ACHAOGEN INC

FORM 10-Q
(Quarterly Report)

Filed 08/08/16 for the Period Ending 06/30/16

Address	7000 SHORELINE COURT SUITE 371 SOUTH SAN FRANCISCO, CA 94080
Telephone	650-800-3636
CIK	0001301501
Symbol	AKAO
SIC Code	2834 - Pharmaceutical Preparations
Industry	Biotechnology & Drugs
Sector	Healthcare
Fiscal Year	12/31

Table of Contents

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, 2016

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: 001-36323

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

Delaware	**68-0533693**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**

7000 Shoreline Court, Suite 371
South San Francisco, CA
(Address of principal executive offices)

94080
(Zip Code)

(650) 800-3636
(Registrant's telephone number, including area code)

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 and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted 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 and post such files). Yes ☒ No ☐

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

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

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

As of August 2, 2016, there were 26,679,702 shares of the registrant's common stock, par value $0.001 per share, outstanding.

ACHAOGEN, INC.

TABLE OF CONTENTS

PART I—FINANCIAL INFORMATION

Item 1. Financial Statements.

Achaogen, Inc.
Condensed Consolidated Balance Sheets
(In thousands except share and per share data)

	June 30, 2016	December 31, 2015 (Note 1)
	(unaudited)	
Assets		
Current assets:		
Cash and cash equivalents	$ 54,649	$ 20,287
Short-term investments	15,350	38,444
Contracts receivable	8,652	5,039
Prepaids and other current assets	2,501	1,719
Restricted cash	127	—
Total current assets	81,279	65,489
Property and equipment, net	995	905
Restricted cash	—	127
Deposit and other assets	70	342
Total assets	$ 82,344	$ 66,863
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 6,095	$ 3,537
Accrued liabilities	9,365	4,927
Other current liabilities	207	225
Total current liabilities	15,667	8,689
Loan payable, long-term	24,815	14,536
Warrant liability	3,937	—
Derivative liability	400	375
Other long-term liabilities	14	104
Total liabilities	44,833	23,704
Commitments and contingencies		
Stockholders' equity		
Common stock, $0.001 par value, 290,000,000 shares authorized at June 30, 2016 and December 31, 2015; 26,548,023 and 18,395,219 shares issued and outstanding at June 30, 2016 and December 31, 2015, respectively	26	18
Preferred stock, $0.001 par value, 10,000,000 shares authorized and zero shares issued and outstanding at June 30, 2016 and December 31, 2015	—	—
Additional paid-in-capital	243,938	219,182
Accumulated deficit	(206,458)	(175,993)
Accumulated other comprehensive income (loss)	5	(48)
Total stockholders' equity	37,511	43,159
Total liabilities and stockholders' equity	$ 82,344	$ 66,863

See accompanying notes to condensed consolidated financial statements.

Achaogen, Inc.
Condensed Consolidated Statements of Operations
(In thousands except share and per share data)
(unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2016	2015	2016	2015
Contract revenue	$ 9,144	$ 12,041	$ 14,993	$ 16,921
Operating expenses				
Research and development	21,708	10,088	35,601	17,967
General and administrative	3,951	2,882	7,728	6,113
Total operating expenses	25,659	12,970	43,329	24,080
Loss from operations	(16,515)	(929)	(28,336)	(7,159)
Interest expense	(447)	—	(885)	—
Change in warrant and derivative liabilities	(1,382)	—	(1,382)	—
Other income, net	76	43	138	94
Net loss	$ (18,268)	$ (886)	$ (30,465)	$ (7,065)
Basic and diluted net loss per common share	$ (0.87)	$ (0.05)	$ (1.55)	$ (0.39)
Weighted-average common shares outstanding used to calculate basic and diluted net loss per common share	20,899,297	18,070,045	19,648,792	18,034,416

See accompanying notes to condensed consolidated financial statements.

Achaogen, Inc.
Condensed Consolidated Statements of Comprehensive Loss
(In thousands)
(unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2016	2015	2016	2015
Net loss	$ (18,268)	$ (886)	$ (30,465)	$ (7,065)
Other comprehensive (loss) income:				
Net unrealized gain (loss) on available-for-sale securities	(2)	—	53	28
Total comprehensive loss	$ (18,270)	$ (886)	$ (30,412)	$ (7,037)

See accompanying notes to condensed consolidated financial statements.

Achaogen, Inc.
Condensed Consolidated Statements of Cash Flows
(In thousands)
(unaudited)

	Six Months Ended June 30,	
	2016	**2015**
Cash flows from operating activities:		
Net loss	$ (30,465)	$ (7,065)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	227	201
Amortization of premium on short-term investments	252	279
Stock-based compensation expense	1,751	1,534
Change in warrant and derivative liabilities	1,382	—
Non-cash interest expense relating to loan payable	279	—
Change in operating assets and liabilities:		
Contracts receivable	(3,613)	745
Prepaids and other assets	(510)	(361)
Accounts payable and accrued liabilities	6,996	1,789
Other liabilities	(108)	(51)
Net cash used in operating activities	(23,809)	(2,929)
Cash flows from investing activities:		
Purchase of property and equipment	(317)	(378)
Purchase of short-term investments	—	(1,997)
Maturities of short-term investments	22,895	24,824
Net cash provided by investing activities	22,578	22,449
Cash flows from financing activities:		
Proceeds from issuance of common stock, net of issuance costs	25,420	—
Proceeds from issuance of loan payable	10,000	—
Proceeds from issuance of common stock in conjunction with equity incentive plans	173	1,147
Net cash provided by financing activities	35,593	1,147
Net increase in cash and cash equivalents	34,362	20,667
Cash and cash equivalents, beginning of period	20,287	18,881
Cash and cash equivalents, end of period	$ 54,649	$ 39,548
Supplemental disclosures of cash flow information		
Interest paid	$ 606	$ —

See accompanying notes to condensed consolidated financial statements.

Achaogen, Inc.
June 30, 2016

Notes to Condensed Consolidated Financial Statements
(unaudited)

1. Organization and Basis of Presentation and Consolidation

Achaogen, Inc. (together with its consolidated subsidiary, the "Company") is a clinical-stage biopharmaceutical company passionately committed to the discovery, development, and commercialization of novel antibacterial drugs to treat multi-drug resistant gram-negative infections. The Company is developing plazomicin, its lead product candidate, for the treatment of serious bacterial infections due to multi-drug resistant Enterobacteriaceae, including carbapenem-resistant Enterobacteriaceae ("CRE"). The Company's Phase 3 study of plazomicin in the treatment of patients with complicated urinary tract infections ("cUTI") and acute pyelonephritis ("AP"), entitled EPIC (Evaluating Plazomicin In cUTI), is expected to serve as a single pivotal study supporting a new drug application ("NDA") for plazomicin in the United States. In addition, the Company is completing a Phase 3 study of plazomicin, entitled CARE (Combating Antibiotic Resistant Enterobacteriaceae), which is a resistant pathogen-specific trial designed to evaluate the efficacy and safety of plazomicin in patients with certain infections due to CRE.

The Company was incorporated in Delaware in 2002 and commenced operations in 2004. Since commencing operations in 2004, the Company has devoted substantially all of its resources to identifying and developing its product candidates, including conducting preclinical studies and clinical trials and providing general and administrative support for these operations.

Basis of Presentation and Consolidation

The accompanying unaudited condensed consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles ("U.S. GAAP") and following the requirements of the Securities and Exchange Commission (the "SEC") for interim reporting. As permitted under those rules, certain footnotes or other financial information that are normally required by U.S. GAAP can be condensed or omitted. These financial statements have been prepared on the same basis as the Company's annual financial statements and, in the opinion of management, reflect all adjustments, consisting only of normal recurring adjustments, which are necessary for a fair statement of the Company's financial information. The results of operations for the three-month and six-month periods ended June 30, 2016 are not necessarily indicative of the results to be expected for the full year or any other future period. The balance sheet as of December 31, 2015 has been derived from audited consolidated financial statements at that date but does not include all of the information required by U.S. GAAP for complete financial statements. Intercompany accounts and transactions have been eliminated upon consolidation.

The accompanying condensed consolidated financial statements and related financial information should be read in conjunction with the audited consolidated financial statements and the related notes thereto for the year ended December 31, 2015 included in the Company's Annual Report on Form 10-K.

On June 3, 2016, the Company sold 7,999,996 shares of its common stock and warrants to purchase 1,999,999 shares of its common stock pursuant to Securities Purchase Agreement (the "Purchase Agreement") for aggregate gross proceeds of $25.4 million in connection with a private placement financing transaction (the "Private Placement"). The warrants have an exercise price of $3.66 per share and are exercisable up to five years from the date of issuance.

On April 7, 2015, the Company filed a Registration Statement on Form S-3, declared effective by the SEC on April 21, 2015, covering the offering of up to $150.0 million of common stock, preferred stock, debt securities, warrants, purchase contracts and/or units. This Registration Statement included a prospectus covering the offering, issuance and sale of up to $30.0 million of shares of our common stock from time to time in an "at-the-market" ("ATM") equity offering pursuant to a sales agreement with Cowen and Company, LLC. As of June 30, 2016, the Company had sold 267,520 shares pursuant to its ATM equity offering program at a weighted-average price of $6.29 per share for aggregate offering proceeds of $1.7 million and aggregate net proceeds of $1.6 million , after deducting the sales commissions and offering expenses.

In March 2014, the Company completed its initial public offering ("IPO") of shares of its common stock, pursuant to which the Company issued 6,900,000 shares of common stock, which includes 900,000 shares issued pursuant to the over-allotment option granted to its underwriters, and received net proceeds of approximately $73.9 million , after deducting underwriting discounts, commissions and offering expenses. In connection with the completion of the Company's IPO, all shares of convertible preferred stock converted into 10,386,894 shares of common stock and all of the Company's convertible preferred stock warrants were converted into warrants to purchase common stock.

The Company has incurred losses and negative cash flows from operations every year since its inception. As of June 30, 2016, the Company had unrestricted cash, cash equivalents and short-term investments of approximately $70.0 million and an accumulated deficit of approximately $206.5 million . Management expects to continue to incur additional substantial losses for the foreseeable future as a result of the Company's research and development activities, and the amounts of unrestricted cash, cash equivalents and short-term investments held at June 30, 2016 are sufficient to fund our current planned operations at least through the beginning of the second quarter of 2017 without securing additional funding sources. Management is currently evaluating different options for the raising of additional funds through equity or debt financing arrangements, government contracts and/or third party collaboration funding, however, there can be no assurance that such funding sources will be available at terms acceptable to the Company or at all. If the Company is unable to raise additional funding to meet its working capital needs, it will be forced to delay or reduce the scope of its research programs and/or limit or cease its operations.

The lack of financial resources to fund projected negative cash flows and the resultant need to raise substantial additional funding in the near term in order to sustain operations raise substantial doubt as to the Company's ability to continue as a going concern.

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern, which contemplates the realization of assets and the settlement of liabilities and commitments in the normal course of business. The financial statements do not reflect any adjustments relating to the recoverability and reclassification of assets and liabilities that might be necessary if the Company is unable to continue as a going concern.

2. Summary of Significant Accounting Policies

Use of Estimates

The accompanying financial statements have been prepared in accordance with U.S. GAAP. The preparation of financial statements in conformity with U.S. GAAP requires management to make judgments, assumptions and estimates that affect the reported amounts of assets, liabilities, revenues and expenses and related disclosures of contingent liabilities. On an ongoing basis, management evaluates its estimates, including those related to clinical trial accruals, fair value of liabilities, common stock and stock-based awards and income taxes. Management bases its estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ materially from those estimates.

Fair Value of Financial Instruments

The carrying amounts of the Company’s financial instruments, including cash and cash equivalents, contracts receivable, prepaid and other current assets, accounts payable, accrued liabilities, and other current liabilities approximate fair value due to their short-term maturities. Short-term investments consist of available-for-sale securities and are carried at fair value. Based upon the borrowing rates (which is a Level 2 input) currently available to the Company for loans with similar terms, the Company believes the carrying amount of the loan payable approximates its fair value. The warrant and derivative liabilities are recorded at estimated fair value with changes in estimated fair value recorded in the Company's statements of operations.

Cash and Cash Equivalents

Cash equivalents include only securities having a maturity of three months or less at the time of purchase. As of June 30, 2016 and December 31, 2015, cash and cash equivalents consisted of bank deposits, cash, and investments in money market funds.

Short-term Investments

Short-term investments consist of debt securities with maturities greater than three months, but less than one year from the date of acquisition, and are classified as available for sale. Short-term investments are carried at fair value. Unrealized gains and losses on available-for-sale securities are excluded from earnings and reported as a component of net unrealized gain (loss) on available-for-sale securities in the Company's consolidated statements of comprehensive loss. The amortized cost of debt securities reflects amortization of purchase premiums and accretion of purchase discounts to date, which is included in interest income.

The Company reviews all of its marketable securities on a regular basis to evaluate whether any security has experienced an other-than-temporary decline in fair value.

Restricted Cash

At June 30, 2016 and December 31, 2015, the Company had restricted cash of $127,000 . The restricted cash, which consists of a money market account with one of the Company's financial institutions, serves as collateral for a letter of credit provided as a security deposit under the Company's facility lease. The facility lease expires on April 14, 2017 .

Warrant Liability

On June 3, 2016, the Company issued 1,999,999 warrants to purchase shares of its common stock in connection with the Private Placement. Each warrant has an exercise price of $3.66 and is exercisable for five years from the date of issuance. The Company accounted for these warrants as a liability instrument measured at its fair value. The initial fair value of the warrants was determined using a calibration model that involved using the Black-Scholes Pricing Model ("Black-Scholes"), which requires inputs such as the risk-free interest rate, expected share price volatility, underlying price per share of the Company's common stock and remaining term of the warrants. The warrants are subject to remeasurement at each balance sheet date, using Black-Scholes, with any changes in the fair value of the outstanding warrants recognized in the condensed consolidated statements of operations.

Segment Reporting

Operating segments are identified as components of an enterprise about which separate discrete financial information is available for evaluation by the chief operating decision maker in making decisions regarding resource allocation and assessing performance. The Company has one operating segment.

Customer Concentration

For the three-month and six-month periods ended June 30, 2016 and 2015, the Company's revenue has been generated solely from funding pursuant to U.S. government contracts, and accordingly all contracts receivable relate to funding from U.S. government contracts.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to a significant concentration of credit risk consist of cash, cash equivalents and short-term investments. Cash and cash equivalents are deposited in checking and money market accounts at one financial institution with balances that generally exceed federally insured limits. Management believes that the financial institution is financially sound, and, accordingly, minimal credit risk exists with respect to this financial institution. Our investment policy limits investments to certain types of debt securities issued by the U.S. government, its agencies and institutions with investment-grade credit ratings and places restrictions on maturities and concentration by type and issuer. The Company is exposed to credit risk in the event of default by the institutions holding its cash and cash equivalents or issuing the debt securities. As of June 30, 2016 and December 31, 2015, the Company has not experienced any credit losses in such accounts or investments.

Revenue Recognition

The Company recognizes revenue when: (i) evidence of an arrangement exists, (ii) fees are fixed or determinable, (iii) services have been delivered, and (iv) collectability is reasonably assured. The Company currently generates revenue entirely from government contracts. Government contracts are agreements that provide the Company with payments for certain types of expenditures in return for research and development activities over a contractually defined period. Revenue from government contracts is recognized in the period during which the related costs are incurred and the related services are rendered, provided that the applicable conditions under the government contracts have been met. Costs of contract revenue are recorded as a component of operating expenses in the Company's consolidated statement of operations.

Funds received from third parties under contract arrangements are recorded as revenue if the Company is deemed to be the principal participant in the contract arrangements because the activities under the contracts are part of the Company's development programs. If the Company is not the principal participant, the funds from contracts are recorded as a reduction to research and development expense. Contract funds received are not refundable and are recognized when the related qualified research and development costs are incurred and when there is reasonable assurance that the funds will be received. Funds billed and received in advance are recorded as deferred revenue.

Research and Development Costs

Research and development costs are expensed as incurred. Research and development expenses include certain payroll and personnel expenses; laboratory supplies; consulting costs; external contract research and development expenses; and

allocated overhead, including rent, equipment depreciation and utilities, and relate to both Company-sponsored programs as well as costs incurred pursuant to collaboration agreements and government contracts.

The Company estimates preclinical study and clinical trial expenses based on the services performed pursuant to contracts with research institutions and clinical research organizations that conduct and manage preclinical studies and clinical trials on its behalf. In accruing service fees, the Company estimates the time period over which services will be performed 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 the estimate, the Company will adjust the accrual accordingly. Payments made to third parties under these arrangements in advance of the receipt of the related services are recorded as prepaid expenses until the services are rendered.

Advance payments for goods or services that will be used or rendered for future research and development activities are capitalized as prepaid expenses and other current assets and recognized as an expense as the goods are delivered or the related services are performed.

Recent Accounting Pronouncements

In August 2014, the Financial Accounting Standards Board ("FASB") issued ASU No. 2014-15, *Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern* (Topic 205-40), *Going Concern* . This ASU introduces an explicit requirement for management to assess if there is substantial doubt about an entity's ability to continue as a going concern, and to provide related footnote disclosures in certain circumstances. In connection with each annual and interim period, management must assess if there is substantial doubt about an entity's ability to continue as a going concern within one year after the issuance date. Disclosures are required if conditions give rise to substantial doubt. ASU 2014-15 is effective for all entities in the first annual period ending after December 15, 2016. The Company is currently assessing the potential effects of this ASU on its consolidated financial statements.

In November 2015, the FASB issued ASU No. 2015-17, *Income Taxes* (Topic 740) - *Balance Sheet Classification of Deferred Taxes* . This guidance simplifies the presentation of deferred income taxes in a classified balance sheet to require that deferred tax liabilities and assets be classified as noncurrent and is effective for annual reporting periods, including interim reporting periods, beginning after December 15, 2016, and is applicable to the Company's fiscal year beginning January 1, 2017. Early adoption is permitted. The Company does not anticipate it will have a material impact to its consolidated financial statements.

In February 2016, the FASB issued ASU No. 2016-02, *Leases,* which, for operating leases, requires a lessee to recognize a right-of-use asset and a lease liability, initially measured at the present value of the lease payments, in its balance sheet. The standard also requires a lessee to recognize a single lease cost, calculated so that the cost of the lease is allocated over the lease term, on a generally straight-line basis. This ASU will be effective for the Company in fiscal year 2019. Early adoption is permitted. The Company is currently assessing the potential effects of this ASU on its consolidated financial statements.

In March 2016, the FASB issued ASU No. 2016-06, *Derivatives and Hedging* (Topic 815) - *Contingent Put and Call Options in Debt Instruments.* This ASU clarifies the requirements for assessing whether contingent call (put) options that can accelerate the payment of principal on debt instruments are clearly and closely related to their debt hosts. An entity performing the assessment under the amendments in this Update is required to assess the embedded call (put) options solely in accordance with the four-step decision sequence. This guidance should be applied on a modified retrospective basis to existing debt instruments as of the beginning of the fiscal year in which the amendments are effective, and is effective for fiscal years beginning after December 15, 2016, including interim periods within those fiscal years. The Company is currently assessing the potential effects of this ASU on its consolidated financial statements.

In March 2016, the FASB issued ASU No 2016-09, *Compensation - Stock Compensation* (Topic 718) - *Improvements to Employee Share-Based Payment Accounting.* This ASU simplifies the accounting for share-based payment transactions, including the income tax consequences, classification of awards as either equity or liabilities, and classification on the statement of cash flows. In addition, the guidance allows for a policy election to account for forfeitures as they occur rather than on an estimated basis. This ASU will be effective for fiscal years beginning after December 15, 2016, and interim periods within those fiscal years. Early adoption is permitted. The Company is currently assessing the potential effects of this ASU on its consolidated financial statements.

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers* (Topic 606) , which provides a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers and will supersede most current revenue recognition guidance. This ASU is based on the principle that revenue is recognized to depict the transfer of goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The ASU also requires additional disclosure about the nature, amount, timing and uncertainty of revenue and cash flows arising from customer contracts, including significant judgments and changes in judgments and assets

recognized from costs incurred to obtain or fulfill a contract. In August 2015, the FASB issued ASU No. 2015-14, *Revenue from Contracts with Customers* (Topic 606) *, Deferral of the Effective Date* , which defers by one year the effective date of ASU No. 2014-09 to annual reporting periods beginning after December 15, 2017 (including interim periods within those periods). Early adoption is permitted to the original effective date of December 15, 2016 (including interim periods within those periods). In March 2016, the FASB issued ASU No. 2016-08, *Revenue from Contracts with Customers* (Topic 606), *Principal versus Agent Considerations (Reporting Revenue Gross versus Net)* , which clarifies how to identify the unit of accounting for the principal versus agent evaluation and how to apply the control principle to certain types of arrangements. In April 2016, the FASB issued ASU No. 2016-10, *Revenue from Contracts with Customers* (Topic 606), *Identifying Performance Obligations and Licensing,* which clarifies the implementation guidance on identifying performance obligations and licensing. In May 2016, the FASB issued ASU No. 2016-12, *Revenue from Contracts with Customers* (Topic 606) *, Narrow-Scope Improvements and Practical Expedients,* which addresses certain issues on assessing collectability, presentation of sales taxes, noncash consideration, and completed contracts and contract modifications at transition. These ASUs will be effective for the Company in the first quarter of fiscal year 2018, using one of two retrospective application methods. The Company has not selected a transition method and is currently assessing the potential effects of this ASU on the Company's condensed consolidated financial statements.

Net Loss Per Share

Basic net loss per common share is computed by dividing the net loss by the weighted-average number of common shares outstanding during the period. Diluted net loss per common share is computed by dividing the net loss by the weighted-average number of common shares and dilutive common share equivalents outstanding during the period. For purposes of this calculation, preferred stock, stock options, restricted stock units and warrants are considered to be common stock equivalents and are only included in the calculation of diluted net loss per share when their effect is dilutive.

For the three-month and six-month periods ended June 30, 2016 and 2015, all potentially dilutive securities outstanding have been excluded from the computations of diluted weighted-average shares outstanding because such securities have an antidilutive impact due to losses reported. Below are listed the potentially dilutive securities outstanding as of June 30, 2016 and 2015:

	June 30,	
	2016	**2015**
Options to purchase common stock	2,996,038	1,956,570
Restricted stock units	547,486	222,700
Warrants to purchase common stock	2,030,023	30,024

Warrants outstanding as of June 30, 2016 have a weighted-average exercise price of $3.78 .

3. Fair Value Measurements

Financial assets and liabilities are recorded at fair value. The carrying amount of certain financial instruments, including cash and cash equivalents, contracts receivable, accounts payable and accrued liabilities approximate fair value due to their relatively short maturities. Assets and liabilities recorded at fair value on a recurring basis in the consolidated balance sheets are categorized based upon the level of judgment associated with the inputs used to measure their fair values. Fair value is defined as the exchange price that would be received for an asset or an exit price that would be paid to transfer a liability in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. The authoritative guidance on fair value measurements establishes a three-tier fair value hierarchy for disclosure of fair value measurements as follows:

Level 1 : Quoted prices in active markets for identical assets or liabilities.

Level 2 : Observable inputs other than Level 1 prices, such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3 : Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

Assets and liabilities measured at fair value are classified in their entirety based on the lowest level of input that is significant to the fair value measurement. The Company's assessment of the significance of a particular input to the fair value measurement in its entirety requires management to make judgments and consider factors specific to the asset or liability.

Where quoted prices are available in an active market, securities are classified as Level 1 of the valuation hierarchy. The Company's Level 2 valuations of marketable securities are generally derived from independent pricing services based upon quoted prices in active markets for similar securities, with prices adjusted for yield and number of days to maturity, or based on industry models using data inputs, such as interest rates and prices that can be directly observed or corroborated in active markets.

In certain cases, where there is limited activity or less transparency around inputs to valuation, securities are classified as Level 3 within the valuation hierarchy. Level 3 liabilities that are measured at estimated fair value on a recurring basis consist of a derivative liability in connection with loan payable and a warrant liability in connection with the Private Placement.

As of June 30, 2016 and December 31 2015, financial assets and liabilities measured and recognized at fair value on a recurring basis and classified under the appropriate level of the fair value hierarchy as described above were as follows (in thousands):

	June 30, 2016			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Assets				
Cash	$ 10,987	$ —	$ —	$ 10,987
Level 1:				
Restricted cash	127	—	—	127
Money market funds	43,662	—	—	43,662
Subtotal	43,789	—	—	43,789
Level 2:				
Corporate debt securities	13,343	4	(1)	13,346
U.S. Treasury bills	2,002	2	—	2,004
Subtotal	15,345	6	(1)	15,350
	$ 70,121	$ 6	$ (1)	$ 70,126
Reported as:				
Cash and cash equivalents				$ 54,649
Short-term investments				$ 15,350
Restricted cash				$ 127
Liabilities, Level 3:				
Warrant liability in connection with Private Placement				$ 3,937
Derivative liability in connection with loan payable				$ 400
Total				$ 4,337

	December 31, 2015			
	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
Assets				
Cash	$ 1,013	$ —	$ —	$ 1,013
Level 1:				
Restricted cash	127	—	—	127
Money market funds	19,274	—	—	19,274
Subtotal	19,401	—	—	19,401
Level 2:				
Corporate debt securities	34,490	—	(47)	34,443
Commercial paper	1,997	—	—	1,997
U.S. Treasury bills	2,005	—	(1)	2,004
Subtotal	38,492	—	(48)	38,444
Total	$ 58,906	$ —	$ (48)	$ 58,858
Reported as:				
Cash and cash equivalents				$ 20,287
Short-term investments				$ 38,444
Restricted cash				$ 127
Liabilities, Level 3:				
Derivative liability in connection with loan payable				$ 375

All available-for-sale securities held as of June 30, 2016 had maturities greater than three months, but less than one year from the date of acquisition. There were no sales of available-for-sale securities in any of the periods presented. The carrying value of corporate debt obligations that were in unrealized loss positions totaled $3.3 million as of June 30, 2016. The Company has determined that (i) it does not have the intent to sell any of these investments, and (ii) it is not more likely than not that it will be required to sell any of these investments before recovery of the entire amortized cost basis. The Company anticipates that it will recover the entire amortized cost basis of such corporate debt obligations and has determined that no other-than-temporary impairments associated with credit losses were required to be recognized during the three-month and six-month periods ended June 30, 2016.

Pursuant to the loan and security agreement with Solar Capital Ltd. (see Note 7), the Company entered into a Success Fee Agreement under which the Company agreed to pay $1.0 million in cash (the "Success Fee") if the Company obtains approval to market plazomicin from the Food and Drug Administration (the "FDA"). If such approval is obtained, the Success Fee shall be due the later of (i) August 5, 2019 or (ii) the date such FDA approval is obtained. The fair value of the Success Fee, approximately $375,000 at December 31, 2015, is recorded as a derivative liability and included in other long-term liabilities on the accompanying condensed consolidated balance sheet. The estimated fair value of the derivative liability as of June 30, 2016 increased by $25,000 to $400,000 from December 31, 2015, which amount is presented as changes in warrant and derivative liabilities in the Company's condensed consolidated statements of operations for the six-months ended June 30, 2016.

The fair value of the derivative liability was determined using a discounted cash flow analysis, and is classified as a Level 3 measurement within the fair value hierarchy since the Company’s valuation utilized significant unobservable inputs. Specifically, the key assumptions included in the calculation of the estimated fair value of the derivative instrument include: i) the Company’s estimates of both the probability and timing of a potential $1.0 million payment to Solar Capital Ltd. upon FDA approval to market plazomicin, and ii) a discount rate of 13% which was derived from the Company's estimated cost of debt. The estimated fair value of the derivative liability is most sensitive to the probability of FDA approval. Should the probability of FDA approval change by 5% , the fair value of the derivative liability as of June 30, 2016 would change by approximately $31,000 . Any changes in the estimated fair values are presented as changes in warrant and derivative liabilities in the Company's condensed consolidated statements of operations.

Pursuant to the Private Placement (see Note 2), the Company issued warrants to purchase 1,999,999 shares of common stock at an exercise price of $3.66 . The Company classified these warrants as a liability measured at fair value using Black-Scholes. Under certain entity conditions, the holder of a warrant may require the Company to settle the warrant in cash at its

estimated fair value using Black-Scholes. On the closing date of the Private Placement, June 3, 2016, the $2.6 million initial estimated fair value of the warrant liability was recorded as a warrant liability on the accompanying condensed consolidated balance sheet. At June 30, 2016, the estimated fair value of the warrants were approximately $3.9 million . This change in the estimated fair value is presented as changes in warrant and derivative liabilities in the Company's condensed consolidated statements of operations.

The fair value of the warrant liability is classified as a Level 3 measurement within the fair value hierarchy since the Company's valuation utilized significant unobservable inputs, including the risk-free interest rate, expected share price volatility, underlying price per share of the Company's common stock and remaining term of the warrants. The estimated fair values of the warrants were determined using Black-Scholes with the following assumptions, during the six-months ended June 30, 2016:

Expected volatility	60%
Expected term	5.0 years
Risk-free interest rate	1.0%–1.2%
Dividend yield	0%

The expected volatility is based on the Company's expected volatility. The expected term is based on the remaining life of the warrants. The risk-free interest rate is obtained from the yields on actively traded U.S. Treasury securities for a period equal to the expected term of the warrants. The dividend yield is zero because the Company has never paid cash dividends and has no present intention to pay cash dividends. Should the share price change by 5% , the fair value of the warrant liability as of June 30, 2016 would change by approximately $294,000 .

Changes in the fair value of recurring measurements included in Level 3 of the fair value hierarchy are presented as changes in warrant and derivative liabilities in the Company's condensed consolidated statements of operations and were as follows for the six-months ended June 30, 2016 (in thousands):

	Estimated Fair Value of Warrant Liability	Estimated Fair Value of Derivative Liability
Balance of Level 3 Liabilities at December 31, 2015	$ —	$ 375
Estimated fair value of warrants issued	2,580	—
Change in estimated fair value of warrant liability	1,357	—
Change in estimated fair value of derivative liability	—	25
Balance of Level 3 Liabilities at June 30, 2016	$ 3,937	$ 400

4. Balance Sheet Components

Accrued Liabilities

Accrued liabilities consisted of the following (in thousands):

	June 30, 2016	December 31, 2015
Accrued clinical and development expenses	$ 6,276	$ 2,869
Payroll and related bonus expenses	2,543	1,615
Other	546	443
	$ 9,365	$ 4,927

5. License and Collaboration Agreements

Crystal Biosciences, Inc.

In May 2016, the Company entered into a collaboration and license agreement with Crystal Biosciences, Inc. (“Crystal”). Pursuant to the terms of this agreement, the Company and Crystal agreed to collaborate on the discovery of monoclonal antibodies against multiple targets. Crystal agreed to conduct the initial discovery work with its antibody platform and the Company has the right to develop and commercialize the antibodies discovered through this collaboration. The Company is required to provide signing and milestone payments with respect to research, development, regulatory and commercialization milestones (if any). All such milestone payments may total, in aggregate, up to but no more than $20,550,000 . The upfront signing fee was fully recorded as research and development expense in the three-month period ended June 30, 2016. This collaboration and license agreement also provides that the Company shall pay royalties equal to a low single-digit percentage of annual worldwide net sales of the commercialized product.

Ionis Pharmaceuticals

In January 2006, the Company entered into a license agreement with Ionis Pharmaceuticals, Inc. (“Ionis”). Ionis granted the Company an exclusive, worldwide license with the right to grant and authorize sublicenses related to the research and development of aminoglycoside products. As an up-front fee, the Company issued 97,402 shares of Series A convertible preferred stock at a fair value of $15.40 per share. This license fee of $1,500,000 was recorded as research and development expense in 2006. In further consideration of this license, and in accordance with the terms of the agreement, the Company is required to make milestone payments with respect to development, regulatory and commercialization milestones, and to pay a percentage of revenue received from sublicensees (if any). All such milestone and sublicense revenue payments may total, in the aggregate, up to but no more than $19,500,000 for the first product and $9,750,000 following the second product commercialized under the agreement with Ionis. The Company is also required to pay additional milestone payments of up to $20,000,000 in the aggregate upon the first achievement of specified threshold levels of annual net sales of all aminoglycoside products in a calendar year. The license agreement also provides that the Company shall pay royalties equal to a low single-digit percentage of annual worldwide net sales of all licensed products, including plazomicin.

Through June 30, 2016, the Company has compensated Ionis $7,000,000 in connection with the first three milestones under the license for the first aminoglycoside product candidate. As of June 30, 2016 and December 31, 2015, the Company had no outstanding payments due under the agreement.

6. Government Contracts

Certain of the Company’s drug discovery and development activities are performed under contracts with U.S. government agencies. Management has determined that the Company is the principal participant in the following contract arrangements, and, accordingly, the Company records amounts earned under the arrangements as revenue. Costs incurred under revenue contracts are recorded as operating expenses in the Company's consolidated statements of operations.

Biomedical Advanced Research and Development Authority

In August 2010, the Company was awarded a contract with the Biomedical Advanced Research and Development Authority (“BARDA”) for the development, manufacturing, nonclinical and clinical evaluation of, and regulatory filings for, plazomicin as a countermeasure for disease caused by antibiotic-resistant pathogens and biothreats. The original contract included committed funding of $27,600,000 for the first two years of the contract and subsequent options exercisable by BARDA to provide additional funding. In September 2012, BARDA exercised an additional $15,798,000 contract option ("Option 1"), which increased the total contract committed funding to $43,398,000 through March 2014. In April 2013, the Company was awarded an additional $60,410,000 under the contract to support its Phase 3 clinical trial of plazomicin ("Option 2") to increase the total committed funding under this contract to $103,808,000 . On May 26, 2016, the Company was awarded an additional $20 million ("Option 3") under the contract to support its Phase 3 EPIC trial of plazomicin. This brings the total committed funding under the contract to $123,808,000 . The Company recorded contract revenue of $8,510,000 and $4,876,000 under this agreement during the three-month periods ended June 30, 2016 and 2015, respectively, and $13,780,000 and $9,717,000 during the six-month periods ended June 30, 2016 and 2015, respectively.

Defense Threat Reduction Agency

In November 2012, the Defense Threat Reduction Agency (“DTRA”), a division of the U.S. Department of Defense, terminated for convenience a contract with the Company to develop novel antibacterials for the treatment of biodefense pathogens. In connection with the termination, the Company sought payment from DTRA for additional expenses the Company had incurred. Effective April 30, 2015, the Company reached a settlement of its claim with DTRA. The net settlement of $7,122,000 was recorded as contract revenue during the three months ended June 30, 2015. Together with sums previously received, it constitutes complete and final settlement of the contract.

National Institute of Allergy and Infectious Diseases

In July 2015, the Company was awarded a contract by the National Institute of Allergy and Infectious Diseases ("NIAID") for $1.5 million committed through June 30, 2016, with total funding of up to $4.5 million available if all options are exercised under the contract. In January 2016, an additional committed funding of $0.5 million was added to the awarded funding and the total potential funding was increased to $5.0 million . In April 2016, NIAID modified the contract to exercise an option which increased the total contract committed funding to $4.4 million through February 2018, with total potential funding remaining at $5.0 million if the remaining option is exercised.

In July 2014, the Company was awarded a one -year, $407,000 grant by NIAID to conduct discovery research on novel antibiotics targeting gram-negative bacteria. In July 2015, NIAID extended the grant term through July 31, 2016. The Company recorded contract revenue of $634,000 and $43,000 under these agreements during the three-month periods ended June 30, 2016 and 2015, respectively, and $1,213,000 and $82,000 the six-month periods ended June 30, 2016 and 2015, respectively.

7. Borrowings

Solar Capital Ltd. Loan Agreement

On August 5, 2015, the Company entered into a loan and security agreement (the “Loan Agreement”) with Solar Capital Ltd. (the “Lender”) pursuant to which the Lender agreed to make available to the Company term loans in an aggregate principal amount of up to $25.0 million with a maturity date of August 5, 2019. An initial $15.0 million term loan was funded at closing on August 5, 2015, and a second $10.0 million term loan was funded on June 20, 2016. Borrowings under the term loans bear interest per annum at 6.99% plus the greater of 1% or the one-month LIBOR. The Company is currently required to make interest-only payments on the term loans through August 2017, and beginning on September 1, 2017 the Company is required to make monthly payments of interest plus equal monthly payments of principal over a term of 24 months. The Loan Agreement requires collateral by a security interest in all of the Company’s assets except intellectual property (which is subject to a negative pledge) and contains customary affirmative and negative covenants, and also includes standard events of default, including payment defaults. Upon the occurrence of an event of default, a default interest rate of an additional 4% may be applied to the outstanding loan balances, and the Lender may declare all outstanding obligations immediately due and payable and take such other actions as set forth in the Loan Agreement. There were no financial covenants attached to the loan. The Loan Agreement included a closing fee of $250,000 which was paid at closing, and the Company is obligated to pay a fee equal to 8% of the term loans funded upon the earliest to occur of the maturity date, the acceleration of the term loans or the voluntary prepayment of the term loans. The cost of these fees is being amortized as interest expense over the term of the loan using the effective-interest method. The Company may voluntarily prepay all, but not less than all, of the outstanding term loans. The Loan Agreement contains customary representations, warranties and covenants. In addition, the Loan Agreement contains customary events of default that entitle the Lender to cause the Company’s indebtedness under the Loan Agreement to become immediately due and payable.

On August 5, 2015, pursuant to the Loan Agreement, the Company entered into a Success Fee Agreement with the Lender under which the Company agreed to pay the Lender $1.0 million if the Company obtains FDA approval to market plazomicin. If such approval is obtained, the Success Fee shall be due the later of (i) August 5, 2019 or (ii) the date such FDA approval is obtained. The fair value of the Success Fee at the date of issuance of approximately $356,000 was recorded as a debt discount and is being amortized as interest expense over the term of the loan using the effective-interest method.

Future principal debt payments on the currently outstanding term loan are payable as follows (in thousands):

	June 30, 2016
2016	$ —
2017	4,167
2018	12,500
2019	8,333
Total principal payments	25,000
Final fee due at maturity in 2019	2,000
Total principal and final fee payments	27,000
Unamortized discount and debt issuance costs	(2,185)
Less current portion	—
Loan payable, long-term	$ 24,815

The obligation includes a final fee of $2,000,000 , representing 8% of the term loan currently funded, which accretes over the life of the loan as interest expense. The Company recorded interest expense related to the loan of $447,000 and zero for the three-month periods ended June 30, 2016 and 2015, respectively, and $885,000 and zero for the six-month periods ended June 30, 2016 and 2015, respectively.

8. Stockholders' Equity

On April 7, 2015, the Company entered into a Sales Agreement (the “Sales Agreement”) with Cowen and Company, LLC (“Cowen”), pursuant to which the Company may issue and sell shares of its common stock having aggregate sales proceeds of up to $30.0 million from time to time through an ATM equity program under which Cowen acts as sales agent.

As of June 30, 2016, the Company sold 267,520 shares of common stock under the Sales Agreement, at a weighted-average price of approximately $6.29 per share for aggregate gross proceeds of $1.7 million and net proceeds of $1.6 million after deducting the sales commissions and offering expenses. As of June 30, 2016, $28.3 million of common stock remained available to be sold under the Sales Agreement, subject to certain conditions specified therein.

On June 3, 2016, the Company sold 7,999,996 shares of its common stock and warrants to purchase 1,999,999 shares of its common stock pursuant to the Purchase Agreement for aggregate gross proceeds of $25.4 million in the Private Placement. The warrants have an exercise price of $3.66 and are exercisable up to five years from the date of issuance. The Company's Chief Operating Officer, a related party, participated in the Private Placement by purchasing 141,453 shares of common stock and a warrant to purchase 35,363 shares of common stock for an aggregate purchase price of $0.5 million .

At the close of the Private Placement, the estimated fair values of the common stock and warrants issued were $22.9 million and $2.6 million , respectively. At June 30, 2016, using Black-Scholes, the Company estimated the fair value of the warrant liability to be $3.9 million and recorded a charge in the the condensed consolidated statements of operations for the increase in the liability. Issuance costs of $318,000 were offset against equity as a reduction of gross proceeds.

Equity Incentive Plans

2014 Plan

In February 2014, the Company’s stockholders approved the 2014 Equity Incentive Award Plan (the "2014 Plan"), which became effective as of March 11, 2014. Under the 2014 Plan, the Company may grant incentive stock options ("ISOs"), nonstatutory stock options, stock appreciation rights, restricted stock awards, restricted stock units ("RSUs") and other stock-based awards for the purchase of that number of shares of common stock. Effective, January 1, 2016, the compensation committee of the board of directors approved an evergreen increase of 735,808 shares that may be granted in accordance with the terms of the 2014 Plan. As of June 30, 2016, 796,171 shares were available for future issuance under the 2014 Plan.

Under the 2014 Plan, the terms of stock award agreements, including vesting requirements, are determined by the board of directors, subject to the provisions of the 2014 Plan. Options granted by the Company typically vest over a four year period and the exercise price may not be less than fair market value on the date of grant. Certain of the options are subject to acceleration of vesting in the event of certain change of control transactions. Options granted under the 2014 Plan expire no later than 10 years from the date of grant.

2014 Employment Commencement Incentive Plan

In December 2014, the Company adopted a 2014 Employment Commencement Incentive Plan (the "Inducement Plan"). The Inducement Plan is designed to comply with the inducement exemption contained in Nasdaq's Rule 5635(c)(4), which provides for the grant of non-qualified stock options, RSUs, restricted stock awards, performance awards, dividend equivalents, deferred stock awards, deferred stock units, stock payment and stock appreciation rights to a person not previously an employee or director of the Company, or following a bona fide period of non-employment, as an inducement material to the individual's entering into employment with the Company. As of June 30, 2016, a total of 1,150,000 shares of common stock have been authorized under the Inducement Plan, including the additional 500,000 shares that became available resulting from an amendment adopted by the board of directors as of March 17, 2016. As of June 30, 2016, 527,800 shares were available for future issuance under the Inducement Plan.

2014 Employee Stock Purchase Plan

In February 2014, the Company's stockholders approved the 2014 Employee Stock Purchase Plan (the "ESPP"), which became effective as of March 11, 2014. Effective, January 1, 2016, the compensation committee of the board of directors approved an evergreen increase of 183,952 shares that may be granted in accordance with the terms of the ESPP. As of June 30, 2016, 141,527 shares of common stock have been issued to employees participating in the ESPP, and 366,950 shares are available for issuance under the ESPP.

Amended and Restated 2003 Stock Plan

The Company's Amended and Restated 2003 Stock Plan (the "2003 Plan"), provided for the granting of incentive and non-statutory stock options to employees, directors and consultants at the discretion of the board of directors. The Company granted options under its 2003 Plan until January 2014 and it was terminated as to future awards in March 2014, although it continues to govern the terms of options that remain outstanding under the 2003 Plan.

Options granted under the 2003 Plan expire no later than 10 years from the date of grant. Options granted under the 2003 Plan vest over periods determined by the board of directors, generally over four years .

The 2003 Plan allows for early exercise of certain options prior to vesting. Upon termination of employment, the unvested shares are subject to repurchase at the original exercise price. Stock options granted or modified after March 21, 2002, that are subsequently exercised for cash prior to vesting, are not deemed to be issued until those shares vest. As of June 30, 2016 and December 31, 2015 there were no shares subject to repurchase relating to the early exercise of options.

In connection with the board of directors and stockholders approval of the 2014 Plan, all remaining shares available for future awards under the 2003 Plan were transferred to the 2014 Plan, and the 2003 Plan was terminated as to future awards. As of June 30, 2016, a total of 932,332 shares of common stock are subject to options outstanding under the 2003 plan, which shares will become available under the 2014 Plan to the extent the options are forfeited or lapse unexercised.

The following table summarizes stock option activity under the stock plans, excluding the ESPP, and related information:

	Shares Available for Grant	Shares Subject to Options Outstanding	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (years)
Balance at December 31, 2015	893,462	2,387,337	$ 7.92	7.61
Additional shares authorized	1,235,808	—		
Options granted	(782,350)	782,350	$ 3.89	
Options exercised	—	(173)	$ 2.61	
Options cancelled	173,476	(173,476)	$ 8.49	
RSUs granted	(233,775)	—		
RSUs cancelled	37,350	—		
Balance at June 30, 2016	1,323,971	2,996,038	$ 6.83	7.83

Stock-based compensation expense recognized for stock options granted to employees and non-employee directors in the Company's condensed consolidated statements of operations was as follows (in thousands):

	Three-Month Periods Ended June 30,		Six-Month Periods Ended June 30,	
	2016	2015	2016	2015
Research and development	$ 515	$ 348	$ 969	$ 660
General and administrative	410	425	782	874
Total	$ 925	$ 773	$ 1,751	$ 1,534

As of June 30, 2016, approximately $6,368,000 of total unrecognized stock-based compensation expense related to unvested stock options is expected to be recognized over a weighted-average period of 2.82 years.

The estimated grant date fair value of employee stock options with time-based vesting terms was calculated using the Black-Scholes valuation model, based on the following assumptions:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2016	2015	2016	2015
Expected term (years)	5.3–6.0 years	5.4 years	5.3–6.0 years	5.4–6.0 years
Expected volatility	74%	65%	73%–74%	65%–70%
Risk-free interest rate	1.1%–1.5%	1.9%	1.1%–1.5%	1.5%–1.9%
Expected dividend yield	—	—	—	—

Restricted Stock Units Granted to Employees

During the six-month period ended June 30, 2016, the Company granted RSUs to employees to receive 233,775 shares of common stock under the Company's stock plans with a weighted-average estimated grant-date fair value of $3.78 per share. RSUs generally vest annually over a 4 -year service period and vesting is contingent on continued service. As of June 30, 2016, there were unrecognized compensation costs of $3,019,000 related to outstanding RSUs, which are expected to be recognized over a weighted-average period of 3.46 years.

A summary of RSU activity is as follows:

	RSU Awards Outstanding		
	Number of RSUs	Weighted-Average Grant Date Fair Market Value	Aggregate Intrinsic Value (in thousands)
Balance, December 31, 2015	372,024	$ 8.02	$ 2,135
RSUs granted	233,775	$ 3.78	
RSUs released	(20,963)	$ 9.55	
RSUs cancelled	(37,350)	$ 7.16	
Balance, June 30, 2016	547,486	$ 6.21	$ 2,075

During the three-month and six-month periods ended June 30, 2016, the Company granted options to purchase an aggregate of 11,500 and 211,250 shares of common stock and 2,750 and 50,175 RSUs that vest upon the achievement of market-based common stock price targets. The fair values of these options and RSUs were estimated at the grant date using a Monte-Carlo simulation model. The Monte-Carlo simulation model requires the use of a range of assumptions. The risk-free interest rate range was 1.67% to 1.76% , expected volatility rate was 70% and the dividend rate was 0% . The expected life assumption is not used in Monte-Carlo simulation model, but the output of the model indicated an expected time to vest of 2.5 to 6.0 years. The associated stock-based compensation expense is being recognized on a straight-line basis over the implicit service period (expected time to vest) derived from that simulation model. The Company did not issue any performance based options to purchase common stock, or RSUs during the three-month and six-month periods ended June 30, 2015.

9. Commitments

In July 2015, the Company entered into an agreement with its pharmaceutical contract manufacturing organization that obligates it to make a total of $1.5 million of nonrefundable advance payments for the reservation of facilities and resources, plus procurement of long-lead raw materials, to produce plazomicin for regulatory commercial validation. Such advance payments are initially capitalized as prepaid and other current assets and are being recognized as research and development expenses as goods are delivered and services are performed. The Company assesses such prepaid and other current assets for impairment if events or changes in circumstances indicate that the carrying amount may not be recoverable or may not provide future economic benefits. As of June 30, 2016, the Company had recorded $1.0 million as prepaid and other current assets related to this agreement. Through June 30, 2016, the Company has recognized $500,000 as research and development expenses.

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

The following discussion of our financial condition and results of operations should be read in conjunction with the condensed consolidated financial statements and the notes thereto included elsewhere in this Quarterly Report on Form 10-Q and our Annual Report on Form 10-K for the year ended December 31, 2015.

In addition to historical information, this discussion and analysis contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the "Securities Act"), and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). These statements are often identified by the use of words such as "may," "will," "expect," "believe," "anticipate," "intend," "could," "should," "estimate," or "continue," and similar expressions or variations. These forward-looking statements are subject to risks and uncertainties, including those set forth in Part II – Other Information, Item 1A. Risk Factors below and elsewhere in this report, that could cause actual results to differ materially from historical results or anticipated results. The forward-looking statements in this Quarterly Report on Form 10-Q represent our views as of the date of this Quarterly Report on Form 10-Q. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we have no current intention of doing so except to the extent required by applicable law. You should, therefore, not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this Quarterly Report on Form 10-Q.

Overview

We are a clinical-stage biopharmaceutical company passionately committed to the discovery, development, and commercialization of novel antibacterials to treat multi-drug resistant ("MDR") gram-negative infections. We are developing plazomicin, our lead product candidate, for the treatment of serious bacterial infections due to MDR Enterobacteriaceae, including carbapenem-resistant Enterobacteriaceae ("CRE"). In 2013, the Centers for Disease Control and Prevention identified CRE as "nightmare bacteria" and an immediate public health threat that requires "urgent and aggressive action."

Our development plan for plazomicin includes two Phase 3 clinical trials. The first study, a Phase 3 trial of plazomicin for the treatment of patients with complicated urinary tract infections ("cUTI") and acute pyelonephritis ("AP"), entitled EPIC (Evaluating Plazomicin In cUTI), is expected to serve as a single pivotal study supporting a new drug application ("NDA") for plazomicin in the United States. The Phase 3 EPIC trial is a randomized, double blind, active controlled study in patients with cUTI and AP and allows broad enrollment of patients with gram-negative infections. We have reached agreement with the U.S. Food and Drug Administration ("FDA") that this non-inferiority trial comparing plazomicin to meropenem with a 15% non-inferiority margin and a corresponding sample size of approximately 530 patients, is acceptable. The first patient was enrolled in the Phase 3 EPIC trial in January 2016. We expect top-line results for our Phase 3 EPIC trial in the first quarter of 2017 and expect to submit an NDA for plazomicin in the second half of 2017, with a planned commercial launch of plazomicin in the U.S. in 2018, if our NDA is approved.

The Phase 3 EPIC trial is designed to enroll a broad range of patients with cUTI or AP, including patients with infections due to MDR gram-negative pathogens. If successful, this study will provide clinical evidence of non-inferiority to meropenem, a carbapenem antibiotic considered to be a last line of defense in patients with serious infections due to Enterobacteriaceae, including fluoroquinolone resistant and extended spectrum beta-lactamase ("ESBL") producing isolates. We believe that favorable efficacy data from this trial will provide the basis for FDA approval and will permit plazomicin to be used as a treatment for MDR gram-negative pathogens, including CRE and ESBL-producing pathogens. This study will also provide important safety data regarding plazomicin in patients with various co-morbidities, including those with varying degrees of renal function.

The second ongoing study, our Phase 3 CARE (Combating Antibiotic Resistant Enterobacteriaceae) trial is a resistant pathogen-specific trial designed to evaluate the efficacy and safety of plazomicin in patients with infections due to CRE. We believe our Phase 3 CARE trial will provide important data about plazomicin's potential in treating patients with CRE infections, where there are limited treatment options currently available. The Phase 3 CARE trial is funded in part with a contract from the Biomedical Advanced Research and Development Authority ("BARDA"), an agency of the U.S. Department of Health and Human Services.

We expect to end enrollment in the CARE study in 2016 and announce top-line data results from our Phase 3 CARE study in the first half of 2017. We plan to submit the Phase 3 CARE study results as supportive data with the plazomicin NDA based on our Phase 3 EPIC trial and to submit the results to a peer-reviewed journal and for presentation at a medical meeting in 2017. Based on physician market research, we believe the Phase 3 CARE study will provide important and meaningful data regarding the efficacy, safety, microbiology, and dosing, as well as important health economic data, to better inform use of plazomicin in the treatment of patients with CRE infections.

In 2012, the FDA granted fast track designation for the development and regulatory review of plazomicin to treat serious and life-threatening CRE infections. In 2014, plazomicin received Qualified Infectious Disease Product ("QIDP") designation from the FDA. The QIDP designation was created by the Generating Antibiotic Incentives Now ("GAIN") Act, which was part of the FDA Safety and Innovation Act and provides certain incentives for the development of new antibiotics, including priority review and an additional five years of market exclusivity. Our plazomicin program is funded in part with a contract from BARDA for up to $123.8 million . We have global commercialization rights to plazomicin, which has patent protection in the United States extending through 2031. Plazomicin is the first clinical candidate from our gram-negative antibiotic discovery engine, and we have other programs in early and late preclinical stages focused on other MDR gram-negative infections.

Since commencing operations in 2004, we have devoted substantially all of our resources to identifying and developing our product candidates, including conducting preclinical studies and clinical trials and providing general and administrative support for these functions. In addition to plazomicin, our research team is focused on discovering medicines with novel mechanisms of action for serious infections caused by gram-negative bacteria, including MDR *Pseudomonas aeruginosa* and MDR *Acinetobacter baumannii.* We are taking a multifaceted approach to identify new antibacterial agents through our research. In May 2016, we entered into a collaboration and license agreement with Crystal Biosciences, Inc. to identify and generate therapeutic antibodies against multiple novel targets. Our goal is to file an investigational new drug application (“IND”) from our research programs in 2017.

Since our inception, we have financed our operations with the proceeds of our initial public offering ("IPO") of common stock, proceeds from sales of our common stock through our at-the-market ("ATM") equity offering program, funding under our contracts with government agencies, private placements of our equity securities and certain debt-related financing arrangements. Currently, our plazomicin program is funded in part with a contract from BARDA. We estimate that our Phase 3 EPIC trial will necessitate funding of $45 to $50 million from 2015 through 2017 and approximately $25 million of this funding has been provided by the term loans from Solar Capital, and additional $20 million ("Option 3") under the BARDA contract. Our other programs are currently funded primarily with company funds, although we also received a contract for $4.4 million in 2015 from the National Institute of Allergy and Infectious Diseases ("NIAID"), with additional funding of up to $0.6 million available if all options are exercised. Historically, our preclinical programs have received funding support from organizations in addition to the NIH and NIAID, such as the U.S. Department of Defense and The Wellcome Trust, a global charitable foundation. We intend to continue to seek further collaborations with government agencies, non-profit foundations, and other research and development funding organizations to support our discovery efforts and advance the product candidates in our pipeline.

On March 17, 2014, we completed our IPO of common stock. We sold 6,900,000 shares of our common stock, which included 900,000 shares issued as a result of the underwriters exercising their over-allotment option in full. We received cash proceeds of approximately $73.9 million from the IPO, net of underwriting commissions and related expenses.

On April 7, 2015, we entered into the Sales Agreement (the “Sales Agreement”) with Cowen and Company, LLC (“Cowen”), pursuant to which we may issue and sell shares of our common stock having aggregate sales proceeds of up to $30.0 million from time to time through an ATM equity offering program under which Cowen acts as sales agent. As of June 30, 2016, we had sold 267,520 shares under the Sales Agreement at an average price of $6.29 per share and we received aggregate cash proceeds of $1.6 million , after deducting the sales commissions and offering expenses.

On August 5, 2015, we entered into a loan and security agreement with Solar Capital Ltd., pursuant to which Solar Capital Ltd. agreed to make available to us term loans with an aggregate principal amount of up to $25.0 million, $15.0 million of which was provided to us on August 5, 2015 and $10.0 million of which was provided to us on June 20, 2016.

On May 26, 2016, BARDA exercised Option 3 and we were awarded an additional $20.0 million in contract funding. Option 3 also includes a no-cost extension of the period of performance for Option 1 to September 20, 2016, under the contract to support our Phase 3 EPIC trial of plazomicin. The funding from Option 3 is focused on the Phase 3 pivotal clinical trial of plazomicin, the EPIC study, in cUTI. This brings the total committed funding under the contract to $123.8 million .

On June 3, 2016, we sold 7,999,996 shares of common stock and warrants to purchase 1,999,999 shares of common stock pursuant to a Securities Purchase Agreement (“Purchase Agreement”) for aggregate gross proceeds of $25.4 million in a private placement financing transaction (the "Private Placement"). The warrants have an exercise price of $3.66 and are exercisable up to five years from the date of issuance.

We have never been profitable and have incurred net losses in each year since the commencement of our operations. Substantially all of our net losses have resulted from costs incurred in connection with our research and development programs and associated general and administrative costs. We expect to incur substantial losses from operations in the foreseeable future as we advance plazomicin and other product candidates through preclinical and clinical development, seek regulatory approval, and prepare for, and, if approved, proceed to commercialization. Management believes that, based on its current operating

plans, our existing cash, cash equivalents and short-term investments, combined with the committed funds from the BARDA contract, are estimated to be sufficient to meet our anticipated cash requirements to fund our current planned operations at least through the beginning of the second quarter of 2017. Still, we will be required to obtain further funding through public or private equity offerings, debt financings, collaboration and licensing arrangements or other sources. Adequate additional financing may not be available to us on acceptable terms, or at all. Our failure to raise capital as and when needed would have a negative impact on our financial condition and our ability to pursue our business strategy. See "Liquidity and Capital Resources" and Note 1 of the accompanying unaudited condensed consolidated financial statements and to our consolidated financial statements contained in our Annual Report on Form 10-K for the year ended December 31, 2015 for additional information describing the circumstances that lead to the inclusion of this explanatory paragraph.

Financial Overview

Contract Revenue

We have derived all of our revenue to date from funding provided under U.S. government contracts in connection with the development of our product candidates. Our product candidates are still in clinical and preclinical development and may never be successfully developed or commercialized. Other than this contract revenue from government funding, we do not expect to derive any revenue from any product candidates that we develop until we obtain regulatory approval and commercialize such products, which we do not expect will occur before 2018, if at all, or until such time that we potentially enter into collaboration agreements with third parties for the development and commercialization of such product candidates.

Biomedical Advanced Research and Development Authority (BARDA) . We have received funding for our lead product candidate, plazomicin, under a contract with BARDA, an agency of the U.S. Department of Health and Human Services for the development, manufacturing, nonclinical and clinical evaluation of, and regulatory filings for, plazomicin as a countermeasure for disease caused by antibiotic-resistant pathogens and biothreats. Our BARDA contract provides for payments to us based on direct costs incurred and allowances for overhead, plus a fee, where applicable. The total committed funding under our BARDA contract is $123.8 million , including $20.0 million for Option 3, exercised by BARDA on May 26, 2016. The exercised option relates to the support of our Phase 3 EPIC study and the preparation and submission of a NDA to the FDA.

For the three-month periods ended June 30, 2016 and 2015, total revenue recognized under the BARDA contract was $8.5 million and $4.9 million , respectively, and $13.8 million and $9.7 million , respectively, for the six-month periods ended June 30, 2016 and 2015. Through June 30, 2016, a total of $90.9 million under the BARDA contract has been recorded as revenue, with $33.0 million remaining available from the funding currently committed under the contract.

National Institute of Allergy and Infectious Diseases (NIAID). In July 2014, the Company was awarded a one-year, $407,000 grant by NIAID to conduct discovery research on novel antibiotics targeting gram-negative bacteria. The contract was subsequently modified to extend through July 31, 2016.

In July 2015, the Company was awarded a contract by NIAID for $1.5 million committed through June 30, 2016, with total funding of up to $4.5 million available if all options are exercised under the contract. In January 2016, an additional committed funding of $0.5 million was added to the awarded funding and the total potential funding was increased to $5.0 million. In April 2016, NIAID modified the contract to exercise an option which increased the total contract committed funding to $4.4 million through February 2018, with total potential funding remaining at $5.0 million if the remaining option is exercised.

For the three-month periods ended June 30, 2016 and 2015, total revenue recognized under the NIAID contracts was $634,000 and $43,000 , respectively, and $1,213,000 and $82,000 , respectively, for the six-month periods ended June 30, 2016 and 2015.

Defense Threat Reduction Agency (DTRA) . In November 2012, the Defense Threat Reduction Agency ("DTRA"), a division of the U.S. Department of Defense, terminated for convenience a contract with us to develop novel antibacterials for the treatment of biodefense pathogens. In connection with the termination, we sought payment for additional expenses we had incurred. Effective April 30, 2015, we reached a settlement of our claim with DTRA. The net settlement of $7.1 million , together with sums previously received, constitutes complete and final settlement of the contract.

Research and Development Expenses

Research and development ("R&D") expenses consist primarily of costs associated with research, discovery and preclinical studies of potential new drug compounds, plus product development efforts related to clinical trials and materials manufacturing processes. R&D costs are expensed as incurred and include the following:

- expenses incurred under agreements with contract research organizations, investigative sites, and consultants that conduct our clinical trials and a substantial portion of our preclinical activities;
- employee and consultant-related expenses, which include salaries, benefits, stock-based compensation and consulting fees;
- third-party supplier expenses including the cost of acquiring and manufacturing clinical trial and other materials; and
- facilities, depreciation and other allocated expenses, which include direct and allocated expenses for rent and maintenance of facilities, amortization or depreciation of leasehold improvements, equipment and laboratory supplies and other expenses.

Advance payments for goods or services that will be used or rendered for future research and development activities are capitalized as prepaid expenses and recognized as an expense as the goods are delivered or the related services are performed.

We expect to continue to incur substantial expenses for the foreseeable future related to our R&D activities as we continue research programs and the development of our product candidates. In particular, we expect our research and development costs associated with our plazomicin program to increase significantly as our Phase 3 EPIC and CARE trials progress. Since product candidates in later stages of clinical development generally incur higher development costs than those in earlier stages of research and clinical development, primarily due to the increased size and duration of later-stage clinical trials, we expect that our R&D expenses will increase in the future.

General and Administrative Expenses

General and administrative expenses consist principally of personnel-related costs, professional fees for legal, consulting, audit and tax services, rent and other general operating expenses not otherwise included in R&D. We anticipate general and administrative expenses will continue to increase in future periods, reflecting an expanding infrastructure.

Critical Accounting Policies and Significant Judgments and Estimates

Our management's discussion and analysis of financial condition and results of operations are based upon our unaudited condensed financial statements, which have been prepared in accordance with U.S. GAAP. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses. On an on-going basis, we evaluate our critical accounting policies and estimates. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions and conditions. Our significant accounting policies are more fully described in Note 2 of the accompanying unaudited condensed consolidated financial statements and in Note 2 to our audited consolidated financial statements contained in our Annual Report on Form 10-K for the year ended December 31, 2015.

During the six-month period ended June 30, 2016, we have adopted the accounting policy related to the warrant liabilities as discussed below, in addition to the critical accounting policies described under *Management's Discussion and Analysis of Financial Condition and Results of Operations* in our Annual Report on Form 10-K for the year ended December 31, 2015.

Warrant Liability

In June 2016, we issued warrants to purchase 2.0 million shares of common stock in connection with the Private Placement. The fair value of the warrants is classified as a liability on our consolidated balance sheets as the warrants contain certain material terms which require us to settle the warrants, in a case of certain change of control transactions, for cash equal to the estimated fair value, determined by the Black-Scholes Pricing Model ("Black Scholes").

The initial fair value of the warrants was determined using a calibration model that involved using Black-Scholes, which requires inputs such as the risk-free interest rate, expected share price volatility, underlying price per share of our common stock and remaining term of the warrants. The warrants are subject to remeasurement at each balance sheet date, using Black-Scholes, with any changes in the fair value of the outstanding warrants presented as "change in warrant and derivative liabilities" in the condensed consolidated statements of operations.

Results of Operations

Comparison of the Three-Month Periods Ended June 30, 2016 and 2015

	Three Months Ended June 30,		
	2016	2015	Change
	(in thousands)		
Contract revenue	$ 9,144	$ 12,041	$ (2,897)
Operating expenses:			
Research and development	21,708	10,088	11,620
General and administrative	3,951	2,882	1,069
Loss from operations	(16,515)	(929)	(15,586)
Interest expense	(447)	—	(447)
Change in warrant and derivative liabilities	(1,382)	—	(1,382)
Other income, net	76	43	33
Net loss	$ (18,268)	$ (886)	$ (17,382)

Contract Revenue

Contract revenue in each period related solely to funding pursuant to our government contracts. Contract revenue decreased $2.9 million to $9.1 million in the three-month period ended June 30, 2016 from $12.0 million in the comparable period in 2015. This decrease was primarily due a $7.1 million settlement of our claim with DTRA related to our research contract that occurred in the comparable period in 2015, partially offset by a $4.2 million increase in research and development services performed under our BARDA and NIAID contracts.

Research and Development Expenses

R&D expenses increased $11.6 million to $21.7 million in the three-month period ended June 30, 2016 from $10.1 million in the comparable period in 2015. This was primarily due to increases of $7.4 million in the external expenses related to our plazomicin program, mainly attributable to the Phase 3 EPIC trial of plazomicin, $2.0 million in external non-clinical costs for research programs other than plazomicin, including a signing fee under a collaboration and license agreement for an early research program, and $1.8 million in personnel and overhead related costs as headcount increased in our research and development organization since 2015.

We record R&D expenses by program where directly identifiable. In the table below, we have allocated indirect R&D costs based on time charged directly to programs by R&D employees. Indirect R&D costs include employee benefit expenses, employee time not charged directly to a program, laboratory supplies and expenses, and allocated facility expenses.

	Three Months Ended June 30,		
	2016	2015	Change
	(in thousands)		
Research and development expenses by program:			
Plazomicin	$ 16,556	$ 7,732	$ 8,824
Other research programs	5,152	2,356	2,796
Total research and development expenses	$ 21,708	$ 10,088	$ 11,620

General and Administrative Expenses

General and administrative expenses increased $1.1 million to $4.0 million for the three-month period ended June 30, 2016 from $2.9 million for the comparable period in 2015. The increase in general and administrative expenses was primarily due to an increase of $0.4 million in personnel and facility related costs and an increase of $0.7 million in consulting and professional fees.

Interest Expense

Interest expense increased $0.4 million for the three-month period ended June 30, 2016 from zero for the comparable period in 2015. The increase was a result of $25.0 million of borrowings under the Solar Capital loan agreement as of June 30, 2016.

Change in Warrant and Derivative Liabilities

Change in warrant and derivative liabilities increased $1.4 million for the three-month period ended June 30, 2016 from zero for the comparable period in 2015, primarily due the change in the estimated fair value of the warrant liability.

Comparison of the Six-Month Periods Ended June 30, 2016 and 2015

	Six Months Ended June 30,		
	2016	2015	Change
	(in thousands)		
Contract revenue	$ 14,993	$ 16,921	$ (1,928)
Operating expenses:			
Research and development	35,601	17,967	17,634
General and administrative	7,728	6,113	1,615
Loss from operations	(28,336)	(7,159)	(21,177)
Interest expense	(885)	—	(885)
Change in warrant and derivative liabilities	(1,382)	—	(1,382)
Other income, net	138	94	44
Net loss	$ (30,465)	$ (7,065)	$ (23,400)

Contract Revenue

Contract revenue in each period related solely to funding pursuant to our government contracts. Contract revenue decreased $1.9 million to $15.0 million in the six-month period ended June 30, 2016 from $16.9 million in the comparable period in 2015. This decrease was primarily due a $7.1 million settlement of our claim with DTRA related to our research contract that occurred in the comparable period in 2015, partially offset by a $5.2 million increase in research and development services performed under our BARDA and NIAID contracts.

Research and Development Expenses

R&D expenses increased $17.6 million to $35.6 million in the six-month period ended June 30, 2016 from $18.0 million in the comparable period in 2015. This was primarily due to increases of $11.8 million in the external expenses related to our plazomicin program, mainly attributable to the Phase 3 EPIC trial of plazomicin, $2.2 million in external non-clinical costs for research programs other than plazomicin, including a signing fee under a collaboration and license agreement for our early research program, and $2.9 million in personnel and overhead related costs as headcount increased in our research and development organization since 2015.

We record R&D expenses by program where directly identifiable. In the table below, we have allocated indirect R&D costs based on time charged directly to programs by R&D employees. Indirect R&D costs include employee benefit expenses, employee time not charged directly to a program, laboratory supplies and expenses, and allocated facility expenses.

	Six Months Ended June 30,		
	2016	2015	Change
	(in thousands)		
Research and development expenses by program:			
Plazomicin	$ 27,819	$ 13,571	$ 14,248
Other research programs	7,782	4,396	3,386
Total research and development expenses	$ 35,601	$ 17,967	$ 17,634

General and Administrative Expenses

General and administrative expenses increased $1.6 million to $7.7 million for the six-month period ended June 30, 2016 from $6.1 million for the comparable period in 2015. The increase in general and administrative expenses was primarily due to an increase of $0.8 million in personnel and facility related costs and an increase of $0.8 million in consulting and professional fees.

Interest Expense

Interest expense increased $0.9 million for the six-month period ended June 30, 2016 from zero for the comparable period in 2015. The increase was a result of $25.0 million of borrowings under the Solar Capital loan agreement as of June 30, 2016.

Change in Warrant and Derivative Liabilities

Change in warrant and derivative liabilities increased $1.4 million for the six-month period ended June 30, 2016 from zero for the comparable period in 2015, primarily due to the change in the estimated fair value of the warrant liability.

Liquidity and Capital Resources

	Six-Month Period Ended June 30,	
	2016	2015
	(in thousands)	
Cash Flows from Continuing Operations:		
Net cash used in operating activities	$ (23,809)	$ (2,929)
Net cash provided by investing activities	22,578	22,449
Net cash provided by financing activities	35,593	1,147
Net increase (decrease) in cash and cash equivalents	$ 34,362	$ 20,667

Net cash used in operating activities was $23.8 million for the six-month period ended June 30, 2016. The primary use of cash was to fund our operations related to the research and development of our product candidates. Our net loss from operations in the six-month period ended June 30, 2016 of $30.5 million was partially offset by non-cash charges of $1.4 million for the revaluation of the warrant and derivative liabilities, $0.2 million for depreciation and amortization, $0.3 million for amortization of premium on short-term investments, $0.3 million for non-cash interest expense, $1.8 million for stock-based compensation, and a change in net operating assets and liabilities of $2.8 million . The change in net operating assets and liabilities was primarily due to an increase in accounts payable and accrued liabilities partially offset by an increase in contract receivable and prepaid expenses and other assets, as a result of costs for our ongoing Phase 3 EPIC trial and the timing of our payments.

Net cash used in operating activities was $2.9 million for the six-month period ended June 30, 2015. The primary use of cash was to fund our operations related to the research and development of our product candidates. Our net loss from operations in the six-month period ended June 30, 2015 of $7.1 million was partially offset by non-cash charges of $0.2 million for depreciation and amortization, $0.3 million for amortization of premium on short-term investments and $1.5 million for stock-based compensation. The change in net operating assets of $2.1 million was due to a decrease in accounts receivable of $0.7 million due to higher collections in the quarter and an increase in accounts payable and accrued liabilities of $1.8 million as a result of costs related to preparing for our Phase 3 cUTI trial of plazomicin and the timing of our payments.

Net cash provided by investing activities was $22.6 million and $22.4 million for the six-month period ended June 30, 2016 and 2015, respectively. The net cash provided by investing activities during the six-month periods ended June 30, 2016 and 2015 is primarily a result of maturities in excess of purchases of short-term investments of $22.9 million and $22.8 million, respectively. Other uses of cash in both periods resulted from purchases of property, plant and equipment to facilitate our increased R&D activities.

Net cash provided by financing activities was $35.6 million and $1.1 million for the six-month period ended June 30, 2016 and 2015, respectively. The net cash provided by financing activities during the six-month period ended June 30, 2016 includes $25.4 million for the sale of common stock and warrants to purchase common stock from the Private Placement, $10.0 million from the term loan provided by Solar Capital Ltd. in June 2016, and $0.2 million from issuance of common stock pursuant to our equity incentive plans. The net cash provided by financing activities during the six-month period ended June 30, 2015 were proceeds from issuance of common stock pursuant to our equity incentive plans.

Plan of Operations and Future Funding Requirements

We expect to incur substantial expenditures in the foreseeable future for research, development and potential commercialization of our product candidates. Specifically, we have incurred and we expect to continue to incur substantial expenses in connection with our clinical development of plazomicin. Management believes that, based on its current operating plans, our existing cash, cash equivalents and short-term investments, combined with the committed funds from the BARDA contract, are estimated to be sufficient to meet our anticipated cash requirements to fund our current planned operations at least through the beginning of the second quarter of 2017.

On August 5, 2015, we entered into a loan and security agreement with Solar Capital Ltd., pursuant to which Solar Capital Ltd. agreed to make available to us term loans with an aggregate principal amount of up to $25.0 million, $15.0 million of which was provided to us on August 5, 2015 and $10.0 million of which was provided to us on June 20, 2016. In addition, we are permitted to make interest-only payments through August 2017, followed by 24 equal monthly payments of principal plus interest through the scheduled maturity date of August 2019.

On April 7, 2015, we filed a Registration Statement on Form S-3 (File No. 333-203282), declared effective by the Securities and Exchange Commission (the "SEC") on April 21, 2015 (the "Shelf Registration Statement"), covering the offering of up to $150 million of common stock, preferred stock, debt securities, warrants, purchase contracts and units. The Shelf Registration Statement included a prospectus covering the offering, issuance and sale of up to $30.0 million of shares of our common stock from time to time in "at the market" offerings pursuant to a Common Stock Sales Agreement entered into with Cowen and Company, LLC (the "Sales Agreement") on April 7, 2015. Through June 2016, we sold 267,520 shares of common stock under the Sales Agreement, at a weighted-average price of approximately $6.29 per share for aggregate gross proceeds of $1.7 million and net proceeds of $1.6 million , after deducting the sales commissions and offering expenses. As of June 30, 2016, approximately $148.3 million in securities remained unissued under the Shelf Registration Statement, including up to $28.3 million of common stock available to be sold under the Sales Agreement, subject to certain conditions specified therein.

On May 26, 2016, we were awarded an additional $20.0 million from Option 3 of the BARDA Contract to support the Phase 3 EPIC trial of plazomicin, which includes a no-cost extension of the period of performance for Option 1 to September 20, 2016.

On June 3, 2016, we closed a Private Placement and received aggregate gross proceeds of $25.4 million from the sale of 7,999,996 shares of its common stock and warrants to purchase 1,999,999 shares of its common stock. The warrants have an exercise price of $3.66 and are exercisable up to five years from the date of issuance.

We do not expect that our current capital resources will be sufficient to enable us to seek marketing approval for plazomicin or commercially launch plazomicin. We anticipate that we will need to raise substantial additional financing in the future to fund our operations, including for obtaining marketing approval for plazomicin. We may obtain additional financing through public or private equity offerings, debt financings, a credit facility, government contracts and/or strategic collaborations. Additional financing may not be available to us when we need it or it may not be available to us on acceptable terms, if at all. Our ability to obtain debt financing may be limited by covenants we have made under our loan and security agreement with Solar Capital Ltd. and our pledge to Solar Capital Ltd. of substantially all of our assets, other than our intellectual property, as collateral. The negative pledge in favor of Solar Capital Ltd. with respect to our intellectual property under the loan and security agreement could further limit our ability to obtain additional debt financing. Our failure to raise capital as and when needed could have a negative impact on our financial condition and our ability to pursue our business strategies. The amount and timing of our future financing requirements will depend on many factors, including:

- the size, timing and type of the nonclinical and clinical trials that we decide to pursue in the development of our product candidates, including plazomicin;
- the type, number, costs and results of the product candidate development programs which we are pursuing or may choose to pursue in the future;
- the rate of progress and cost of our clinical trials, preclinical studies and other discovery and research and development activities;
- the timing of, and costs involved in, seeking and obtaining FDA and other regulatory approvals;
- our ability to enter into additional collaboration, licensing or other arrangements and the terms and timing of such arrangements;
- the costs of preparing, filing, prosecuting, maintaining and enforcing any patent claims and other intellectual property rights, including litigation costs and the results of such litigation;

- the emergence of competing technologies and other adverse market developments;
- the resources we devote to marketing, and, if approved, commercializing our product candidates;
- the scope, progress, expansion, and costs of manufacturing our product candidates;
- our ability to enter into additional government contracts, or other collaborative agreements, to support the development of our product candidates and development efforts; and
- the costs associated with being a public company.

Contractual Obligations and Commitments

There have been no material changes to our contractual obligations and commitments as included in our Annual Report on Form 10-K, which was filed with the SEC on March 15, 2016, except as noted below:

- We received an additional $10 million term loan from Solar Capital Ltd. See Note 7 of the accompanying unaudited condensed consolidated financial statements for more information.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements.

Item 3. Quantitative and Qualitative Disclosures about Market Risk.

There have not been any material changes to our exposure to market risk during the six-month period ended June 30, 2016. For additional information regarding market risk, refer to the *Quantitative and Qualitative Disclosures About Market Risk* section of our Annual Report on Form 10-K for the year ended December 31, 2015.

Item 4. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act refers to controls and procedures 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 is 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 a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company's management, including its principal executive and principal financial officers, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure. Our 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. Our disclosure controls and procedures are designed to provide reasonable assurance of achieving their control objectives.

Our management, with the participation of our Chief Executive Officer and Principal Financial and Accounting Officer, has evaluated the effectiveness of our disclosure controls and procedures as of June 30, 2016, the end of the period covered by this Quarterly Report on Form 10-Q. Based upon such evaluation, our Chief Executive Officer and Principal Financial and Accounting Officer have concluded that our disclosure controls and procedures were effective at the reasonable assurance level as of such date.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting that occurred during the period covered by this Quarterly Report on Form 10-Q that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II – OTHER INFORMATION

Item 1. Legal Proceedings.

We are not currently a party to any material litigation or other material legal proceedings.

Item 1A. Risk Factors.

Risks Related to Our Business and Capital Requirements

We have a limited operating history, have incurred net losses in each year since our inception and anticipate that we will continue to incur significant losses for the foreseeable future, and if we are unable to achieve and sustain profitability, the market value of our common stock will likely decline.

We are a clinical-stage biopharmaceutical company with a limited operating history. We have not generated any revenue from the sale of products and have incurred losses in each year since we commenced operations in 2004. All of our product candidates are in development, and none has been approved for sale. In the years ended December 31, 2015 and 2014 and the six months ended June 30, 2016, we derived all of our revenue from government contracts for research and development. Our net losses for the years ended December 31, 2015 and 2014 were $27.1 million and $20.2 million, respectively. Our net losses for the six-months ended June 30, 2016 and 2015 were $30.5 million and $7.1 million , respectively. As of June 30, 2016, we had an accumulated deficit of $206.5 million .

We expect to continue incurring significant expenses and increasing operating losses for the foreseeable future as we continue to conduct our Phase 3 EPIC (Evaluating Plazomicin In cUTI) trial of our lead product candidate, plazomicin, in the treatment of complicated urinary tract infections ("cUTI"), our Phase 3 CARE (Combating Antibiotic Resistant Enterobacteriaceae) trial of plazomicin in the treatment of infections due to carbapenem-resistant Enterobacteriaceae ("CRE"), seek marketing approval for plazomicin, and continue the development of our other product candidates. Our expenses will also increase substantially if and as we:

- conduct additional clinical trials for our product candidates;
- continue to discover and develop additional product candidates;
- establish a sales, marketing and distribution infrastructure to commercialize any product candidates for which we may obtain marketing approval;
- establish a manufacturing and supply chain sufficient for commercial quantities of any product candidates for which we may obtain marketing approval;
- maintain, expand and protect our intellectual property portfolio;
- hire additional clinical, scientific and commercial personnel;
- add operational, financial and management information systems and personnel, including personnel to support our product development and planned future commercialization efforts, as well as operating as a public reporting company; and
- acquire or in-license other product candidates and technologies.

If our product candidates fail to demonstrate safety and efficacy in clinical trials, do not gain regulatory approval, or do not achieve market acceptance following regulatory approval and commercialization, we may never become profitable. Even if we achieve profitability in the future, we may not be able to sustain profitability in subsequent periods. Our prior losses, combined with expected future losses, have had and will continue to have an adverse effect on our stockholders' equity and working capital. If we are unable to achieve and sustain profitability, the market value of our common stock will likely decline. Because of the numerous risks and uncertainties associated with developing biopharmaceutical products, we are unable to predict the extent of any future losses or when, if ever, we will become profitable.

We are substantially dependent on the success of our lead product candidate, plazomicin, which is in Phase 3 clinical development. If we are unable to develop, obtain marketing approval for and successfully commercialize plazomicin, or experience significant delays in doing so, our business could be materially harmed.

We currently have no products approved for sale, and since 2007, we have invested a significant portion of our efforts and financial resources in the development of plazomicin. Our future success is substantially dependent on our ability to successfully develop, obtain regulatory approval for and, ultimately, successfully commercialize plazomicin. In early January 2016, we dosed our first patient in our Phase 3 EPIC trial, which we expect to serve as a single pivotal study supporting a new drug application ("NDA") for plazomicin in the United States. In September 2014, we dosed our first patients in our Phase 3 CARE trial, and we expect to stop enrollment in the Phase 3 CARE study when we complete enrollment in the Phase 3 EPIC study. We have not previously completed a clinical trial of plazomicin in patients with CRE infections, and we have no direct clinical evidence that plazomicin is effective in treating CRE infections in humans. Our Phase 2 trial evaluated the efficacy of plazomicin compared with levofloxacin in patients with cUTI. Our ability to develop, obtain regulatory approval for, and successfully commercialize plazomicin effectively will depend on several factors, including the following:

- successful enrollment and completion of our registration trial for plazomicin in our Phase 3 EPIC trial and our Phase 3 CARE trial, which will depend substantially upon the satisfactory performance of third-party contractors;
- receipt of marketing approvals from the U.S. Food and Drug Administration ("FDA") and similar regulatory authorities outside the United States;
- receiving the product labeling that enables the successful promotion of plazomicin;
- establishing commercial manufacturing and supply arrangements;
- establishing a commercial infrastructure;
- identifying and successfully establishing one or more collaborations to commercialize plazomicin;
- acceptance of the product by patients, the medical community and third-party payors;
- establishing market share while competing with other therapies;
- successfully executing our pricing and reimbursement strategy;
- a continued acceptable safety and adverse event profile of the product following regulatory approval; and
- qualifying for, identifying, registering, maintaining, enforcing and defending intellectual property rights and claims covering the product.

In addition, our product development program includes the development of an *in vitro* diagnostic ("IVD") assay which must successfully complete a clinical performance study, conducted concurrently with and utilizing patient samples from our Phase 3 CARE trial of plazomicin, and be approved or cleared for marketing by the FDA and certain other foreign regulatory agencies, contemporaneously with the marketing approval of plazomicin, and then be commercialized concurrently with plazomicin in the associated markets. If we are unable to develop, receive marketing approval for plazomicin or the IVD assay in a timely manner or at all, we could experience significant delays or an inability to successfully commercialize plazomicin, which would materially and adversely affect our business, financial condition, and results of operations.

Our recurring losses from operations and negative cash flows have raised substantial doubt regarding our ability to continue as a going concern.

Our recurring losses from operations and negative cash flows raise substantial doubt about our ability to continue as a going concern. As a result, our independent registered public accounting firm included an explanatory paragraph in its report on our consolidated financial statements as of, and for the year ended, December 31, 2015. In June 2016, we received aggregate gross proceeds of $25.4 million in a private placement of equity securities and a $10.0 million term loan from Solar Capital. However, our only current source of revenue is for services performed for the research and development of our product candidates under government contracts, and we do not expect to generate revenue from product sales until, and unless, we receive regulatory approval of and successfully commercialize plazomicin. Accordingly, our ability to continue as a going concern will require us to obtain additional financing to fund our operations or significantly curtail our operations to conserve our capital resources. Further, the perception of our ability to continue as a going concern may make it more difficult for us to obtain financing for the continuation of our operations, or necessitate that we obtain financing on terms that are more favorable to investors, and could result in the loss of confidence by investors, suppliers and employees.

We will need substantial additional funding. If we are unable to raise capital when needed, we could be forced to delay, reduce or terminate our product development, other operations or commercialization efforts.

Developing biopharmaceutical products, including conducting preclinical studies and clinical trials, is an expensive and highly uncertain process that takes years to complete. We expect our expenses to increase substantially as we continue the clinical development of our lead product candidate, plazomicin, seek marketing approval for plazomicin and continue the development of our other product candidates. If we obtain marketing approval of plazomicin, we also expect to incur significant sales, marketing, manufacturing and supply expenses.

As of June 30, 2016, we had working capital of $65.6 million and unrestricted cash, cash equivalents and short-term investments of $70.0 million . Management believes that, based on its current operating plans, our existing cash, cash equivalents and short-term investments, combined with the committed funds from the Biomedical Advanced Research and Development Authority ("BARDA") contract, is estimated to be sufficient to meet our anticipated cash requirements to fund our current planned operations at least through the beginning of the second quarter of 2017. We estimate that our Phase 3 EPIC trial will necessitate funding of $45 to $50 million from 2015 through 2017 and approximately $25 million of this funding has been provided by the term loans from Solar Capital, and additional $20 million from Option 3 under BARDA contract. In addition, other factors may arise causing us to need additional capital resources sooner than anticipated. We anticipate that we will need to raise substantial additional financing in the future to fund our operations, including for obtaining marketing approval for plazomicin.

We may obtain additional financing through public or private equity offerings, debt financings, a credit facility, government contracts and/or strategic collaborations. Additional financing may not be available to us when we need it or it may not be available to us on acceptable terms, if at all. Our ability to obtain debt financing may be limited by covenants we have made under our loan and security agreement with Solar Capital Ltd. and our pledge to Solar Capital Ltd. of substantially all of our assets, other than our intellectual property, as collateral. The negative pledge in favor of Solar Capital Ltd. with respect to our intellectual property under the loan and security agreement could further limit our ability to obtain additional debt financing. Our failure to raise capital as and when needed could have a negative impact on our financial condition and our ability to pursue our business strategies. The amount and timing of our future financing requirements will depend on many factors, including:

- the rate of progress and cost of our Phase 3 trials, any other clinical trials we may commence, preclinical studies and other discovery and research and development activities;
- the size and type of the nonclinical studies that we decide to pursue in the development of our product candidates, including plazomicin;
- the type, number, costs and results of the product candidate development programs which we are pursuing or may choose to pursue in the future;
- whether or not we decide to pursue additional or alternative pivotal trials for plazomicin;
- the costs associated with bringing a plazomicin IVD assay to support therapeutic drug monitoring through development, approval, and commercialization;
- the timing of, and costs involved in, seeking and obtaining FDA and other regulatory approvals, including the preparation of a NDA for plazomicin, and any supplemental applications thereto;
- our ability to enter into additional collaboration, licensing or other arrangements and the terms and timing of such arrangements;
- the costs of preparing, filing, prosecuting, maintaining and enforcing any patent claims and other intellectual property rights, including litigation costs and the results of such litigation;
- the emergence of competing technologies and other adverse market developments;
- the resources we devote to marketing, and, if approved, commercializing our product candidates;
- the scope, progress, expansion, and costs of manufacturing our product candidates;
- our ability to enter into additional government contracts, or other collaborative agreements, to support the development of our product candidates and development efforts; and
- the costs associated with being a public company.

Future capital requirements will also depend on the extent to which we acquire or invest in additional complementary businesses, products and technologies. We currently have no understandings, commitments or agreements relating to any of these types of transactions.

If we are unable to raise additional funds when needed, we may be required to delay, reduce, or terminate some or all of our development programs and clinical trials. We may also be required to sell or license to others technologies or clinical product candidates or programs that we would prefer to develop and commercialize ourselves.

Clinical drug development involves a lengthy and expensive process with uncertain outcomes that may lead to delayed timelines and increased cost, and may prevent us from being able to complete clinical trials.

Clinical testing is expensive, can take many years to complete, and its outcome and timeline is inherently uncertain. The results of preclinical and clinical studies of our product candidates may not be predictive of the results of later-stage clinical trials. For example, the positive results generated to date in nonclinical and clinical studies for plazomicin do not ensure that our Phase 3 trials will demonstrate similar results or provide data supportive of similar results. Product candidates in later stages of clinical trials may fail to show the desired safety and efficacy despite having progressed through preclinical studies and initial clinical trials. A number of companies in the pharmaceutical industry have suffered significant setbacks in advanced clinical trials due to lack of efficacy or adverse safety profiles, notwithstanding promising results in earlier studies, and we cannot be certain that we will not face similar setbacks.

The first patient in our Phase 3 EPIC trial for plazomicin was enrolled in early January 2016. In June 2016, over 50% patient enrollment was reached. We expect top-line results for our Phase 3 EPIC trial in the first quarter of 2017 and expect to submit an NDA for plazomicin in the second half of 2017, with a planned commercial launch of plazomicin in the U.S. in 2018, if our NDA is approved.

The first patient in our Phase 3 CARE trial for plazomicin was enrolled in September 2014. We expect to end enrollment in the CARE study in 2016, announce top-line data results in the first half of 2017, and to submit the study results as supportive data with the plazomicin NDA based on our Phase 3 EPIC trial. We also plan to submit the results to a peer-reviewed journal and for presentation at a medical meeting in 2017. Based on physician market research, we believe the Phase 3 CARE study will provide important and meaningful data regarding the efficacy, safety, microbiology, and dosing, as well as important health economic data, to better inform use of plazomicin in the treatment of patients with CRE infections.

We cannot be certain that our Phase 3 EPIC trial or our Phase 3 CARE trial, or any other future clinical trials for plazomicin, or other product candidates, will progress as expected, not need to be redesigned, enroll an adequate number of patients on time or be completed on schedule, if at all, or support continued clinical development of the associated product candidate.

Clinical trials can be delayed, aborted or fail for a variety of reasons, including delay or failure:

- to obtain regulatory approval to commence a trial in the countries where the trial is to be conducted;
- to successfully initiate a clinical trial, enroll patients, and complete clinical trial activities in foreign countries;
- to recruit and enroll suitable patients to participate in a trial;
- to reach agreement on acceptable terms with prospective contract research organizations (“CROs”), clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and trial sites;
- to obtain institutional review board (“IRB”) approval at each site;
- to have patients complete a trial or return for post-treatment follow-up;
- of clinical sites to adhere to trial protocols or continue to participate in a trial;
- to address any patient safety concerns that arise during the course of a trial;
- to address any conflicts with new or existing laws or regulations;
- to add a sufficient number of clinical trial sites;
- to manufacture sufficient quantities of product supply for use in clinical trials; or
- to ensure clinical trial sites comply with Good Clinical Practice ("GCP") guidelines.

Enrollment delays in our clinical trials may result in increased development costs for our product candidates, slow down or halt our product development and approval processes, and jeopardize our ability to commence product sales and generate revenue, which would cause the value of our company to decline and limit our ability to obtain additional financing if needed. Patient enrollment in clinical trials is a function of many factors, including: the nature of clinical trial protocols, existence of competing protocols or treatments (if any), the size and longevity of the target patient population, proximity of patients to clinical sites and eligibility criteria for the clinical trials. Although we will continue to look for opportunities for faster regulatory approval of plazomicin or our other product candidates, we cannot guarantee that additional opportunities will arise, that the FDA or other regulatory authorities will agree with any additional proposals we make or that such additional proposals, even if approved, will be successful.

We could also encounter delays if a clinical trial is suspended or terminated by us upon recommendation of the data monitoring committee for such trial, by the IRBs of the institutions in which such trials are being conducted, or by the FDA or other regulatory authorities. Such authorities may suspend or terminate a clinical trial due to a number of factors, including failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols, inspection of the clinical trial operations or trial site by the FDA or other regulatory authorities resulting in the imposition of a clinical hold, unforeseen safety issues or adverse side effects, failure to demonstrate a benefit from using a drug, changes in governmental regulations or administrative actions, or lack of adequate funding to continue the clinical trial.

If we experience delays in the completion of, or termination of, any clinical trial of our product candidates, the commercial prospects of our product candidates may be harmed, and our ability to generate revenue from the sale of any of these product candidates will be delayed. In addition, any delays in completing our clinical trials will increase our costs, slow down our product candidate development and approval processes, and jeopardize our ability to commence product sales and generate revenue. Any of these occurrences may significantly harm our business, financial condition and prospects.

Our Phase 3 EPIC trial for plazomicin is subject to a number of specific risks that may affect the timeline and outcome of the trial, including the use of a new comparator drug and our lack of experience with clinical trials in certain foreign countries.

Our Phase 3 EPIC trial for plazomicin is subject to a number of specific risks arising from our clinical program and the design of the trial. For example, in our Phase 3 EPIC trial, plazomicin will be compared to meropenem. Although we have completed a Phase 2 clinical trial demonstrating that plazomicin was as effective as a comparator drug in treating cUTI, the results of our completed Phase 2 cUTI trial were based on a comparison to levofloxacin in treating cUTI, not meropenem. This use of a different comparator may cause our Phase 3 EPIC trial results to be unsuccessful or less favorable than anticipated, particularly if meropenem is more effective than levofloxacin in treating patients with cUTI.

Comparisons to results from other reported clinical trials, including our completed Phase 2 cUTI clinical trial, can assist in evaluating the potential efficacy of plazomicin; however, there are many factors that affect the outcome for patients in clinical trials, some of which are not apparent in published reports, and results from different trials often cannot be reliably compared. Therefore, there is no assurance that the results of our Phase 3 EPIC trial for plazomicin will demonstrate safety and efficacy comparable to the results of trials conducted to date or will be sufficient to attain FDA approval.

Any failure to meet our endpoints in the Phase 3 EPIC trial or adequately address safety concerns would jeopardize our ability to obtain regulatory approval for and commercialize plazomicin on schedule, or at all, and significantly harm our business, financial condition, and prospects.

Our Phase 3 CARE trial for plazomicin is subject to a number of specific risks that may affect the outcome of the trial, including the lack of a prior clinical trial in patients with CRE infections and challenges in enrolling an adequate number of patients with rare infections.

Our Phase 3 CARE trial for plazomicin is subject to a number of specific risks arising from our clinical program and the design of the trial. We have not conducted a clinical trial of plazomicin in patients with CRE infections or with bloodstream infections or pneumonia, who are the subjects of our Phase 3 CARE trial, and we have no direct clinical evidence that plazomicin is effective in treating CRE infections in humans. Our Phase 2 trial demonstrated that plazomicin was as effective as the comparator drug in treating cUTI arising from non-CRE bacteria. Although we believe that plazomicin will be effective in treating CRE infections in humans based upon our nonclinical *in vitro* and *in vivo* animal model study results, together with our Phase 2 trial results, these results are not necessarily predictive of the results in humans and we cannot guarantee that plazomicin will demonstrate the expected efficacy in our Phase 3 CARE trial in patients. We also cannot guarantee that the data from our Phase 3 CARE trial will support the projections made from our pharmacokinetic and pharmacodynamic models we developed from our nonclinical and clinical plazomicin studies.

Because our Phase 3 CARE trial for plazomicin is enrolling patients with rare infections, finding a sufficient number of suitable patients with CRE infections to enroll in the trial has been a significant challenge. In addition, we may face competition in enrolling suitable patients as a result of other companies conducting clinical trials for antibiotic product candidates treating similar infections, resulting in slower than currently anticipated enrollment in our trial. In March 2015, based on discussions with the FDA, we amended the protocol for our Phase 3 CARE trial and these amendments are designed to accelerate the rate of patient enrollment in the Phase 3 CARE trial. We plan to stop enrollment in the Phase 3 CARE study when we expect to complete enrollment in the EPIC study. We may choose to further revise the enrollment protocol, commence new trials in a different patient population, or take other actions that may result in a substantial change in the clinical development program of plazomicin.

Our Phase 3 CARE trial also involves dosing of patients with plazomicin for longer durations (7–14 days) than in our Phase 1 and 2 trials at the comparable dosage (up to five days), which may lead to additional or more severe adverse events than were reported in our Phase 1 and 2 trials, including as a result of toxicity in the kidneys, inner ear, or hypotension.

Even if successful, the revisions to our Phase 3 CARE trial protocol no longer allow it to be powered to demonstrate a superiority outcome and the FDA, the EMA and other regulatory authorities as well as physicians and other third parties may not consider the data from our Phase 3 CARE trial to be supportive of plazomicin's potential to address serious bacterial infections caused by CRE.

Cohort 1 of our Phase 3 CARE trial was originally planned and the size estimated based on a superiority design. We have recently decided to reduce the planned enrollment of our Phase 3 CARE trial. With this reduced sample size, the study will not be powered to demonstrate superiority but we still expect the same trend in improvement with the plazomicin-based regimen compared to the comparator arm. We may be unable to demonstrate a clear trend in favor of plazomicin as the "mortality plus" and other endpoints will depend to a significant degree on the accuracy of our assumptions about the rates of mortality and a number of significant disease-related complications in the comparator and plazomicin arms of our Phase 3 CARE trial. Although we believe we have been conservative in our assumptions, if, for example, patients in the comparator arm of our trial have significantly lower rates of mortality, or rates of applicable disease-related complications, than we expect, we may find that our trial is unfeasible or may have to enroll more patients at additional cost and delay. Further, if we choose to further revise our current trial protocol or complete an alternative pivotal trial for plazomicin, we may not be able to claim certain of the potential market and label benefits that the currently proposed Phase 3 CARE trial could provide. Our ability to claim certain of the market and label benefits that a successful superiority trial would have provided, will be reduced by pursuing a reduced target enrollment in our Phase 3 CARE trial. Further, the FDA, the European Medicines Agency ("EMA") and other regulatory authorities as well as physicians and other third parties may not consider the data from our Phase 3 CARE trial to be supportive of plazomicin's potential to address serious bacterial infections caused by CRE.

Failure to successfully validate, develop and obtain regulatory clearance or approval for our IVD assay could harm our product development strategy for plazomicin for the treatment of serious bacterial infections caused by CRE.

An important element of our clinical development strategy for plazomicin for the treatment of serious bacterial infections caused by CRE is the development of an IVD assay to measure levels of plazomicin in the blood, which will enable patients to receive safe and efficacious doses of plazomicin. In collaboration with ARK Diagnostics, Inc. ("ARK"), we are co-developing such an assay for our Phase 3 CARE study, which could be commercialized concurrently with plazomicin, if approved.

IVD assays are subject to regulation by the FDA and comparable foreign regulatory authorities as medical devices and therefore require separate regulatory clearance or approval prior to commercialization. An IVD assay that is required for safe and effective use of a drug is referred to as a companion diagnostic. The clinical development of novel therapeutics with a companion diagnostic is complex from an operational and regulatory perspective because of the need for both the drug and the diagnostic to receive regulatory clearance or approval. Specifically, on August 6, 2014, the FDA issued the final guidance document addressing the development and approval processes for "In vitro Companion Diagnostic Devices." According to the final guidance, for novel therapeutic products such as plazomicin, a companion diagnostic device should be developed and approved or cleared contemporaneously with the therapeutic. We believe our programs for the development of our companion diagnostic are consistent with the guidance. If the regulatory clearance or approval process for our IVD assay is delayed, our ability to commercialize plazomicin for the treatment of serious bacterial infections caused by CRE could be delayed until we receive regulatory clearance or approval for the companion diagnostic assay.

It may be necessary to resolve issues such as selectivity/specificity, analytical validation, reproducibility, or clinical validation of our assay during the development and regulatory approval process. We also expect to develop the assay for use on additional analyzers beyond the current Roche Modular P. We, ARK or our future collaborators may encounter difficulties in developing, obtaining regulatory clearance or approval for and manufacturing of the assay with appropriate quality standards,

similar to those we face with respect to our drug product candidates themselves. Failure to overcome these hurdles could have an adverse effect on our ability to obtain regulatory approval for or to obtain market acceptance for and to commercialize our IVD assay or plazomicin for the treatment of serious bacterial infections caused by CRE.

If we fail to demonstrate the safety and efficacy of plazomicin or any other product candidate that we develop to the satisfaction of the FDA or comparable foreign regulatory authorities we may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of plazomicin or such other product candidate. This would adversely impact our ability to generate revenue, our business and our results of operations.

We are not permitted to commercialize, market, promote, or sell any product candidate in the United States without obtaining marketing approval from the FDA or in other countries without obtaining approvals from comparable foreign regulatory authorities, such as the EMA, and we may never receive such approvals. To gain approval to market a drug product, we must complete extensive preclinical development and clinical trials that demonstrate the safety and efficacy of the product for the intended indication to the satisfaction of the FDA or other regulatory authority.

We have not previously submitted an NDA to the FDA, or similar drug approval filings to comparable foreign authorities, for any product candidate, and we cannot be certain that plazomicin will be successful in clinical trials or receive regulatory approval. Further, plazomicin may not receive regulatory approval even if it is successful in clinical trials. If we do not receive regulatory approval for plazomicin, we may not be able to continue our operations. Even if we successfully obtain regulatory approval to market plazomicin, our revenue from this approval will be dependent, in part, upon our or a commercial partner's ability to obtain regulatory approval of an IVD assay to be used with plazomicin for the treatment of serious bacterial infections caused by CRE, as well as upon the size of the markets in the territories for which we gain regulatory approval and have commercial rights.

The FDA or any foreign regulatory agencies can delay, limit, or deny approval of plazomicin for many reasons, including:

- our inability to demonstrate to the satisfaction of the FDA or the applicable foreign regulatory agency that plazomicin is safe and effective for the requested indication;
- the FDA's or the applicable foreign regulatory agency's disagreement with the interpretation of data from preclinical studies or clinical trials;
- our inability to demonstrate that the clinical and other benefits of plazomicin outweigh any safety or other perceived risks;
- the FDA's or the applicable foreign regulatory agency's requirement for additional preclinical or clinical studies;
- the FDA's or the applicable foreign regulatory agency's non-approval of the formulation, labeling or the specifications of plazomicin;
- the FDA's or the applicable foreign regulatory agency's failure to approve the manufacturing processes or facilities of third-party manufacturers with which we contract;
- the potential for approval policies or regulations of the FDA or the applicable foreign regulatory agencies to significantly change in a manner rendering our clinical data insufficient for approval; or
- failure to adequately demonstrate study conduct oversight, ensure data integrity, and that clinical study sites complied with the principles of Good Clinical Practice, such that we do not pass pre-approval inspections by the FDA or other foreign regulatory agencies.

Even if we eventually complete clinical testing and receive approval of an NDA or foreign regulatory filing for plazomicin, the FDA or the applicable foreign regulatory agency may grant approval contingent on the performance of costly additional clinical trials which may be required after approval. The FDA or the applicable foreign regulatory agency also may approve plazomicin for a more limited indication or a narrower patient population than we originally requested, and the FDA, or applicable foreign regulatory agency, may not approve the labeling that we believe is necessary or desirable for the successful commercialization of plazomicin. For example, we anticipate the NDA for plazomicin will initially be based on our Phase 3 EPIC trial and that, if approved, we anticipate the U.S. label will indicate that plazomicin is for use in patients with infections that have limited or no alternative antibiotic treatment options. In addition, we believe that the label will include *in vitro* data against antibiotic resistant pathogens in the microbiology section of the drug label. However, the FDA may approve a label that omits this *in vitro* data or that limits plazomicin to a more limited indication or narrower patient population, which may harm our ability to successfully commercialize plazomicin, if approved. Any delay in obtaining, or inability to obtain, applicable regulatory approval would delay or prevent commercialization of plazomicin and would materially adversely impact

our business and prospects. Any other product candidate we advanced to the marketing approval stage would also be subject to the risks delineated above.

Serious adverse events or other unexpected properties of plazomicin or any other product candidate may be identified during development or after approval that could delay, prevent or cause the withdrawal of regulatory approval, limit the commercial potential, or result in significant negative consequences following marketing approval.

Serious adverse events or undesirable side effects caused by, or other unexpected properties of, our product candidates could cause us, an IRB, or regulatory authorities to interrupt, delay or halt our clinical trials and could result in a more restrictive label, the imposition of distribution or use restrictions or the delay or denial of regulatory approval by the FDA or comparable foreign regulatory authorities. If plazomicin or any of our other product candidates are associated with serious adverse events or undesirable side effects or have properties that are unexpected, we may need to abandon their development or limit development to certain uses or subpopulations in which the undesirable side effects or other characteristics are less prevalent, less severe or more acceptable from a risk-benefit perspective. Many compounds that initially showed promise in clinical or earlier stage testing have later been found to cause undesirable or unexpected side effects that prevented further development of the compound.

To date, plazomicin has generally been well tolerated in clinical trials conducted in healthy subjects, subjects with renal impairment, and in patients with cUTI, and there have been no reports of serious adverse events related to plazomicin in our completed clinical trials. However, our Phase 3 EPIC trial and our Phase 3 CARE trial for plazomicin call for more extended dosing (up to 7 days for our Phase 3 EPIC trial and 7–14 days for our Phase 3 CARE trial) than our Phase 1 and 2 trials at the comparable dosage (up to five days), which may lead to additional or more severe adverse events than were reported in our Phase 1 and 2 trials. Toxicity in the kidneys and inner ear are the most significant identified risks for plazomicin, which are well-known risks for the aminoglycoside class of antibiotics. Hypotension is also a potential risk for plazomicin.

Undesirable side effects or other unexpected adverse events or properties of plazomicin or any of our other product candidates could arise or become known either during clinical development or, if approved, after the approved product has been marketed. If such an event occurs during development, our trials could be suspended or terminated and the FDA or comparable foreign regulatory authorities could order us to cease further development of, or deny approval of, plazomicin or our other product candidates. If such an event occurs after plazomicin or such other product candidates are approved, a number of potentially significant negative consequences may result, including:

- regulatory authorities may withdraw the approval of such product;
- regulatory authorities may require additional warnings on the label or impose distribution or use restrictions;
- regulatory authorities may require one or more post-market studies;
- we may be required to create a medication guide outlining the risks of such side effects for distribution to patients;
- we could be sued and held liable for harm caused to patients; and
- our reputation may suffer.

Any of these events could prevent us from achieving or maintaining market acceptance of the affected product candidate, if approved, or could substantially increase commercialization costs and expenses, which could delay or prevent us from generating revenue from the sale of our products and harm our business and results of operations.

We cannot predict to what extent bacteria may develop resistance to plazomicin or how resistance could spread, which could affect the revenue potential for plazomicin.

We are developing plazomicin to treat multi-drug resistant ("MDR") infections. The bacteria responsible for these infections evolve quickly and readily transfer their resistance mechanisms within and between species. Furthermore, some resistance to plazomicin already exists and we cannot predict how the prevalence of bacterial resistance to plazomicin will change over time.

As with some other commercially available aminoglycosides, plazomicin is not active against organisms expressing a resistance mechanism known as ribosomal methyltransferase. Although occurrence of this resistance mechanism among CRE varies regionally and is currently rare in the United States, there have been isolated cases of infections by bacteria carrying ribosomal methyltransferase in the United States. We cannot predict whether ribosomal methyltransferase will become widespread in regions where we intend to market plazomicin if it is approved. The growth of MDR infections in community settings or in countries with poor public health infrastructures, or the potential use of plazomicin outside of controlled hospital

settings, could contribute to the rise of plazomicin resistance. If resistance to plazomicin becomes prevalent, our ability to generate revenue from plazomicin could suffer.

We are dependent on ARK to develop and manufacture our IVD assay for our Phase 3 CARE trial for plazomicin for the treatment of blood stream infections and pneumonia caused by CRE, and may become dependent on ARK to commercialize such IVD assay.

We are dependent on the sustained cooperation and effort of ARK in the development and manufacture of our IVD assay for plazomicin for our Phase 3 CARE trial for the treatment of blood stream infections and pneumonia caused by CRE, including in the generation of analytical data for regulatory approval of such assay. We have also agreed to negotiate with ARK for a commercialization agreement for the IVD assay, and have agreed that any such commercialization agreement would provide ARK with the first right to commercialize the assay in the United States and the European Union ("EU"), and to manufacture and supply the assay worldwide for commercialization, while we would have the first right to commercialize the assay in any other country or territory, in addition to rights to commercialize the assay in the United States and the EU if ARK elects not to do so. Should we enter into such an agreement with ARK, we will be dependent on ARK with respect to such manufacturing and supply and with respect to commercialization in the United States and the EU. This will reduce our control over these activities but does not relieve us of our responsibility to ensure compliance with all required legal, regulatory and scientific standards with respect to the assay.

If ARK does not successfully carry out its contractual duties, meet expected deadlines or conduct our studies in accordance with regulatory requirements or our stated study plans and protocols, we may not be able to complete, or may be delayed in completing, the Phase 3 CARE trial and clearance or approval of the assay. We or ARK may encounter difficulties in developing the assay for commercial application in one or more countries, including issues in relation to automation, selectivity/specificity, analytical validation, reproducibility, or clinical validation of such assay. If we do not enter into such a commercialization agreement with ARK, and ARK elects not to participate in the commercialization of the assay in the United States and/or the EU, we would have to find an alternative collaborator, which we may not be able to do on commercially reasonable terms, or at all. If ARK or any such alternative collaborator does not perform its contractual duties or obligations, experiences work stoppages, does not meet expected deadlines, terminates its agreements with us or needs to be replaced, or if they otherwise do not meet our expectations for development, manufacture or commercialization of the assay, we may need to enter into new arrangements with one or more alternative third parties for development, manufacture or commercialization of the assay or an alternative assay. We may not be able to do so on commercially reasonably terms, or within the terms of the commercialization agreement without amending such terms, or at all, which could adversely impact our business and results of operations related to plazomicin for the treatment of serious bacterial infections caused by CRE.

If we are not successful in discovering, developing and commercializing additional product candidates, our ability to expand our business and achieve our strategic objectives would be impaired.

Although a substantial amount of our efforts is focused, and will continue to be focused, on our Phase 3 trials and potential approval of our lead product candidate, plazomicin, a key element of our strategy is to discover, develop and commercialize a portfolio of therapeutics to treat MDR bacterial infections. We are seeking to do so through our internal research programs and are exploring, and intend to explore in the future, strategic partnerships for the development of new products. Other than plazomicin, all of our other potential product candidates remain in the discovery and preclinical stages.

Research programs to identify product candidates require substantial technical, financial and human resources, whether or not any product candidates are ultimately identified. Our research programs may initially show promise in identifying potential product candidates, yet fail to yield product candidates for clinical development for many reasons, including the following:

- the research methodology used may not be successful in identifying potential product candidates;
- we may be unable to successfully modify candidate compounds to be active in gram-negative bacteria or defeat bacterial resistance mechanisms or identify viable product candidates in our screening campaigns;
- competitors may develop alternatives that render our product candidates obsolete;
- product candidates we develop may nevertheless be covered by third party patents or other exclusive rights;
- a product candidate may, on further study, be shown to have harmful side effects or other characteristics that indicate it is unlikely to be effective or otherwise does not meet applicable regulatory criteria;
- a product candidate may not be capable of being produced in commercial quantities at an acceptable cost, or at all;

- a product candidate may not be accepted as safe and effective by patients, the medical community or third-party payors; and
- the development of bacterial resistance to potential product candidates may render them ineffective against target infections.

We withdrew ACHN-975, one of the product candidates from our LpxC inhibitor development program, from clinical trials due to inflammation at the infusion site in some of our Phase 1 subjects and withdrew the Investigational New Drug ("IND") application for this compound in May 2014. We are actively assessing alternative backup compounds in order to identify candidates that preclinical lab tests will show are effective and likely to exhibit a superior clinical safety profile. We cannot guarantee that these efforts will be successful. If we identify viable product candidates, we would have to submit a new IND application for any compound we seek to advance to clinical trials.

If we are unsuccessful in identifying and developing additional product candidates, our potential for growth may be impaired.

Even if a product candidate does obtain regulatory approval it may never achieve market acceptance by physicians, patients, hospitals, third-party payors and others in the medical community necessary for commercial success and the market opportunity may be smaller than we estimate.

Even if we obtain FDA or other regulatory approvals, and are able to launch plazomicin or any other product candidate commercially, the product candidate may not achieve market acceptance among physicians, patients, hospitals (including pharmacy directors) and third-party payors and, ultimately, may not be commercially successful. Market acceptance and market opportunity of any product candidate for which we receive approval depends on a number of factors, including:

- the efficacy and safety of the product candidate as demonstrated in clinical trials;
- relative convenience and ease of administration;
- the clinical indications for which the product candidate is approved;
- the potential and perceived advantages and disadvantages of the product candidates, including cost and clinical benefit relative to alternative treatments;
- the willingness of physicians to prescribe the product;
- the willingness of hospital pharmacy directors to purchase our products for their formularies;
- acceptance by physicians, operators of hospitals and treatment facilities and parties responsible for reimbursement of the product;
- the availability of adequate coverage and reimbursement by third-party payors and government authorities;
- the effectiveness of our sales and marketing efforts;
- the strength of our marketing and distribution support;
- limitations or warnings, including distribution or use restrictions, contained in the product's approved labeling or an approved risk evaluation and mitigation strategy;
- whether the product is designated under physician treatment guidelines as a first-line therapy or as a second- or third-line therapy for particular infections;
- the approval of other new products for the same indications;
- the timing of market introduction of the approved product as well as competitive products;
- adverse publicity about the product or favorable publicity about competitive products;
- the emergence of bacterial resistance to the product candidate; and
- the rate at which resistance to other drugs in the target infections grow.

Any failure by plazomicin or any other product candidate that obtains regulatory approval to achieve market acceptance or commercial success would adversely affect our business prospects.

The availability of adequate third-party coverage and reimbursement for newly approved products is uncertain, and failure to obtain adequate coverage and reimbursement from government and other third-party payors could impede our ability to market any future products we may develop and could limit our ability to generate revenue.

There is significant uncertainty related to the third-party payor coverage and reimbursement of newly approved medical products. The commercial success of our future products in both domestic and international markets depends on whether third-party coverage and reimbursement is available for our future products. Governmental payors, including Medicare and Medicaid, health maintenance organizations and other third-party payors are increasingly attempting to manage their healthcare expenditures by limiting both coverage and the level of reimbursement of new drugs and biologics and, as a result, they may not cover or provide adequate reimbursement for our future products. These payors may not view our future products as cost-effective, and coverage and reimbursement may not be available to our customers or may not be sufficient to allow our future products to be marketed on a competitive basis.

Third-party payors are exerting increasing influence on decisions regarding the use of, and coverage and reimbursement levels for, particular treatments. Such third-party payors, including Medicare, are challenging the prices charged for medical products and services, and many third-party payors limit or delay coverage and reimbursement for newly approved healthcare products. In particular, third-party payors may limit the covered indications. Cost-control initiatives could cause us to decrease the price we might establish for products, which could result in lower than anticipated revenue from the sale of our product candidates. If we decrease the prices for our product candidates because of competitive pressures or if governmental and other third-party payors do not provide adequate coverage or reimbursement, our prospects for revenue and profitability will suffer.

In addition, to the extent that our product candidates will be used in a hospital inpatient setting, hospitals often receive fixed reimbursement for all of a patient's care, including the cost of our drug products and IVD assay, based on the patient's diagnosis. For example, Medicare reimbursement for hospital inpatient stays is generally made under a prospective payment system that is determined by a classification system known as the Medicare severity diagnosis-related groups. Our patients' access to adequate coverage and reimbursement by government and private insurance plans is central to the acceptance of our future products. We may be unable to sell our products on a profitable basis if third-party payors reduce their current levels of payment, or if our costs of production increase faster than increases in reimbursement levels.

We are developing our lead product candidate plazomicin for the treatment of serious bacterial infections due to MDR Enterobacteriaceae, including CRE, which constitute a growing but relatively small patient population. Antibiotics have historically been marketed towards broad patient populations at relatively low prices. Based on the high unmet medical need in the treatment of these infections and the high costs of treating antibiotic resistant infections, we are targeting value-based pricing for plazomicin. If hospitals or governmental or other third-party payors do not view the benefits of plazomicin as worth the cost, we will be unable to achieve our pricing and reimbursement objectives and our prospects for revenue and profitability will suffer.

We rely on third parties to conduct some of our preclinical studies and all of our clinical trials. If these third parties do not successfully carry out their contractual duties or meet expected deadlines, we may be unable to obtain regulatory approval for or commercialize any of our product candidates.

We rely on medical institutions, clinical investigators, contract laboratories and other third parties, such as CROs, to conduct our preclinical studies and clinical trials on our product candidates in compliance with applicable regulatory requirements. These third parties are not our employees and, except for restrictions imposed by our contracts with such third parties, we have limited ability to control the amount or timing of resources that they devote to our programs. Although we rely on these third parties to conduct our preclinical studies and clinical trials, we remain responsible for ensuring that each of our preclinical studies and clinical trials is conducted in accordance with its investigational plan and protocol and the applicable legal, regulatory, and scientific standards, and our reliance on these third parties does not relieve us of our regulatory responsibilities. The FDA and regulatory authorities in other jurisdictions require us to comply with regulations and standards, commonly referred to as current good clinical practices ("cGCPs"), for conducting, monitoring, recording and reporting the results of clinical trials, in order to ensure that the data and results are scientifically credible and accurate and that the trial subjects are adequately informed of the potential risks of participating in clinical trials. If we or any of our third party contractors fail to comply with applicable cGCPs, the clinical data generated in our clinical trials may be deemed unreliable and the FDA or comparable foreign regulatory authorities may require us to perform additional clinical trials before approving our marketing applications. In addition, we are required to report certain financial interests of our third party investigators if these relationships exceed certain financial thresholds and meet other criteria. The FDA or comparable foreign regulatory authorities may question the integrity of the data from those clinical trials conducted by principal investigators who previously served or currently serve as scientific advisors or consultants to us from time to time and receive cash compensation in connection with such services. Our clinical trials must also generally be conducted with products produced under current good manufacturing practice ("cGMP") regulations. Our failure to comply with these regulations may require us to repeat clinical trials, which would delay the regulatory approval process.

Many of the third parties with whom we contract may also have relationships with other commercial entities, some of which may compete with us. If the third parties conducting our preclinical studies or our clinical trials do not perform their

contractual duties or obligations or comply with regulatory requirements we may need to enter into new arrangements with alternative third parties. This could be costly, and our preclinical studies or clinical trials may need to be extended, delayed, terminated or repeated, and we may not be able to obtain regulatory approval in a timely fashion, or at all, for the applicable product candidate, or to commercialize such product candidate being tested in such studies or trials. If any of our relationships with these third parties terminate, we may not be able to enter into arrangements with alternative third party contractors or to do so on commercially reasonable terms. Though we carefully manage our relationships with our CROs, there can be no assurance that we will not encounter similar challenges or delays in the future or that these delays or challenges will not have a material adverse impact on our business, financial condition and prospects.

We rely on third-party contract manufacturing organizations to manufacture and supply plazomicin and other product candidates for us, as well as certain raw materials used in the production thereof. If one of our suppliers or manufacturers fails to perform adequately we may be required to incur significant delays and costs to find new suppliers or manufacturers.

We currently have limited experience in, and we do not own facilities for, manufacturing our product candidates, including plazomicin. We rely upon third-party manufacturing organizations to manufacture and supply our product candidates and certain raw materials used in the production thereof. Some of our key components for the production of plazomicin have a limited number of suppliers. In particular, sisomicin, the aminoglycoside precursor for plazomicin, is supplied by a single manufacturer in China for which we do not have a commercial supply agreement.

The facilities used by our contract manufacturers to manufacture our product candidates must be approved by the FDA pursuant to inspections that will be conducted after we submit our NDA to the FDA. We do not control the manufacturing process of, and are completely dependent on, our contract manufacturing partners for compliance with cGMP regulations for manufacture of our drug products. If our contract manufacturers cannot successfully manufacture material that conforms to our specifications and the strict regulatory requirements of the FDA or others, they will not be able to secure and/or maintain regulatory approval for their manufacturing facilities. In addition, we have no control over the ability of our contract manufacturers to maintain adequate quality control, quality assurance and qualified personnel. If the FDA or a comparable foreign regulatory authority does not approve these facilities for the manufacture of our product candidates or if it withdraws any such approval in the future, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain regulatory approval for or market our product candidates, if approved.

We do not have commercial supply agreements with our suppliers. In the event that we and our suppliers cannot agree to the terms and conditions for them to provide clinical and commercial supply needs, we would not be able to manufacture our product or candidates until a qualified alternative supplier is identified, which could also delay the development of, and impair our ability to commercialize, our product candidates.

Our third party suppliers may not be able to meet our supply needs or timelines and this may negatively affect our business. A majority of the manufacturing process is operated internationally, and therefore may be subject to similar risks of the sort described by the risk factor entitled " *A variety of risks associated with international operations could materially adversely affect our business* ."

The failure of third-party manufacturers or suppliers to perform adequately or the termination of our arrangements with any of them may adversely affect our business.

A variety of risks associated with international operations could materially adversely affect our business.

Certain of our existing suppliers are located outside of the United States, including our sole source supplier for sisomicin, a key raw material for the production of plazomicin, which is located in China, and for which we do not have a commercial supply agreement. Additionally, if plazomicin is approved for commercialization outside the United States, we will likely seek to enter into agreements with third parties to market plazomicin outside the United States. We are, or we expect that we will be, subject to additional risks related to these international business relationships, including:

- different regulatory requirements for drug approvals in foreign countries;
- differing U.S. and foreign drug import and export rules;
- reduced protection for intellectual property rights in certain foreign countries;
- unexpected changes in tariffs, trade barriers and regulatory requirements;
- different reimbursement systems;
- economic weakness, including inflation, or political instability in particular foreign economies and markets;
- compliance with tax, employment, immigration and labor laws for employees living or traveling abroad;

- foreign currency fluctuations, which could result in increased operating expenses and reduced revenue, and other obligations incident to doing business in another country;
- potential liability resulting from development work conducted by these third parties; and
- business interruptions resulting from geopolitical events, including war and terrorism, or natural disasters.

We may be subject to costly product liability claims related to our clinical trials and product candidates and, if we are unable to obtain adequate insurance or are required to pay for liabilities resulting from a claim excluded from, or beyond the limits of our insurance coverage, a material liability claim could adversely affect our financial condition.

Because we conduct clinical trials with human patients, we face the risk that the use of our product candidates may result in adverse side effects to patients in our clinical trials. We face even greater risks upon any commercialization of our product candidates. Although we have product liability insurance, which covers our clinical trials for up to $5 million, our insurance may be insufficient to reimburse us for any expenses or losses we may suffer, and we will be required to increase our product liability insurance coverage for our advanced clinical trials that we plan to initiate. We do not know whether we will be able to continue to obtain product liability coverage and obtain expanded coverage if we require it, on acceptable terms, if at all. We may not have sufficient resources to pay for any liabilities resulting from a claim excluded from, or beyond the limits of, our insurance coverage. Where we have provided indemnities in favor of third parties under our agreements with them, there is also a risk that these third parties could incur liability and bring a claim under such indemnities. An individual may bring a product liability claim against us alleging that one of our product candidates or products causes, or is claimed to have caused, an injury or is found to be unsuitable for consumer use. Any product liability claim brought against us, with or without merit, could result in:

- withdrawal of clinical trial volunteers, investigators, patients or trial sites;
- the inability to commercialize our product candidates;
- decreased demand for our product candidates;
- regulatory investigations that could require costly recalls or product modifications;
- loss of revenue;
- substantial costs of litigation;
- liabilities that substantially exceed our product liability insurance, which we would then be required to pay ourselves;
- an increase in our product liability insurance rates or the inability to maintain insurance coverage in the future on acceptable terms, if at all;
- the diversion of management's attention from our business; and
- damage to our reputation and the reputation of our products.

Product liability claims may subject us to the foregoing and other risks, which could have a material adverse effect on our business, results of operations, financial condition and prospects.

If we fail to establish an effective distribution process, which includes utilizing cold-chain logistics for plazomicin and the associated IVD assay, our business may be adversely affected.

We do not currently have the infrastructure necessary for distributing pharmaceutical products to patients. We intend to contract with a third-party logistics company to warehouse these products and distribute them, and we will require plazomicin and the associated IVD assay to be maintained at a controlled temperature for some of the distribution chain. Failure to secure contracts with a logistics company could negatively impact the distribution of plazomicin or the IVD assay. If we are unable to effectively establish and manage the distribution process, the commercial launch and sales of plazomicin and the associated IVD assay will be delayed or severely compromised and our results of operations may be harmed.

In addition, the use of third party distributors, including with respect to cold-chain logistics for plazomicin and the associated IVD assay, involves certain risks, including, but not limited to, risks that distributors or pharmacies will:

- not provide us with accurate or timely information regarding their inventories, the number of patients who are using plazomicin or the IVD assay, or complaints regarding them;
- not effectively sell or support plazomicin or the associated IVD assay with sufficient cold storage;
- reduce their efforts or discontinue to sell or support plazomicin or the IVD assay;

- not devote the resources necessary to sell plazomicin or the IVD assay in the volumes and within the time frames that we expect;
- be unable to satisfy financial obligations to us or others; or
- cease operations.

Plazomicin is still undergoing evaluation for, and we expect our IVD assay will have, a room temperature shelf life. Currently cold-chain logistics is required and if we do not effectively maintain our cold-chain supply logistics, then we may experience an unusual number of product returns or out of date product. Any such failure may result in decreased product sales and lower product revenue, which would harm our business.

We currently have limited sales and marketing and distribution staff. If we are unable to develop an adequate sales and marketing and distribution capability on our own or through third parties, we will not be successful in commercializing our future products.

We currently have limited sales, marketing and distribution staff and no history in this capacity. To achieve commercial success for any approved product candidate, we must either develop an adequate sales, marketing and distribution organization or outsource these functions to third parties. If we rely on third parties for selling, marketing and distributing our approved products, any revenue we receive will depend upon the efforts of third parties, which may not be successful and are only partially within our control, and our product revenue may be lower than if we directly sold or marketed our products. If we are unable to enter into arrangements with third parties to sell, market and distribute product candidates for which we have received regulatory approval on acceptable terms or at all, we will need to market these products ourselves. This is likely to be expensive and logistically difficult, as it would require us to build our own sales, marketing and distribution capacity. We have no historical operations in this area, and if such efforts were necessary, we may not be able to successfully commercialize our future products. If we are not successful in commercializing our future products, either on our own or through third parties, any future product revenue will be materially and adversely affected, which would harm our business.

We face substantial competition and our competitors may discover, develop or commercialize products faster or more successfully than us.

The development and commercialization of new drug products is highly competitive. We face competition from major pharmaceutical companies, specialty pharmaceutical companies and biotechnology companies worldwide with respect to plazomicin and other product candidates that we may seek to develop or commercialize in the future. There are a number of pharmaceutical and biotechnology companies that currently market and sell products or are pursuing the development of product candidates for the treatment of MDR infections. Potential competitors also include academic institutions, government agencies and other public and private research organizations. Our competitors may succeed in developing, acquiring or licensing technologies and drug products that are more effective, safer or less costly than plazomicin or any other product candidates that we are currently developing or that we may develop, which could render our product candidates obsolete and noncompetitive.

There are a variety of available therapies marketed for the treatment of MDR infections that we would expect would compete with plazomicin, including Avycaz ™ (ceftazadime/avibactam), which is marketed by Allergan plc in the United States (anticipated to be marketed by AstraZeneca plc outside the United States), tigecycline, which is marketed by Pfizer as Tygacil®, other aminoglycosides that are generically available (such as gentamicin, amikacin, tobramycin), and polymixins that are generically available (colistin and polymixin B). Many of the available therapies are well-established and widely accepted by physicians, patients and third-party payors. Insurers and other third-party payors may also encourage the use of generic products. If plazomicin is approved, it may be priced at a premium over other competitive products. This may limit plazomicin's adoption for MDR gram-negative infections.

There are also a number of products in late-stage clinical development by third parties to treat MDR gram-negative infections. Allergan plc and AstraZeneca plc are developing Avyacaz: (ceftazidime and avidbactam) for serious infections. Tetraphase Pharmaceuticals, Inc. is developing eravacycline for complicated urinary and intra-abdominal infections, as well as pneumonia. The Medicines Company is developing Carbavance™ for cUTI and various infection types due to CRE. Merck & Co., Inc. is developing imipenem/relebactam for complicated urinary and intra-abdominal infections, and potentially for pneumonia. Zavante Therapeutics, Inc. is developing ZTI-01 for cUTI. We may also eventually face competition from products in earlier development stage. If our competitors obtain marketing approval from the FDA or comparable foreign regulatory authorities for their product candidates more rapidly than us, it could result in our competitors establishing a strong market position before we are able to enter the market.

In July 2012, the Food and Drug Administration Safety and Innovation Act was passed, which included the Generating Antibiotics Incentives Now Act (the "GAIN Act"). The GAIN Act provides incentives for the development of new, qualified

infectious disease products, including adding five years to the otherwise applicable regulatory exclusivity period. We requested and the FDA granted qualified infectious disease product designation for plazomicin for the treatment of hospital acquired bacterial pneumonia, ventilator-associated pneumonia, complicated intra-abdominal infections, cUTIs, and catheter-related bloodstream infections on December 14, 2014. The incentives provided under the GAIN Act, along with government contract funding and other incentives for antibiotic research, may result in more competition in the market for new antibiotics.

Many of our competitors have materially greater name recognition and financial, manufacturing, marketing, research and drug development resources than we do. Additional mergers and acquisitions in the biotechnology and pharmaceutical industries may result in even more resources being concentrated in our competitors. Large pharmaceutical companies in particular have extensive expertise in preclinical and clinical testing and in obtaining regulatory approvals for drugs. In addition, academic institutions, government agencies, and other public and private organizations conducting research may seek patent protection with respect to potentially competitive products or technologies. These organizations may also establish exclusive collaborative or licensing relationships with our competitors.

Finally, the success of any product that is successfully commercialized will depend in large part on our ability to prevent competitors from launching a generic version that would compete with such product. If such competitors are able to establish that our patents are invalid or not infringed by the generic version of our product, they may be able to launch a generic product prior to the expected expiration of our relevant patents, and any generic competition could have a material adverse effect on our business, results of operations, financial condition and prospects.

We may attempt to form collaborations in the future with respect to our product candidates, but we may not be able to do so, which may cause us to alter our development and commercialization plans.

We may form strategic alliances, create joint ventures or collaborations or enter into licensing arrangements with third parties with respect to our programs that we believe will complement or augment our existing business. For example, we currently intend to identify one or more strategic partners for the commercialization of plazomicin, and we may also attempt to find one or more strategic partners for the development or commercialization of one or more of our other product candidates. We face significant competition in seeking appropriate strategic partners, and the negotiation process to secure appropriate terms is time-consuming and complex. We may not be successful in our efforts to establish strategic partnerships for our product candidates and programs on terms that are acceptable to us, or at all.

Any delays in identifying suitable collaborators and entering into agreements to develop or commercialize our product candidates could negatively impact the development or commercialization of our product candidates in geographic regions where we do not have development and commercialization infrastructure. Absent a collaboration partner, we would need to undertake development or commercialization activities at our own expense. If we elect to fund and undertake development or commercialization activities on our own, we may need to obtain additional expertise and additional capital, which may not be available to us on acceptable terms or at all. If we are unable to do so, we may not be able to develop our product candidates or bring them to market and our business may be materially and adversely affected.

We may be unable to realize the potential benefits of any collaboration.

Even if we are successful in entering into a collaboration with respect to the development or commercialization of one or more product candidates, there is no guarantee that the collaboration will be successful. Collaborations may pose a number of risks, including:

- collaborators often have significant discretion in determining the efforts and resources that they will apply to the collaboration, and may not commit sufficient resources to the development, marketing or commercialization of the product or products that are subject to the collaboration;
- collaborators may not perform their obligations as expected;
- collaborators may cease to devote resources to the development or commercialization of our product candidates if the collaborators view our product candidates as competitive with their own products or product candidates;
- disagreements with collaborators, including disagreements over proprietary rights, contract interpretation or the course of development, might cause delays or termination of the development or commercialization of product candidates, and might result in legal proceedings, which would be time-consuming, distracting and expensive;
- collaborators may be impacted by changes in their strategic focus or available funding, or business combinations involving them, which could cause them to divert resources away from the collaboration;
- collaborators may infringe the intellectual property rights of third parties, which may expose us to litigation and potential liability;

- the collaborations may not result in us achieving revenue to justify such transactions; and
- collaborations may be terminated and, if terminated, may result in a need for us to raise additional capital to pursue further development or commercialization of the applicable product candidate.

As a result, a collaboration may not result in the successful development or commercialization of our product candidates.

Our operating activities may be restricted as a result of covenants related to the indebtedness under our loan agreement and we may be required to repay the outstanding indebtedness in an event of default, which could have a materially adverse effect on our business.

On August 5, 2015, we entered into a loan and security agreement with Solar Capital Ltd., pursuant to which Solar Capital Ltd. agreed to make available to us term loans with an aggregate principal amount of up to $25 million, $15 million of which was provided to us on August 5, 2015 and $10 million of which was provided to us on June 20, 2016. Until we have repaid such indebtedness, the loan and security agreement subjects us to various customary covenants, including requirements as to financial reporting and insurance, and restrictions on our ability to dispose of our business or property, to change our line of business, to liquidate or dissolve, to enter into any change in control transaction, to merge or consolidate with any other entity or to acquire all or substantially all the capital stock or property of another entity, to incur additional indebtedness, to incur liens on our property, to pay any dividends or other distributions on capital stock other than dividends payable solely in capital stock, to redeem capital stock, to enter into licensing agreements, to engage in transactions with affiliates, or to encumber our intellectual property. Our business may be adversely affected by these restrictions on our ability to operate our business.

Additionally, we may be required to repay the outstanding indebtedness under the loan facility if an event of default occurs under the loan and security agreement. Under the loan and security agreement, an event of default will occur if, among other things, we fail to make payments under the loan and security agreement; we breach any of our covenants under the loan and security agreement, subject to specified cure periods with respect to certain breaches; the Lender determines that a material adverse change has occurred; we or our assets become subject to certain legal proceedings, such as bankruptcy proceedings; we are unable to pay our debts as they become due; or we default on contracts with third parties which would permit the holder of indebtedness to accelerate the maturity of such indebtedness or that could have a material adverse change on us. We may not have enough available cash or be able to raise additional funds through equity or debt financings to repay such indebtedness at the time any such event of default occurs. In this case, we may be required to delay, limit, reduce or terminate our product development or commercialization efforts or grant to others rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves. Solar Capital Ltd. could also exercise its rights as collateral agent to take possession of and to dispose of the collateral securing the term loans, which collateral includes substantially all of our property (excluding intellectual property, which is subject to a negative pledge). Our business, financial condition and results of operations could be materially adversely affected as a result of any of these events.

We may need to grow our organization, and we may experience difficulties in managing growth.

As of June 30, 2016, we had 79 employees. We will need to expand our managerial, operational, financial and other resources in order to manage our operations and clinical trials, continue our development activities and commercialize plazomicin or other product candidates. Our management and personnel, systems and facilities currently in place may not be adequate to support this future growth. Our need to effectively execute our business strategy requires that we:

- manage all our Phase 3 trials, which are being conducted at multiple trial sites, and manage any other clinical trials;
- manage our internal discovery and development efforts effectively while carrying out our contractual obligations to licensors, contractors, government agencies, any future collaborators and other third parties;
- continue to improve our operational, financial and management controls, reporting systems and procedures; and
- identify, recruit, maintain, motivate and integrate additional employees.

If we are unable to expand our managerial, operational, financial and other resources to the extent required to manage our development and commercialization activities, our business will be materially adversely affected.

We are highly dependent on the services of our Chief Executive Officer, Kenneth J. Hillan, M.B., Ch.B. and our ability to attract and retain qualified personnel.

We may not be able to attract or retain qualified management and scientific and clinical personnel in the future due to the intense competition for qualified personnel among biotechnology, pharmaceutical and other businesses, particularly in the San Francisco Bay Area. We are highly dependent on the principal members of our management and scientific staff, particularly our Chief Executive Officer, Dr. Hillan. If we are not able to retain Dr. Hillan or are not able to attract, on acceptable terms, additional qualified personnel necessary for the continued development of our business, we may not be able to sustain our operations or grow. Although we have executed employment agreements with each member of our current executive management team, including Dr. Hillan, we may not be able to retain their services as expected. In addition to the competition for personnel, the San Francisco Bay Area in particular is characterized by a high cost of living. Although we historically have not had any material difficulty attracting qualified experienced personnel to our company, we could in the future have such difficulties and may be required to expend significant financial resources in our employee recruitment and retention efforts.

In addition, we have scientific and clinical advisors who assist us in formulating our product development and clinical strategies. These advisors are not our employees and may have commitments to, or consulting or advisory contracts with, other entities that may limit their availability to us, or may have arrangements with other companies to assist in the development of products that may compete with ours.

If we are not able to attract, retain and motivate necessary personnel to accomplish our business objectives, we may experience constraints that will significantly impede the achievement of our development objectives, our ability to raise additional capital and our ability to implement our business strategy.

Recent changes in our executive leadership and any similar changes in the future may serve as a significant distraction for our management and employees.

Since the beginning of 2015, there have been a number of changes to our executive leadership team. In July 2016, we hired our Chief Financial Officer, Tobin Schilke. In October 2015, we hired our Chief Operating Officer, Blake Wise. Such changes, or any other future changes in our executive leadership, may disrupt our operations as we adjust to the reallocation of responsibilities and assimilate new leadership and, potentially, differing perspectives on our strategic direction. If the transition in executive leadership is not smooth, the resulting disruption could negatively affect our operations and impede our ability to execute our strategic plan.

Our business involves the use of hazardous materials and we and our third-party manufacturers must comply with environmental laws and regulations, which may be expensive and restrict how we do business.

Our third-party manufacturers' activities and our own activities involve the controlled storage, use and disposal of hazardous materials, including the components of our pharmaceutical product candidates, test samples and reagents, biological materials and other hazardous compounds. We and our manufacturers are subject to federal, state, local and foreign laws and regulations governing the use, generation, manufacture, storage, handling and disposal of these hazardous materials. We currently carry no insurance specifically covering environmental claims relating to the use of hazardous materials. Although we believe that our safety procedures for handling and disposing of these materials and waste products comply with the standards prescribed by these laws and regulations, we cannot eliminate the risk of accidental injury or contamination from the use, storage, handling or disposal of hazardous materials. In the event of an accident, state or federal or other applicable authorities may curtail our use of these materials and/or interrupt our business operations. In addition, if an accident or environmental discharge occurs, or if we discover contamination caused by prior operations, including by prior owners and operators of properties we acquire, we could be liable for cleanup obligations, damages and fines. If such unexpected costs are substantial, this could significantly harm our financial condition and results of operations.

Our internal computer systems, or those of our CROs or other contractors or consultants, may fail or suffer security breaches, which could result in a material disruption of our product development programs.

Despite the implementation of security measures, our internal computer systems and those of our CROs and other contractors and consultants are vulnerable to damage or disruption from computer viruses, software bugs, unauthorized access, natural disasters, terrorism, war, and telecommunication, equipment and electrical failures. While we have not, to our knowledge, experienced any significant system failure, accident or security breach to date, if such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our programs. For example, the loss of clinical trial data from completed or ongoing clinical trials for any of our product candidates could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. To the extent that any disruption or security breach results in a loss of or damage to our data or applications, or inappropriate disclosure or theft of confidential or proprietary information, we could incur liability, the further development of our product candidates could be delayed or our competitive position could be compromised.

Our employees, independent contractors, principal investigators, CROs, consultants and vendors may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements.

We are exposed to the risk that our employees, independent contractors, principal investigators, CROs, consultants and vendors may engage in fraudulent or other illegal activity. Misconduct by these parties could include intentional, reckless and/or negligent conduct or disclosure of unauthorized activities to us that violates: (1) FDA regulations, including those laws requiring the reporting of true, complete and accurate information to the FDA; (2) manufacturing standards; (3) federal and state healthcare fraud and abuse laws and regulations; or (4) laws that require the true, complete and accurate reporting of financial information or data. Specifically, sales, marketing and business arrangements in the healthcare industry are subject to extensive laws and regulations intended to prevent fraud, kickbacks, self-dealing and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs and other business arrangements. Activities subject to these laws also involve the improper use of information obtained in the course of clinical trials, which could result in regulatory sanctions and serious harm to our reputation. It is not always possible to identify and deter misconduct by our employees and other third parties, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such laws or regulations. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business, including the imposition of civil, criminal and administrative penalties, damages, monetary fines, possible exclusion from participation in Medicare, Medicaid and other federal healthcare programs, contractual damages, reputational harm, diminished profits and future earnings, and curtailment of our operations, any of which could adversely affect our ability to operate our business and our results of operations.

We incur significant costs as a result of operating as a public company, and our management devotes substantial time to new compliance initiatives.

Prior to our initial public offering ("IPO") in March 2014, we had not been subject to the reporting requirements of the Exchange Act of 1934, as amended (the "Exchange Act"), or the other rules and regulations of the Securities and Exchange Commission (the "SEC") or any securities exchange relating to public companies. We continue to identify those areas in which changes should be made to our financial and management control systems to manage our growth and our obligations as a public company. These areas include corporate governance, corporate control, disclosure controls and procedures and financial reporting and accounting systems. We have made, and will continue to make, changes in these and other areas. However, the expenses associated with being a public company could be material, particularly after we cease to be an “emerging growth company.” Compliance with the various reporting and other requirements applicable to public companies require considerable time and attention of management. In addition, the changes we make may not be sufficient to allow us to satisfy our obligations as a public company on a timely basis.

In addition, certain types of insurance, including directors’ and officers’ liability insurance are more expensive as a public company. Being a public company could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors, our board committees or as executive officers.

If we are not able to implement the requirements of Section 404 of the Sarbanes-Oxley Act of 2002 in a timely manner or with adequate compliance, we may be subject to sanctions by regulatory authorities.

Section 404 of the Sarbanes-Oxley Act of 2002 requires that we evaluate and determine the effectiveness of our internal controls over financial reporting and provide a management report on the internal control over financial reporting. If we have a material weakness in our internal controls over financial reporting, we may not detect errors on a timely basis and our financial statements may be materially misstated. We will be evaluating our internal controls systems to allow management to report on, and eventually our independent auditors will attest to, the effectiveness of the operation of our internal controls. We will be performing the system and process evaluation and testing (and any necessary remediation) required to comply with the management certification and eventual auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002. The aforementioned auditor attestation requirements will not apply to us until we are no longer considered an “emerging growth company.”

We cannot be certain as to the timing of completion of our evaluation, testing and remediation action or the impact of the same on our operations. If we are not able to comply with the requirements of Section 404 in a timely manner, or if we or our independent registered public accounting firm identifies deficiencies in our internal controls that are deemed to be material weaknesses, we could be subject to sanctions or investigations by The NASDAQ Stock Market LLC, the SEC or other regulatory authorities, which would entail expenditure of additional financial and management resources and could materially

adversely affect our stock price. Deficient internal controls could also cause us to fail to meet our reporting obligations or cause investors to lose confidence in our reported financial information, which could have a negative effect on our stock price.

Our disclosure controls and procedures may not prevent or detect all errors or acts of fraud.

We have designed our disclosure controls and procedures to reasonably assure that information we must disclose in reports we file or submit under the Exchange Act is accumulated and communicated to management, and recorded, processed, summarized and reported within the time periods specified in the rules and forms of the SEC. We believe that any disclosure controls and procedures or internal controls and procedures, no matter how well-conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met.

These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdowns can occur because of simple errors or mistakes. Additionally, controls can be circumvented by the acts of some individuals, by collusion of two or more people or by an unauthorized override of the controls. Accordingly, because of the inherent limitations in our control system, misstatements due to error or fraud may occur and not be detected.

We or the third parties upon whom we depend may be adversely affected by earthquakes or other natural disasters and our business continuity and disaster recovery plans may not adequately protect us from a serious disaster.

Our corporate headquarters is located in the San Francisco Bay Area, which in the past has experienced severe earthquakes. We do not carry earthquake insurance. Earthquakes or other natural disasters could severely disrupt our operations, and have a material adverse effect on our business, results of operations, financial condition and prospects.

If a natural disaster, power outage or other event occurred that prevented us from using all or a significant portion of our headquarters, that damaged critical infrastructure, such as our information technology systems, or that otherwise disrupted operations, it may be difficult or, in certain cases, impossible for us to continue our business for a substantial period of time. The disaster recovery and business continuity plans we have in place currently are limited and are unlikely to prove adequate in the event of a serious disaster or similar event. We may incur substantial expenses as a result of the limited nature of our disaster recovery and business continuity plans, which, particularly when taken together with our lack of earthquake insurance, could have a material adverse effect on our business.

Furthermore, integral parties in our supply chain are geographically concentrated and operating from single sites, increasing their vulnerability to natural disasters or other sudden, unforeseen and severe adverse events. If such an event were to affect our supply chain, it could have a material adverse effect on our business.

Risks Related to Our U.S. Government Contracts

Our use of government funding for certain of our programs adds uncertainty to our research and commercialization efforts with respect to those programs and may impose requirements that increase the costs of commercialization and production of product candidates developed under those government-funded programs.

Our development of plazomicin as a countermeasure for diseases caused by antibiotic-resistant pathogens and biothreats is currently being funded in significant part through a contract with BARDA. We are also receiving funding from the National Institute of Allergy and Infectious Diseases ("NIAID") for one of our pre-clinical programs and we in the past received funding for other programs from the Defense Threat Reduction Agency ("DTRA") and from NIAID. Contracts funded by the U.S. government and its agencies, including our contract with BARDA, include provisions that reflect the government’s substantial rights and remedies, many of which are not typically found in commercial contracts, including powers of the government to:

- terminate agreements, in whole or in part, for any reason or no reason;
- reduce or modify the government’s obligations under such agreements without the consent of the other party;
- claim rights, including intellectual property rights, in products and data developed under such agreements;
- audit contract-related costs and fees, including allocated indirect costs;
- suspend the contractor from receiving new contracts pending resolution of alleged violations of procurement laws or regulations;
- impose U.S. manufacturing requirements for products that embody inventions conceived or first reduced to practice under such agreements;
- suspend or debar the contractor from doing future business with the government;
- control and potentially prohibit the export of products; and

- pursue criminal or civil remedies under the False Claims Act ("FCA"), the False Statements Act and similar remedy provisions specific to government agreements.

We may not have the right to prohibit the U.S. government from using or allowing others to use certain technologies developed by us, and we may not be able to prohibit third-party companies, including our competitors, from using those technologies in providing products and services to the U.S. government. The U.S. government generally obtains the right to royalty-free use of technologies that are developed under U.S. government contracts.

In addition, government contracts normally contain additional requirements that may increase our costs of doing business, reduce our profits, and expose us to liability for failure to comply with these terms and conditions. These requirements include, for example:

- specialized accounting systems unique to government contracts;
- mandatory financial audits and potential liability for price adjustments or recoupment of government funds after such funds have been spent;
- public disclosures of certain contract information, which may enable competitors to gain insights into our research program; and
- mandatory socioeconomic compliance requirements, including labor standards, anti-human-trafficking, non-discrimination, and affirmative action programs and environmental compliance requirements.

If we fail to maintain compliance with these requirements, we may be subject to potential contract or FCA liability and to termination of our contracts.

We are dependent on our BARDA contract to fund portions of our Phase 3 CARE trial and Phase 3 EPIC trial. If we do not receive all of the funds under this contract, we may be forced to suspend or terminate either or both of these programs or obtain alternative sources of funding.

We expect a significant portion of the funding for our Phase 3 CARE trial and Phase 3 EPIC trial will continue to come from our BARDA contract. BARDA may terminate our contract at any time for convenience and there can be no assurances that this contract will not be terminated. Changes in government budgets and agendas may result in a decreased and de-prioritized emphasis on supporting the development of antibacterial products such as plazomicin. Although we are currently using a portion of the net proceeds from our IPO and other debt and equity offerings to fund our plazomicin development program, any reduction or delay in BARDA funding may force us to suspend or terminate the program or seek alternative funding, which may not be available on non-dilutive terms, terms favorable to us or at all.

U.S. government agencies have special contracting requirements that give them the ability to unilaterally control our contracts.

U.S. government contracts typically contain unfavorable termination provisions and are subject to audit and modification by the government at its sole discretion, which will subject us to additional risks. These risks include the ability of the U.S. government to unilaterally:

- audit and object to our BARDA contract-related costs and fees, and require us to reimburse all such costs and fees;
- suspend or prevent us for a set period of time from receiving new contracts or extending our existing contracts based on violations or suspected violations of laws or regulations;
- cancel, terminate or suspend our contracts based on violations or suspected violations of laws or regulations;
- terminate our contracts if in the government's interest, including if funds become unavailable to the applicable governmental agency;
- reduce the scope and value of our contract; and
- change certain terms and conditions in our contract.

The U.S. government will be able to terminate any of its contracts with us, either for convenience or if we default by failing to perform in accordance with or to achieve the milestones set forth in the contract schedules and terms. Termination-for-convenience provisions generally enable us to recover only our costs incurred or committed and settlement expenses on the work completed prior to termination. Except for the amount of services received by the government, termination-for-default provisions do not permit these recoveries and would make us liable for excess costs incurred by the U.S. government in procuring undelivered items from another source.

The U.S. government's determination to award a future contract or contract option may be challenged by an interested party, such as another bidder, at the U.S. Government Accountability Office (the "GAO"), or in federal court. If such a challenge is successful, our BARDA contract or any future contract we may be awarded may be terminated.

The laws and regulations governing the procurement of goods and services by the U.S. government provide procedures by which other bidders and interested parties may challenge the award of a government contract. If we are awarded a government contract, such challenges or protests could be filed even if there are not any valid legal grounds on which to base the protest. If any such protests are filed, the government agency may decide to suspend our performance under the contract while such protests are being considered by the GAO or the applicable federal court, thus potentially delaying delivery of payment. In addition, we could be forced to expend considerable funds to defend any potential award. If a protest is successful, the government may be ordered to terminate any one or more of our contracts and reselect bids. The government agencies with which we have contracts could even be directed to award a potential contract to one of the other bidders.

Our business is subject to audit by the U.S. government, including under our contracts with BARDA and NIAID, and a negative outcome in an audit could adversely affect our business.

U.S. government agencies such as the Department of Health and Human Services ("DHHS") and the Defense Contract Audit Agency (the "DCAA") routinely audit and investigate government contractors. These agencies review a contractor's performance under its contracts, cost structure and compliance with applicable laws, regulations and standards.

The DHHS and the DCAA also review the adequacy of, and a contractor's compliance with, its internal control systems and policies, including the contractor's purchasing, property, estimating, compensation and management information systems. Any costs found to be improperly allocated to a specific contract will not be paid, while such costs already paid must be refunded. If an audit uncovers improper or illegal activities, we may be subject to civil and criminal penalties and administrative sanctions, including:

- termination of contracts;
- forfeiture of profits;
- suspension of payments;
- fines; and
- suspension or prohibition from conducting business with the U.S. government.

In addition, we could suffer serious reputational harm if allegations of impropriety were made against us, which could cause our stock price to decrease.

Laws and regulations affecting government contracts make it more expensive and difficult for us to successfully conduct our business.

We must comply with numerous laws and regulations relating to the formation, administration and performance of government contracts, which can make it more difficult for us to retain our rights under our BARDA contract. These laws and regulations affect how we conduct business with government agencies. Among the most significant government contracting regulations that affect our business are:

- the Federal Acquisition Regulations ("FAR") and agency-specific regulations supplemental to the FAR, which comprehensively regulate the procurement, formation, administration and performance of government contracts;
- business ethics and public integrity obligations, which govern conflicts of interest and the hiring of former government employees, restrict the granting of gratuities and funding of lobbying activities and include other requirements such as the Anti-Kickback Statute and Foreign Corrupt Practices Act;
- export and import control laws and regulations; and
- laws, regulations and executive orders restricting the use and dissemination of information classified for national security purposes and the exportation of certain products and technical data.

Any changes in applicable laws and regulations could restrict our ability to maintain our existing BARDA contract and obtain new contracts, which could limit our ability to conduct our business and materially adversely affect our results of operations.

Risks Related to Intellectual Property

If we are unable to obtain and maintain sufficient intellectual property protection for our product candidates, or if the scope of the intellectual property protection is not sufficiently broad, our competitors could develop and commercialize products similar or identical to ours, and our ability to successfully commercialize our product candidates may be adversely affected.

We rely upon a combination of patents, trade secret protection and confidentiality agreements to protect the intellectual property related to our technologies. If we do not adequately protect our intellectual property, competitors may be able to use our technologies and erode or negate any competitive advantage we may have, which could harm our business and ability to achieve profitability. In particular, our success depends in large part on our ability to obtain and maintain patent protection in the United States and other countries with respect to our product candidates. However, we may not be able to file and prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner. We may also fail to identify patentable aspects of our research and development before it is too late to obtain patent protection.

Further, the patentability of inventions, and the validity, enforceability and scope of patents in the biotechnology and pharmaceutical field involve complex legal and scientific questions and can be uncertain. As a result, patent applications that we own or license may fail to result in issued patents in the United States or in other foreign countries for many reasons. For example, there is no assurance that we were the first to invent or the first to file patent applications in respect of the inventions claimed in our patent applications. Since patent applications in the United States and most other countries are confidential for a period of time after filing, we cannot be certain that we were the first to file any patent application related to our product candidates. We may also be unaware of certain prior art relating to our patent applications and patents, which could prevent a patent from issuing from a pending patent application, or result in an issued patent being invalidated. Even if patents have issued, or do successfully issue, from patent applications, third parties may challenge the validity, enforceability or scope thereof, which may result in such patents being narrowed, invalidated or held unenforceable. Furthermore, even if they are unchallenged, our patents and patent applications may not adequately protect our intellectual property or prevent others from designing around our claims. If the breadth or strength of protection provided by the patents and patent applications we hold, license or pursue with respect to our product candidates is threatened, it could threaten our ability to commercialize our product candidates. Further, if we encounter delays in our clinical trials, the period of time during which we could market any of our product candidates under patent protection, if approved, would be reduced. Changes to the patent laws in the United States and other jurisdictions could also diminish the value of our patents and patent applications or narrow the scope of our patent protection.

Furthermore, certain of the patents that we license from the University of Washington ("UW") are co-owned by Novartis AG. The exclusivity of our license from UW is therefore subject to Novartis' rights to use the licensed patents and technology for its own purposes, and to grant licenses to others to do so. We therefore rely primarily on our owned patent rights to provide patent protection for our LpxC inhibitor compounds. However, none of these owned patent rights have yet issued in the United States, and if these fail to result in issued patents, our competitive position could be adversely affected.

If we are unable to protect the confidentiality of our trade secrets, the value of our technology could be materially adversely affected and our business would be harmed.

In addition to the protection afforded by patents, we rely on confidential proprietary information, including trade secrets, and know-how to develop and maintain our competitive position. Any disclosure to or misappropriation by third parties of our confidential proprietary information could enable competitors to quickly duplicate or surpass our technological achievements, thus eroding our competitive position in our market. We seek to protect our confidential proprietary information, in part, by confidentiality agreements and invention assignment agreements with our employees, consultants, scientific advisors, contractors and collaborators. These agreements are designed to protect our proprietary information. However, we cannot be certain that such agreements have been entered into with all relevant parties, and we cannot be certain that our trade secrets and other confidential proprietary information will not be disclosed or that competitors will not otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. For example, any of these parties may breach the agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches. We also seek to preserve the integrity and confidentiality of our confidential proprietary information by maintaining physical security of our premises and physical and electronic security of our information technology systems, but it is possible that these security measures could be breached. If any of our confidential proprietary information were to be lawfully obtained or independently developed by a competitor, we would have no right to prevent such competitor from using that technology or information to compete with us, which could harm our competitive position. Further, the laws of some foreign countries, including China, where we currently source raw materials for plazomicin, do not protect proprietary rights to the same extent or in the same manner as the laws of the United States. As a result, we may encounter significant problems in protecting and defending our intellectual property both in the United States and abroad. If we are unable to prevent material disclosure of the intellectual property related to our technologies to third parties, we will not be able to

establish or maintain a competitive advantage in our market, which could materially adversely affect our business, results of operations and financial condition.

If we are sued for infringing intellectual property rights of third parties, such litigation could be costly and time consuming and could prevent or delay us from developing or commercializing our product candidates.

There is a substantial amount of intellectual property litigation in the biotechnology and pharmaceutical industries, and we may become party to, or threatened with, litigation or other adversarial proceedings regarding intellectual property rights with respect to our technology or product candidates, including interference or derivation proceedings before the U.S. Patent and Trademark Office ("USPTO"). Third parties may assert infringement claims against us based on existing or future intellectual property rights. The outcome of intellectual property litigation is subject to uncertainties that cannot be adequately quantified in advance. The pharmaceutical and biotechnology industries have produced a significant number of patents, and it may not always be clear to industry participants, including us, which patents cover various types of products or methods of use. The coverage of patents is subject to interpretation by the courts, and the interpretation is not always uniform. If we are sued for patent infringement, we would need to demonstrate that our product candidates, products or methods either do not infringe the patent claims of the relevant patent or that the patent claims are invalid, and we may not be able to do this. Proving that a patent is invalid is difficult. For example, in the United States, proving invalidity requires a showing of clear and convincing evidence to overcome the presumption of validity enjoyed by issued patents. Even if we are successful in these proceedings, we may incur substantial costs and the time and attention of our management and scientific personnel could be diverted in pursuing these proceedings, which could have a material adverse effect on us. In addition, we may not have sufficient resources to bring these actions to a successful conclusion.

If we are found to infringe a third party's intellectual property rights, we could be forced, including by court order, to cease developing, manufacturing or commercializing the infringing product candidate or product. Alternatively, we may be required to obtain a license from such third party in order to use the infringing technology and continue developing, manufacturing or marketing the infringing product candidate. However, we may not be able to obtain any required license on commercially reasonable terms or at all. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. In addition, we could be found liable for monetary damages, including treble damages and attorneys' fees if we are found to have willfully infringed a patent. A finding of infringement could prevent us from commercializing our product candidates or force us to cease some of our business operations, which could materially harm our business. We may also elect to enter into license agreements in order to settle patent infringement claims or to resolve disputes prior to litigation, and any such license agreements may require us to pay royalties and other fees that could be significant. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar negative impact on our business.

We may be involved in lawsuits to protect or enforce our intellectual property rights, which could be expensive, time consuming and unsuccessful.

Competitors may infringe or otherwise violate our patents, the patents of our licensors, or our other intellectual property rights. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time-consuming. Any claims that we assert against perceived infringers could also provoke these parties to assert counterclaims against us alleging that we infringe their intellectual property rights. In addition, in an infringement proceeding, a court may decide that a patent of ours is not valid or is unenforceable, in whole or in part, or may refuse to stop the other party in such infringement proceeding from using the technology at issue on the grounds that our patents do not cover the technology in question. An adverse result in any litigation or defense proceedings could put one or more of our patents at risk of being invalidated, held unenforceable or interpreted narrowly, and could put any of our patent applications at risk of not yielding an issued patent.

Interference or derivation proceedings provoked by third parties or brought by the USPTO or any foreign patent authority may be necessary to determine the priority of inventions or other matters of inventorship with respect to our patents or patent applications. We may also become involved in other proceedings, such as re-examination or opposition proceedings, before the USPTO or its foreign counterparts relating to our intellectual property or the intellectual property rights of others. An unfavorable outcome in any such proceedings could require us to cease using the related technology or to attempt to license rights to it from the prevailing party, or could cause us to lose valuable intellectual property rights. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms, if any license is offered at all. Litigation or other proceedings may fail and, even if successful, may result in substantial costs and distract our management and other employees. We may also become involved in disputes with others regarding the ownership of intellectual property rights. For example, we jointly develop intellectual property with certain parties, and disagreements may therefore arise as to

the ownership of the intellectual property developed pursuant to these relationships. If we are unable to resolve these disputes, we could lose valuable intellectual property rights.

We may not be able to prevent misappropriation of our trade secrets or confidential information, particularly in countries where the laws may not protect those rights as fully as in the United States. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock.

Even if resolved in our favor, litigation or other legal proceedings relating to intellectual property claims may cause us to incur significant expenses, and could distract our technical and/or management personnel from their normal responsibilities. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the market price of our common stock. Such litigation or proceedings could substantially increase our operating losses and reduce the resources available for development activities or any future sales, marketing or distribution activities. Uncertainties resulting from the initiation and continuation of intellectual property litigation or other proceedings could have a material adverse effect on our ability to compete in the marketplace.

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

Filing, prosecuting and defending patents on all of our product candidates throughout the world would be prohibitively expensive. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and, further, may export otherwise infringing products to territories where we have patent protection but where enforcement is not as strong as in the United States. These products may compete with our products in jurisdictions where we do not have any issued patents and our patent claims or other intellectual property rights may not be effective or sufficient to prevent them from so competing. Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions, including China, where we currently source raw materials for plazomicin. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents and other intellectual property protection, particularly those relating to biopharmaceuticals, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our proprietary rights generally. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial cost and divert our efforts and attention from other aspects of our business.

If we breach any of the agreements under which we license the use, development and commercialization rights to our product candidates from third parties, we could lose license rights that are important to our business.

While the primary patent family covering plazomicin is Achaogen-owned, our development and commercialization of plazomicin is subject to our license agreement with Ionis Pharmaceuticals, Inc. (formerly known as Isis Pharmaceuticals, Inc.), and a portion of the patent portfolio for our LpxC inhibitor program is in-licensed from UW. Under our existing license agreements, we are subject to various obligations, including diligence obligations with respect to development and commercialization activities, payment obligations for achievement of certain milestones and royalties on product sales, as well as other material obligations. If we fail to comply with any of these obligations or otherwise breach our license agreements, our licensing collaborators may have the right to terminate the applicable license in whole or in part. The loss of our license agreement with Ionis Pharmaceuticals, Inc. could materially adversely affect our ability to proceed with the development or potential commercialization of plazomicin as currently planned, while the loss of our license agreement with UW could materially adversely affect our ability to proceed with any development or potential commercialization of our LpxC inhibitor program.

The risks described elsewhere pertaining to our patents and other intellectual property rights also apply to the intellectual property rights that we license, and any failure by us or our licensors to obtain, maintain and enforce these rights could have a material adverse effect on our business. In some cases, we do not have control over the prosecution, maintenance or enforcement of the patents that we license, and may not have sufficient ability to consult and input into the patent prosecution and maintenance process with respect to such patents, and our licensors may fail to take the steps that we believe are necessary or desirable in order to obtain, maintain and enforce the licensed patents.

Intellectual property rights do not necessarily address all potential threats to our competitive advantage.

The degree of future protection afforded by our intellectual property rights is uncertain because intellectual property rights have limitations, and may not adequately protect our business or permit us to maintain our competitive advantage. The following examples are illustrative:

- others may be able to make compounds that are similar to our product candidates but that are not covered by the claims of the patents that we own or license;
- we or our licensors or collaborators might not have been the first to make the inventions covered by an issued patent or pending patent application that we own or license;
- we or our licensors or collaborators might not have been the first to file patent applications covering an invention;
- others may independently develop similar or alternative technologies or duplicate any of our technologies without infringing our intellectual property rights;
- pending patent applications that we own or license may not lead to issued patents;
- issued patents that we own or license may not provide us with any competitive advantages, or may be held invalid or unenforceable, as a result of legal challenges by our competitors;
- our competitors might conduct research and development activities in countries where we do not have patent rights and then use the information learned from such activities to develop competitive products for sale in our major commercial markets;
- we may not develop or in-license additional proprietary technologies that are patentable; and
- the patents of others may have an adverse effect on our business.

Should any of these events occur, they could significantly harm our business, results of operations and prospects.

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

Periodic maintenance fees, renewal fees, annuity fees and various other governmental fees on patents and/or applications will be due to be paid to the USPTO and various governmental patent agencies outside of the United States in several stages over the lifetime of the patents and/or applications. The USPTO and various non-U.S. governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. In many cases, an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with the applicable rules. However, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, our competitors might be able to use our technologies and this circumstance would have a material adverse effect on our business.

Provisions in our U.S. government contracts, including our contract with BARDA, may affect our intellectual property rights.

Certain of our activities have been funded, and may in the future be funded, by the U.S. government, including our contract with BARDA. When new technologies are developed with U.S. government funding, the government obtains certain rights in any resulting patents, including the right to a nonexclusive license authorizing the government to use the invention. These rights may permit the government to disclose our confidential information to third parties and to exercise “march-in” rights to use or allow third parties to use our patented technology. The government can exercise its march-in rights if it determines that action is necessary because we fail to achieve practical application of the U.S. government-funded technology, because action is necessary to alleviate health or safety needs, to meet requirements of federal regulations, or to give preference to U.S. industry. In addition, U.S. government-funded inventions must be reported to the government, U.S. government funding must be disclosed in any resulting patent applications, and our rights in such inventions may be subject to certain requirements to manufacture products in the United States.

Recent patent reform legislation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents.

On September 16, 2011, the Leahy-Smith America Invents Act (the “Leahy-Smith Act”) was signed into law. The Leahy-Smith Act includes a number of significant changes to U.S. patent law. These include provisions that affect the way patent applications will be prosecuted and may also affect patent litigation. The USPTO has promulgated regulations and developed

procedures to govern administration of the Leahy-Smith Act, and many of the substantive changes to patent law associated with the Leahy-Smith Act, and in particular, the first to file provisions, did not come into effect until March 16, 2013. Accordingly, it is not yet clear what, if any, impact the Leahy-Smith Act will have on the operation of our business. However, the Leahy-Smith Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents, all of which could have a material adverse effect on our business and financial condition.

We may be subject to claims that our employees or consultants have wrongfully used or disclosed alleged trade secrets of former or other employers.

Many of our employees and consultants, including our senior management, have been employed or retained by other biotechnology or pharmaceutical companies, including our competitors or potential competitors. Although we try to ensure that our employees and consultants do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that we or these employees or consultants have used or disclosed intellectual property, including trade secrets or other proprietary information, of any such employee's or consultant's former or other employer. We are not aware of any material threatened or pending claims related to these matters, but in the future litigation may be necessary to defend against such claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management.

If we do not obtain patent term extension in the United States under the Hatch-Waxman Act and in foreign countries under similar legislation, thereby potentially extending the term of our marketing exclusivity for our product candidates, our business may be materially harmed.

Depending upon the timing, duration and specifics of FDA marketing approval of our product candidates, if any, one or more of our U.S. patents covering our approved product(s) or the use thereof may be eligible for up to five years of patent term restoration under the Hatch-Waxman Act. The Hatch-Waxman Act allows a maximum of one patent to be extended per FDA approved product. Patent term extension also may be available in certain foreign countries upon regulatory approval of our product candidates. Nevertheless, we may not be granted patent term extension either in the United States or in any foreign country because of, for example, failing to apply within applicable deadlines, failing to apply prior to expiration of relevant patents or otherwise failing to satisfy applicable requirements. Moreover, the term of extension, as well as the scope of patent protection during any such extension, afforded by the governmental authority could be less than we request.

If we are unable to obtain patent term extension or restoration, or the term of any such extension is less than we request, the period during which we will have the right to exclusively market our product will be shortened and our competitors may obtain approval of competing products following our patent expiration, and our revenue could be reduced, possibly materially.

Risks Related to Government Regulation

The regulatory approval process is expensive, time consuming and uncertain and may prevent us from obtaining, or cause delays in obtaining, approvals for the commercialization of some or all of our product candidates, which will materially impair our ability to generate revenue.

The design, development, research, testing, manufacturing, labeling, storage, recordkeeping, approval, selling, import, export, advertising, promotion, and distribution of drug products are subject to extensive and evolving regulation by federal, state and local governmental authorities in the United States, principally by the FDA, and foreign regulatory authorities, with regulations differing from country to country. Failure to obtain marketing approval for a product candidate will prevent us from commercializing the product candidate. Neither we nor any future collaboration partner is permitted to market plazomicin or any other product candidate in the United States until we receive regulatory approval of an NDA from the FDA.

We have not submitted an application or obtained marketing approval for plazomicin or any other product candidate anywhere in the world. An NDA must include extensive preclinical and clinical data and supporting information to establish to the FDA's satisfaction the product candidate's safety and efficacy for each desired indication. The NDA must also include significant information regarding the chemistry, manufacturing and controls for the product candidate. Obtaining regulatory approval of an NDA can be a lengthy, expensive and uncertain process. In addition, failure to comply with FDA and other applicable U.S. and foreign regulatory requirements may subject us to administrative or judicially imposed sanctions, including:

- warning letters;
- civil and criminal penalties;

- injunctions;
- withdrawal of approved products;
- product seizure or detention;
- product recalls;
- total or partial suspension of production; and
- refusal to approve pending NDAs or supplements to approved NDAs.

Prior to receiving approval to commercialize any of our product candidates in the United States or abroad, we and any applicable collaboration partners must demonstrate with substantial evidence from well-controlled clinical trials, and to the satisfaction of the FDA and other regulatory authorities abroad, that such product candidates are safe and effective for their intended uses. Preclinical testing and clinical trials are long, expensive and uncertain processes. We may spend several years completing our testing for any particular product candidate, and failure can occur at any stage. Negative or inconclusive results or adverse medical events during a clinical trial could also cause the FDA or us to terminate a clinical trial or require that we repeat it or conduct additional clinical trials. Additionally, data obtained from preclinical studies and clinical trials can be interpreted in different ways and the FDA or other regulatory authorities may interpret the results of our studies and trials less favorably than we do. Even if we believe the preclinical or clinical data for a product candidate is promising, such data may not be sufficient to support approval by the FDA and other regulatory authorities. Administering any product candidates to humans may produce undesirable side effects, which could interrupt, delay or halt clinical trials of such product candidates and result in the FDA or other regulatory authorities denying approval of such product candidates for any or all targeted indications. The FDA or other regulatory authorities may determine that plazomicin or any other product candidate that we develop is not effective, or is only moderately effective, or has undesirable or unintended side effects, toxicities, safety profile or other characteristics that preclude marketing approval or prevent or limit commercial use. In addition, any marketing approval we ultimately obtain may be limited or subject to restrictions or post-approval commitments that render the approved product not commercially viable.

The regulatory approval process is expensive and may take several years to complete. The FDA and foreign regulatory entities have substantial discretion in the approval process. Despite the time and expense exerted, failure can occur at any stage, and we could encounter problems that cause us to abandon or repeat clinical trials, or perform additional preclinical studies and clinical trials. The number of preclinical studies and clinical trials that will be required for FDA approval varies depending on the product candidate, the disease or condition that the product candidate is designed to address, and the regulations applicable to any particular product candidate. The FDA can delay, limit or deny approval of a product candidate for many reasons, including, but not limited to, the following:

- product candidate may not be deemed safe or effective;
- FDA officials may not find the data from preclinical studies and clinical trials sufficient;
- the FDA may request additional analyses, reports, data and studies;
- the FDA may ask questions regarding, or adopt different interpretations of, data and results;
- the FDA might not approve our or our third-party manufacturer’s processes or facilities; or
- the FDA may change its approval policies or adopt new regulations.

Although we have received FDA fast-track designation for our development of plazomicin to treat serious CRE infections, we cannot guarantee that we will experience a faster review or approval process compared to conventional FDA procedures. The FDA may withdraw fast-track designation if it believes that the designation is no longer supported by data from our clinical development program.

If any of our product candidates fails to demonstrate safety and efficacy in clinical trials or does not gain regulatory approval, or if we experience delays in obtaining regulatory approval, our business and results of operations will be materially and adversely harmed.

Even if we receive regulatory approval for a product candidate, we will be subject to ongoing regulatory obligations and continued regulatory review, which may result in significant additional expense and subject us to restrictions, withdrawal from the market, or penalties if we fail to comply with applicable regulatory requirements or if we experience unanticipated problems with our product candidates, when and if approved.

Once regulatory approval has been granted, the approved product and its manufacturer are subject to continual review by the FDA and/or non-U.S. regulatory authorities. Any regulatory approval that we receive for our product candidates may be

subject to limitations on the indicated uses for which the product may be marketed or contain requirements for potentially costly post-marketing follow-up studies or surveillance to monitor the safety and efficacy of the product. In addition, if the FDA and/or non-U.S. regulatory authorities approve any of our product candidates, we will be subject to extensive and ongoing regulatory requirements by the FDA and other regulatory authorities with regard to labeling, packaging, adverse event reporting, storage, distribution, advertising, promotion, recordkeeping and submission of safety and other post-market information. Manufacturers of our products and manufacturers' facilities are required to comply with cGMP regulations, which include requirements related to quality control and quality assurance as well as the corresponding maintenance of records and documentation. Further, regulatory authorities must approve these manufacturing facilities before they can be used to manufacture our products, and these facilities are subject to continual review and periodic inspections by the FDA and other regulatory authorities for compliance with cGMP regulations. Accordingly, we and others with whom we work must continue to expend time, money and effort in all areas of regulatory compliance, including manufacturing, production and quality control. We will also be required to report certain adverse reactions and production problems, if any, to the FDA and to comply with requirements concerning advertising and promotion for our products. If we, any future collaboration partner or a regulatory authority discovers previously unknown problems with a product, such as adverse events of unanticipated severity or frequency, or problems with the facility where the product is manufactured, a regulatory authority may impose restrictions on that product, the collaboration partner, the manufacturer or us, including requiring withdrawal of the product from the market or suspension of manufacturing.

The FDA closely regulates the post-approval marketing and promotion of drugs to ensure drugs are marketed only for the approved indications and in accordance with the provisions of the approved labeling and regulatory requirements. The FDA also imposes stringent restrictions on manufacturers' communications regarding off-label use and if we do not restrict the marketing of our products only to their approved indications, we may be subject to enforcement action for off-label marketing. If we, our product candidates or the manufacturing facilities for our product candidates fail to comply with regulatory requirements of the FDA and/or other non-U.S. regulatory authorities, we could be subject to administrative or judicially imposed sanctions, including:

- warning letters or untitled letters;
- mandated modifications to promotional materials or the required provision of corrective information to healthcare practitioners;
- restrictions imposed on the product or its manufacturers or manufacturing processes;
- restrictions imposed on the labeling or marketing of the product;
- restrictions imposed on product distribution or use;
- requirements for post-marketing clinical trials;
- suspension of any ongoing clinical trials;
- suspension of or withdrawal of regulatory approval;
- voluntary or mandatory product recalls and publicity requirements;
- refusal to approve pending applications for marketing approval of new products or supplements to approved applications filed by us;
- restrictions on operations, including costly new manufacturing requirements;
- seizure or detention of our products;
- refusal to permit the import or export of our products;
- required entry into a consent decree, which can include imposition of various fines (including restitution or disgorgement of profits or revenue), reimbursements for inspection costs, required due dates for specific actions and penalties for noncompliance;
- civil or criminal penalties; or
- injunctions.

Widely publicized events concerning the safety risk of certain drug products have resulted in the withdrawal of drug products, revisions to drug labeling that further limit use of the drug products and the imposition by the FDA of risk evaluation and mitigation strategies ("REMS") to ensure that the benefits of the drug outweigh its risks. In addition, because of the serious public health risks of high profile adverse safety events with certain products, the FDA may require, as a condition of approval, costly REMS programs.

The regulatory requirements and policies may change and additional government regulations may be enacted for which we may also be required to comply. We cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action, either in the United States or in other countries. If we or any future collaboration partner are not able to maintain regulatory compliance, we or such collaboration partner, as applicable, will not be permitted to market our future products and our business will suffer.

Failure to obtain regulatory approvals in foreign jurisdictions will prevent us from marketing our product candidates internationally.

We may seek a distribution and marketing collaborator for plazomicin or other product candidates commercialized outside of the United States. In order to market our product candidates in the European Economic Area (the "EEA"), which is comprised of the 28 Member States of the EU, plus Norway, Iceland and Liechtenstein), and many other foreign jurisdictions, we or our collaboration partners must obtain separate regulatory approvals. More concretely, in the EEA, medicinal products can only be commercialized after obtaining a Marketing Authorization ("MA"). There are two types of marketing authorizations:

- the Community MA, which is issued by the European Commission through the Centralized Procedure, based on the opinion of the Committee for Medicinal Products for Human Use of the EMA, and which is valid throughout the entire territory of the EEA. The Centralized Procedure is mandatory for certain types of products, such as for drugs produced through certain specified biotechnological processes (such as recombinant DNA technology, controlled expression of genes coding for biologically active proteins in prokaryotes and eukaryotes including transformed mammalian cells, and hybridoma and monoclonal antibody methods), advanced therapy medicinal products, orphan medicinal products, and medicinal products indicated for the treatment of AIDS, cancer, neurodegenerative disorders, diabetes, auto-immune and viral diseases. The Centralized Procedure is optional for products containing a new active substance not yet authorized in the EEA, or for products that constitute a significant therapeutic, scientific or technical innovation or which are in the interest of public health in the EU.
- national MAs, which are issued by the competent authorities of the Member States of the EEA and only cover their respective territory, are available for products not falling within the mandatory scope of the Centralized Procedure. Where a product has already been authorized for marketing in a Member State of the EEA, this National MA can be recognized in another Member State through the Mutual Recognition Procedure. If the product has not received a National MA in any Member State at the time of application, it can be approved simultaneously in various Member States through the Decentralized Procedure.

Under the above described procedures, before granting the MA, the EMA or the competent authorities of the Member States of the EEA make an assessment of the risk-benefit balance of the product on the basis of scientific criteria concerning its quality, safety and efficacy.

We have had limited interactions with foreign regulatory authorities, and approval procedures vary among countries and can involve additional clinical testing. In addition, the time required to obtain approval from foreign regulatory authorities may differ from that required to obtain FDA approval. Clinical trials conducted in one country may not be accepted by regulatory authorities in other countries. Approval by the FDA does not ensure approval by regulatory authorities in other countries, and approval by one or more foreign regulatory authorities does not ensure approval by regulatory authorities in other foreign countries or by the FDA. However, a failure or delay in obtaining regulatory approval in one country may have a negative effect on our ability to obtain approval in other countries. The foreign regulatory approval process generally includes all of the risks associated with obtaining FDA approval. In addition, in many countries outside the United States, it is required that the product be approved for reimbursement before the product can be approved for sale in that country. We may or may not obtain foreign regulatory approvals on a timely basis, if at all. We may not be able to file for regulatory approvals and even if we file, we may not receive necessary approvals to commercialize our product candidates in any market.

Our product development program for plazomicin is dependent, in part, upon our or a commercial partner's ability to obtain regulatory clearance or approval of an IVD assay to be used with plazomicin.

Our product development program for plazomicin includes the development of an IVD assay, which must itself successfully complete a clinical performance study conducted concurrently with and utilizing patient samples from the Phase 3 CARE trial of plazomicin, be approved or cleared for marketing by the FDA and certain other foreign regulatory agencies, and then be commercialized concurrently with plazomicin in the associated markets.

Before marketing or selling a new medical device, we or our commercial partner must obtain either clearance from the FDA under Section 510(k) of the Federal Food, Drug and Cosmetic Act (the "FDCA") or approval of a pre-market approval ("PMA") application from the FDA, unless an exemption from pre-market review applies. In the 510(k) clearance process, the

FDA must determine that a proposed device is "substantially equivalent" to a device legally on the market, known as a "predicate" device, with respect to intended use, technology and safety and effectiveness, in order to clear the proposed device for marketing. The PMA pathway requires an applicant to demonstrate the safety and effectiveness of the device based, in part, on extensive data, including, but not limited to, technical, preclinical, clinical trial, manufacturing and labeling data. The PMA process is typically required for devices that are deemed to pose the greatest risk, such as life-sustaining, life-supporting or implantable devices. Both the 510(k) and PMA processes can be expensive and lengthy and require the payment of significant fees, unless an exemption applies. The FDA's 510(k) clearance process usually takes from three to 12 months, but may take longer. The process of obtaining a PMA is costlier and uncertain than the 510(k) clearance process and generally takes at least one year or longer, from the time the application is submitted to the FDA until an approval is obtained. We do not know at present whether the 510(k) clearance process will be available for our IVD *assay* . If not, we will need to undertake a costlier and uncertain PMA process.

If the FDA requires us or our commercial partner to go through the PMA process, the introduction of our IVD and plazomicin could be delayed or canceled.

In addition, the FDA may change its clearance and approval policies, adopt additional regulations or revise existing regulations, or take other actions which may prevent or delay approval or clearance of the IVD assay or impact our ability to modify the IVD assay on a timely basis after it has been approved or cleared. Any delay in, or failure to receive or maintain, clearance or approval for our IVD assay could prevent us from generating revenue from plazomicin and the IVD assay and adversely affect our business operations and financial results. Additionally, the FDA and other regulatory authorities have broad enforcement powers. Regulatory enforcement or inquiries, or other increased scrutiny on us, could affect the perceived safety and efficacy of our products and dissuade our customers from using our products.

Sales of medical devices outside the United States are subject to foreign regulatory requirements that vary widely from country to country. The foreign regulatory approval or certification process may include all of the risks associated with obtaining FDA clearance or approval. If we fail to receive necessary approvals or certifications to commercialize our products in foreign jurisdictions on a timely basis, or at all, our business, results of operations and financial condition could be adversely affected. Moreover, foreign regulatory requirements have become increasingly stringent in recent years, and we may become subject to more rigorous regulation by foreign regulatory authorities in the future. Penalties for a company's noncompliance with foreign governmental regulation could be severe, including revocation or suspension of a company's business license and criminal sanctions. In addition, the costs associated with compliance with any domestic or foreign governmental law or regulation imposed in the future may have a material adverse effect on us.

Healthcare reform measures could hinder or prevent our product candidates' commercial success.

In the United States, there have been, and we expect there will continue to be, a number of legislative and regulatory changes to the healthcare system that could affect our future revenue and profitability and the future revenue and profitability of our potential customers. Federal and state lawmakers regularly propose and, at times, enact legislation that results in significant changes to the healthcare system, some of which is intended to contain or reduce the costs of medical products and services. For example, in March 2010, the President signed one of the most significant healthcare reform measures in decades, the Affordable Care Act ("ACA"). It contains a number of provisions, including those governing enrollment in federal healthcare programs, reimbursement changes and fraud and abuse measures, all of which will impact existing government healthcare programs and will result in the development of new programs. The ACA, among other things:

- imposes a non-deductible annual fee on pharmaceutical manufacturers or importers who sell "branded prescription drugs";
- increases the minimum level of Medicaid rebates payable by manufacturers of brand-name drugs from 15.1% to 23.1%;
- imposes a 2.3% medical device excise tax that manufacturers and importers will be required to pay on their sales of certain medical devices;
- requires collection of rebates for drugs paid by Medicaid managed care organizations;
- addresses new methodologies by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for drugs that are inhaled, infused, instilled, implanted or injected, and for drugs that are line extension products;
- requires manufacturers to participate in a coverage gap discount program, under which they must agree to offer 50% point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer's outpatient drugs to be covered under Medicare Part D; and
- mandates a further shift in the burden of Medicaid payments to the states.

Other legislative changes have been proposed and adopted since the ACA was enacted. On August 2, 2011, the President signed into law the Budget Control Act of 2011, which, among other things, created the Joint Select Committee on Deficit Reduction to recommend proposals in spending reductions to Congress. The Joint Select Committee did not achieve its targeted deficit reduction of at least $1.2 trillion for the years 2013 through 2021, triggering the legislation's automatic reductions to several government programs. These reductions include aggregate reductions to Medicare payments to providers of up to 2% per fiscal year, which went into effect on April 1, 2013. On January 2, 2013, President Obama signed into law the American Taxpayer Relief Act of 2012, which, among other things, further reduced Medicare payments to several providers, including hospitals, imaging centers and cancer treatment centers, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. We expect that additional state and federal healthcare reform measures will be adopted in the future, any of which could limit the amounts that federal and state governments will pay for healthcare products and services, which could result in reduced demand for our products once approved or additional pricing pressures.

We are subject to healthcare laws, regulation and enforcement and our failure to comply with those laws could adversely affect our business, operations and financial condition.

Even though we do not and will not control referrals of healthcare services or bill directly to Medicare, Medicaid or other third-party payors, certain federal and state healthcare laws and regulations pertaining to fraud and abuse and patients' rights are and will be applicable to our business. We could be subject to healthcare fraud and abuse and patient privacy regulation by both the federal government and the states in which we conduct our business. The regulations that may affect our ability to operate include, without limitation:

- the federal Anti-Kickback Statute, which prohibits, among other things, any person from knowingly and willfully offering, soliciting, receiving or providing remuneration, directly or indirectly, to induce either the referral of an individual, for an item or service or the purchasing or ordering of a good or service, for which payment may be made under federal healthcare programs such as the Medicare and Medicaid programs;
- the federal False Claims Act, which prohibits, among other things, individuals or entities from knowingly presenting, or causing to be presented, false claims, or knowingly using false statements, to obtain payment from the federal government, and which may apply to entities that provide coding and billing advice to customers;
- federal criminal laws that prohibit executing a scheme to defraud any healthcare benefit program or making false statements relating to healthcare matters;
- the federal physician sunshine requirements under the ACA, which requires manufacturers of drugs, devices, biologics, and medical supplies to report annually to the Centers for Medicare & Medicaid Services information related to payments and other transfers of value to physicians, other healthcare providers, and teaching hospitals, and ownership and investment interests held by physicians and other healthcare providers and their immediate family members;
- the federal Health Insurance Portability and Accountability Act of 1996, as amended by the Health Information Technology for Economic and Clinical Health Act, which governs the conduct of certain electronic healthcare transactions and protects the security and privacy of protected health information; and
- state law equivalents of each of the above federal laws, such as anti-kickback and false claims laws which may apply to items or services reimbursed by any third-party payors, including commercial insurers; state laws that require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the applicable compliance guidance promulgated by the federal government, or otherwise restrict payments that may be made to healthcare providers and other potential referral sources; state laws that require drug manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures; and state laws governing the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts.

Because of the breadth of these laws and the narrowness of the statutory exceptions and safe harbors available, it is possible that some of our business activities could be subject to challenge under one or more of such laws. In addition, recent healthcare reform legislation has strengthened these laws. For example, the recently enacted ACA, among other things, amends the intent requirement of the Federal Anti-Kickback Statute and criminal healthcare fraud statutes. A person or entity no longer needs to have actual knowledge of the statute or specific intent to violate it. In addition, the ACA provides that the government may assert that a claim including items or services resulting from a violation of the Federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the False Claims Act.

Achieving and sustaining compliance with these laws may prove costly. In addition, any action against us for violation of these laws, even if we successfully defend against it, could cause us to incur significant legal and other related expenses and divert our management's attention from the operation of our business. If our operations are found to be in violation of any of the laws described above or any other governmental regulations that apply to us, we may be subject to penalties, including civil and criminal penalties, damages, fines, the exclusion from participation in federal and state healthcare programs, imprisonment, or the curtailment or restructuring of our operations, any of which could adversely affect our ability to operate our business and our financial results.

Risks Related to Our Common Stock

The price of our common stock may be volatile and our stockholders may not be able to resell shares of our common stock at or above the price they paid.

There was no public market for our common stock prior to our IPO in March 2014, the trading volume of our common stock on The NASDAQ Global Market has been limited since then, and there can be no assurance that an active and liquid trading market for our common stock will be sustained. We cannot predict the extent to which investor interest in our company will lead to the development of or sustain an active trading market on The NASDAQ Global Market or otherwise or how liquid that market might become. If an active public market is not sustained, it may be difficult for stockholders to sell their shares of common stock at prices that are attractive to them, or at all. Further, an inactive market may also impair our ability to raise capital by selling shares of our common stock and may impair our ability to enter into strategic partnerships or acquire companies or products, product candidates or technologies by using our shares of common stock as consideration. Stockholders may also be unable to sell their shares of common stock at prices that are attractive to them due to volatility in the market price of our common stock. Factors that could cause volatility in the market price of our common stock include, but are not limited to:

- announcements relating to our current development program for plazomicin, including any periodic updates relating to timing or rate of enrollment of trial subjects in our Phase 3 EPIC trial and our Phase 3 CARE trial, adverse events, site initiation, and timing of release of interim analyses and final trial results or revisions, modifications to our clinical development plan for plazomicin, including changes to enrollment protocols or additional clinical trials;
- results from, or any delays in, clinical trial programs relating to our product candidates, including our Phase 3 trials;
- delays in commercializing or obtaining regulatory approval for our product candidates;
- any need to suspend or discontinue clinical trials due to side effects or other safety risks, or any need to conduct studies on the long-term effects associated with the use of our product candidates;
- capital fundraising or other financing activities that contain onerous or unfavorable terms;
- manufacturing issues related to our product candidates for clinical trials or future products for commercialization;
- commercial success and market acceptance of our product candidates following regulatory approval;
- undesirable side effects caused by product candidates after they have entered the market;
- spread of bacterial resistance to our product candidates;
- ability to discover, develop and commercialize additional product candidates;
- announcements relating to collaborations that we may enter into with respect to the development or commercialization of our product candidates, or the timing of payments we may make or receive under these arrangements;
- announcements relating to the receipt, modification or termination of government contracts or grants, or the timing of payments we may receive under these arrangements;
- success of our competitors in discovering, developing or commercializing products;
- strategic transactions undertaken by us;
- additions or departures of key personnel;
- product liability claims related to our clinical trials or product candidates;
- prevailing economic conditions;
- business disruptions caused by earthquakes or other natural disasters;

- disputes concerning our intellectual property or other proprietary rights;
- FDA or other U.S. or foreign regulatory actions affecting us or our industry;
- healthcare reform measures in the United States or other countries;
- sales of our common stock by our officers, directors or significant stockholders;
- future sales or issuances of equity or debt securities by us;
- fluctuations in our quarterly operating results; and
- the issuance of new or changed securities analysts' reports or recommendations regarding us.

In addition, the stock markets in general, and the markets for pharmaceutical, biopharmaceutical and biotechnology stocks in particular, have experienced extreme volatility that has been often unrelated to the operating performance of the issuer. These broad market fluctuations may adversely affect the trading price or liquidity of our common stock. In the past, when the market price of a stock has been volatile, holders of that stock have sometimes instituted securities class action litigation against the issuer. If any of our stockholders were to bring such a lawsuit against us, we could incur substantial costs defending the lawsuit and the attention of our management would be diverted from the operation of our business.

Our principal stockholders and management own a significant percentage of our stock and will be able to exert significant control over matters subject to stockholder approval.

As of June 30, 2016 our executive officers, directors, and their respective affiliates beneficially owned approximately 10% of our outstanding voting stock. Accordingly, these stockholders may continue to have significant influence over the outcome of corporate actions requiring stockholder approval, including the election of directors, any merger, consolidation or sale of all or substantially all of our assets or any other significant corporate transaction. The interests of these stockholders may not be the same as or may even conflict with your interests. For example, these stockholders could delay or prevent a change of control of our company, even if such a change of control would benefit our other stockholders, which could deprive our stockholders of an opportunity to receive a premium for their common stock as part of a sale of our company or our assets and might affect the prevailing market price of our common stock. The concentration of stock ownership may adversely affect the trading price of our common stock due to investors' perception that conflicts of interest may exist or arise.

We are an "emerging growth company" and we cannot be certain if the reduced disclosure requirements applicable to emerging growth companies will make our common stock less attractive to investors.

We are an "emerging growth company," as defined in the JOBS Act, and may take advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are not "emerging growth companies" including not being required to comply with the auditor attestation requirements of section 404 of the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. We cannot predict if investors will find our common stock less attractive because we may rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile.

In addition, Section 102 of the JOBS Act also provides that an "emerging growth company" 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. An "emerging growth company" can therefore delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. However, we have chosen to "opt out" of such extended transition period, and as a result, we will comply with new or revised accounting standards on the relevant dates on which adoption of such standards is required for non-emerging growth companies. Section 107 of the JOBS Act provides that our decision to opt out of the extended transition period for complying with new or revised accounting standards is irrevocable.

Raising additional funds by issuing securities or through licensing or lending arrangements may cause dilution to our existing stockholders, restrict our operations or require us to relinquish proprietary rights.

To the extent that we raise additional capital by issuing equity securities, the share ownership of existing stockholders will be diluted. For example, on April 7, 2015, we filed a Registration Statement on Form S-3 (File No. 333-203282), (the "Shelf Registration Statement"), covering the offering of up to $150 million of common stock, preferred stock, debt securities, warrants, purchase contracts and units. The Shelf Registration Statement included a prospectus covering the offering, issuance and sale of up to $30.0 million of shares of our common stock from time to time in "at the market" offerings pursuant to a Common Stock Sales Agreement entered into with Cowen and Company, LLC (the "Sales Agreement") on April 7, 2015. Through June 30, 2016, we have sold 267,520 shares of common stock under the Sales Agreement, at a weighted-average price

of approximately $6.29 per share for aggregate gross proceeds of $1.7 million . As of June 30, 2016, approximately $148.3 million in securities remained unissued under the Shelf Registration Statement, including up to $28.3 million of common stock available to be sold under the Sales Agreement, subject to certain conditions specified therein.

In June 2016, the Company issued 7,999,996 shares of its common stock and warrants to purchase 1,999,999 shares of its common stock for aggregate gross proceeds of $25.4 million in connection with the Private Placement. Any future debt financing may involve covenants that restrict our operations, including, among other restrictions, limitations on our ability to incur liens or additional debt, pay dividends, redeem our stock, make certain investments, and engage in certain merger, consolidation, or asset sale transactions. In addition, if we raise additional funds through licensing arrangements, it may be necessary to grant potentially valuable rights to our product candidates or grant licenses on terms that are not favorable to us.

Future sales by our existing holders of our common stock or securities convertible or exchangeable for our common stock may depress our stock price.

If our existing stockholders or holders of our options or warrants sell, or indicate an intention to sell, substantial amounts of our common stock in the public market, the trading price of our common stock could decline. The perception in the market that these sales may occur could also cause the trading price of our common stock to decline. As of June 30, 2016, we have outstanding a total of 26,548,023 shares of common stock.

In addition, based on the number of shares subject to outstanding awards under our Amended and Restated 2003 Stock Plan (the "2003 Plan") or subject to outstanding awards or available for issuance under our 2014 Equity Incentive Award Plan (our "2014 Plan"), our 2014 Employment Commencement Incentive Plan (our "Inducement Plan") and our 2014 Employee Stock Purchase Plan (our "ESPP"), in each case, as of June 30, 2016, 5,234,445 shares of common stock that are either subject to outstanding awards, outstanding but subject to vesting, or reserved for future issuance under our 2003 Plan, 2014 Plan, Inducement Plan or ESPP will become eligible for sale in the public market to the extent permitted by the provisions of various vesting schedules. We have filed registration statements permitting shares of common stock issued in the future pursuant to the 2003 Plan, 2014 Plan, Inducement Plan or ESPP to be freely resold by plan participants in the public market and, for shares held by directors, executive officers and other affiliates, subject to compliance with Rule 144. The 2014 Plan and ESPP also contain a provision for the annual increase of the number of shares reserved for issuance under such plan, which shares we also intend to register in the future as such annual increases occurs. If the shares we may issue from time to time under the 2003 Plan, 2014 Plan, the Inducement Plan or ESPP are sold, or if it is perceived that they will be sold, by the award recipient in the public market, the trading price of our common stock could decline.

As of August 3, 2016, certain holders of 1,746,461 shares of our common stock and warrants exercisable for 30,024 shares of our common stock are entitled to rights with respect to the registration of their shares under the Securities Act. Registration of these shares under the Securities Act would result in the shares becoming freely tradable without restriction under the Securities Act, except for shares purchased by affiliates. Sales of such shares could also cause the trading price of our common stock to decline.

Provisions of our charter documents or Delaware law could delay or prevent an acquisition of our company, even if the acquisition would be beneficial to our stockholders, and could make it more difficult for you to change management.

Provisions in our certificate of incorporation and our bylaws may discourage, delay or prevent a merger, acquisition or other change in control that stockholders may consider favorable, including transactions in which stockholders might otherwise receive a premium for their shares. In addition, these provisions may frustrate or prevent any attempt by our stockholders to replace or remove our current management by making it more difficult to replace or remove our board of directors. These provisions include:

- a classified board of directors so that not all directors are elected at one time;
- a prohibition on stockholder action through written consent;
- no cumulative voting in the election of directors;
- the exclusive right of our board of directors to elect a director to fill a vacancy created by the expansion of the board of directors or the resignation, death or removal of a director;
- a requirement that special meetings of stockholders be called only by the board of directors, the chairman of the board of directors, the chief executive officer or, in the absence of a chief executive officer, the president;
- an advance notice requirement for stockholder proposals and nominations;
- directors may not be removed without cause and may only be removed with cause by the affirmative vote of 66 2/3% of all outstanding shares of our capital stock with the power to vote in the election of directors;

- the authority of our board of directors to issue preferred stock with such terms as our board of directors may determine; and
- a requirement of approval of not less than 66 2/3% of all outstanding shares of our capital stock with the power to vote to amend any bylaws by stockholder action, or to amend specific provisions of our certificate of incorporation.

In addition, Delaware law prohibits a publicly held Delaware corporation from engaging in a business combination with an interested stockholder, generally a person who, together with its affiliates, owns or within the last three years has owned 15% or more of our voting stock, for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in a prescribed manner. Accordingly, Delaware law may discourage, delay or prevent a change in control of our company. Furthermore, our amended and restated certificate of incorporation will specify that the Court of Chancery of the State of Delaware will be the sole and exclusive forum for most legal actions involving actions brought against us by stockholders. We believe this provision benefits us by providing increased consistency in the application of Delaware law by chancellors particularly experienced in resolving corporate disputes, efficient administration of cases on a more expedited schedule relative to other forums and protection against the burdens of multi-forum litigation. However, the provision may have the effect of discouraging lawsuits against our directors and officers. The enforceability of similar choice of forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that, in connection with any applicable action brought against us, a court could find the choice of forum provisions contained in our amended and restated certificate of incorporation to be inapplicable or unenforceable in such action.

Provisions in our charter and other provisions of Delaware law could limit the price that investors are willing to pay in the future for shares of our common stock.

We do not anticipate paying any cash dividends on our capital stock in the foreseeable future; as a result, capital appreciation, if any, of our common stock will be your sole source of gain for the foreseeable future.

We have never declared or paid cash dividends on our capital stock. We do not anticipate paying any cash dividends on our capital stock in the foreseeable future. We currently intend to retain all available funds and any future earnings to fund the development and growth of our business. In addition, the terms of any future debt financing arrangement may contain terms prohibiting or limiting the amount of dividends that may be declared or paid on our common stock. As a result, capital appreciation, if any, of our common stock will be your sole source of gain for the foreseeable future.

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

The trading market for our common stock will depend, in part, on the research and reports that securities or industry analysts publish about us or our business. If one or more of the analysts who cover us downgrade our stock or publish inaccurate or unfavorable research about our business, our stock price would likely decline. In addition, if our operating results fail to meet the forecast of analysts, our stock price would likely decline. If one or more of these analysts cease coverage of our company or fail to publish reports on us regularly, demand for our stock could decrease, which might cause our stock price and trading volume to decline.

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

(a) Recent Sales of Unregistered Equity Securities

None.

(b) Use of Proceeds

On March 17, 2014, we closed our IPO and issued 6,900,000 shares of our common stock at an initial offering price of $12.00 per share. The offer and sale of all of the shares in the IPO were registered under the Securities Act pursuant to a registration statement on Form S-1 (File No. 333-193559), which was declared effective by the SEC on March 11, 2014, and a registration statement on Form S-1 (File No. 333-194494), which was effective immediately upon filing on March 11, 2014. No additional shares were registered. The joint book-running managers for the IPO were Credit Suisse Securities (USA) LLC and Cowen and Company, LLC. The aggregate offering price to the public for the shares sold in the IPO was $82.8 million. We received net proceeds from the IPO of approximately $73.9 million, after deducting underwriting discounts and commissions of approximately $5.8 million and expenses of approximately $3.1 million payable by us. None of the expenses associated with

the IPO were paid to directors, officers, persons owning 10% or more of any class of equity securities, or to their associates, or to our affiliates.

In June 2014, we repaid our loans with Oxford and Silicon Valley Bank. None of such payments were direct or indirect payments to any of our directors or officers or their associates, to persons owning 10% or more of our capital stock, or to any of our affiliates.

Other than as described above, there have been no material changes in the planned use of proceeds from our IPO as described in our prior filings with the Securities and Exchange Commission.

(c) Issuer Purchases of Equity Securities

Not applicable.

Item 3. Defaults Upon Senior Securities.

None.

Item 4. Mine Safety Disclosures.

Not applicable.

Item 5. Other Information.

None.

Item 6. Exhibits.

See the Exhibit Index on the page immediately preceding the exhibits for a list of exhibits filed as part of this Quarterly Report on Form 10-Q, which Exhibit Index is incorporated herein by reference.

SIGNATURES

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

Date: August 8, 2016

ACHAOGEN, INC.

By: /s/ Kenneth J. Hillan

Kenneth J. Hillan, M.B., Ch. B.
President and Chief Executive Officer
(principal executive officer)

Date: August 8, 2016

By: /s/ Tobin C. Schilke

Tobin C. Schilke
Chief Financial Officer
(principal financial and accounting officer)

EXHIBIT INDEX

Exhibit Number	Description of Document	Incorporated by Reference from				Provided Herewith
		Registrant's Form	File No.	Date Filed with the SEC	Exhibit Number	
3.1	Amended and Restated Certificate of Incorporation of Achaogen, Inc.	8-K	001-36323	3/17/2014	3.1	
3.2	Amended and Restated Bylaws of Achaogen, Inc.	8-K	001-36323	3/17/2014	3.2	
4.1	Reference is made to Exhibits 3.1 through 3.2					
4.2	Form of Common Stock Certificate.	S-1/A	333-193559	3/10/2014	4.1	
4.3	Warrant issued to Oxford Finance LLC on November 1, 2011.	S-1	333-193559	1/24/2014	4.4	
4.4	Warrant issued to Silicon Valley Bank on November 1, 2011.	S-1/A	333-193559	1/24/2014	4.5	
4.5	Warrant issued to Oxford Finance LLC on April 30, 2012 (Term A Loan (2)).	S-1	333-193559	1/24/2014	4.6	
4.6	Warrant issued to Oxford Finance LLC on April 30, 2012 (Term B Loan).	S-1	333-193559	1/24/2014	4.7	
4.7	Form of Warrant, issued pursuant to the Securities Purchase Agreement, dated June 1, 2016, by and among Achaogen, Inc. and the purchasers named therein.	S-3	333-212253	6/24/2016	4.3	
10.1†	Modification 0024, dated May 26, 2016, to Contract Award issued by the Biomedical Advanced Research and Development Authority of the United States Department of Health and Human Services, dated August 30, 2010.					X
10.2	Registration Rights Agreement, dated June 1, 2016, by and among Achaogen, Inc. and the investors signatory thereto.	S-3	333-212253	6/24/2016	99.1	
10.3	Securities Purchase Agreement, dated June 1, 2016, by and among Achaogen, Inc. and the purchasers named therein.					X
10.4#	Offer Letter, dated May 3, 2016, by and between Achaogen, Inc. and Tobin Schilke.					X
31.1	Certification of Principal Executive Officer Required Under Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended.					X
31.2	Certification of Principal Financial Officer Required Under Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as amended.					X
32.1*	Certification of Principal Executive Officer and Principal Financial Officer Required Under Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended, and 18 U.S.C. §1350.					X
101.INS	XBRL Instance Document.					X
101.SCH	XBRL Taxonomy Extension Schema Document.					X
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document.					X
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document.					X

101.LAB	XBRL Taxonomy Extension Label Linkbase Document.	X
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document.	X

† Portions of this exhibit (indicated by asterisks) have been omitted pursuant to a request for confidential treatment and this exhibit has been filed separately with the SEC.

# Indicates management contract or compensatory plan, contract or arrangement.

* The certification attached as Exhibit 32.1 that accompanies this Quarterly Report on Form 10-Q is not deemed filed with the SEC and is not to be incorporated by reference into any filing of Achaogen, 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 this Form 10-Q, irrespective of any general incorporation language contained in such filing.

Exhibit 10.1

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT	1. CONTRACT ID CODE	PAGE OF PAGES 1 3

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. (*If applicable*)
0024	See Block 16C	OS176823	

6. ISSUED BY	CODE	ASPR-BARDA	7. ADMINISTERED BY (*If other than Item 6*)	CODE	ASPR-BARDA
ASPR-BARDA 200 Independence Ave., S.W. Room 640-G Washington DC 20201			ASPR-BARDA 200 Independence Ave., S.W. Room 638-G Washington DC 20201		

8. NAME AND ADDRESS OF CONTRACTOR (*No., street, county, State and ZIP Code*)	(X)	9A. AMENDMENT OF SOLICITATION NO.
ACHAOGEN, INC. 1361331 ACHAOGEN, INC. 7000 SHORELINE 7000 SHORELINE CT STE 371 SOUTH SAN FRANCISCO CA 940801957		9B. DATED (*SEE ITEM 11*)
	X	10A. MODIFICATION OF CONTRACT/ORDER NO. HHSO100201000046C
CODE 1361331 FACILITY CODE		10B. DATED (*SEE ITEM 13*) 09/01/2010

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers is extended is not extended

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (*If required*) Net Increase: $[***]
See Schedule

13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

CHECK ONE	
	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (*Specify authority*) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (*such as changes in paying office, appropriation date. etc.*) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
X	D. OTHER (*Specify type of modification and authority*) Bilateral: Mutual Agreement of the Parties and FAR Clause 52.217-7

E. IMPORTANT: Contractor ☐ is not ☒ is required to sign this document and return 2 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (*Organized by UCF section headings, including solicitation/contract subject matter where feasible.*)

Tax ID Number: 68-0533693

DUNS Number: 167293153

A. The purpose of this modification is to exercise cost sharing Option 3 under CLIN 0004 of the contract. The total period of performance of Option 3/CLIN 0004 under the contract is from May 26, 2016 through December 31, 2007.

1. This modification hereby results in an increase in the total amount of the contract as follows:

a. The Total Estimated Cost of the Contract is hereby increased by [***], from [***] to [***].

Continued…

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (*Type or print*)		16A. NAME AND TITLE OF CONTRACTING OFFICER (*Type or print*)	
Blake Wise, COO		THOMAS P. HASTINGS	
15B. CONTRACTOR/OFFEROR /s/ Blake Wise (*Signature of person authorized to sign*)	15C. DATE SIGNED 5/26/16	16B. UNITED STATES OF AMERICA /s/ Thomas P. Hastings (*Signature of Contracting Officer*)	16C. DATE SIGNED 5/26/2016

NAME OF OFFEROR OR CONTRACTOR

ACHAOGEN, INC. 1361331

ITEM NO.	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
(A)	(B)	(C)	(D)	(E)	(F)

b. The Total Fixed Fee of the Contract remains unchanged at [***].

c. The Total Estimated Cost Plus Fixed Fee of the Contract is hereby increased by [***] from [***] to [***].

2. Cost Sharing Option 3/CLIN 0004 is divided as follows:

a. The Estimated USG Cost is [***].

b. The Estimated Achaogen Cost Sharing Total is [***].

c. The Total Estimated Cost of Cost Sharing Option 3/CLIN 0004 is [***].

3. The Statement of Work, dated February 11, 2016, is hereby deleted in its entirety and replaced with the attached Statement of Work, dated May 26, 2016.

4. The expiration date of Option 1/CLIN 0002 is hereby extended from June 30, 2016 to September 20, 2016, at no additional cost to the Government.

All other terms and conditions of the contract remain unchanged.
Delivery Location Code: HHS
HHS
200 Independence Avenue, SW
Washington DC 20201 US

FOB: Destination
Period of Performance: 09/19/2010 to 12/31/2017

Change Item 2 to read as follows (amount shown is the obligated amount):

2	Option Period 1: Stage 2 Non-clinical PK/PD studies, Clinical PK/PD studies, PK/PD modeling, Manufacturing activities, Non-clinical and clinical safety, Non-clinical NHP studies, Process Validation.	0.00

Delivery: 03/21/2014
Accounting Info:
2012.1992002.25106 Appr. Yr.: 2012 CAN: 1992002 Object Class: 25106
Funded: $0.00

Add Item 5 as follows:

5	ASPR-16-01527 -- Development of Plazomincin under Achaogen contract HHSO100201000046C Obligated Amount: [***]	[***]

Accounting Info:
2016.1992016.25103 Appr. Yr. : 2016 CAN: 1992016 Object Class: 25103

Continued …

NAME OF OFFEROR OR CONTRACTOR

ACHAOGEN, INC. 1361331

ITEM NO.	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
(A)	(B)	(C)	(D)	(E)	(F)

Funded: [***]

BAA BARDA-09-34

Advanced Research and Development of Chemical, Biological, Radiological, and Nuclear Medical Countermeasures

HHSO100201000046C

ACHN-490: A NOVEL, BROAD SPRECTRUM "NEOGLYCOSIDE" ANTIBIOTIC FOR THE TREATMENT OF RESISTANT THREAT AGENTS

Contractual Statement of Work

1. Preamble

Independently and not as an agency of the Government, the Contractor shall be required to furnish all the necessary services, qualified personnel, material, equipment, and facilities, not otherwise provided by the Government, as needed to perform the Statement of Work submitted in response to the Broad Agency Announcement (BAA) BARDA 09-34.

Government reserves the right to modify the milestones, progress, schedule, budget, or product to add or delete products, process, or schedules as need may arise. Because of the nature of this (R&D) contract and complexities inherent in this and prior programs, at designated milestones the Government will evaluate whether work should be redirected, removed, or whether schedule or budget adjustments should be made. The Government reserves the right to change product, process, schedule, or events to add or delete part or all of these elements as the need arises.

1.1 Overall Objectives and Scope

The overall objective of this contract is to advance the development of ACHN-490 [also called Plazomicin since 2011] as a broad-spectrum therapeutic in an injectable formulation for the treatment of bacterial threat agent infection, including *Y. pestis and F. tularenisis* or others, as directed by BARDA . The scope of work for this contract includes preclinical, clinical and manufacturing development activities that fall into the following areas: [***]; and all associated regulatory, quality assurance, management, and administrative activities.

2. INTEGRATED PRODUCT DEVELOPMENT PLAN

The contractor shall carry out the following tasks and subtasks, by stage, and in accordance with an agreed upon Integrated Product Development Plan (IPDP) which shall further detail the conduct of the specific tasks and subtasks.

2.1. [***]

[***]

2.5 Project Management. The Contractor shall provide for the following as outlined below and in the contract deliverables list (reference),:

2.5.1 The overall management, integration and coordination of all contract activities, including a technical and administrative infrastructure to ensure the efficient planning, initiation, implementation, and direction of all contract activities;

2.5.2 A Principal Investigator (PI) responsible for project management, communication, tracking, monitoring and reporting on status and progress, and recommending modification to the project requirements and timelines, including projects undertaken by subcontractors; The contract deliverables list (reference), identifies all contract deliverables and reporting requirements for this contract

2.5.3 Project Manager(s) with responsibility for monitoring and tracking day-to-day progress and timelines, coordinating communication and project activities; costs incurred; and program management; The contract deliverables list (reference), identifies all contract deliverables and reporting requirements for this contract

2.5.4 A BARDA Liaison with responsibility for effective communication with the Project Officer and Contracting Officer.

2.5.5 Administrative and legal staff to provide development of compliant subcontracts, consulting, and other legal agreements, and ensure timely acquisition of all proprietary rights, including IP rights, and reporting all inventions made in the performance of the project; and

2.5.6 Administrative staff with responsibility for financial management and reporting on all activities conducted by the Contractor and any subcontractors.

2.5.7 Integrated Master Plan: The Contractor provided an Integrated Master Project Plan (including tabular and Gantt forms) to BARDA that clearly indicates the critical path. The Integrated Master Project Plan shall be incorporated into the contract, and will be used to monitor performance of the contract.

2.5.8 Critical Path Milestones: The Integrated Master Project Plan outlines key, critical path milestones, with “go/no go” decision criteria (entrance and exit criteria for each phase of the project). The project plan should include, but not be limited to, milestones in manufacturing, non-clinical and clinical studies, and regulatory submissions.

2.5.9 Work Breakdown Structure: The Contractor shall delineate the Contract Work Breakdown Structure (CWBS) to Level 5 as part of their Integrated Master Project Plan. The CWBS shall follow a BARDA supplied structure to Level 3. BARDA may require Contractor to furnish WBS data at the work package level or at a lower level if there is significant complexity and risk associated with the task.

2.5.10 Risk Management Plan: The Contractor shall develop a risk management plan highlighting potential problems and/or issues that may arise during the life of the contract, their impact on cost, schedule and performance, and appropriate remediation plans. This plan should reference relevant WBS elements where appropriate.

2.5.11 Earned Value Management System Plan: Subject to the requirements under HHSAR Clause 352.234-3, the Contractor shall use principles of Earned Value Management System (EVMS) in the management of this contract. The Seven Principles are:

I. Plan all work scope for the program to completion.

II. Break down the program work scope into finite pieces that can be assigned to a responsible person or organization for control of technical, schedule, and cost objectives.
III. Integrate program work scope, schedule, and cost objectives into a performance measurement baseline plan against which accomplishments may be measured. Control Changes to the baseline.
IV. Use actual cost incurred and recorded in accomplishing the work performed.
V. Objectively assess accomplishments at the work performance level.
VI. Analyze significant variances from the plan, forecast impacts, and prepare an estimate at completion based on performance to date and work to be performed.
VII. Use earned value information in the company's management processes.

Elements of EVMS shall be applied to all Cost Plus Fixed Fee CLINs as part of the Integrated Master Project Plan, the Contractor shall submit a written summary of the management procedures that it will establish, maintain and use to comply with EVMS requirements to include the following topics:

2.5.12 Integrated Baseline Review: The Contractor shall submit a plan for an Integrated Baseline Review (IBR) to occur within 90 days of contract award. At the IBR, the Contractor and BARDA shall mutually agree upon the budget, schedule and technical plan baselines (Performance Measurement Baseline). These baselines shall be the basis for monitoring and reporting progress throughout the life of the contract. The IBR is conducted to achieve confidence that the baselines accurately capture the entire technical scope of work, are consistent with contract schedule requirements, are reasonably and logically planned, and have adequate resources assigned. The goals of the IBR are as follows:

i. Jointly assess areas such as the Contractor's planning for complete coverage of the SOW, logical scheduling of the work activities, adequate resources, and identification of inherent risks
ii. Confirm the integrity of the Performance Measurement Baseline (PMB)
iii. Foster the use of EVM as a means of communication
iv. Provide confidence in the validity of Contractor reporting
v. Identify risks associated with the PMB
vi. Present any revised PMBs for approval

2.5.13 Integrated Master Schedule: The Contractor shall deliver an initial program level Integrated Master Schedule (IMS) that rolls up all time-phased WBS elements down to the activity level. This IMS shall include the dependencies that exist between tasks. This IMS will be agreed to and finalized at the IBR. DI-MGMT-81650 may be referenced as guidance in creation of the IMS (see http://www.acq.osd.mil/pm/).

2.5.14 Monthly Performance Metrics Report: The Contractor shall deliver an Earned Value Contract Performance Report on a Monthly basis. Contractor will provide a monthly Contract Performance Report (CPR) at an agreed upon reporting level using the BARDA provided WBS and a Variance Analysis Report. Contractor will report EVM data on all CLINs. EV Variance

thresholds will be +/- 10%. In conjunction with the CPR, the Contractor shall provide a quarterly update to the IMS with up to date performance data and should include actual start/finish and projected start/finish dates.

2.6 Regulatory Compliance. The Contractor shall manage the ACHN-490 IND and shall be responsible for:

2.6.1 Preparing materials for and requesting, scheduling and participating in all meetings with the FDA and other global regulatory agencies, including meetings to review IND, EUA and/or all other data packages;

2.6.2 Providing the dates and times of any meeting with the FDA and other global regulatory agencies to BARDA and make arrangements for appropriate BARDA staff to attend FDA meetings;

2.6.3 Providing BARDA with (i) the initial draft minutes and final draft minutes of any formal meeting with the FDA; (ii) final draft minutes of any informal meeting with the FDA and other global regulatory agencies; and (iii) five business days to review and comment upon any documents to be submitted to the FDA; and

2.6.4 Submitting all documentation to the FDA and other global regulatory agencies in a timely manner, consistent with timelines set out in the contract and by the FDA and other global regulatory agencies.

2.7 Quality Assurance. The Contractor shall:

2.7.1 Provide any relevant SOPs upon request from Project Officer/Contracting Officer;

2.7.2 Ensure strict adherence to FDA regulations and guidance, including requirements for the conduct of animal studies and assays under GLP, the manufacturing of the therapeutic candidate under cGMP, and the conduct of clinical trials under GCP standards (as defined by 21 CFR §312 and ICH Guidelines document E6). The Contractor shall maintain quality assurance documentation of support adherence in these areas; and

2.7.3 Arrange for independent audits, as needed or as requested by the Project Officer. Audits may be requested to assure that Contractor and/or subcontractor facilities and all planned procedures meet FDA regulations and guidance required for GLP, cGMP and GCP standards. In addition, the Contractor shall provide interim and final audit reports to the Project Office and the Contracting Officer within thirty (30) calendar days of the completion of the audit. The Contractor agrees that BARDA may conduct independent audits of the Contractor and its subcontractors as needed to evaluate compliance with the FDA regulations and guidance, including those required to meet GLP, cGMP or GCP standards.

2.8 Facilities, Equipment and Other Resources. The Contractor shall provide equipment, facilities and other resources required for the implementation of the IPDP, such as the equipment and facilities, training and resources to comply with all Federal and HHS regulations in:

2.8.1 The humane care and use of vertebrate animals;

2.8.2 The handling, storage and shipping of potentially dangerous biological and chemical agents, including Select agents under biosafety levels required for working with the biological agents under study;

2.8.3 The production, characterization, and release testing of active pharmaceutical ingredient and final drug product under cGMP;

2.8.4 The design and conduct of NDA-enabling non-clinical studies under GLP; and

2.8.5 The design and conduct of clinical trials in humans under GCP.

2.9 Security. The contractor shall provide for:

2.9.1 The establishment of a comprehensive security program that provides a security plan for the overall protection of personnel, information, data, and facilities;

2.9.2 Security administration, as an element of the security program that addresses threat and risk assessments and related policies and procedures for personnel security, physical security, information security, information technology; and

2.9.3 Security management, as an element of the security program that describes each element of security: physical, operations, personnel, information, information technology, transportation; and related training, auditing, and reporting requirements.

2.10 Data Management. The Contractor shall:

2.10.1 Be responsible for the development and implementation of data management and quality control systems/procedures, including transmission, storage, confidentiality, and retrieval of all contract data;

2.10.2 Provide for the statistical design and analysis of data resulting from the research;

2.10.3 Provide raw data or specific analyses of data generated with contract funding to the Project Officer upon request.

2.11 Requirements for Implementing the Integrated Product Development Plan.

2.11.1 Within 14 calendar days of the effective date of the contract, the Contractor shall submit an updated Integrated Product Development Plan (IPDP) to the Project Officer and the Contracting Officer for approval prior to the initiation of any activities related to the implementation of these plans.

2.10.2 *Stage Gate Reporting* . On completion of a stage of the product development, as defined in the approved IPDP, the Contractor shall prepare and submit to the Project Officer and the Contracting Officer a Stage Gate Report that contains (i) sufficient detail, documentation and analysis to support successful completion of the stage according to the predetermined qualitative and quantitative criteria that were established for Go/No Go decision making; and (ii) a description of the next stage of product development to be initiated and a request for approval to proceed to the next stage of product development.

2.10.3 *Deviations to Integrated Product Development Plan.* During the course of contract performance, in response to a need to change the IPDP, the Contractor shall submit a Deviation Report. This report shall request a change in the agreed-upon IPDP and timelines. This report

shall include: (i) discussion of the justification/rationale for the proposed change; (ii) options for addressing the needed changes from the approved timelines, including a cost-benefit analysis of each option; and (iii) recommendations for the preferred option that includes a full analysis and discussion of the effect of the change on the entire product development program, timelines, and budget.

3. Other Items

3.1 Contract Review Meetings . The Contractor shall participate in regular meetings to coordinate and oversee the contract effort as directed by the Contracting and Project Officers. Such meetings may include, but are not limited to, meeting of the Contractors and subcontractors to discuss clinical manufacturing progress, product development, product assay development, scale up manufacturing development, clinical sample assays development, preclinical/clinical study designs and regulatory issues; meetings with individual contractors and other HHS officials to discuss the technical, regulatory, and ethical aspects of the program; and meeting with technical consultants to discuss technical data provided by the Contractor.

The Contractor shall participate in bi-weekly teleconferences between the Contractor and subcontractors and BARDA to review technical progress. Teleconferences or additional face-to-face meetings shall be more frequent at the request of BARDA.

3.2 Publications. The Contractor shall submit to the Project Officer for review any manuscript or scientific meeting abstract containing data generated under this contract no less than thirty (30) calendar days for manuscripts and fifteen (15) calendar days before abstract submission for public presentation or publication. The Contractor shall acknowledge contract support in all such publications.

3.3 Press Releases. Press releases shall be considered to include the public release of information to any medium, excluding peer-reviewed scientific publications. The Contractor agrees to accurately and factually represent the work conducted under this contract in all press releases. The contractor shall ensure that the Project Officer has received an advance copy of any press release related to this contract not less than four (4) working days prior to the issuance of the press release.

F.2. REPORTING REQUIREMENTS AND DELIVERABLES

1. Other Contract Deliverables

#	Type of Deliverable	Frequency/ time periods	Description of Deliverable	Reporting Procedures	Quantity/ Form
1.	Project Meeting	Bi-Weekly or as amended by CO and PO	The Contractor shall participate in bi-weekly teleconferences with BARDA to discuss the performance of the contract. The Contractor prepares a proposed agenda and shall record, maintain and provide draft-meeting minutes to the Project Officer (PO) for approval. The PO will approve the draft version and distribute the final version to the Contract Officer (CO) and Contractor.	• Contractor provides agenda 48hrs in advance of meeting to the PO • PO approves (with CO concurrence) and distributes agenda • Contractor provides meeting minutes within three business days of the meeting • PO reviews, comments and approves minutes	1 Electronic Copy to PO and CO

#	Type of Deliverable	Frequency/ time periods	Description of Deliverable	Reporting Procedures	Quantity/ Form
2.	Monthly, Quarterly and Annual Project Status Report/ Meeting	Monthly reports are due on the 15th of each month, except on months when Quarterly/Annual Technical Progress Reports are due	The Monthly/Quarterly Project/Annual Status Report shall address the items listed below and cross-referenced to the Work Breakdown Structure (WBS), Scope of Work (SOW), Integrated Master Schedule (IMS), Integrated Baseline Review (IBR) report, Earned Value Management (EVM) Cost Performance Reports (CPR), and approval strategy. 1. A Executive Summary in MS PowerPoint (.ppt) format, highlighting the progress, issues, and relevant activities in manufacturing, non-clinical, clinical, and regulatory. The Executive Summary should be limited to 2-3 pages and highlight critical issues for that reporting period. The Monthly, Quarterly, and Annual Technical Progress Report shall address each of the items below and be cross-referenced to the Critical Path, Integrated Master Schedule (IMS), EVM, WBS/Project Plan and the Risk Mitigation Plan. 2. Progress in meeting contract milestones - broken out by subtasks within each milestone, overall project assessment, problems encountered and recommended solutions. The reports shall detail the planned progress and actual progress during the period covered, explaining occurrences of any differences between the two, and the corrective steps. 3. Provide EVM CPR (quarterly) and Updated Risk Management Plan/Register (quarterly) 4. The reports shall also include a three-month rolling forecast of key planned activities, referencing the WBS/IPDP. 5. A tracking log of progress on regulatory submissions with the FDA submission number, description of submission, date of submission, status of submission, and next steps shall be updated continuously upon submission for all Biodefense and Non-Biodefense activities supported in part or whole with BARDA funding 6. Estimated and Actual Expenses: This report shall also have attached either: a) a tabular (excel file) Control Account Plan report generated from MPM; or b) an unofficial CPR Form 1. This section of the report shall also contain estimates for the subcontractors' expenses from the previous month if the subcontractor did not submit a bill in the previous month. Estimates shall be listed for each subcontractor. If the subcontractor(s) was not working or did not incur any costs in the previous month, then a statement to this effect should be included in this report for those respective subcontractors. This section should also include a summary of any cost savings identified by the contractor as part of the 5% cost savings initiative. 7. Contractor shall identify the itinerary for the quarterly site visits (quarterly)	Monthly Reports: • Contractor provides Monthly Status Report deliverables on the 15th of each month via email/CD/e-room upload • PO and CO will review Monthly Reports with the Contractor and provide feedback Quarterly Meeting: • Contractor provides Quarterly Status Report five business days prior to meeting. This report is an expanded version of the Monthly Status Report • Contractor shall identify itinerary for the quarterly site visits • Contractor provides agenda to the PO 48hr in advance of meeting • PO approves (with CO concurrence) and distributes agenda • Contractor provides meeting minutes within three business days of the meeting • PO reviews, comments and approves minutes Annual Meeting: • Contractor provides Annual Project Status Report deliverables five business days prior to meeting. The annual report should also include information from the annual meeting due 15 business days after the meeting. A draft report including .ppt slides should be provided 5 business days prior to the meeting. • Contractor shall ensure that the board of directors is available to meet with BARDA. BARDA reserves the right to meet with the Contractor's board of directors once a year to discuss the contract • PO approves (with CO concurrence) and distributes agenda • PO approves (with CO concurrence) all meeting material • Contractor provides meeting minutes within three business days • PO reviews, comments and approves minutes • Contractor provides a FINAL annual report within 15 business days after the conclusion of the annual meeting. PO (with CO concurrence) reviews, comments and approves FINAL Annual Report • BARDA and Contractor shall participate in an in-process review	1 Electronic Copy to PO and CO

#	Type of Deliverable	Frequency/ time periods	Description of Deliverable	Reporting Procedures	Quantity/ Form
3.	Integrated Baseline Review (IBR)	Within 90 days of contract award	The IBR Report shall address each of the items listed below and be cross-referenced to the WBS, SOW, IMS and approval strategy. 1. Contractor provides baseline proposal and PowerPoint brief 2. A description of the work scope through control account Work Authorization Documents (WADs) 3. Template for Work Packages 4. Integrated Master Schedule (IMS) with the inclusion of agreed major milestones and control account plans (CAP) for all control accounts 5. Baseline revision documentation and program logs (s) risk register.	• Contractor provides baseline proposal, .ppt briefing, 10 business days prior to meeting • Contractor provides agenda to the PO 48hr in advance of meeting • PO approves (with CO concurrence) and distributes agenda • PO approves (with CO concurrence) all meeting material • Contractor provides minutes within 48hr of the meeting • PO reviews and approves minutes • BARDA will review documentation and provide written comments and questions to Contractor • Contractor shall address BARDA's comments and resubmit IBR for BARDA approval within 10 business days	1 Electronic Copy to PO and CO

#	Type of Deliverable	Frequency/ time periods	Description of Deliverable	Reporting Procedures	Quantity/ Form
4.	Integrated Master Plan	30 days following contract award and updated quarterly	Integrated Master Plan (aka Integrated Product Development Plan) including WBS, critical path milestones and Earned Value Management Plan Contractor has the option to combine details from the IMP with the WBS Dictionary (#6) in a single document, updated quarterly. Details include: milestones matched to planned EVM measurements; completion criteria; success criteria; assignments of responsible lead personnel for milestones, or for oversight of subcontractor effort required to meet milestones; and dependencies that cross reference to the Risk Management Plan	• Contractor shall provide all the Integrated Master Plan deliverables 30 days following contract award, and thereafter on the 15th of each month. Deliverable should be included in the Quarterly or Annual Project Status Reports, • BARDA shall provide Contractor with a written list of concerns in response to Contractor's submitted Integrated Master Plan, and the Contractor must address in writing all concerns raised by BARDA within twenty business days of Contractor's receipt of this list of concerns.	
5.	Risk Management Plan	90 days following contract award and updated quarterly (additional submissions as requested by CO or PO)	The Contractor will provide a Risk Management Plan that outlines the impacts of each risk in relation to the cost, schedule and performance objectives. The Risk Management Plan will include risk mitigation strategies. Each risk mitigation strategy will capture how the corrective action will reduce impacts on cost, schedule and performance.	• Contractor shall provide a Risk Management Plan 90 days following contract award and update on the 15th of each Quarter in their Quarterly or Annual Project Status Reports • BARDA shall provide Contractor with a written list of concerns in response to Contractor's submitted Risk Management Plan, and the Contractor must address in writing all concerns raised by BARDA within twenty business days of Contractor's receipt of this list of concerns.	1 Electronic Copy to PO and CO

#	Type of Deliverable	Frequency/ time periods	Description of Deliverable	Reporting Procedures	Quantity/ Form
6.	Program Integrated Master Schedule and WBS Dictionary	The 15th of each quarter (additional submissions as requested by CO or PO)	The Contractor will provide Program Integrated Master Schedule (IMS) and WBS Dictionary with quarterly status updates to reflect changes in schedule, performance, and critical path	• Contractor shall provide an Integrated Master Schedule on the 15th of each quarter in their quarterly or annual Project Status Reports • Integrated Master Schedule shall be in both PDF and Microsoft Project Form • BARDA shall provide Contractor with a written list of concerns in response to Contractor's submitted IMS, and the Contractor must address in writing all concerns raised by BARDA within twenty business days of Contractor's receipt of this list of concerns.	1 Electronic Copy (PDF and Microsoft Project Schedule (.mmp) format to PO and CO
7.	EVM / Contract Performance Report	The 30th day of each month covering the prior month (additional submissions as requested by CO or PO)	Contractor will provide a quarterly Contract Performance Report (CPR) at an agreed upon reporting level using the BARDA provided WBS (format 1) and a Variance Analysis Report (format 5). Contractor will report EVM data on all Cost Plus CLINs	Contractor shall provide a CPR/format 1 and Variance Analysis Report/ format 5 on the 30th day of each month covering the prior month • Contractor shall provide a PDF of deliverables. BARDA may request, on a quarterly or *ad hoc* basis that the Contractor provide raw data. BARDA may request additional data at a reporting level or at lower levels, as BARDA deems necessary • The Contractor must address in writing all concerns raised by BARDA staff to the satisfaction of BARDA	1 Electronic Copy to PO and CO

#	Type of Deliverable	Frequency/ time periods	Description of Deliverable	Reporting Procedures	Quantity/ Form
8.	Incident Report	Within 24 or 48 hrs of activity or incident	The Contractor shall communicate and document all critical programmatic concerns, risks or potential risks with BARDA within 48 hours . The Contractor shall communicate via email or telephone. The Contractor shall report to the government any activity or incident that is in violation of established security standards or indicates the loss or theft of government products within 24 hrs of activity or incident. The Contractor shall communicate via email, oral or written communication.	• Email, Letter to CO Telephone (w/ written follow-up) • Written communication with BARDA PO and CO within 48 hrs of Contractor identifying a project risk or potential risk and 24 hrs for Security activities or incident • Additional updates within 48 hrs of additional developments, additional information and/or understanding • Contractor shall submit within 5 business days a Corrective Action Plan (if necessary) to address any potential security issues • If corrective action is required, the Contractor must address concerns raised by BARDA • Contractor shall address BARDA's concerns in writing within 5 business days	1 Electronic Copy PO and CO

#	Type of Deliverable	Frequency/ time periods	Description of Deliverable	Reporting Procedures	Quantity/ Form
9.	Deviation Request	TBD	Process for changing study protocols and/or the Integrated Master Plan (a.k.a Integrated Product Development Plan)	• Contractor shall submit a Deviation Request as soon as the Contractor has sufficient data to support the need for a change from the approved study protocols and/or Integrated Master Plan • The BARDA CO will review and provide a written response to the Deviation Request. • Contractor shall address BARDA's comments and resubmit the deviation request that addresses BARDA's comments within 5 business days • Contractor shall not proceed with the deviation until BARDA gives its approval	1 Electronic Copy to PO and CO
10.	Draft and Final Technical Progress Report	Draft 20 business days before and Final 10 business days after completion of the POP	A draft of Final Technical Progress Report containing a summation of the work performed and the results obtained for the entire contract period of performance. The draft report shall be duly marked as 'Draft'. The Final Technical Progress Report incorporating the feedback received from BARDA and containing a summation of the work performed and the results obtained for the entire contract period of performance. This final report shall detail, document and summarize the results of the entire contract. This report shall be in sufficient detail to fully describe the progress achieved under all milestones. The final report shall be duly marked as 'Final'.	• Contractor shall provide a draft report 20 business days and final 10 business days before completion of the contract period • PO provides edits and additional feedback, which Contractor will incorporate into the Final Technical Progress Report • The Contractor shall submit one (1) copy of a comprehensive final report to the CO and two (2) copies (one electronically on a CD) to the PO	1 Electronic Copy to PO and CO

#	Type of Deliverable	Frequency/ time periods	Description of Deliverable	Reporting Procedures	Quantity/ Form
11.	Product Transition Strategy	90 days prior to end of the (base/option) POP	Contractor shall provide a Product Transition Strategy to support transition of the product(s) prior to end of the base and/or option(s) POP. The Product Transition Strategy should provide a strategic plan for further development and/or stockpiling of the product The transition strategy shall provide options and/or a specific approach for the transition of MCM product for further development, procurement, approval and/or stockpile	• Contractor shall provide a Product Transition Strategy to support transition of the product(s) 90 days prior to end of the (base/option) POP as an addendum to that Quarter's Quarterly Project Status Report.	1 Electronic Copy to PO and CO
12.	Decision Gate Presentation	Event Driven Review following completion of a pre-defined stage of product development and prior to initiation of a new stage	Contractor shall provide a presentation following a prescribed template provided by BARDA prior to the Decision Gate Review	• Contractor shall provide an update to technical progress made towards completion of the Decision Gate and provide the presentation, 10 business days prior to the Decision Gate Review • Contractor shall submit written justification of progress towards satisfying Decision Gate criteria • After reviewing, the BARDA PO and CO will provide a written response	1 Electronic Copy to PO and CO
13.	Standard Operating Procedures	As requested by PO and CO	Contractor shall provide Standard Operating Procedures (SOPs) to BARDA for review, as they are completed and updated	• Contractor shall submit the Standard Operating Procedures (SOPs) in the form requested by the PO and CO within 15 calendar days of request	1 Electronic Copy to PO and CO
14.	Approval Strategy	Within 90 days of contract award and updated as part of the quarterly report	Contractor shall provide overview of the approval strategy to include all clinical and non-clinical studies	• Contractor will submit proposed clinical and non-clinical strategy to support approval • If corrective action is required, the Contractor must address concerns raised by BARDA	1 Electronic Copy to PO and CO

#	Type of Deliverable	Frequency/ time periods	Description of Deliverable	Reporting Procedures	Quantity/ Form
15.	Study Protocols	At least 10 business days prior to FDA Submission	Contractor shall provide Pre-Clinical/Non-Clinical/ Clinical Trial Protocols to BARDA for evaluation, prior to FDA submission (The CO and PO reserves the right to request within the period of performance a non-proprietary Study Protocol for distribution within the United States Government(USG))	• Contractor will submit proposed protocols to BARDA at least 10 business days prior to FDA submission. If corrective action is required, the Contractor must address in writing all safety, regulatory, ethical, and conflict of interest concerns raised by BARDA to the satisfaction of BARDA before study execution • After receiving the corrected documentation, that satisfies BARDA the CO will provide a written Contract Officer Authorization (COA) Letter to the Contractor. This COA provides authorization to the Contractor to execute the specific clinical study funded in part or in whole by BARDA • Contractor shall not proceed with any study protocol until BARDA gives its approval • Final FDA submissions shall be submitted to BARDA concurrently or no later than one calendar day after its submission to CDER	1 Electronic Copy to PO and CO

#	Type of Deliverable	Frequency/ time periods	Description of Deliverable	Reporting Procedures	Quantity/ Form
16.	Study Reports	Within 30 (draft) or 60 (final) calendar days after completion of analysis and 15 business days prior to submission to FDA	Contractor shall provide Draft and Final Pre-Clinical/Non-Clinical/Clinical Study Reports to BARDA for review and edits within 30 (draft) or 60 (final) calendar days after completion of analysis of Pre-Clinical/Non-Clinical/ Clinical data and 15 business days prior to submission to FDA Alternatively, clinical draft study reports may be submitted 40 business days, and final reports submitted within 75 business days after database lock, provided submission to BARDA is still at least 15 days prior to FDA submission ("Alternative Schedule") (The CO and PO reserves the right to request within the period of performance a non-proprietary Study Report for distribution within the USG)	• Contractor shall provide Draft and Final Pre-Clinical/Non-Clinical/ Clinical Study Reports to BARDA within 30 (draft) or 60 (final) calendar days after completion of each report. Clinical study reports may be provided via the Alternative Schedule. • Contractor will submit proposed Pre-Clinical/Non-Clinical/ Clinical Study Report to BARDA at least 15 business days prior to FDA Submission • If corrective action is required, The Contractor must address in writing all concerns raised by BARDA to the satisfaction of BARDA before FDA Submission • Contractor shall not proceed with any study report until BARDA gives its approval • Final FDA submissions shall be provided to BARDA concurrently or no later than 1 calendar day of its submission to CDER	1 Electronic Copy to PO and CO

#	Type of Deliverable	Frequency/ time periods	Description of Deliverable	Reporting Procedures	Quantity/ Form
17.	Manufacturing Campaign Reports	Within 30 calendar days after receipt of batch records and 15 business days prior to submission to FDA	Contractor shall provide Manufacturing Campaign Reports to BARDA for review and edits prior to submission to FDA (The CO and PO reserve the right to request within the period of performance a non-proprietary Manufacturing Campaign Reports for distribution within the USG)	• Contractor will submit proposed Analysis Reports and Manufacturing Campaign Reports to BARDA at least 15 business days prior to FDA Submission. • If corrective action is required, the Contractor must address in writing all concerns raised by BARDA to the satisfaction of BARDA before FDA Submission • Contractor shall not proceed with any FDA submission until BARDA gives its approval • Final FDA submissions shall be submitted to BARDA concurrently or no later than one (1) calendar day after its submission to CDER	1 Electronic Copy to PO and CO
18.	FDA Meeting Notification	No later than 10 business days prior to the scheduled meeting	The contractor shall forward the dates and times of any meeting with the FDA to BARDA and arrange for appropriate BARDA staff to attend the FDA meetings. BARDA staff shall include up to a maximum of four people (PO, CO, and up to two (2) Subject Matter Experts (SME(s)).	• Contractor must notify BARDA of an upcoming meeting with the FDA within 24 hours of scheduling the meeting with the FDA and no later than 10 business days prior to the scheduled meeting	1 Electronic Copy to PO and CO
19.	FDA Correspondence and Meeting Minutes	Within three (3) calendar days of receiving correspondence from the FDA	The contractor shall forward initial Contractor and CDER-issued draft minutes and final minutes of any meeting with the FDA to BARDA. All documents shall be duly marked as either 'Draft' or 'Final'.	• Contractor provides FDA correspondence and meeting minutes within three (3) calendar days of the meeting or correspondence	1 Electronic Copy to PO and CO

#	Type of Deliverable	Frequency/ time periods	Description of Deliverable	Reporting Procedures	Quantity/ Form
20.	FDA Submissions	At least 15 business days prior to submission to FDA	The Contractor shall provide BARDA the opportunity to review and comment upon all draft regulatory documents before submission to the FDA. Contractors shall provide BARDA with an electronic copy of the final FDA submission. All documents shall be duly marked as either 'Draft' or 'Final'. The Contractor must address in writing all concerns raised by BARDA to the satisfaction of BARDA before FDA submission.	• Contractor will submit proposed FDA Meeting Briefing Packets to BARDA at least 15 business days prior to FDA submission • If corrective action is required, the Contractor must address in writing all concerns raised by BARDA staff to the satisfaction of BARDA before FDA submission • Final FDA submissions shall be submitted to BARDA concurrently or no later than one (1) calendar day of its submission to CDER	1 Electronic Copy to PO and CO
21.	FDA Audits	Within 10 business days of a scheduled audit or within 24 hours of an *ad hoc* site visits/audits if the FDA did not provide advanced notification	The Contractor shall notify the PO and CO within 24 hours of FDA's arrival to conduct site visits/audits by any regulatory agency. In the event of an FDA inspection which occurs as a result of this contract and for this product, or for any other FDA inspection that has the reasonable potential to impact the performance of this contract, the Contractor shall provide the BARDA with an exact copy (non-redacted of the FDA Form 483, and the Establishment Inspection Report (EIR). The contractor shall provide the PO and CO copies of the plan for addressing areas of non-conformance to FDA regulations for GLP, GMP, or GCP guidelines as identified in the audit report within 10 business days, status updates during the plans execution, and a copy of all final responses to the FDA. The Contractor shall also provide redacted copies of any FDA audit report received from subcontractors that occur as a result of this contract or for this product within three (3) calendar days of receiving correspondence from the FDA and/or third party. The Contractor shall make arrangements for a BARDA representative(s) to be present during the final debrief by the regulatory inspector.	• The Contractor shall notify the PO and CO within 24 hours of all FDA arrivals to conduct site visits/audits by any regulatory agency • Contractor provides QA Audit Reports within 15 calendar days of the audit • The Contractor shall also provide copies of any FDA audit report received from subcontractors that occur as a result of this contract or for this product within three (3) calendar days of receiving correspondence from the FDA and/or third party.	1 Electronic Copy to PO and CO

#	Type of Deliverable	Frequency/ time periods	Description of Deliverable	Reporting Procedures	Quantity/ Form
22.	QA Audit Reports	5 business days before report completion	The Contractor shall inform the PO and CO in advance of upcoming audits/site visits of subcontractors as part of the weekly communications, including goals and agenda. BARDA reserves the right to participate in the audit. Upon completion of the audit/site visit the Contractor shall provide a report capturing the findings, results and next steps in proceeding with the subcontractor. If action is requested of the subcontractor, details addressing areas of non-conformance to FDA regulations for GLP, GMP, or GCP guidelines, as identified in the audit report, must be provided to BARDA. The Contractor shall provide responses from the subcontractors to address these concerns and plans for corrective action execution	• The Contractor shall inform the PO and CO 10 days in advance of upcoming audits/site visits of subcontractors • The Contractor shall notify the PO and CO within 5 business days of report completion	1 Electronic Copy to PO and CO
23.	BARDA Audit	Ad Hoc	The contractor shall accommodate for periodic or *ad hoc* site visits by BARDA. If BARDA, the Contractor or other parties identifies any issues during an audit, the Contractor shall capture the issues, identify potential solutions and provide a report to BARDA.	• If BARDA, the Contractor or other parties identifies any issues during an audit, the Contractor shall capture the issues, identify potential solutions and provide a report to BARDA within 10 business days. • The PO and CO will review the deliverable and provide a response to the Contractor. • Once corrective action, approved by the CO, is completed, the Contractor will provide a final report to BARDA	1 Electronic Copy to PO and CO

#	Type of Deliverable	Frequency/ time periods	Description of Deliverable	Reporting Procedures	Quantity/ Form
24.	Technical Documents	Within 10 business days upon request by CO/PO	Contractor shall provide PO and CO upon request with deliverables from the following contract funded activities: Process Development Reports, Assay Qualification Plan/Report, Assay Validation Plan/Report, Assay Technology Transfer Report, Batch Records, SOPs, Master Production Records, Certificate of Analysis (The CO and PO reserves the right to request within the period of performance a non-proprietary Technical Documents for distribution within the USG)	• Contractor provides deliverables within 15 calendar days of the completion of activities • If additional time is required, Contractor shall request additional time from BARDA on a per deliverable basis • If corrective action is required, the Contractor must address in writing concerns raised by BARDA • Contractor will submit proposed FDA Technical Documents to BARDA at least 15 business days prior to FDA submission • If corrective action is required the Contractor must address in writing all concerns raised by BARDA to the satisfaction of BARDA before FDA Submission	For Final Documents: 1 Electronic Copy to PO and CO
24.1	Clinical Study Interim Status Update	Every two weeks, if any changes since the previous update	Contractor shall provide PO with a status update of clinical studies that are actively enrolling patients by study site of: cumulative enrollment; new enrollments; activation or inactivation of study sites	• Updates, to the extent they are available, will be presented during bi-weekly teleconferences • If no changes have occurred since the prior update only a simple statement that there is no new data is required	1 e- copy to PO contained in bi-weekly meeting materials

#	Type of Deliverable	Frequency/ time periods	Description of Deliverable	Reporting Procedures	Quantity/ Form
24.2	Clinical Study Status Update	Every month, if any changes since previous update	Contractor shall provide PO with a status update of clinical studies that are actively enrolling patients to include by study site: cumulative enrollment; new enrollments; screen failures; patients dropped from study; AE and SAEs; activation or inactivation of study sites; investigator appointments or changes; and status of IRB/IEC review/approval/renewal. Contractor will provide proposed format for BARDA PO review and approval	• Update will be submitted by e-mail or other electronic format to be provided by BARDA by the end of the 5 th business day of each new month • Updates, to the extent they are available, will be presented during bi-weekly teleconferences • If no changes have occurred since the prior update only a simple statement that there is no new data is required	1 Electronic copy to PO
25.	Animal Model or Other Technology Transfer Package	Within 10 business days of request by CO/PO	Contractor shall provide Animal Model or Other Technology Transfer Package relevant data	• Contractor shall provide Animal Model or other Technology Transfer Package within 10 business days of request by CO/PO	1 Electronic Copy to PO and CO
26.	Raw Data or Data Analysis	Within 20 business days after receipt of request by CO/PO	Contractor shall provide Raw Data or Data Analysis for review by BARDA, if requested	• Contractor shall provide Raw Data or Data Analysis within 20 business days of request by CO/PO	1 Electronic Copy to PO and CO
27.	Samples of Therapeutics	Within 20 business days of request by CO/PO	Contractor shall provide samples of non-GMP candidate therapeutics and GMP material manufactured with contract funding to include raw material, Bulk Drug Substance (BDS), Final Drug Product (FDP) and/or labeled and packaged treatment courses. The request will state the type of material and the amount but it is not to exceed the equivalent of 250 treatment courses or its individual manufacturing equivalent. The Contractor will be advised by the CO how samples are to be packaged and where samples are to be shipped. It is acceptable to label material "Not for Clinical Use". BARDA reserves the right to request samples throughout the period of performance.	• Contractor must submit samples of therapeutics within 20 business days of request by CO/PO. • The Contractor will be advised by the CO how samples are to be packaged and where samples are to be shipped.	CO will provide details upon request

#	Type of Deliverable	Frequency/ time periods	Description of Deliverable	Reporting Procedures	Quantity/ Form
28.	Publications	20 business days for manuscripts and 10 business days for abstracts	Any manuscript or scientific meeting abstract containing data generated under this contract must be submitted to BARDA for review prior to submission	• Contractor must submit all manuscript or scientific meeting abstract to PO and CO within 20 business days for manuscripts and 10 business days for abstracts • The CO will respond with written comments within 10 business days for manuscripts and 5 business days for abstracts. • If corrective action is required, the Contractor must address in writing all concerns raised by BARDA to the satisfaction of BARDA before Submission. • Any Final submissions shall be submitted to BARDA concurrently or no later than one (1) calendar day of its submission	1 Electronic Copy to PO and CO
29.	Press Releases	5 business days prior to release	The Contractor agrees to accurately and factually represent the work conducted under this contract in all press releases	• The Contractor shall ensure that the CO has received and approved an advanced copy of any press release to this contract not less than 5 business days prior to the issuance of the press release • If corrective action is required, the Contractor agrees to accurately and factually represent the work conducted under this contract in all press releases • Any final submissions shall be submitted to BARDA concurrently or no later than one (1) calendar day of its submission.	1 Electronic Copy to PO and CO

#	Type of Deliverable	Frequency/ time periods	Description of Deliverable	Reporting Procedures	Quantity/ Form
30.	Contract financing Report	No later than the 30th business day after the end of the reporting period	The Financial Report shall be submitted by the Contractor in accordance with the instructions set forth in section G.4 of this contract.	The Contractor shall provide the contract financing report no later than the 30th business day after the end of the reporting period in accordance with the instructions set forth in section G.4 of this contract.	

Contract Milestones and GO/NO GO Decision Gates for Base and Option CLINs

[***]

Exhibit 10.3

EXECUTION VERSION

ACHAOGEN, INC.

SECURITIES PURCHASE AGREEMENT

This Securities Purchase Agreement (this " Agreement ") is made as of June 1, 2016 (the " Effective Date "), by and among Achaogen, Inc., a Delaware corporation (the " Company "), and each of those persons and entities, severally and not jointly, listed as a Purchaser on the Schedule of Purchasers attached as Exhibit A hereto (the " Schedule of Purchasers "). Such persons and entities are hereinafter collectively referred to herein as " Purchasers " and each individually as a " Purchaser ."

AGREEMENT

In consideration of the mutual covenants contained in this Agreement, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Company and each Purchaser (severally and not jointly) hereby agree as follows:

SECTION 1. AUTHORIZATION OF SALE OF SECURITIES.

The Company has authorized the sale and issuance of 7,999,996 shares of its Common Stock, par value $0.001 per share (the " Common Stock "), and warrants in the form of Exhibit B hereto to purchase an aggregate of 1,999,999 shares of Common Stock (each, a " Warrant " and, collectively, the " Warrants "), on the terms and subject to the conditions set forth in this Agreement. The shares of Common Stock sold hereunder at the Closing (as defined below) shall be referred to as the " Shares ." The Shares and the Warrants are referred to collectively as the " Securities ."

SECTION 2. AGREEMENT TO SELL AND PURCHASE THE SECURITIES.

2.1 **Sale of Securities.** At the Closing (as defined in Section 3), the Company will sell to each Purchaser, and each Purchaser will purchase from the Company, (a) the number of Shares set forth opposite such Purchaser's name on the Schedule of Purchasers at a purchase price of $3.15 per Share and (b) a Warrant to purchase the number of shares of Common Stock set forth opposite such Purchaser's name on the Schedule of Purchasers (such shares of Common Stock, the " Underlying Shares "), which Warrant shall have an exercise price equal to $3.66 per Underlying Share, and which Warrant shall have a purchase price equal to $0.125 per Underlying Share underlying such Warrant. The aggregate purchase price for the Shares and Warrants purchased by each Purchaser is set forth opposite such Purchaser's name on the Schedule of Purchasers.

2.2 **Separate Agreement.** Each Purchaser shall severally, and not jointly, be liable for only the purchase of the Securities that appear on the Schedule of Purchasers that relate to such Purchaser. The Company's agreement with each of the Purchasers is a separate agreement, and the sale of Securities to each of the Purchasers is a separate sale. The obligations of each Purchaser hereunder are expressly not conditioned on the purchase by any or all of the other Purchasers of the Securities such other Purchasers have agreed to purchase.

SECTION 3. CLOSING AND DELIVERY.

3.1 **Closing.** The closing of the purchase and sale of the Securities (which Securities are set forth in the Schedule of Purchasers) pursuant to this Agreement (the " Closing ") shall be held on June 3, 2016 (the " Closing Date ") at the offices of Latham & Watkins LLP, 140 Scott Drive, Menlo Park, California 94025, or on such other date and place as may be agreed to by the Company and the Purchasers. At or prior to the Closing, each Purchaser shall execute any related agreements or other documents required to be executed hereunder, dated on or before the Closing Date.

3.2 **Issuance of the Securities at the Closing.** At the Closing, the Company shall issue or deliver to each Purchaser (a) evidence of a book entry position evidencing the Shares purchased by such Purchaser hereunder, registered in the name of such Purchaser, or in such nominee name(s) as designated by such Purchaser, representing the number of Shares to be purchased by such Purchaser at such Closing as set forth in the Schedule of Purchasers against payment of the purchase price for such Shares and (b) a Warrant registered in the name of such Purchaser, or in such nominee name(s) as designated by such Purchaser, representing the number of Underlying Shares as set forth in the Schedule of Purchasers. The name(s) in which the Shares and Warrant are to be issued to each Purchaser are set forth in the Purchaser Questionnaire and the Selling Stockholder Notice and Questionnaire in the form attached hereto as Appendix I and II (the " Purchaser Questionnaire " and the " Selling Stockholder Questionnaire ", respectively), as completed by each Purchaser, which shall be provided to the Company no later than the Effective Date. The Warrants shall be delivered to each Purchaser promptly following the Closing Date, but in any event within 10 business days following the Closing Date.

3.3 **Delivery of the Registration Rights Agreement.** At the Closing, the Company and each Purchaser shall execute and deliver the Registration Rights Agreement in the form attached hereto as Appendix III (the " Registration Rights Agreement "), with respect to the registration of the Shares and the Underlying Shares under the Securities Act of 1933, as amended (the " Securities Act ").

SECTION 4. REPRESENTATIONS, WARRANTIES AND COVENANTS OF THE COMPANY.

Except as set forth on the Schedule of Exceptions delivered to the Purchasers concurrently with the execution of this Agreement (the " Schedule of Exceptions ") or as otherwise described in the SEC Documents (as defined below), which disclosures qualify these representations and warranties in their entirety, the Company hereby represents and warrants as of the date hereof to, and covenants with, the Purchasers as follows:

4.1 **Incorporation and Good Standing of the Company.** The Company has been duly incorporated and is existing and in good standing under the laws of the State of Delaware, with power and authority (corporate and other) to own its properties and conduct its business as described in the SEC Documents; and the Company is duly qualified to do business as a foreign corporation in good standing in all other jurisdictions in which its ownership or lease of property or the conduct of its business requires such qualification, except where the failure to be so qualified or in good standing in such other jurisdictions would not, individually or in the aggregate, reasonably be expected to result in a material adverse effect on the condition (financial or otherwise), results of

operations, business or properties of the Company and its subsidiaries taken as a whole (" Material Adverse Effect ").

4.2 **Subsidiaries.** Each subsidiary of the Company has been duly incorporated, organized or formed and is existing and in good standing under the laws of the jurisdiction of its incorporation, organization or formation with power and authority (corporate and other) to own its properties and conduct its business as described in the SEC Documents; and each subsidiary of the Company is duly qualified to do business as a foreign corporation in good standing in all other jurisdictions in which its ownership or lease of property or the conduct of its business requires such qualification, except in each case where the failure to be so qualified or in good standing would not, individually or in the aggregate, have a Material Adverse Effect.

4.3 **Corporate Power; Authorization.** The Company has all requisite corporate power, and has taken all requisite corporate action, to execute and deliver this Agreement, the Warrants and the Registration Rights Agreement (as defined below and collectively, the " Transaction Documents "), sell and issue the Securities and carry out and perform all of its obligations under the Transaction Documents. Each Transaction Document constitutes the legal, valid and binding obligation of the Company, enforceable in accordance with its terms, except (i) as limited by applicable bankruptcy, insolvency, reorganization, moratorium or similar laws relating to or affecting the enforcement of creditors' rights generally, (ii) as limited by equitable principles generally, including any specific performance and (iii) with respect to the Registration Rights Agreement, as rights to indemnity or contribution may be limited by state or federal laws or public policy underlying such laws.

4.4 **Issuance and Delivery of the Securities.** The Securities have been duly authorized and, when issued and paid for in compliance with the provisions of this Agreement, will be validly issued, fully paid and nonassessable. The Underlying Shares have been duly authorized and, upon exercise of the Warrants in accordance with their terms, including payment of the exercise price therefore, will be validly issued, fully paid and nonassessable. Assuming the accuracy of the representations made by each Purchaser in Section 5, the offer and issuance by the Company of the Securities is exempt from registration under the Securities Act.

4.5 **SEC Documents; Financial Statements.** The Company has filed all reports, schedules, forms, statements and other documents required to be filed by it with the Securities and Exchange Commission (the " Commission ") under Sections 13, 14(a) and 15(d) of the Securities Exchange Act of 1934, as amended (the " Exchange Act "), in the two years preceding the Effective Date on a timely basis, except where the failure to file on a timely basis would not reasonably be expected to affect the Company's ability to sell and issue the Securities and carry out and perform all of its obligations under the Transaction Documents. As of their respective filing dates (or, if amended prior to the date of this Agreement, when amended), all documents filed by the Company with the Commission (the " SEC Documents ") in the two years preceding the date hereof complied in all material respects with the requirements of the Exchange Act and the rules and regulations of the Commission promulgated thereunder. The Company is eligible to register its Common Stock for resale using Form S-3 promulgated under the Securities Act. The Company has made available to each Purchaser or their representatives, or each Purchaser has had access through the

Commission's EDGAR website to, true and complete copies of the SEC Documents. None of the SEC Documents as of their respective dates contained any untrue statement of material fact or omitted to state a material fact required to be stated therein or necessary to make the statements made therein, in light of the circumstances under which they were made, not misleading. The financial statements of the Company, together with the related notes and any supporting schedules thereto, included in the SEC Documents (the " Financial Statements ") present fairly, in all material respects, the consolidated financial condition, results of operations and cash flows of the Company and each of its subsidiaries as of and at the dates indicated and the results of their operations and cash flows for the periods specified as of the dates and for the periods indicated. The Financial Statements and any supporting schedules have been prepared in conformity with generally accepted accounting principles as applied in the United States (" GAAP ") applied on a consistent basis throughout the periods involved, except as may be expressly stated in the related notes thereto. Ernst & Young LLP, who have expressed their opinion with respect to the Financial Statements (which term as used in this Agreement includes the related notes thereto) and any supporting schedules filed with the Commission, is an independent registered public accounting firm as required by the Securities Act and the Exchange Act.

4.6 **Capitalization.** The authorized capital stock of the Company consists of 290,000,000 shares of common stock and 10,000,000 shares of undesignated Preferred Stock. There are no other shares of any other class or series of capital stock of the Company issued or outstanding. The Company has not issued any capital stock since the date of its most recently filed SEC Document other than to reflect stock option and warrant exercises and vesting of restricted stock units that do not, individually or in the aggregate, have a material effect on the issued and outstanding capital stock, options and other securities. As of April 30, 2016, there were (i) 18,408,609 shares of the Company's Common Stock issued and outstanding and no shares of the Company's Preferred Stock issued and outstanding; (ii) options to purchase 2,840,751 shares of the Common Stock outstanding; (iii) 517,149 unvested restricted stock units and (iv) warrants to purchase 30,024 shares of the Common Stock outstanding. There are no bonds, debentures, notes or other indebtedness having general voting rights (or convertible into securities having such rights) (" Voting Debt ") of the Company issued and outstanding. Except as stated above, there are no existing options, warrants, calls, subscriptions or other rights, agreements, arrangements or commitments relating to the issued or unissued capital stock of the Company, obligating the Company to issue, transfer, sell, redeem, purchase, repurchase or otherwise acquire or cause to be issued, transferred, sold, redeemed, purchased, repurchased or otherwise acquired any capital stock or Voting Debt of, or other equity interest in, the Company or securities or rights convertible into or exchangeable for such shares or equity interests or obligations of the Company to grant, extend or enter into any such option, warrant, call, subscription or other right, agreement, arrangement or commitment. The issuance of Common Stock or other securities pursuant to any provision of this Agreement or the Warrants will not give rise to any preemptive rights or rights of first refusal on behalf of any individual or corporation, partnership, trust, incorporated or unincorporated association, joint venture, limited liability company, joint stock company, government (or an agency or subdivision thereof) or other entity of any kind (each, a " Person ") or result in the triggering of any anti-dilution rights. There are no agreements or arrangements under which the Company or any of its subsidiaries is obligated to register the sale of any of their securities under the Securities Act as a result of the Company's satisfaction of its obligations under the Registration Rights Agreement.

4.7 **Litigation.** There are no pending actions, suits or proceedings (including, to the Company's knowledge, any inquiries or investigations by any court or governmental agency or body, domestic or foreign) against or affecting the Company, any of its subsidiaries or any of their respective properties that, (i) if determined adversely to the Company or any of its subsidiaries, would individually or in the aggregate have a Material Adverse Effect, or (ii) would materially and adversely affect the ability of the Company to perform its obligations under the Transaction Documents and no such actions, suits or proceedings (including, to the Company's knowledge, any inquiries or investigations by any court or governmental agency or body, domestic or foreign) are threatened or, to the Company's knowledge, contemplated.

4.8 **Governmental Consents.** No consent, approval, order or authorization of, or registration, qualification, designation, declaration or filing with, any federal, state, or local governmental authority on the part of the Company is required in connection with the consummation of the transactions contemplated by the Transaction Documents except for (a) the filing of a Form D with the Commission under the Securities Act and compliance with the securities and blue sky laws in the states and other jurisdictions in which shares of Common Stock are offered and/or sold, which compliance will be effected in accordance with such laws, (b) the approval by the NASDAQ Global Market of the listing of the Shares and the Underlying Shares and (c) the filing of one or more registration statements and all amendments thereto with the Commission as contemplated by the Registration Rights Agreement.

4.9 **No Default or Consents.** Neither the execution, delivery or performance of the Transaction Documents by the Company nor the consummation of any of the transactions contemplated thereby (including, without limitation, the issuance and sale by the Company of the Securities and the Underlying Shares) conflict with, result in a breach or violation of, or imposition of, or constitute a default or a Debt Repayment Triggering Event (as defined below) under, or result in the imposition of any lien, charge or encumbrance upon any property or assets of the Company or each of its subsidiaries pursuant to, (i) the charter, articles of association or by-laws of the Company or each of its subsidiaries, (ii) any statute, rule, regulation or order of any governmental agency or body or any court, domestic or foreign, having jurisdiction over the Company or any of its subsidiaries or any of their properties (including, without limitation, the U.S. Food and Drug Administration (" FDA ")), or (iii) any agreement or instrument to which the Company or any of its subsidiaries is a party or by which the Company or any of its subsidiaries is bound or to which any of the properties of the Company or any of its subsidiaries is subject. A " Debt Repayment Triggering Event " means any event or condition that gives, or with the giving of notice or lapse of time would give, the holder of any note, debenture, or other evidence of indebtedness (or any Person acting on such holder's behalf) the right to require the repurchase, redemption or repayment of all or a portion of such indebtedness by the Company or any of its subsidiaries.

4.10 **No Material Adverse Change.** Since the date of the latest audited financial statements included within the SEC Documents, (i) there have been no events, occurrences or developments that have had or would reasonably be expected to have, either individually or in the aggregate, a Material Adverse Effect, (ii) the Company has not incurred any material liabilities (contingent or otherwise) other than (A) trade payables and accrued expenses incurred in the ordinary course of business consistent with past practice and (B) liabilities not required to be reflected in the

Company's financial statements pursuant to GAAP or disclosed in filings made with the Commission, (iii) the Company has not altered materially its method of accounting or the manner in which it keeps its accounting books and records, (iv) the Company has not declared or made any dividend or distribution of cash or other property to its stockholders or purchased, redeemed or made any agreements to purchase or redeem any shares of its capital stock (other than in connection with repurchases of unvested stock issued to employees of the Company), and (v) the Company has not issued any equity securities to any officer, director or affiliate, except Common Stock issued pursuant to existing Company stock option or stock purchase plans or executive and director compensation arrangements disclosed in the SEC Documents. Except for the issuance of the Securities contemplated by this Agreement, no event, liability or development has occurred or exists with respect to the Company or any of its subsidiaries or their respective business, properties, operations or financial condition, that would be required to be disclosed by the Company under applicable securities laws at the time this representation is made that has not been publicly disclosed at least one business day prior to the date that this representation is made.

4.11 **Private Placement; No General Solicitation.** Neither the Company nor its subsidiaries or any affiliates, nor any person acting on its or their behalf, has, directly or indirectly, made any offers or sales of any security or solicited any offers to buy any security, under any circumstances that would require (i) registration of the Securities under the Securities Act or (ii) cause the offering of the Securities pursuant to this Agreement to be integrated with prior offerings by the Company for purposes of any applicable law, regulation or stockholder approval provisions, including, without limitation, under the rules and regulations of NASDAQ. Assuming the accuracy of the representations and warranties of the Purchasers contained in Article 3 hereof, the issuance of the Securities and the Underlying Shares are exempt from registration under the Securities Act. Neither the Company nor any Person acting on its behalf has engaged in any form of general solicitation or general advertising (within the meaning of Regulation D promulgated under the Securities Act) in connection with the offer or sale of the Securities.

4.12 **Intellectual Property.** The Company and each of its subsidiaries own, or possess, or has a reasonable basis on which it believes it can acquire on reasonable terms, sufficient rights to use, all trademarks, service marks, trade names (including all goodwill associated with the foregoing), patent rights, copyrights, domain names, licenses, approvals, trade secrets, inventions, technology, know-how and other intellectual property and similar rights, including registrations and applications for registration thereof (collectively, " Intellectual Property Rights ") material to the conduct of the business as described in the SEC Documents. The Company has taken reasonable and customary actions to prosecute and maintain each material patent and patent application owned by or exclusively licensed to the Company or any of its subsidiaries. Neither the Company nor any of its subsidiaries has infringed, misappropriated or otherwise violated the Intellectual Property Rights of any third party in a manner that would have a material and negative effect on the conduct of the Company's business as described in the SEC Documents. Neither the manufacture of, nor the use or sale of, any of the product candidates described in the SEC Documents, would, to the Company's knowledge, materially infringe or otherwise materially violate the Intellectual Property Rights of any third party. There are no rights of third parties to any of the Intellectual Property Rights owned or purported to be owned by the Company or any of its subsidiaries, except for such rights that would not have a material and negative effect on the conduct of the Company's business

as described in the SEC Documents. To the Company's knowledge, there is no infringement, misappropriation, breach, default or other violation, or the occurrence of any event that with notice or the passage of time would constitute any of the foregoing, by any third party of any of the Intellectual Property Rights of the Company or any of its subsidiaries. None of the Intellectual Property Rights used or held for use by the Company or any of its subsidiaries in their businesses has been obtained or is being used or held for use by the Company or any of its subsidiaries in violation of any contractual obligation binding on the Company or any of its subsidiaries or in violation of any rights of any third party. The Company and its subsidiaries have taken reasonable steps in accordance with normal industry practice to maintain the confidentiality of all Intellectual Property Rights the value of which to the Company or each of its subsidiaries is contingent upon maintaining the confidentiality thereof. To the Company's knowledge, all Intellectual Property Rights owned by or exclusively licensed to the Company or any of its subsidiaries are valid and enforceable. There is no pending or threatened action, suit, proceeding or claim by any third party (x) challenging the Company's or any of its subsidiaries' rights in or to, or alleging the violation of any of the terms of, any of their Intellectual Property Rights, (y) challenging the validity, enforceability or scope of any Intellectual Property Rights owned by or exclusively licensed to the Company or any of its subsidiaries, or (z) alleging that the Company or any of its subsidiaries has infringed, misappropriated or otherwise violated or conflicted with any Intellectual Property Rights of any third party. The Company is not aware of any facts required to be disclosed to the U.S. Patent and Trademark Office (" USPTO ") which have not been disclosed to the USPTO and which would preclude the grant of a material patent in connection with any material patent application of the Company Intellectual Property Rights or could form the basis of a finding of invalidity with respect to any issued patents of the Company Intellectual Property Rights that is material to the conduct of its business as described in the SEC Documents.

4.13 **Disclosure.** The Company understands and confirms that the Purchasers will rely on the Representations in this Section 4 in effecting transactions in securities of the Company. To the knowledge of the executive officers of the Company, all due diligence materials regarding the Company, its business and the transactions contemplated hereby, furnished by or on behalf of the Company to the Purchasers upon their request are, when taken together with the SEC Documents and the Schedule of Exceptions, true and correct in all material respects and do not contain any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements made therein, in light of the circumstances under which they were made, not misleading.

4.14 **Contracts.** Each franchise, contract or other document of a character required as of the date hereof to be described in the SEC Documents or to be filed as an exhibit to the SEC Documents under the Securities Act and the rules and regulations promulgated thereunder is so described or filed. The Contract Award issued by the Biomedical Advanced Research and Development Authority of the United States Department of Health and Human Services, dated August 30, 2010, as amended (the " BARDA Agreement ") is valid and enforceable against the Company in accordance with its respective terms, except (i) as enforceability may be limited by applicable bankruptcy, insolvency, reorganization, moratorium or similar laws affecting creditors' and contracting parties' rights generally, and (ii) as enforceability may be subject to general principles of equity and except as rights to indemnity and contribution may be limited by federal or state securities laws or public policy underlying such laws. The Company is not in material breach

of or default under the BARDA Agreement. The Company has not received a notice of termination nor is the Company otherwise aware of any threats to terminate the BARDA Agreement.

4.15 **Properties and Assets.** The Company and its subsidiaries have good and marketable title to all personal properties and assets owned by them, in each case free from liens, charges, encumbrances and defects that would materially affect the value thereof or materially interfere with the use made or to be made thereof by them and the Company and its subsidiaries hold any leased real or personal property under valid and enforceable leases with no terms or provisions that would materially interfere with the use made or to be made thereof by them. The Company does not own any real property.

4.16 **Regulatory Matters: Products and Product Candidates.** The Company and its subsidiaries (i) have operated and currently operate their respective businesses in compliance in all material respects with all statutes, rules and regulations applicable to the ownership, testing, development, manufacture, packaging, processing, use, distribution, storage, import, export or disposal of any of the Company's product candidates, including, without limitation, requirements governing investigational drugs and devices under the U.S. Federal Food, Drug and Cosmetic Act and rules and regulations thereunder, regulations relating to Good Clinical Practices and Good Laboratory Practices, and the U.S. Animal Welfare Act and rules and regulations thereunder (collectively, " Applicable Laws "); and (ii) have not received any FDA Form 483, written notice of adverse finding, warning letter, untitled letter or other correspondence or written notice from any court or arbitrator or governmental or regulatory authority alleging or asserting non-compliance with (A) any Applicable Laws or (B) any Licenses (as defined below) required by any such Applicable Laws, nor, to the Company's knowledge, has there been any noncompliance with or violation of any Applicable Laws by the Company that would reasonably be expected to require the issuance of any such written notice or result in an investigation, corrective action or enforcement action by the FDA or similar governmental entity with respect to a product candidate of the Company. To the Company's knowledge, neither the Company nor any of its directors, officers, employees or agents, has made, or caused the making of, any false statements on, or material omissions from, any other records or documentation prepared or maintained to comply with the requirements of the FDA or any other governmental entity.

4.17 **Regulatory Matters: Manufacturing.** To the Company's knowledge, the manufacturing facilities and operations of its suppliers are operated in compliance in all material respects with all applicable statutes, rules, regulations and policies of the FDA and comparable regulatory agencies outside of the United States to which the Company is subject (collectively, the " Regulatory Authorities ").

4.18 **Regulatory Matters: Clinical Trials.** None of the Company's product candidates have received marketing approval from any Regulatory Authority. All clinical and pre-clinical studies and trials conducted by or on behalf of or sponsored by the Company, or in which the Company has participated, with respect to the Company's product candidates, including any such studies and trials that are described in the SEC Documents, or the results of which are referred to in the SEC Documents (collectively, " Company Trials "), were, and if still pending are, being conducted in accordance with all applicable statutes, rules, regulations and policies of the Regulatory

Authorities and current Good Clinical Practices and Good Laboratory Practices, standard medical and scientific research procedures and any applicable rules, regulations and policies of the jurisdiction in which such trials and studies are being conducted in all material respects; the descriptions in the SEC Documents of the results of any Company Trials are accurate and complete descriptions in all material respects and fairly present the data derived therefrom; the Company has no knowledge of any other studies or trials not described in the SEC Documents, the results of which are inconsistent with or call into question the results described or referred to in the SEC Documents; the Company and, to the Company's knowledge, the contract research organizations conducting the Company Trials have, operated at all times and is currently in compliance in all material respects with all applicable statutes, rules, regulations and policies of the Regulatory Authorities; and the Company has not received any written notices, correspondence or other communications from the Regulatory Authorities or any other governmental agency requiring or threatening the termination, material modification or suspension of Company Trials, other than ordinary course communications with respect to modifications in connection with the design and implementation of such studies or trials.

4.19 **Compliance with Environmental Laws.** Neither the Company nor any of its subsidiaries is in violation of any statute, any rule, regulation, decision or order of any governmental agency or body or any court, domestic or foreign, relating to the use, disposal or release of hazardous or toxic substances or relating to the protection or restoration of the environment or human exposure to hazardous or toxic substances (collectively, " environmental laws "), owns or operates any real property contaminated with any substance that is subject to any environmental laws, is liable for any off-site disposal or contamination pursuant to any environmental laws, or is subject to any claim relating to any environmental laws, which violation, contamination, liability or claim would individually or in the aggregate have a Material Adverse Effect; and the Company is not aware of any pending investigation which might lead to such a claim. The Company has not been named as a "potentially responsible party" under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended.

4.20 **Possession of Licenses and Permits.** Except in such cases that would not, individually or in the aggregate, reasonably be expected to result in a Material Adverse Effect, the Company and its subsidiaries (i) possess, and are in compliance with the terms of, all adequate certificates, authorizations, franchises, licenses and permits (" Licenses ") from, and have made all declarations, filings, listings, registrations, reports and submissions with, the appropriate federal, state, local or foreign governmental or regulatory authorities including, without limitation, from the FDA and equivalent foreign regulatory authorities, in each case that are necessary or material to the conduct of the business now conducted or proposed in the SEC Documents to be conducted by them, (ii) have not received any notice of proceedings relating to the revocation or modification of any Licenses, and (iii) are not in violation of, or in default under, any such License.

4.21 **Taxes.** The Company and each of its subsidiaries have filed all federal, state, local and foreign tax returns required to be filed through the date of this Agreement or have requested extensions thereof (except where the failure to file would not, individually or in the aggregate, have a Material Adverse Effect) and have paid all taxes required to be paid thereon (except for cases in which the failure to file or pay would not have a Material Adverse Effect, or, except as currently

being contested in good faith and for which reserves required by GAAP have been created in the financial statements of the Company), and no tax deficiency has been determined adversely to the Company or any of its subsidiaries which has had (nor does the Company nor any of its subsidiaries have any notice or knowledge of any tax deficiency which could reasonably be expected to be determined adversely to the Company or its subsidiaries and which could reasonably be expected to have) a Material Adverse Effect.

4.22 **Investment Company.** The Company is not and, after giving effect to the offering and sale of the Securities, will not be an "investment company" as defined in the Investment Company Act of 1940, as amended.

4.23 **Insurance.** The Company and its subsidiaries are insured by insurers with appropriately rated claims paying abilities against such losses and risks and in such amounts as are prudent and customary for similarly sized companies in the businesses in which they are engaged; all policies of insurance and fidelity or surety bonds insuring the Company or any of its subsidiaries or their respective businesses, assets, employees, officers and directors are in full force and effect the Company and its subsidiaries are in compliance with the terms of such policies and instruments in all material respects; and there are no claims by the Company or any of its subsidiaries under any such policy or instrument as to which any insurance company is denying liability or defending under a reservation of rights clause; neither the Company nor any such subsidiary has been refused any insurance coverage sought or applied for; neither the Company nor any such subsidiary has any reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage from similar insurers as may be necessary to continue its business at a cost, and the Company has obtained directors' and officers' insurance in such amounts as is customary for issuers of similar size and development stage.

4.24 **Price of Common Stock.** Neither the Company nor its subsidiaries has taken, directly or indirectly, any action designed to cause or result in, or that has constituted or that might reasonably be expected to constitute, the stabilization or manipulation of the price of any securities of the Company to facilitate the sale or resale of the Shares, Underlying Shares and the Warrants.

4.25 **Related-Party Transactions.** Except with respect to the transactions (i) that are not required to be disclosed by the Company pursuant to the Company's reporting obligations under the Exchange Act and (ii) contemplated hereby to the extent an Affiliate of any director purchases Securities hereunder, all transactions that have occurred between or among the Company, on the one hand, and any of its officers or directors, or any Affiliate or Affiliates of any such officer or director, on the other hand, prior to the date hereof have been disclosed in the SEC Documents. For purposes of this Agreement, " Affiliate " means, with respect to any individual or entity, any other individual or entity that, directly or indirectly through one or more intermediaries, controls, is controlled by or is under common control with such individual or entity, as such terms are used in and construed under Rule 405 under the Securities Act. With respect to a Purchaser, any investment fund or managed account that is managed on a discretionary basis by the same investment manager as such Purchaser will be deemed to be an Affiliate of such Purchaser.

4.26 **Internal Control over Financial Reporting; Sarbanes-Oxley Matters.** The Company, its subsidiaries and the Company's Board of Directors (the " Board ") are in compliance

with Sarbanes-Oxley and all applicable rules thereof and all applicable rules of the NASDAQ Stock Market Exchange (the " Exchange Rules "). The Company maintains a system of "internal controls over financial reporting" (as defined in Rule 13a-15(f) of the Exchange Act), including, but not limited to, disclosure controls and procedures and internal controls over accounting matters (collectively, " Internal Controls ") sufficient to provide reasonable assurances that (i) transactions are executed in accordance with management's general or specific authorizations, (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP and to maintain accountability for assets, (iii) access to assets is permitted only in accordance with management's general or specific authorization and (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences. The Internal Controls are overseen by the Audit Committee (the " Audit Committee ") of the Board in accordance with Exchange Rules. The Company has not publicly disclosed or reported to the Audit Committee or the Board, and within the next 135 days the Company does not reasonably expect to publicly disclose or report to the Audit Committee or the Board, material weakness, adverse change in Internal Controls or fraud involving management or other employees who have a significant role in Internal Controls, or any violation of, or failure to comply with, the Sarbanes-Oxley Act of 2002, the Securities Act, the Exchange Act, the rules and regulations of the Commission, the auditing principles, rules, standards and practices applicable to auditors of "issuers" (as defined in Sarbanes-Oxley) promulgated or approved by the Public Company Accounting Oversight Board and the Exchange Rules, which, if determined adversely, would have a Material Adverse Effect.

4.27 **Disclosure Controls and Procedures.** Except as disclosed in the SEC Documents, the Company has established and maintains disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) that are effective in all material respects to ensure that material information relating to the Company, including any consolidated subsidiaries, is made known to its principal executive officer and principal financial officer by others within those entities. The Company's certifying officers have evaluated the effectiveness of the Company's disclosure controls and procedures as of the end of the period covered by the most recently filed quarterly or annual periodic report under the Exchange Act (such date, the " Evaluation Date "). The Company presented in its most recently filed quarterly or annual periodic report under the Exchange Act the conclusions of the certifying officers about the effectiveness of the disclosure controls and procedures based on their evaluations as of the Evaluation Date. Since the Evaluation Date, there have been no significant changes in the Company's internal control over financial reporting (as such term is defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) or, to the Company's knowledge, in other factors that could significantly affect the Company's internal control over financial reporting.

4.28 **The NASDAQ Global Market.** The Common Stock is listed on The NASDAQ Global Market, and, except as disclosed in the SEC Documents, to the Company's knowledge, there are no proceedings to revoke or suspend such listing or for the listing of the Shares and the Underlying Shares. Except as disclosed in the SEC Documents, the Company is in compliance in all material respects with the requirements of NASDAQ for continued listing of the Common Stock thereon and any other NASDAQ listing and maintenance requirements.

4.29 **Foreign Corrupt Practices.** The Company is not nor, is any director, officer, agent, or employee of the Company aware of or has taken any action, directly or indirectly, that would result in a violation by such persons of the Foreign Corrupt Practices Act of 1977, as amended, and the rules and regulations thereunder (the " FCPA "), including, without limitation, making use of the mails or any means or instrumentality of interstate commerce corruptly in furtherance of an offer, payment, promise to pay or authorization of the payment of any money, or other property, gift, promise to give, or authorization of the giving of anything of value to any "foreign official" (as such term is defined in the FCPA) or any foreign political party or official thereof or any candidate for foreign political office, in contravention of the FCPA. Neither the Company, nor, to the Company's knowledge, any of its officers or directors are the subject of any allegation, voluntary disclosure, investigation, prosecution or other enforcement action related to the FCPA or any other anti-corruption law.

4.30 **Labor.** No labor dispute with the employees of the Company or any of its subsidiaries exists or, to the knowledge of the Company, is imminent that could reasonably be expected to have a Material Adverse Effect.

4.31 **Money Laundering Laws.** The operations of the Company and its subsidiaries are and have been conducted at all times in compliance with all applicable financial recordkeeping and reporting requirements, including those of the Bank Secrecy Act, as amended by Title III of the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001 (USA PATRIOT Act), and the applicable anti-money laundering statutes of jurisdictions where the Company and its subsidiaries conduct business, the rules and regulations thereunder and any related or similar rules, regulations or guidelines, issued, administered or enforced by any governmental agency (collectively, the " Anti-Money Laundering Laws "), and no action, suit or proceeding by or before any court or governmental agency, authority or body or any arbitrator involving the Company or any of its subsidiaries with respect to the Anti-Money Laundering Laws is pending or, to the best knowledge of the Company, threatened.

4.32 **OFAC.** (a) Neither the Company nor any of its subsidiaries, nor any director or officer thereof, nor, to the Company's knowledge, any employee, agent, affiliate or representative of the Company or any of its subsidiaries, is a Person that is, or is owned or controlled by a Person that is:

(i) the subject of any sanctions administered or enforced by the U.S. Department of Treasury's Office of Foreign Assets Control, the United Nations Security Council, the European Union, Her Majesty's Treasury, or other relevant sanctions authority (collectively, " Sanctions "), nor

(ii) located, organized or resident in a country or territory that is the subject of Sanctions (including, without limitation, Burma/Myanmar, Cuba, Iran, Libya, North Korea, Sudan and Syria).

(b) The Company will not, directly or indirectly, use the proceeds of the offering, or lend, contribute or otherwise make available such proceeds to any subsidiary, joint venture partner or other Person:

(i) to fund or facilitate any activities or business of or with any Person or in any country or territory that, at the time of such funding or facilitation, is the subject of Sanctions; or

(ii) in any other manner that will result in a violation of Sanctions by any Person (including any Person participating in the offering, whether as underwriter, advisor, investor or otherwise).

(c) For the past five years, the Company and its subsidiaries have not knowingly engaged in, are not now knowingly engaged in, and will not engage in, any dealings or transactions with any Person, or in any country or territory, that at the time of the dealing or transaction is or was the subject of Sanctions.

4.33 **FIRPTA Compliance.** The Company hereby represents that it is not now a "United States real property holding corporation", as defined in Section 897(c)(2) of the Internal Revenue Code of 1986, as amended, and Treasury Regulation Section 1.897-2(b). The Company shall provide prompt notice to the Growth Equity Opportunity Fund IV, LLC following any "determination date" (as defined in Treasury Regulation Section 1.897-2(c)(1)) on which the Company becomes a United States real property holding corporation.

4.34 **ERISA.** None of the following events has occurred or exists: (i) a failure to fulfill the obligations, if any, under the minimum funding standards of Section 302 of the United States Employee Retirement Income Security Act of 1974, as amended ("ERISA"), and the regulations and published interpretations thereunder with respect to a Plan that is required to be funded, determined without regard to any waiver of such obligations or extension of any amortization period; (ii) an audit or investigation by the Internal Revenue Service, the U.S. Department of Labor, the Pension Benefit Guaranty Corporation or any other federal or state governmental agency or any foreign regulatory agency with respect to the employment or compensation of employees by any of the Company that could have a Material Adverse Effect; (iii) any breach of any contractual obligation, or any violation of law or applicable qualification standards, with respect to the employment or compensation of employees by the Company that would reasonably be expected to have a Material Adverse Effect. None of the following events has occurred or is reasonably likely to occur: (i) a material increase in the aggregate amount of contributions required to be made to all Plans in the current fiscal year of the Company compared to the amount of such contributions made in the most recently completed fiscal year of the Company; (ii) a material increase in the "accumulated post-retirement benefit obligations" (within the meaning of Statement of Financial Accounting Standards 106) of the Company compared to the amount of such obligations in the most recently completed fiscal year of the Company; (iii) any event or condition giving rise to a liability under Title IV of ERISA that could have a Material Adverse Effect; or (iv) the filing of a claim by one or more employees or former employees of the Company related to their employment that could have a Material Adverse Effect. For purposes of this paragraph, the term "Plan" means a plan (within the meaning of Section 3(3) of ERISA) subject to Title IV of ERISA with respect to which the Company may have any liability.

4.35 **Disclosure.** The Company understands and confirms that the Purchasers will rely on the foregoing representations in effecting transactions in securities of the Company. The SEC

Documents, when filed with the Commission, were true and correct in all material respects and did not contain any untrue statement of a material fact or omit to state any material fact necessary in order to make the statements made therein, in light of the circumstances under which they were made, not misleading.

SECTION 5. REPRESENTATIONS, WARRANTIES AND COVENANTS OF THE PURCHASERS.

5.1 Each Purchaser, severally and not jointly, represents and warrants to and covenants with the Company that:

(a) Such Purchaser (if an entity) is a duly organized, validly existing corporation, limited partnership or limited liability company and in good standing under the laws of the jurisdiction of its organization with the requisite corporate, partnership or limited liability company power and authority to enter into and consummate the transactions contemplated by the Transaction Documents and to carry out its obligations hereunder and thereunder, and to invest in the Securities pursuant to this Agreement.

(b) Such Purchaser acknowledges that it can bear the economic risk and complete loss of its investment in the Securities and has such knowledge and experience in financial or business matters that it is capable of evaluating the merits and risks of the investment contemplated hereby.

(c) Such Purchaser has had an opportunity to receive, review and understand all information related to the Company requested by it and to ask questions of and receive answers from the Company regarding the Company and its subsidiaries, its business and the terms and conditions of the offering of the Securities, and has conducted and completed its own independent due diligence. Such Purchaser acknowledges that the Company has made available the SEC Documents. Based on the information such Purchaser has deemed appropriate, and without reliance upon any placement agent, it has independently made its own analysis and decision to enter into the Transaction Documents. Such Purchaser is relying exclusively on its own sources of information, investment analysis and due diligence (including professional advice it deems appropriate) with respect to the execution, delivery and performance of the Transaction Documents, the Securities and the business, condition (financial and otherwise), management, operations, properties and prospects of the Company, including but not limited to all business, legal, regulatory, accounting, credit and tax matters.

(d) The Securities to be received by such Purchaser hereunder will be acquired for such Purchaser's own account, not as nominee or agent, and not with a view to the resale or distribution of any part thereof in violation of the Securities Act, and such Purchaser has no present intention of selling, granting any participation in, or otherwise distributing the same in violation of the Securities Act without prejudice, however, to such Purchaser's right at all times to sell or otherwise dispose of all or any part of such Securities in compliance with applicable federal and state securities laws. Such Purchaser understands that the Securities are characterized as "restricted securities" under the U.S. federal securities laws inasmuch as they are being acquired from the Company in a transaction not involving a public offering and that under such laws and applicable

regulations such securities may be resold without registration under the Securities Act only in certain limited circumstances. In this connection, such Purchaser represents that it is familiar with Rule 144 under the Securities Act (" Rule 144 "), as presently in effect, and understands the resale limitations imposed thereby and by the Securities Act. Purchaser will not, directly or indirectly, offer, sell, pledge, transfer or otherwise dispose of (or solicit any offers to buy, purchase or otherwise acquire or take a pledge of) any of the securities purchased hereunder except in compliance with the Securities Act, applicable blue sky laws, and the rules and regulations promulgated thereunder.

(e) Such Purchaser has determined based on its own independent review and such professional advice as it deems appropriate that its purchase of the Securities and participation in the transactions contemplated by the Transaction Documents (i) are fully consistent with its financial needs, objectives and condition, (ii) comply and are fully consistent with all investment policies, guidelines and other restrictions applicable to such Purchaser, (iii) do not and will not violate or constitute a default under such Purchaser's charter, by-laws or other constituent document or under any law, rule, regulation, agreement or other obligation by which such Purchaser is bound and (iv) are a fit, proper and suitable investment for such Purchaser, notwithstanding the substantial risks inherent in investing in or holding the Securities.

(f) The execution, delivery and performance by such Purchaser of the Transaction Documents to which such Purchaser is a party have been duly authorized and each has been duly executed and when delivered will constitute the valid and legally binding obligation of such Purchaser, enforceable against such Purchaser in accordance with their respective terms, subject to bankruptcy, insolvency, fraudulent transfer, reorganization, moratorium and similar laws of general applicability, relating to or affecting creditors' rights generally.

(g) Such Purchaser is an "accredited investor" within the meaning of Rule 501(a) under the Securities Act. Such Purchaser is not a broker or dealer registered pursuant to Section 15 of the Exchange Act (a " registered broker-dealer ") or an entity engaged in a business that would require it to be so registered and is not affiliated with a registered broker dealer or an entity engaged in a business that would require it to be so registered. Such Purchaser is not party to any agreement for distribution of any of the Securities.

(h) Such Purchaser shall have completed or caused to be completed and delivered to the Company at no later than the Effective Date, the Purchaser Questionnaire and the Selling Stockholder Questionnaire for use in preparation of the registration statement meeting the requirements set forth in the Registration Rights Agreement and covering the resale by the Purchasers of the Registrable Securities (as defined in the Registration Rights Agreement) (the " Registration Statement "), and the answers to the Purchaser Questionnaire and the Selling Stockholder Questionnaire are true and correct in all material respects as of the date of this Agreement and will be true and correct as of the Closing and the effective date of the Registration Statement; provided , that the Purchasers shall be entitled to update such information by providing notice thereof to the Company before the effective date of such Registration Statement.

(i) Such Purchaser understands that no U.S. federal or state agency, or similar agency of any other country, has reviewed, approved, passed upon, or made any recommendation or endorsement of the Company or the purchase of the Securities.

(j) Such Purchaser has no present intent to effect a "change of control" of the Company as such term is understood under the rules promulgated pursuant to Section 13(d) of the Exchange Act.

(k) Such Purchaser has not taken any of the actions set forth in, and is not subject to, the disqualification provisions of Rule 506(d)(1) of the Securities Act.

(l) Such Purchaser did not learn of the investment in the Securities as a result of any general solicitation or general advertising.

(m) Such Purchaser's residence (if an individual) or offices in which its investment decision with respect to the Securities was made (if an entity) are located at the address immediately below such Purchaser's name on its signature page hereto.

(n) Such Purchaser (including any Person controlling, controlled by, or under common control with such Purchaser, as the term "control" is defined pursuant to the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, and its implementing regulations (the " HSR Act ")) in connection with the consummation of the transactions contemplated by this Agreement will not be required to and will not complete a filing with the U.S. government pursuant to the HSR Act.

(o) Such Purchaser is aware that the anti-manipulation rules of Regulation M under the Exchange Act may apply to sales of Common Stock and other activities with respect to the Common Stock by the Purchasers.

(p) The purchase by such Purchaser of the Shares and Warrants issuable to it at the Closing will not result in such Purchaser (individually or together with any other Person with whom such Purchaser has identified, or will have identified, itself as part of a "group" in a public filing made with the Commission involving the Company's securities) acquiring, or obtaining the right to acquire, in excess of 19.99% of the outstanding shares of Common Stock or the voting power of the Company on a post-transaction basis that assumes that such Closing shall have occurred. Such Purchaser does not presently intend to, alone or together with others, make a public filing with the Commission to disclose that it has (or that it together with such other Persons have) acquired, or obtained the right to acquire, as a result of such Closing (when added to any other securities of the Company that it or they then own or have the right to acquire), in excess of 19.99% of the outstanding shares of Common Stock or the voting power of the Company on a post-transaction basis that assumes that each Closing shall have occurred.

5.2 Other than consummating the transactions contemplated hereunder, such Purchaser has not, nor has any Person acting on behalf of or pursuant to any understanding with such Purchaser, directly or indirectly executed any purchases or sales, including all "short sales" as defined in Rule 200 of Regulation SHO under the Exchange Act (but shall not be deemed to include the location and/or reservation of borrowable shares of Common Stock) (" Short Sales "), of the securities of the Company during the period commencing as of the time that such Purchaser was first contacted by the Company or any other Person regarding the transactions contemplated hereby and ending immediately prior to the Effective Date. Notwithstanding the foregoing, in the case of a Purchaser

that is a multi-managed investment vehicle whereby separate portfolio managers manage separate portions of such Purchaser's assets and the portfolio managers have no direct knowledge of the investment decisions made by the portfolio managers managing other portions of such Purchaser's assets, the representation set forth above shall only apply with respect to the portion of assets managed by the portfolio manager that made the investment decision to purchase the Securities covered by this Agreement. Other than to other Persons party to this Agreement, such Purchaser has maintained the confidentiality of all disclosures made to it in connection with this transaction (including the existence and terms of this transaction).

5.3 Each Purchaser understands that nothing in this Agreement or any other materials presented to Purchaser in connection with the purchase and sale of the Securities constitutes legal, tax or investment advice. Purchaser has consulted such legal, tax and investment advisors as it, in its sole discretion, has deemed necessary or appropriate in connection with its purchase of the Securities.

5.4 **Legends.**

(a) Purchaser understands that, until such time as the Shares have been registered for resale under the Securities Act, sold pursuant to the Registration Statement or the Securities may be sold pursuant to Rule 144 without any restriction as to the number of securities as of a particular date that can then be immediately sold, the book entry notations evidencing the Shares and the Underlying Shares may bear one or more legends in substantially the following form and substance:

"THESE SECURITIES HAVE NOT BEEN REGISTERED UNDER THE U.S. SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), OR ANY OTHER APPLICABLE SECURITIES LAWS AND HAVE BEEN ISSUED IN RELIANCE UPON AN EXEMPTION FROM THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT AND SUCH OTHER SECURITIES LAWS. NEITHER THIS SECURITY NOR ANY INTEREST OR PARTICIPATION HEREIN MAY BE REOFFERED, SOLD, ASSIGNED, TRANSFERRED, PLEDGED, ENCUMBERED, HYPOTHECATED OR OTHERWISE DISPOSED OF, EXCEPT PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT OR PURSUANT TO A TRANSACTION WHICH IS EXEMPT FROM, OR NOT SUBJECT TO, SUCH REGISTRATION, IN EACH CASE IN ACCORDANCE WITH ALL APPLICABLE SECURITIES LAWS, AND IN THE CASE OF A TRANSACTION EXEMPT FROM, OR NOT SUBJECT TO, SUCH REGISTRATION, UNLESS THE COMPANY HAS RECEIVED AN OPINION OF COUNSEL REASONABLY SATISFACTORY TO IT THAT SUCH TRANSACTION DOES NOT REQUIRE REGISTRATION UNDER THE SECURITIES ACT AND SUCH OTHER APPLICABLE LAWS."

It is understood that the Warrants may bear one or more legends in substantially the following form and substance:

"THE SECURITIES EVIDENCED BY THIS CERTIFICATE HAVE NOT BEEN REGISTERED UNDER THE U.S. SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), OR ANY OTHER APPLICABLE SECURITIES LAWS AND HAVE BEEN ISSUED IN RELIANCE UPON AN EXEMPTION FROM THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT AND SUCH OTHER SECURITIES LAWS. NEITHER THIS SECURITY NOR ANY INTEREST OR PARTICIPATION HEREIN MAY BE REOFFERED, SOLD, ASSIGNED, TRANSFERRED, PLEDGED, ENCUMBERED, HYPOTHECATED OR OTHERWISE DISPOSED OF, EXCEPT PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT OR PURSUANT TO A TRANSACTION WHICH IS EXEMPT FROM, OR NOT SUBJECT TO, SUCH REGISTRATION, IN EACH CASE IN ACCORDANCE WITH ALL APPLICABLE SECURITIES LAWS, AND IN THE CASE OF A TRANSACTION EXEMPT FROM, OR NOT SUBJECT TO, SUCH REGISTRATION, UNLESS THE COMPANY HAS RECEIVED AN OPINION OF COUNSEL REASONABLY SATISFACTORY TO IT THAT SUCH TRANSACTION DOES NOT REQUIRE REGISTRATION UNDER THE SECURITIES ACT AND SUCH OTHER APPLICABLE LAWS."

In addition, book entry notations representing the Securities or the Underlying Shares may contain:

(i) Any legend required by the laws of the State of California, including any legend required by the California Department of Corporations.

(ii) Any legend required by the blue sky laws of any other state to the extent such laws are applicable to the sale of such Securities or Underlying Shares hereunder.

(iii) A legend regarding affiliate status of the Purchasers set forth in Schedule 1 hereto, in the form included therein.

(b) The Company agrees that at such time as such legend is no longer required under this Section, it will, no later than three business days following the delivery by a Purchaser to the Company or the Company's transfer agent of a certificate representing Shares or Underlying Shares, as applicable and if such Shares are certificated, issued with a restrictive legend, together with such representations and covenants of such Purchaser or such Purchaser's executing broker as the Company may reasonably require in connection therewith, deliver or cause to be delivered to such Purchaser a book entry position representing such shares that is free from any legend referring to the Securities Act. The Company shall not make any notation on its records or give instructions to any transfer agent of the Company that enlarge the restrictions on transfer set forth in this section. To the extent that certificates or book entry positions are issued representing the Securities, such certificates or book entry position subject to legend removal hereunder shall be transmitted by the transfer agent of the Company to the Purchasers by crediting the account of such Purchaser's prime broker with the Depository Trust Company (" DTC "). All costs and expenses related to the removal of the legends and the reissuance of any Securities shall be borne by the Company.

(c) Upon request by a Purchaser, the Company shall promptly cause the restrictive legend set forth in this section above to be removed and the Company shall issue a certificate or book entry position without such restrictive legend or any other restrictive legend to the holder of the applicable shares upon which it is stamped or issue to such holder by electronic delivery with the applicable balance account at DTC or in physical certificated shares, if appropriate, if (i) such Shares and Underlying Shares are registered for resale under the Securities Act (provided that, if the Purchaser is selling pursuant to the effective registration statement registering the Securities for resale, the Purchaser agrees to only sell such Shares during such time that such registration statement is effective and such Purchaser is not aware or has not been notified by the Company that such registration statement has been withdrawn or suspended, and only as permitted by such registration statement); (ii) such Shares are sold or transferred pursuant to Rule 144 (if the transferor is not an affiliate of the Company); or (iii) such Shares are eligible for sale without the requirement for the Company to be in compliance with the current public information required under Rule 144 as to such securities and without volume or manner-of-sale restrictions. Subject to receipt of such representations, and covenants as are contemplated hereby, following the earlier of (i) the effective date of the Registration Statement or (ii) Rule 144 becoming available for the resale of the Shares and Underlying Shares, without the requirement for the Company to be in compliance with the current public information required under Rule 144 as to the Shares and Underlying Shares and without volume or manner-of-sale restrictions, the Company shall issue to the Company's transfer agent the instructions with respect to legend removal consistent with this Section. Following the time a legend is no longer required for the Shares or Underlying Shares under this Section 5.4(c), the Company will, no later than three trading days following the delivery by a Purchaser to the Company's transfer agent (with notice to the Company) of (i) if applicable, a legended certificate representing such Shares or Underlying Shares (endorsed or with stock powers attached, signatures guaranteed, and otherwise in form necessary to affect the reissuance and/or transfer) or (ii) an Exercise Notice in the manner stated in the Warrants to effect the exercise of such Warrant in accordance with its terms, and (if necessary) an opinion of counsel to the extent required by Section 5.4(a), (A) deliver or cause to be delivered to such Purchaser a certificate or book-entry statement representing such securities that is free from all restrictive and other legends or (B) at the request of the Purchaser, instruct its transfer agent to issue such Shares and/or Underlying Shares without such legends to the holders thereof by electronic delivery at the applicable balance account at the DTC. To the extent certificates or book entry positions are issued representing the Securities, such certificates or book entry positions subject to legend removal hereunder may be transmitted by the Company's transfer agent to a Purchaser by crediting the account of the Purchaser's prime broker with DTC as directed by such Purchaser. Any fees (with respect to the transfer agent, the Company's counsel or otherwise) associated with the issuance of such opinion or the removal of such legend shall be borne by the Company.

SECTION 6. CONDITIONS TO COMPANY'S OBLIGATIONS AT THE CLOSING.

The Company's obligation to complete the sale and issuance of the Securities and deliver Securities to each Purchaser, individually, as set forth in the Schedule of Purchasers at the Closing shall be subject to the following conditions to the extent not waived by the Company:

6.1 **Receipt of Payment.** The Company shall have received payment, by wire transfer of immediately available funds, in the full amount of the purchase price for the number of Securities being purchased by such Purchaser at the Closing as set forth in the Schedule of Purchasers.

6.2 **Representations and Warranties.** The representations and warranties made by the Purchasers in Section 5 hereof shall be true and correct in all material respects when made, and shall be true and correct in all material respects as of the Closing Date with the same force and effect as if they had been made on and as of said date.

6.3 **Performance.** The Purchaser shall have performed in all material respects all obligations and covenants herein required to be performed by them on or prior to the Closing Date.

6.4 **Judgments.** No judgment, writ, order, injunction, award or decree of or by any court, or judge, justice or magistrate, including any bankruptcy court or judge, or any order of or by any governmental authority, shall have been issued, and no action or proceeding shall have been instituted by any governmental authority, enjoining or preventing the consummation of the transactions contemplated hereby.

6.5 **Consents.** The Company shall have obtained in a timely fashion any and all consents, permits, approvals, registrations and waivers necessary for consummation of the purchase and sale of the Securities, all of which shall be and remain so long as necessary in full force and effect.

6.6 **Receipt of Executed Documents.** Such Purchaser shall have executed and delivered to the Registration Rights Agreement.

6.7 **Receipt of Executed Documents** . The Purchaser Questionnaire and the Selling Stockholder Questionnaire shall be complete and accurate in material respects.

SECTION 7. CONDITIONS TO PURCHASERS' OBLIGATIONS AT THE CLOSING.

Each Purchaser's obligation to accept delivery of the Securities and to pay for the Securities shall be subject to the following conditions to the extent not waived by such Purchaser:

7.1 **Representations and Warranties.** The representations and warranties made by the Company in Section 4 hereof shall be true and correct in all material respects as of, and as if made on, the date of this Agreement and as of the Closing, except to the extent any such representation or warranty expressly speaks as of an earlier date, in which case such representation or warranty shall be true and correct as of such earlier date.

7.2 **Performance.** The Company shall have performed in all material respects all obligations and covenants herein required to be performed by it on or prior to the Closing.

7.3 **Consents.** The Company shall have obtained in a timely fashion any and all consents, permits, approvals, registrations and waivers necessary for consummation of the purchase and sale of the Securities.

7.4 **Receipt of Executed Registration Rights Agreement.** The Company shall have executed and delivered to the Purchasers the Registration Rights Agreement.

7.5 **Legal Opinion.** The Purchasers shall have received an opinion of Latham & Watkins LLP, special counsel to the Company, dated as of the Closing Date, in form and substance reasonably acceptable to the Purchasers.

7.6 **Certificate.** Each Purchaser shall have received a certificate signed by the Chief Executive Officer or the Principal Financial Officer certifying to the fulfillment of the conditions specified in Sections 7.1 and 7.2.

7.7 **Good Standing.** The Company is validly existing as a corporation in good standing under the laws of Delaware.

7.8 **NASDAQ Qualification.** The Company shall have filed with NASDAQ a Notification Form: Listing of Additional Shares for the listing of the Shares and the Underlying Shares.

7.9 **Judgments.** No judgment, writ, order, injunction, award or decree of or by any court, or judge, justice or magistrate, including any bankruptcy court or judge, or any order of or by any governmental authority, shall have been issued, and no action or proceeding shall have been instituted by any governmental authority, enjoining or preventing the consummation of the transactions contemplated hereby.

7.10 **Transfer Agent Instructions.** The Company shall have delivered to its transfer agent irrevocable instructions to issue to such Purchaser or in such nominee name(s) as designated by such Purchaser in writing such number of Shares set forth opposite such Purchaser's name on **Exhibit A** hereto or, if requested by the Purchaser, one or more certificates or book-entry positions representing such Shares.

7.11 **No Governmental Prohibition.** The sale of the Shares by the Company shall not be prohibited by any law or governmental order or regulation, adopted after the Effective Date.

7.12 **Stop Orders.** No stop order or suspension of trading shall have been imposed by the NASDAQ Global Market, the Commission or any other governmental regulatory body with respect to public trading in the Common Stock.

SECTION 8. TERMINATION OF OBLIGATIONS TO EFFECT CLOSING; EFFECTS.

8.1 The obligations of the Company, on the one hand, and the Purchasers, on the other hand, to effect the Closing shall terminate as follows:

(a) upon the mutual written consent of the Company and Purchasers that agreed to purchase a majority of the Securities to be issued and sold pursuant to this Agreement;

(b) by the Company if any of the conditions set forth in Section 6 shall not have been fulfilled within ten business days following the Effective Date, and shall not have been waived by the Company; or

(c) by a Purchaser (with respect to itself only) if any of the conditions set forth in Section 7 shall not have been fulfilled within ten business days following the Effective Date, and shall not have been waived by the Purchaser;

provided , however , that, except in the case of clauses (b) and (c) above, the party seeking to terminate its obligation to effect the Closing shall not then be in breach of any of its representations, warranties, covenants or agreements contained in this Agreement or the other Transaction Documents if such breach has resulted in the circumstances giving rise to such party's seeking to terminate its obligation to effect the Closing.

8.2 Nothing in this Section 8 shall be deemed to release any party from any liability for any breach by such party of the terms and provisions of this Agreement or the other Transaction Documents or to impair the right of any party to compel specific performance by any other party of its obligations under this Agreement or the other Transaction Documents.

SECTION 9. BROKER'S FEES.

The Company and each Purchaser (severally and not jointly) hereby represent that there are no brokers or finders entitled to compensation, commissions, placement agent's fees or similar payments in connection with the sale of the Securities, and shall indemnify each other for any such fees for which they are responsible.

SECTION 10. ADDITIONAL AGREEMENTS OF THE PARTIES.

10.1 **NASDAQ Listing.** The Company will use commercially reasonable efforts to continue the listing and trading of its Common Stock on NASDAQ and, in accordance, therewith, will use commercially reasonable efforts to comply in all respects with the Company's reporting, filing and other obligations under the bylaws or rules of such market or exchange, as applicable.

10.2 **Access to Information.** From the date hereof until the Closing, the Company will make reasonably available to the Purchasers, the Purchasers' representatives, consultants and their respective counsels for inspection, such information and documents as the Purchasers reasonably request, and will make available at reasonable times and to a reasonable extent officers and employees of the Company to discuss the business and affairs of the Company.

10.3 **Reservation of Common Stock.** As of the Closing Date, the Company shall have reserved and shall keep available at all times during which the Warrants remain exercisable, free of preemptive rights, the number of shares of Common Stock issuable upon exercise of the Warrants issued at the Closing (without taking into account any limitations on the exercise of the Warrants set forth in the Warrants).

10.4 **Termination of Covenants.** The provisions of Section 10.1-10.2 shall terminate and be of no further force and effect on the date on which the Company's obligations under the Registration Rights Agreement to register or maintain the effectiveness of any registration covering the Registrable Securities (as such term is defined in the Registration Rights Agreement) shall terminate.

10.5 **Form D; Blue Sky Filings.** The Company agrees to timely file a Form D with respect to the Securities and to provide a copy thereof, promptly upon request of any Purchaser. The Company shall take such action as the Company shall reasonably determine is necessary to obtain an exemption for, or to qualify the Securities for, sale to the Purchaser at the Closing under applicable securities or "Blue Sky" laws of the states of the United States, and shall provide evidence of such actions promptly upon request of any Purchaser.

10.6 **Integration.** The Company shall not, and shall use its commercially reasonable efforts to ensure that no affiliate of the Company shall, sell, offer for sale or solicit offers to buy or otherwise negotiate in respect of any security (as defined in Section 2 of the Securities Act) that will be integrated with the offer or sale of the Securities in a manner that would require the registration under the Securities Act of the sale of the Securities to the Purchasers, or that will be integrated with the offer or sale of the Securities for purposes of the rules and regulations of any trading market such that it would require stockholder approval prior to the closing of such other transaction unless stockholder approval is obtained before the closing of such subsequent transaction.

10.7 **Short Sales and Confidentiality After the Date Hereof.** Each Purchaser covenants that neither it nor any affiliates acting on its behalf or pursuant to any understanding with it will, directly or indirectly, engage in any transactions in the Company's securities (including, without limitation, any Short Sales involving the Company's securities) during the period from the date hereof until the earlier of such time as (i) after the transactions contemplated by this Agreement are first publicly announced by the Company or (ii) this Agreement is terminated in full. Each Purchaser covenants that until such time as the transactions contemplated by this Agreement are publicly disclosed by the Company, such Purchaser will maintain the confidentiality of all disclosures made to it in connection with this transaction (including the existence and terms of this transaction). Notwithstanding the foregoing, each Purchaser agrees, severally and not jointly, that they will not engage in any Short Sales or hedging activities or enter into similar arrangements or agreements that transfer, in whole or in part, the economic risk of ownership of Securities (including the Underlying Shares), regardless of whether any such transaction is to be settled in securities, in cash or otherwise from the period commencing on the Effective Date and ending on the earliest of (x) the effective date of the Registration Statement, (y) the 12-month anniversary of the Closing Date or (z) the date that such Purchaser no longer holds any Securities (including the Underlying Shares). Each Purchaser understands and acknowledges that the Commission currently takes the position that coverage of short sales of shares of the Common Stock "against the box" prior to effectiveness of a resale registration statement with securities included in such registration statement would be a violation of Section 5 of the Securities Act, as set forth in Item 239.10 of the Securities Act Rules Compliance and Disclosure Interpretations compiled by the Office of Chief Counsel, Division of Corporation Finance.

10.8 **Securities Laws Disclosure; Publicity** . The Company shall file a Current Report on Form 8-K, describing the material terms of the Transaction Documents, with the Commission within the time required by the Exchange Act. The Company may issue a press release with respect to the transactions contemplated hereby. Notwithstanding the foregoing, the Company shall not publicly disclose the name of any Purchaser, or include the name of any Purchaser in any public filing with the Commission or any regulatory agency or NASDAQ, without the prior written consent of such Purchaser, which consent shall not be unreasonably withheld, conditioned or delayed, except: (a) as required by federal securities law in connection with (i) any registration statement contemplated by the Registration Rights Agreement and (ii) the filing of the Transaction Documents with the Commission; (b) the filing of a Form D with the Commission under the Securities Act and (c) to the extent such disclosure is required by law or NASDAQ regulations, in which case the Company shall provide the Purchasers with prior notice of such disclosure permitted under this clause (c).

SECTION 11. INDEMNIFICATION.

11.1 **Indemnification by the Company.** The Company agrees to indemnify and hold harmless each of the Purchasers and each Person, if any, who controls any Purchaser within the meaning of the Securities Act (each, an " Indemnified Party "), against any losses, claims, damages, liabilities or expenses, joint or several, to which such Indemnified Party may become subject under the Securities Act, the Exchange Act, or any other federal or state statutory law or regulation, or at common law (including in settlement of any litigation, if such settlement is effected with the written consent of the Company), insofar as such losses, claims, damages, liabilities or expenses (or actions in respect thereof as contemplated below) arise out of or are based in whole or in part on the inaccuracy in the representations and warranties of the Company contained in this Agreement or the failure of the Company to perform its obligations hereunder, and will reimburse each Indemnified Party for legal and other expenses reasonably incurred in connection with investigating, defending, settling, compromising or paying such loss, claim, damage, liability, expense or action; provided , however , that the Company will not be liable in any such case to the extent that any such loss, claim, damage, liability or expense arises out of or is based upon (i) the failure of such Indemnified Party to comply with the covenants and agreements contained in Section 6 above respecting sale of the Securities (including the Underlying Shares), or (ii) the inaccuracy of any representations made by such Indemnified Party herein.

11.2 **Indemnification by Purchasers.** Each Purchaser shall severally, and not jointly, indemnify and hold harmless the other Purchasers and the Company, each of its directors, and each Person, if any, who controls the Company within the meaning of the Securities Act, against any losses, claims, damages, liabilities or expenses to which the Company, each of its directors or each of its controlling Persons may become subject, under the Securities Act, the Exchange Act, or any other federal or state statutory law or regulation, or at common law or otherwise (including in settlement of any litigation, if such settlement is effected with the written consent of such Purchaser) insofar as such losses, claims, damages, liabilities or expenses (or actions in respect thereof as contemplated below) arise out of or are based upon (i) any failure by such Purchaser to comply with the covenants and agreements of such Purchaser contained in this Agreement or (ii) the inaccuracy of any representation made by such Purchaser herein and will reimburse the Company, each of its directors, and each of its controlling Persons for any legal and other expenses reasonably

incurred in connection with investigating, defending, settling, compromising or paying any such loss, claim, damage, liability, expense or action; provided , however , that no Purchaser will be liable in any such case to the extent that any such loss, claim, damage, liability or expense arises out of or is based upon (i) the failure of the Company to comply with the Company's covenants and agreements contained in Transaction Documents, or (ii) the inaccuracy of any representations made by the Company herein. No Purchaser shall be liable for the indemnification obligations of any other Purchaser.

SECTION 12. NOTICES.

All notices, requests, consents and other communications hereunder shall be in writing, shall be sent by confirmed electronic mail, or mailed by first-class registered or certified airmail, or nationally recognized overnight express courier, postage prepaid, and addressed as follows:

if to the Company, to:

Achaogen, Inc.
7000 Shoreline Court, Suite 371
South San Francisco, California 94080
Attention: Chief Executive Officer
E-Mail: #######@achaogen.com

with a copy (which shall not constitute notice) to:

Latham & Watkins LLP
140 Scott Drive
Menlo Park, California 94025
Attention: Mark Roeder
E-Mail: mark.roeder@lw.com

or to such other Person at such other place as the Company shall designate to the Purchasers in writing; and if to the Purchasers, at the address as set forth at the end of this Agreement, or at such other address or addresses as may have been furnished to the Company in writing.

SECTION 13. MISCELLANEOUS.

13.1 **Waivers and Amendments.** Neither this Agreement nor any provision hereof may be changed, waived, discharged, terminated, modified or amended except upon the written consent of the Company and holders of at least a majority of the Shares and the Underlying Shares (assuming the exercise of the then-outstanding Warrants).

13.2 **Headings.** The headings of the various sections of this Agreement have been inserted for convenience of reference only and shall not be deemed to be part of this Agreement.

13.3 **No Third-Party Beneficiaries.** This Agreement is intended for the benefit of the parties hereto and their respective successors and permitted assigns and is not for the benefit of, nor may any provision hereof be enforced by, any other Person.

13.4 **Severability.** In case any provision contained in this Agreement should be invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions contained herein shall not in any way be affected or impaired thereby.

13.5 **Replacement of Shares or Warrants.** If the Shares are certificated and any certificate or instrument evidencing any Shares or Warrants is mutilated, lost, stolen or destroyed, the Company shall issue or cause to be issued in exchange and substitution for and upon cancellation thereof, or in lieu of and substitution therefor, a new certificate or instrument, but only upon receipt of evidence reasonably satisfactory to the Company and the Company's transfer agent of such loss, theft or destruction and the execution by the holder thereof of a customary lost certificate affidavit of that fact and an agreement to indemnify and hold harmless the Company and the Company's transfer agent for any losses in connection therewith or, if required by the transfer agent, a bond in such form and amount as is required by the transfer agent. The applicants for a new certificate or instrument under such circumstances shall also pay any reasonable third-party costs associated with the issuance of such replacement Shares or Warrant. If a replacement certificate or instrument evidencing any Shares or Warrant is requested due to a mutilation thereof, the Company may require delivery of such mutilated certificate or instrument as a condition precedent to any issuance of a replacement.

13.6 **Independent Nature of Purchasers' Obligations and Rights.** The obligations of each Purchaser under this Agreement are several and not joint with the obligations of any other Purchaser, and no Purchaser shall be responsible in any way for the performance of the obligations of any other Purchaser under this Agreement. Nothing contained herein, and no action taken by any Purchaser pursuant hereto, shall be deemed to constitute the Purchasers as a partnership, an association, a joint venture or any other kind of entity, or create a presumption that the Purchasers are in any way acting in concert or as a group, or are deemed affiliates (as such term is defined under the Exchange Act) with respect to such obligations or the transactions contemplated by this Agreement. Each Purchaser shall be entitled to independently protect and enforce its rights, including without limitation the rights arising out of this Agreement, and it shall not be necessary for any other Purchaser to be joined as an additional party in any proceeding for such purpose.

13.7 **Governing Law; Venue.** All questions concerning the construction, validity, enforcement and interpretation of the Transaction Documents shall be governed by and construed and enforced in accordance with the internal laws of the State of California, without regard to the principles of conflicts of law thereof. With respect to any disputes arising out of or related to this Agreement, the parties consent to the exclusive jurisdiction of, and venue in, the state courts in San Francisco County in the State of California (or in the event of exclusive federal jurisdiction, the courts of the Northern District of California). Each party hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof via registered or certified mail or overnight delivery (with evidence of delivery) to such party at the address in effect for notices to it under this Agreement and agrees that such service

shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any other manner permitted by law. **EACH PARTY HERETO HEREBY IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, ANY AND ALL RIGHT TO TRIAL BY JURY IN ANY LEGAL PROCEEDING ARISING OUT OF OR RELATING TO THIS AGREEMENT OR THE TRANSACTIONS CONTEMPLATED HEREBY.**

13.8 **Counterparts.** This Agreement may be executed in any number of counterparts, each of which when so executed shall be deemed to be an original and, all of which taken together shall constitute one and the same Agreement and shall become effective when counterparts have been signed by each party and delivered to the other party, it being understood that both parties need not sign the same counterpart. In the event that any signature is delivered by facsimile transmission or by e-mail delivery of a ".pdf" format data file, such signature shall create a valid and binding obligation of the party executing (or on whose behalf such signature is executed) the same with the same force and effect as if such facsimile of ".pdf" signature were the original thereof.

13.9 **Successors and Assigns.** Except as otherwise expressly provided herein, the provisions hereof shall inure to the benefit of, and be binding upon, the successors, assigns, heirs, executors and administrators of the parties hereto.

13.10 **Entire Agreement.** This Agreement and other documents delivered pursuant hereto, including the exhibit and the Schedule of Exceptions, constitute the full and entire understanding and agreement between the parties with regard to the subjects hereof and thereof.

13.11 **Payment of Fees and Expenses.** Each of the Company and the Purchasers shall bear its own expenses and legal fees incurred on its behalf with respect to this Agreement and the transactions contemplated hereby; provided , that promptly following the Closing, the Company shall pay all reasonable, documented consulting, legal and other out-of-pocket expenses incurred by Growth Equity Opportunities Fund IV, LLC and its affiliates related to its investment and due diligence relating to the sale of the Securities up to a maximum of $50,000. If any action at law or in equity is necessary to enforce or interpret the terms of this Agreement, the prevailing party shall be entitled to reasonable attorney's fees, costs and necessary disbursements in addition to any other relief to which such party may be entitled.

13.12 **Survival.** The representations, warranties, covenants and agreements made in this Agreement shall survive any investigation made by the Company or the Purchasers and the Closing.

13.13 **Waiver of Potential Conflicts of Interest.** Each of the Purchasers and the Company acknowledges that Latham & Watkins LLP (" Latham ") may have represented and may currently represent certain of the Purchasers. In the course of such representation, Latham may have come into possession of confidential information relating to such Purchasers. Each of the Purchasers and the Company acknowledges that Latham is representing only the Company in this transaction. By executing this Agreement, each of the Purchasers and the Company hereby waives any actual or potential conflict of interest which has or may arise as a result of Latham's representation of such persons and entities, and represents that it has had the opportunity to consult with independent counsel concerning the giving of this waiver.

[signature pages follow]

IN WITNESS WHEREOF , the parties hereto have caused this Agreement to be executed by their duly authorized representatives as of the day and year first above written.

ACHAOGEN, INC.

By: /s/ Kenneth Hillan
Name: Kenneth J. Hillan, M.B., Ch.B.
Title: President and Chief Executive Officer

IN WITNESS WHEREOF , the parties hereto have caused this Agreement to be executed by their duly authorized representatives as of the day and year first above written.

PURCHASERS:

GROWTH EQUITY OPPORTUNITIES FUND IV, LLC
By: New Enterprise Associates 15, L. P., its sole member
By: NEA Partners 15, L.P., its general partner
By: NEA 15 GP, LTD, its general partner

By: /s/ Louis S. Citron
Name: Louis S. Citron
Title: Chief Legal Officer
Address:
c/o New Enterprise Associates
1954 Greenspring Drive, Suite 600
Timonium, MD 21093
Email: #######@NEA.com

IN WITNESS WHEREOF , the parties hereto have caused this Agreement to be executed by their duly authorized representatives as of the day and year first above written.

PURCHASERS:

EcoR1 Capital Fund Qualified, L.P.

By: /s/ Oleg Nodelman

Name: Oleg Nodelman

Title: Manager, EcoR1 Capital LLC, General Partner

Address: 409 Illinois Street

San Francisco, CA 64158

Email: ####@ecor1cap.com

IN WITNESS WHEREOF , the parties hereto have caused this Agreement to be executed by their duly authorized representatives as of the day and year first above written.

PURCHASERS:

EcoR1 Capital Fund, L.P.

By: /s/ Oleg Nodelman

Name: Oleg Nodelman

Title: Manager, EcoR1 Capital LLC, General Partner

Address: 409 Illinois Street

San Francisco, CA 64158

Email: ####@ecor1cap.com

IN WITNESS WHEREOF , the parties hereto have caused this Agreement to be executed by their duly authorized representatives as of the day and year first above written.

PURCHASERS:

SPHERA GLOBAL HEALTHCARE MASTER FUND

By: /s/ Doron Breen

Name: Doron Breen

Title: Director

Address: Sphera Funds Management Ltd.

21 Ha'arbaa Street

Tel-Aviv, Israel 64739

Email: ######@spherafund.com

IN WITNESS WHEREOF , the parties hereto have caused this Agreement to be executed by their duly authorized representatives as of the day and year first above written.

PURCHASERS:

HFR HE SPHERA GLOBAL HEALTHCARE MASTER TRUST

By: /s/ Doron Breen

Name: Doron Breen

Title: Director of Sphera Global Healthcare, Trading Advisor

Address: Sphera Funds Management Ltd.

21 Ha'arbaa Street

Tel-Aviv, Israel 64739

Email: ######@spherafund.com

IN WITNESS WHEREOF , the parties hereto have caused this Agreement to be executed by their duly authorized representatives as of the day and year first above written.

PURCHASERS:

DAFNA LifeScience LP

By: /s/ Nathan Fischel

Name: Nathan Fischel

Title: C.E.O.

Address: DAFNA Capital Mgmt LLC

10990 Wilshire Blvd Suite 1400

Los Angeles, CA 90824

Email: ########@DAFNACapital.com

IN WITNESS WHEREOF , the parties hereto have caused this Agreement to be executed by their duly authorized representatives as of the day and year first above written.

PURCHASERS:

DAFNA LifeScience Select LP

By: /s/ Nathan Fischel

Name: Nathan Fischel

Title: C.E.O.

Address: DAFNA Capital Mgmt LLC

10990 Wilshire Blvd Suite 1400

Los Angeles, CA 90824

Email: ########@DAFNACapital.com

IN WITNESS WHEREOF , the parties hereto have caused this Agreement to be executed by their duly authorized representatives as of the day and year first above written.

PURCHASERS:

BLAKE A. WISE LIVING TRUST

By: /s/ Blake Wise

Name: Blake Wise

Title: Trustee

Address: 22 Bel Air Drive

Orinda, CA 94563

Email: #####@achaogen.com

EXHIBIT A
SCHEDULE OF PURCHASERS

Name and Address	Number of Shares	Number of Shares Underlying Warrants	Aggregate Purchase Price of Warrants and Shares
GROWTH EQUITY OPPORTUNITIES FUND IV, LLC c/o New Enterprise Associates 1954 Greenspring Drive, Suite 600 Timonium, MD 21093 Email: #######@NEA.com	4,715,128	1,178,782	$15,000,000.95
ECOR1 CAPITAL FUND QUALIFIED, L.P. 409 Illinois Street San Francisco, CA 94158 Email: ####@ecor1cap.com	1,154,420	288,605	$3,672,498.63
ECOR1 CAPITAL FUND, L.P. 409 Illinois Street San Francisco, CA 94158 Email: ####@ecor1cap.com	417,288	104,322	$1,327,497.45
SPHERA GLOBAL HEALTHCARE MASTER FUND Sphera Funds Management Ltd. 21 Ha'arbaa Street Tel-Aviv, Israel 64739 Email: ######@spherafund.com	1,213,359	303,340	$3,859,998.35
HFR HE SPHERA GLOBAL HEALTHCARE MASTER TRUST Sphera Funds Management Ltd. 21 Ha'arbaa Street Tel-Aviv, Israel 64739 Email: ######@spherafund.com	44,007	11,002	$139,997.30
DAFNA LIFESCIENCE, L.P. DAFNA Capital Management, LLC 10990 Wilshire Blvd., Suite 1400 Los Angeles CA 90024 Email: ########@DAFNACapital.com	188,605	47,151	$599,999.63
DAFNA LIFESCIENCE SELECT, L.P. DAFNA Capital Management, LLC 10990 Wilshire Blvd., Suite 1400 Los Angeles CA 90024 Email: ########@DAFNACapital.com	125,736	31,434	$399,997.65
BLAKE A. WISE TRUST 22 Bel Air Drive Orinda, CA 94563 Email: #####@achaogen.com	141,453	35,363	$449,997.33
TOTAL	**7,999,996**	**1,999,999**	**$25,449,987.29**

EXHIBIT B
FORM OF WARRANT

THIS WARRANT AND THE SECURITIES ISSUABLE UPON THE EXERCISE HEREOF HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED. THEY MAY NOT BE SOLD, OFFERED FOR SALE, PLEDGED, HYPOTHECATED OR OTHERWISE TRANSFERRED EXCEPT PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933, AS AMENDED, OR AN OPINION OF COUNSEL SATISFACTORY TO THE COMPANY THAT REGISTRATION IS NOT REQUIRED UNDER SUCH ACT OR UNLESS SOLD IN ACCORDANCE WITH RULE 144 UNDER SUCH ACT.

WARRANT NO. 2016-[_____] NUMBER OF SHARES: [_____]
DATE OF ISSUANCE: June [__], 2016 (subject to adjustment hereunder)
EXPIRATION DATE: June [__], 2021

WARRANT TO PURCHASE SHARES
OF COMMON STOCK OF

ACHAOGEN, INC.

This Warrant is issued to [_____], or its registered assigns (including any successors or assigns, the " Holder "), pursuant to that certain Securities Purchase Agreement, dated as of June 1, 2016, among Achaogen, Inc., a Delaware corporation (the " Company "), the Holder and certain other parties thereunder (the " Purchase Agreement ") and is subject to the terms and conditions of the Purchase Agreement.

1. EXERCISE OF WARRANT.

(a) Number and Exercise Price of Warrant Shares; Expiration Date . Subject to the terms and conditions set forth herein and set forth in the Purchase Agreement, the Holder is entitled to purchase from the Company [_____] shares of the Company's Common Stock, $0.001 par value per share (the " Common Stock ") (as adjusted from time to time pursuant to the provisions of this Warrant) (the " Warrant Shares "), at a purchase price of $3.66 per share (the " Exercise Price "), on or before 5:00 p.m. New York City time on June [__], 2021 (the " Expiration Date ").

(b) Method of Exercise . While this Warrant remains outstanding and exercisable in accordance with Section 1(a) above, the Holder may exercise this Warrant upon paying the Exercise Price by either:

(1) wire transfer to the Company or cashier's check drawn on a United States bank made payable to the order of the Company, or

(2) exercising of the right to credit the Exercise Price against the Fair Market Value (as defined below) of the Warrant Shares (as defined below) at the time of exercise (the " Net Exercise ") pursuant to Section 1(c).

(c) Net Exercise . If the Company shall receive written notice from the Holder at the time of exercise of this Warrant that the Holder elects to Net Exercise the Warrant, the Company shall deliver to such Holder (without payment by the Holder of any exercise price in cash) that number of Warrant Shares computed using the following formula:

$$X = \frac{Y\,(A - B)}{A}$$

Where

X = The number of Warrant Shares to be issued to the Holder.

Y = The number of Warrant Shares purchasable under this Warrant [or, if only a portion of the Warrant is being exercised in accordance with Section 5(c), the portion of the Warrant being cancelled (at the date of such calculation)] [1] .

A = The Fair Market Value of one share of Common Stock (at the date of such calculation).

B = The Exercise Price (as adjusted to the date of such calculations).

The " Fair Market Value " of one share of Common Stock shall mean (x) the last reported sale price and, if there are no sales, the last reported bid price, of the Common Stock on the last trading day prior to the date of exercise on the NASDAQ Global Market as reported by Bloomberg Financial Markets (or a comparable reporting service of national reputation selected by the Company and reasonably acceptable to the Holder if Bloomberg Financial Markets is not then reporting sales prices of the Common Stock) (collectively, " Bloomberg "), or (y) if the foregoing does not apply, the last sales price of such security in the over-the-counter market on the pink sheets by Pink Sheets LLC (formerly the National Quotation Bureau, Inc.) (the " pink sheets ") or bulletin board for such security as reported by Bloomberg, or if no sales price is so reported, the last bid price of the Common Stock as reported by Bloomberg or (z) if the fair market value cannot be calculated on any of the foregoing bases, the fair market value determined by the Company's Board of Directors in good faith.

(d) Rule 144 . For purposes of Rule 144(d) promulgated under the Securities Act, as in effect on the date hereof, it is intended that the Warrant Shares issued in a Net Exercise shall be deemed to have been acquired by the Holder, and the holding period for the Warrant Shares shall be deemed to have commenced, on the date this Warrant was originally issued pursuant to the Purchase Agreement.

[1] **Note to Form** : This clause will be included only for Warrants issued to Growth Equity Opportunities Fund IV, LLC (" NEA "), EcoR1 Capital (" EcoR1 "), Sphera Global Healthcare Master Fund (" Sphera ") and any Purchasers affiliated therewith.

(e) Disputes. In the case of a dispute as to the determination of the Exercise Price or the arithmetic calculation of the Warrant Shares, the Company shall promptly issue to the Holder the number of Warrant Shares that are not disputed.

2. CERTAIN ADJUSTMENTS.

(a) Adjustment of Number of Warrant Shares and Exercise Price. The number and kind of Warrant Shares purchasable upon exercise of this Warrant and the Exercise Price shall be subject to adjustment from time to time as follows:

(1) Subdivisions, Combinations and Other Issuances. If the Company shall at any time after the Date of Issuance but prior to the Expiration Date subdivide its shares of capital stock of the same class as the Warrant Shares, by split-up or otherwise, or combine such shares of capital stock, or issue additional shares of capital stock as a dividend with respect to any shares of such capital stock, the number of Warrant Shares issuable on the exercise of this Warrant shall forthwith be proportionately increased in the case of a subdivision or stock dividend, or proportionately decreased in the case of a combination. Appropriate adjustments shall also be made to the Exercise Price payable per share, but the aggregate Exercise Price payable for the total number of Warrant Shares purchasable under this Warrant (as adjusted) shall remain the same. Any adjustment under this Section 2(a)(1) shall become effective at the close of business on the date the subdivision or combination becomes effective, or as of the record date of such dividend, or in the event that no record date is fixed, upon the making of such dividend.

(2) Reorganizations or Mergers. In case of any reclassification, capital reorganization or change in the capital stock of the Company (other than as a result of a subdivision, combination or stock dividend provided for in Section 2(a)(1) above) that occurs after the Date of Issuance, then, as a condition of such reclassification, reorganization or change, lawful provision shall be made, and duly executed documents evidencing the same from the Company or its successor shall be delivered to the Holder, so that the Holder shall thereafter have the right at any time prior to the expiration of this Warrant to purchase, at a total price equal to that payable upon the exercise of this Warrant, the kind and amount of shares of stock and/or other securities or property (including, if applicable, cash) receivable in connection with such reclassification, reorganization or change by a holder of the same number and type of securities as were purchasable as Warrant Shares by the Holder immediately prior to such reclassification, reorganization or change. In any such case, appropriate provisions shall be made with respect to the rights and interest of the Holder so that the provisions hereof shall thereafter be applicable with respect to any shares of stock or other securities or property deliverable upon exercise hereof, and appropriate adjustments shall be made to the Exercise Price payable hereunder, provided the aggregate Exercise Price shall remain the same (and, for the avoidance of doubt, this Warrant shall be exclusively exercisable for such shares of stock and/or other securities or property from and after the consummation of such reclassification or other change in the capital stock of the Company).

(3) Rights Upon Distribution of Assets. If the Company shall declare or make any dividend, other distribution of its assets (or rights to acquire its assets) or evidences of its indebtedness to holders of shares of Common Stock generally (which dividend or other distribution has not already been given to the Holder with respect to the Warrant Shares), by way of return of

capital or otherwise not addressed by this Section 2 above (including, without limitation, any distribution of cash, stock or other securities, property or options by way of a dividend, spin off, subdivision, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) (a " Distribution "), at any time after the issuance of this Warrant and prior to the Expiration Date, then, in each such case the Holder shall be entitled (subject to the following proviso) to participate in such Distribution to the same extent that the Holder would have participated therein if the Holder had held the number of shares of Common Stock acquirable upon complete exercise of this Warrant (without regard to any limitations or restrictions on exercise of this Warrant[, including without limitation, the Beneficial Ownership Limitation] [2]) immediately before the date on which a record is taken for such Distribution, or, if no such record is taken, the date as of which the record holders of shares of Common Stock are to be determined for the participation in such Distribution; provided , however , that the Holder shall only be permitted to take delivery of such Distribution if and to the extent the Holder exercises some or all of the Warrant [(the portion of delivery of the Distribution shall be based on the pro-rata portion of the Warrant Shares issuable upon the portion of the Warrant exercised as compared to the maximum number of Warrant Shares issuable upon complete exercise of the Warrant (without regard to any limitations or restrictions on exercise of this Warrant, including without limitation, the Beneficial Ownership Limitation))], [3] provided that, to the extent that the Warrant has not been partially or completely exercised at the time of such Distribution, such portion of the Distribution shall be held in abeyance for the benefit of the Holder until the Holder has exercised the Warrant, at which time the Company shall issue to the Holder the pro-rata portion of such Distribution equivalent to that portion of this Warrant then exercised. [Notwithstanding anything to the contrary contained herein, to the extent that the Holder's right to participate in any such Distribution would result in the Holder and its affiliates exceeding the Beneficial Ownership Limitation, then the Holder shall not be entitled to participate in such Distribution to the extent of the Beneficial Ownership Limitation (and shall not be entitled to beneficial ownership of such shares of Common Stock as a result of such Distribution (and beneficial ownership) to the extent of any such excess) and the portion of such Distribution shall be held in abeyance for the benefit of the Holder until such time or times, if ever, as its right thereto would not result in the Holder and its affiliates exceeding the Beneficial Ownership Limitation, at which time or times the Holder shall be granted such Distribution (and any Distributions declared or made on such initial Distribution or on any subsequent Distribution held similarly in abeyance) to the same extent as if there had been no such limitation).] [4]

(b) Notice of Adjustment . When any adjustment is required to be made in the number or kind of shares purchasable upon exercise of the Warrant, or in the Exercise Price, the Company shall promptly notify the Holder of such event and of the number of Warrant Shares or other securities or property thereafter purchasable upon exercise of this Warrant.

[2] **Note to Form** : This clause will be included only for Warrants issued to NEA, EcoR1, Sphera and any Purchasers affiliated therewith.
[3] **Note to Form** : This clause will be included only for Warrants issued to NEA, EcoR1, Sphera and any Purchasers affiliated therewith.
[4] **Note to Form** : This sentence will be included only for Warrants issued to NEA, EcoR1, Sphera and any Purchasers affiliated therewith.

(c) Calculations. No adjustment in the Exercise Price shall be required unless such adjustment would require an increase or decrease of at least $0.01 in such price; provided, however, that any adjustment which by reason of this Section 2(c) is not required to be made shall be carried forward and taken into account in any subsequent adjustments under this Section 2. All calculations under this Section 2 shall be made by the Company in good faith and shall be made to the nearest cent or to the nearest one hundredth of a share, as applicable. No adjustment need be made for a change in the par value or no par value of the Company's Common Stock.

(d) Treatment of Warrant upon a Fundamental Transaction.

(1) If, at any time while this Warrant is outstanding there is a Fundamental Transaction (as defined below), then the Holder shall have the right thereafter to receive, upon exercise of this Warrant, the same amount and kind of securities, cash or property as it would have been entitled to receive upon the occurrence of such Fundamental Transaction if it had been, immediately prior to such Fundamental Transaction, the Holder of the number of Warrant Shares then issuable upon exercise in full of this Warrant (the "Alternate Consideration"). For purposes of any such exercise, the determination of the Exercise Price shall be appropriately adjusted to apply to such Alternate Consideration based on the amount of Alternate Consideration issuable in respect of one share of Common Stock in such Fundamental Transaction, and the Company shall apportion the Exercise Price among the Alternate Consideration in a reasonable manner reflecting the relative value of any different components of the Alternate Consideration. If holders of Common Stock are given any choice as to the securities, cash or property to be received in a Fundamental Transaction, then the Holder shall be given the same choice as to the Alternate Consideration it receives upon any exercise of this Warrant following such Fundamental Transaction. Any successor to the Company or surviving entity in such Fundamental Transaction shall issue to the Holder a new warrant substantially in the form of this Warrant and consistent with the foregoing provisions and evidencing the Holder's right to purchase the Alternate Consideration for the aggregate Exercise Price upon exercise thereof.

(2) Notwithstanding Section 2(d)(1) above, at any time during the period beginning after the Holder's receipt of a Fundamental Transaction Notice (as defined below) from the Company and ending ten (10) trading days prior to the scheduled consummation of such Fundamental Transaction, the Holder may require the Company to redeem (a "Redemption Upon Fundamental Transaction") all of this Warrant pursuant to the provisions of Section 2(d)(1) above by delivering written notice thereof ("Fundamental Transaction Redemption Notice") to the Company; provided, that such Fundamental Transaction Redemption Notice shall be irrevocable by the Holder. If the Holder properly delivers a Fundamental Transaction Redemption Notice to the Company in accordance with the terms of this Warrant and such Fundamental Transaction is consummated, the Warrant shall be redeemed by the Company at a price payable (x) in the case of a Cash-Out Fundamental Transaction (as defined below) or in the case of a Mixed Fundamental Transaction (as defined below) to the extent of the percentage of the cash consideration in such Mixed Fundamental Transaction (determined in accordance with the definition of a Mixed Fundamental Transaction below), in cash equal to the Black Scholes Value (as defined below) of this Warrant, and (y) in the case of a Fundamental Transaction not described in the foregoing subclause (x) or to the extent of the percentage of the consideration represented by securities of the

successor entity in a Mixed Fundamental Transaction (as determined in accordance with the definition of Mixed Fundamental Transaction below), in a number of shares of the Common Stock equal to the Black Scholes Value of this Warrant subject to redemption under this clause (y) divided by the Weighted Average Price of the Common Stock on the principal securities exchange or other securities market on which the Common Stock is then being traded on the trading day immediately preceding the date on which the Fundamental Transaction is consummated.

(3) The terms of any agreement pursuant to which a Fundamental Transaction is effected shall include terms requiring any such successor or surviving entity to comply with the provisions of this Section 2(d) and ensuring that the provisions of this Warrant (or any such replacement security) shall similarly apply to subsequent transactions analogous to a Fundamental Transaction.

(e) Notice of Fundamental Transaction . The Company shall provide written notice to the Holder of a Fundamental Transaction reasonably promptly after public announcement thereof (and, in any event, not less than twenty (20) trading days prior to the consummation of such Fundamental Transaction) and such notice shall include (i) the projected date of consummation of the Fundamental Transaction to the extent known at the time such notice is delivered and (ii) the expected consideration to be received by the Company's stockholders in such Fundamental Transaction (including an indication as to whether the Fundamental Transaction is expected to constitute a Cash-Out Fundamental Transaction or Mixed Fundamental Transaction or other form of Fundamental Transaction) (such notice, the " Fundamental Transaction Notice ").

(f) Definitions .

(1) " Black Scholes Value " shall mean the value of this Warrant based on the Black and Scholes Option Pricing Model obtained from the OV function on Bloomberg determined as of the day of the closing of the applicable Fundamental Transaction for pricing purposes and reflecting (i) a risk-free interest rate corresponding to the U.S. Treasury rate for a period equal to the remaining term of this Warrant as of such date of request, (ii) an expected volatility equal to the greater of 100% and the 100-day volatility obtained from the HVT function on Bloomberg as of the day immediately following the public announcement of the applicable Fundamental Transaction and (iii) the underlying price per share used in such calculation shall be the sum of the price per share being offered in cash, if any, plus the value of any non-cash consideration, if any, being offered in the Fundamental Transaction, such non-cash values to be as set forth in any definitive agreement for the Fundamental Transaction that has been executed around the time of the first public announcement of the Fundamental Transaction or, if no such value is determinable from such definitive agreement, based on the closing market price for shares of the successor entity on its principal securities exchange or quotation system on the trading day preceding the first public announcement of the Fundamental Transaction or, if the successor entity is not a Publicly Traded Successor Entity, then as mutually determined in good faith by the Holder and the Company's Board of Directors. In addition, for purposes of determining the Black Scholes Value, this Warrant shall be deemed to be exercisable from and after the Date of Issuance of the Warrant regardless of any restrictions on exercisability.

(2) " Bloomberg " means Bloomberg Financial Markets.

(3) A " Cash-Out Fundamental Transaction " shall mean a Fundamental Transaction in which the consideration payable to holders of the Common Stock in connection with the Fundamental Transaction consists solely of cash.

(4) A " Fundamental Transaction " shall mean (i) a merger or consolidation of the Company with another entity, in which the Company is not the survivor or the stockholders of the Company immediately prior to such merger or consolidation do not own, directly or indirectly, at least 50% of the voting securities of the surviving entity, (ii) the Company effects any sale of all or substantially all of its assets or a majority of its Common Stock is acquired by a third party, (iii) a purchase, tender or exchange offer accepted by the holders of a majority of the outstanding voting shares of capital stock of the Company, directly or indirectly, in one or more related transactions, (iv) a "person" or "group" (as these terms are used for purposes of Section 13(d) and 14(d) of the Securities Exchange Act of 1934, as amended (the " Exchange Act ")) is or shall become the "beneficial owner" (as defined in Rule 13d-3 under the Exchange Act), directly or indirectly at least a majority of the voting power of the capital stock of the Company through a stock purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with another Person, or (v) the Company has elected to reorganize, recapitalize or reclassify its Common Stock (other than to change domicile).

(5) A " Mixed Fundamental Transaction " shall mean a Fundamental Transaction where the consideration payable to stockholders of the Company consists partially of cash and partially of securities of a successor entity. If the successor entity is a publicly traded entity whose shares (or American Depositary Shares representing such shares) are quoted on or listed for trading on the over-the-counter bulletin board, the New York Stock Exchange, Inc., the NYSE Arca, the NASDAQ Capital Market, the NASDAQ Global Market, the NASDAQ Global Select Market or the NYSE Amex (" Publicly Traded Successor Entity "), the percentage of consideration represented by securities of such successor entity shall be equal to the quotient of (x) the product of the aggregate anticipated number of shares of the Publicly Traded Successor Entity to be issued (based on the trading day preceding the first public announcement of the Mixed Fundamental Transaction) to holders of the Common Stock of the Company multiplied by the closing market price for such shares of the Publicly Traded Successor Entity on its principal securities exchange on the trading day preceding the first public announcement of the Mixed Fundamental Transaction, divided by (y) the sum of the amount determined in subclause (x) plus the aggregate value of other consideration, including cash consideration, in such Fundamental Transaction. If the successor entity is not a Publicly Traded Successor Entity, the percentage of consideration represented by securities of such successor entity shall be as determined in good faith by the Company's Board of Directors.

(6) " Weighted Average Price " shall mean, for any security as of any date, the dollar volume-weighted average price for such security on the NASDAQ Global Market during the period beginning at 9:30:01 a.m., New York City time, and ending at 4:00:00 p.m., New York City time, as reported by Bloomberg through its "Volume at Price" function or, if the foregoing does not apply, the dollar volume-weighted average price of such security in the over-the-counter market on the electronic bulletin board for such security during the period beginning at 9:30:01 a.m., New York City time, and ending at 4:00:00 p.m., New York City time, as reported by Bloomberg, or, if

no dollar volume-weighted average price is reported for such security by Bloomberg for such hours, the average of the highest closing bid price and the lowest closing ask price of any of the market makers for such security as reported in the pink sheets. If the Weighted Average Price cannot be calculated for such security on such date on any of the foregoing bases, the Weighted Average Price of such security on such date shall be the fair market value as determined in good faith by the Company's Board of Directors. All such determinations shall be appropriately adjusted for any share dividend, share split or other similar transaction during such period.

3. NO STOCKHOLDER RIGHTS. Until the exercise of this Warrant, the Holder shall not have, nor exercise, any rights as a stockholder of the Company (including without limitation the right to notification of stockholder meetings or the right to receive any notice or other communication concerning the business and affairs of the Company), except as provided in Section 9 below.

4. COVENANT TO PERFORM; NONCIRCUMVENTION. The Company hereby covenants and agrees that the Company will at all times in good faith carry out all the provisions of this Warrant and will not, by amendment of its certificate of incorporation, bylaws or other organizational documents or through a Fundamental Transaction, dissolution, sale of assets or any other voluntary action, avoid or seek to avoid the observance or performance of any of the terms of this Warrant. Without limiting the generality of the foregoing, the Company (i) shall not increase the par value of any shares of Common Stock receivable upon the exercise of this Warrant above the Exercise Price then in effect, (ii) shall take such actions as may be necessary or appropriate in order that the Company may validly and legally issue fully paid and nonassessable shares of Common Stock upon the exercise of this Warrant, and (iii) shall, so long as this Warrant is outstanding, take action necessary to reserve and keep available out of its authorized and unissued shares of Common Stock, solely for the purpose of effecting the exercise of this Warrant, 100% of the number of shares of Common Stock issuable upon exercise of this Warrant then outstanding (without regard to any limitations on exercise).

5. MECHANICS OF EXERCISE.

(a) Delivery of Warrant Shares Upon Exercise . This Warrant may be exercised by the Holder hereof upon the delivery of a Notice of Exercise attached hereto as Exhibit A duly completed and executed on behalf of the Holder hereof, at the principal office of the Company together with payment in full of the Exercise Price (unless the Holder has elected to Net Exercise) then in effect with respect to the number of Warrant Shares as to which the Warrant is being exercised. This Warrant shall be deemed to have been exercised immediately prior to the close of business on the date of its surrender for exercise as provided above, and the person entitled to receive the Warrant Shares issuable upon such exercise shall be treated for all purposes as the holder of such shares of record as of the close of business on such date. The Holder shall not be required to deliver the original Warrant in order to effect an exercise hereunder. [Execution and delivery of the Exercise Notice with respect to less than all of the Warrant Shares shall have the same effect as cancellation of the original Warrant and issuance of a new Warrant evidencing the right to purchase the remaining number of Warrant Shares.] [5]

[5] **Note to Form** : This sentence will be included only for Warrants issued to NEA, EcoR1, Sphera and any Purchasers affiliated therewith.

On or before the second (2nd) business day following the date on which the Company has duly received each of the Exercise Notice and the Aggregate Exercise Price (or a duly executed and delivered notice of Cashless Exercise), the Company shall transmit by facsimile an acknowledgment of confirmation of receipt of the Exercise Notice to the Holder and the Company's transfer agent (" Transfer Agent "). On or before the third (3rd) business day following the date on which the Company has received the Exercise Notice (the " Share Delivery Date "), the Company shall (X) provided that the Transfer Agent is participating in The Depository Trust Company (" DTC ") Fast Automated Securities Transfer Program, upon the request of the Holder, credit such aggregate number of Warrant Shares to which the Holder is entitled pursuant to such exercise to the Holder's or its designee's balance account with DTC through its Deposit Withdrawal Agent Commission system, or (Y) if the Transfer Agent is not participating in the DTC Fast Automated Securities Transfer Program, issue and dispatch by overnight courier to the address as specified in the Exercise Notice, a certificate, registered in the Company's share register in the name of the Holder or its designee, for the number of shares of Common Stock to which the Holder is entitled pursuant to such exercise. Upon delivery of the Exercise Notice and the payment of the Aggregate Exercise Price (or a duly executed and delivered notice of Cashless Exercise), the Holder shall be deemed for all corporate purposes to have become the holder of record of the Warrant Shares with respect to which this Warrant has been exercised, irrespective of the date such Warrant Shares are credited to the Holder's DTC account or the date of delivery of the certificates or book-entry position evidencing such Warrant Shares, as the case may be. No fractional shares of Common Stock are to be issued upon the exercise of this Warrant, but rather the number of shares of Common Stock to be issued shall be rounded down to the nearest whole number. The Company shall pay any and all taxes (other than taxes based upon the income of the Holder) which may be payable with respect to the issuance and delivery of Warrant Shares upon exercise of this Warrant; provided , that the Company shall not be required to pay any tax that may be payable in respect of any transfer involved in the issue and delivery of shares of Common Stock in any name other than that of the Holder, in either case with respect to any income or transfer tax due by the Holder with respect to such shares of Common Stock issued upon exercise of this Warrant. [Notwithstanding the foregoing, this Warrant may be exercised in part if such partial exercise is required by Section 5(c) hereof. If this Warrant is submitted in connection with any exercise pursuant to this Section 5(a) and the number of Warrant Shares represented by this Warrant submitted for exercise is greater than the number of Warrant Shares being acquired upon an exercise due the limitations provided by Section 5(c), then the Company shall as soon as practicable and in no event later than five business days after any exercise and at its own expense, issue a new Warrant (in accordance with Section 10) representing the right to purchase the number of Warrant Shares purchasable immediately prior to such exercise under this Warrant, less the number of Warrant Shares with respect to which this Warrant is exercised.] [6]

[6] **Note to Form** : This sentence will be included only for Warrants issued to NEA, EcoR1, Sphera and any Purchasers affiliated therewith.

(b) Company's Failure to Timely Deliver Securities . If the Company shall fail for any reason or for no reason to issue to the Holder within three (3) business days of receipt of the Exercise Notice in compliance with the terms of this Section 5 , a certificate or book entry position for the number of shares of Common Stock to which the Holder is entitled and register such shares of Common Stock on the Company's share register or to credit the Holder's balance account with DTC for such number of shares of Common Stock to which the Holder is entitled upon the Holder's exercise of this Warrant, and if on or after such trading day the Holder purchases (in an open market transaction or otherwise) shares of Common Stock to deliver in satisfaction of a sale by the Holder of shares of Common Stock issuable upon such exercise that the Holder anticipated receiving from the Company (a " Buy-In "), then the Company shall, within three (3) business days after the Holder's request and in the Holder's discretion, either (i) pay cash to the Holder in an amount equal to the Holder's total purchase price (including brokerage commissions, if any) for the shares of Common Stock so purchased (the " Buy-In Price "), at which point the Company's obligation to deliver such certificate or evidence of book entry position (and to issue such Warrant Shares) shall terminate, or (ii) promptly honor its obligation to deliver to the Holder a certificate or certificates or evidence of book entry position representing such Warrant Shares and pay cash to the Holder in an amount equal to the excess (if any) of the Buy-In Price over the product of (A) such number of shares of Common Stock, times (B) the closing bid price on the date of exercise.

(c) Holder's Exercise Limitation . [7] Notwithstanding anything to the contrary contained in this Warrant, this Warrant shall not be exercisable by the Holder pursuant to Section 1 or otherwise, to the extent (but only to the extent) that after giving effect to such issuance after exercise as set forth on the applicable Notice of Exercise, the Holder (together with the Holder's affiliates, and any other persons acting as a group together with the Holder or any of the Holder's affiliates), would beneficially own in excess of [19.99%] [8] [4.99%] [9] [9.99%] [10] of the number of shares of Common Stock outstanding immediately after giving effect to the issuance of shares of Common Stock issuable upon exercise of this Warrant (the " Beneficial Ownership Limitation "). Notwithstanding the forgoing, the Holder shall have the right to increase or decrease the Beneficial Ownership Limitation to any other number (in no event to exceed 19.99%), with any increase to be effective only upon the Holder providing the Company with prior written notice of such increase, which shall be effective 61 days after delivery of such notice to the Company. To the extent the above limitation applies, the determination of whether this Warrant shall be exercisable (vis-à-vis other convertible, exercisable or exchangeable securities owned by the Holder or any of its affiliates) and of which such securities shall be exercisable (as among all such securities owned by the Holder) shall, subject to such Beneficial Ownership Limitation, be determined by the Holder, and the Company shall have no responsibility for determining the accuracy of the Holder's determination.

[7] **Note to Form** : This Section 5(c) will be included only for Warrants issued to NEA, EcoR1, Sphera and any Purchasers affiliated therewith.
[8] **Note to Form** : This figure will be included only for Warrants issued to NEA and any Purchasers affiliated therewith.
[9] **Note to Form** : This figure will be included only for Warrants issued to EcoR1 and any Purchasers affiliated therewith.
[10] **Note to Form** : This figure will be included only for Warrants issued to Sphera and any Purchasers affiliated therewith.

No prior inability to exercise this Warrant pursuant to this paragraph shall have any effect on the applicability of the provisions of this paragraph with respect to any subsequent determination of exercisability. For purposes of the calculation of the Beneficial Ownership Limitation, the aggregate number of shares of Common Stock beneficially owned by the Holder and its affiliates shall include the number of shares of Common Stock issuable upon exercise of this Warrant with respect to which such determination is being made, but shall exclude the number of shares of Common Stock which would be issuable upon (i) exercise of the remaining, nonexercised portion of this Warrant beneficially owned by the Holder or any of its affiliates and (ii) exercise or conversion of the unexercised or nonconverted portion of any other securities of the Company (including, without limitation, any other convertible notes or convertible preferred stock or warrants) subject to a limitation on conversion or exercise analogous to the limitation contained herein beneficially owned by the Holder or any of its affiliates. Except as set forth in the preceding sentence, for purposes of this section, beneficial ownership shall be calculated in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder, it being acknowledged by the Holder that the Company is not representing to the Holder that such calculation is in compliance with Section 13(d) of the Exchange Act and the Holder is solely responsible for any schedules required to be filed in accordance therewith. In addition, a determination as to any group status as contemplated above shall be determined in accordance with Section 13(d) of the Exchange Act and the rules and regulations promulgated thereunder. For purposes of this Section 5(c), in determining the number of outstanding shares of Common Stock, the Holder may rely on the number of outstanding shares of Common Stock as reflected in (A) the Company's most recent periodic or annual report filed with the Securities and Exchange Commission, as the case may be, (B) a more recent public announcement by the Company or (C) a more recent written notice by the Company or the Company's transfer agent setting forth the number of shares of Common Stock outstanding. In any case, the number of outstanding shares of Common Stock shall be determined after giving effect to the conversion or exercise of securities of the Company, including this Warrant, by the Holder or its affiliates since the date as of which such number of outstanding shares of Common Stock was reported. The provisions of this paragraph shall be construed and implemented in a manner otherwise than in strict conformity with the terms of this Section 5(c) to correct this paragraph (or any portion hereof) which may be defective or inconsistent with the intended Beneficial Ownership Limitation herein contained or to make changes or supplements necessary or desirable to properly give effect to such limitation. The limitations contained in this paragraph shall apply to a successor holder of this Warrant. Upon the reasonable written request of the Holder, the Company shall within three business days confirm orally or in writing to the Holder the number of shares of Common Stock then outstanding, including by virtue of any prior conversion or exercise of convertible or exercisable securities into Common Stock, including, without limitation, pursuant to this Warrant or securities issued pursuant to the Purchase Agreement.

6. CERTIFICATE OF ADJUSTMENT. Whenever the Exercise Price or number or type of securities issuable upon exercise of this Warrant is adjusted, as herein provided, the Company shall, at its expense, promptly deliver to the Holder a certificate of an officer of the Company setting forth the nature of such adjustment and showing in detail the facts upon which such adjustment is based.

7. COMPLIANCE WITH SECURITIES LAWS.

(a) The Holder understands that this Warrant and the Warrant Shares are characterized as "restricted securities" under the federal securities laws inasmuch as they are being acquired from the Company in a transaction not involving a public offering and that under such laws and applicable regulations this Warrant and the Warrant Shares may be resold without registration under the Securities Act of 1933, as amended (the " Securities Act "), only in certain limited circumstances. In this connection, the Holder represents that it is familiar with Rule 144 under the Securities Act, as presently in effect, and understands the resale limitations imposed thereby and by the Securities Act.

(b) Prior and as a condition to the sale or transfer of the Warrant Shares issuable upon exercise of this Warrant, the Holder shall furnish to the Company such certificates, representations, agreements and other information, including an opinion of counsel, as the Company or the Company's transfer agent reasonably may require to confirm that such sale or transfer is being made pursuant to an exemption from, or in a transaction not subject to, the registration requirements of the Securities Act, unless such Warrant Shares are being sold or transferred pursuant to an effective registration statement.

(c) The Holder acknowledges that the Company may place a restrictive legend on the Warrant Shares issuable upon exercise of this Warrant in order to comply with applicable securities laws, unless such Warrant Shares are otherwise freely tradable under Rule 144 of the Securities Act.

8. NOTICES OF RECORD DATE. In the event of:

(a) any taking by the Company of a record of the holders of any class of securities for the purpose of determining the holders thereof who are entitled to receive any dividend (other than a cash dividend payable out of earned surplus of the Company) or other distribution, or any right to subscribe for, purchase or otherwise acquire any shares of stock of any class or any other securities or property, or to receive any other right; or

(b) any voluntary or involuntary dissolution, liquidation or winding-up of the Company,

then and in each such event the Company will mail or cause to be delivered to the Holder (or a permitted transferee) a notice specifying (i) the date on which any such record is to be taken for the purpose of such dividend, distribution or right, and stating the amount and character of such dividend, distribution or right, and (ii) the date on which any such dissolution, liquidation or winding-up is to take place, and the time, if any, as of which the holders of record of Common Stock (or other securities) shall be entitled to exchange their shares of Common Stock (or other securities) for securities or other property deliverable upon such dissolution, liquidation or winding-up. Such notice shall be delivered at least ten (10) days prior to the date therein specified.

9. REPLACEMENT OF WARRANTS. On receipt of evidence reasonably satisfactory to the Company of the loss, theft, destruction or mutilation of this Warrant and, in the case of any such loss, theft or destruction of this Warrant, on delivery of an indemnity agreement reasonably

satisfactory in form and amount to the Company or, in the case of any such mutilation, on surrender and cancellation of such Warrant, the Company at its expense will execute and deliver, in lieu thereof, a new Warrant of like tenor.

10. ISSUANCE OF NEW WARRANTS. Whenever the Company is required to issue a new Warrant pursuant to the terms of this Warrant, such new Warrant (i) shall be of like tenor with this Warrant, (ii) shall represent, as indicated on the face of such new Warrant, the right to purchase the Warrant Shares then underlying this Warrant (or in the case of a new Warrant being issued pursuant to Sections 9 or 10, the Warrant Shares designated by the Holder which, when added to the number of shares of Common Stock underlying the other new Warrants issued in connection with such issuance, does not exceed the number of Warrant Shares then underlying this Warrant), (iii) shall have an issuance date, as indicated on the face of such new Warrant which is the same as the Issuance Date, and (iv) shall have the same rights and conditions as this Warrant.

11. AMENDMENT AND WAIVER. Except as otherwise provided herein, the provisions of this Warrant may be amended and the Company may take any action herein prohibited, or omit to perform any act herein required to be performed by it, only if the Company has obtained the written consent of the Holder.

12. TRADING DAYS. If the last or appointed day for the taking of any action or the expiration of any right required or granted herein shall be other than a day on which the Common Stock is traded (which for the avoidance of doubt includes a Saturday, Sunday or a legal U.S. holiday) on the NASDAQ Global Market, or, if the NASDAQ Global Market is not the principal trading market for the Common Stock or other such securities, as applicable, then on the principal securities exchange or securities market on which the Common Stock is then traded, then such action may be taken or such right may be exercised on the next succeeding day on which the Common Stock is so traded.

13. TRANSFERS; EXCHANGES.

(a) Subject to compliance with applicable federal and state securities laws and Section 8 hereof, this Warrant may be transferred by the Holder with respect to all of the Warrant Shares purchasable hereunder. For a transfer of this Warrant as an entirety by Holder, upon surrender of this Warrant to the Company, together with the Notice of Assignment in the form attached hereto as Exhibit B duly completed and executed on behalf of the Holder, the Company shall issue a new Warrant of the same denomination to the assignee. Upon surrender of this Warrant to the Company, together with the Notice of Assignment in the form attached hereto as Exhibit B duly completed and executed on behalf of the Holder, for transfer of this Warrant with respect to a portion of the Warrant Shares purchasable hereunder, the Company will forthwith issue and deliver upon the order of the Holder a new Warrant (in accordance with Section 10), registered as the Holder may request, representing the right to purchase the number of Warrant Shares being transferred by the Holder and, if less than the total number of Warrant Shares then underlying this Warrant is being transferred, a new Warrant (in accordance with Section 10) to the Holder representing the right to purchase the number of Warrant Shares not being transferred.

(b) This Warrant is exchangeable, without expense, at the option of the Holder, upon presentation and surrender hereof to the Company for other warrants of different denominations entitling the holder thereof to purchase in the aggregate the same number of shares of Common Stock purchasable hereunder. This Warrant may be combined with other warrants that carry the same rights upon presentation hereof at the principal office of the Company together with a written notice specifying the denominations in which new warrants are to be issued to the Holder and signed by the Holder hereof. The term "Warrants" as used herein includes any warrants into which this Warrant may be divided or exchanged.

14. GOVERNING LAW; VENUE. All questions concerning the construction, validity, enforcement and interpretation of this Warrant shall be governed by and construed and enforced in accordance with the internal laws of the State of California, without regard to the principles of conflicts of law thereof. With respect to any disputes arising out of or related to this Warrant, the parties consent to the exclusive jurisdiction of, and venue in, the state courts in San Francisco County in the State of California (or in the event of exclusive federal jurisdiction, the courts of the Northern District of California). Each party hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof via registered or certified mail or overnight delivery (with evidence of delivery) to such party at the address in effect for notices to it under this Warrant and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any other manner permitted by law. **EACH OF THE COMPANY AND THE HOLDER HEREBY IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, ANY AND ALL RIGHT TO TRIAL BY JURY IN ANY LEGAL PROCEEDING ARISING OUT OF OR RELATING TO THIS WARRANT OR THE TRANSACTIONS CONTEMPLATED HEREBY.**

15. DISPUTE RESOLUTION. In the case of a dispute as to the determination of the Exercise Price, the arithmetic calculation of the Warrant Shares or under Sections 2 or 6, the disputing party shall submit the disputed determinations or arithmetic calculations to the other party. If the Holder and the Company are unable to agree upon such determination or calculation of the Exercise Price or the Warrant Shares within three (3) business days of such disputed determination or arithmetic calculation being submitted to the non-disputing party, then the Company shall, within two (2) business days submit the dispute to an independent, reputable accountant. The Company shall cause, at the expense of the prevailing party, the accountant to perform the determinations or calculations and notify the Company and the Holder of the results no later than ten (10) business days from the time it receives the disputed determinations or calculations. Such accountant's determination or calculation shall be binding upon all parties absent demonstrable error.

16. REMEDIES, OTHER OBLIGATIONS, BREACHES AND INJUNCTIVE RELIEF. The remedies provided in this Warrant shall be cumulative and in addition to all other remedies available under this Warrant, at law or in equity (including a decree of specific performance and/or other injunctive relief), and nothing herein shall limit the right of the Holder to pursue actual damages for any failure by the Company to comply with the terms of this Warrant.

17. CONSTRUCTION; HEADINGS. This Warrant shall be deemed to be jointly drafted by the Company and the Holder and shall not be construed against any person as the drafter hereof. The headings of this Warrant are for convenience of reference and shall not form part of, or affect the interpretation of, this Warrant.

18. MISCELLANEOUS. All notices, requests, consents and other communications hereunder shall be in writing, shall be sent by confirmed electronic mail, or mailed by first-class registered or certified airmail, or nationally recognized overnight express courier, postage prepaid, and shall be deemed given when so sent in the case of electronic mail transmission, or when so received in the case of mail or courier, and addressed as follows: (a) if to the Company, at 7000 Shoreline Court, Suite 371, South San Francisco, California, Attention: Chief Executive Officer, Email: #######@achaogen.com; with a copy to (which shall not constitute notice) Latham & Watkins LLP, 140 Scott Drive, Menlo Park, California 94025, Attention: Mark Roeder, E-Mail: mark.roeder@lw.com and (b) if to the Holder, at such address or addresses (including copies to counsel) as may have been furnished by the Holder to the Company in writing. The invalidity or unenforceability of any provision hereof shall in no way affect the validity or enforceability of any other provisions.

[Signature Page Follows]

IN WITNESS WHEREOF , this Common Stock Purchase Warrant is issued effective as of the date first set forth above.

ACHAOGEN, INC.

By: __
Name: Kenneth J. Hillan, M.B., Ch. B.
Title: President and Chief Executive Officer

EXHIBIT A

NOTICE OF INTENT TO EXERCISE
(To be signed only upon exercise of Warrant)

To: Achaogen, Inc.

The undersigned, the Holder of the attached Warrant, hereby irrevocably elects to exercise the purchase right represented by such Warrant for, and to purchase thereunder, _____ shares of Common Stock of Achaogen, Inc., a Delaware corporation (the " Company "), and (choose one)

_____ herewith makes payment of USD _____ thereof

or

_____ elects to Net Exercise the Warrant pursuant to Section 1(b)(2) thereof.

The undersigned requests that the certificates or book entry position evidencing the shares to be acquired pursuant to such exercise be issued in the name of, and delivered to _____, whose address is
_____.

[By its delivery of this Exercise Notice, the undersigned represents and warrants to the Company that in giving effect to the exercise evidenced hereby the Holder will not beneficially own in excess of the number of shares of Common Stock (as determined in accordance with Section 13(d) of the Securities Exchange Act of 1934, as amended) permitted to be owned under Section 5(c) of the Warrant to which this notice relates.] [11]

By its signature below the undersigned hereby represents and warrants that it is an "accredited investor" as defined in Rule 501(a) of Regulation D promulgated under the Securities Act of 1933, as amended, and agrees to be bound by the terms and conditions of the attached Warrant as of the date hereof, including Section 8 thereof.

DATED: _____

(Signature must conform in all respects to name of the Holder as specified on the face of the Warrant)

_____

« Holder »
Address: _____

_____

_____

[11] **Note to Form** : This sentence will be included only for Warrants issued to NEA, EcoR1, Sphera and any Purchasers affiliated therewith.

EXHIBIT B

NOTICE OF ASSIGNMENT FORM

FOR VALUE RECEIVED, «Holder» (the " Assignor ") hereby sells, assigns and transfers all of the rights of the undersigned Assignor under the attached Warrant with respect to the number of shares of common stock of Achaogen, Inc., a Delaware corporation (the " Company "), covered thereby set forth below, to the following " Assignee " and, in connection with such transfer, represents and warrants to the Company that the transfer is in compliance with Section 8 of the Warrant and applicable federal and state securities laws:

NAME OF ASSIGNEE ADDRESS

Number of shares: __

Dated: __ Signature: __

ASSIGNEE ACKNOWLEDGMENT

The undersigned Assignee acknowledges that it has reviewed the attached Warrant and by its signature below it hereby represents and warrants that it is an "accredited investor" as defined in Rule 501(a) of Regulation D promulgated under the Securities Act of 1933, as amended, and agrees to be bound by the terms and conditions of the Warrant as of the date hereof, including Section 8 thereof.

Signature: __

By: __
Its: __

Address:

_____
_____
_____

APPENDIX I

PURCHASER QUESTIONNAIRE

To: Achaogen, Inc.

This Purchaser Questionnaire (" Questionnaire ") must be completed by each potential investor in connection with the offer and sale of the shares of the common stock, par value $0.001 per share, and shares of common stock that may be issued upon exercise of certain warrants (collectively, the " Securities "), of Achaogen, Inc., a Delaware corporation (the " Corporation "). The Securities are being offered and sold by the Corporation without registration under the Securities Act of 1933, as amended (the " Securities Act "), and the securities laws of certain states, in reliance on the exemptions contained in Section 4(a)(2) of the Securities Act and on Regulation D promulgated thereunder and in reliance on similar exemptions under applicable state laws. The Corporation must determine that a potential investor meets certain suitability requirements before offering or selling the Securities to such investor. The purpose of this Questionnaire is to assure the Corporation that each investor will meet the applicable suitability requirements. The information supplied by you will be used in determining whether you meet such criteria, and reliance upon the private offering exemptions from registration is based in part on the information herein supplied.

This Questionnaire does not constitute an offer to sell or a solicitation of an offer to buy any security. By signing this Questionnaire, you will be authorizing the Corporation to provide a completed copy of this Questionnaire to such parties as the Corporation deems appropriate in order to ensure that the offer and sale of the Securities will not result in a violation of the Securities Act or the securities laws of any state and that you otherwise satisfy the suitability standards applicable to purchasers of the Securities. All potential investors must answer all applicable questions and complete, date and sign this Questionnaire. Please print or type your responses and attach additional sheets of paper if necessary to complete your answers to any item.

PART A. BACKGROUND INFORMATION

Name of Beneficial Owner of the Securities:

Business Address:_____
(Number and Street)

City: _____ State: _____ Zip Code: _____

Telephone Number: _____

If a corporation, partnership, limited liability company, trust or other entity :

Type of entity: _____
State of formation: _____ Approximate Date of formation: _____

Were you formed for the purpose of investing in the securities being offered? Yes ☐ No ☐

If an individual :

Residence Address: _____

(Number and Street)

City: _____ State: _____ Zip Code: _____

Telephone Number: _____

Age: _____ Citizenship: _____ Where registered to vote: _____

Set forth in the space provided below the state(s), if any, in the United States in which you maintained your residence during the past two years and the dates during which you resided in each state:

Are you a director or executive officer of the Corporation? Yes ☐ No ☐

Social Security or Taxpayer Identification No.: _____

PART B. ACCREDITED INVESTOR QUESTIONNAIRE

In order for the Corporation to offer and sell the Securities in conformance with state and federal securities laws, the following information must be obtained regarding your investor status. Please initial each category applicable to you as a purchaser of Securities of the Corporation.

☐ (1) A bank as defined in Section 3(a)(2) of the Securities Act, or any savings and loan association or other institution as defined in Section 3(a)(5)(A) of the Securities Act whether acting in its individual or fiduciary capacity.

☐ (2) A broker or dealer registered pursuant to Section 15 of the Securities Exchange Act of 1934, as amended (the " Exchange Act ").

☐ (3) An insurance company as defined in Section 2(a)(13) of the Securities Act.

☐ (4) An investment company registered under the Investment Company Act of 1940 or a business development company as defined in Section 2(a)(48) of that act.

☐ (5) A Small Business Investment Company licensed by the U.S. Small Business Administration under Section 301(c) or (d) of the Small Business Investment Act of 1958.

☐ (6) A plan established and maintained by a state, its political subdivisions, or any agency or instrumentality of a state or its political subdivisions, for the benefit of its employees, if such plan has total assets in excess of $5,000,000.

☐ (7) An employee benefit plan within the meaning of the Employee Retirement Income Security Act of 1974, if the investment decision is made by a plan fiduciary, as defined in Section 3(21) of such act, which is either a bank, savings and loan association, insurance company or registered investment adviser, or if the employee benefit plan has total assets in excess of $5,000,000 or, if a self-directed plan, with investment decisions made solely by persons that are accredited investors.

☐ (8) A private business development company as defined in Section 202(a)(22) of the Investment Advisers Act of 1940.

☐ (9) An organization described in Section 501(c)(3) of the Internal Revenue Code, a corporation, Massachusetts or similar business trust, or partnership, not formed for the specific purpose of acquiring the Securities, with total assets in excess of $5,000,000.

☐ (10) A trust, with total assets in excess of $5,000,000, not formed for the specific purpose of acquiring the Securities, whose purchase is directed by a sophisticated person who has such knowledge and experience in financial and business matters that such person is capable of evaluating the merits and risks of investing in the Corporation.

☐ (11) A natural person whose individual net worth, or joint net worth with that person's spouse, at the time of his purchase exceeds $1,000,000 (exclusive of the value of that person's primary residence).

☐ (12) A natural person who had an individual income in excess of $200,000 in each of the two most recent years, or joint income with that person's spouse in excess of $300,000, in each of those years, and has a reasonable expectation of reaching the same income level in the current year.

☐ (13) An executive officer or director of the Corporation.

☐ (14) An entity in which all of the equity owners qualify under any of the above subparagraphs. If the undersigned belongs to this investor category only, list the equity owners of the undersigned, and the investor category which each such equity owner satisfies.

PART C. BAD ACTOR QUESTIONNAIRE

1. During the past ten years, have you been convicted of any felony or misdemeanor that is related to any securities matter?

Yes ☐ (If yes, please continue to Question 1.a)

No ☐ (If no, please continue to Question 2)

a) If your answer to Question 1 was "yes", was the conviction related to: (i) the purchase or sale of any security; (ii) the making of any false filing with the Securities and Exchange Commission (the " SEC "); or (iii) the conduct of an underwriter, broker, dealer, municipal securities dealer, investment adviser or paid solicitor of purchasers of securities?

Yes ☐ No ☐

2. Are you subject to any court injunction or restraining order entered during the past five years that is related to any securities matter?

Yes ☐ (If yes, please continue to Question 2.a)

No ☐ (If no, please continue to Question 3)

a) If your answer to Question 2 was "yes", does the court injunction or restraining order currently restrain or enjoin you from engaging or continuing to engage in any conduct or practice related to: (i) the purchase or sale of any security; (ii) the making of any false filing with the SEC; or (iii) the conduct of an underwriter, broker, dealer, municipal securities dealer, investment adviser or paid solicitor of purchasers of securities?

Yes ☐ No ☐

3. Are you subject to any final order [1] of any governmental commission, authority, agency or officer [2] (2) related to any securities, insurance or banking matter?

Yes ☐ (If yes, please continue to Question 3.a)

No ☐ (If no, please continue to Question 4)

a) If your answer to Question 3 was "yes":

i) Does the order currently bar you from: (i) associating with an entity regulated by such commission, authority, agency or officer; (ii) engaging in the business of securities, insurance or banking; or (iii) engaging in savings association or credit union activities?

Yes ☐ No ☐

ii) Was the order (i) entered within the past ten years and (ii) based on a violation of any law or regulation that prohibits fraudulent, manipulative or deceptive conduct?

Yes ☐ No ☐

4. Are you subject to any SEC disciplinary order? [3] (3)

Yes ☐ (If yes, please continue to Question 4.a)

No ☐ (If no, please continue to Question 5)

a) If your answer to Question 4 was "yes", does the order currently: (i) suspend or revoke your registration as a broker, dealer, municipal securities dealer or investment adviser; (ii) place limitations on your activities, functions or operations; or (iii) bar you from being associated with any particular entity or class of entities or from participating in the offering of any penny stock?

[1] A "final order" is defined under Rule 501(g) as a written directive or declaratory statement issued by a federal or state agency described in Rule 506(d)(1)(iii) under applicable statutory authority that provides for notice and an opportunity for a hearing, and that constitutes a final disposition or action by such federal or state agency.
[2] You may limit your response to final orders of: (i) state securities commissions (or state agencies/officers that perform a similar function); (ii) state authorities that supervise or examine banks, savings associations or credit unions; (iii) state insurance commissions (or state agencies/officers that perform a similar function); (iv) federal banking agencies; (v) the U.S. Commodity Futures Trading Commission; or (vi) the U.S. National Credit Union Administration.
[3] You may limit your response to disciplinary orders issued pursuant to Sections 15(b) or 15B(c) of the Exchange Act or Section 203(e) or (f) of the Investment Advisers Act of 1940 (the " Advisers Act ").

5. Are you subject to any SEC cease and desist order entered within the past five years?

Yes ☐ (If yes, please continue to Question 5.a)

No ☐ (If no, please continue to Question 6)

a) If your answer to Question 5 was "yes", does the order currently require you to cease and desist from committing or causing a violation or future violation of (i) any knowledge-based anti-fraud provision of the U.S. federal securities laws [4] or (ii) Section 5 of the Securities Act?

Yes ☐ No ☐

6. Have you been suspended or expelled from membership in, or suspended or barred from association with a member of, a registered national securities exchange or a registered national or affiliated securities association?

Yes ☐ (If yes, please describe the basis of any such suspension or expulsion and any related details in the space provided under Question 10 below) [5]

No ☐ (If no, please continue to Question 7)

7. Have you registered a securities offering with the SEC, made an offering under Regulation A or been named as an underwriter in any registration statement or Regulation A offering statement filed with the SEC?

Yes ☐ (If yes, please continue to Question 7.a)

No ☐ (If no, please continue to Question 8)

a) If your answer to Question 7 was "yes":

i) During the past five years, was any such registration statement or Regulation A offering statement the subject of a refusal order, stop order or order suspending the Regulation A exemption?

Yes ☐ No ☐

ii) Is any such registration statement or Regulation A offering statement currently the subject of an investigation or proceeding to determine whether a stop order or suspension order should be issued?

Yes ☐ No ☐

[4] Including (but not limited to) Section 17(a)(1) of the Securities Act, Section 10(b) of the Exchange Act and Rule 10b-5 thereunder, Section 15(c)(1) of the Exchange Act, and Section 206(1) of the Advisers Act or any other rule or regulation thereunder.

[5] In providing additional information, please explain whether or not the suspension or expulsion resulted from "any act or omission to act constituting conduct inconsistent with just and equitable principles of trade."

8. Are you subject to a U.S. Postal Service false representation order entered within the past five years?

Yes ☐ No ☐

9. Are you currently subject to a temporary restraining order or preliminary injunction with respect to conduct alleged by the U.S. Postal Service to constitute a scheme or device for obtaining money or property through the mail by means of false representations?

Yes ☐ No ☐

10. In the space provided below, describe any facts or circumstances that caused you to answer "yes" to any Question (indicating the corresponding Question number). Attach additional pages if necessary.

A. FOR EXECUTION BY AN INDIVIDUAL:

By: __

Print Name: __

__

Date

B. FOR EXECUTION BY AN ENTITY:

Entity Name:

By: __

Print Name: __

Title: __

__

Date

C. ADDITIONAL SIGNATURES (if required by partnership, corporation or trust document):

Entity Name:

By: __

Print Name: __

Title: __

__

Date

Entity Name:

By: __

Print Name: __

Title: __

__

Date

APPENDIX II

SELLING STOCKHOLDER NOTICE AND QUESTIONNAIRE

_____

Name of Selling Stockholder (please print)

ACHAOGEN, INC.

QUESTIONNAIRE FOR SELLING STOCKHOLDERS

IMPORTANT: IMMEDIATE ATTENTION REQUIRED

This Questionnaire is being furnished to all persons or entities (the " Purchasers ") electing to purchase shares of Common Stock (" Common Stock ") of Achaogen, Inc. (the " Company ") pursuant to the Securities Purchase Agreement by and among the Company and the Purchasers (the " Purchase Agreement ") to which this Questionnaire is an Appendix. This Questionnaire relates to certain information required to be disclosed in the Registration Statement on Form S-3 (the " Registration Statement ") being prepared by the Company for filing with the United States Securities and Exchange Commission (the " SEC ") pursuant to the Registration Rights Agreement entered into by and among the Company and the Purchasers (the " Registration Rights Agreement ") in connection with the Purchase Agreement. **The Company must receive a completed Questionnaire from each Purchaser in order to include such Purchaser's shares of Common Stock in the Registration Statement.**

The furnishing of accurate and complete responses to the questions posed in this Questionnaire is an extremely important part of the registration process. The inclusion of inaccurate or incomplete disclosures in the Registration Statement can result in potential liabilities, both civil and criminal, to the Company and to the individuals who furnish the information. Accordingly, Purchasers are advised to consult their own securities law counsel regarding the consequences of being named or not being named as a selling securityholder in the Registration Statement and related prospectus.

PLEASE GIVE A RESPONSE TO EVERY QUESTION , indicating "None" or "Not Applicable" where appropriate. **Please complete, sign, and return one copy of this Questionnaire by facsimile, email or overnight courier as soon as practicable .**

Latham & Watkins
140 Scott Drive
Menlo Park, CA 94025
Attn: Nicole Fritz
Fax: (650) 463-2600
nicole.fritz@lw.com

Unless stated otherwise, answers should be given as of the date you complete this Questionnaire. However, it is your responsibility to inform us of any changes that may occur to your situation. If there is any situation about which you have any doubt, or if you are uncertain as to the meaning of any terms used in this Questionnaire, please contact Nicole Fritz at: (650) 463-2626.

PART I - STOCK OWNERSHIP

Item 1 . Beneficial Ownership .

a. Deemed Beneficial Ownership . Please state the amount of securities of the Company you own on the date you complete this Questionnaire. (If none, please so state in each case.)

Amount Beneficially Owned [1]	Number of Shares of Common Stock Owned

Please state the number of shares owned by you or by family members, trusts and other organizations with which you have a relationship, and any other shares of which you may be deemed to be the "beneficial owner" [1] :

Total Shares: _____

Of such shares:

Shares as to which you have sole voting power: _____
Shares as to which you have shared voting power: _____

Shares as to which you have sole investment power: _____

Shares as to which you have shared investment power: _____

Shares which you will have a right to acquire before 60 days after the date you complete this questionnaire through the exercise of options, warrants or otherwise: _____

Do you have any present plans to exercise options or otherwise acquire, dispose of or to transfer shares of Common Stock of the Company between the date you complete this Questionnaire and the date which is 60 days after the date in which the Registration Statement is filed?

Answer:

If so, please describe.

b. Pledged Securities . If any of such securities have been pledged or otherwise deposited as collateral or are the subject matter of any voting trust or other similar agreement or of any contract providing for the sale or other disposition of such securities, please give the details thereof.

Answer:

c. Disclaimer of Beneficial Ownership . Do you wish to disclaim beneficial ownership [1] of any of the shares reported in response to Item 1(a)?

Answer:

If the answer is "Yes", please furnish the following information with respect to the person or persons who should be shown as the beneficial owner(s) [1] of the shares in question.

Name and Address of Actual Beneficial Owner	Relationship of Such Person To You	Number of Shares Beneficially Owned

d. Shared Voting or Investment Power over Securities . Will any person be deemed to have beneficial ownership over any of the Securities purchased by you pursuant to the Purchase Agreement?

Answer:

If the answer is "Yes", please furnish the following information with respect to the person or persons who should be shown as the beneficial owner(s) [1] of the Securities in question.

Name and Address of Beneficial Owner	Relationship of Such Person To You	Number of Shares Beneficially Owned

Item 2 . Major Shareholders . Please state below the names of persons or groups known by you to own beneficially [1] more than 5% of the Company's Common Stock.

Answer:

Item 3 . Change of Control . Do you know of any contractual arrangements, including any pledge of securities of the Company, the operation of which may at a subsequent date result in a change of control of the Company?

Answer:

Item 4 . Relationship with the Company . Please state the nature of any position, office or other material relationship you have, or have had within the past three years, with the Company or its affiliates.

Name	Nature of Relationship

Item 5 . Broker-Dealer Status . Is the Purchaser a broker-dealer registered pursuant to Section 15 of the Securities Exchange Act of 1934, as amended (the " Exchange Act ")?

□ Yes.

□ No.

If so, please answer the remaining questions in this section.

Note that the Company will be required to identify any registered broker-dealer as an underwriter in the Registration Statement and related prospectus.

a. If the Purchaser is a registered broker-dealer, please indicate whether the Purchaser purchased its Common Stock for investment or acquired them as transaction-based compensation for investment banking or similar services.

Answer:

Note that if the Purchaser is a registered broker-dealer and received Common Stock other than as transaction-based compensation, the Company is required to identify the Purchaser as an underwriter in the Registration Statement and related prospectus.

b. Is the Purchaser an affiliate of a registered broker-dealer? For purposes of this Question, an " affiliate " of a specified person or entity means a person or entity that directly, or

indirectly through one or more intermediaries, controls or is controlled by, or is under common control with, the person or entity specified.

□ Yes.

□ No.

If so, please answer the remaining questions in this section.

i. Please describe the affiliation between the Purchaser and any registered broker-dealers:

ii. If the Common Stock was received by the Purchaser other than in the ordinary course of business, please describe the circumstances:

iii. If the Purchaser, at the time of its receipt of Common Stock, has had any agreements or understandings, directly or indirectly, with any person to distribute the Common Stock, please describe such agreements or understandings:

Note that if the Purchaser is an affiliate of a broker-dealer and did not receive Common Stock in the ordinary course of business or at the time of receipt had any agreements or understandings, directly or indirectly, to distribute the securities, the Company must identify the Purchaser as an underwriter in the Registration Statement and related prospectus.

Item 6 . Nature of Beneficial Holding . The purpose of this question is to identify the ultimate natural person(s) or publicly held entity that exercise(s) sole or shared voting or dispositive power over the Registrable Securities (as defined in the Registration Rights Agreement).

a. Is the Purchaser a natural person?

□ Yes.

□ No.

b. Is the Purchaser required to file, or is it a wholly owned subsidiary of a company that is required to file, periodic and other reports (for example, Form 10-K, 10-Q, 8-K) with the SEC pursuant to Section 13(a) or 15(d) of the Exchange Act?

□ Yes.

□ No.

c. Is the Purchaser an investment company, or a subsidiary of an investment company, registered under the Investment Company Act of 1940, as amended?

□ Yes.

□ No.

If a subsidiary, please identify the publicly held parent entity:

d. If you answered "no" to questions (a), (b) and (c) above, please identify the controlling person(s) of the Purchaser (the " Controlling Entity "). If the Controlling Entity is not a natural person or a publicly held entity, please identify each controlling person(s) of such Controlling Entity. This process should be repeated until you reach natural persons or a publicly held entity that exercises sole or shared voting or dispositive power over the Registrable Securities:

*****PLEASE NOTE THAT THE SEC REQUIRES THAT THESE NATURAL PERSONS BE NAMED IN THE PROSPECTUS*****

PART II - CERTAIN TRANSACTIONS

Item 7. Transactions with the Company. If you, any of your associates [2], or any member of your immediate family [3] had or will have any direct or indirect material interest in any transactions [4] or series of transactions to which the Company or any of its subsidiaries was a party at any time since January 1, 2015, or in any currently proposed transactions or series of transactions in which the Company or any of its subsidiaries will be a party, in which the amount involved exceeds $120,000, please specify (a) the names of the parties to the transaction(s) and their relationship to you, (b) the nature of the interest in the transaction, (c) the amount involved in the transaction, and (d) the amount of the interest in the transaction. If the answer is "none", please so state.

Answer:

Item 8. Third Party Payments. Please describe any compensation paid to you by a third party pursuant to any arrangement between the Company and any such third party.

Answer:

PART III – PLAN OF DISTRIBUTION

The Selling Stockholders and any of their pledgees, donees, transferees, assignees or other successors-in-interest may, from time to time, sell, transfer or otherwise dispose of any or all of their shares of common stock or interests in shares of common stock on any stock exchange, market or trading facility on which the shares are traded or in private transactions. These dispositions may be at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale, or at negotiated prices. These sales may be effected in transactions, which may involve crosses or block transactions. The Selling Stockholders may use one or more of the following methods when disposing of the shares or interests therein:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- through brokers, dealers or underwriters that may act solely as agents;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- through the writing or settlement of options or other hedging transactions entered into after the effective date of the registration statement of which this prospectus is a part, whether through an options exchange or otherwise;
- settlement of short sales entered into after the effective date of the registration statement of which this prospectus is a part;
- broker-dealers may agree with the Selling Stockholders to sell a specified number of such shares at a stipulated price per share;
- a combination of any such methods of disposition; and
- any other method permitted pursuant to applicable law.

The Selling Stockholders may also sell shares under Rule 144 under the Securities Act of 1933, as amended, or Securities Act, if available, or Section 4(a)(1) under the Securities Act, rather than under this prospectus, provided that they meet the criteria and conform to the requirements of those provisions.

If the Selling Stockholders effect such transactions by selling shares of common stock to or through underwriters, broker-dealers or agents, such underwriters, broker-dealers or agents engaged

by the Selling Stockholders may arrange for other broker-dealers to participate in sales. Broker-dealers may receive commissions or discounts from the Selling Stockholders (or, if any broker-dealer acts as agent for the purchaser of shares, from the purchaser) in amounts to be negotiated. The Selling Stockholders do not expect these commissions and discounts to exceed what is customary in the types of transactions involved.

The Selling Stockholders may, from time to time, pledge or grant a security interest in some or all of the warrants or shares of common stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the shares of common stock from time to time under this prospectus, or under a supplement or amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act amending, if necessary, the list of Selling Stockholders to include the pledgee, transferee or other successors in interest as Selling Stockholders under this prospectus.

Each Selling Stockholder has informed the Company that it is not a registered broker-dealer and does not have any written or oral agreement or understanding, directly or indirectly, with any person to distribute the common stock. If the Company is notified in writing by a Selling Stockholder that any material arrangement has been entered into with a broker-dealer for the sale of common stock through a block trade, special offering, exchange distribution or secondary distribution or a purchase by a broker or dealer, we will file a supplement to this prospectus, if required, pursuant to Rule 424(b) under the Securities Act, disclosing (i) the name of each such Selling Stockholder and of the participating broker-dealer(s), (ii) the number of shares involved, (iii) the price at which such shares of common stock were sold, (iv) the commissions paid or discounts or concessions allowed to such broker-dealer(s), where applicable, (v) that such broker-dealer(s) did not conduct any investigation to verify the information set out or incorporated by reference in this prospectus, and (vi) other facts material to the transaction. In addition, upon being notified in writing by a Selling Stockholder that a donee or pledge intends to sell more than 500 shares of common stock, the Company will file a supplement to this prospectus if then required in accordance with applicable securities law.

The Selling Stockholders also may transfer the shares of common stock in other circumstances, in which case the transferees, pledgees or other successors in interest will be the selling beneficial owners for purposes of this prospectus.

In connection with the sale of the shares of common stock or interests in shares of common stock, the Selling Stockholders may enter into hedging transactions after the effective date of the registration statement of which this prospectus is a part with broker-dealers or other financial institutions, which may in turn engage in short sales of the common stock in the course of hedging the positions they assume. The Selling Stockholders may also sell shares of common stock short after the effective date of the registration statement of which this prospectus is a part and deliver these securities to close out their short positions, or loan or pledge the common stock to broker-dealers that in turn may sell these securities. The Selling Stockholders may also enter into option or other transactions after the effective date of the registration statement of which this prospectus is a part with broker-dealers or other financial institutions or the creation of one or more derivative securities which require the delivery to such broker-dealer or other financial institution of shares

offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The Selling Stockholders and any broker-dealers or agents that are involved in selling the shares may be deemed to be "underwriters" within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the shares purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. The maximum commission or discount to be received by any member of the Financial Industry Regulatory Authority (FINRA) or independent broker-dealer will not be greater than eight percent of the initial gross proceeds from the sale of any security being sold.

The Company has advised the Selling Stockholders that they are required to comply with Regulation M promulgated under the Securities Exchange Act of 1934, as amended, during such time as they may be engaged in a distribution of the shares. The foregoing may affect the marketability of the common stock.

The aggregate proceeds to the Selling Stockholders from the sale of the common stock offered by them will be the purchase price of the common stock less discounts or commissions, if any. Each of the Selling Stockholders reserves the right to accept and, together with their agents from time to time, to reject, in whole or in part, any proposed purchase of common stock to be made directly or through agents. The Company will not receive any of the proceeds from this offering.

The Company is required to pay all fees and expenses incident to the registration of the shares. The Company has agreed to indemnify the Selling Stockholders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act or otherwise.

The Company has agreed with the Selling Stockholders to keep the registration statement of which this prospectus constitutes a part effective until the earlier of (a) such time as all of the shares covered by this prospectus have been disposed of pursuant to and in accordance with the registration statement, or (b) the date on which the shares of common stock covered by this prospectus may be sold or transferred by non-affiliates without any volume limitations or pursuant to Rule 144 of the Securities Act.

SIGNATURE

The undersigned understands that the Company anticipates filing the Registration Statement within the time frame set forth in the Registration Rights Agreement. If at any time any of the information set forth in my responses to this Questionnaire has materially changed due to passage of time (other than due to the receipt of the Securities set forth opposite the undersigned's name in the Schedule of Purchasers in the Purchase Agreement), or any development occurs which requires a change in any of my answers, or has for any other reason become incorrect, the undersigned agrees to furnish as soon as practicable to the individual to whom a copy of this Questionnaire is to be sent, as indicated and at the address shown on the first page hereof, any necessary or appropriate correcting information. Otherwise, the Company is to understand that the above information continues to be, to the best of the undersigned's knowledge, information and belief, complete and correct.

Upon any sale of Common Stock pursuant to the Registration Statement, the undersigned hereby agrees to deliver to the Company and the Company's transfer agent the Certificate of Subsequent Sale set forth in Exhibit I hereto.

The undersigned understands that the information that the undersigned is furnishing to the Company herein will be used by the Company in the preparation of the Registration Statement.

Name of Purchaser: __

Date: _____, 2016Signature: __

Print Name: __

Title (if applicable): __

Address: _____

Street

City State Zip Code

Telephone Number

Facsimile Number

FOOTNOTES

1. Beneficial Ownership . You are the beneficial owner of a security, as defined in Rule 13d-3 under the Exchange Act, if you, directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise have or share: (1) voting power, which includes the power to vote, or to direct the voting of, such security, and/or (2) investment power, which includes the power to dispose, or to direct the disposition of, such security. You are also the beneficial owner of a security if you, directly or indirectly, create or use a trust, proxy, power of attorney, pooling arrangement or any other contract, arrangement or device with the purpose or effect of divesting yourself of beneficial ownership of a security or preventing the vesting of such beneficial ownership.

   You are deemed to be the beneficial owner of a security if you have the right to acquire beneficial ownership of such security at any time within 60 days including , but not limited to, any right to acquire such security (a) through the exercise of any option, warrant or right, (b) through the conversion of a security, or (c) pursuant to the automatic termination of, or the power to revoke a trust, discretionary account, or similar arrangement.

   Ordinarily, shares held in the name of your spouse or minor child should be considered as beneficially owned by you absent special circumstances to indicate that you do not have, as a practical matter, voting power or investment power over such shares. Similarly, absent countervailing facts, securities held in the name of relatives who share your home are to be reported as being beneficially owned by you. In addition, securities held for your benefit in the name of others, such as nominees, trustees and other fiduciaries, securities held by a partnership of which you are a partner, and securities held by a corporation controlled by you should be regarded as beneficially owned by you.

   This definition of beneficial ownership is very broad; therefore, even though you may not actually have or share voting or investment power with respect to securities owned by persons in your family or living in your home, you should include such shares in your beneficial ownership disclosure and may then disclaim beneficial ownership of such securities.

2. Associate . The term “associate,” as defined in Rule 14a-1 under the Exchange Act, means (a) any corporation or organization (other than the Company or any of its majority owned subsidiaries) of which you are an officer or partner or are, directly or indirectly, the beneficial owner of 10% or more of any class of equity securities, (b) any trust or other estate in which you have a substantial beneficial interest or as to which you serve as trustee or in a similar capacity, and (c) your spouse, or any relative of yours or relative of your spouse living in your home or who is a director or officer of the Company or of any subsidiary. The term “relative of yours” as used in this Questionnaire refers to any relative or spouse of yours, or any relative of such spouse, who has the same home as you or who is a director or officer of any subsidiary of the Company.

   Please identify your associate referred to in your answer and indicate your relationship.

3. Immediate Family . The members of your "immediate family" are deemed to include your spouse, your parents, your children, and your siblings, whether by blood, marriage or adoption, including your mother- or father-in-law, your sons- and daughters-in-law and your brothers- and sisters-in-law, anyone residing in your home or any relatives you support financially. All references to parents and children include your step parents and step children.

4. Transactions . The term "transaction" is to be understood in its broadest sense, and includes the direct or indirect receipt of anything of value. Please note that indirect as well as direct material interests in transactions are to be disclosed. Transactions in which you would have a direct interest would include your purchasing or leasing anything (stock in a business acquired by the Company, office space, plants, Company apartments, computers, raw materials, finished goods, etc.) from or selling or leasing anything to, or borrowing or lending cash or other property from or to, the Company, or any subsidiary.

Exhibit 1

Securities Act Sections Compliance and Disclosure Interpretations Section 239.10: “An issuer filed a Form S-3 registration statement for a secondary offering of common stock which is not yet effective. One of the selling shareholders wanted to do a short sale of common stock “against the box” and cover the short sale with registered shares after the effective date. The issuer was advised that the short sale could not be made before the registration statement becomes effective, because the shares underlying the short sale are deemed to be sold at the time such sale is made. There would, therefore, be a violation of Section 5 if the shares were effectively sold prior to the effective date.”

Exhibit I

CERTIFICATE OF SUBSEQUENT SALE

American Stock Transfer & Trust Company, LLC

RE:Sale of Shares of Common Stock of Achaogen, Inc. (the " Company ") pursuant to the Company's Prospectus dated _____, ____ (the " Prospectus ")

Dear Sir/Madam:

The undersigned hereby certifies, in connection with the sale of shares of Common Stock of the Company included in the table of Selling Stockholders in the Prospectus, that the undersigned has sold the shares pursuant to the Prospectus and in a manner described under the caption "Plan of Distribution" in the Prospectus and that such sale complies with all securities laws applicable to the undersigned, including, without limitation, the Prospectus delivery requirements of the Securities Act of 1933, as amended.

Selling Stockholder (the beneficial owner): __

Record Holder (e.g., if held in name of nominee): __

Book Entry Position or Restricted Stock Certificate No.(s): __

Number of Shares Sold: __

Date of Sale: __

In the event that you receive a stock certificate(s) or evidence of a book entry position representing more shares of Common Stock than have been sold by the undersigned, then you should return to the undersigned a newly issued certificate or book entry position for such excess shares in the name of the Record Holder and **BEARING A RESTRICTIVE LEGEND** . Further, you should place a stop transfer on your records with regard to such certificate. Notwithstanding the foregoing, in the event that the undersigned executes and delivers to you and to the Company the certification set forth on Annex I, upon instructions from the Company, you should return to the undersigned a newly issued certificate or book entry position for such excess shares of Common Stock in the name of the Record Holder without any restrictive legend. In addition, no subsequent certification will be required to be delivered to you by the undersigned provided that the

representations and warranties set forth on Annex I have been delivered to you and continue to be accurate.

Very truly yours,

Dated: ___ By: __

Print Name: __

Title: __

cc: Achaogen, Inc.
7000 Shoreline Court, Suite 371
South San Francisco, California 94080
Attn: Secretary

Annex I

In connection with any excess shares to be returned to the Selling Stockholder upon a sale of shares of Common Stock of Achaogen, Inc. (the "Company") included in the table of Selling Stockholders in the Prospectus, the undersigned hereby certifies to the Company and American Stock Transfer & Trust Company, LLC, that:

1. In connection with the sale by the undersigned stockholder of any of the shares of Common Stock, the undersigned stockholder will deliver a copy of the Prospectus included in the Registration Statement to the purchaser directly or through the undersigned stockholder's broker-dealer in compliance with the requirements of the Securities Act of 1933, as amended, and the Securities Exchange Act of 1934, as amended.

2. Any such sale will be made only in the manner described under "Plan of Distribution" in the Prospectus.

3. The undersigned stockholder will only sell the shares of Common Stock while the Registration Statement is effective, unless another exemption from registration is available.

4. The Company and its attorneys may rely on this letter to the same extent as if it were addressed to them.

5. The undersigned stockholder agrees to notify you immediately of any development or occurrence which to his, her or its knowledge would render any of the foregoing representations and agreements inaccurate.

All terms not defined herein are as defined in the Securities Purchase Agreement entered into in _____, 2016 among the Company and the Purchasers.

Very truly yours,

Dated: ___ By: __

Print Name: __

Title: __

APPENDIX III

REGISTRATION RIGHTS AGREEMENT

This Registration Rights Agreement (this " Agreement ") is made and entered into as of June __, 2016, by and among Achaogen, Inc., a Delaware corporation (the " Company "), and the several purchasers signatory hereto (each a " Purchaser " and collectively, the " Purchasers ").

This Agreement is made pursuant to the Securities Purchase Agreement, dated as of June __, 2016, among the Company and the Purchasers (the " Purchase Agreement ").

NOW, THEREFORE, IN CONSIDERATION of the mutual covenants contained in this Agreement, and for other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the Company and the Purchasers agree as follows:

1. Definitions . Capitalized terms used and not otherwise defined herein that are defined in the Purchase Agreement shall have the meanings given such terms in the Purchase Agreement. As used in this Agreement, the following terms shall have the respective meanings set forth in this Section 1:

" Affiliate " means, with respect to any Person, any other Person that, directly or indirectly through one or more intermediaries, Controls, is controlled by or is under common control with such Person, as such terms are used in and construed under Rule 405 under the Securities Act.

" Advice " shall have the meaning set forth in Section 7(d).

" Control " (including the terms "controlling", "controlled by" or "under common control with") means the possession, direct or indirect, of the power to direct or cause the direction of the management and policies of a Person, whether through the ownership of voting securities, by contract or otherwise.

" Commission " means the U.S. Securities and Exchange Commission, or any successor entity or entities, including, if applicable, the staff of the Commission.

" Common Stock " means the common stock, par value $0.001 per share, of the Company.

" Effectiveness Date " means: (a) with respect to the Initial Registration Statement required to be filed hereunder, the 90 th day following the Closing Date (or the 135 th day following the Closing Date in the event the Initial Registration Statement is reviewed by the Commission), (b) with respect to any additional Registration Statements which may be required pursuant to Section 2, the 90 th day following the date on which the Company first knows, or reasonably should have known, that such additional Registration Statement is required under such Section (or the 135 th day following such date in the event such additional Registration Statement is reviewed by the Commission). If the Effectiveness Date falls on a Saturday, Sunday or other date that the Commission is closed for business, the Effectiveness Date shall be extended to the next day on which the Commission is open for business.

" Effectiveness Period " shall have the meaning set forth in Section 2(a).

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

" Filing Date " means: (a) with respect to the Initial Registration Statement, the 45 th calendar day following the Closing Date, and (b) with respect to any additional Registration Statements that may be required pursuant to Section 2 hereof, the 45 th day following the date on which the Company first knows, or reasonably should have known, that such additional Registration Statement is required under such Section; provided , however , that if the Filing Date falls on a Saturday, Sunday or other day that the Commission is closed for business, the Filing Date shall be extended to the next business day on which the Commission is open for business.

" Holder " or " Holders " means the holder or holders, as the case may be, from time to time of Registrable Securities.

" Indemnified Party " shall have the meaning set forth in Section 6(c).

" Indemnifying Party " shall have the meaning set forth in Section 6(c).

" Initial Registration Statement " means the initial Registration Statement required to be filed to cover the resale by the Holders of the Registrable Securities pursuant to Section 2(a).

" Losses " shall have the meaning set forth in Section 6(a).

" Person " means an individual or corporation, partnership, trust, incorporated or unincorporated association, joint venture, limited liability company, joint stock company, government (or an agency or subdivision thereof) or other entity of any kind.

" Proceeding " means an action, claim, suit, investigation or proceeding (including, without limitation, an investigation or partial proceeding, such as a deposition), whether commenced or threatened.

" Prospectus " means the prospectus included in a Registration Statement (including, without limitation, a prospectus that includes any information previously omitted from a prospectus filed as part of an effective registration statement in reliance upon Rule 430A or Rule 430B promulgated by the Commission pursuant to the Securities Act), as amended or supplemented by any prospectus supplement, with respect to the terms of the offering of any portion of the Registrable Securities covered by a Registration Statement, and all other amendments and supplements to the Prospectus, including post-effective amendments, and all material incorporated by reference or deemed to be incorporated by reference in such Prospectus.

" Reduction Securities " shall have the meaning set forth in Section 2(b).

" Registrable Securities " means (i) the Shares issued pursuant to the Purchase Agreement, (ii) the Underlying Shares issuable upon exercise of the Warrants issued pursuant to the Purchase Agreement and (iii) any other shares of Common Stock issued as (or issuable upon

conversion or exercise of any warrant, right or other security which is issued as) a dividend or other distribution with respect to, in exchange for or in replacement of the Shares or the Underlying Shares; provided, however, that with respect to any Holder the Registrable Securities of such Holder shall cease to be Registrable Securities (and the Company shall not be required to maintain the effectiveness of any, or file another, Registration Statement hereunder with respect thereto) for so long as (a) a Registration Statement with respect to the sale of such Registrable Securities is declared effective by the Commission under the Securities Act and all such Registrable Securities have been disposed of by the Holder in accordance with such effective Registration Statement, (b) such Registrable Securities of Holder have been previously sold or transferred in accordance with Rule 144, or (c) all of the Registrable Securities (including Underlying Shares) of such Holder become eligible for resale pursuant to Rule 144 during any 90-day period and are not otherwise subject to the volume limitation restrictions for resale under Rule 144 (taking account of any Staff position with respect to "affiliate" status) as set forth in a written opinion letter to such effect, addressed, delivered and acceptable to the Company's transfer agent and the affected Holders (assuming that such securities and any securities issuable upon exercise, conversion or exchange of which, or as a dividend upon which, such securities were issued or are issuable, were at no time held by any Affiliate of the Company), as reasonably determined by the Company, upon the advice of counsel to the Company.

" Registration Statement " means each of the following: (i) an initial registration statement which is required to register the resale of the Registrable Securities, and (ii) each additional registration statement, if any, contemplated by Section 2, and including, in each case, the Prospectus, amendments and supplements to each such registration statement or Prospectus, including pre- and post-effective amendments, all exhibits thereto, and all material incorporated by reference or deemed to be incorporated by reference in such registration statement.

" Rule 144 " means Rule 144 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same effect as such Rule.

" Rule 415 " means Rule 415 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same effect as such Rule.

" Rule 424 " means Rule 424 promulgated by the Commission pursuant to the Securities Act, as such Rule may be amended from time to time, or any similar rule or regulation hereafter adopted by the Commission having substantially the same effect as such Rule.

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

" Shares " shall have the meaning set forth in the Purchase Agreement.

" Trading Day " means any day on which the Common Stock is traded on the NASDAQ Global Market, or, if the NASDAQ Global Market is not the principal trading market

for the Common Stock, then on the principal securities exchange or securities market on which the Common Stock is then traded.

" Transaction Documents " shall have the meaning set forth in the Purchase Agreement.

" Underlying Shares " shall have the meaning set forth in the Purchase Agreement.

" Warrants " shall have the meaning set forth in the Purchase Agreement.

2. Registration .

(a) As soon as reasonably practicable but in no event later than each Filing Date, the Company shall prepare and file with the Commission a Registration Statement covering the resale of all of the Registrable Securities that are not then registered on an existing and effective Registration Statement for an offering to be made on a continuous basis pursuant to Rule 415 or, if Rule 415 is not available for offers and sales of the Registrable Securities, by such other means of distribution of Registrable Securities as the Holders may reasonably specify. The Registration Statement filed hereunder shall be on Form S-3 (except if the Company is not then eligible to register for resale the Registrable Securities on Form S-3, in which case such registration shall be on another appropriate form in accordance herewith) and shall contain (except if otherwise required pursuant to written comments received from the Commission upon a review of such Registration Statement) the "Plan of Distribution" in substantially the form attached hereto as Annex A (which may be modified to respond to comments, if any, provided by the Commission). The Company shall use its commercially reasonable efforts to cause a Registration Statement filed under this Agreement to be declared effective under the Securities Act promptly but, in any event, no later than the Effectiveness Date for such Registration Statement, and shall, subject to Section 7(d) hereof, use its commercially reasonable efforts to keep the Registration Statement continuously effective under the Securities Act until the date on which all securities under such Registration Statement have ceased to be Registrable Securities (the " Effectiveness Period "). Notwithstanding the foregoing, the Company shall be entitled to suspend the effectiveness of the Registration Statement at any time prior to the expiration of the Effectiveness Period for up to an aggregate of 30 consecutive Trading Days or an aggregate of 60 Trading Days (which need not be consecutive) in any given 360-day period. It is agreed and understood that the Company shall, from time to time, be obligated to file one or more additional Registration Statements to cover any Registrable Securities which are not registered for resale pursuant to a pre-existing Registration Statement.

(b) Notwithstanding anything contained herein to the contrary, in the event the Commission informs the Company that (a) all of the Registrable Securities cannot, as a result of the application of Rule 415, be registered for resale as a secondary offering on a single registration statement, or (b) the staff of the Commission (the " Staff ") or the Commission seeks to characterize any offering pursuant to a Registration Statement filed pursuant to this Agreement as constituting an offering of securities by, or on behalf of, the Company, or in any other manner, such that the Staff or the Commission do not permit such Registration Statement to become effective and used for resales in a manner that does not constitute such an offering and that permits the continuous resale at the market by the Holders participating therein (or as otherwise may be acceptable to each

Holder) without being named therein as an "underwriter," then the Company agrees to promptly (i) inform each of the Holders thereof, (ii) use its commercially reasonable efforts to file amendments to the Initial Registration Statement as required by the Commission and/or (iii) withdraw the Initial Registration Statement and file a new registration statement (a " New Registration Statement "), in either case covering the maximum number of Registrable Securities permitted to be registered by the Commission; provided , however , that prior to filing such amendment or New Registration Statement, the Company shall be obligated to use its commercially reasonable efforts to advocate with the Commission for the registration of all the Registrable Securities. In the event that the Commission limits the amount of Registrable Securities that may be included and sold by Holders in any Registration Statement, including the Initial Registration Statement, pursuant to Rule 415 or any other basis, the Company may reduce the number of Registrable Securities included in such Registration Statement on behalf of the Holders in whole or in part (in case of an exclusion as to a portion of such Registrable Securities, such portion shall be allocated pro rata among such Holders first in proportion to the respective numbers of Registrable Securities represented by Underlying Shares requested to be registered by each such Holder over the total amount of Registrable Securities represented by Underlying Shares, and second in proportion to the respective numbers of Registrable Securities represented by Shares requested to be registered by each such Holder over the total amount of Registrable Securities represented by Shares) (such Registrable Securities, the " Reduction Securities "). In addition, in the event that the Staff or the Commission requires any Holder seeking to sell securities under a Registration Statement filed pursuant to this Agreement to be specifically identified as an "underwriter" in order to permit such Registration Statement to become effective, and such Holder does not consent to being so named as an underwriter in such Registration Statement, then, in each such case, the Company shall reduce the total number of Registrable Securities to be registered on behalf of such Holder, until such time as the Staff or the Commission does not require such identification or until such Holder accepts such identification and the manner thereof. Any reduction pursuant to this paragraph will first reduce all securities that are not Registrable Securities and then to the Holders pro rata in accordance with the number of such Registrable Securities sought to be included in such Registration Statement by reference to the amount of Registrable Securities set forth opposite such Holder's name (and in the case of a subsequent transfer, the initial Holder's) relative to the aggregate amount of all Registrable Securities. In the event of any reduction in Registrable Securities pursuant to this paragraph, an affected Holder shall have the right to require, upon delivery of a written request to the Company signed by such Holder, the Company to file a registration statement within 45 days of such request (subject to any restrictions imposed by Rule 415 or required by the Staff or the Commission) for resale by such Holder in a manner acceptable to such Holder, and the Company shall following such request cause to be and keep effective such registration statement in the same manner as otherwise contemplated in this Agreement for registration statements hereunder, in each case until such time as: (i) all Registrable Securities held by such Holder have been registered and sold or transferred pursuant to an effective Registration Statement in a manner acceptable to such Holder; or (ii) all Registrable Securities may be resold by such Holder without restriction (including, without limitation, volume limitations) pursuant to Rule 144 (taking account of any Staff position with respect to "affiliate" status) and without the need for current public information required by Rule 144(c)(1) (or Rule 144(i)(2), if applicable); or (iii) such Holder agrees to be named as an underwriter in any such Registration Statement in a manner acceptable to such Holder as to all Registrable Securities held by such Holder and that have not theretofore been included in a Registration Statement under this Agreement (it being understood

that the special demand right under this sentence may be exercised by a Holder multiple times until all such Reduction Securities have been registered for resale or have been resold pursuant to Rule 144). In such event the Company shall give the Holders prompt notice of the number of such Reduction Securities excluded and the Company will not be liable for any damages under this Agreement in connection with the exclusion of such Reduction Securities. In the event the Company amends the Initial Registration Statement or files a New Registration Statement, as the case may be the Company will use its commercially reasonable efforts to file with the Commission, as promptly as allowed by the Commission, one or more registration statements on Form S-3 or, if the Company is ineligible to register for resale the Registrable Securities on Form S-3, such other form available to register for resale all of the Reduction Securities that were not registered for resale on the Initial Registration Statement, as amended, or the New Registration Statement (the " Remainder Registration Statements "). Such Remainder Registration Statements shall contain (except if otherwise required pursuant to written comments received from the Commission upon a review of any such Registration Statement) the "Plan of Distribution" in substantially the form attached hereto as Annex A (which may be modified to respond to comments, if any, provided by the Commission). The Company shall use its commercially reasonable efforts to cause each such Remainder Registration Statement to be declared effective under the Securities Act as soon as possible but, in any event, no later than the Effectiveness Date, and shall use its commercially reasonable efforts to keep each such Remainder Registration Statement continuously effective under the Securities Act during the entire Effectiveness Period, subject to Section 7(d) hereof. Notwithstanding the foregoing, the Company shall be entitled to suspend the effectiveness of a Remainder Registration Statement at any time prior to the expiration of the Effectiveness Period for an aggregate of no more than 30 consecutive Trading Days or an aggregate of 60 Trading Days (which need not be consecutive) in any given 360-day period.

(c) If: (i) the Initial Registration Statement is not filed with the Commission on or prior to the Filing Date, (ii) the Initial Registration Statement is not declared effective by the Commission (or otherwise does not become effective) on or prior to the Effectiveness Date or (iii) after the date it is declared effective by the Commission and except as provided in the last sentence of this Section 2(c), Section 2(d) and 3(i), (A) such Registration Statement ceases for any reason (including without limitation by reason of a stop order, or the Company's failure to update the Registration Statement), to remain continuously effective as to all Registrable Securities included in such Registration Statement or (B) the Holders are not permitted to utilize the Prospectus therein to resell such Registrable Securities for any reason (other than due to a change in the "Plan of Distribution" or the inaccuracy of any information regarding the Holders) in each case for more than an aggregate of 30 consecutive Trading Days or 60 Trading Days (which need not be consecutive) in any given 360-day period (other than as a result of a breach of this Agreement or the Purchase Agreement by a Holder), or (iv) the Company fails to satisfy the current public information requirement pursuant to Rule 144(c)(1) as a result of which the Holders who are not affiliates are unable to sell Registrable Securities without restriction under Rule 144 (or any successor thereto), (any such failure or breach in clauses (i) through (iv) above being referred to as an "Event," and, for purposes of clauses (i), (ii) or (iv), the date on which such Event occurs, or for purposes of clause (iii), the date on which such 30 or 60 Trading Day period is exceeded, being referred to as an " Event Date "), then in addition to any other rights the Holders may have hereunder or under applicable law, on each such Event Date and on each monthly anniversary of each such

Event Date (if the applicable Event shall not have been cured by such date) until the earlier of (1) the applicable Event is cured or (2) the Registrable Securities are eligible for resale pursuant to Rule 144 without manner of sale or volume restrictions or the current public information requirement, the Company shall pay to each Holder an amount in cash, as partial liquidated damages (" Liquidated Damages ") equal to one percent of the aggregate purchase price paid by such Holder pursuant to the Purchase Agreement for any unregistered Registrable Securities then held by such Holder. The parties agree that notwithstanding anything to the contrary herein or in the Purchase Agreement, no Liquidated Damages shall be payable with respect to any period after the expiration of the Effectiveness Period (except in respect of an Event described in Section 2(c)(iv) herein) (it being understood that this sentence shall not relieve the Company of any Liquidated Damages accruing prior to the Effectiveness Deadline), and in no event shall the aggregate amount of Liquidated Damages (excluding Liquidated Damages payable in respect of an Event described in Section 2(c)(iv) herein) payable to a Holder exceed, in the aggregate, five percent of the aggregate purchase price paid by such Holder pursuant to the Purchase Agreement. The Liquidated Damages pursuant to the terms hereof shall apply on a daily pro-rata basis for any portion of a month prior to the cure of an Event, except in the case of the first Event Date. The Company shall not be liable for Liquidated Damages under this Agreement as to any Registrable Securities which are not permitted by the Commission to be included in a Registration Statement. In such case, the Liquidated Damages shall be calculated to only apply to the percentage of Registrable Securities which are permitted to be included in such Registration Statement. The Effectiveness Deadline for a Registration Statement shall be extended without default or Liquidated Damages hereunder in the event that the Company's failure to obtain the effectiveness of the Registration Statement on a timely basis results from the failure of a Purchaser to timely provide the Company with information requested by the Company and necessary to complete the Registration Statement in accordance with the requirements of the Securities Act (in which case the Effectiveness Deadline would be extended with respect to Registrable Securities held by such Purchaser). Notwithstanding anything herein to the contrary, (i) any time period commencing with the filing of a post-effective amendment to a Registration Statement and continuing until the time such Registration Statement has been declared effective by the Commission shall not be considered an Event hereunder and no Liquidated Damages shall accrue or be payable with respect thereto so long as such Registration Statement remains effective and available for the resale of such Registrable Securities during such period and (ii) such Liquidated Damages shall not otherwise limit or affect any other remedies at law or in equity of the Holders, with respect to any breach of the Company's obligations under this Agreement or the Purchase Agreement.

(d) In the event that Form S-3 is not available for the registration of the resale of Registrable Securities hereunder, the Company shall (i) register the resale of the Registrable Securities on another appropriate form reasonably acceptable to the Holders and (ii) undertake to register the Registrable Securities on Form S-3 promptly after such form is available; provided , that the Company shall maintain the effectiveness of the Registration Statement then in effect until such time as a Registration Statement on Form S-3 covering the Registrable Securities has been declared effective by the Commission. If the Company elects to register the Registrable Securities on Form S-3 by filing a post-effective amendment to the then effective registration statement covering such Registrable Securities, then, subject to the proviso contained in clause (ii) of the preceding sentence, the Company shall have a period of up to 50 days between the filing of such post-effective

amendment to register the Registrable Securities on Form S-3 and, subject to the proviso contained in clause (ii), the delay (up until such 50-day period) in such amendment being declared effective shall not, in and of itself, be considered an Event hereunder and no Liquidated Damages shall accrue or be payable with respect thereto.

3. Registration Procedures .

In connection with the Company's registration obligations hereunder, the Company shall:

(a) Not less than five Trading Days prior to the filing of a Registration Statement or any related Prospectus or any amendment or supplement thereto, furnish to the Holders copies of all such documents proposed to be filed (other than those incorporated by reference). Notwithstanding the foregoing, the Company shall not be required to furnish to the Holders any prospectus supplement being prepared and filed solely to name new or additional selling securityholders unless such Holders are named in such prospectus supplement. In addition, in the event that any Registration Statement is on Form S-1 (or other form which does not permit incorporation by reference), the Company shall not be required to furnish to the Holders any prospectus supplement containing information included in a report or proxy statement filed under the Exchange Act that would be incorporated by reference in such Registration Statement if such Registration Statement were on Form S-3 (or other form which permits incorporation by reference). The Company shall duly consider any comments made by Holders and received by the Company not later than two Trading Days prior to the filing of the Registration Statement, but shall not be required to accept any such comments to which it reasonably objects.

(b) (i) Prepare and file with the Commission such amendments, including post-effective amendments, to each Registration Statement and the Prospectus used in connection therewith as may be necessary to keep such Registration Statement continuously effective as to the applicable Registrable Securities for its Effectiveness Period and prepare and file with the Commission such additional Registration Statements in order to register for resale under the Securities Act all of the Registrable Securities; (ii) cause the related Prospectus to be amended or supplemented by any required Prospectus supplement, and as so supplemented or amended to be filed pursuant to Rule 424; (iii) respond as promptly as reasonably possible to any comments received from the Commission with respect to each Registration Statement or any amendment thereto and, as promptly as reasonably possible provide the Holders true and complete copies of all correspondence from and to the Commission relating to such Registration Statement that pertains to the Holders as Selling Stockholders, but not any comments that would result in the disclosure to the Holders of material and non-public information concerning the Company; and (iv) comply in all material respects with the provisions of the Securities Act and the Exchange Act with respect to the Registration Statements and the disposition of all Registrable Securities covered by each Registration Statement provided, however, that each Holder shall be responsible for the delivery of the Prospectus to the Persons to whom such Holder sells any of the Shares or the Warrant Shares (including in accordance with Rule 172 under the Securities Act), and each Holder agrees to dispose of Registrable Securities in compliance with the "Plan of Distribution" described in the Registration Statement and otherwise in compliance with applicable federal and state securities laws.

(c) Notify the Holders (which notice shall, pursuant to clauses (iii) through (vi) hereof, be accompanied by an instruction to suspend the use of the Prospectus until the requisite changes have been made) as promptly as reasonably practicable (and, in the case of (i)(A) below, not less than three Trading Days prior to such filing) and (if requested by any such Person) confirm such notice in writing no later than one Trading Day following the day: (i)(A) when a Prospectus or any prospectus supplement (but only to the extent notice is required under Section 3(a) above) or post-effective amendment to a Registration Statement is proposed to be filed; (B) when the Commission notifies the Company whether there will be a "review" of such Registration Statement and whenever the Commission comments in writing on such Registration Statement (in which case the Company shall provide true and complete copies thereof and all written responses thereto to each of the Holders that pertain to the Holders as a Selling Stockholder or to the Plan of Distribution, but not information which the Company believes would constitute material non-public information); and (C) with respect to each Registration Statement or any post-effective amendment, when the same has been declared effective; (ii) of any request by the Commission or any other Federal or state governmental authority for amendments or supplements to a Registration Statement or Prospectus or for additional information that pertains to the Holders as Selling Stockholders or the Plan of Distribution; (iii) of the issuance by the Commission of any stop order suspending the effectiveness of a Registration Statement covering any or all of the Registrable Securities or the initiation of any Proceedings for that purpose; (iv) of the receipt by the Company of any notification with respect to the suspension of the qualification or exemption from qualification of any of the Registrable Securities for sale in any jurisdiction, or the initiation or threatening of any Proceeding for such purpose; (v) of the occurrence of any event or passage of time that makes the financial statements included or incorporated by reference in a Registration Statement ineligible for inclusion or incorporation by reference therein or any statement made in such Registration Statement or Prospectus or any document incorporated or deemed to be incorporated therein by reference untrue in any material respect or that requires any revisions to such Registration Statement, Prospectus or other documents so that, in the case of such Registration Statement or the Prospectus, as the case may be, it will not contain any untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading; and (vi) of the occurrence or existence of any pending corporate development with respect to the Company that the Company believes may be material and that, in the determination of the Company, makes it not in the best interest of the Company to allow continued availability of a Registration Statement or Prospectus; provided , that any and all of such information shall remain confidential to each Holder until such information otherwise becomes public, unless disclosure by a Holder is required by law; provided , further , that notwithstanding each Holder's agreement to keep such information confidential, each such Holder makes no acknowledgement that any such information is material, non-public information. The Company shall exercise commercially reasonable efforts to take all such actions as are necessary to terminate any suspension of the use of the Prospectus in order to maintain the effectiveness of the Registration Statement and availability of the Prospectus as promptly as reasonably possible.

(d) Use its commercially reasonable efforts to avoid the issuance of, or, if issued, obtain the withdrawal of (i) any order suspending the effectiveness of a Registration Statement, or (ii) any suspension of the qualification (or exemption from qualification) of any of the Registrable Securities for sale in any jurisdiction, at the earliest practicable moment.

(e) If requested by a Holder, furnish to such Holder, without charge, at least one conformed copy of each Registration Statement and each amendment thereto and all exhibits to the extent reasonably requested by such Person (including those previously furnished or incorporated by reference) promptly after the filing of such documents with the Commission; provided , that the Company shall have no obligation to provide any document pursuant to this clause that is available on the Commission's EDGAR system.

(f) If requested by a Holder, promptly deliver to such Holder, without charge, as many copies of each Prospectus or Prospectuses (including each form of prospectus) and each amendment or supplement thereto as such Persons may reasonably request. Subject to Section 7(d) hereof, the Company hereby consents to the use of such Prospectus and each amendment or supplement thereto by each of the selling Holders in connection with the offering and sale of the Registrable Securities covered by such Prospectus and any amendment or supplement thereto.

(g) Prior to any resale of Registrable Securities by a Holder, use its commercially reasonable efforts to register or qualify or cooperate with the selling Holders in connection with the registration or qualification (or exemption from such registration or qualification) of such Registrable Securities for offer and sale under the securities or Blue Sky laws of those jurisdictions within the United States as any Holder reasonably requests in writing to keep each such registration or qualification (or exemption therefrom) effective during the Effectiveness Period and to do any and all other acts or things necessary or advisable to enable the disposition in such jurisdictions of the Registrable Securities covered by the Registration Statements; provided , that the Company shall not be required to qualify generally to do business in any jurisdiction where it is not then so qualified or subject the Company to any material tax in any such jurisdiction where it is not then so subject.

(h) If requested by a Holder, to exercise commercially reasonably efforts to cause the Company's transfer agent to take all necessary actions and to otherwise cooperate with such Holder to facilitate the timely preparation and delivery of certificates or book-entry statements representing Registrable Securities to be delivered to a transferee pursuant to the Registration Statements, which certificates or book-entry statements shall be free, to the extent permitted by the Purchase Agreement, of all restrictive legends, and to enable such Registrable Securities to be in such denominations and registered in such names as any such Holders may reasonably request.

(i) Upon the occurrence of any event contemplated by clauses (ii), (v) and (vi) of Section 3(c), as promptly as reasonably possible (taking into account the Company's good faith assessment of any adverse consequences to the Company and its stockholders of the premature disclosure of such event), prepare a supplement or amendment, including a post-effective amendment, to the affected Registration Statements or a supplement to the related Prospectus or any document incorporated or deemed to be incorporated therein by reference, and file any other required document so that, as thereafter delivered, no Registration Statement nor any Prospectus will contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances under which they were made, not misleading. If the Company notifies the Holders in accordance with clauses (ii) through (vi) of Section 3(c) above to suspend the use of any Prospectus until the requisite changes to such Prospectus have been made, then the Holders shall suspend use of such Prospectus. The

Company will use its commercially reasonable efforts to ensure that the use of the Prospectus may be resumed as promptly as is practicable and to update the Registration Statement to the extent required by applicable law or regulation to ensure that it contains materially accurate information with respect to the Company and no omission that would make the statements contained therein materially misleading. For the avoidance of doubt, (i) any period of time for which the availability of a Registration Statement and Prospectus are suspended pursuant to Section 2(d) and (e) shall be disregarded when determining the time period allotted this under Section 3(i), and (ii) no suspension of the availability of a Registration Statement and Prospectus hereunder shall be deemed to restrict the sale of any Registrable Securities in any other manner that may be permitted by applicable law (including, to the extent available, Rule 144).

(j) The Company may require each selling Holder to furnish to the Company a certified statement as to the number of shares of Common Stock beneficially owned by such Holder and any Affiliate thereof, the natural persons thereof that have voting and dispositive control over the shares and any other information with respect to such Holder as the Commission requests

(k) With a view to making available to each Holder the benefits of Rule 144 and any other similar rule or regulation of the Commission that may at any time permit such Holder to sell securities of the Company to the public without registration, the Company agrees (until all of the Registrable Securities have been sold or transferred under a Registration Statement or pursuant to Rule 144) to use its commercially reasonable efforts to:

a. make and keep public information available, as those terms are understood and defined in Rule 144;

b. file with the Commission in a timely manner (or obtain extensions in respect thereof and file within the applicable grace period) all reports and other documents required of the Company under the Securities Act and the Exchange Act so long as the Company remains subject to such requirements; and

c. furnish to such Holder, so long as such Holder owns any Registrable Securities, promptly upon written request (i) a written statement by the Company, if true, that it has complied with the reporting requirements of Rule 144, the Securities Act and the Exchange Act, (ii) to the extent not publicly available through the Commission's EDGAR database, a copy of the most recent annual or quarterly report of the Company and such other reports and documents so filed by the Company with the Commission, and (iii) such other information as may be reasonably requested by such Holder in connection with such Holder's compliance with any rule or regulation of the Commission which permits the selling of any such securities without registration.

4. Holder's Obligations . Each Holder agrees, by acquisition of the Registrable Securities, that no Holder shall be entitled to sell any of such Registrable Securities pursuant to a

Registration Statement or to receive a Prospectus relating thereto, unless such Holder has furnished the Company with the information set forth in the Purchaser Questionnaire and Selling Stockholder Questionnaire pursuant to the Purchase Agreement.

5. Registration Expenses . All fees and expenses incident to the Company's performance of or compliance with its obligations under this Agreement (excluding any underwriting discounts and selling commissions and all legal fees) shall be borne by the Company whether or not any Registrable Securities are sold or transferred pursuant to a Registration Statement. The fees and expenses referred to in the foregoing sentence shall include, without limitation, (i) all registration and filing fees (including, without limitation, fees and expenses (A) with respect to filings required to be made with the Principal Market on which the Common Stock is then listed for trading, and (B) in compliance with applicable state securities or Blue Sky laws), (ii) printing expenses (including, without limitation, expenses of printing certificates for Registrable Securities and of printing prospectuses if the printing of prospectuses is reasonably requested by the Holders of a majority of the Registrable Securities included in the Registration Statement), (iii) messenger, telephone and delivery expenses, (iv) reasonable fees and disbursements of counsel for the Company, (v) reasonable fees and disbursements of one (1) counsel to the Holders, in an amount not to exceed $35,000, (vi) Securities Act liability insurance, if the Company so desires such insurance, and (v) reasonable fees and expenses of all other Persons retained by the Company in connection with the consummation of the transactions contemplated by this Agreement. In addition, the Company shall be responsible for all of its internal expenses incurred in connection with the consummation of the transactions contemplated by this Agreement (including, without limitation, all salaries and expenses of its officers and employees performing legal or accounting duties), the expense of any annual audit and the fees and expenses incurred in connection with the listing of the Registrable Securities on any securities exchange as required hereunder. In no event shall the Company be responsible for any underwriting, broker or similar fees or commissions of any Holder or, except to the extent provided for in the Transaction Documents, any legal fees or other costs of the Holders.

6. Indemnification .

(a) Indemnification by the Company . The Company shall, notwithstanding any termination of this Agreement, indemnify and hold harmless each Holder, the officers, directors, agents, partners, members, stockholders and employees of each Holder, each Person who controls any such Holder (within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act) and the officers, directors, agents, partners, members, stockholders and employees of each such controlling Person, to the fullest extent permitted by applicable law, from and against any and all losses, claims, damages, liabilities, costs (including, without limitation, reasonable costs of preparation and reasonable attorneys' fees) and expenses (collectively, " Losses "), as incurred, arising out of or relating to any untrue or alleged untrue statement of a material fact contained in any Registration Statement, any Prospectus or any form of prospectus or in any amendment or supplement thereto (it being understood that the Holder has approved Annex A hereto for this purpose), or arising out of or relating to any omission or alleged omission of a material fact required to be stated therein or necessary to make the statements therein (in the case of any Prospectus or form of prospectus or supplement thereto, in light of the circumstances under which they were made) not misleading, except to the extent, but only to the extent, that (1) such untrue statements,

alleged untrue statements, omissions or alleged omissions are based solely upon information regarding such Holder furnished in writing to the Company by such Holder expressly for use therein, or to the extent that such information relates to such Holder or such Holder's proposed method of distribution of Registrable Securities and was reviewed and expressly approved in writing by such Holder expressly for use in the Registration Statement, such Prospectus or such form of Prospectus or in any amendment or supplement thereto (it being understood that the Holder has approved Annex A hereto for this purpose) or (2) in the case of an occurrence of an event of the type specified in Section 3(c)(ii)-(v), the Losses were caused solely by the use by such Holder of an outdated or defective Prospectus after the Company has notified such Holder in writing that the Prospectus is outdated or defective and prior to the receipt by such Holder of an Advice (as defined below) or an amended or supplemented Prospectus, but only if and to the extent that following the receipt of the Advice or the amended or supplemented Prospectus the misstatement or omission giving rise to such Loss would have been corrected; provided , however , that the foregoing indemnity shall not apply to amounts paid in settlement of any such Loss if such settlement is effected without the consent of the Company (which consent shall not be unreasonably withheld, conditioned or delayed). The Company shall notify the Holders promptly of the institution, threat or assertion of any Proceeding of which the Company is aware in connection with the transactions contemplated by this Agreement.

(b) Indemnification by Holders . Each Holder shall, notwithstanding any termination of this Agreement, severally and not jointly, indemnify and hold harmless the Company, its directors, officers, agents and employees, each Person who controls the Company (within the meaning of Section 15 of the Securities Act and Section 20 of the Exchange Act), and the directors, officers, agents, partners, members, stockholders or employees of such controlling Persons, to the fullest extent permitted by applicable law, from and against all Losses, as incurred, arising solely out of or based solely upon: (x) for so long as the Company is not a " Seasoned Issuer " and the prospectus delivery requirements of the Securities Act apply to sales by such Holder, such Holder's failure to comply with the prospectus delivery requirements of the Securities Act or (y) any untrue statement of a material fact contained in any Registration Statement, any Prospectus, or any form of prospectus, or in any amendment or supplement thereto, or arising solely out of or based solely upon any omission of a material fact required to be stated therein or necessary to make the statements therein (in the case of any Prospectus, or any form of prospectus or supplement thereto, in light of the circumstances under which they were made) not misleading to the extent, but only to the extent that, (1) such untrue statements or omissions are based solely upon information regarding such Holder furnished in writing to the Company by such Holder expressly for use therein, or to the extent that such information relates to such Holder or such Holder's proposed method of distribution of Registrable Securities and was reviewed and expressly approved in writing by such Holder expressly for use in the Registration Statement, such Prospectus or such form of Prospectus or in any amendment or supplement thereto (it being understood that the Holder has approved Annex A hereto for this purpose) or (2) in the case of an occurrence of an event of the type specified in Section 3(c)(ii)-(v), the Losses were caused solely by the use by such Holder of an outdated or defective Prospectus after the Company has notified such Holder in writing that the Prospectus is outdated or defective and prior to the receipt by such Holder of an Advice or an amended or supplemented Prospectus, but only if and to the extent that following the receipt of the Advice or the amended or supplemented Prospectus the misstatement or omission giving rise to such Loss would have been

corrected or (3) to the extent that any such Losses arise out of the Purchaser's (or any other indemnified Person's) failure to send or give a copy of the Prospectus or supplement (as then amended or supplemented), if required, pursuant to Rule 172 under the Securities Act (or any successor rule) to the Persons asserting an untrue statement or alleged untrue statement or alleged untrue statement or omission or alleged omission at or prior to the written confirmation of the sale of Registrable Securities to such Person if such statement or omission was corrected in such Prospectus or supplement; provided , however , that the foregoing indemnity shall not apply to amounts paid in settlement of any such Loss if such settlement is effected without the consent of such Holder (which consent shall not be unreasonably withheld, conditioned or delayed). In no event shall the liability of any selling Holder hereunder be greater in amount than the dollar amount of the net proceeds received by such Holder upon the sale of the Registrable Securities giving rise to such indemnification obligation.

(c) Conduct of Indemnification Proceedings . If any Proceeding shall be brought or asserted against any Person entitled to indemnity hereunder (an " Indemnified Party "), such Indemnified Party shall promptly notify the Person from whom indemnity is sought (the " Indemnifying Party ") in writing, and the Indemnifying Party shall assume the defense thereof, including the employment of counsel reasonably satisfactory to the Indemnified Party and the payment of all fees and expenses incurred in connection with defense thereof; provided, that the failure of any Indemnified Party to give such notice shall not relieve the Indemnifying Party of its obligations or liabilities pursuant to this Agreement, except (and only) to the extent that it shall be finally determined by a court of competent jurisdiction (which determination is not subject to appeal or further review) that such failure shall have proximately and materially adversely prejudiced the Indemnifying Party.

An Indemnified Party shall have the right to employ separate counsel in any such Proceeding and to participate in the defense thereof, but the fees and expenses of such counsel shall be at the expense of such Indemnified Party or Parties unless: (1) the Indemnifying Party has agreed in writing to pay such fees and expenses; (2) the Indemnifying Party shall have failed promptly to assume the defense of such Proceeding and to employ counsel reasonably satisfactory to such Indemnified Party in any such Proceeding; or (3) the named parties to any such Proceeding (including any impleaded parties) include both such Indemnified Party and the Indemnifying Party, and such Indemnified Party shall have been advised by counsel that a conflict of interest is likely to exist if the same counsel were to represent such Indemnified Party and the Indemnifying Party (in which case, if such Indemnified Party notifies the Indemnifying Party in writing that it elects to employ separate counsel at the expense of the Indemnifying Party, the Indemnifying Party shall not have the right to assume the defense thereof and such counsel shall be at the expense of the Indemnifying Party); provided , that the Indemnifying Party shall not be liable for the fees and expenses of more than one separate firm of attorneys at any time for all Indemnified Parties pursuant to this Section 6(c). The Indemnifying Party shall not be liable for any settlement of any such Proceeding effected without its written consent, which consent shall not be unreasonably withheld, delayed or conditioned. No Indemnifying Party shall, without the prior written consent of the Indemnified Party, effect any settlement of any pending Proceeding in respect of which any Indemnified Party is a party, unless such settlement includes an unconditional release of such Indemnified Party from all liability on claims that are the subject matter of such Proceeding. Each Indemnified Party shall

furnish such information regarding itself or the claim in question as an Indemnifying Party may reasonably request in writing and as shall be reasonably required in connection with defense of such claim and litigation resulting therefrom.

All fees and expenses of the Indemnified Party (including reasonable fees and expenses to the extent incurred in connection with investigating or preparing to defend such Proceeding in a manner not inconsistent with this Section) shall be paid to the Indemnified Party, as incurred, within ten Trading Days of written notice thereof to the Indemnifying Party (regardless of whether it is ultimately determined that an Indemnified Party is not entitled to indemnification hereunder; provided, that the Indemnifying Party may require such Indemnified Party to undertake to reimburse all such fees and expenses to the extent it is finally judicially determined that such Indemnified Party is not entitled to indemnification hereunder).

(d) Contribution . If a claim for indemnification under Section 6(a) or 6(b) is unavailable to an Indemnified Party (by reason of public policy or otherwise), then each Indemnifying Party, in lieu of indemnifying such Indemnified Party, shall contribute to the amount paid or payable by such Indemnified Party as a result of such Losses, in such proportion as is appropriate to reflect the relative fault of the Indemnifying Party and Indemnified Party in connection with the actions, statements or omissions that resulted in such Losses as well as any other relevant equitable considerations. The relative fault of such Indemnifying Party and Indemnified Party shall be determined by reference to, among other things, whether any action in question, including any untrue or alleged untrue statement of a material fact or omission or alleged omission of a material fact, has been taken or made by, or relates to information supplied by, such Indemnifying Party or Indemnified Party, and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such action, statement or omission. The amount paid or payable by a party as a result of any Losses shall be deemed to include, subject to the limitations set forth in Section 6(c), any reasonable attorneys' or other reasonable fees or expenses incurred by such party in connection with any Proceeding to the extent such party would have been indemnified for such fees or expenses if the indemnification provided for in this Section was available to such party in accordance with its terms.

The parties hereto agree that it would not be just and equitable if contribution pursuant to this Section 6(d) were determined by pro rata allocation or by any other method of allocation that does not take into account the equitable considerations referred to in the immediately preceding paragraph. Notwithstanding the provisions of this Section 6(d), no Holder shall be required to contribute, in the aggregate, any amount in excess of the amount by which the net proceeds actually received by such Holder from the sale of the Registrable Securities subject to the Proceeding exceeds the amount of any damages that such Holder has otherwise been required to pay by reason of such untrue or alleged untrue statement or omission or alleged omission. No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation.

The indemnity and contribution agreements contained in this Section 6 are in addition to any liability that the Indemnifying Parties may have to the Indemnified Parties and are not in diminution or limitation of the indemnification provisions under the Purchase Agreement.

7. Miscellaneous .

(a) Remedies . In the event of a breach by the Company or by a Holder of any of their obligations under this Agreement, each Holder or the Company, as the case may be, in addition to being entitled to exercise all rights granted by law and under this Agreement, including recovery of damages, will be entitled to specific performance of its rights under this Agreement. The Company and each Holder agree that monetary damages would not provide adequate compensation for any losses incurred by reason of a breach by it of any of the provisions of this Agreement and hereby further agree that, in the event of any action for specific performance in respect of such breach, it shall waive the defense that a remedy at law would be adequate.

(b) Compliance . Each Holder covenants and agrees that it will comply with the prospectus delivery requirements of the Securities Act as applicable to it in connection with sales of Registrable Securities pursuant to the Registration Statement and shall sell the Registrable Securities only in accordance with the Plan of Distribution described in the Prospectus.

(c) Subsequent Registration Rights . Until the Initial Registration Statement required hereunder is declared effective by the Commission, the Company shall not enter into any agreement granting any registration rights with respect to any of its securities to any Person without the written consent of Holders representing no less than a majority of the then outstanding Registrable Securities; provided , that this Section 7(c) shall not prohibit the Company from fulfilling its obligations under any other registration rights agreements existing as of the date hereof.

(d) Discontinued Disposition . Each Holder agrees by its acquisition of such Registrable Securities that, upon receipt of a notice from the Company of the occurrence of any event of the kind described in Section 3(c), such Holder will forthwith discontinue disposition of such Registrable Securities under the Registration Statement until such Holder's receipt of the copies of the supplemented Prospectus and/or amended Registration Statement or until it is advised in writing (the " Advice ") by the Company that the use of the applicable Prospectus may be resumed, and, in either case, has received copies of any additional or supplemental filings that are incorporated or deemed to be incorporated by reference in such Prospectus or Registration Statement. The Company may provide appropriate stop orders to enforce the provisions of this paragraph.

(e) Furnishing of Information . Each Holder shall furnish in writing to the Company such information regarding itself, the Registrable Securities held by it and the intended method of disposition of the Registrable Securities held by it, as shall be reasonably requested by the Company to effect the registration of such Registrable Securities and shall execute such documents in connection with such registration as the Company may reasonably request.

(f) Piggy-Back Registrations . If at any time during the Effectiveness Period, except as contemplated by Section 2(b) hereof, there is not an effective Registration Statement covering all of the Registrable Securities and the Company shall determine to prepare and file with the Commission a registration statement relating to an offering for its own account under the Securities Act of any of its equity securities, other than on Form S-4 or Form S-8 (each as promulgated under the Securities Act) or their then equivalents relating to equity securities to be issued solely in connection with any acquisition of any entity or business or equity securities issuable in connection

with stock option or other employee benefit plans, then the Company shall send to each Holder a written notice of such determination and, if within 15 calendar days after the date of such notice, any such Holder shall so request in writing, the Company shall include in such registration statement all or any part of such Registrable Securities such Holder requests to be registered; provided , however , that the Company shall not be required to register any Registrable Securities pursuant to this Section 7(f) that are eligible for resale pursuant to Rule 144 promulgated under the Securities Act without volume limitation or that are the subject of a then effective Registration Statement; provided , further , however , if there is not an effective Registration Statement covering all of the Registrable Securities during the Effectiveness Period, the Company may file a registration statement with the Commission to register equity securities of the Company to be sold on a primary basis, provided that the Company does not sell any such equity securities until there is an effective Registration Statement covering all of the Registrable Securities. The Company shall have the right to terminate or withdraw any registration initiated by it under this Section 7(f) prior to the effectiveness of such registration whether or not any Holder has elected to include securities in such registration. For the avoidance of doubt, the Company shall not be prohibited from preparing and filing with the Commission amendments to registration statements filed prior to the date of this Agreement. The Company shall obtain all necessary consents and waivers, as may be applicable, from the Company's stockholders with respect to any existing contractual registration rights to ensure that all Registrable Securities included in any registration in accordance with Section 7(f) shall be included on a parity basis with any other securities included in such registration and shall not be subject to cutback except on a pro rata basis.

(g) Amendments and Waivers . No provision of this Agreement may be waived or amended except in a written instrument signed by the Company and the Holder or Holders (as applicable) of no less than a majority of the then outstanding Registrable Securities. The Company shall provide prior notice to all Holders of any proposed waiver or amendment. No waiver of any default with respect to any provision, condition or requirement of this Agreement shall be deemed to be a continuing waiver in the future or a waiver of any subsequent default or a waiver of any other provision, condition or requirement hereof, nor shall any delay or omission of either party to exercise any right hereunder in any manner impair the exercise of any such right.

(h) Termination of Registration Rights . For the avoidance of doubt, it is expressly agreed and understood that (i) in the event that there are no Registrable Securities outstanding as of a Filing Date, then the Company shall have no obligation to file, cause to be declared effective or to keep effective any Registration Statement hereunder (including any Registration Statement previously filed pursuant to this Agreement) and (ii) all registration rights granted to the Holders hereunder (including the rights set forth in Sections 6(c) and 6(d)), shall terminate in their entirety effective on the first date on which there shall cease to be any Registrable Securities outstanding.

(i) Notices . All notices, requests, consents and other communications hereunder shall be in writing, shall be sent by confirmed facsimile or electronic mail, or mailed by first-class registered or certified airmail, or nationally recognized overnight express courier, postage prepaid, and shall be deemed given when so sent in the case of facsimile or electronic mail transmission, or when so received in the case of mail or courier, and addressed as follows:

if to the Company, to:

Achaogen, Inc.
7000 Shoreline Court, Suite 371
South San Francisco, California
Attention: Chief Executive Officer
E-Mail: #######@achaogen.com

with a copy (which shall not constitute notice) to:

Latham & Watkins LLP
140 Scott Drive
Menlo Park, California 94025
Attention: Mark Roeder
E-Mail: mark.roeder@lw.com

If to a Purchaser:	To the address set forth under such Purchaser's name on the signature pages hereto
If to any other Person who is then the registered Holder:	To the address of such Holder as it appears in the stock transfer books of the Company

or such other address as may be designated in writing hereafter, in the same manner, by such Person.

(j) Successors and Assigns . This Agreement shall inure to the benefit of and be binding upon the successors and permitted assigns of each of the parties and shall inure to the benefit of each Holder. Nothing in this Agreement, express or implied, is intended to confer upon any party other than the parties hereto or their respective successors and assigns any rights, remedies, obligations, or liabilities under or by reason of this Agreement, except as expressly provided in this Agreement. Each Holder may assign its respective rights hereunder in the manner and to the Persons as permitted under the Purchase Agreement; provided , in each case, that (i) the Holder agrees in writing with the transferee or assignee to assign such rights and related obligations under this Agreement, and for the transferee or assignee to assume such obligations, and a copy of such agreement is furnished to the Company within a reasonable time after such assignment, (ii) the Company is, within a reasonable time after such transfer or assignment, furnished with written notice of the name and address of such transferee or assignee and the securities with respect to which such registration rights are being transferred or assigned, (iii) at or before the time the Company received the written notice contemplated by clause (ii) of this sentence, the transferee or assignee agrees in writing with the Company to be bound by all of the provisions contained herein and (iv) the transferee is an "accredited investor," as that term is defined in Rule 501 of Regulation D.

(k) Execution and Counterparts . This Agreement may be executed in any number of counterparts, each of which when so executed shall be deemed to be an original and, all of which taken together shall constitute one and the same Agreement and shall become effective when counterparts have been signed by each party and delivered to the other party, it being understood that both parties need not sign the same counterpart. In the event that any signature is delivered by facsimile transmission or by e-mail delivery of a ".pdf" format data file, such signature shall create a valid and binding obligation of the party executing (or on whose behalf such signature is executed) the same with the same force and effect as if such facsimile of ".pdf" signature were the original thereof.

(l) Governing Law . All questions concerning the construction, validity, enforcement and interpretation of this Agreement shall be governed by and construed and enforced in accordance with the internal laws of the State of California, without regard to the principles of conflicts of law thereof. With respect to any disputes arising out of or related to this Agreement, the parties consent to the exclusive jurisdiction of, and venue in, the state courts in San Francisco County in the State of California (or in the event of exclusive federal jurisdiction, the courts of the Northern District of California). Each party hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof via registered or certified mail or overnight delivery (with evidence of delivery) to such party at the address in effect for notices to it under this Agreement and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any other manner permitted by law. **EACH PARTY HERETO HEREBY IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, ANY AND ALL RIGHT TO TRIAL BY JURY IN ANY LEGAL PROCEEDING ARISING OUT OF OR RELATING TO THIS AGREEMENT OR THE TRANSACTIONS CONTEMPLATED HEREBY.**

(m) Cumulative Remedies . The remedies provided herein are cumulative and not exclusive of any remedies provided by law.

(n) Severability . If any term, provision, covenant or restriction of this Agreement is held by a court of competent jurisdiction to be invalid, illegal, void or unenforceable, the remainder of the terms, provisions, covenants and restrictions set forth herein shall remain in full force and effect and shall in no way be affected, impaired or invalidated, and the parties hereto shall use their good faith reasonable efforts to find and employ an alternative means to achieve the same or substantially the same result as that contemplated by such term, provision, covenant or restriction. It is hereby stipulated and declared to be the intention of the parties that they would have executed the remaining terms, provisions, covenants and restrictions without including any of such that may be hereafter declared invalid, illegal, void or unenforceable.

(o) Headings . The headings in this Agreement are for convenience of reference only and shall not limit or otherwise affect the meaning hereof.

(p) Independent Nature of Purchasers' Obligations and Rights . The obligations of each Purchaser hereunder are several and not joint with the obligations of any other Purchaser hereunder, and no Purchaser shall be responsible in any way for the performance of the obligations

of any other Purchaser hereunder. The decision of each Purchaser to purchase Securities pursuant to the Transaction Documents has been made independently of any other Purchaser. Nothing contained herein or in any other agreement or document delivered at any closing, and no action taken by any Purchaser pursuant hereto or thereto, shall be deemed to constitute the Purchasers as a partnership, an association, a joint venture or any other kind of entity, or create a presumption that the Purchasers are in any way acting in concert with respect to such obligations or the transactions contemplated by this Agreement. Each Purchaser acknowledges that no other Purchaser has acted as agent for such Purchaser in connection with making its investment hereunder and that no Purchaser will be acting as agent of such Purchaser in connection with monitoring its investment in the Securities or enforcing its rights under the Transaction Documents. Each Purchaser shall be entitled to protect and enforce its rights, including without limitation the rights arising out of this Agreement, and it shall not be necessary for any other Purchaser to be joined as an additional party in any proceeding for such purpose.

[signature pages follow]

ANNEX A

PLAN OF DISTRIBUTION

The Selling Stockholders and any of their pledgees, donees, transferees, assignees or other successors-in-interest may, from time to time, sell, transfer or otherwise dispose of any or all of their shares of common stock or interests in shares of common stock on any stock exchange, market or trading facility on which the shares are traded or in private transactions. These dispositions may be at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale, or at negotiated prices. These sales may be effected in transactions, which may involve crosses or block transactions. The Selling Stockholders may use one or more of the following methods when disposing of the shares or interests therein:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- through brokers, dealers or underwriters that may act solely as agents;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- through the writing or settlement of options or other hedging transactions entered into after the effective date of the registration statement of which this prospectus is a part, whether through an options exchange or otherwise;
- settlement of short sales entered into after the effective date of the registration statement of which this prospectus is a part;
- broker-dealers may agree with the Selling Stockholders to sell a specified number of such shares at a stipulated price per share;
- a combination of any such methods of disposition; and
- any other method permitted pursuant to applicable law.

The Selling Stockholders may also sell shares under Rule 144 under the Securities Act of 1933, as amended, or Securities Act, if available, or Section 4(a)(1) under the Securities Act, rather than under this prospectus, provided that they meet the criteria and conform to the requirements of those provisions.

If the Selling Stockholders effect such transactions by selling shares of common stock to or through underwriters, broker-dealers or agents, such underwriters, broker-dealers or agents engaged by the Selling Stockholders may arrange for other broker-dealers to participate in sales. Broker-dealers may receive commissions or discounts from the Selling Stockholders (or, if any broker-dealer acts as agent for the purchaser of shares, from the purchaser) in amounts to be negotiated. The Selling Stockholders do not expect these commissions and discounts to exceed what is customary in the types of transactions involved.

The Selling Stockholders may, from time to time, pledge or grant a security interest in some or all of the warrants or shares of common stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the shares of common stock from time to time under this prospectus, or under a supplement or amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act amending, if necessary, the list of Selling Stockholders to include the pledgee, transferee or other successors in interest as Selling Stockholders under this prospectus.

Each Selling Stockholder has informed the Company that it is not a registered broker-dealer and does not have any written or oral agreement or understanding, directly or indirectly, with any person to distribute the common stock. If the Company is notified in writing by a Selling Stockholder that any material arrangement has been entered into with a broker-dealer for the sale of common stock through a block trade, special offering, exchange distribution or secondary distribution or a purchase by a broker or dealer, we will file a supplement to this prospectus, if required, pursuant to Rule 424(b) under the Securities Act, disclosing (i) the name of each such Selling Stockholder and of the participating broker-dealer(s), (ii) the number of shares involved, (iii) the price at which such shares of common stock were sold, (iv) the commissions paid or discounts or concessions allowed to such broker-dealer(s), where applicable, (v) that such broker-dealer(s) did not conduct any investigation to verify the information set out or incorporated by reference in this prospectus, and (vi) other facts material to the transaction. In addition, upon being notified in writing by a Selling Stockholder that a donee or pledge intends to sell more than 500 shares of common stock, the Company will file a supplement to this prospectus if then required in accordance with applicable securities law.

The Selling Stockholders also may transfer the shares of common stock in other circumstances, in which case the transferees, pledgees or other successors in interest will be the selling beneficial owners for purposes of this prospectus.

In connection with the sale of the shares of common stock or interests in shares of common stock, the Selling Stockholders may enter into hedging transactions after the effective date of the registration statement of which this prospectus is a part with broker-dealers or other financial institutions, which may in turn engage in short sales of the common stock in the course of hedging the positions they assume. The Selling Stockholders may also sell shares of common stock short after the effective date of the registration statement of which this prospectus is a part and deliver these securities to close out their short positions, or loan or pledge the common stock to broker-dealers that in turn may sell these securities. The Selling Stockholders may also enter into option or other transactions after the effective date of the registration statement of which this prospectus

is a part with broker-dealers or other financial institutions or the creation of one or more derivative securities which require the delivery to such broker-dealer or other financial institution of shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The Selling Stockholders and any broker-dealers or agents that are involved in selling the shares may be deemed to be "underwriters" within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the shares purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. The maximum commission or discount to be received by any member of the Financial Industry Regulatory Authority (FINRA) or independent broker-dealer will not be greater than eight percent of the initial gross proceeds from the sale of any security being sold.

The Company has advised the Selling Stockholders that they are required to comply with Regulation M promulgated under the Securities Exchange Act of 1934, as amended, during such time as they may be engaged in a distribution of the shares. The foregoing may affect the marketability of the common stock.

The aggregate proceeds to the Selling Stockholders from the sale of the common stock offered by them will be the purchase price of the common stock less discounts or commissions, if any. Each of the Selling Stockholders reserves the right to accept and, together with their agents from time to time, to reject, in whole or in part, any proposed purchase of common stock to be made directly or through agents. The Company will not receive any of the proceeds from this offering.

The Company is required to pay all fees and expenses incident to the registration of the shares. The Company has agreed to indemnify the Selling Stockholders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act or otherwise.

The Company has agreed with the Selling Stockholders to keep the registration statement of which this prospectus constitutes a part effective until the earlier of (a) such time as all of the shares covered by this prospectus have been disposed of pursuant to and in accordance with the registration statement, or (b) the date on which the shares of common stock covered by this prospectus may be sold or transferred by non-affiliates without any volume limitations or pursuant to Rule 144 of the Securities Act.

SCHEDULE OF EXCEPTIONS

June 1, 2016

This Schedule of Exceptions is being furnished by Achaogen, Inc., a Delaware corporation (the " Company "), to the Purchasers listed on Exhibit A to that certain Securities Purchase Agreement of even date herewith by and among the Company and such Purchasers (the " Agreement ") in connection with the execution and delivery of the Agreement, pursuant to Section 4 of the Agreement. Unless the context otherwise requires, all capitalized terms used in this Schedule of Exceptions shall have the respective meanings ascribed to such terms in the Agreement.

This Schedule of Exceptions and the information, descriptions and disclosures included herein is intended to set forth exceptions to the representations and warranties of the Company contained in the Agreement. The contents of all agreements and other documents referred to in a particular section of this Schedule of Exceptions are incorporated by reference into such particular section as though fully set forth in such section.

4.14 **Contracts** .

The Company entered into a modification dated May 26, 2016 to the BARDA Agreement, which the Company expects to describe on a Current Report on Form 8-K within the time period required by the Commission.

The Company entered into an offer letter dated May 3, 2016 with Tobin Schilke to serve as the Company's Chief Financial Officer, which the Company expects to describe on a Current Report on Form 8-K within the time period required by the Commission.

SCHEDULE 1

Name

GROWTH EQUITY OPPORTUNITIES FUND IV, LLC

Form of Affiliate Legend

"THE SHARES REPRESENTED BY THIS CERTIFICATE ARE HELD BY AN AFFILIATE OF THE ISSUER AS DEFINED IN RULE 144 PROMULGATED UNDER THE SECURITIES ACT OF 1933 AND MAY ONLY BE SOLD OR OTHERWISE TRANSFERRED IN COMPLIANCE WITH THE REQUIREMENTS OF RULE 144 OR PURSUANT TO A REGISTRATION STATEMENT UNDER SAID ACT OR AN EXEMPTION FROM SUCH REGISTRATION."

Exhibit 10.4

ACHAOGEN
7000 Shoreline Court, Suite 371
South San Francisco, CA 94080
(650) 800-3636
www.achaogen.com

May 3, 2016

Tobin Schilke
[Address]

Dear Tobin **:**

I am pleased to offer you a position with Achaogen, Inc. (the "Company "), as Chief Financial Officer reporting directly to me. Your position with the Company pursuant to the terms and conditions of this letter will commence no later than July 5, 2016 (the "Start Date"). You will have duties and responsibilities, consistent with your position within the Company, as will reasonably be assigned to you by me. You agree to perform your duties faithfully and to the best of your abilities and to devote your full business efforts and time to the Company. Furthermore, while employed by the Company, you agree to not actively engage in any other employment, occupation or consulting activity for any direct or indirect remuneration without prior approval of the CEO and Board of Directors.

The Company reserves the right to conduct background and reference checks on all of its potential employees. Your job offer, therefore, is contingent upon a clearance of such a background investigation and reference check.

Salary. While employed by the Company, you will receive as compensation for your services a base salary at the annualized rate of three hundred and fifteen thousand dollars ($315,000). Your salary will be paid periodically in accordance with the Company's normal payroll practices and will be subject to annual review and the usual, required withholding.

Sign-on Bonus. If you remain employed with the Company for one year you become entitled to a one-time payment in the amount of thirty-five thousand dollars ($35,000). The Company will advance this amount to you within your first 30 days of employment. The payment will be processed through our payroll department, with all appropriate taxes withheld. If you voluntarily terminate your employment before your one-year anniversary, you will owe the Company the entire amount advanced to you, and by signing this agreement, you agree to repay any unpaid advanced amounts within 10 business days following employment termination.

Performance Bonus. In addition to your base salary, you will be eligible to receive a bonus of up to 35% of your base salary (pro-rated for your tenure) based upon yours and the Company’s performance, as determined by the Company, against specific milestones to be defined by the Company. Your bonus will be determined based on corporate performance with respect to 70% and individual performance with respect to 30%. You must be employed at the time of payment to be eligible to receive this bonus.

Stock Option. Subject to approval by the Board of Directors, you will be granted options to purchase one hundred and twenty six thousand (126,000) shares of the Company's common stock (the "Stock Option Grant") comprised of two separate grants to purchase 100,000 shares (the "Time-Based Option") and 26,000 shares (the "Performance-Based Option"), with different vesting schedules as described below.

The Time-Based Option will have a per share exercise price equal to the closing trading price per share of the Company's common stock as of the date of the grant and, subject to your continued service the Company through each vesting date, the Option will vest in accordance with the following vesting schedule:

- 114th of the shares subject to the Option will vest on the first anniversary of your employment start date (such start date, the "Vesting Commencement Date"); and

- 1148th of the shares subject to the Option will vest on each of the next 36 months thereafter on the same day of the month as the Vesting Commencement Date.

The Performance-Based Option will also have a per share exercise price equal to the closing trading price per share on the date of grant and, subject to your continued service with the Company through each vesting date, the Performance Option will vest in accordance with the following vesting schedule:

- The number of shares initially subject to the Performance-Based Option shall vest on the 30th consecutive date the closing trading price per share of the Company's common stock equals or exceeds $12 (40% of the Performance-Based Option), $25 (40% of the Performance-Based Option), and $55 (20% of the Performance-Based Option). The price hurdles will be appropriate adjusted to reflect any stock splits, reverse stock splits or other equity restructurings.

The Option will be subject to the terms and conditions of one of the Company's current equity incentive plans pursuant to which it is granted and the applicable option agreement between you and the Company, both of which are incorporated herein by reference.

Restricted Stock Units (RSUs). Subject to approval by the Board of Directors, you will be granted awards of twenty-seven thousand (27,000) RSUs (the "RSU Grant"), comprised of two separate grants of 21,500 RSUs (the "Time-Based RSUs") and 5,500 RSUs (the "Performance-Based RSUs"), with different vesting schedules as described below. Each RSU entitles you to receive one share of the Company common stock upon vesting.

Subject to your continued service with the Company through each vesting date, the Time-Based RSUs will vest in accordance with the following vesting schedule:

- 114th of the total number of Time-Based RSUs initially subject to the grant will vest on each of the first four anniversaries of the vesting commencement date, which will be one of the pre-established quarterly vesting dates and will be set forth in the RSU agreement evidencing your grant.

Subject to your continued service with the Company through each vesting date, the Performance Based RSUs will vest in accordance with the following vesting schedule:

- The number of shares initially subject to the Performance-Based RSUs shall vest on the 30th consecutive date the closing trading price per share of the Company's common stock equals or exceeds $12 (40% of the Performance-Based RSUs), $25 (40% of the Performance-Based RSUs), and $55 (20% of the Performance-Based RSUs). The price hurdles will be appropriate adjusted to reflect any stock splits, reverse stock splits or other equity restructurings.

The RSUs will be subject to the terms and conditions of one of the company's current equity incentive plans and an RSU agreement to be entered into between you and the Company, both of which are incorporated herein by reference.

Relocation. You are eligible to receive relocation reimbursement for your relocation expenses (to include travel, shipment of household good, lease/preschool termination costs) from London, UK to the San Francisco Bay Area, California up to a maximum of sixty thousand dollars ($60,000). The reimbursement of lease / preschool termination costs is considered taxable income and will be grossed up by sixty-five percent to cover income taxes.

By signing this agreement, you agree to repay the relocation assistance, prorated based on termination date, if you voluntarily terminate your employment for reasons within your control, within two years of your start date.

Temporary Housing. We will provide you with temporary housing of the Company's choosing, for up to six (6) months. This benefit is considered taxable income.

Severance Agreement. In connection with your commencement of employment with the Company, you are eligible to enter into the Change in Control Severance Agreement attached to this offer letter as Exhibit A.

Employee Benefit Plans. As a Company employee, you are also eligible to receive certain employee benefits pursuant to the terms of Company benefit plans as they may exist from time to time.

At-Will Employment. You should understand that your employment with the Company is "at-will" and is for no specified period. As a result, you are free to resign at any time, for any reason, with or without cause. Similarly, the Company is free to conclude its employment relationship with you at any time, for any reason, with or without cause. This is the full and complete agreement between us on this term. Although your job duties, title, compensation and benefits, as well as the Company’s personnel policies and procedures, may change from time-to-time, the "at-will" nature of your employment may only be changed in an express writing signed by you and the CEO.

Confidential Information/Arbitration. You will be required to sign and comply with the attached At-Will Employment, Confidential Information, Invention Assignment and Arbitration Agreement (the "Confidentiality Agreement") as a condition of your employment. The Confidentiality Agreement requires, among other things, the assignment of patent rights to any invention

made during your employment at the Company and non-disclosure of Company proprietary information. We also ask that you disclose to the Company any and all agreements relating to your prior employment that may affect your eligibility to be employed by the Company or limit the manner in which you may be employed. It is the Company's understanding that any such agreements will not prevent you from performing the duties of your position and you represent that such is the case. You further agree not to bring any third party confidential information to the Company, including that of your former employer, and that in performing your duties for the Company you will not in any way utilize any such information.

Federal Immigration. For purposes of federal immigration law, you will be required to provide to the Company documentary evidence of your identity and eligibility for employment in the United States. Such documentation must be provided to us within three (3) business days of your date of hire, or our employment relationship with you may be terminated.

Arbitration of Disputes. In the event of any dispute or claim relating to or arising out of our employment relationship, you and the Company agree that (i) any and all disputes between you and the Company shall be fully and finally resolved by binding arbitration, (ii) you are waiving any and all rights to a jury trial but all court remedies will be available in arbitration, (iii) all disputes shall be resolved by a neutral arbitrator who shall issue a written opinion, (iv) the arbitration shall provide for adequate discovery, and (v) the Company shall be responsible for the arbitrator's fees and costs to the extent they exceed any fee or cost that the Company would be required to bear if the action were brought in an applicable federal or state court. Please note that we must receive your signed Agreement before your first day of employment

Governing Laws. This letter will be governed by the laws of the state of California, with the exception of its conflict of laws provisions.

This offer letter, the Confidentiality Agreement or existing confidential information agreement, as applicable, between you and the Company, as well as the equity incentive plan and stock option agreement related to the Option, represent the entire agreement and understanding between you and the Company concerning your employment relationship with the Company, and supersede in their entirety any and all prior representations or agreements and any representations made during your recruitment, interviews or pre-employment negotiations, whether written or oral. This letter, including, but not limited to, its at-will employment provision, may not be modified or amended except by a written agreement signed by the Board (or its authorized designee) and you.

To confirm your acceptance and agreement to the terms set forth in this offer letter please sign, date, and return this letter to me. Please call Zeryn Sarpangal, at [phone number] if you have any questions.

I am excited to welcome you to the Company, and I look forward to your participation in the Company's future success.

Sincerely,

/s/ Kenneth Hillan

Kenneth Hillan
Chief Executive Officer
Achaogen, Inc.

Accepted and agreed to this 6 day of May , 2016

/s/ Tobin Schilke

Applicant Signature

Enclosures: At-Will Employment, Confidential Information, Invention Assignment and Arbitration Agreement

Exhibit A

ACHAOGEN, INC.

CHANGE IN CONTROL SEVERANCE AGREEMENT

This Change in Control Severance Agreement (the " **Agreement** ") is made and entered into by and between Tobin Schilke (" **Executive** ") and Achaogen, Inc. (the " **Company** "), effective as of the latest date set forth by the signatures of the parties hereto below (the " **Effective Date** ").

R E C I T A L S

A. The Board of Directors of the Company (the " **Board** ") recognizes that Executive's changing role at the Company and that the possibility of an acquisition of the Company or an involuntary termination can be a distraction to Executive and can cause Executive to consider alternative employment opportunities. The Board has determined that it is in the best interests of the Company and its stockholders to assure that the Company will have the continued dedication and objectivity of Executive, notwithstanding the possibility, threat or occurrence of such an event.

B. The Board believes that it is in the best interests of the Company and its stockholders to provide Executive with an incentive to continue Executive's employment and to motivate Executive to maximize the value of the Company upon a Change in Control (as defined below) for the benefit of its stockholders.

C. The Board believes that it is imperative to provide Executive with severance benefits upon certain terminations of Executive's service to the Company that enhance Executive's financial security and provide incentive and encouragement to Executive to remain with the Company notwithstanding the possibility of such an event.

D. Unless otherwise defined herein, capitalized terms used in this Agreement are defined in Section 9 below.

The parties hereto agree as follows:

1. Term of Agreement . This Agreement shall become effective as of the Effective Date and terminate upon the date that all obligations of the parties hereto with respect to this Agreement have been satisfied.

2. At-Will Employment . The Company and Executive acknowledge that Executive's employment is and shall continue to be "at-will," as defined under applicable law. If Executive's employment terminates for any reason, Executive shall not be entitled to any payments, benefits, damages, awards or compensation other than as provided by this Agreement.

3. Covered Termination Other Than During a Change in Control Period . If Executive experiences a Covered Termination other than during a Change in Control Period, and if Executive delivers to the Company a general release of all claims against the Company and its affiliates (a " **Release of Claims** ") that becomes effective and irrevocable within sixty (60) days, or such shorter period of time specified by the Company, following such Covered Termination, then in addition to any accrued but unpaid salary, bonus, benefits, vacation and expense reimbursement payable in accordance with applicable law, the Company shall provide Executive with the following:

   (a) Severance . Executive shall be entitled to receive a severance payment equal to nine (9) months of Executive's base salary at the rate in effect immediately prior to the Termination Date payable in a cash lump sum, less applicable withholdings, on the first payroll date following the date the Release of Claims becomes effective and irrevocable.

   (b) Continued Healthcare . If Executive elects to receive continued healthcare coverage pursuant to the provisions of the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended (" **COBRA** "), the Company shall directly pay, or reimburse Executive for, the premium for Executive and Executive' s covered dependents through the earlier of (i) the nine (9) month anniversary of the Termination Date and (ii) the date Executive and Executive's covered dependents, if any, become eligible for healthcare coverage under another employer's plan(s). After the Company ceases to pay premiums pursuant to the preceding sentence, Executive may, if eligible, elect to continue healthcare coverage at Executive's expense in accordance the provisions of COBRA.

   (c) Equity Awards . Each outstanding and unvested equity award, including, without limitation, each stock option and restricted stock award, held by Executive shall automatically become vested and, if applicable, exercisable and any forfeiture restrictions or rights of repurchase thereon shall immediately lapse, in each case, with respect to that number of shares that would have vested during the nine (9) month period immediately following the Termination Date had Executive's employment with the Company continued during such period.

4. Covered Termination During a Change in Control Period . If Executive experiences a Covered Termination during a Change in Control Period, and if Executive executes and fails to revoke during any applicable revocation period a Release

of Claims within sixty (60) days, or such shorter period of time specified by the Company, following such Covered Termination, then in addition to any accrued but unpaid salary, bonus, benefits, vacation and expense reimbursement payable in accordance with applicable law, the Company shall provide Executive with the following:

(a) Severance . Executive shall be entitled to receive an amount equal to the sum of (i) twelve (12) months of Executive's base salary and (ii) to one hundred percent (100%) of Executive's target annual bonus assuming achievement of performance goals at one hundred percent (100%) of target, in each case, at the rate in effect immediately prior to the Termination Date, payable in a cash lump sum, less applicable withholdings, on the first payroll date following the date the Release of Claims becomes effective and irrevocable.

(b) Continued Healthcare . If Executive elects to receive continued healthcare coverage pursuant to the provisions of COBRA, the Company shall directly pay, or reimburse Executive for, the premium for Executive and Executive's covered dependents through the earlier of (i) the twelve (12) month anniversary of the Termination Date and (ii) the date Executive and Executive's covered dependents, if any, become eligible for healthcare coverage under another employer's plan(s). After the Company ceases to pay premiums pursuant to the preceding sentence, Executive may, if eligible, elect to continue healthcare coverage at Executive's expense in accordance the provisions of COBRA.

(c) Equity Awards . Each outstanding and unvested equity award, including, without limitation, each stock option and restricted stock award, held by Executive shall automatically become vested and, if applicable, exercisable and any forfeiture restrictions or rights of repurchase thereon shall immediately lapse, in each case, with respect to one hundred percent (100%) of the unvested shares underlying Executive's equity awards as of the Termination Date.

5. Certain Reductions . Notwithstanding anything herein to the contrary, the Company shall reduce Executive's severance benefits under this Agreement, in whole or in part, by any other severance benefits, pay in lieu of notice, or other similar benefits payable to Executive by the Company in connection with Executive's termination, including but not limited to payments or benefits pursuant to (a) any applicable legal requirement, including, without limitation, the Worker Adjustment and Retraining Notification Act, or (b) any Company agreement, arrangement, policy or practice relating to Executive's termination of employment with the Company. The benefits provided under this Agreement are intended to satisfy, to the greatest extent possible, any and all statutory obligations that may arise out of Executive's termination of employment. Such reductions shall be applied on a retroactive basis, with severance benefits previously paid being recharacterized as payments pursuant to the Company's statutory obligation.

6. Deemed Resignation . Upon termination of Executive's employment for any reason, Executive shall be deemed to have resigned from all offices and directorships, if any, and then held with the Company or any of its affiliates, and, at the Company's request, Executive shall execute such documents as are necessary or desirable to effectuate such resignations.

7. Other Terminations . If Executive's service with the Company is terminated by the Company or by Executive for any or no reason other than as a Covered Termination, then Executive shall not be entitled to any benefits hereunder other than accrued but unpaid salary, bonus, vacation and expense reimbursement in accordance with applicable law and to elect any continued healthcare coverage as may be required under COBRA or similar state law.

8. Limitation on Payments . Notwithstanding anything in this Agreement to the contrary, if any payment or distribution Executive would receive pursuant to this Agreement or otherwise (" **Payment** ") would (a) constitute a "parachute payment" within the meaning of Section 280G of the Internal Revenue Code of 1986, as amended (the " **Code** "), and (b) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the " **Excise Tax** "), then such Payment shall either be (i) delivered in full, or (ii) delivered as to such lesser extent which would result in no portion of such Payment being subject to the Excise Tax, whichever of the foregoing amounts, taking into account the applicable federal, state and local income taxes and the Excise Tax, results in the receipt by Executive on an after-tax basis, of the largest payment, notwithstanding that all or some portion the Payment may be taxable under Section 4999 of the Code. The accounting firm engaged by the Company for general audit purposes as of the day prior to the effective date of the Change in Control shall perform the foregoing calculations. The Company shall bear all expenses with respect to the determinations by such accounting firm required to be made hereunder. The accounting firm shall provide its calculations to the Company and Executive within fifteen (15) calendar days after the date on which Executive's right to a Payment is triggered (if requested at that time by the Company or Executive) or such other time as requested by the Company or Executive. Any good faith determinations of the accounting firm made hereunder shall be final, binding and conclusive upon the Company and Executive. Any reduction in payments and/or benefits pursuant to this Section 8 will occur in the following order: (1) reduction of cash payments; (2) cancellation of accelerated vesting of equity awards other than stock options; (3) cancellation of accelerated vesting of stock options; and (4) reduction of other benefits payable to Executive.

9. Definition of Terms . The following terms referred to in this Agreement shall have the following meanings:

(a) Cause . " **Cause** " means (i) Executive's gross negligence or willful misconduct in the performance of the duties and services required of Executive pursuant to this Agreement or Executive's employment or offer letter

agreement with the Company (the " Employment Agreement "); (ii) Executive's conviction of, or plea of guilty or *nolo contendre* to, a felony or crime involving moral turpitude (or any similar crime in any jurisdiction outside the United States); (iii) Executive's willful refusal to perform the duties and responsibilities required of Executive under this Agreement or the Employment Agreement which remains uncorrected for thirty (30) days following written notice to Executive by the Company of such breach; (iv) Executive's material breach of any material provision of this Agreement, the Employment Agreement, the Confidential Information Agreement (as defined below) or corporate code or policy which remains uncorrected for thirty (30) days following written notice to Executive by the Company of such breach; (v) any act of fraud, embezzlement, material misappropriation or dishonesty committed by Executive against the Company; or (v) any acts, omissions or statements by Executive which the Company determines to be materially detrimental or damaging to the reputation, operations, prospects or business relations of the Company. For purposes of this Section 9(a), an act or failure to act shall be considered "willful" only if done or omitted to be done without a good faith reasonable belief that such act or failure to act was in the best interests of the Company.

The foregoing definition shall not be deemed to be inclusive of all the acts or omissions that the Company (or any parent or subsidiary or acquiror or successor) may consider as reasonable grounds for Executive's dismissal or discharge.

(b) Change in Control . " **Change in Control** " shall mean the occurrence, in a single transaction or in a series of related transactions, of any one or more of the following events: (i) a transaction or series of transactions (other than an offering of Common Stock to the general public through a registration statement filed with the Securities and Exchange Commission) whereby any "person" or related "group" of "persons" (as such terms are used in Sections 13(d) and 14(d)(2) of the Exchange Act) (other than the Company, any of its subsidiaries, an employee benefit plan maintained by the Company or any of its subsidiaries or a "person" that, prior to such transaction, directly or indirectly controls, is controlled by, or is under common control with, the Company) directly or indirectly acquires beneficial ownership (within the meaning of Rule 13d-3 under the Exchange Act) of securities of the Company possessing more than 50% of the total combined voting power of the Company's securities outstanding immediately after such acquisition; or (ii) during any period of two consecutive years, individuals who, at the beginning of such period, constitute the Board together with any new director(s) (other than a director designated by a person who shall have entered into an agreement with the Company to effect a transaction described in Section 9(b)(i) or 9(b)(iii)) whose election by the Board or nomination for election by the Company's stockholders was approved by a vote of at least two-thirds of the directors then still in office who either were directors at the beginning of the two-year period or whose election or nomination for election was previously so approved, cease for any reason to constitute a majority thereof; or (iii) the consummation by the Company (whether directly involving the Company or indirectly involving the Company through one or more intermediaries) of (x) a merger, consolidation, reorganization, or business combination or (y) a sale or other disposition of all or substantially all of the Company's assets in any single transaction or series of related transactions or (z) the acquisition of assets or stock of another entity, in each case other than a transaction: (1) which results in the Company's voting securities outstanding immediately before the transaction continuing to represent (either by remaining outstanding or by being converted into voting securities of the Company or the person that, as a result of the transaction, controls, directly or indirectly, the Company or owns, directly or indirectly, all or substantially all of the Company's assets or otherwise succeeds to the business of the Company (the Company or such person, the " Successor Entity ")) directly or indirectly, at least a majority of the combined voting power of the Successor Entity's outstanding voting securities immediately after the transaction, and (2) after which no person or group beneficially owns voting securities representing 50% or more of the combined voting power of the Successor Entity; provided, however, that no person or group shall be treated for purposes of this Section 9(b)(iii) as beneficially owning 50% or more of the combined voting power of the Successor Entity solely as a result of the voting power held in the Company prior to the consummation of the transaction; or (iv) The Company's stockholders approve a liquidation or dissolution of the Company.

Notwithstanding the foregoing, if a Change in Control constitutes a payment event for any amount that constitutes deferred compensation that is subject to Section 409A of the Code, the transaction or event described in subsection (i), (ii), (iii) or (iv) with respect to such amount (or portion thereof) must also constitute a "change in control event," as defined in Treasury Regulation Section 1.409A-3(i)(5) to the extent required by Section 409A.

(c) Change in Control Period . " **Change in Control Period** " means the period of time commencing three (3) months prior to a Change in Control and ending twelve (12) months following the Change in Control.

(d) Constructive Termination . " **Constructive Termination** " means Executive's resignation from employment with the Company that is effective within one-hundred twenty (120) days after the occurrence, without Executive's written consent, of any of the following: (i) a material diminution in Executive's base compensation that is not proportionately applicable to other officers and key employees of the Company generally; (ii) a material diminution in Executive's job responsibilities or duties; (iii) the relocation of Executive's principal office to a facility or a location more than fifty (50) miles from Executive's then-present principal office location; or (iv) the failure by any successor entity or corporation following a Change in Control to assume the obligations under this Agreement. Notwithstanding

the foregoing, a resignation shall not constitute a "Constructive Termination" unless the condition giving rise to such resignation continues uncured by the Company more than thirty (30) days following Executive's written notice of such condition provided to the Company within ninety (90) days of the first occurrence of such condition and such resignation is effective within thirty (30) days following the end of such notice period.

(e) Covered Termination . " **Covered Termination** " means the termination of Executive's employment by the Company other than for Cause or Executive's Constructive Termination, in each case, that, to the extent necessary, constitutes a "Separation from Service" (as defined below).

(f) Termination Date . " **Termination Date** " means the date Executive experiences a Covered Termination.

10. Successors .

(a) Company's Successors . Except as set forth above, any successor to the Company (whether direct or indirect and whether by purchase, merger, consolidation, liquidation or otherwise) to all or substantially all of the Company's business and/or assets shall assume the obligations under this Agreement and agree expressly to perform the obligations under this Agreement in the same manner and to the same extent as the Company would be required to perform such obligations in the absence of a succession. For all purposes under this Agreement, the term " **Company** " shall include any successor to the Company's business and/or assets which executes and delivers the assumption agreement described in this Section 10(a) or which becomes bound by the terms of this Agreement by operation of law.

(b) Executive's Successors . The terms of this Agreement and all rights of Executive hereunder shall inure to the benefit of, and be enforceable by, Executive's personal or legal representatives, executors, administrators, successors, heirs, distributees, devisees and legatees.

11. Notices . Notices and all other communications contemplated by this Agreement shall be in writing and shall be deemed to have been duly given when personally delivered or one day following mailing via Federal Express or similar overnight courier service. In the case of Executive, mailed notices shall be addressed to Executive at Executive's home address that the Company has on file for Executive. In the case of the Company, mailed notices shall be addressed to its corporate headquarters, and all notices shall be directed to the attention of its Chief Executive Officer.

12. Confidentiality; Non-Disparagement .

(a) Confidentiality . Executive hereby expressly confirms Executive's continuing obligations to the Company pursuant to Executive's At-Will Employment, Confidential Information, Invention Assignment and Arbitration Agreement with the Company (the " **Confidential Information Agreement** ").

(b) Non-Disparagement . Executive agrees that Executive shall not disparage, criticize or defame the Company, its affiliates and their respective affiliates, directors, officers, agents, partners, stockholders or employees, either publicly or privately. The Company agrees that it shall not, and it shall instruct its officers and members of its Board to not, disparage, criticize or defame Executive, either publicly or privately. Nothing in this Section 12(b) shall have application to any evidence or testimony required by any court, arbitrator or government agency.

13. Dispute Resolution . To ensure the timely and economical resolution of disputes that arise in connection with this Agreement, Executive and the Company agree that any and all disputes, claims, or causes of action arising from or relating to the enforcement, breach, performance or interpretation of this Agreement, Executive's employment, or the termination of Executive's employment, shall be resolved to the fullest extent permitted by law by final, binding and confidential arbitration in San Francisco County, California through Judicial Arbitration & Mediation Services/Endispute (" **JAMS** ") in conformity with the then-existing JAMS employment arbitration rules and California law. **By agreeing to this arbitration procedure, both Executive and the Company waive the right to resolve any such dispute through a trial by jury or judge or administrative proceeding** . The arbitrator shall: (a) have the authority to compel adequate discovery for the resolution of the dispute and to award such relief as would otherwise be permitted by law; and (b) issue a written arbitration decision, to include the arbitrator's essential findings and conclusions and a statement of the award. The Company shall pay all JAMS's arbitration fees in excess of the amount of court fees that would be required if the dispute were decided in a court of law. Nothing in this Agreement is intended to prevent either Executive or the Company from obtaining injunctive relief in court to prevent irreparable harm pending the conclusion of any such arbitration. Notwithstanding the foregoing, Executive and the Company each have the right to resolve any issue or dispute over intellectual property rights by Court action instead of arbitration.

14. Miscellaneous Provisions .

(a) Section 409A .

(i) Separation from Service . Notwithstanding any provision to the contrary in this Agreement, no amount deemed deferred compensation subject to Section 409A of the Code shall be payable pursuant to Sections 3 or 4 above unless Executive's termination of employment constitutes a "separation from service" with the Company within the meaning of Section 409A of the Code and the Department of Treasury regulations and other guidance promulgated thereunder (" **Separation from Service** ") and, except as provided under Section 14(a)(ii) of this Agreement, any such amount shall not be paid, or in the case of installments, commence payment, until the sixtieth (60 th) day following Executive's Separation from Service. Any installment payments that would have been made to Executive during the sixty (60) day period immediately following Executive's Separation from Service but for the preceding sentence shall be paid to Executive on the sixtieth (60 th) day following Executive's Separation from Service and the remaining payments shall be made as provided in this Agreement.

(ii) Specified Employee . Notwithstanding any provision to the contrary in this Agreement, if Executive is deemed at the time of his separation from service to be a "specified employee" for purposes of Section 409A(a)(2)(B)(i) of the Code, to the extent delayed commencement of any portion of the benefits to which Executive is entitled under this Agreement is required in order to avoid a prohibited distribution under Section 409A(a)(2)(B)(i) of the Code, such portion of Executive's benefits shall not be provided to Executive prior to the earlier of (A) the expiration of the six (6)-month period measured from the date of Executive's Separation from Service or (B) the date of Executive's death. Upon the first business day following the expiration of the applicable Code Section 409A(a)(2)(B)(i) period, all payments deferred pursuant to this Section 14(a)(ii) shall be paid in a lump sum to Executive, and any remaining payments due under this Agreement shall be paid as otherwise provided herein.

(iii) Expense Reimbursements . To the extent that any reimbursements payable pursuant to this Agreement are subject to the provisions of Section 409A of the Code, any such reimbursements payable to Executive pursuant to this Agreement shall be paid to Executive no later than December 31 st of the year following the year in which the expense was incurred, the amount of expenses reimbursed in one year shall not affect the amount eligible for reimbursement in any subsequent year, and Executive's right to reimbursement under this Agreement will not be subject to liquidation or exchange for another benefit.

(iv) Installments . For purposes of Section 409A of the Code (including, without limitation, for purposes of Treasury Regulation Section 1.409A-2(b)(2)(iii)), Executive's right to receive any installment payments under this Agreement shall be treated as a right to receive a series of separate payments and, accordingly, each such installment payment shall at all times be considered a separate and distinct payment.

(b) Waiver . No provision of this Agreement shall be modified, waived or discharged unless the modification, waiver or discharge is agreed to in writing and signed by Executive and by an authorized officer of the Company (other than Executive). No waiver by either party of any breach of, or of compliance with, any condition or provision of this Agreement by the other party shall be considered a waiver of any other condition or provision or of the same condition or provision at another time.

(c) Whole Agreement . This Agreement, the Confidential Information Agreement and any offer letter by and between the Company and Executive represent the entire understanding of the parties hereto with respect to the subject matter hereof and supersede all prior promises, arrangements and understandings regarding same, whether written or written, including, without limitation, any severance or change in control benefits in Executive's offer letter agreement and employment agreement or previously approved by the Board.

(d) Choice of Law . The validity, interpretation, construction and performance of this Agreement shall be governed by the laws of the State of California.

(e) Severability . The invalidity or unenforceability of any provision or provisions of this Agreement shall not affect the validity or enforceability of any other provision hereof, which shall remain in full force and effect.

(f) Counterparts . This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together will constitute one and the same instrument.

(*Signature page follows*)

IN WITNESS WHEREOF, each of the parties has executed this Agreement, in the case of the Company by its duly authorized officer, as of the day and year set forth below.

ACHAOGEN, INC.

By: /s/ Kenneth Hillan

Title: CEO

Date: 6/2/2016

EXECUTIVE

/s/ Tobin Schilke

Tobin Schilke

Date: May 6 th , 2016

Exhibit 31.1

CERTIFICATION OF THE CHIEF EXECUTIVE OFFICER

PURSUANT TO

SECURITIES EXCHANGE ACT RULES 13A-14(A) AND 15D-14(A)

I, Kenneth J. Hillan, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Achaogen, 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 and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

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

Date: August 8, 2016

/s/ Kenneth J. Hillan

Kenneth J. Hillan
President and Chief Executive Officer
(principal executive officer)

Exhibit 31.2

CERTIFICATION OF THE CHIEF FINANCIAL OFFICER

PURSUANT TO

SECURITIES EXCHANGE ACT RULES 13A-14(A) AND 15D-14(A)

I, Tobin C. Schilke, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Achaogen, 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 and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

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

Date: August 8, 2016

/s/ Tobin C. Schilke

Tobin C. Schilke

Chief Financial Officer

(principal financial and accounting officer)

Exhibit 32.1

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 Achaogen, Inc. (the "Company") on Form 10-Q for the fiscal quarter ended June 30, 2016, as filed with the Securities and Exchange Commission (the "Report"), Kenneth J. Hillan, President and Chief Executive Officer of the Company, and Tobin C. Schilke, Chief Financial Officer of the Company, respectively, do each hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

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

Date: August 8, 2016

/s/ Kenneth J. Hillan

Kenneth J. Hillan

President and Chief Executive Officer
(principal executive officer)

/s/ Tobin C. Schilke

Tobin C. Schilke
Chief Financial Officer
(principal financial and accounting officer)