

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 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, 2019

OR

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

For the transition period from _____ to _____

Commission File Number: 001-37718

Spring Bank Pharmaceuticals, Inc.

(Exact Name of Registrant as Specified in its Charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

52-2386345
(I.R.S. Employer
Identification No.)

35 Parkwood Drive, Suite 210
Hopkinton, MA
(Address of principal executive offices)

01748
(Zip Code)

Registrant's telephone number, including area code: (508) 473-5993

Securities registered pursuant to Section 12(b) of the Act:

Title of Class	Trading Symbol	Name of each exchange on which registered
Common Stock, \$0.0001 par value per share	SBPH	The Nasdaq Stock Market, LLC

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 that 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 has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

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

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input checked="" type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input checked="" type="checkbox"/>
		Emerging growth company	<input checked="" type="checkbox"/>

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

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

As of July 30, 2019, the registrant had 16,459,155 shares of common stock, \$0.0001 par value per share, outstanding.

Spring Bank Pharmaceuticals, Inc.

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FORWARD-LOOKING STATEMENTS

This Quarterly Report on Form 10-Q contains forward-looking statements that involve substantial risks and uncertainties. All statements, other than statements of historical facts, contained in this Quarterly Report on Form 10-Q, including statements regarding our strategy, future operations, future financial position, projected costs, prospects, plans and objectives of management, are forward-looking statements. In some cases, you can identify forward-looking statements by terms such as “may,” “will,” “should,” “design,” “expect,” “seek,” “plan,” “anticipate,” “could,” “intend,” “target,” “project,” “believe,” “estimate,” “predict,” “potential” or “continue” or the negative of these terms or other similar expressions.

These forward-looking statements include, but are not limited to, statements about:

- our ongoing and planned preclinical studies and clinical trials;
- preclinical study data and clinical trial data and the timing of results of our ongoing clinical studies and/or trials;
- our plans to seek and enter into clinical trial collaborations and other broader collaborations; and
- our estimates regarding prospects, strategies, expenses, operating capital requirements, results of operations and needs for additional financing.

We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements we make. Factors that could cause actual results or events to differ materially from the forward-looking statements that we make include, but are not limited to, the following:

- Our business currently depends substantially on the success of clinical trials for inarigivir soproxil, which we refer to as inarigivir, which is still under development. If we are unable to obtain regulatory approval for, or successfully commercialize, inarigivir, our business will be materially harmed.
- We are very early in our development efforts and our product candidates may not be successful in later stage clinical trials. Results obtained in our preclinical studies and clinical trials to date are not necessarily indicative of results to be obtained in future clinical trials. As a result, our product candidates may never be approved as marketable therapeutics.
- We will need additional funding to complete the development of our product candidates and before we can expect to become profitable from the sales of our products, if approved. If we are unable to raise capital when needed, we could be forced to delay, reduce or eliminate our product development programs or commercialization efforts.
- We rely, and expect to continue to rely, on third parties to conduct our clinical trials and to manufacture our product candidates for preclinical and clinical testing. These third parties may not perform satisfactorily, which could delay our product development activities.
- If we are unable to adequately protect our proprietary technology or obtain and maintain issued patents which are sufficient to protect our product candidates, others could compete against us more directly, which would have a material adverse impact on our business, results of operations, financial condition and prospects.
- We may not be able to retain key executives or to attract, retain and motivate key personnel. If we are unable to retain such key personnel, it could have a material adverse impact on our business and prospects.

You should read this Quarterly Report on Form 10-Q and the documents that we have filed as exhibits to this Quarterly Report on Form 10-Q completely and with the understanding that our actual future results may be materially different from what we expect. You should also read carefully the factors described in “Item 1A. Risk Factors” in our [Annual Report on Form 10-K](#) for the year ended December 31, 2018, as filed with the Securities and Exchange Commission on March 11, 2019, to better understand the risks and uncertainties inherent in our business and underlying any forward-looking statements. You are advised, however, to consult any further disclosures we make on related subjects in our subsequent Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, press releases, and our website. Any forward-looking statements that we make in this Quarterly Report on Form 10-Q speak only as of the date of this Quarterly Report on Form 10-Q, and we undertake no obligation to update such statements to reflect events or circumstances after the date of this Quarterly Report on Form 10-Q or to reflect the occurrence of unanticipated events.

PART I—FINANCIAL INFORMATION

Item 1. Financial Statements.

SPRING BANK PHARMACEUTICALS, INC.

CONSOLIDATED BALANCE SHEETS
(In Thousands, Except Share and Per Share Data)

	June 30, 2019	December 31, 2018
ASSETS	(unaudited)	
Current assets:		
Cash and cash equivalents	\$ 10,547	\$ 14,724
Marketable securities	38,646	32,914
Prepaid expenses and other current assets	2,402	1,649
Total current assets	51,595	49,287
Marketable securities, long-term	—	16,804
Property and equipment, net	2,353	2,319
Operating lease right-of-use assets	2,850	—
Restricted cash	234	234
Other assets	35	167
Total	\$ 57,067	\$ 68,811
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$ 1,725	\$ 1,880
Accrued expenses and other current liabilities	3,185	2,367
Operating lease liabilities, current	332	—
Total current liabilities	5,242	4,247
Warrant liabilities	805	8,511
Operating lease liabilities, noncurrent	3,052	—
Other long-term liabilities	27	193
Total liabilities	9,126	12,951
Commitments and contingencies (Note 9)		
Stockholders' equity:		
Preferred stock, \$0.0001 par value—authorized, 10,000,000 shares at June 30, 2019 and December 31, 2018; no shares issued or outstanding at June 30, 2019 and December 31, 2018	—	—
Common stock, \$0.0001 par value—authorized, 200,000,000 shares at June 30, 2019 and December 31, 2018; 16,459,155 and 16,434,614 shares issued and outstanding at June 30, 2019 and December 31, 2018, respectively	2	2
Additional paid-in capital	159,975	157,931
Accumulated deficit	(111,818)	(102,068)
Accumulated other comprehensive loss	(218)	(5)
Total stockholders' equity	47,941	55,860
Total	\$ 57,067	\$ 68,811

See accompanying notes to consolidated financial statements.

SPRING BANK PHARMACEUTICALS, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
(Unaudited)
(In Thousands, Except Share and Per Share Data)

	For the Three Months Ended June 30,		For the Six Months Ended June 30,	
	2019	2018	2019	2018
Operating expenses:				
Research and development	\$ 7,275	\$ 5,555	\$ 12,842	\$ 9,532
General and administrative	2,490	2,399	5,300	4,622
Total operating expenses	9,765	7,954	18,142	14,154
Loss from operations	(9,765)	(7,954)	(18,142)	(14,154)
Other income:				
Interest income	325	198	686	332
Change in fair value of warrant liabilities	4,885	3,971	7,706	5,173
Net loss	(4,555)	(3,785)	(9,750)	(8,649)
Unrealized gain (loss) on marketable securities	(97)	(22)	(213)	1
Comprehensive loss	\$ (4,652)	\$ (3,807)	\$ (9,963)	\$ (8,648)
Net loss per common share - basic and diluted	\$ (0.28)	\$ (0.29)	\$ (0.59)	\$ (0.66)
Weighted-average number of shares outstanding - basic and diluted	16,443,379	13,179,072	16,440,192	13,085,820

See accompanying notes to consolidated financial statements.

SPRING BANK PHARMACEUTICALS, INC.

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
FOR THE THREE AND SIX MONTHS ENDED JUNE 30, 2019 AND 2018
(In Thousands, Except Share and Per Share Data)

For the Three Months Ended June 30, 2019	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Other Comprehensive Income (Loss)	Total Stockholders' Equity
	Shares	Amount				
Balance at March 31, 2019	16,442,532	\$ 2	\$ 158,928	\$ (107,263)	\$ (121)	\$ 51,546
Stock-based compensation	—	—	982	—	—	982
Issuance of common stock for services rendered	16,023	—	59	—	—	59
Issuance of common stock in connection with at-the-market offering	600	—	6	—	—	6
Net unrealized loss on marketable securities	—	—	—	—	(97)	(97)
Net loss	—	—	—	(4,555)	—	(4,555)
Balance at June 30, 2019	16,459,155	\$ 2	\$ 159,975	\$ (111,818)	\$ (218)	\$ 47,941

For the Six Months Ended June 30, 2019	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Other Comprehensive Income (Loss)	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2018	16,434,614	\$ 2	\$ 157,931	\$ (102,068)	\$ (5)	\$ 55,860
Stock-based compensation	—	—	1,895	—	—	1,895
Issuance of common stock for services rendered	23,941	—	143	—	—	143
Issuance of common stock in connection with at-the-market offering	600	—	6	—	—	6
Net unrealized loss on marketable securities	—	—	—	—	(213)	(213)
Net loss	—	—	—	(9,750)	—	(9,750)
Balance at June 30, 2019	16,459,155	\$ 2	\$ 159,975	\$ (111,818)	\$ (218)	\$ 47,941

For the Three Months Ended June 30, 2018	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Other Comprehensive Income (Loss)	Total Stockholders' Equity
	Shares	Amount				
Balance at March 31, 2018	13,153,879	\$ 1	\$ 117,469	\$ (84,101)	\$ —	\$ 33,369
Stock-based compensation	—	—	664	—	—	664
Issuance of common stock for services rendered	1,414	—	22	—	—	22
Issuance of common stock in connection with at-the-market offering, net of issuance costs of \$14	27,274	—	386	—	—	386
Net unrealized gain (loss) on marketable securities	—	—	—	23	(22)	1
Net loss	—	—	—	(3,785)	—	(3,785)
Balance at June 30, 2018	13,182,567	\$ 1	\$ 118,541	\$ (87,863)	\$ (22)	\$ 30,657

For the Six Months Ended June 30, 2018	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Other Comprehensive Income (Loss)	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2017	12,961,993	\$ 1	\$ 113,984	\$ (79,214)	\$ (23)	\$ 34,748
Stock-based compensation	—	—	1,298	—	—	1,298
Issuance of common stock for services rendered	3,245	—	46	—	—	46
Issuance of common stock in connection with at-the-market offering, net of issuance costs of \$139	217,329	—	3,213	—	—	3,213
Net unrealized gain on marketable securities	—	—	—	—	1	1
Net loss	—	—	—	(8,649)	—	(8,649)
Balance at June 30, 2018	13,182,567	\$ 1	\$ 118,541	\$ (87,863)	\$ (22)	\$ 30,657

See accompanying notes to consolidated financial statements.

SPRING BANK PHARMACEUTICALS, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)
(In Thousands)

	For the Six Months Ended June 30,	
	2019	2018
Cash flows from operating activities:		
Net loss	\$ (9,750)	\$ (8,649)
Adjustments for:		
Depreciation and amortization	171	86
Loss on the disposal of property and equipment	—	16
Operating lease right-of-use asset amortization	130	—
Change in fair value of warrant liabilities	(7,706)	(5,173)
Non-cash investment income	72	110
Non-cash stock-based compensation	2,013	1,349
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	(753)	(625)
Other assets	132	—
Accounts payable	(155)	(12)
Accrued expenses and other liabilities	1,081	(62)
Net cash used in operating activities	(14,765)	(12,960)
Cash flows from investing activities:		
Proceeds from sale of marketable securities	16,787	21,951
Purchases of marketable securities	(6,000)	(22,000)
Purchases of property and equipment	(205)	(994)
Net cash provided by (used in) investing activities	10,582	(1,043)
Cash flows from financing activities:		
Proceeds from issuance of common stock in connection with at-the-market offering, net of issuance costs	6	3,213
Cash provided by financing activities	6	3,213
Net decrease in cash, cash equivalents and restricted cash	(4,177)	(10,790)
Cash, cash equivalents and restricted cash, beginning of period	14,958	24,133
Cash, cash equivalents and restricted cash, end of period	\$ 10,781	\$ 13,343
Supplemental disclosures of cash flow information:		
Cash paid for taxes	\$ 17	\$ 3
Cash paid for interest, net	\$ —	\$ —

See accompanying notes to consolidated financial statements.

1. NATURE OF BUSINESS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Nature of Business

Spring Bank Pharmaceuticals, Inc. (the “Company”) is a clinical-stage biopharmaceutical company engaged in the discovery and development of a novel class of therapeutics using a proprietary small molecule nucleotide platform. The Company is developing its most advanced product candidate, inarigivir soproxil (“inarigivir”), for the treatment of chronic hepatitis B virus. Since inception in 2002 and prior to its initial public offering (“IPO”) in May 2016, the Company built its technology platform and product candidate pipeline, supported by grants and through private financings. The Company has three wholly owned subsidiaries: Sperovie Biosciences, Inc. formed in September 2015, SBP Securities Corporation formed in December 2016 and SBP International Limited formed in May 2019.

The Company’s success is dependent upon its ability to successfully complete clinical development and obtain regulatory approval of its product candidates, successfully commercialize approved products, generate revenue, and, ultimately, attain profitable operations. The Company’s operations to date have been primarily limited to the development of inarigivir, SB 11285, SB 9225 and the Company’s other product candidates.

Basis of Presentation and Liquidity

The accompanying consolidated financial statements have been prepared in accordance with United States (“U.S.”) generally accepted accounting principles (“U.S. GAAP”).

The accompanying interim financial statements as of June 30, 2019 and for the three and six months ended June 30, 2019 and 2018, and related interim information contained within the notes to the financial statements, are unaudited. In management’s opinion, the unaudited interim consolidated financial statements have been prepared on the same basis as the Company’s audited financial statements and include all adjustments (including normal recurring adjustments) necessary for the fair presentation of the Company’s financial position as of June 30, 2019, results of operations for the three and six months ended June 30, 2019 and 2018, statement of stockholders’ equity for the three and six months ended June 30, 2019 and 2018 and its cash flows for the six months ended June 30, 2019 and 2018. These interim financial statements should be read in conjunction with the Company’s audited financial statements and accompanying notes contained in the Company’s [Annual Report on Form 10-K](#) for the year ended December 31, 2018, as filed with the Securities and Exchange Commission (“SEC”) on March 11, 2019. The results for the three and six months ended June 30, 2019 are not necessarily indicative of the results expected for the full fiscal year or any interim period.

As of June 30, 2019, the Company had an accumulated deficit of \$111.8 million and \$49.2 million in cash, cash equivalents and marketable securities.

The Company expects to continue to incur significant and increasing losses for the foreseeable future. The Company anticipates that its expenses will increase significantly as it continues to develop inarigivir, SB 11285, SB 9225 and its other product candidates. The Company does not have any committed external source of funds. As a result, the Company will need additional financing to support its continuing operations. Adequate additional funds may not be available to the Company on acceptable terms, or at all. To the extent that the Company raises additional capital through the sale of equity or convertible debt securities, stockholders’ ownership interests will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect common stockholder rights. If the Company raises additional funds through collaborations, strategic alliances or licensing arrangements with third parties, the Company may have to relinquish valuable rights to its technologies, future revenue streams, research programs, or product candidates or grant licenses on terms that may not be favorable to the Company.

Principles of Consolidation

The consolidated financial statements include the accounts of the Company and its wholly owned subsidiaries, Sperovie Biosciences, Inc., SBP Securities Corporation and SBP International Limited. Sperovie Biosciences, Inc. had operations consisting mainly of legal fees associated with intellectual property activities as of June 30, 2019. SBP Securities Corporation had assets primarily related to investments in marketable securities and operations consisting primarily of interest income as of June 30, 2019. SBP International Limited had operations consisting mainly of clinical trial oversight, including European data protection oversight, as of June 30, 2019. All intercompany balances and transactions have been eliminated in consolidation.

Use of Estimates

The preparation of consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, the disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. The Company bases estimates and assumptions on historical experience when available and on various factors that it believes to be reasonable under the circumstances. Significant estimates relied upon in preparing the accompanying financial statements related to the fair value of common stock and warrant liabilities, accounting for stock-based compensation, income taxes, useful lives of long-lived assets, and accounting for certain accruals. The Company evaluates its estimates and assumptions on an ongoing basis. The Company's actual results may differ from these estimates.

Cash and Cash Equivalents

Cash equivalents are stated at fair value and include short-term, highly liquid investments with remaining maturities of 90 days or less at the date of purchase. Included in cash and cash equivalents as of June 30, 2019 and December 31, 2018 are money market fund investments of \$9.0 million and \$13.3 million, respectively, which are reported at fair value (Note 5).

Restricted Cash

As of June 30, 2019 and December 31, 2018, restricted cash consists of approximately \$234,000, which is held as a security deposit required in conjunction with a lease agreement for the Company's principal office and laboratory space entered into in October 2017.

Concentration of Credit Risk

Financial instruments that subject the Company to significant concentrations of credit risk consist primarily of cash, cash equivalents, restricted cash and marketable securities. Substantially all of the Company's cash is held at financial institutions that management believes to be of high credit quality. Deposits with these financial institutions may exceed the amount of insurance provided on such deposits; however, these deposits may be redeemed upon demand and, therefore, bear minimal risk.

Investments in Marketable Securities

The Company invests excess cash balances in short-term and long-term marketable securities. The Company classifies investments in marketable securities as either held-to-maturity or available-for-sale based on facts and circumstances present at the time of purchase. At each balance sheet date presented, all investments in securities are classified as available-for-sale. The Company reports available-for-sale investments at fair value at each balance sheet date and includes any unrealized holding gains and losses (the adjustment to fair value) in accumulated other comprehensive income (loss), a component of stockholders' equity. Realized gains and losses are determined using the specific identification method and are included in other income (expense). If any adjustment to fair value reflects a decline in the value of the investment, the Company considers all available evidence to evaluate the extent to which the decline is "other than temporary," including the intention to sell and, if so, marks the investment to market through a charge to the Company's consolidated statements of operations and comprehensive loss.

Property and Equipment, Net

Property and equipment are recorded at cost. Costs associated with maintenance and repairs are expensed as incurred. Depreciation is provided using the straight-line method over the estimated useful lives:

<u>Asset Category</u>	<u>Useful Life</u>
Equipment	5-7 years
Furniture and fixtures	5 years
Leasehold improvements	Lesser of 10 years or the remaining term of the respective lease

Leases

The Company determines if an arrangement is a lease at inception. Operating leases are included in operating lease right-of-use ("ROU") assets, other current liabilities and operating lease liabilities in the Company's consolidated balance sheets.

ROU assets represent the Company's right to use an underlying asset for the lease term and lease liabilities represent its obligation to make lease payments arising from the lease. Operating lease ROU assets and liabilities are recognized at commencement date based on the present value of lease payments over the lease term. As the Company's leases do not provide an implicit rate, the Company uses an incremental borrowing rate based on the information available at commencement date in determining the present value of lease payments. This is the rate the Company would have to pay if borrowing on a collateralized basis over a similar term to each lease. The operating lease ROU asset also includes any lease payments made and excludes lease incentives. The Company's lease terms may include options to extend or terminate the lease when it is reasonably certain that the Company will exercise that option. Lease expense for lease payments is recognized on a straight-line basis over the lease term.

Impairment of Long-Lived Assets

Long-lived assets to be held and used are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of the asset may not be recoverable. When such events occur, the Company compares the carrying amounts of the assets to their undiscounted expected future cash flows. If the undiscounted cash flows are insufficient to recover the carrying value, an impairment loss is recorded for the difference between the carrying value and fair value of the asset. As of June 30, 2019, no such impairment has occurred.

Research and Development Costs

Research and development expenses consist primarily of costs incurred for the Company's research activities, including discovery efforts, and the development of product candidates, which include:

- expenses incurred under agreements with third parties, including contract research organizations, or CROs, that conduct research, preclinical activities and clinical trials on the Company's behalf as well as contract manufacturing organizations, or CMOs, that manufacture drug products for use in the Company's preclinical and clinical trials;
- salaries, benefits and other related costs, including stock-based compensation expense, for personnel in the Company's research and development functions;
- costs of outside consultants, including their fees, stock-based compensation and related travel expenses;
- the cost of laboratory supplies and acquiring, developing and manufacturing preclinical study and clinical trial materials;
- costs related to compliance with regulatory requirements; and
- facility-related expenses, which include direct depreciation costs and allocated expenses for rent and maintenance of facilities and other operating costs.

The Company expenses research and development costs as incurred. The Company recognizes external development costs based on an evaluation of the progress to completion of specific tasks using information provided to the Company by its vendors and its clinical investigative sites. Payments for these activities are based on the terms of the individual agreements, which may differ from the pattern of costs incurred, and are reflected in the Company's consolidated financial statements as prepaid or accrued research and development expenses.

Warrants

The Company reviews the terms of all warrants issued and classifies the warrants as a component of permanent equity if they are freestanding financial instruments that are legally detachable and separately exercisable, contingently exercisable, do not embody an obligation for the Company to repurchase its own shares, and permit the holders to receive a fixed number of shares of common stock upon exercise. In addition, the warrants must require physical settlement and may not provide any guarantee of value or return. Warrants that meet these criteria are initially recorded at their grant date fair value and are not subsequently remeasured. Warrants that do not meet these criteria are classified as liabilities and remeasured to their fair value at each reporting period.

Stock-Based Compensation

The Company's stock-based payments include stock options, performance-based restricted stock units and grants of common stock, including common stock subject to vesting. The Company accounts for all stock-based payment awards granted to employees and nonemployees using a fair value method. The measurement date for employee awards is the date of grant, and stock-based compensation costs are recognized as expense over the employees' requisite service period, which is generally the vesting period, on a straight-line basis. The Company measures the fair value of the performance-based restricted stock units relating to the total share return performance using a Monte Carlo valuation model. The Company adopted ASU 2018-07, *Improvements to Nonemployee*

Share-Based Payment Accounting, effective July 1, 2018, which aligns the accounting treatment of nonemployee awards with employee awards. Stock-based compensation expense is classified in the accompanying consolidated statements of operations and comprehensive loss based on the department to which the related services are provided.

Financial Instruments

The Company's financial instruments consist of cash equivalents, marketable securities, accounts payable and liability classified warrants. The carrying amounts of cash and cash equivalents and accounts payable approximate their fair value due to the short-term nature of those financial instruments. The fair value of the marketable securities and liability classified warrants are remeasured to fair value each reporting period as described in Note 5.

Fair Value Measurements

The Company is required to disclose information on all assets and liabilities reported at fair value that enables an assessment of the inputs used in determining the reported fair values. Accounting Standards Codification ("ASC") 820, *Fair Value Measurements and Disclosures* ("ASC 820"), establishes a hierarchy of inputs used when available. Observable inputs are inputs that market participants would use in pricing the asset or liability based on market data obtained from sources independent of the Company. Unobservable inputs are inputs that reflect the Company's assumptions about the inputs that market participants would use in pricing the asset or liability and are developed based on the best information available in the circumstances. The fair value hierarchy applies only to the valuation inputs used in determining the reported fair value of the investments and is not a measure of the investment credit quality. The three levels of the fair value hierarchy are described below:

Level 1—Valuations based on unadjusted quoted prices in active markets for identical assets or liabilities that the Company has the ability to access at the measurement date.

Level 2—Valuations based on quoted prices for similar assets or liabilities in markets that are not active or for which all significant inputs are observable, either directly or indirectly.

Level 3—Valuations that require inputs that reflect the Company's own assumptions that are both significant to the fair value measurement and unobservable.

To the extent that valuation is based on models or inputs that are less observable or unobservable in the market, the determination of fair value requires more judgment. Accordingly, the degree of judgment exercised by the Company in determining fair value is greatest for instruments categorized in Level 3. A financial instrument's level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. The Company's assets and liabilities measured at fair value on a recurring basis include cash equivalents, marketable securities and warrant liabilities.

Net Loss Per Share

Basic net loss per share is computed by dividing the net loss by the weighted-average number of shares of common stock outstanding for the period. Diluted net loss per share is computed by dividing the net loss by the weighted-average number of shares of common stock and dilutive common stock equivalents outstanding for the period, determined using the treasury-stock method and the as if-converted method, for convertible securities, if inclusion of these instruments is dilutive. For the three and six months ended June 30, 2019 and 2018, both methods are equivalent. Basic and diluted net loss per share is described further in Note 2.

Income Taxes

Deferred tax assets and liabilities are determined based upon the differences between the financial statement carrying amounts and the tax basis of existing assets and liabilities and for loss and credit carryforwards using enacted tax rates expected to be in effect in the years in which the differences are expected to reverse. Deferred tax assets are reduced by a valuation allowance if it is more likely than not that some portion or all of the deferred tax asset will not be realized.

The Company assesses its income tax positions and records tax benefits based upon management's evaluation of the facts, circumstances and information available at the reporting date. For those tax positions where it is more likely than not that a tax benefit will be sustained, the Company records the largest amount of tax benefit with a greater than 50% likelihood of being realized upon ultimate settlement with a taxing authority having full knowledge of all relevant information. For those income tax positions where it is not more likely than not that a tax benefit will be sustained, no tax benefit is recognized in the consolidated financial statements. The Company classifies interest and penalties associated with such uncertain tax positions as a component of interest expense. As of June 30, 2019 and December 31, 2018, the Company has not identified any material uncertain tax positions.

Guarantees and Indemnifications

As permitted under Delaware law, the Company indemnifies its officers and directors for certain events or occurrences while the officer or director is, or was, serving at the Company's request in such capacity.

The Company leases its principal office and laboratory space in Hopkinton, Massachusetts and previously leased research and development space in Milford, Massachusetts under non-cancelable operating leases. The Company has standard indemnification arrangements under these leases that require it to indemnify the landlords against liability for injury, loss, accident, or damage from any claims, actions, proceedings, or costs resulting from certain acts, breaches, violations, or nonperformance under the Company's lease.

Through June 30, 2019, the Company had not experienced any losses related to these indemnification obligations and no material claims were outstanding. The Company does not expect significant claims related to these indemnification obligations, and consequently, concluded that the fair value of these obligations is negligible, and no related reserves were established.

Segment Information

Operating segments are identified as components of an enterprise about which separate and discrete financial information is available for evaluation by the chief operating decision maker, the Company's chief executive officer, in making decisions regarding resource allocation and assessing performance. The Company views its operations and manages its business in one operating segment and does not track expenses on a program-by-program basis.

Recently Issued Accounting Pronouncements

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820), Disclosure Framework – Changes to the Disclosure Requirement for Fair Value Measurement*. This ASU removes, modifies and adds certain disclosure requirements of ASC Topic 820. The ASU is effective for all entities for fiscal years, and interim periods within those fiscal years, beginning after December 31, 2019. The Company is currently evaluating the impact that the adoption of this standard may have on the Company's consolidated financial statements.

In February 2016, the FASB issued ASU No. 2016-02, *Leases* ("ASU 2016-02"). ASU 2016-02 requires lessees to recognize most leases on their balance sheet as a right-of-use asset and a lease liability. Leases are classified as either operating or finance, and classification is based on criteria similar to current lease accounting, but without explicit bright lines. In July 2018, the FASB issued ASU No. 2018-10, *Codification Improvements to Topic 842, Leases* ("ASU 2018-10"), which provides narrow amendments to clarify how to apply certain aspects of the new lease standard, and ASU No. 2018-11, *Leases (Topic 842) – Targeted Improvements* (ASU 2018-11), which addresses implementation issues related to the new lease standard. The guidance is effective for annual reporting periods beginning after December 15, 2018 and interim periods within those fiscal years, and early adoption is permitted. Under this standard, disclosures are required to enable users of financial statements in assessing the amount, timing, and uncertainty of cash flows arising from leases. The standard permits two transition methods, (1) to apply the new lease requirements at the beginning of the earliest period presented, or (2) to apply the new lease requirements at the effective date. Under both transition methods there is a cumulative effect adjustment.

The Company adopted the standard on the effective date of January 1, 2019 by applying the new lease requirements at the effective date. Prior periods continue to be presented based on the accounting standards originally in effect for such periods. The Company also elected the package of practical expedients permitted under the transition guidance within the new standard, which, among other things, allows the Company to carry forward the historical lease classification. The Company will also apply the practical expedient not to separate lease and non-lease components for new and modified leases commencing after adoption. The standard had an impact of approximately \$3.0 million on the Company's assets and \$3.4 million on its liabilities, as of January 1, 2019, for the recognition of right-of-use assets and lease liabilities, which are primarily related to the lease of its corporate headquarters in Hopkinton, Massachusetts. The standard did not have a material impact on the Company's results of operations or liquidity (see Note 8).

In July 2017, the FASB issued ASU 2017-11, *Earnings Per Share (Topic 260), Distinguishing Liabilities from Equity (Topic 480), Derivatives and Hedging (Topic 815): I. Accounting for Certain Financial Instruments with Down Round Features and II. Replacement of the Indefinite Deferral for Mandatorily Redeemable Financial Instruments of Certain Nonpublic Entities and Certain Mandatorily Redeemable Noncontrolling Interests with a Scope Exception*. Part I applies to entities that issue financial instruments such as warrants, convertible debt or convertible preferred stock that contain down round features. Part II simply replaces the indefinite deferral for certain mandatorily redeemable noncontrolling interests and mandatorily redeemable financial instruments of nonpublic entities contained within Accounting Standards Codification (ASC) Topic 480 with a scope exception and does not impact the accounting for these mandatorily redeemable instruments. This ASU is effective for public companies for the annual reporting

periods beginning after December 15, 2018, and interim periods within those annual periods. Early adoption is permitted. The Company adopted this standard as of January 1, 2019; however, the adoption of this standard did not impact the Company's consolidated financial statements.

2. NET LOSS PER SHARE

The following table summarizes the computation of basic and diluted net loss per share of the Company for such periods (in thousands, except share and per share data):

	For the Three Months Ended June 30,		For the Six Months Ended June 30,	
	2019	2018	2019	2018
Net loss	\$ (4,555)	\$ (3,785)	\$ (9,750)	\$ (8,649)
Weighted-average number of shares outstanding - basic and diluted	16,443,379	13,179,072	16,440,192	13,085,820
Net loss per common share - basic and diluted	\$ (0.28)	\$ (0.29)	\$ (0.59)	\$ (0.66)

Diluted net loss per common share is the same as basic net loss per common share for all periods presented.

The following potentially dilutive securities outstanding, prior to the use of the treasury stock method or if-converted method, have been excluded from the computation of diluted weighted-average shares outstanding, because such securities had an antidilutive impact due to the losses reported:

	For the Three and Six Months Ended June 30,	
	2019	2018
Common stock warrants	1,662,124	1,787,124
Stock options, RSUs and Inducement awards	1,900,615	1,338,565

3. INVESTMENTS

Cash in excess of the Company's immediate requirements is invested in accordance with the Company's investment policy that primarily seeks to maintain adequate liquidity and preserve capital.

The following table summarizes the Company's investments, by category, as of June 30, 2019 and December 31, 2018 (in thousands):

	June 30,	December 31,
	2019	2018
Investments - Current:		
Debt securities - available for sale	\$ 38,646	\$ 32,914
Total	\$ 38,646	\$ 32,914
Investments - Noncurrent:		
Debt securities - available for sale	\$ —	\$ 16,804
Total	\$ —	\$ 16,804

A summary of the Company's available-for-sale classified investments as of June 30, 2019 and December 31, 2018 consisted of the following (in thousands):

At June 30, 2019				
	Cost Basis	Accumulated Unrealized Gains	Accumulated Unrealized Losses	Fair Value
Investments - Current:				
Corporate bonds	\$ 10,975	\$ —	\$ (51)	\$ 10,924
United States treasury securities	27,889	—	(167)	27,722
Total	<u>\$ 38,864</u>	<u>\$ —</u>	<u>\$ (218)</u>	<u>\$ 38,646</u>
At December 31, 2018				
	Cost Basis	Accumulated Unrealized Gains	Accumulated Unrealized Losses	Fair Value
Investments - Current:				
Corporate bonds	\$ 16,028	\$ —	\$ (19)	\$ 16,009
United States treasury securities	16,913	—	(8)	16,905
Total	<u>\$ 32,941</u>	<u>\$ —</u>	<u>\$ (27)</u>	<u>\$ 32,914</u>
Investments - Noncurrent:				
Corporate bonds	\$ 4,930	\$ 2	\$ —	\$ 4,932
United States treasury securities	11,852	20	—	11,872
Total	<u>\$ 16,782</u>	<u>\$ 22</u>	<u>\$ —</u>	<u>\$ 16,804</u>

The amortized cost and fair value of the Company's available-for-sale investments, by contract maturity, as of June 30, 2019 consisted of the following (in thousands):

	Amortized Cost	Fair Value
Due in one year or less	\$ 38,864	\$ 38,646
Due after one year through two years	—	—
Total	<u>\$ 38,864</u>	<u>\$ 38,646</u>

4. PROPERTY AND EQUIPMENT, NET

Property and equipment as of June 30, 2019 and December 31, 2018 consisted of the following (in thousands):

	June 30, 2019	December 31, 2018
Equipment	\$ 1,278	\$ 1,064
Furniture and fixtures	382	400
Leasehold improvements	1,356	1,347
Total property and equipment	3,016	2,811
Less: accumulated depreciation and amortization	(663)	(492)
Property and equipment, net	<u>\$ 2,353</u>	<u>\$ 2,319</u>

Depreciation expense for the three and six months ended June 30, 2019 was \$88,000 and \$171,000, respectively. Depreciation expense for the three and six months ended June 30, 2018 was \$41,000 and \$86,000, respectively.

5. FAIR VALUE MEASUREMENTS

Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value are performed in a manner to maximize the use of observable inputs and minimize the use of unobservable inputs.

The Company classified its money market funds within Level 1 because their fair values are based on their quoted market prices. The Company classified its commercial paper, corporate bonds and United States treasury securities within Level 2 because their fair values are determined using alternative pricing sources or models that utilized market observable inputs.

A summary of the assets and liabilities that are measured at fair value as of June 30, 2019 and December 31, 2018 is as follows (in thousands):

	Fair Value Measurement at June 30, 2019			
	Carrying Value	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets:				
Money market funds ⁽¹⁾	\$ 9,011	\$ 9,011	\$ —	\$ —
Fixed income securities	38,646	—	38,646	—
Total	<u>\$ 47,657</u>	<u>\$ 9,011</u>	<u>\$ 38,646</u>	<u>\$ —</u>
Liabilities:				
Warrant liabilities	\$ 805	\$ —	\$ —	\$ 805
Total	<u>\$ 805</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 805</u>

	Fair Value Measurement at December 31, 2018			
	Carrying Value	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets:				
Money market funds ⁽¹⁾	\$ 13,264	\$ 13,264	\$ —	\$ —
Fixed income securities	49,718	—	49,718	—
Total	<u>\$ 62,982</u>	<u>\$ 13,264</u>	<u>\$ 49,718</u>	<u>\$ —</u>
Liabilities:				
Warrant liabilities	\$ 8,511	\$ —	\$ —	\$ 8,511
Total	<u>\$ 8,511</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 8,511</u>

(1) Money market funds are included within cash and cash equivalents in the accompanying consolidated balance sheets and are recognized at fair value.

The following table reflects the change in the Company's Level 3 liabilities, which consists of the warrants issued in a private placement in November 2016 (see Note 7), for the period ended June 30, 2019 (in thousands):

	November Private Placement Warrants
Balance at December 31, 2017	\$ 13,128
Change in fair value	(4,617)
Balance at December 31, 2018	8,511
Change in fair value	(7,706)
Balance at June 30, 2019	<u>\$ 805</u>

6. ACCRUED EXPENSES AND OTHER CURRENT LIABILITIES

Accrued expenses as of June 30, 2019 and December 31, 2018 consisted of the following (in thousands):

	June 30, 2019	December 31, 2018
Clinical	\$ 2,393	\$ 941
Compensation and benefits	504	830
Accounting and legal	218	227
Other	70	369
Total accrued expenses and other current liabilities	<u>\$ 3,185</u>	<u>\$ 2,367</u>

7. STOCKHOLDERS' EQUITY

Common and Preferred Stock

In August 2017, the Company entered into a Controlled Equity OfferingSM Sales Agreement (the "Sales Agreement") with Cantor Fitzgerald & Co. ("Cantor"), pursuant to which the Company may offer and sell, from time to time through Cantor, shares of the Company's common stock having an aggregate offering price of up to \$50.0 million. The Company pays Cantor a commission rate equal to 3.0% of the aggregate gross proceeds from each sale. During the year ended December 31, 2018, the Company sold an aggregate of 217,329 shares of its common stock pursuant to the Sales Agreement at a weighted-average selling price of \$15.42 per share, which resulted in \$3.2 million of net proceeds to the Company.

In August 2018, the Company issued and sold in an underwritten public offering an aggregate of 3,246,079 shares of its common stock at \$12.50 per share, which included 246,079 shares pursuant to the exercise of an option to purchase additional shares granted to the underwriters in connection with the offering. The offering resulted in \$38.0 million of net proceeds, after deducting underwriting discounts and commissions and other offering expenses payable by the Company.

Warrants

In connection with the amendment and restatement of a license agreement with BioHEP Technologies Ltd. ("BioHEP") in February 2016, the Company issued a warrant to purchase 125,000 shares of the Company's common stock to BioHEP (the "BioHEP Warrant"). The BioHEP Warrant had an exercise price of \$16.00 per share and expired unexercised on August 1, 2018. The Company evaluated the terms of the warrant and concluded that it should be equity-classified. The fair value of the warrant, \$0.8 million, was estimated on the issuance date using a Black-Scholes pricing model based on the following assumptions: an expected term of two and a half years, expected stock price volatility of 71%, a risk-free rate of 1.01%, and a dividend yield of 0%. The fair value was expensed as research and development costs.

In connection with the Company's IPO, the Company issued to the sole book-running manager for the IPO a warrant to purchase 27,600 shares of common stock in May 2016 and a warrant to purchase 747 shares of common stock in June 2016 (together, the "IPO Warrants"). The IPO Warrants are exercisable at an exercise price of \$15.00 per share and expire on May 5, 2021. The Company evaluated the terms of the IPO Warrants and concluded that they should be equity-classified. The fair value of the May 2016 IPO Warrants was estimated on the applicable issuance dates using a Black-Scholes pricing model based on the following assumptions: an expected term of 4.99 years; expected stock price volatility of 87%; a risk-free rate of 1.20%; and a dividend yield of 0%. The fair value of the June 2016 IPO Warrants was estimated on the applicable issuance dates using a Black-Scholes pricing model based on the following assumptions: an expected term of 4.92 years; expected stock price volatility of 87%; a risk-free rate of 1.23%; and a dividend yield of 0%. The aggregate fair value of the IPO Warrants was approximately \$0.2 million.

In November 2016, the Company entered into a definitive agreement with respect to the private placement of 1,644,737 shares of common stock and warrants to purchase 1,644,737 shares of common stock (the "November 2016 Private Placement Warrants") to a group of accredited investors. These investors paid \$9.12 for each share of common stock and warrant to purchase one share of common stock. The November 2016 Private Placement Warrants are exercisable at an exercise price of \$10.79 per share and expire on November 23, 2021. The Company evaluated the terms of these warrants and concluded that they are liability-classified. In November 2016, the Company recorded the fair value of these warrants of approximately \$8.3 million using a Black-Scholes pricing model. The Company must recognize any change in the value of the warrant liability each reporting period in the statement of operations. As of June 30, 2019 and December 31, 2018, the fair value of the November 2016 Private Placement Warrants was approximately \$0.8 million and \$8.5 million, respectively (see Note 5).

A summary of the Black-Scholes pricing model assumptions used to record the fair value of the warrants is as follows:

	June 30, 2019	December 31, 2018
Risk-free interest rate	1.7%	2.5%
Expected term (in years)	2.4	2.9
Expected volatility	66.9%	78.1%
Expected dividend yield	0%	0%

A summary of the warrant activity for the six months ended June 30, 2019 and for the year ended December 31, 2018 is as follows:

	Warrants
Outstanding at December 31, 2017	1,787,124
Grants	—
Exercises	—
Expirations/cancellations	(125,000)
Outstanding at December 31, 2018	1,662,124
Grants	—
Exercises	—
Expirations/cancellations	—
Outstanding at June 30, 2019	1,662,124

2014 Stock Incentive Plan

In April 2014, the Company's Board of Directors approved the 2014 Stock Incentive Plan (the "2014 Plan") and authorized 750,000 shares of common stock to be issued under the 2014 Plan. The Company's 2014 Plan provides for the issuance of common stock, stock options and other stock-based awards to employees, officers, directors, consultants, and advisors. The Company's 2015 Stock Incentive Plan (the "2015 Plan") became effective immediately prior to the closing of the Company's IPO on May 11, 2016. Upon the effectiveness of the 2015 Plan, 116,863 shares of common stock that remained available for grant under the 2014 Plan became available for grant under the 2015 Plan, and no further awards were available to be issued under the 2014 Plan.

2015 Stock Incentive Plan and Amended and Restated 2015 Stock Incentive Plan

The Company's Board of Directors initially adopted the 2015 Plan in December 2015, subject to stockholder approval, and authorized 750,000 shares of Common Stock to be issued under the 2015 Plan. The 2015 Plan became effective upon the closing of the Company's IPO on May 11, 2016 after approval by the Company's stockholders. The 2015 Plan provides for the issuance of common stock, stock options and other stock-based awards to employees, officers, directors, consultants and advisors of the Company.

In June 2018, upon receipt of stockholder approval at the Company's 2018 annual meeting, the 2015 Plan was amended and restated in its entirety increasing the authorized number of shares of common stock reserved for issuance by 800,000 shares (together with the 2014 Plan, the 2015 Plan, the "Stock Incentive Plans"). The Board approved the Amended and Restated 2015 Plan on March 9, 2018. Pursuant to the Amended and Restated 2015 Plan, there are 1,666,863 shares authorized for issuance. In addition, to the extent any outstanding awards under the 2014 Plan expire, terminate or are otherwise surrendered, cancelled or forfeited after the closing of the Company's IPO, those shares are added to the authorized shares under the Amended and Restated 2015 Plan. The total amount of shares authorized for issuance under both the 2014 Plan and the Amended and Restated 2015 Plan is 2,300,000. As of June 30, 2019, the Company had 404,331 shares available for issuance under the Amended and Restated 2015 Plan.

The exercise price of stock options cannot be less than the fair value of the common stock on the date of grant. Stock options awarded under the Stock Incentive Plans expire 10 years after the grant date, unless the Board sets a shorter term. There were no stock options granted prior to 2015.

The following table summarizes the option activity under the Stock Incentive Plans for the six months ended June 30, 2019 and the year ended December 31, 2018:

	Options	Weighted-Average Exercise Price Per Share	Aggregate Intrinsic Value
Options outstanding at December 31, 2017	988,565	\$ 10.83	\$ 2,617,859
Granted	311,000	12.28	—
Exercised	—	—	—
Cancelled	—	—	—
Outstanding at December 31, 2018	1,299,565	11.18	881,385
Granted	343,000	10.37	—
Exercised	—	—	—
Cancelled	(17,750)	14.28	—
Options outstanding at June 30, 2019	1,624,815	\$ 10.97	\$ —
Options exercisable at June 30, 2019	952,547	\$ 11.28	\$ —

As of June 30, 2019, all options outstanding have a weighted-average remaining contractual life of 7.6 years. The weighted-average fair value of all stock options granted for the six months ended June 30, 2019 was \$7.30. Intrinsic value at June 30, 2019 and December 31, 2018 is based on the closing price of the Company's common stock on that date of \$3.69 per share and \$10.39 per share, respectively.

In January 2018, the Company issued a stock option award as an inducement grant for the purchase of an aggregate of 50,000 shares of the Company's common stock, outside of the Stock Incentive Plans, at an exercise price of \$12.02 per share. In February 2019, the Company issued a stock option award as an inducement grant for the purchase of an aggregate of 40,000 shares of the Company's common stock, outside of the Stock Incentive Plans, at an exercise price of \$10.39 per share. These inducement grants are excluded from the option activity table above.

The assumptions the Company used to determine the fair value of stock options granted to employees and directors during the six months ended June 30, 2019 and 2018 are as follows, presented on a weighted-average basis:

	Six Months Ended June 30,	
	2019	2018
Risk-free interest rate	2.6%	2.5%
Expected term (in years)	6.0	5.9
Expected volatility	81.1%	82.6%
Expected dividend yield	0%	0%

Performance-Based Restricted Stock Units

In January 2019, the Company issued performance-based restricted stock units ("RSUs") to senior management under the 2015 Plan that represent shares potentially issuable in the future subject to the satisfaction of certain performance milestones as well as a service condition. The vesting of 50% of the RSUs is based upon the Company's performance relative to a peer group over a two-year performance period, from January 1, 2019 through December 31, 2020, measured by the Company's relative total shareholder return for the market-based RSUs. The vesting of 25% of the RSUs is based on the achievement of a performance goal milestone as of December 31, 2019 and vesting of the remaining 25% of the RSUs is based upon the achievement of a performance goal milestone as of December 31, 2020.

The Company estimates the fair value of market-based RSUs at the date of grant using a Monte Carlo valuation methodology and amortizes those fair values over the requisite service period for each separately vesting tranche of the award. The Monte Carlo methodology that the Company uses to estimate the fair value of market-based RSUs at the date of grant incorporates into the valuation the possibility that the market condition may not be satisfied. Provided that the requisite service is rendered, the total fair value of the market-based RSUs at the date of grant must be recognized as compensation expense even if the market condition is not achieved. However, the number of shares that ultimately vest can vary significantly with the performance of the specified market criteria.

The Company estimates the fair value of performance-based RSUs at the date of grant using the fair value method and the probability that the specified performance criteria will be met. Each quarter the Company updates its assessment of the probability that the

specified performance criteria will be achieved and adjusts its estimate of the fair value of the performance-based RSUs, if necessary. The Company amortizes the fair values of performance-based RSUs over the requisite service period for each separately vesting tranche of the award. As of June 30, 2019, the Company estimates that it is currently probable that it will achieve the clinical milestones included in the PSU performance goals and has recognized the stock-based compensation expense for the RSUs issued as it relates to the milestone base performance goals. The total stock-based compensation recognized for the three and six months ended June 30, 2019 for the RSUs was approximately \$189,000 and \$347,000, respectively.

The following table is a rollforward of performance-based restricted stock unit activity under the Stock Incentive Plans for the six months ended June 30, 2019:

	Restricted Stock Units	Weighted-Average Grant Date Fair Value
Total Nonvested Units at December 31, 2018	—	\$ —
Granted	203,700	8.49
Exercised	—	—
Vested	—	—
Cancelled	(17,900)	8.49
Total Nonvested Units at June 30, 2019	<u>185,800</u>	<u>\$ 8.49</u>

There were no performance-based restricted stock units exercisable as of June 30, 2019.

The assumptions used to determine the fair value of the performance-based restricted stock units granted to management during the six months ended June 30, 2019 for the performance goal milestone units is based on the market price of the award on the grant date, which was a weighted average fair value for the six months ended June 30, 2019 of \$10.35 per share. The fair value of the performance-based restricted stock units granted to management in 2019 for the Company's relative total share return units is based on the Monte Carlo Simulation method on the grant date, which the weighted average fair value as of the six months ended June 30, 2019 was \$6.62 per share.

Stock-Based Compensation

The following table summarizes the Company's stock-based compensation expense for the three and six months ended June 30, 2019 and 2018 (in thousands):

	For the Three Months Ended June 30,		For the Six Months Ended June 30,	
	2019	2018	2019	2018
Stock-based compensation:				
Research and development	\$ 339	\$ 213	\$ 656	\$ 414
General and administrative	702	480	1,357	935
Total Stock-based compensation	<u>\$ 1,041</u>	<u>\$ 693</u>	<u>\$ 2,013</u>	<u>\$ 1,349</u>

The fair value of stock options vested during the six months ended June 30, 2019 was \$1.9 million. At June 30, 2019, there was \$5.2 million of unrecognized stock-based compensation expense relating to stock options granted pursuant to the Stock Incentive Plans, which will be recognized over the weighted-average remaining vesting period of 2.8 years.

The expense recognized is partially dependent upon the Company's estimate of the number of shares that will ultimately be issued. At June 30, 2019, there was \$1.2 million of unrecognized stock-based compensation expense relating to performance-based restricted stock units granted pursuant to the Stock Incentive Plans, which will be recognized over the weighted-average remaining vesting period of 1.5 years.

Reserved Shares

As of June 30, 2019 and December 31, 2018, the Company reserved the following shares of common stock for issuance of shares resulting from exercise of outstanding warrants, options and performance-based restricted stock units, as well as issuance of shares available for grant under the Stock Incentive Plans:

	<u>June 30,</u> <u>2019</u>	<u>December 31,</u> <u>2018</u>
2016 IPO warrants	28,347	28,347
November Private Placement Warrants	1,633,777	1,633,777
2015 Amended and Restated Stock Incentive Plan	2,214,946	2,238,887
Inducement Awards	90,000	50,000
Total	<u>3,967,070</u>	<u>3,951,011</u>

8. LEASES

The Company has operating leases for its principal office and laboratory space and the Company's former headquarters. The Company's leases have remaining lease terms of approximately 10 years for its principal office and laboratory space, which includes an option to extend the lease for up to 5 years, and approximately 2 years for its former headquarters. The Company's former headquarters location is subleased through the remainder of the lease term.

Other information related to leases was as follows:

	<u>Six Months Ended</u> <u>June 30,</u> <u>2019</u>
Cash paid for amounts included in the measurement of lease liabilities:	
Operating cash flow from operating leases (in thousands)	\$ 130
Right-of-use assets obtained in exchange for lease obligations:	
Operating leases (in thousands)	\$ 2,980
Weighted Average Remaining Lease Term	
Operating leases	8.7 years
Weighted Average Discount Rate	
Operating leases	8.0%

Operating lease costs under the leases for the three and six months ended June 30, 2019 were approximately \$130,000 and \$260,000, respectively. Total operating lease costs for the three and six months ended June 30, 2019 were offset by \$18,000 and \$37,000, respectively, for sublease income and variable lease cost payments. Total rent expense for the three and six months ended June 30, 2018 was \$69,000 and \$142,000 respectively, which included payments for a lease of the Company's research and development facility. The lease term of the research and development facility ended as of June 30, 2018.

The following table summarizes the Company's maturities of operating lease liabilities as of June 30, 2019 (in thousands):

<u>Year</u>	
2019 (excluding the six months ended June 30, 2019)	\$ 288
2020	588
2021	508
2022	450
2023	462
Thereafter	2,405
Total lease payments	\$ 4,701
Less: present value discount	(1,317)
Total	<u>\$ 3,384</u>

For comparative purposes, the Company's aggregate future minimum non-cancellable commitments under operating leases as of December 31, 2018 were as follows (in thousands):

Year	
2019	\$ 417
2020	588
2021	508
2022	450
Thereafter	2,867
Total minimum lease payments	<u>\$ 4,830</u>

9. COMMITMENTS AND CONTINGENCIES

BioHEP Technologies Ltd. License Agreement

In January 2016, the Company entered into an amended and restated license agreement with BioHEP, which became effective on February 1, 2016.

Under the amended and restated license agreement, the Company agreed to pay BioHEP up to \$3.5 million in development and regulatory milestone payments for disease(s) caused by each distinct virus for which the Company develops licensed product(s). BioHEP is also eligible to receive tiered royalties in the low-to-mid single-digits on net product sales of licensed products by the Company and its affiliates and sub licensees, and a specified share of non-royalty sublicensing revenues the Company and its affiliates receive from sub licensees, which share of sublicensing revenues is capped at a maximum aggregate of \$2.0 million under all such sublicenses. Milestone and royalty payments associated with the Company's amended and restated license agreement with BioHEP cannot be reasonably estimated as to whether or when they will occur. As of June 30, 2019, there have been no milestone or royalty payments made to BioHEP.

Contingencies

The Company accrues for contingent liabilities to the extent that the liability is probable and estimable. There are no accruals for contingent liabilities in these consolidated financial statements.

10. SUBSEQUENT EVENTS

The Company has evaluated subsequent events through the date on which the consolidated financial statements were issued, to ensure that this submission includes appropriate disclosure of events both recognized in the consolidated financial statements and events which occurred subsequently but were not recognized in the consolidated financial statements.

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

The following information should be read in conjunction with the unaudited financial information and the notes thereto included in this Quarterly Report on Form 10-Q and the consolidated financial statements and notes thereto for the year ended December 31, 2018, and the related Management's Discussion and Analysis of Financial Condition and Results of Operations, contained in our [Annual Report on Form 10-K](#) filed with the United States Securities and Exchange Commission, or the SEC, on March 11, 2019.

This report contains forward-looking statements that are being made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995, or PSLRA, with the intention of obtaining the benefits of the "safe harbor" provisions of the PSLRA. Forward-looking statements involve risks and uncertainties. In this Quarterly Report on Form 10-Q, words such as "may," "will," "expect," "anticipate," "estimate," "intend," and similar expressions (as well as other words or expressions referencing future events, conditions or circumstances) are intended to identify forward-looking statements.

Our actual results and the timing of certain events may differ materially from the results discussed, projected, anticipated, or indicated in any forward-looking statements. We caution our readers that forward-looking statements are not guarantees of future performance and that our actual results of operations, financial condition and liquidity, and the development of the industry in which we operate may differ materially from those expressed or implied by the forward-looking statements contained in this Quarterly Report on Form 10-Q.

We caution readers not to place undue reliance on any forward-looking statements made by us, which speak only as of the date they are made. We disclaim any obligation, except as specifically required by law and the rules of the SEC, to publicly update or revise any such statements to reflect any change in our expectations or in events, conditions or circumstances on which any such statements may be based, or that may affect the likelihood that actual results will differ from those set forth in the forward-looking statements.

Overview

We are a clinical-stage biopharmaceutical company engaged in the discovery and development of a novel class of therapeutics for the treatment of viral infections, inflammatory diseases and certain cancers using our proprietary small molecule nucleotide platform. We design our compounds to selectively target and modulate the activity of specific proteins implicated in various disease states. We are developing our lead product candidate, inarigivir soproxil, or inarigivir, for the treatment of chronic hepatitis B virus, or HBV. We have designed our antiviral product candidates, including inarigivir, to selectively activate within infected hepatic cells the cellular protein, retinoic acid-inducible gene 1 (RIG-I), to inhibit viral replication and to cause the induction of intracellular interferon signaling pathways for antiviral defense. We believe that inarigivir, as a RIG-I agonist, could play an important role in antiviral therapy as a result of its dual mechanism of action that is designed to selectively modulate the body's immune response and inhibit viral replication. We are also developing additional product candidates, including our lead STING (STimulator of INterferon Genes) agonist product candidate, SB 11285, which is an immunotherapeutic agent for the potential treatment of selected cancers.

The World Health Organization estimates that 257 million people are chronically infected with chronic HBV worldwide, and nearly 900,000 people worldwide die every year due to complications from chronic HBV infection despite the availability of vaccines against the virus. There is no approved cure for chronic HBV and currently approved direct-acting antiviral therapies for the treatment of chronic HBV lack a broadly sustained response following the discontinuation of treatment.

We are developing inarigivir, an orally-administered investigational selective immunomodulator, as a potential backbone in a combinatorial treatment for chronic HBV, with a goal to accelerate and substantially increase functional cure rates in a simple, safe and selective manner. We recently completed our global Phase 2 ACHIEVE trial of inarigivir, and in April 2019, we launched two Phase 2 global trials (CATALYST 1 and CATALYST 2) examining the administration of inarigivir 400mg as monotherapy and co-administered with a nucleotide in naïve and virally suppressed chronic HBV patients. We are also pursuing the development of SB 9225, a co-formulation of inarigivir with tenofovir disoproxil fumarate, or TDF, as a potential fixed-dose combination product for the treatment of patients with chronic HBV. In addition to our inarigivir clinical trials, we continue to explore collaborations, including with siRNA compounds targeting hepatitis B surface antigen, or HBsAg, as well as other antiviral and immunomodulatory mechanisms. We believe the immunomodulatory activity of inarigivir could become a key component of a future combinatorial treatment for patients infected with chronic HBV, increasing the percentage of chronic HBV patients who achieve a functional cure.

In July 2017, we entered into a clinical trial supply and collaboration agreement with Gilead Sciences, Inc., or Gilead, under which Gilead is funding and conducting a Phase 2 clinical trial examining the co-administration of inarigivir and Vemlidy® 25 mg (tenofovir alafenamide) in patients infected with chronic HBV. In August 2018, we announced the expansion of the clinical trial being undertaken by Gilead to include two additional cohorts. These cohorts of the study will assess inarigivir 200mg co-administered with Vemlidy and the administration of inarigivir 100mg in chronic HBV patients currently treated with nucleoside/tide analogues. In

July 2019, we announced the further expansion of this clinical trial whereby Gilead will examine inarigivir 400mg co-administered with Vemlidy.

In addition to our inarigivir clinical development program, we are developing our lead STING agonist product candidate, SB 11285, as a potential next-generation immunotherapeutic agent for the treatment of selected cancers. In our preclinical studies in multiple tumor-derived cell lines, SB 11285 has been observed to cause the induction of cytokines consistent with engagement of the target, as well as cell death and apoptosis. Based on our preclinical studies performed to date, SB 11285 has reduced tumor volumes, without dose-limiting toxicities, in multiple rodent tumor models when administered intravenously or intratumorally. These findings lead us to believe that SB 11285 has the potential to be administered clinically by either route of administration, and that SB 11285 may be used to target a variety of tumors at various anatomic sites and, if approved, has the potential to be used in combination with other therapeutic modalities to enhance efficacy.

In June 2019, we filed an investigational new drug application for a Phase 1 clinical trial for the intravenously-administered (IV) SB 11285 for the clinical study of advanced solid tumors, which was accepted by the U.S. Food and Drug Administration in July 2019. Part 1 of this Phase 1 trial is a dose-escalation study with IV SB 11285 monotherapy followed by combination with a checkpoint inhibitor and is designed to determine a recommended phase 2 dose. Part 2 of this Phase 1 trial will explore IV SB 11285 antitumor activity in combination with a checkpoint inhibitor in selected tumor types. The trial will be conducted at multiple sites in the United States. We plan to launch the dose-escalation study later in the third quarter of 2019.

To date, we have devoted substantially all of our resources to research and development efforts, including conducting clinical trials for our product candidates, protecting our intellectual property and providing general and administrative support for these operations. We have not generated any revenue to date other than from grants from the National Institutes of Health, or NIH. No additional funding remains available to us under any grant for the development of any of our product candidates. We have funded our operations primarily through proceeds received from private placements of convertible notes, common stock and/or warrants; the exercise of options and warrants; NIH grant funding; and public offerings of securities.

We have incurred significant annual net operating losses in every year since our inception and expect to continue to incur significant expenses and net operating losses for the foreseeable future. Our net losses for the three and six months ended June 30, 2019 were \$4.6 million and \$9.8 million, respectively, and our net losses for the three and six months ended June 30, 2018 were \$3.8 million and \$8.6 million, respectively. As of June 30, 2019, we had an accumulated deficit of \$111.8 million. Our net losses may fluctuate significantly from quarter to quarter and year to year. We expect to continue to incur significant expenses and increasing operating losses for the next several years.

We anticipate that our expenses will increase significantly as we continue to develop inarigivir, SB 11285 and our other product candidates. See “—Liquidity and Capital Resources—Funding Requirements.” As a result, we will need additional financing to support our continuing operations. Until such time as we can generate significant revenue from product sales, if ever, we expect to finance our operations through a combination of public or private equity or debt financings, including our at-the-market offering program with Cantor Fitzgerald & Co., or other sources, which may include collaborations with third parties. Arrangements with collaborators or others may require us to relinquish rights to certain of our technologies or product candidates. Adequate additional financing may not be available to us on acceptable terms, or at all. Our inability to raise capital as and when needed would have a negative impact on our financial condition and our ability to pursue our business strategy. We will need to generate significant revenue to achieve and sustain profitability, and we may never be able to do so.

As of June 30, 2019, we had \$49.2 million in cash, cash equivalents and marketable securities. We expect that our cash, cash equivalents and marketable securities as of June 30, 2019 will enable us to fund our operating expenses and capital expenditure requirements into the second quarter of 2021. See “—Liquidity and Capital Resources.”

We do not expect to generate revenue from product sales unless and until we successfully complete development and obtain regulatory approval for one or more of our product candidates, which we expect will take a number of years and is subject to significant uncertainty. We have no manufacturing facilities, and all of our manufacturing activities are contracted out to third parties. Additionally, we currently utilize third-party contract research organizations, or CROs, to carry out our clinical development activities, and we do not yet have a sales organization. If we obtain regulatory approval for any of our product candidates, we expect to incur significant commercialization expenses related to product sales, marketing, manufacturing and distribution. Accordingly, we will seek to continue to fund our operations through public or private equity or debt financings or other sources including geographic partnerships. However, we may be unable to raise additional funds or enter into other arrangements when needed on favorable terms or at all. Our failure to raise capital or enter into such other arrangements as and when needed would have a negative impact on our financial condition and our ability to develop our products.

Financial Operations Overview

Operating expenses

Our operating expenses since inception have consisted primarily of research and development expense and general and administrative costs.

Research and development

Research and development expenses consist primarily of costs incurred for our research activities, including our discovery efforts, and the development of our product candidates, which include:

- expenses incurred under agreements with third parties, including contract research organizations, or CROs, that conduct research, preclinical activities and clinical trials on our behalf as well as contract manufacturing organizations, or CMOs, that manufacture drug products for use in our preclinical and clinical trials;
- salaries, benefits and other related costs, including stock-based compensation expense, for personnel in our research and development functions;
- costs of outside consultants, including their fees, stock-based compensation and related travel expenses;
- the cost of laboratory supplies and acquiring, developing and manufacturing preclinical study and clinical trial materials;
- costs related to compliance with regulatory requirements; and
- facility-related expenses, which include direct depreciation costs and allocated expenses for rent and maintenance of facilities and other operating costs.

We expense research and development costs as incurred. We recognize external development costs based on an evaluation of the progress to completion of specific tasks using information provided to us by our vendors and our clinical investigative sites. Payments for these activities are based on the terms of the individual agreements, which may differ from the pattern of costs incurred, and are reflected in our consolidated financial statements as prepaid or accrued research and development expenses.

Our direct research and development expenses are not currently tracked on a program-by-program basis. Our primary focus has been on the research and development of inarigivir. Our direct research and development expenses consist primarily of external costs, such as fees paid to investigators, consultants and CROs in connection with our preclinical studies and clinical trial and regulatory fees. We do not allocate employee-related costs and other indirect costs to specific research and development programs because our primary focus has been on the research and development of inarigivir.

The successful development of our product candidates is highly uncertain. Accordingly, at this time, we cannot reasonably estimate the nature, timing and costs of the efforts that will be necessary to complete the development of any of our product candidates. We are also unable to predict when, if ever, we will generate revenues from inarigivir or any of our other product candidates. This is due to the numerous risks and uncertainties associated with developing medicines, including the uncertainties of:

- establishing an appropriate safety profile with investigational new drug, or IND, application enabling toxicology studies;
- successful enrollment in and completion of clinical trials;
- receipt of marketing approvals from applicable regulatory authorities;
- establishing commercial manufacturing capabilities or making arrangements with third-party manufacturers;
- obtaining and maintaining patent and trade secret protection and regulatory exclusivity for our product candidates;

- launching commercial sales of the products, if and when approved, whether alone or in collaboration with others; and
- if a product is approved, a continued acceptable safety profile of the product.

A change in the outcome of any of these variables with respect to any of our product candidates would significantly change the costs and timing associated with the development of that product candidate.

Research and development activities are central to our business model. Product candidates in later stages of clinical development generally have higher development costs than those in earlier stages of clinical development, primarily due to the increased size and duration of later-stage clinical trials. We expect that our research and development expenses will continue to increase in the foreseeable future as we initiate clinical trials for certain product candidates and pursue later stages of clinical development of other product candidates. However, we do not believe that it is possible at this time to accurately project total program-specific expenses through commercialization. There are numerous factors associated with the successful commercialization of any of our product candidates, including future trial design and various regulatory requirements, many of which cannot be determined with accuracy at this time based on our stage of development. Additionally, future commercial and regulatory factors beyond our control will impact our clinical development programs and plans.

General and administrative

General and administrative expenses consist primarily of salaries and other related costs, including stock-based compensation, for personnel in our executive, finance, corporate and business development and administrative functions. General and administrative expenses also include legal fees relating to patent and corporate matters; professional fees for accounting, auditing, tax and consulting services; insurance costs; travel expenses; and facility-related expenses, which include direct depreciation costs and allocated expenses for rent and maintenance of facilities and other operating costs.

We anticipate that our general and administrative expenses will increase in the future as we increase our headcount to support the expected growth in our research and development activities and the potential commercialization of our product candidates. We also expect to incur increased expenses associated with being a public company, including increased costs of accounting, audit, legal, regulatory and tax-related services associated with maintaining compliance with exchange listing and SEC requirements, director and officer insurance premiums, and investor and public relations costs.

Other income (expense)

Other income (expense) consists of interest income earned on our cash, cash equivalents, restricted cash and marketable securities.

Change in fair value of warrant liabilities

Change in fair value of warrant liabilities consists of a gain or (loss) related to the change in the fair value of the warrants issued in connection with our private placement offering in November 2016, resulting from a change factors such as a change in our stock price and a change in expected stock price volatility.

Critical Accounting Policies and Significant Judgments and Estimates

Our consolidated financial statements are prepared in accordance with generally accepted accounting principles in the United States of America. The preparation of our consolidated financial statements and related disclosures requires us to make estimates and assumptions that affect the reported amount of assets, liabilities, revenue, costs and expenses and related disclosures. We believe that the estimates and assumptions involved in the accounting policies described therein may have the greatest potential impact on our consolidated financial statements and, therefore, consider these to be our critical accounting policies. We evaluate our estimates and assumptions on an ongoing basis. Our actual results may differ from these estimates under different assumptions and conditions.

Accrued Research and Development Expenses

As part of the process of preparing our consolidated financial statements, we are required to estimate our accrued research and development expenses. This process involves reviewing open contracts and purchase orders, communicating with our personnel to identify services that have been performed on our behalf and estimating the level of service performed and the associated costs

incurred for the services when we have not yet been invoiced or otherwise notified of the actual costs. The majority of our service providers invoice us in arrears for services performed, on a predetermined schedule or when contractual milestones are met; however, some require advanced payments. We make estimates of our accrued expenses as of each balance sheet date in our consolidated financial statements based on facts and circumstances known to us at that time. Examples of estimated accrued research and development expenses include fees paid to:

- CROs in connection with performing research services on our behalf and clinical trials;
- investigative sites or other providers in connection with clinical trials;
- vendors in connection with preclinical and clinical development activities; and
- vendors related to product manufacturing, development and distribution of preclinical and clinical supplies.

We base our expenses related to preclinical studies and clinical trials on our estimates of the services received and efforts expended pursuant to quotes and contracts with multiple CROs that conduct and manage clinical trials on our behalf. The financial terms of these agreements are subject to negotiation, vary from contract to contract and may result in uneven payment flows. There may be instances in which payments made to our vendors will exceed the level of services provided and result in a prepayment of the clinical expense. Payments under some of these contracts depend on factors such as the successful enrollment of patients and the completion of clinical trial milestones. In accruing service fees, we estimate the time period over which services will be performed, enrollment of patients, number of sites activated and the level of effort to be expended in each period. If the actual timing of the performance of services or the level of effort varies from our estimate, we adjust the accrual or amount of prepaid expense accordingly. Although we do not expect our estimates to be materially different from amounts actually incurred, our understanding of the status and timing of services performed relative to the actual status and timing of services performed may vary and may result in us reporting amounts that are too high or too low in any particular period. To date, we have not made any material adjustments to our prior estimates of accrued research and development expenses.

Warrants Issued in 2016 Private Placement

In connection with our private placement offering in November 2016, or the November private placement, we issued warrants to purchase 1,644,737 shares of common stock, which we refer to as the November 2016 Warrants. These warrants are exercisable at an exercise price of \$10.79 per share. We evaluated the terms of these warrants and concluded that they should be liability-classified. In November 2016, we recorded the fair value of these warrants of approximately \$8.3 million. We recognize any change in the value of the warrant liability each reporting period in the statement of operations. As of June 30, 2019, the fair value of the warrants was approximately \$0.8 million, which is a decrease of \$7.7 million from the fair value of approximately \$8.5 million as of December 31, 2018. See Note 7 of the notes to the unaudited financial statements included elsewhere in this Quarterly Report on Form 10-Q.

Stock-Based Compensation

We issue stock-based awards to employees and non-employees, generally in the form of stock options or performance-based restricted stock units. We account for our stock-based compensation awards in accordance with Financial Accounting Standards Board, (FASB) ASC Topic 718, *Compensation—Stock Compensation*, or ASC 718. ASC 718 requires all stock-based payments to employees, including grants of employee stock options and modifications to existing stock awards, to be recognized in the statements of operations and comprehensive loss based on their fair values. We adopted ASU 2018-07, *Improvements to Nonemployee Share-Based Payment Accounting*, effective July 1, 2018, which aligns the accounting treatment of nonemployee awards with employee awards. Described below is the methodology we have utilized in measuring stock-based compensation expense. Stock option, common stock and restricted stock values are determined based on a blend of our stock price and the quoted market price of our comparable public companies.

We measure stock options and other stock-based awards granted to employees, nonemployees and directors based on the fair value on the date of grant and recognize the corresponding compensation expense of those awards, over the requisite service period, which is generally the vesting period of the respective award. Generally, we issue stock options and performance based restricted stock units with service-based vesting conditions and record the expense for these awards using the straight-line method. Each quarter we update our assessment of the probability that the specified performance criteria will be achieved and adjust our estimate of the fair value of the performance-based RSUs if necessary. We adopted ASU No. 2016-09, *Compensation-Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting*, or ASU 2016-09, effective January 1,

2017. Prior to adoption, share-based compensation expense was recognized on a straight-line basis, net of estimated forfeitures, such that expense was recognized only for share-based awards that are expected to vest. A forfeiture rate was estimated annually and revised, if necessary, in subsequent periods if actual forfeitures differed from initial estimates. Following adoption of ASU 2016-09, we no longer apply a forfeiture rate and instead will account for forfeitures as they occur.

We estimate the fair value of each stock option grant using the Black-Scholes option-pricing model. Use of this model requires that we make assumptions as to the fair value of our common stock, the volatility of our common stock, the expected term of our stock options, the risk-free interest rate for a period that approximates the expected term of our stock options and our expected dividend yield. Because we lack company-specific historical and implied volatility information due in part to the limited time in which we have operated as a publicly traded company, we estimate our expected volatility based on the historical volatility of a group of publicly traded peer companies. We expect to continue to do so until such time as we have adequate historical data regarding the volatility of our traded stock price. We use the simplified method prescribed by the SEC's Staff Accounting Bulletin No. 107, *Share-Based Payment*, to calculate the expected term of options granted to employees and directors. We base the expected term of options granted to consultants and nonemployees on the contractual term of the options. We determine the risk-free interest rate by reference to the United States Treasury yield curve in effect at the time of grant of the award for time periods approximately equal to the expected term of the award. Expected dividend yield is based on the fact that we have never paid cash dividends and do not expect to pay any cash dividends in the foreseeable future. We measure the fair value of the performance-based restricted stock units relating to the total share return performance using a Monte Carlo valuation model.

There were no stock options granted prior to 2015. We recognize forfeitures as they occur and the compensation expense is reversed in the period that the forfeiture occurs. The assumptions we used to determine the fair value of granted stock options in six months ended June 30, 2019 and 2018 are as follows:

	<u>Six Months Ended June 30,</u>	
	<u>2019</u>	<u>2018</u>
Risk-free interest rate	2.6%	2.5%
Expected term (in years)	6.0	5.9
Expected volatility	81.1%	82.6%
Expected dividend yield	0%	0%

The assumptions used to determine the fair value of the performance-based restricted stock units granted to management during the six months ended June 30, 2019 for the performance goal milestone units is based on the market price of the award on the grant date, which was a weighted average fair value for the six months ended June 30, 2019 of \$10.35 per share. The fair value of the performance-based restricted stock units granted to management in 2019 for the Company's relative total share return units is based on the Monte Carlo Simulation method on the grant date, which the weighted average fair value as of the six months ended June 30, 2019 was \$6.62 per share.

These assumptions represented our best estimates, but the estimates involve inherent uncertainties and the application of our judgment. As a result, if factors change and we use significantly different assumptions or estimates, our stock-based compensation expense could be materially different. We recognize compensation expense for only the portion of awards that are expected to vest.

We expect the impact of our stock-based compensation expense for stock options and performance based restricted stock units granted to employees and non-employees to grow in future periods due to the potential increases in the fair value of our common stock and the increase in the number of grants as a result of an increase in headcount.

The following table summarizes the classification of our stock-based compensation expenses recognized in our consolidated statements of operations and comprehensive loss (in thousands):

	<u>For the Three Months Ended</u>		<u>For the Six Months Ended</u>	
	<u>June 30,</u>		<u>June 30,</u>	
	<u>2019</u>	<u>2018</u>	<u>2019</u>	<u>2018</u>
Stock-based compensation:				
Research and development	\$ 339	\$ 213	\$ 656	\$ 414
General and administrative	702	480	1,357	935
Total Stock-based compensation	<u>\$ 1,041</u>	<u>\$ 693</u>	<u>\$ 2,013</u>	<u>\$ 1,349</u>

JOBS Act

In April 2012, the Jumpstart Our Business Startups Act of 2012, or the JOBS Act, was enacted. Section 107 of the JOBS Act provides that an "emerging growth company," or EGC, can take advantage of the extended transition period provided in

Section 7(a)(2)(B) of the Securities Act for complying with new or revised accounting standards. Thus, an EGC can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have irrevocably elected not to avail ourselves of this extended transition period and, as a result, we adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for other public companies.

Subject to certain conditions, as an EGC, we intend to rely on certain exemptions afforded by the JOBS Act, including the exemption from: certain requirements related to the disclosure of executive compensation in our periodic reports and proxy statements, and the requirement that we hold a nonbinding advisory vote on executive compensation and any golden parachute payments; the requirement that the auditors provide an attestation report on our system of internal controls over financial reporting pursuant to Section 404(b) of the Sarbanes-Oxley Act; and complying with any requirement that may be adopted by the Public Company Accounting Oversight Board, or PCAOB, regarding mandatory audit firm rotation or a supplement to the auditor's report providing additional information about the audit and the financial statements, known as the auditor discussion and analysis. We will remain an EGC until the earliest of the last day of the fiscal year in which we have total annual gross revenues of approximately \$1.07 billion or more; the last day of the fiscal year following the fifth anniversary of the date of the completion of the closing of our IPO, which is December 31, 2021; the date on which we have issued more than \$1 billion in nonconvertible debt during the previous three years; or the date on which we are deemed to be a large accelerated filer under the rules of the SEC.

Results of Operations

Comparison of the Three and Six Months Ended June 30, 2019 and 2018

The following table summarizes our results of operations for the three and six months ended June 30, 2019 and 2018 (in thousands):

	For the Three Months Ended June 30,			For the Six Months Ended June 30,		
	2019	2018	Change	2019	2018	Change
Operating expenses:						
Research and development	\$ 7,275	\$ 5,555	\$ 1,720	\$ 12,842	\$ 9,532	\$ 3,310
General and administrative	2,490	2,399	91	5,300	4,622	678
Total operating expenses	9,765	7,954	1,811	18,142	14,154	3,988
Loss from operations	(9,765)	(7,954)	(1,811)	(18,142)	(14,154)	(3,988)
Other income	325	198	127	686	332	354
Change in fair value of warrant liabilities	4,885	3,971	914	7,706	5,173	2,533
Net loss	<u>\$ (4,555)</u>	<u>\$ (3,785)</u>	<u>\$ (770)</u>	<u>\$ (9,750)</u>	<u>\$ (8,649)</u>	<u>\$ (1,101)</u>

Research and development expenses.

Research and development expenses during the three months ended June 30, 2019 and 2018 were \$7.3 million and \$5.6 million, respectively. The increase of \$1.7 million during the three months ended June 30, 2019 was primarily due to an increase in spending on preclinical studies and clinical trial-related activities for inarigivir and SB 11285 of \$1.3 million and other research and development related expenses of \$0.4 million, including salaries and benefits, laboratory supplies and non-cash charges for stock-based compensation.

Research and development expenses during the six months ended June 30, 2019 and 2018 were \$12.8 million and \$9.5 million, respectively. The increase of \$3.3 million during the six months ended June 30, 2019 was primarily due to an increase in spending on preclinical studies and clinical trial-related activities for inarigivir and SB 11285 of \$2.3 million, salaries and benefits associated with higher research and development headcount of \$0.4 million and other research and development related expenses of \$0.6 million including laboratory supplies, lease-related costs, non-cash charges for stock-based compensation and non-cash charges for depreciation.

General and administrative expenses.

General and administrative expenses during the three months ended June 30, 2019 and 2018 were \$2.5 million and \$2.4 million, respectively. The increase of \$0.1 million during the three months ended June 30, 2019 was primarily due to an increase in other general and administrative related expenses of \$0.1 million, including non-cash charges for stock-based compensation, offset by lease-related costs.

General and administrative expenses during the six months ended June 30, 2019 and 2018 were \$5.3 million and \$4.6 million, respectively. The increase of \$0.7 million during the six months ended June 30, 2019 was primarily due to an increase in non-

cash charges for stock-based compensation of \$0.4 million and other general and administrative related expenses of \$0.3 million, including salaries and benefits, legal-related costs and consulting-related costs, offset by lease-related costs.

Other income. Other income during the three and six months ended June 30, 2019 and 2018 is solely comprised of interest income. Interest income during the three and six months ended June 30, 2019 was \$0.3 million and \$0.7 million, respectively, and was primarily due to the interest earned on marketable securities. Interest income during the three and six months ended June 30, 2018 was \$0.2 million and \$0.3 million, respectively, and was primarily due to the interest earned on marketable securities. The increase in interest income during the three and six months ended June 30, 2019 was due to a higher average balance of marketable securities.

Change in fair value of warrant liabilities. The change in fair value of warrant liabilities during the three and six months ended June 30, 2019 was a gain of \$4.9 million and \$7.7 million, respectively. The change in fair value of warrant liabilities during the three and six months ended June 30, 2018 was a gain of \$4.0 million and \$5.2 million, respectively. The change in value each period was solely due to the change in the fair value of the November 2016 Warrants, primarily as a result of the change in our stock price and stock price volatility.

Liquidity and Capital Resources

Sources of Liquidity

From our inception through June 30, 2019, we have financed our operations through proceeds received from private placements of convertible notes, common stock and/or warrants, the exercise of options and warrants, NIH grant funding and public offerings of securities. As of June 30, 2019, we had cash, cash equivalents and marketable securities totaling \$49.2 million and an accumulated deficit of \$111.8 million.

In August 2018, we issued and sold in an underwritten public offering an aggregate of 3,246,079 shares of our common stock at \$12.50 per share, which included 246,079 shares pursuant to the exercise of an option to purchase additional shares granted to the underwriters in connection with the offering. The shares issued in this offering were registered under the Securities Act pursuant to our Registration Statement on Form S-3 (Registration No. 333-218399) that was declared effective by the SEC on June 12, 2017, which we refer to as the S-3 Registration Statement, and a prospectus supplement and base prospectus filed on August 9, 2018. The offering resulted in \$38.0 million of net proceeds, after deducting underwriting discounts and commissions and other offering expenses payable by us.

In August 2017, we entered into a Controlled Equity OfferingSM Sales Agreement, or Sales Agreement, with Cantor Fitzgerald & Co., or Cantor, pursuant to which we may offer and sell, from time to time through Cantor, shares of our common stock having an aggregate offering price of up to \$50.0 million. We pay Cantor a commission rate equal to 3.0% of the aggregate gross proceeds from each sale. Shares sold under the Sales Agreement are offered and sold pursuant to our S-3 Registration Statement, and a prospectus supplement and accompanying base prospectus that we filed with the Securities and Exchange Commission on August 18, 2017. During the year ended December 31, 2018, we sold an aggregate of 217,329 shares of our common stock under the Sales Agreement at a weighted average selling price of \$15.42 per share, which resulted in \$3.2 million of net proceeds.

Cash Flows

The following table summarizes sources and uses of cash for each of the periods presented (in thousands):

	For the Six Months Ended	
	June 30,	
	2019	2018
Net cash used in operating activities	\$ (14,765)	\$ (12,960)
Net cash provided by (used in) investing activities	10,582	(1,043)
Net cash provided by financing activities	6	3,213
Net decrease in cash, cash equivalents and restricted cash	<u>\$ (4,177)</u>	<u>\$ (10,790)</u>

Net cash used in operating activities. The use of cash in both periods resulted primarily from our net losses adjusted for non-cash charges and changes in components of working capital. Net cash used in operating activities during the six months ended June 30, 2019 and 2018 was \$14.8 million and \$13.0 million, respectively. The increase in cash used in operating activities during the six months ended June 30, 2019 compared to the six months ended June 30, 2018 of \$1.8 million was primarily due to an increase in the net loss of \$1.1 million and other net changes of \$0.1 million, offset by a decrease in accrued expenses and other current and non-current liabilities of \$1.1 million. In addition, there was an increase in the non-cash change in the fair value of the warrant liability of \$2.5 million, the non-cash stock-based compensation of \$0.6 million and other non-cash changes of \$0.2 million.

Net cash provided by (used in) investing activities. Net cash provided by investing activities during the six months ended June 30, 2019 and 2018 was \$10.6 million and \$1.0 million, respectively. The cash provided by investing activities during the six months ended June 30, 2019 was primarily the result of \$16.8 million in proceeds from the sale of marketable securities, which was offset by \$6.0 million for the purchase of marketable securities and \$0.2 million for the purchase of property and equipment. The cash provided by investing activities during the six months ended June 30, 2018 was primarily the result of \$22.0 million in proceeds from the sale of marketable securities, which was offset by \$22.0 million for the purchase of marketable securities and \$1.0 million for the purchase of property and equipment.

Net cash provided by financing activities. Net cash provided by financing activities during the six months ended June 30, 2019 and 2018 was the result of net proceeds from our at-the-market offering program under the Sales Agreement.

Funding Requirements

We expect to continue to incur significant and increasing losses for the foreseeable future. We anticipate these losses to increase as our expenses increase, and we expect that our expenses will increase if and as we:

- continue to develop and conduct clinical trials of inarigivir, including our Phase 2 CATALYST clinical trials of inarigivir for chronic HBV;
- continue to develop and initiate clinical trials of SB 11285, our lead STING agonist product candidate;
- initiate and continue research and preclinical and clinical development efforts for our other product candidates, including SB 9225, a potential fixed-dose co-formulation product that combines inarigivir and tenofovir disoproxil fumarate;
- seek to identify and develop additional product candidates;
- seek regulatory and marketing approvals for our product candidates that successfully complete clinical trials, if any;
- establish sales, marketing, distribution and other commercial infrastructure in the future to commercialize various products for which we may obtain marketing approval, if any;
- require the manufacture and supply of larger quantities of product candidates for clinical development and potentially commercialization;
- maintain, expand and protect our intellectual property portfolio;
- hire and retain additional personnel, including clinical, quality control and scientific personnel;
- add operational, financial and management information systems and personnel, including personnel to support our product development and help us comply with our obligations as a public company; and
- add equipment and physical infrastructure to support our research and development programs.

We expect that our existing cash, cash equivalents and marketable securities as of June 30, 2019 will enable us to fund our operating expenses and capital expenditure requirements into the second quarter of 2021. We have based this estimate on assumptions that may prove to be wrong, and we may use our available capital resources sooner than we currently expect. Because of the numerous risks and uncertainties associated with the development of our product candidates, we are unable to estimate the amounts of increased capital outlays and operating expenses associated with completing the research and development of our product candidates. Our future capital requirements, both near and long-term, will depend on many factors, including, but not limited to:

- initiation, progress, timing, costs and results of clinical trials evaluating inarigivir, SB 11285 and SB 9225;
- initiation, progress, timing, costs and results of preclinical studies and clinical trials of any other product candidates we may develop;
- our obligation to make royalty and non-royalty sublicense payments to third-party licensors, if any, under our licensing agreements;

- the timing, receipt, and amount of milestone payments or royalties, if any, from inarigivir, SB 11285, SB 9225 or any of our other product candidates;
- the number and characteristics of product candidates that we discover or in-license and develop;
- the outcome, timing and cost of seeking regulatory review by the FDA and comparable foreign regulatory authorities, including the potential for the FDA or comparable foreign regulatory authorities to require that we perform more studies than those we currently expect;
- the costs of filing, prosecuting, defending and enforcing any patent claims and maintaining and enforcing other intellectual property rights;
- subject to receipt of marketing approval, revenue, if any, received from commercial sales of inarigivir and any other products;
- the costs and timing of the implementation of commercial-scale manufacturing activities;
- the costs and timing of establishing sales, marketing and distribution capabilities for any product candidates for which we may receive regulatory approval; and
- the costs of operating as a public company.

Identifying potential product candidates and conducting preclinical testing and clinical trials is a time-consuming, expensive and uncertain process that takes years to complete, and we may never generate the necessary data or results required to obtain marketing approval and achieve product sales. In addition, our product candidates, if approved, may not achieve commercial success. Our commercial revenues, if any, will be derived from sales of products that we do not expect to be commercially available for many years, if ever. Accordingly, we will need to obtain substantial additional funds to achieve our business objectives.

Adequate additional funds may not be available to us on acceptable terms, or at all. We do not currently have any committed external source of funds. As of June 30, 2019, we had up to \$59.6 million in securities available for future issuance under the S-3 Registration Statement, which included \$42.7 million in shares issuable pursuant to our at-the-market program and our Sales Agreement with Cantor. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the ownership interests of our stockholders will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect the rights of our common stockholders. Additional debt financing and equity financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends and may require the issuance of warrants, which could potentially dilute the ownership interests of our stockholders.

If we raise additional funds through collaborations, strategic alliances or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs, or product candidates or grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce or terminate our product development programs or any future commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

Contractual Obligations and Commitments

We have contractual obligations pursuant to our amended and restated license agreement with BioHEP Technologies Ltd., or BioHEP. Under this agreement, we have agreed to pay up to \$3.5 million in development and regulatory milestone payments to BioHEP for each distinct viral indication for which we develop licensed product(s). BioHEP is also eligible to receive tiered royalties in the low-to-mid single-digits on net product sales of licensed products by us and our affiliates and sub licensees, and a specified share of non-royalty sublicensing revenues we and our affiliates receive from sub licensees, which share of sublicensing revenues is capped at a maximum aggregate of \$2.0 million under all such sublicenses. Milestone and royalty payments associated with our amended and restated license agreement with BioHEP have not been included in the above table of contractual obligations as we cannot reasonably estimate if or when they will occur. As of June 30, 2019, there have been no milestone or royalty payments made to BioHEP.

We enter into contracts in the normal course of business with third party service providers for clinical trials, preclinical research studies and testing, manufacturing and other services and products for operating purposes. We have not included our payment

obligations under these contracts in the table as these contracts generally provide for termination upon notice, and therefore we believe that our non-cancelable obligations under these agreements are not material. We could also enter into additional research, manufacturing, supplier and other agreements in the future, which may require up-front payments and even long-term commitments of cash.

Off-Balance Sheet Arrangements

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

Recently Issued Accounting Pronouncements

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820), Disclosure Framework – Changes to the Disclosure Requirement for Fair Value Measurement*. This ASU removes, modifies and adds certain disclosure requirements of ASC Topic 820. The ASU is effective for all entities for fiscal years, and interim periods within those fiscal years, beginning after December 31, 2019. We are currently evaluating the impact that the adoption of this standard may have on our consolidated financial statements.

In February 2016, the FASB issued ASU No. 2016-02, *Leases* (“ASU 2016-02”). ASU 2016-02 requires lessees to recognize most leases on their balance sheet as a right-of-use asset and a lease liability. Leases are classified as either operating or finance, and classification is based on criteria similar to current lease accounting, but without explicit bright lines. In July 2018, the FASB issued ASU No. 2018-10, “*Codification Improvements to Topic 842, Leases*” (“ASU 2018-10”), which provides narrow amendments to clarify how to apply certain aspects of the new lease standard, and ASU No. 2018-11, “*Leases (Topic 842) – Targeted Improvements*” (ASU 2018-11), which addresses implementation issues related to the new lease standard. The guidance is effective for annual reporting periods beginning after December 15, 2018 and interim periods within those fiscal years, and early adoption is permitted. Under this standard, disclosures are required to enable users of financial statements in assessing the amount, timing, and uncertainty of cash flows arising from leases. The standard permits two transition methods, (1) to apply the new lease requirements at the beginning of the earliest period presented, or (2) to apply the new lease requirements at the effective date. Under both transition methods there is a cumulative effect adjustment.

We adopted the standard on the effective date of January 1, 2019 by applying the new lease requirements at the effective date. Prior periods continue to be presented based on the accounting standards originally in effect for such periods. We also elected the package of practical expedients permitted under the transition guidance within the new standard, which, among other things, allows us to carry forward the historical lease classification. We will also apply the practical expedient not to separate lease and non-lease components for new and modified leases commencing after adoption. The standard had an impact of approximately \$3.0 million on our assets and \$3.4 million on our liabilities, as of January 1, 2019, for the recognition of right-of-use assets and lease liabilities, which are primarily related to the lease of our corporate headquarters in Hopkinton, Massachusetts. The standard did not have a material impact on our results of operations or liquidity.

In July 2017, the FASB issued ASU 2017-11, *Earnings Per Share (Topic 260), Distinguishing Liabilities from Equity (Topic 480), Derivatives and Hedging (Topic 815): I. Accounting for Certain Financial Instruments with Down Round Features and II. Replacement of the Indefinite Deferral for Mandatorily Redeemable Financial Instruments of Certain Nonpublic Entities and Certain Mandatorily Redeemable Noncontrolling Interests with a Scope Exception*. Part I applies to entities that issue financial instruments such as warrants, convertible debt or convertible preferred stock that contain down round features. Part II simply replaces the indefinite deferral for certain mandatorily redeemable noncontrolling interests and mandatorily redeemable financial instruments of nonpublic entities contained within Accounting Standards Codification (“ASC”) Topic 480 with a scope exception and does not impact the accounting for these mandatorily redeemable instruments. This ASU is effective for public companies for the annual reporting periods beginning after December 15, 2018, and interim periods within those annual periods. Early adoption is permitted. We adopted this standard as of January 1, 2019; however, the adoption of this standard did not impact our consolidated financial statements.

Other accounting standards that have been issued or proposed by the FASB or other standards-setting bodies that do not require adoption until a future date are not expected to have a material impact on our consolidated financial statements upon adoption.

Item 3. Quantitative and Qualitative Disclosures About Market Risk.

We are exposed to market risk related to changes in interest rates. Our cash, cash equivalents and marketable securities of \$49.2 million as of June 30, 2019, consisted of cash, cash equivalents and marketable securities. Our primary exposure to market risk is interest income sensitivity, which is affected by changes in the general level of U.S. interest rates. However, because a significant amount of the marketable securities in our investment portfolio are short-term in nature, an immediate 10% change in market interest rates would not be expected to have a material impact on the fair market value of our investment portfolio or on our financial condition or results of operations.

Item 4. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our principal executive officer and our principal financial officer, evaluated, as of the end of the period covered by this Quarterly Report on Form 10-Q, the effectiveness of our disclosure controls and procedures. Based on that evaluation of our disclosure controls and procedures as of June 30, 2019, our principal executive officer and principal financial officer concluded that our disclosure controls and procedures as of such date are effective at the reasonable assurance level. The term “disclosure controls and procedures,” as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended, or the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act are recorded, processed, summarized and reported within the time periods specified in the SEC’s rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by us in the reports we file or submit under the Exchange Act is accumulated and communicated to our management, including our principal executive officer and principal financial and accounting officer, as appropriate to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and our management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures.

Inherent Limitations of Internal Controls

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the six months ended June 30, 2019, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II—OTHER INFORMATION

Item 1. Legal Proceedings.

From time to time, we may become involved in legal proceedings arising in the ordinary course of our business. We are not presently a party to any material litigation.

Item 1A. Risk Factors.

There have been no material changes in or additions to the risk factors included in our Annual Report on Form 10-K for the year ended December 31, 2018.

Item 6. Exhibits.

The exhibits filed as part of this Quarterly Report on Form 10-Q are set forth on the Exhibit Index.

EXHIBIT INDEX

Exhibit Number	Description
31.1	<u>Certification of Principal Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.</u>
31.2	<u>Certification of Principal Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.</u>
32.1	<u>Certification of Principal Executive Officer and Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.</u>
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

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.

Spring Bank Pharmaceuticals, Inc.

Date: July 31, 2019

By: /s/ Jonathan Freve
Jonathan Freve
Chief Financial Officer and Treasurer
(Principal Financial and Accounting Officer)

**CERTIFICATION PURSUANT TO
SECTION 302 OF
THE SARBANES-OXLEY ACT OF 2002**

I, Martin Driscoll, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Spring Bank Pharmaceuticals, Inc.;
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)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) 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) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - 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: July 31, 2019

By: /s/ Martin Driscoll
Martin Driscoll
President and Chief Executive Officer
(Principal Executive Officer)

**CERTIFICATION PURSUANT TO
SECTION 302 OF
THE SARBANES-OXLEY ACT OF 2002**

I, Jonathan Freve, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Spring Bank Pharmaceuticals, Inc.;
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)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) 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) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - 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: July 31, 2019

By: /s/ Jonathan Freve
Jonathan Freve
Chief Financial Officer and Treasurer
(Principal Financial and Accounting Officer)

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Quarterly Report of Spring Bank Pharmaceuticals, Inc. (the "Company") on Form 10-Q for the period ending June 30, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), each of the undersigned certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that to the best of his knowledge:

- (1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and result of operations of the Company.

Date: July 31, 2019

By: /s/ Martin Driscoll
Martin Driscoll
President and Chief Executive Officer
(Principal Executive Officer)

Date: July 31, 2019

By: /s/ Jonathan Freve
Jonathan Freve
Chief Financial Officer and Treasurer
(Principal Financial and Accounting Officer)

This certification accompanies the Form 10-Q to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of Spring Bank Pharmaceuticals, Inc. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-Q), irrespective of any general incorporation language contained in such filing.