercise of any Award, unless and until the Board has determined, with advice of counsel (to the extent the Board deems such advice necessary or advisable), that the issuance and delivery of such certificates is in compliance with all applicable laws, regulations of governmental authorities and, if applicable, the requirements of any exchange on which the shares of Stock are listed, quoted or traded. All Stock certificates delivered pursuant to the Plan shall be subject to any stop-transfer orders and other restrictions as the Administrator deems necessary or advisable to comply with federal, state or foreign jurisdiction, securities or other laws, rules and quotation system on which the Stock is listed, quoted or traded. The Administrator may place legends on any Stock certificate to reference restrictions applicable to the Stock. In addition to the terms and conditions provided herein, the Board may require that an individual make such reasonable covenants, agreements, and representations as the Board, in its discretion, deems necessary or advisable in order to comply with any such laws, regulations, or requirements. The Administrator shall have the right to require any individual to comply with any timing or other restrictions with respect to the settlement or exercise of any Award, including a window-period limitation, as may be imposed in the discretion of the Administrator.

(c) *Stockholder Rights.* Until Stock is deemed delivered in accordance with Section 18(b), no right to vote or receive dividends or any other rights of a stockholder will exist with respect to shares of Stock to be issued in connection with an Award, notwithstanding the exercise of a Stock Option or any other action by the grantee with respect to an Award.

(d) *Other Compensation Arrangements; No Employment Rights.* Nothing contained in this Plan shall prevent the Board from adopting other or additional compensation arrangements, including trusts, and such arrangements may be either generally applicable or applicable only in specific cases. The adoption of this Plan and the grant of Awards do not confer upon any employee any right to continued employment with the Company or any Subsidiary.

(e) *Trading Policy Restrictions.* Option exercises and other Awards under the Plan shall be subject to such Company's insider trading policy and procedures, as in effect from time to time.

(f) *Forfeiture of Awards under Sarbanes-Oxley Act.* If the Company is required to prepare an accounting restatement due to the material noncompliance of the Company, as a result of misconduct, with any financial reporting requirement under the securities laws, then any grantee who is one of the individuals subject to automatic forfeiture under Section 304 of the Sarbanes-Oxley Act of 2002 shall reimburse the Company for the amount of any Award received by such individual under the Plan during the 12-month period following the first public issuance or filing with the United States Securities and Exchange Commission, as the case may be, of the financial document embodying such financial reporting requirement.

SECTION 19. EFFECTIVE DATE OF PLAN

This Plan shall become effective upon approval by the holders of a majority of the votes cast at a meeting of stockholders at which a quorum is present or pursuant to written consent. No grants of Stock Options and other Awards may be made hereunder after the tenth anniversary of the Effective Date and no grants of Incentive Stock Options may be made hereunder after the tenth anniversary of the date the Plan is approved by the Board.

SECTION 20. GOVERNING LAW

This Plan and all Awards and actions taken thereunder shall be governed by, and construed in accordance with, the laws of Delaware, applied without regard to conflict of law principles.

DATE APPROVED BY BOARD OF DIRECTORS: _____, 2007

DATE APPROVED BY STOCKHOLDERS: _____, 2007

INCENTIVE STOCK OPTION AGREEMENT
UNDER THE HELICOS BIOSCIENCES CORPORATION
2007 STOCK OPTION AND INCENTIVE PLAN

Name of Optionee: _____
No. of Option Shares: _____
Option Exercise Price per
Share: \$ _____

[FMV on Grant Date (110% of FMV if a 10% owner)]

Grant Date: _____
Vesting Start Date: _____
Expiration Date: Ten Years from Grant Date **[5 years if 10%
owner]**

Pursuant to the Helicos BioSciences Corporation 2007 Stock Option and Incentive Plan as amended through the date hereof (the "Plan"), Helicos BioSciences Corporation (the "Company") hereby grants to the Optionee named above an option (the "Stock Option") to purchase on or prior to the Expiration Date specified above all or part of the number of shares of Common Stock, par value \$0.001 per share (the "Stock"), of the Company specified above at the Option Exercise Price per Share specified above subject to the terms and conditions set forth herein and in the Plan.

1. *Exercisability Schedule.* No portion of this Stock Option may be exercised until such portion shall have become exercisable. Except as set forth below, and subject to the discretion of the Administrator (as defined in Section 2 of the Plan) to accelerate the exercisability schedule hereunder, this Stock Option shall be exercisable with respect to the following number of Option Shares on the dates indicated:

<u>Incremental Number of Option Shares Exercisable</u>	<u>Exercisability Date</u>
25% of Shares	One year from Vesting Start Date
An additional 2.0833333% of the Shares	The first day of each month following the first anniversary of the Vesting Start Date.

**[Note that for ISOs, Option Shares for no more than
\$100,000 may become exercisable per year.]**

Once exercisable, this Stock Option shall continue to be exercisable at any time or times prior to the close of business on the Expiration Date, subject to the provisions hereof and of the Plan.

2. *Manner of Exercise.*

(a) The Optionee may exercise this Stock Option only in the following manner: from time to time on or prior to the Expiration Date of this Stock Option, the Optionee may give written notice to the Administrator of his or her election to purchase some or all of the Option Shares purchasable at the time of such notice. This notice shall specify the number of Option Shares to be purchased.

Payment of the purchase price for the Option Shares may be made by one or more of the following methods: (i) in cash, by certified or bank check or other instrument acceptable to the Administrator; (ii) through the delivery (or attestation to the ownership) of shares of Stock that have been purchased by the Optionee on the open market or that are beneficially owned by the Optionee and are not then subject to any restrictions under any Company plan and that otherwise satisfy any holding periods as may be required by the Administrator; (iii) by the Optionee delivering to the Company a properly executed exercise notice together with irrevocable instructions to a broker to promptly deliver

to the Company cash or a check payable and acceptable to the Company to pay the option purchase price, provided that in the event the Optionee chooses to pay the option purchase price as so provided, the Optionee and the broker shall comply with such procedures and enter into

such agreements of indemnity and other agreements as the Administrator shall prescribe as a condition of such payment procedure; or (iv) a combination of (i), (ii) and (iii) above. Payment instruments will be received subject to collection.

The transfer to the Optionee on the records of the Company or of the transfer agent of the Option Shares will be contingent upon (i) the Company's receipt from the Optionee of the full purchase price for the Option Shares, as set forth above, (ii) the fulfillment of any other requirements contained herein or in the Plan or in any other agreement or provision of laws, and (iii) the receipt by the Company of any agreement, statement or other evidence that the Company may require to satisfy itself that the issuance of Stock to be purchased pursuant to the exercise of Stock Options under the Plan and any subsequent resale of the shares of Stock will be in compliance with applicable laws and regulations. In the event the Optionee chooses to pay the purchase price by previously-owned shares of Stock through the attestation method, the number of shares of Stock transferred to the Optionee upon the exercise of the Stock Option shall be net of the shares attested to.

(b) The shares of Stock purchased upon exercise of this Stock Option shall be transferred to the Optionee on the records of the Company or of the transfer agent upon compliance to the satisfaction of the Administrator with all requirements under applicable laws or regulations in connection with such issuance and with the requirements hereof and of the Plan. The determination of the Administrator as to such compliance shall be final and binding on the Optionee. The Optionee shall not be deemed to be the holder of, or to have any of the rights of a holder with respect to, any shares of Stock subject to this Stock Option unless and until this Stock Option shall have been exercised pursuant to the terms hereof, the Company or the transfer agent shall have transferred the shares to the Optionee, and the Optionee's name shall have been entered as the stockholder of record on the books of the Company. Thereupon, the Optionee shall have full voting, dividend and other ownership rights with respect to such shares of Stock.

(c) The minimum number of shares with respect to which this Stock Option may be exercised at any one time shall be 100 shares, unless the number of shares with respect to which this Stock Option is being exercised is the total number of shares subject to exercise under this Stock Option at the time.

(d) Notwithstanding any other provision hereof or of the Plan, no portion of this Stock Option shall be exercisable after the Expiration Date hereof.

3. *Termination of Employment.* If the Optionee's employment by the Company or a Subsidiary (as defined in the Plan) is terminated, the period within which to exercise the Stock Option may be subject to earlier termination as set forth below.

(a) *Termination Due to Death.* If the Optionee's employment terminates by reason of the Optionee's death, any portion of this Stock Option outstanding on such date shall become fully exercisable and may thereafter be exercised by the Optionee's legal representative or legatee for a period of 12 months from the date of death or until the Expiration Date, if earlier.

(b) *Termination Due to Disability.* If the Optionee's employment terminates by reason of the Optionee's disability (as determined by the Administrator), any portion of this Stock Option outstanding on such date shall become fully exercisable and may thereafter be exercised by the Optionee for a period of 12 months from the date of termination or until the Expiration Date, if earlier.

(c) *Termination for Cause.* If the Optionee's employment terminates for Cause, any portion of this Stock Option outstanding on such date shall terminate immediately and be of no further force and effect. For purposes hereof, "Cause" shall mean, unless otherwise provided in an employment agreement between the Company and the Optionee, a determination by the Administrator that the Optionee shall be dismissed as a result of (i) any material breach by the Optionee of any agreement between the Optionee and the Company; (ii) the conviction of, indictment for or plea of nolo

contendere by the Optionee to a felony or a crime involving moral turpitude; or (iii) any material misconduct or willful and deliberate non-performance (other than by reason of disability) by the Optionee of the Optionee's duties to the Company.

(d) *Other Termination.* If the Optionee's employment terminates for any reason other than the Optionee's death, the Optionee's disability, or Cause, and unless otherwise determined by the Administrator, any portion of this Stock Option outstanding on such date may be exercised, to the extent exercisable on the date of termination, for a period of three months from the date of termination or until the Expiration Date, if earlier. Any portion of this Stock Option that is not exercisable on the date of termination shall terminate immediately and be of no further force or effect.

The Administrator's determination of the reason for termination of the Optionee's employment shall be conclusive and binding on the Optionee and his or her representatives or legatees.

4. *Incorporation of Plan.* Notwithstanding anything herein to the contrary, this Stock Option shall be subject to and governed by all the terms and conditions of the Plan, including the powers of the Administrator set forth in Section 2(b) of the Plan. Capitalized terms in this Agreement shall have the meaning specified in the Plan, unless a different meaning is specified herein.

5. *Transferability.* This Agreement is personal to the Optionee, is non-assignable and is not transferable in any manner, by operation of law or otherwise, other than by will or the laws of descent and distribution. This Stock Option is exercisable, during the Optionee's lifetime, only by the Optionee, and thereafter, only by the Optionee's legal representative or legatee.

6. *Status of the Stock Option.* This Stock Option is intended to qualify as an "incentive stock option" under Section 422 of the Internal Revenue Code of 1986, as amended (the "Code"), but the Company does not represent or warrant that this Stock Option qualifies as such. The Optionee should consult with his or her own tax advisors regarding the tax effects of this Stock Option and the requirements necessary to obtain favorable income tax treatment under Section 422 of the Code, including, but not limited to, holding period requirements. To the extent any portion of this Stock Option does not so qualify as an "incentive stock option," such portion shall be deemed to be a non-qualified stock option. If the Optionee intends to dispose or does dispose (whether by sale, gift, transfer or otherwise) of any Option Shares within the one-year period beginning on the date after the transfer of such shares to him or her, or within the two-year period beginning on the day after the grant of this Stock Option, he or she will so notify the Company within 30 days after such disposition.

7. *Tax Withholding.* The Optionee shall, not later than the date as of which the exercise of this Stock Option becomes a taxable event for Federal income tax purposes, pay to the Company or make arrangements satisfactory to the Administrator for payment of any Federal, state, and local taxes required by law to be withheld on account of such taxable event. The Optionee may elect to have the minimum required tax withholding obligation satisfied, in whole or in part, by authorizing the Company to withhold from shares of Stock to be issued a number of shares of Stock with an aggregate Fair Market Value that would satisfy the withholding amount due.

8. *No Obligation to Continue Employment.* Neither the Company nor any Subsidiary is obligated by or as a result of the Plan or this Agreement to continue the Optionee in employment and neither the Plan nor this Agreement shall interfere in any way with the right of the Company or any Subsidiary to terminate the employment of the Optionee at any time.

9. *Notices.* Notices hereunder shall be mailed or delivered to the Company at its principal place of business and shall be mailed or delivered to the Optionee at the address on file with the Company

or, in either case, at such other address as one party may subsequently furnish to the other party in writing.

HELICOS BIOSCIENCES
CORPORATION

By: _____
Title:

The foregoing Agreement is hereby accepted and the terms and conditions thereof hereby agreed to by the undersigned.

Dated: _____

Optionee's Signature

Optionee's name and address:

NON-QUALIFIED STOCK OPTION AGREEMENT FOR COMPANY EMPLOYEES
 UNDER THE HELICOS BIOSCIENCES CORPORATION
 2007 STOCK OPTION AND INCENTIVE PLAN

Name of Optionee: _____
 No. of Option Shares: _____
 Option Exercise Price per
 Share: \$ _____

[FMV on Grant Date

Grant Date: _____
 Vesting Start Date: _____
 Expiration Date: Ten Years from Grant Date

Pursuant to the Helicos Biosciences Corporation 2007 Stock Option and Incentive Plan as amended through the date hereof (the "Plan"), Helicos Biosciences Corporation (the "Company") hereby grants to the Optionee named above an option (the "Stock Option") to purchase on or prior to the Expiration Date specified above all or part of the number of shares of Common Stock, par value \$0.001 per share (the "Stock") of the Company specified above at the Option Exercise Price per Share specified above subject to the terms and conditions set forth herein and in the Plan. This Stock Option is not intended to be an "incentive stock option" under Section 422 of the Internal Revenue Code of 1986, as amended.

1. *Exercisability Schedule.* No portion of this Stock Option may be exercised until such portion shall have become exercisable. Except as set forth below, and subject to the discretion of the Administrator (as defined in Section 2 of the Plan) to accelerate the exercisability schedule hereunder, this Stock Option shall be exercisable with respect to the following number of Option Shares on the dates indicated:

Incremental Number of Option Shares Exercisable	Exercisability Date
25% of Shares	One year from Vesting Start Date
An additional 2.0833333% of the Shares	The first day of each month following the first anniversary of the Vesting Start Date.

Once exercisable, this Stock Option shall continue to be exercisable at any time or times prior to the close of business on the Expiration Date, subject to the provisions hereof and of the Plan.

2. *Manner of Exercise.*

(a) The Optionee may exercise this Stock Option only in the following manner: from time to time on or prior to the Expiration Date of this Stock Option, the Optionee may give written notice to the Administrator of his or her election to purchase some or all of the Option Shares purchasable at the time of such notice. This notice shall specify the number of Option Shares to be purchased.

Payment of the purchase price for the Option Shares may be made by one or more of the following methods: (i) in cash, by certified or bank check or other instrument acceptable to the Administrator; (ii) through the delivery (or attestation to the ownership) of shares of Stock that have been purchased by the Optionee on the open market or that are beneficially owned by the Optionee and are not then subject to any restrictions under any Company plan and that otherwise satisfy any holding periods as may be required by the Administrator; (iii) by the Optionee delivering to the Company a properly executed exercise notice together with irrevocable instructions to a broker to promptly deliver to the Company cash or a check payable and acceptable to the Company to pay the option purchase price, provided that in the event the Optionee chooses to pay the option purchase price as so provided, the Optionee and the broker shall comply with such procedures and enter into such agreements of indemnity and other agreements as the Administrator shall prescribe as a condition

of such payment procedure; or (iv) a combination of (i), (ii) and (iii) above. Payment instruments will be received subject to collection.

The transfer to the Optionee on the records of the Company or of the transfer agent of the Option Shares will be contingent upon (i) the Company's receipt from the Optionee of the full purchase price for the Option Shares, as set forth above, (ii) the fulfillment of any other requirements contained herein or in the Plan or in any other agreement or provision of laws, and (iii) the receipt by the Company of any agreement, statement or other evidence that the Company may require to satisfy itself that the issuance of Stock to be purchased pursuant to the exercise of Stock Options under the Plan and any subsequent resale of the shares of Stock will be in compliance with applicable laws and regulations. In the event the Optionee chooses to pay the purchase price by previously-owned shares of Stock through the attestation method, the number of shares of Stock transferred to the Optionee upon the exercise of the Stock Option shall be net of the Shares attested to.

(b) The shares of Stock purchased upon exercise of this Stock Option shall be transferred to the Optionee on the records of the Company or of the transfer agent upon compliance to the satisfaction of the Administrator with all requirements under applicable laws or regulations in connection with such issuance and with the requirements hereof and of the Plan. The determination of the Administrator as to such compliance shall be final and binding on the Optionee. The Optionee shall not be deemed to be the holder of, or to have any of the rights of a holder with respect to, any shares of Stock subject to this Stock Option unless and until this Stock Option shall have been exercised pursuant to the terms hereof, the Company or the transfer agent shall have transferred the shares to the Optionee, and the Optionee's name shall have been entered as the stockholder of record on the books of the Company. Thereupon, the Optionee shall have full voting, dividend and other ownership rights with respect to such shares of Stock.

(c) The minimum number of shares with respect to which this Stock Option may be exercised at any one time shall be 100 shares, unless the number of shares with respect to which this Stock Option is being exercised is the total number of shares subject to exercise under this Stock Option at the time.

(d) Notwithstanding any other provision hereof or of the Plan, no portion of this Stock Option shall be exercisable after the Expiration Date hereof.

3. *Termination of Employment.* If the Optionee's employment by the Company or a Subsidiary (as defined in the Plan) is terminated, the period within which to exercise the Stock Option may be subject to earlier termination as set forth below.

(a) *Termination Due to Death.* If the Optionee's employment terminates by reason of the Optionee's death, any portion of this Stock Option outstanding on such date shall become fully exercisable and may thereafter be exercised by the Optionee's legal representative or legatee for a period of 12 months from the date of death or until the Expiration Date, if earlier.

(b) *Termination Due to Disability.* If the Optionee's employment terminates by reason of the Optionee's disability (as determined by the Administrator), any portion of this Stock Option outstanding on such date shall become fully exercisable and may thereafter be exercised by the Optionee for a period of 12 months from the date of termination or until the Expiration Date, if earlier.

(c) *Termination for Cause.* If the Optionee's employment terminates for Cause, any portion of this Stock Option outstanding on such date shall terminate immediately and be of no further force and effect. For purposes hereof, "Cause" shall mean, unless otherwise provided in an employment agreement between the Company and the Optionee, a determination by the Administrator that the Optionee shall be dismissed as a result of (i) any material breach by the Optionee of any agreement between the Optionee and the Company; (ii) the conviction of, indictment for or plea of nolo contendere by the Optionee to a felony or a crime involving moral turpitude; or (iii) any material

misconduct or willful and deliberate non-performance (other than by reason of disability) by the Optionee of the Optionee's duties to the Company.

(d) *Other Termination.* If the Optionee's employment terminates for any reason other than the Optionee's death, the Optionee's disability or Cause, and unless otherwise determined by the Administrator, any portion of this Stock Option outstanding on such date may be exercised, to the extent exercisable on the date of termination, for a period of three months from the date of termination or until the Expiration Date, if earlier. Any portion of this Stock Option that is not exercisable on the date of termination shall terminate immediately and be of no further force or effect.

The Administrator's determination of the reason for termination of the Optionee's employment shall be conclusive and binding on the Optionee and his or her representatives or legatees.

4. *Incorporation of Plan.* Notwithstanding anything herein to the contrary, this Stock Option shall be subject to and governed by all the terms and conditions of the Plan, including the powers of the Administrator set forth in Section 2(b) of the Plan. Capitalized terms in this Agreement shall have the meaning specified in the Plan, unless a different meaning is specified herein.

5. *Transferability.* This Agreement is personal to the Optionee, is non-assignable and is not transferable in any manner, by operation of law or otherwise, other than by will or the laws of descent and distribution. This Stock Option is exercisable, during the Optionee's lifetime, only by the Optionee, and thereafter, only by the Optionee's legal representative or legatee.

6. *Tax Withholding.* The Optionee shall, not later than the date as of which the exercise of this Stock Option becomes a taxable event for Federal income tax purposes, pay to the Company or make arrangements satisfactory to the Administrator for payment of any Federal, state, and local taxes required by law to be withheld on account of such taxable event. The Optionee may elect to have the minimum required tax withholding obligation satisfied, in whole or in part, by authorizing the Company to withhold from shares of Stock to be issued a number of shares of Stock with an aggregate Fair Market Value that would satisfy the withholding amount due.

7. *No Obligation to Continue Employment.* Neither the Company nor any Subsidiary is obligated by or as a result of the Plan or this Agreement to continue the Optionee in employment and neither the Plan nor this Agreement shall interfere in any way with the right of the Company or any Subsidiary to terminate the employment of the Optionee at any time.

8. *Notices.* Notices hereunder shall be mailed or delivered to the Company at its principal place of business and shall be mailed or delivered to the Optionee at the address on file with the Company or, in either case, at such other address as one party may subsequently furnish to the other party in writing.

HELICOS BIOSCIENCES
CORPORATION

By: _____
Title:

The foregoing Agreement is hereby accepted and the terms and conditions thereof hereby agreed to by the undersigned.

Dated: _____

Optionee's Signature

Optionee's name and address:

RESTRICTED STOCK AWARD AGREEMENT
UNDER THE HELICOS BIOSCIENCES CORPORATION
2007 STOCK OPTION AND INCENTIVE PLAN

Name of Grantee: _____
No. of Shares: _____
Grant Date: _____
Vesting Start Date: _____
Final Acceptance Date: _____

Pursuant to the Helicos BioSciences Corporation 2007 Stock Option and Incentive Plan (the "Plan") as amended through the date hereof, Helicos BioSciences Corporation (the "Company") hereby grants a Restricted Stock Award (an "Award") to the Grantee named above. Upon acceptance of this Award, the Grantee shall receive the number of shares of Common Stock, par value \$0.001 per share (the "Stock") of the Company specified above, subject to the restrictions and conditions set forth herein and in the Plan. The Company acknowledges the receipt from the Grantee of consideration with respect to the par value of the Stock in the form of cash, past or future services rendered to the Company by the Grantee or such other form of consideration as is acceptable to the Administrator.

1. *Acceptance of Award.* The Grantee shall have no rights with respect to this Award unless he or she shall have accepted this Award prior to the close of business on the Final Acceptance Date specified above by (i) signing and delivering to the Company a copy of this Award Agreement, and (ii) delivering to the Company a stock power endorsed in blank. Upon acceptance of this Award by the Grantee, the shares of Restricted Stock so accepted shall be issued and held by the Company's transfer agent in book entry form, and the Grantee's name shall be entered as the stockholder of record on the books of the Company. Thereupon, the Grantee shall have all the rights of a stockholder with respect to such shares, including voting and dividend rights, subject, however, to the restrictions and conditions specified in Paragraph 2 below.

2. *Restrictions and Conditions.*

(a) Any book entries for the shares of Restricted Stock granted herein shall bear an appropriate legend, as determined by the Administrator in its sole discretion, to the effect that such shares are subject to restrictions as set forth herein and in the Plan.

(b) Shares of Restricted Stock granted herein may not be sold, assigned, transferred, pledged or otherwise encumbered or disposed of by the Grantee prior to vesting.

(c) If the Grantee's employment with the Company and its Subsidiaries is voluntarily or involuntarily terminated for any reason (including death) prior to vesting of shares of Restricted Stock granted herein, all unvested shares of Restricted Stock shall immediately and automatically be forfeited and returned to the Company.

3. *Vesting of Restricted Stock.* The restrictions and conditions in Paragraph 2 of this Agreement shall lapse on the Vesting Date or Dates specified in the following schedule so long as the Grantee remains an employee of the Company or a Subsidiary on such Dates. If a series of Vesting Dates is specified, then the restrictions and conditions in Paragraph 2 shall lapse only with respect to the number of shares of Restricted Stock specified as vested on such date.

Shares Vested Number of	Vesting Date
25% of Shares	One year from Vesting Start Date
An additional 2.0833333% of the Shares	The first day of each month following the first anniversary of the Vesting Start Date.

Subsequent to such Vesting Date or Dates, the shares of Stock on which all restrictions and conditions have lapsed shall no longer be deemed Restricted Stock. The Administrator may at any time accelerate the vesting schedule specified in this Paragraph 3.

4. *Dividends.* Dividends on Shares of Restricted Stock shall be paid currently to the Grantee.

5. *Incorporation of Plan.* Notwithstanding anything herein to the contrary, this Agreement shall be subject to and governed by all the terms and conditions of the Plan, including the powers of the Administrator set forth in Section 2(b) of the Plan. Capitalized terms in this Agreement shall have the meaning specified in the Plan, unless a different meaning is specified herein.

6. *Transferability.* This Agreement is personal to the Grantee, is non-assignable and is not transferable in any manner, by operation of law or otherwise, other than by will or the laws of descent and distribution.

7. *Tax Withholding.* The Grantee shall, not later than the date as of which the receipt of this Award becomes a taxable event for Federal income tax purposes, pay to the Company or make arrangements satisfactory to the Administrator for payment of any Federal, state, and local taxes required by law to be withheld on account of such taxable event. Except in the case where an election is made pursuant to Paragraph 8 below, the Grantee may elect to have the required minimum tax withholding obligation satisfied, in whole or in part, by authorizing the Company to withhold from shares of Stock to be issued or released by the transfer agent a number of shares of Stock with an aggregate Fair Market Value that would satisfy the withholding amount due.

8. *Election Under Section 83(b).* The Grantee and the Company hereby agree that the Grantee may, within 30 days following the acceptance of this Award as provided in Paragraph 1 hereof, file with the Internal Revenue Service and the Company an election under Section 83(b) of the Internal Revenue Code. In the event the Grantee makes such an election, he or she agrees to provide a copy of the election to the Company.

9. *No Obligation to Continue Employment.* Neither the Company nor any Subsidiary is obligated by or as a result of the Plan or this Agreement to continue the Grantee in employment and neither the Plan nor this Agreement shall interfere in any way with the right of the Company or any Subsidiary to terminate the employment of the Grantee at any time.

10. *Notices.* Notices hereunder shall be mailed or delivered to the Company at its principal place of business and shall be mailed or delivered to the Grantee at the address on file with the Company or, in either case, at such other address as one party may subsequently furnish to the other party in writing.

HELICOS BIOSCIENCES
CORPORATION

By: _____
Title:

The foregoing Agreement is hereby accepted and the terms and conditions thereof hereby agreed to by the undersigned.

Dated: _____

Optionee's Signature

Optionee's name and address:

NON-QUALIFIED STOCK OPTION AGREEMENT
FOR NON-EMPLOYEE DIRECTORS
UNDER THE HELICOS BIOSCIENCES CORPORATION
2007 STOCK OPTION AND INCENTIVE PLAN

Name of Optionee: _____
No. of Option Shares: _____
Option Exercise Price per
Share: \$ _____

[FMV on Grant Date]

Grant Date: _____
Vesting Start Date: _____
Expiration Date: Ten Years from Grant Date

Pursuant to the Helicos Biosciences Corporation 2007 Stock Option and Incentive Plan as amended through the date hereof (the "Plan"), Helicos Biosciences Corporation (the "Company") hereby grants to the Optionee named above, who is a Director of the Company but is not an employee of the Company, an option (the "Stock Option") to purchase on or prior to the Expiration Date specified above all or part of the number of shares of Common Stock, par value \$0.001 per share (the "Stock"), of the Company specified above at the Option Exercise Price per Share specified above subject to the terms and conditions set forth herein and in the Plan. This Stock Option is not intended to be an "incentive stock option" under Section 422 of the Internal Revenue Code of 1986, as amended.

1. *Exercisability Schedule.* No portion of this Stock Option may be exercised until such portion shall have become exercisable. Except as set forth below, and subject to the discretion of the Administrator (as defined in Section 2 of the Plan) to accelerate the exercisability schedule hereunder, this Stock Option shall be exercisable with respect to the following number of Option Shares on the dates indicated:

<u>Incremental Number of Option Shares Exercisable</u>	<u>Exercisability Date</u>
100% of Shares	One year from Vesting Start Date

In the event of the termination of the Optionee's service as a director of the Company because of death, this Stock Option shall become immediately exercisable in full, whether or not exercisable at such time. Once exercisable, this Stock Option shall continue to be exercisable at any time or times prior to the close of business on the Expiration Date, subject to the provisions hereof and of the Plan.

2. *Manner of Exercise.*

(a) The Optionee may exercise this Stock Option only in the following manner: from time to time on or prior to the Expiration Date of this Stock Option, the Optionee may give written notice to the Administrator of his or her election to purchase some or all of the Option Shares purchasable at the time of such notice. This notice shall specify the number of Option Shares to be purchased.

Payment of the purchase price for the Option Shares may be made by one or more of the following methods: (i) in cash, by certified or bank check or other instrument acceptable to the Administrator; (ii) through the delivery (or attestation to the ownership) of shares of Stock that have been purchased by the Optionee on the open market or that are beneficially owned by the Optionee and are not then subject to any restrictions under any Company plan and that otherwise satisfy any holding periods as may be required by the Administrator; (iii) by the Optionee delivering to the Company a properly executed exercise notice together with irrevocable instructions to a broker to promptly deliver to the Company cash or a check payable and acceptable to the Company to pay the option purchase price, provided that in the event the Optionee chooses to pay the option purchase price as so provided, the Optionee and the broker shall comply with such procedures and enter into

such agreements of indemnity and other agreements as the Administrator shall prescribe as a condition of such payment procedure; or (iv) a combination of (i), (ii) and (iii) above. Payment instruments will be received subject to collection.

The transfer to the Optionee on the records of the Company or of the transfer agent of the Option Shares will be contingent upon (i) the Company's receipt from the Optionee of the full purchase price for the Option Shares, as set forth above, (ii) the fulfillment of any other requirements contained herein or in the Plan or in any other agreement or provision of laws, and (iii) the receipt by the Company of any agreement, statement or other evidence that the Company may require to satisfy itself that the issuance of Stock to be purchased pursuant to the exercise of Stock Options under the Plan and any subsequent resale of the shares of Stock will be in compliance with applicable laws and regulations. In the event the Optionee chooses to pay the purchase price by previously-owned shares of Stock through the attestation method, the number of shares of Stock transferred to the Optionee upon the exercise of the Stock Option shall be net of the Shares attested to.

(b) The shares of Stock purchased upon exercise of this Stock Option shall be transferred to the Optionee on the records of the Company or of the transfer agent upon compliance to the satisfaction of the Administrator with all requirements under applicable laws or regulations in connection with such transfer and with the requirements hereof and of the Plan. The determination of the Administrator as to such compliance shall be final and binding on the Optionee. The Optionee shall not be deemed to be the holder of, or to have any of the rights of a holder with respect to, any shares of Stock subject to this Stock Option unless and until this Stock Option shall have been exercised pursuant to the terms hereof, the Company or the transfer agent shall have transferred the shares to the Optionee, and the Optionee's name shall have been entered as the stockholder of record on the books of the Company. Thereupon, the Optionee shall have full voting, dividend and other ownership rights with respect to such shares of Stock.

(c) The minimum number of shares with respect to which this Stock Option may be exercised at any one time shall be 100 shares, unless the number of shares with respect to which this Stock Option is being exercised is the total number of shares subject to exercise under this Stock Option at the time.

(d) Notwithstanding any other provision hereof or of the Plan, no portion of this Stock Option shall be exercisable after the Expiration Date hereof.

3. *Termination as Director.* If the Optionee ceases to be a Director of the Company, the period within which to exercise the Stock Option may be subject to earlier termination as set forth below.

(a) *Termination by Reason of Death.* If the Optionee ceases to be a Director by reason of the Optionee's death, any portion of this Stock Option outstanding on such date may be exercised by his or her legal representative or legatee for a period of 12 months from the date of death or until the Expiration Date, if earlier.

(b) *Other Termination.* If the Optionee ceases to be a Director for any reason other than the Optionee's death, any portion of this Stock Option outstanding on such date may be exercised for a period of 12 months from the date of termination or until the Expiration Date, if earlier.

4. *Incorporation of Plan.* Notwithstanding anything herein to the contrary, this Stock Option shall be subject to and governed by all the terms and conditions of the Plan, including the powers of the Administrator set forth in Section 2(b) of the Plan. Capitalized terms in this Agreement shall have the meaning specified in the Plan, unless a different meaning is specified herein.

5. *Transferability.* This Agreement is personal to the Optionee, is non-assignable and is not transferable in any manner, by operation of law or otherwise, other than by will or the laws of descent and distribution. This Stock Option is exercisable, during the Optionee's lifetime, only by the Optionee, and thereafter, only by the Optionee's legal representative or legatee.

6. *No Obligation to Continue as a Director.* Neither the Plan nor this Stock Option confers upon the Optionee any rights with respect to continuance as a Director.

7. *Notices.* Notices hereunder shall be mailed or delivered to the Company at its principal place of business and shall be mailed or delivered to the Optionee at the address on file with the Company or, in either case, at such other address as one party may subsequently furnish to the other party in writing.

8. *Amendment.* Pursuant to Section 16 of the Plan, the Administrator may at any time amend or cancel any outstanding portion of this Stock Option, but no such action may be taken that adversely affects the Optionee's rights under this Agreement without the Optionee's consent.

HELICOS BIOSCIENCES
CORPORATION

By: _____
Title:

The foregoing Agreement is hereby accepted and the terms and conditions thereof hereby agreed to by the undersigned.

Dated: _____

Optionee's Signature

Optionee's name and address:

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[EXHIBIT 10.1](#)

CERTIFICATION

I, Stanley N. Lapidus, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Helicos BioSciences Corporation;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) [Paragraph omitted in accordance with SEC transition instructions contained in SEC Release 34-47986];
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

- (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 14, 2008

/s/ STANLEY N. LAPIDUS

Stanley N. Lapidus

Chairman and Chief Executive Officer

(Principal Executive Officer)

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[EXHIBIT 31.1](#)

CERTIFICATION

I, Stephen P. Hall, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Helicos BioSciences Corporation;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) [Paragraph omitted in accordance with SEC transition instructions contained in SEC Release 34-47986];
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

- (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 14, 2008

/s/ STEPHEN P. HALL

Stephen P. Hall

Senior Vice President and Chief Financial

Officer

(Principal Financial and Accounting

Officer)

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[EXHIBIT 31.2](#)

CERTIFICATION

In connection with the Quarterly Report on Form 10-Q of Helicos BioSciences Corporation (the "Company") for the period ended June 30, 2008 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), we Stanley N. Lapidus, the Principal Executive Officer of the Company and Stephen P. Hall, the Principal Financial and Accounting Officer of the Company, hereby certify, pursuant to 18 U.S.C. 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, to our knowledge that:

- (1) the Report fully complies with the requirements of Section 13(a) or 15(d), as applicable, of the Securities Exchange Act of 1934, as amended, and
- (2) the information in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company

Dated: August 14, 2008

/s/ STANLEY N. LAPIDUS

Stanley N. Lapidus
Chairman and Chief Executive Officer
(Principal Executive Officer)

Dated: August 14, 2008

/s/ STEPHEN P. HALL

Stephen P. Hall
Senior Vice President and Chief Financial
Officer
(Principal Financial and Accounting
Officer)

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[EXHIBIT 32.1](#)