CYTOKINETICS INC
Form 10-K
March 06, 2017
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UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form 10-K

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2016

or

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
From the transition period from_____ to _____

Commission file number: 000-50633

CYTOKINETICS, INCORPORATED

(Exact name of registrant as specified in its charter)

Delaware	**94-3291317**
(State or other jurisdiction of incorporation or organization)	*(I.R.S. Employer Identification No.)*
280 East Grand Avenue	
South San Francisco, CA	**94080**
(Address of principal executive offices)	*(Zip Code)*

(650) 624-3000

(Registrant s telephone number, including area code)

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

Title of each class	Name of each exchange on which registered
Common Stock, $0.001 par value	The NASDAQ Capital Market

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

None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

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 Website, 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 if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§ 229.405 of this chapter) is not contained herein, and will not be contained, to the best of the Registrant s knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

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

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

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

The aggregate market value of the voting and non-voting common equity held by non-affiliates was $375.5 million, computed by reference to the last sales price of $9.49 as reported by the NASDAQ Market as of June 30, 2016. This calculation does not reflect a determination that certain persons are affiliates of the Registrant for any other purpose. The number of shares of common stock held by non-affiliates excluded 130,998 shares of common stock held by directors, officers and affiliates of directors. The number of shares owned by affiliates of directors was determined based upon information supplied by such persons and upon Schedules 13D and 13G, if any, filed with the SEC. Exclusion of shares held by any person should not be construed to indicate that such person possesses the power, direct or indirect, to direct or cause the direction of the management or policies of the Registrant, that such person is controlled by or under common control with the Registrant, or that such persons are affiliates for any other purpose.

The number of shares outstanding of the Registrant s common stock on February 23, 2017 was 41,729,549 shares.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Registrant s Proxy Statement for its 2017 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission, no later than 120 days after the end of the fiscal year, are incorporated by reference into Part III of this Annual Report on Form 10-K.

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CYTOKINETICS, INCORPORATED

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PART I

This report contains forward-looking statements indicating expectations about future performance and other forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the Securities Act), Section 21E of the Securities Exchange Act of 1934, as amended (the Exchange Act), and the Private Securities Litigation Reform Act of 1995, that involve risks and uncertainties. We intend that such statements be protected by the safe harbor created thereby. Forward-looking statements involve risks and uncertainties and our actual results and the timing of events may differ significantly from the results discussed in the forward-looking statements. Examples of such forward-looking statements include, but are not limited to, statements about or relating to:

- guidance concerning revenues, research and development expenses and general and administrative expenses for 2017;
- the sufficiency of existing resources to fund our operations for at least the next 12 months;
- our capital requirements and needs for additional financing;
- the initiation, design, conduct, enrollment, progress, timing and scope of clinical trials and development activities for our drug candidates conducted by ourselves or our partners, Amgen Inc. (Amgen) and Astellas Pharma Inc. (Astellas), including the anticipated timing for initiation of clinical trials, anticipated rates of enrollment for clinical trials and anticipated timing of results becoming available or being announced from clinical trials;
- the results from the clinical trials, the non-clinical studies and chemistry, manufacturing, and controls (CMC) activities of our drug candidates and other compounds, and the significance and utility of such results;
- anticipated interactions with regulatory authorities;
- the further development of tirasemtiv for the potential treatment of amyotrophic lateral sclerosis (ALS);
- the expected acceptability by regulatory authorities of the effects of tirasemtiv on slow vital capacity or other measures of clinical benefit related to respiratory function in patients with ALS as Phase 3 clinical trial endpoints to support the registration of tirasemtiv as a treatment for ALS;
- our and our partners plans or ability to conduct the continued research and development of our drug candidates and other compounds;

the advancement of omecamtiv mecarbil in Phase 3 clinical development;

our expected roles in research, development or commercialization under our strategic alliances with Amgen and Astellas;

the properties and potential benefits of, and the potential market opportunities for, our drug candidates and other compounds, including the potential indications for which they may be developed;

the sufficiency of the clinical trials conducted with our drug candidates to demonstrate that they are safe and efficacious;

our receipt of milestone payments, royalties, reimbursements and other funds from current or future partners under strategic alliances, such as with Amgen or Astellas;

our ability to continue to identify additional potential drug candidates that may be suitable for clinical development;

our plans or ability to commercialize drugs with or without a partner, including our intention to develop sales and marketing capabilities;

the focus, scope and size of our research and development activities and programs;

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the utility of our focus on the biology of muscle function, and our ability to leverage our experience in muscle contractility to other muscle functions;

our ability to protect our intellectual property and to avoid infringing the intellectual property rights of others;

future payments and other obligations under loan and lease agreements;

potential competitors and competitive products;

retaining key personnel and recruiting additional key personnel; and

the potential impact of recent accounting pronouncements on our financial position or results of operations.

Such forward-looking statements involve risks and uncertainties, including, but not limited to:

further clinical development of tirasemtiv for the potential treatment of ALS will require significant additional funding and we may be unable to obtain such additional funding on acceptable terms, if at all;

the U.S. Food and Drug Administration (FDA) and/or other regulatory authorities may not accept effects on respiratory function, including slow vital capacity, as appropriate clinical trial endpoints to support the registration of tirasemtiv for the treatment of ALS;

Amgen s decisions with respect to the timing, design and conduct of research and development activities for omecamtiv mecarbil and related compounds, including decisions to postpone or discontinue research or development activities relating to omecamtiv mecarbil and related compounds;

Astellas decisions with respect to the timing, design and conduct of research and development activities for CK-2127107 and other skeletal muscle activators, including decisions to postpone or discontinue research or development activities relating to CK-2127107 and other skeletal muscle activators, as well as Astellas decisions with respect to its option to enter into a global collaboration for the development and commercialization of tirasemtiv;

our ability to enter into strategic partnership agreements for any of our programs on acceptable terms and conditions or in accordance with our planned timelines;

our ability to obtain additional financing on acceptable terms, if at all;

our receipt of funds and access to other resources under our current or future strategic alliances;

difficulties or delays in the development, testing, manufacturing or commercialization of our drug candidates;

difficulties or delays, or slower than anticipated patient enrollment, in our or partners clinical trials;

difficulties or delays in the manufacture and supply of clinical trial materials;

failure by our contract research organizations, contract manufacturing organizations and other vendors to properly fulfill their obligations or otherwise perform as expected;

results from non-clinical studies that may adversely impact the timing or the further development of our drug candidates and other compounds;

the possibility that the FDA or foreign regulatory agencies may delay or limit our or our partners ability to conduct clinical trials or may delay or withhold approvals for the manufacture and sale of our products;

changing standards of care and the introduction of products by competitors or alternative therapies for the treatment of indications we target that may limit the commercial potential of our drug candidates;

difficulties or delays in achieving market access and reimbursement for our drug candidates and the potential impacts of health care reform;

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changes in laws and regulations applicable to drug development, commercialization or reimbursement;

the uncertainty of protection for our intellectual property, whether in the form of patents, trade secrets or otherwise;

potential infringement or misuse by us of the intellectual property rights of third parties;

activities and decisions of, and market conditions affecting, current and future strategic partners;

accrual information provided by our contract research organizations (CROs), contract manufacturing organizations (CMOs), and other vendors;

potential ownership changes under Internal Revenue Code Section 382; and

the timeliness and accuracy of information filed with the U.S. Securities and Exchange Commission (the SEC) by third parties.

In addition, such statements are subject to the risks and uncertainties discussed in the Risk Factors section and elsewhere in this document. Such statements speak only as of the date on which they are made, and, except as required by law, we undertake no obligation to update any forward-looking statement to reflect events or circumstances after the date on which the statement is made or to reflect the occurrence of unanticipated events. New factors emerge from time to time, and it is not possible for us to predict which factors will arise. In addition, we cannot assess the impact of each factor on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements.

Item 1. *Business*

When used in this report, unless otherwise indicated, Cytokinetics, the Company, we, our and us re Cytokinetics, Incorporated. CYTOKINETICS, and our logo used alone and with the mark CYTOKINETICS, are registered service marks and trademarks of Cytokinetics. Other service marks, trademarks and trade names referred to in this report are the property of their respective owners.

Overview

We were incorporated in Delaware in August 1997 as Cytokinetics, Incorporated. We are a late-stage biopharmaceutical company focused on the discovery and developments of first-in-class muscle activators as potential treatment for debilitating diseases in which muscle performance is compromised and/or declining. Our research and development activities relating to the biology of muscle function have evolved from our knowledge and expertise regarding the cytoskeleton, a complex biological infrastructure that plays a fundamental role within every human cell. Our most advanced research and development programs relate to the biology of muscle function and are directed to small molecule modulators of the contractility of skeletal or cardiac muscle. We are also conducting earlier-stage research directed to other compounds with the potential to modulate muscle contractility and other muscle functions.

Our lead drug candidate from our skeletal muscle contractility program, tirasemtiv (formerly known as CK-2017357), is a fast skeletal troponin activator. We retain exclusive rights to tirasemtiv, subject to Astellas exercise of its option for a license to tirasemtiv (Option on Tirasemtiv see *Astellas Option on Tirasemtiv* below). We conducted a Phase 2 clinical development program for tirasemtiv, including a Phase 2b clinical trial in patients with ALS, known as BENEFIT-ALS (Blinded Evaluation of Neuromuscular Effects and Functional Improvement with Tirasemtiv in ALS). Based on the results of BENEFIT-ALS, we started a Phase 3 clinical development program for tirasemtiv in patients with ALS in July 2015 known as VITALITY-ALS (Ventilatory Investigation of Tirasemtiv and Assessment of Longitudinal Indices after Treatment for a Year in ALS). Tirasemtiv has been granted orphan drug designation and fast track status by the FDA and orphan medicinal product designation by the European Medicines Agency, in each case for the potential treatment of ALS.

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We are also developing CK-2127107, a structurally distinct fast skeletal troponin activator, under a strategic alliance with Astellas. In June 2013, we executed a license and collaboration agreement with Astellas (the Original Astellas Agreement), that was amended and restated in December 2014 (the 2014 Astellas Agreement) and further amended in 2016 (the 2016 Astellas Amendment) collectively with the 2014 Astellas Agreement, the Current Astellas Agreement. The 2016 Astellas Amendment, which became effective in September 2016, expanded our collaboration to include the development of CK-2127107 for the potential treatment of ALS, as well as the possible development in ALS of other fast skeletal regulatory activators licensed to Astellas under the 2014 Astellas Agreement. The 2016 Astellas Amendment also extended the existing joint research program focused on the discovery of additional next-generation skeletal muscle activators through 2017, including sponsored research at Cytokinetics. Finally, under the 2016 Astellas Amendment, the Company granted Astellas the Option on Tirasemtiv, an option to enter into a pre-negotiated agreement for a global collaboration for the development and commercialization of tirasemtiv.

Astellas holds an exclusive license to develop and commercialize CK-2127107 worldwide, subject to our development and commercialization participation rights. Under this strategic alliance, Cytokinetics conducted five Phase 1 clinical trials of CK-2127107 and started a Phase 2 clinical trial of CK-2127107 in patients with spinal muscular atrophy (SMA) in December 2015. CK-2127107 is also being evaluated for the potential use in other indications associated with muscle weakness. Astellas, in collaboration with Cytokinetics, started a Phase 2 clinical trial of CK-2127107 in patients with chronic obstructive pulmonary disease (COPD) in June 2016. We are also conducting joint research with Astellas directed to next-generation skeletal muscle activators. Further details regarding our strategic alliance with Astellas can be found below in Item 1 of this report under Research and Development Programs Skeletal Muscle Contractility Program CK-2127107 and Other Skeletal Muscle Activators Astellas Strategic Alliance.

Our lead drug candidate from our cardiac muscle contractility program, omecamtiv mecarbil (formerly known as CK-1827452), is a novel cardiac muscle myosin activator that is being developed under a strategic alliance with Amgen. Amgen holds an exclusive, worldwide license to omecamtiv mecarbil and related compounds, subject to Cytokinetics specified development and commercialization rights. Amgen has also entered an alliance with Servier for exclusive commercialization rights in Europe as well as the Commonwealth of Independent States (CIS), including Russia. Servier contributes funding for development and provides strategic support to the program.

Omecamtiv mecarbil has been the subject of an extensive Phase 1 and Phase 2 clinical trials program. An intravenous formulation of omecamtiv mecarbil was studied in a Phase 2b clinical trial known as ATOMIC-AHF (Acute Treatment with Omecamtiv Mecarbil to Increase Contractility in Acute Heart Failure), which was designed to evaluate the safety and efficacy of omecamtiv mecarbil in patients with left ventricular systolic dysfunction who are hospitalized with acute heart failure. In October 2015, we announced the results of COSMIC-HF (Chronic Oral Study of Myosin Activation to Increase Contractility in Heart Failure), the last planned Phase 2 trial of omecamtiv mecarbil to be completed prior to the decision regarding the advancement of this drug candidate to Phase 3. COSMIC-HF was designed to assess the pharmacokinetics and tolerability of omecamtiv mecarbil dosed orally in patients with heart failure and left ventricular systolic dysfunction and its effects on echocardiographic measures of cardiac function. In December 2016, we announced the activation of the first trial site for a Phase 3 cardiovascular outcomes clinical trial of omecamtiv mecarbil conducted by Amgen, GALACTIC-HF (Global Approach to Lowering Adverse Cardiac Outcomes Through Improving Contractility in Heart Failure). Cytokinetics and Amgen are also planning a potential exercise performance/cardiac function clinical trial to be conducted by Cytokinetics; Amgen will be responsible for reimbursing us for the out-of-pocket development costs associated with this clinical trial. Further details regarding our strategic alliance with Amgen can be found below in Item 1 of this report under Research and Development Programs Cardiac Muscle Contractility Program Amgen Strategic Alliance.

All of our drug candidates have demonstrated evidence of potentially clinically relevant pharmacodynamic activity in humans. In 2017, we expect to continue to focus on translating the observed pharmacodynamic activity of these

compounds into potentially meaningful clinical benefits for patients.

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Following is a summary of the planned clinical development activities for our drug candidates:

Drug Candidate (Mechanism of Action)	Partnership Status	Potential Indication(s)	Current Stage of Development	Development Status and Planned Development Activities
Skeletal Muscle Contractility Program				
Tirasemtiv (fast skeletal troponin activator)	Cytokinetics (1)	ALS	Phase 3	We completed enrollment in a Phase 3 clinical trial of tirasemtiv in patients with ALS in the third quarter of 2016 and began an open-label extension trial in the fourth quarter of 2016 for patients who have completed the Phase 3 trial.
CK-2127107 (fast skeletal troponin activator)	Partnered with Astellas	SMA	Phase 2/Phase 1b	We continued enrollment of Cohort 1 of a Phase 2 clinical trial in patients with SMA. We anticipate that the trial will complete enrollment and report data in the second half of 2017.
		COPD		Astellas initiated a Phase 2 clinical trial in patients with COPD in the second quarter of 2016.
		ALS		We anticipate that we will begin a Phase 2 clinical trial in patients with ALS mid-2017.
		Frailty		We anticipate that Astellas will begin a Phase 1b clinical trial in elderly patients with limited mobility in the first half of 2017.
Cardiac Muscle Contractility Program				
Omecamtiv mecarbil (cardiac muscle myosin activator)	Partnered with Amgen	heart failure (oral administration)	Phase 3	Amgen started GALACTIC-HF, a Phase 3 cardiovascular outcomes clinical trial in patients with heart failure with reduced ejection fraction

in December 2016.

(1) Cytokinetics developing independently, subject to Astellas option on tirasemtiv

All of our drug candidates have arisen from our cytoskeletal research activities. Our focus on the biology of the cytoskeleton distinguishes us from other biopharmaceutical companies, and potentially positions us to discover and develop novel therapeutics that may be useful for the treatment of severe diseases and medical conditions. Each of our drug candidates has a novel mechanism of action compared to currently marketed drugs, which we believe validates our focus on the cytoskeleton as a productive area for drug discovery. We intend to leverage our experience in muscle contractility in order to expand our current pipeline, and expect to identify additional potential drug candidates that may be suitable for clinical development.

Corporate Strategy

We are a late-stage biopharmaceutical company focused on the discovery and development and commercialization of first-in-class muscle activators as potential treatment for debilitating diseases in which

muscle performance is compromised and/or declining. As a leader in muscle biology and the mechanics of muscle performance, the company is developing small molecule drug candidates specifically engineered to increase muscle function and contractility. Over the next 5 years, our goal is to discover, develop and commercialize novel drug products that modulate muscle function in ways that may benefit people living with serious diseases or medical conditions, with the intent of establishing a fully integrated biopharmaceutical company.

The five key components of our Corporate Strategy, Vision 2020: Empowering Our Future, are:

Conduct late-stage clinical development of novel, first-in-class muscle activators for the potential treatment of ALS, SMA, heart failure and other diseases impacting muscle function. As we enter 2017, our portfolio consists of three products that are in mid-late stage clinical development in three therapeutic areas, namely ALS, SMA and heart failure. We believe that by focusing on these disease areas characterized by well-organized physician-investigator groups, significant unmet clinical needs, and strong patient and disease advocacy, we may enhance our effectiveness in enrolling and conducting clinical trials that may answer important questions about the dosing, tolerability, pharmacokinetics and pharmacodynamics as well as the potential safety and efficacy of our drug candidates. We believe that our considered clinical trial designs and well-executed development programs can improve our ability to realize value from our and our partners clinical development activities. As we advance our drug candidates into later-stage clinical development, we extensively evaluate previous clinical trial designs and results to assess key learnings that may be applied to our late-stage clinical development activities. We believe this may result in more successful later-stage clinical development activities that may increase the likelihood of achieving our objectives to develop effective therapies that may address the needs of people living with these devastating diseases.

Collaborate with patient communities to support the urgent development of new medicines for diseases of impaired muscle function with pressing unmet medical needs. Central to our corporate strategy are the people living with a disease or medical condition characterized by impaired muscle function. We focused our development and commercialization activities on diseases that lack effective therapies and, in some cases, those with no approved medicines. We recognize that by applying our extensive knowledge of muscle biology towards the development of novel therapies for the people living with these diseases, not only patients but their caregivers and families, we aim to improve their lives. As such, we need to collaborate with these individuals and their communities to ensure our therapeutics are addressing their urgent needs and that we understand and appreciate the issues associated with these diseases and conditions. We work collaboratively with entities, such as patient advocacy groups, that are focused on policies, guidelines and practices to accelerate development and commercialization of novel therapies, where possible and appropriate, and on ensuring that the voice of their constituency is heard.

Mature our company s operations to enable development, registration and commercialization of muscle biology drug candidates across North America and Europe. With a focus on disease areas for which there are serious unmet medical needs, we direct our activities to potential commercial opportunities in concentrated and tractable customer segments, such as hospital specialists and disease-specific centers of excellence, which may be addressed by a smaller, targeted sales force. In preparing for the potential commercialization of our drug candidates directed to these markets, we are focusing our activities on a broad range of issues facing patients and payors, including the principal drivers of clinical and economic burdens associated with these diseases. We also seek to focus on opportunities that the multiple constituencies and stakeholders for these markets may

recognize as creating value. Accordingly, targeting unmet medical needs in these areas may provide us competitive opportunities and support development of a franchise in diseases involving muscle weakness, wasting and fatigue. In these markets, we believe that a company with limited resources may be able to compete effectively against larger, more established companies with greater financial and commercial resources. For these opportunities, we intend to develop clinical development and sales and marketing capabilities in North America and Europe with the goal of becoming a fully integrated biopharmaceutical company.

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Advance next-generation skeletal and cardiac muscle activator compounds into clinical development by leveraging existing research collaborations. We take a purpose-driven approach by leveraging our extensive muscle biology expertise to engineer compounds with specific characteristics aimed at treating diseases that impact muscle function. By increasing muscle strength and performance, the potential treatments we are developing may preserve and extend independence and self-reliance in people suffering from debilitating diseases. We have established select strategic alliances to support our drug development programs while preserving significant development and commercialization rights. We believe that such alliances may allow us to obtain financial support and to capitalize on the therapeutic area expertise and resources of our partners that can potentially accelerate the development and commercialization of our drug candidates. Where we deem appropriate, we plan to retain certain rights to participate in the development of drug candidates and commercialization of potential drugs arising from our programs and alliances, so that we can expand and capitalize on our own internal development capabilities and build our commercialization capabilities.

Progress proprietary research programs focused on muscle into development under new collaborations. We believe that our extensive understanding of muscle biology and our proprietary research technologies should enable us to discover and potentially to develop drug candidates with novel mechanisms of action that may offer potential benefits not provided by existing drugs and which may have application across a broad array of diseases and medical conditions. We expect that we may be able to leverage our expertise in muscle contractility to expand programs related to other areas of muscle function and which may extend to the potential treatment of other serious medical diseases and conditions. Progressing related programs in parallel may afford us an opportunity to build a broader business that could benefit from multiple products that serve related clinical and commercial needs associated with impaired muscle function, muscle weakness and fatigue. In addition, this strategy may enable us to diversify certain technical, financial and operating risks by advancing several drug candidates in parallel.

Research and Development Programs

Our long-standing interest in the cytoskeleton has led us to focus our research and development activities on the biology of muscle function and, in particular, small molecule modulation of muscle contractility. We believe that our expertise in the modulation of muscle contractility is an important differentiator for us. Our preclinical and clinical experience in muscle contractility may position us to discover and develop additional novel therapies that have the potential to improve the health of patients with severe and debilitating diseases or medical conditions.

Small molecules that affect muscle contractility may have several applications for a variety of serious diseases and medical conditions. For example, certain diseases and medical conditions associated with muscle weakness may be amenable to treatment by enhancing the contractility of skeletal muscle. Similarly, heart failure is a disease often characterized by impaired cardiac muscle contractility which may be treated by modulating the contractility of cardiac muscle. Because the modulation of the contractility of different types of muscle, such as cardiac and skeletal muscle, may be relevant to multiple diseases or medical conditions, we believe we can leverage our expertise in these areas to more efficiently discover and develop potential drug candidates that modulate the applicable muscle type for multiple indications.

We are currently developing a number of small molecule compounds arising from our muscle contractility programs.

Tirasemtiv is our lead drug candidate from our skeletal muscle contractility program. Potential indications for which this drug candidate may be useful include skeletal muscle weakness associated with neuromuscular diseases, such as ALS. We have conducted a Phase 2 clinical trials program for tirasemtiv, and completed enrollment in a Phase 3 clinical development program of this drug candidate in patients with ALS in August

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2016. We retain exclusive rights to tirasemtiv, subject to Astellas exercise of its option on tirasemtiv (see *Astellas Option on Tirasemtiv* below).

CK-2127107, another drug candidate from this program, is partnered with Astellas world-wide for the potential treatment of SMA and potentially other neuromuscular and non-neuromuscular indications associated with muscle weakness. We conducted a Phase 1 clinical trials program for CK-2127107 under this collaboration. We started a Phase 2 clinical trial of CK-2127107 in patients with SMA in December 2015. Astellas, in collaboration with Cytokinetics, started a Phase 2 clinical trial of CK-2127107 in patients with COPD in June 2016 and the Company anticipates they will initiate a Phase 1b clinical trial of CK-2127107 in elderly patients with limited mobility in the first half of 2017. We anticipate that we will initiate a Phase 2 clinical trial in patients with ALS mid-2017. Cytokinetics and Astellas continue to evaluate other indications which may be suitable for CK-2127107 or other skeletal sarcomere activators under the collaboration.

Omecamtiv mecarbil, our novel cardiac muscle myosin activator, is partnered with Amgen world-wide. Phase 2 clinical trials were conducted with both intravenous and oral formulations of omecamtiv mecarbil. An intravenous formulation of omecamtiv mecarbil was studied in ATOMIC-AHF, a Phase 2b clinical trial in patients with acute heart failure, and an oral formulation of omecamtiv mecarbil was studied in COSMIC-HF, a Phase 2 clinical trial in patients with heart failure. In December 2016, we announced the start of GALACTIC-HF, a Phase 3 clinical trial which is being conducted by Amgen in collaboration with Cytokinetics. Amgen holds an exclusive, worldwide license to omecamtiv mecarbil and related compounds, subject to Cytokinetics specified development and commercialization rights. Amgen has also entered into an alliance with Servier for exclusive commercialization rights in Europe as well as the CIS, including Russia.

We are continuing to conduct discovery, characterization and lead optimization activities for other compounds with the potential to modulate muscle contractility and other muscle functions.

Research and Development Expense. Our research and development expenses were $59.9 million, $46.4 million and $44.4 million for 2016, 2015 and 2014, respectively.

Skeletal Muscle Contractility Program

Overview

Our skeletal muscle contractility program is focused on the activation of the skeletal sarcomere, the basic unit of skeletal muscle contraction. The skeletal sarcomere is a highly ordered cytoskeletal structure composed of skeletal muscle myosin, actin, and a set of regulatory proteins, which include the troponins and tropomyosin. This program leverages our expertise developed in our ongoing discovery and development of cardiac sarcomere activators, including the cardiac muscle myosin activator omecamtiv mecarbil.

We believe that our skeletal sarcomere activators may lead to new therapeutic options for diseases and medical conditions associated with aging, muscle weakness and wasting and neuromuscular dysfunction. The clinical effects of muscle weakness and wasting, fatigue and loss of mobility can range from decreased quality of life to, in some instances, life-threatening complications. By directly improving skeletal muscle function, a small molecule activator of the skeletal sarcomere potentially could enhance functional performance and quality of life in patients suffering from diseases or medical conditions characterized or complicated by muscle weakness or wasting. These may include diseases and medical conditions associated with skeletal muscle weakness or wasting, such as ALS, claudication, myasthenia gravis, sarcopenia (general frailty associated with aging), post-surgical rehabilitation and cachexia in connection with heart failure or cancer.

Tirasemtiv is our lead drug candidate from this program. We retain exclusive rights to tirasemtiv, subject to Astellas exercise of its Option on Tirasemtiv. We conducted a Phase 2 clinical development program for tirasemtiv, and we started a Phase 3 clinical development program for this drug candidate in patients with ALS in

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July 2015. In collaboration with Astellas, we are also developing another drug candidate from this program, CK-2127107, for potential indications associated with muscle weakness. We started a Phase 2 clinical trial for CK-2127107 in patients with SMA in December 2015. Astellas, in collaboration with Cytokinetics, started a Phase 2 clinical trial of CK-2127107 in patients with chronic obstructive pulmonary disease in June 2016. Tirasemtiv and CK-2127107 are structurally distinct and selective small molecules that activate the fast skeletal troponin complex in the sarcomere by increasing its sensitivity to calcium, leading to an increase in skeletal muscle contractility. Each of tirasemtiv and CK-2127107 has demonstrated pharmacological activity in preclinical models and evidence of potentially clinically relevant pharmacodynamic effects in humans. We are evaluating other potential indications for which tirasemtiv and CK-2127107 may be useful.

Tirasemtiv

Tirasemtiv, a fast skeletal troponin activator, is the lead drug candidate from our skeletal muscle contractility program. We conducted three evidence of effect Phase 2a clinical trials, and a Phase 2b clinical trial of tirasemtiv in patients with ALS. The evidence of effect clinical trials were randomized, double-blind, placebo-controlled, three-period cross-over studies of single doses of tirasemtiv administered to patients with impaired muscle function. These studies were intended to translate the mechanism of action of tirasemtiv into potentially clinically relevant pharmacodynamic effects. The results from the Phase 2b clinical trial, BENEFIT-ALS, of tirasemtiv in patients with ALS showed that effects observed on slow vital capacity (SVC), a measure of the strength of the skeletal muscles responsible for breathing, in patients treated with tirasemtiv were robust and potentially clinically meaningful and supported further evaluation of tirasemtiv in a Phase 3 clinical trial.

Tirasemtiv Clinical Development

VITALITY-ALS: In July 2015, we started VITALITY-ALS, a Phase 3 clinical trial designed to assess the effects of tirasemtiv versus placebo on slow vital capacity and other measures of respiratory function in patients with ALS. VITALITY-ALS is designed to confirm and extend the results observed in BENEFIT-ALS.

VITALITY-ALS is a multi-national, randomized, double-blind, placebo-controlled trial that was originally designed to enroll 445 patients with possible, probable or definite ALS diagnosed within 24 months, and with a baseline vital capacity > 70 % of predicted, based on age, sex, and height. Patients may be enrolled whether, or not they are on riluzole therapy. The primary endpoint of the trial will assess change from baseline in SVC, to be assessed after 24 weeks of double-blind, placebo-controlled treatment. Secondary endpoints include time to decline from baseline in percent predicted SVC by ³ 20 percentage points or the onset of respiratory insufficiency or death; time to decline from baseline in percent predicted SVC to £ 50 percent predicted or the onset of respiratory insufficiency or death; time to first occurrence of any use of assisted ventilation or death; time to decline in any of the three respiratory domains of the ALSFRS-R or death; and change in the Mega-Score of muscle strength.

Patients enrolled in VITALITY-ALS received two-weeks of open-label treatment with tirasemtiv administered at 250 mg/day and were randomized to double-blind treatment with placebo or one of three target tirasemtiv dose levels (250 mg/day, 375 mg/day, 500 mg/day) in a 3:2:2:2 ratio for a total of 48 weeks of randomized, double-blind, placebo-controlled treatment. Then in a four-week double-blind, tirasemtiv withdrawal phase, patients on tirasemtiv are randomized either to continue the double-blind tirasemtiv dose they were receiving or to be withdrawn to placebo in a 1:1 ratio. Patients who had been receiving placebo during the 48 weeks of double-blind, placebo-controlled treatment will continue to receive placebo. VITALITY-ALS is being conducted in 81 centers in 11 countries in North America and Europe and includes most of the sites which participated in BENEFIT-ALS.

The design of VITALITY-ALS addresses certain observations from BENEFIT-ALS. VITALITY-ALS provides for a longer open label phase (one week in BENEFIT-ALS versus two weeks in VITALITY-ALS) prior

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to patient randomization. The longer open label phase in VITALITY-ALS provides more time for patients to acclimate to potential side effects of tirasemtiv to potentially reduce the rate of early termination on study medication post randomization as compared to BENEFIT-ALS. In addition, VITALITY-ALS randomizes patients to three different target dose levels to evaluate the potential effect of dose on the safety, tolerability and efficacy of tirasemtiv. Patients in BENEFIT-ALS were randomized to one target dose level of 500 mg/day and investigators were encouraged to up-titrate patients to their maximally tolerated dose levels. In addition, in VITALITY-ALS, patients are up-titrated more slowly (two weeks at each dose level before up-titration in VITALITY-ALS versus one week in BENEFIT-ALS). We believe these and other design changes in VITALITY-ALS may decrease the rate of early terminations on tirasemtiv after randomization compared to the rate we observed after randomization in BENEFIT-ALS.

In January 2016, we amended the protocol of VITALITY-ALS to provide for an increase in the number of patients to be enrolled in the clinical trial from approximately 445 patients to approximately 600 patients. Increasing the number of patients enrolled in VITALITY-ALS will increase the statistical power to detect a difference in the primary efficacy endpoint (change from baseline in SVC at 24 weeks) between tirasemtiv and placebo.

In July 2015, we were awarded a $1.5 million grant from The ALS Association (the ALSA Grant) to support the conduct of VITALITY-ALS as well as the collection of clinical data and plasma samples from patients in VITALITY-ALS in order to help advance the discovery of potentially useful biomarkers in ALS. The grant provides funding for collaboration among Cytokinetics, The ALS Association and the Barrow Neurological Institute to enable plasma samples collected from patients enrolled in VITALITY-ALS to be added to The Northeastern ALS Consortium (NEALS) Repository, a resource for the academic research community to identify biomarkers that may help to assess disease progression and underlying disease mechanisms in ALS. In 2015, Cytokinetics achieved its first milestone under the ALSA Grant which triggered a payment of $0.5 million in accordance with the ALSA Grant. We recorded $0.1 million as grant revenue as qualified expenses were incurred and approved by management.

In August 2016, we announced the completion of patient enrollment in VITALITY-ALS. We convened the second Data Monitoring Committee Meeting for VITALITY-ALS to review unblinded safety and efficacy data; and the Committee recommended continuing the trial without modifications to the protocol.

In October 2016, we initiated VIGOR-ALS (**V**entilatory **I**nvestigations in **G**lobal **O**pen-Label **R**esearch in **ALS**), an open-label extension clinical trial designed to assess the long-term safety and tolerability of tirasemtiv, in patients with ALS who have completed their participation in VITALITY-ALS. VIGOR-ALS will provide supplemental data on the effects of the long-term use of tirasemtiv.

Prior Clinical Experience with Tirasemtiv

BENEFIT-ALS: In 2012, we initiated BENEFIT-ALS, a Phase 2b, multi-national, double-blind, randomized, placebo-controlled, clinical trial designed to evaluate the safety, tolerability and efficacy of tirasemtiv in patients with ALS.

In 2014, BENEFIT-ALS results were presented at the 66th Annual Meeting of the American Academy of Neurology. BENEFIT-ALS did not achieve its primary efficacy endpoint, the mean change from baseline in the ALS Functional Rating Scale in its revised form (ALSFRS-R; $p = 0.11$). Treatment with tirasemtiv resulted in a statistically significant and potentially clinically meaningful reduction in the decline of slow vital capacity (SVC), a measure of the strength of the skeletal muscles responsible for breathing. SVC has been shown to be an important predictor of disease progression and survival in prior trials of patients with ALS. At week 12, the decline in SVC from baseline was -3.12 for patients receiving tirasemtiv versus -8.66 for those receiving placebo ($p < 0.0001$). From week 0 to week 12, the

slope of decline in SVC measured as percentage points per day was -0.0394 for patients receiving tirasemtiv versus -0.0905 for those receiving placebo (p = 0.0006).

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The analyses of other pre-specified secondary efficacy endpoints in BENEFIT-ALS produced mixed results. The muscle strength mega-score, a measure of strength combining the data from several muscle groups in each patient, declined more slowly on tirasemtiv versus placebo. The difference in the rate of decline for sniff nasal inspiratory pressure (SNIP) was not statistically significant); however, SNIP decreased more on tirasemtiv compared with placebo in a statistically significant manner at 4 and 12 weeks. No differences in maximum voluntary ventilation and hand grip fatigue were observed on tirasemtiv versus placebo.

Serious adverse events (SAEs) during double-blind treatment were more frequent on tirasemtiv than on placebo (9.0% vs. 5.4%). The most common SAE was respiratory failure which occurred in 1 patient on tirasemtiv and 3 patients on placebo. Confusional state and delirium occurred in 2 patients on tirasemtiv and no patients on placebo. More patients on tirasemtiv withdrew from the trial following randomization than on placebo (99 vs. 33 patients, respectively). Adverse events more common on tirasemtiv than on placebo (>10% difference) were dizziness, fatigue, and nausea.

Tirasemtiv Presentations and Publications

In January 2016, in collaboration with Knopp Biosciences, we presented exploratory analyses of data from patients with ALS combined from three different sources: First, the placebo data from EMPOWER, the Phase 3 clinical trial of Knopp s dexpramipexole in patients with ALS, second, the placebo data from Cytokinetics Phase 2b study of tirasemtiv in patients with ALS, BENEFIT-ALS, and finally, Pooled Resource Open-Access ALS Clinical Trials (PRO-ACT) database. These combined databases included multiple observations of SVC over time from over 900 patients with ALS. Our analyses of this combined database demonstrated that the rate of decline of SVC predicts the risk of meaningful clinical events, including a decline in any one of the three respiratory questions of the ALSFRS-R, as well as the time to the first occurrence of respiratory insufficiency, tracheostomy or death.

In March 2016, we announced a research collaboration with Origent Data Sciences, Inc. (Origent) to refine and prospectively validate an Origent computer model to predict the course of ALS disease progression leveraging placebo data from Cytokinetics clinical trials of tirasemtiv and data from other ALS trials in the PRO-ACT database. Funded by Origent s receipt of a grant from The ALS Association, this joint research program will enable the first prospective validation of the predictive model in a clinical trial setting. The data presented showed that FVC measurements could be used to predict SVC values of ALS patients using a machine-based learning technique. Previously, the Origent models predicting both function and survival of ALS patients have been validated using their internal and retrospective external datasets.

Also in March 2016, the results of BENEFIT-ALS were published in a manuscript titled, A randomized, placebo-controlled, double-blind phase IIb trial evaluating the safety and efficacy of tirasemtiv in patients with amyotrophic lateral sclerosis, in the Amyotrophic Lateral Sclerosis and Frontotemporal Degeneration journal. Results from this trial were first presented at the Annual Meeting of the American Academy of Neurology in 2014.

Tirasemtiv Strategic and Commercial Planning

In 2016, we continued preparing for the potential commercialization of tirasemtiv in North America and Europe. These activities included interactions with manufacturers, and corporate development and commercial planning activities to support various scenarios. We expect to continue to engage extensively with ALS experts, both neuromuscular and pulmonary, and with payors, regulatory authorities and patient advocacy groups as we develop plans for the potential commercialization of tirasemtiv as a treatment for patients living with ALS. These commercialization plans will include market assessment and corporate development activities to support the launch of tirasemtiv in North America and Europe, if appropriate.

Background on ALS Market. Limited options exist for the treatment of patients with ALS, which affects as many as 30,000 Americans, with an estimated 5,600 new cases diagnosed each year in the U.S. Based on our

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primary market research, the per capita prevalence and incidence appears similar in the major European markets. ALS is 20% more common in men than women; however, with increasing age, the prevalence becomes more equal between men and women. The life expectancy of an ALS patient averages two to five years from the time of diagnosis, mostly due to respiratory issues. Of the patients diagnosed with ALS, 5 to 10% have a family history of the disease (familial ALS) and remaining 90 to 95% have the sporadic form. The majority of patients with ALS in the U.S. and Europe receive treatment at a concentrated number of multidisciplinary centers that specialize in the unique needs of these patients. In the U.S., there are approximately 156 ALS multidisciplinary clinics, according to either the ALS Association or the Muscular Dystrophy Association. For most patients with ALS, death is usually due to respiratory failure because of diminished strength in the skeletal muscles responsible for breathing. We believe that there is a need for novel therapies to address the urgent unmet medical issues of this patient population which could be addressed by a small, targeted sales force. If tirasemtiv is approved by regulatory authorities in the U.S. or Europe for commercialization for ALS, we believe that we may be able to independently commercialize tirasemtiv in these concentrated markets.

CK-2127107 and Other Skeletal Muscle Activators

Astellas Strategic Alliance

CK-2127107, a next-generation fast skeletal troponin activator, is being developed jointly by Cytokinetics and Astellas. In 2013, we formed a collaboration with Astellas with the primary objective of advancing novel therapies for diseases and medical conditions associated with muscle impairment and weakness. Under the collaboration, we exclusively licensed to Astellas rights to co-develop and potentially co-commercialize CK-2127107 in non-neuromuscular indications. In 2014, we and Astellas agreed to expand the collaboration to include certain neuromuscular indications, including SMA, and to advance CK-2127107 into Phase 2 clinical development, initially in SMA. In connection with the expanded collaboration, we and Astellas agreed to extend the joint research program through 2016. In 2016, Cytokinetics and Astellas further amended the collaboration agreement to expand our collaboration to include the development of CK-2127107 for the potential treatment of ALS, as well as the possible development in ALS of other fast skeletal regulatory activators previously licensed by us to Astellas. The 2016 Astellas Amendment became effective in September 2016. The 2016 Astellas Amendment also extends the existing joint research program focused on the discovery of additional next-generation skeletal muscle activators through 2017, and includes sponsored research at Cytokinetics. Finally, under the 2016 Astellas Amendment, we granted Astellas the Option on Tirasemtiv, as described above.

Addition of ALS as an Added Indication (CK-2127107 and other fast skeletal activators)

In connection with the execution of the 2016 Astellas Amendment, we received a non-refundable upfront amendment fee of $35 million. In addition, we received an accelerated $15 million milestone payment that would have been payable upon the initiation of the first Phase 2 clinical trial of CK-2127107 as the lead compound in ALS, as if such milestone had been achieved upon the execution of the 2016 Astellas Amendment.

We and Astellas are collaborating to develop CK-2127107 in ALS. Astellas is primarily responsible for the development of CK-2127107 in ALS, but we will conduct the Phase 2 clinical trial of CK-2127107 in ALS and will share in the operational responsibility for later clinical trials. Subject to specified guiding principles, decision making will be by consensus, subject to escalation and, if necessary, Astellas final decision making authority on the development (including regulatory affairs), manufacturing, medical affairs and commercialization of CK-2127107 and other fast skeletal regulatory activators in ALS. We and Astellas share equally the costs of developing CK-2127107 in ALS for potential registration and marketing authorization in the U.S. and Europe, provided that (i) Astellas has agreed to solely fund Phase 2 development costs of CK-2127107 in ALS subject to a right to recoup our share of such

costs plus a 100% premium by reducing future milestone and royalty payments to us and (ii) we may defer (but not eliminate) a portion of our co-funding obligation for development activities after Phase 2 for up to 18 months, subject to certain conditions. We have the right to co-fund our share of such Phase 2 development costs on a current basis, in which case there would not be a premium due to

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Astellas. Cytokinetics will also receive approximately $41.8 million in additional sponsored research and development funding through 2018 which includes Astellas funding of Cytokinetics conduct of the Phase 2 clinical development of CK-2127107 in ALS (approximately $36.6 million) as well as the continuing research collaboration (approximately $5.2 million).

Based on the achievement of pre-specified criteria, Cytokinetics may receive over $600.0 million in milestone payments relating to the development and commercial launch of collaboration products, including up to $112.0 million (of which Cytokinetics has now received $17.0 million) relating to early development of CK-2127107 and for later-stage development and commercial launch milestones for CK-2127107 in non-neuromuscular indications, and over $100.0 million in development and commercial launch milestones for CK-2127107 in each of SMA and other neuromuscular indications. Cytokinetics may also receive up to $200.0 million in payments for achievement of pre-specified sales milestones related to net sales of all collaboration products under the Current Astellas Agreement. If Astellas commercializes any collaboration products, we will also receive royalties on sales of such collaboration products, including royalties ranging from the high single digits to the high teens on sales of products containing CK-2127107. We can co-fund certain development costs for CK-2127107 and other compounds in exchange for increased milestone payments and royalties; such royalties may increase under certain scenarios to exceed twenty percent. In addition to the foregoing development, commercial launch and sales milestones, Cytokinetics may also receive payments for the achievement of pre-specified milestones relating to the joint research program.

Cytokinetics retains an option to conduct early-stage development for certain agreed indications at its initial expense, subject to reimbursement if development continues under the collaboration. Cytokinetics also retains an option to co-promote collaboration products containing fast skeletal troponin activators for neuromuscular indications in the U.S., Canada and Europe, in addition to its option to co-promote other collaboration products in the U.S. and Canada. Astellas will reimburse Cytokinetics for certain expenses associated with its co-promotion activities.

In December 2014, we and Astellas entered into the 2014 Astellas Agreement pursuant to which we received a non-refundable upfront payment of $30.0 million. Concurrently, we entered into a common stock purchase agreement with Astellas, which provided for the sale of 2,040,816 shares of our common stock to Astellas at a price per share of $4.90 and an aggregate purchase price of $10.0 million. Pursuant to this agreement, Astellas agreed to certain trading and other restrictions with respect to our common stock. Concurrently, Cytokinetics earned a $15.0 million milestone payment relating to Astellas decision to advance CK-2127107 into Phase 2 clinical development. Cytokinetics was also eligible to potentially receive over $20.0 million in reimbursement of sponsored research and development activities during the two years of the collaboration following the execution of the 2014 Astellas Agreement.

CK-2127107 Clinical Development

SMA Clinical Development: Cytokinetics in collaboration with Astellas is conducting a Phase 2 clinical development program. Cytokinetics started a Phase 2 clinical trial of CK-2127107 in patients with SMA (CY 5021) in December 2015. The clinical trial is designed to assess effects of CK-2127107 on multiple measures of muscle function in both ambulatory and non-ambulatory patients with SMA, a severe, genetic neuromuscular disease that leads to debilitating muscle wasting and progressive, often fatal, muscle weakness. The primary objective of this double-blind, randomized, placebo-controlled clinical trial is to determine the potential pharmacodynamic effects of a suspension formulation of CK-2127107 following multiple oral doses in patients with Type II, Type III, or Type IV SMA. Secondary objectives are to evaluate the safety, tolerability and pharmacokinetics of CK-2127107. The trial will enroll seventy-two patients in two sequential, ascending dose cohorts (two cohorts of 36 patients each, stratified half ambulatory and half non-ambulatory).

The first cohort of patients received 150 mg of CK-2127107 dosed twice daily for eight weeks; the second cohort of patients will receive 450 mg of CK-2127107 dosed twice daily or a lower dose, depending on the data

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from the first cohort. At the conclusion of the trial, approximately 24 patients will have been randomized to placebo, approximately 24 patients to 150 mg of CK-2127107 twice daily and approximately 24 patients to 450 mg of CK-2127107 twice daily (or a lower dose, pending the review of data from the first cohort). In each of these three treatment groups of approximately 24 patients each, roughly half will be ambulatory and half will be non-ambulatory. Multiple assessments of skeletal muscle function and fatigability will be performed including respiratory assessments, upper limb strength and functionality for non-ambulatory patients, as well as six-minute walk and timed-up-and-go for ambulatory patients.

We continue enrollment patients with SMA in this Phase 2 clinical trial, in collaboration with Astellas. We anticipate that the trial will complete enrollment and report data in the second half of 2017.

COPD Clinical Development: In June 2016, Astellas, in collaboration with Cytokinetics, started a Phase 2 clinical trial of CK-2127107 in patients with COPD. Astellas is conducting this randomized, double-blind, placebo controlled two period crossover clinical trial designed to assess the effect of CK-2127107 on physical function in patients with COPD. The trial is expected to enroll approximately 40 patients in the United States and is designed to assess the effect of CK-2127107 compared to placebo on exercise tolerance. Additionally, the trial will assess the cardiopulmonary and neuromuscular effect of CK-2127107 relative to placebo and the effect of CK-2127107 on resting spirometry relative to placebo. The safety, tolerability and pharmacokinetics of CK-2127107 also will be assessed. We expect Astellas to continue enrollment in this Phase 2 clinical trial of CK-2127107 in patients with COPD in 2017.

ALS Clinical Development: We anticipate that we will begin a Phase 2 clinical trial of CK-2127107 in patients with ALS mid-2017.

Frailty Clinical Development: We anticipate that Astellas will begin a Phase 1b clinical trial of CK-2127107 in elderly patients with limited mobility in the first half of 2017.

Prior Clinical Experience with CK-2127107

We completed five Phase 1 clinical trials evaluating safety, tolerability and pharmacokinetics and pharmacodynamics of CK-2127107 in both oral tablet and liquid suspension formulations in healthy volunteers. The Phase 1 clinical trials demonstrated that CK-2127107 appeared well-tolerated in healthy volunteers and that exposures generally increased across the dose ranges studied. CK-2127107 increased the response of muscle to neuromuscular input in a dose and plasma concentration related fashion in healthy volunteers consistent with preclinical observations.

CK-2127107 Commercial Market

Background on SMA Market: Spinal muscular atrophy (SMA) is a severe neuromuscular disease that occurs in 1 in every 6,000 to 10,000 live births each year resulting in a prevalence of 10,000 to 25,000 patients in the U.S., and is one of the most common fatal genetic disorders. SMA manifests in various degrees of severity as progressive muscle weakness resulting in respiratory and mobility impairment. There are four types of SMA, distinguished by the time of the initial onset of muscle weakness and the severity of related symptoms: Type I (severe), Type II (intermediate), Type III (juvenile) and Type IV (adult onset). Life expectancy and disease severity varies by type of SMA from Type I, who have the worst prognosis and a life expectancy of approximately two years from birth, to Type IV, who have a normal life span but with gradual weakness in the proximal muscles of the extremities resulting in mobility issues. Type II, III and IV patients are often characterized by their ambulatory status as it is an important driver of clinical decisions and care, and constitute 50% of the incident patient population but as much as 90% of the prevalent patient population. Few treatment options exist for these patients, resulting in a high unmet need for new therapeutic options

to ameliorate symptoms, improve muscle function and modify disease progression.

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Ongoing Research in Skeletal Muscle Activators

Our research on the direct activation of skeletal muscle continues in two areas. We are conducting translational research in preclinical models of disease and muscle function with fast skeletal troponin activators to explore the potential clinical applications of this novel mechanism in diseases or conditions associated with skeletal muscle dysfunction. We also intend to conduct preclinical research on other chemically and pharmacologically distinct mechanisms to activate the skeletal sarcomere.

We advanced a next-generation skeletal muscle activator into IND-enabling studies in 2016 and earned a $2.0 million milestone payment. We are conducting a joint research program with Astellas directed to the discovery of next-generation skeletal muscle activators. Under the 2016 Astellas Amendment, the joint research program will continue through 2017 and Astellas will reimburse us for certain research activities we perform.

Cardiac Muscle Contractility Program

Overview

Our cardiac muscle contractility program is focused on the cardiac sarcomere, the basic unit of muscle contraction in the heart. The cardiac sarcomere is a highly ordered cytoskeletal structure composed of cardiac muscle myosin, actin and a set of regulatory proteins. This program is currently directed towards the discovery and development of small molecule cardiac muscle myosin activators with the goal of developing novel drugs to treat acute and chronic heart failure. Cardiac muscle myosin is the cytoskeletal motor protein in the cardiac muscle cell. It is directly responsible for converting chemical energy into the mechanical force, resulting in cardiac muscle contraction. This program is based on the hypothesis that activators of cardiac muscle myosin may address certain adverse properties of existing positive inotropic agents. Current positive inotropic agents, such as beta-adrenergic receptor agonists or inhibitors of phosphodiesterase activity, increase the concentration of intracellular calcium, thereby increasing cardiac sarcomere contractility. The effect on calcium levels, however, also has been linked to potentially life-threatening side effects. In contrast, our novel cardiac muscle myosin activators work by a mechanism that directly stimulates the activity of the cardiac muscle myosin motor protein, without increasing the intracellular calcium concentration. They accelerate the rate-limiting step of the myosin enzymatic cycle and shift it in favor of the force-producing state. Rather than increasing the velocity of cardiac contraction, this mechanism instead lengthens the systolic ejection time, which results in increased cardiac function in a potentially more oxygen-efficient manner.

Amgen Strategic Alliance.

In December 2006, we entered into a collaboration and option agreement with Amgen to discover, develop and commercialize novel small molecule therapeutics, including omecamtiv mecarbil, that activate cardiac muscle contractility for potential applications in the treatment of heart failure (the Amgen Agreement). The agreement granted Amgen an option to obtain an exclusive license worldwide, except Japan, to develop and commercialize omecamtiv mecarbil and other drug candidates arising from the collaboration. In May 2009, Amgen exercised its option. As a result, Amgen became responsible for the development and commercialization of omecamtiv mecarbil and related compounds at its expense worldwide (excluding Japan), subject to our development and commercialization participation rights. Amgen reimburses us for certain research and development activities we perform under the collaboration.

In June 2013, Cytokinetics and Amgen executed an amendment to the Amgen Agreement to include Japan, resulting in a worldwide collaboration (the Amgen Agreement Amendment). Under the terms of the Amgen Agreement Amendment, we received a non-refundable upfront license fee of $15.0 million in June 2013. Under the Amgen

Agreement Amendment, we conducted a Phase 1 pharmacokinetic study intended to support inclusion of Japan in a potential Phase 3 clinical development program and potential global registration dossier for omecamtiv mecarbil. Amgen reimbursed us for the costs of this study. In addition, we are eligible to receive additional pre-commercialization milestone payments relating to the development of omecamtiv mecarbil in

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Japan of up to $50.0 million, and royalties on sales of omecamtiv mecarbil in Japan. In conjunction with the Amgen Agreement Amendment, we also entered into a common stock purchase agreement which provided for the sale of 1,404,100 shares of our common stock to Amgen at a price per share of $7.12 and an aggregate purchase price of $10.0 million which was received in June 2013. Pursuant to this agreement, Amgen agreed to certain trading and other restrictions with respect to our common stock.

Under the Amgen Agreement as amended we are eligible for potential additional pre-commercialization and commercialization milestone payments of over $600.0 million in the aggregate on omecamtiv mecarbil and other potential products arising from research under the collaboration, and royalties that escalate based on increasing levels of annual net sales of products commercialized under the agreement. The Amgen Agreement also provides for us to receive increased royalties by co-funding Phase 3 development costs of omecamtiv mecarbil and other drug candidates under the collaboration. In February 2017, we agreed to exercise our option to co-invest $40.0 million in the Phase 3 development program of omecamtiv mecarbil. As a result, we are eligible to receive an incremental royalty of up to 4% on increasing worldwide sales of omecamtiv mecarbil outside of Japan. Exercising and fully co-funding our option will afford us the right to co-promote omecamtiv mecarbil in institutional care settings in North America, with reimbursement by Amgen for certain sales force activities.

In July 2013, Amgen announced that it had granted an option to commercialize omecamtiv mecarbil in Europe to Servier, with Cytokinetics consent, pursuant to an Option, License and Collaboration Agreement (the Servier Agreement).

In August 2016, we entered into a Letter Agreement with Amgen and Servier (the Letter Agreement), which (i) expands the territory of the sublicense to Servier to include specified countries in the CIS, including Russia and (ii) provides that, if Amgen s rights under the Amgen Agreement, as amended, are terminated with respect to the territory of such sublicense, the sublicensed rights previously granted by Amgen to Servier under the Servier Agreement will remain in effect and become a direct license or sublicense of such rights by us to Servier, on substantially the same terms as set forth in the Servier Agreement, including but not limited to Servier s payment of its share of agreed development costs and future milestone and royalty payments to us. The Letter Agreement does not otherwise modify our rights and obligations under the Amgen Agreement, as amended, or create any additional financial obligations of Cytokinetics, unless we otherwise agree in writing.

In September 2016, Amgen and Servier announced Servier s decision to exercise its option to commercialize omecamtiv mecarbil in Europe as well as the CIS, including Russia. The option and related commercialization sublicense to Servier is subject to the terms and conditions of the Amgen Agreement. Amgen remains responsible for the performance of its obligations under the Amgen Agreement, as amended, relating to Europe and the CIS, including the payment of milestones and royalties relating to the development and commercialization of omecamtiv mecarbil in Europe and the CIS.

Omecamtiv Mecarbil

Our lead drug candidate from this program is omecamtiv mecarbil, a novel cardiac muscle myosin activator. We expect omecamtiv mecarbil to be developed as a potential treatment across the continuum of care in heart failure both for use in the hospital setting and for use in the outpatient setting.

Omecamtiv Mecarbil Clinical Development

GALACTIC-HF is a Phase 3 cardiovascular outcomes clinical trial of omecamtiv mecarbil which is being conducted by Amgen, in collaboration with Cytokinetics. Coincident with the start of the trial, Amgen made a $26.7 million

milestone payment to Cytokinetics. The primary objective of this double-blind, randomized, placebo-controlled multicenter clinical trial is to determine if treatment with omecamtiv mecarbil when added to standard of care is superior to standard of care plus placebo in reducing the risk of cardiovascular death or heart failure events in patients with high risk chronic heart failure and reduced ejection fraction. GALACTIC-HF is

being conducted under a Special Protocol Assessment (SPA) with the U.S. FDA. GALACTIC-HF is planned to enroll approximately 8,000 symptomatic chronic heart failure patients in over 900 sites in 35 countries who are either currently hospitalized for a primary reason of heart failure or have had a hospitalization or admission to an emergency room for heart failure within one year prior to screening. In order to be eligible to participate in GALACTIC-HF patients should have an LVEF £ 35%, be NYHA class II to IV, and have an elevated BNP or NT-proBNP. Patients will be randomized to either placebo or omecamtiv mecarbil with dose titration up to a maximum dose of 50 mg twice daily based on the plasma concentration of omecamtiv mecarbil after initiation of drug therapy. The primary endpoint is a composite of time to cardiovascular death or first heart failure event, which is defined as either a hospitalization for heart failure or other urgent treatment for worsening heart failure. Secondary endpoints include time to cardiovascular death; patient reported outcomes as measured by the Kansas City Cardiomyopathy Questionnaire Total Symptom Score; time to first heart failure hospitalization; and all-cause death.

Cytokinetics and Amgen are also planning a potential exercise performance/cardiac function clinical trial to be conducted by Cytokinetics. Amgen will be responsible for reimbursing us for the out-of-pocket development costs associated with this clinical trial.

In April 2016, we announced the start of a Phase 2 clinical trial of omecamtiv mecarbil in Japanese subjects with chronic heart failure and reduced ejection fraction and we expect data from this trial in Q3 2017.

Prior Clinical Experience with Omecamtiv Mecarbil

COSMIC-HF. COSMIC-HF is a Phase 2, double-blind, randomized, placebo-controlled, multicenter, clinical trial designed to assess the pharmacokinetics and tolerability of omecamtiv mecarbil dosed orally in patients with heart failure and left ventricular systolic dysfunction as well as its effects on echocardiographic measures of cardiac function. COSMIC-HF was conducted by Amgen in collaboration with Cytokinetics. The study began with two dose escalation cohorts of 40 patients each, randomized 1:1:1:1 to placebo or one of three different modified release oral formulations of omecamtiv mecarbil for seven days. The omecamtiv mecarbil dose in the first of these two dose escalation cohorts was 25 mg twice daily; in the second, it was 50 mg twice daily. The purpose of the dose escalation cohorts was to select one of the three modified release oral formulations of omecamtiv mecarbil for further evaluation in a larger group of patients treated for a longer period of time.

The expansion phase of COSMIC-HF was designed to evaluate the pharmacokinetics, pharmacodynamics, safety and tolerability of the modified release oral formulation omecamtiv mecarbil selected based on the results of the two dose escalation cohorts in 448 patients with chronic heart failure and left ventricular systolic dysfunction. Patients were randomized 1:1:1 to receive either placebo or treatment with omecamtiv mecarbil 25 mg twice daily or a dose titration group where 25 mg twice daily dosing could be increased to 50 mg twice daily depending on plasma concentrations of omecamtiv mecarbil after two weeks of treatment with the 25 mg dose.

In November 2015, we announced the results from the expansion phase of COSMIC-HF (Chronic Oral Study of Myosin Activation to Increase Contractility in Heart Failure) that were presented at the American Heart Association Scientific Sessions 2015 in Orlando, Florida. Data from the expansion phase showed that dose titration controlled patient exposure to omecamtiv mecarbil. Approximately 60 percent of patients in the dose titration group escalated dosing to 50 mg twice daily. The study met its primary pharmacokinetics objective.

Following 20 weeks of treatment, statistically significant improvements were observed in pre-specified secondary endpoint measures of cardiac function in the dose titration group, compared to placebo. Systolic ejection time increased by 25.0 msec (p<0.001), stroke volume increased by 3.63 mL (p=0.022) and heart rate decreased by 2.97 beats per min (p=0.007). Left ventricular end-systolic and end-diastolic dimensions decreased by 1.79 mm (p=0.003)

and 1.29 mm (p=0.013), respectively, and were associated with statistically significant reductions in left ventricular end-systolic and end-diastolic volumes. N-terminal pro-brain natriuretic peptide (NT-proBNP) decreased by 970 pg/mL (p=0.007). Additionally, in the 25 mg twice daily group, there were

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statistically significant increases in systolic ejection time and stroke volume and a decrease in NT-proBNP. All changes are from baseline compared to placebo. The pharmacodynamic effects of omecamtiv mecarbil were generally dose dependent and larger in patients that received oral dosing with 50 mg twice daily.

Adverse events (AEs), including serious AEs, in patients on omecamtiv mecarbil were comparable to placebo. The incidence of adjudicated deaths (2.7 percent died on placebo, 1.4 percent died on omecamtiv mecarbil), myocardial infarction (1.34 percent on placebo, 0.34 percent on omecamtiv mecarbil) and unstable angina (0 percent on placebo, 0.34 percent on omecamtiv mecarbil) was similar. Other cardiac AEs were generally balanced between placebo and active treatment groups. In the omecamtiv mecarbil groups, compared to placebo, cardiac troponin increased by 0.001 ng/mL and 0.006 ng/mL (median change from baseline at week 20) in the 25 mg twice daily group and dose titration group, respectively. Events of increased troponin (n=278 across all treatment groups) were independently adjudicated and none were determined to be myocardial ischemia or infarction.

ATOMIC-AHF. ATOMIC-AHF (Acute Treatment with Omecamtiv Mecarbil to Increase Contractility in Acute Heart Failure) was an international, randomized, double-blind, placebo-controlled, Phase 2b clinical trial of intravenous omecamtiv mecarbil in patients with left ventricular systolic dysfunction hospitalized with acutely decompensated heart failure, completed in 2013. The primary efficacy endpoint of dyspnea symptom response was not met; however, the study demonstrated favorable trends between the dose and plasma concentration of omecamtiv mecarbil and dyspnea response. Rates of adverse events (AEs), serious AEs, adjudicated deaths and hospitalizations were similar between omecamtiv mecarbil and placebo groups. Omecamtiv mecarbil was not associated with an increased incidence of tachyarrhythmias nor were heart rate or blood pressure adversely affected.

Nine Phase 1 clinical trials of omecamtiv mecarbil have been conducted in healthy subjects: five conducted by Cytokinetics and four conducted by Amgen in collaboration with Cytokinetics. Cytokinetics has also conducted two Phase 2a clinical trials of omecamtiv mecarbil. These clinical trials were designed to evaluate the safety, tolerability, pharmacodynamic and pharmacokinetic profiles of both intravenous and oral formulations in a diversity of patients, including patients with stable heart failure and patients with ischemic cardiomyopathy. In these trials, omecamtiv mecarbil exhibited generally linear, dose-proportional pharmacokinetics across the dose ranges studied. The adverse effects observed at intolerable doses in humans appeared similar to the adverse findings which occurred in preclinical safety studies at similar plasma concentrations. These effects are believed to be related to the mechanism of action of this drug candidate which, at intolerable doses, resulted in an excessive prolongation of the systolic ejection time (i.e., the time in which the heart is contracting). However, these effects resolved promptly with discontinuation of the infusions of omecamtiv mecarbil.

Ongoing Research in Cardiac Muscle Contractility.

We continued our joint research program with Amgen directed to next-generation compounds in our cardiac muscle contractility program in 2016. We expect to continue our joint research program with Amgen in 2017. Under the Amgen Agreement, Amgen reimburses us for certain research activities we perform.

Presentations and Publications

In March 2016, the manuscript, Acute Treatment with Omecamtiv Mecarbil to Increase Contractility in Acute Heart Failure, The ATOMIC-AHF Study, was published in the Journal of the American College of Cardiology. Results from this trial were first presented at the European Society of Cardiology Meeting in 2013.

In September 2016, additional results from COSMIC-HF were presented in a Rapid Fire Abstract Session at the Heart Failure Society of America Scientific Meeting in Orlando, Florida. The results showed that omecamtiv mecarbil may

improve symptoms in patients with moderate to severe heart failure symptoms versus placebo after 20 weeks of double-blind treatment, as measured by the Kansas City Cardiomyopathy Questionnaire Total

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Symptom Score (TSS), one of the sub-domains of a self-administered questionnaire that measures quality-of-life in patients with heart failure. At week 20, the TSS was increased (with increases in the score reflecting improvement) in a dose-related fashion, with a 4.9 point improvement in the PK-guided dose titration group (p=0.03). This improvement was greater among patients who were moderately to severely symptomatic at baseline, with the largest magnitude in the PK-guided dose titration treatment group (6.5, p=0.09). Patients who were asymptomatic or mildly symptomatic had modest improvements in the TSS.

In November 2016, the results from COSMIC-HF were published in The Lancet. Results from this trials were first presented at a Late-Breaking Clinical Trial session at the American Heart Association (AHA) Scientific Sessions in 2015.

Omecamtiv Mecarbil Heart Failure Market

Background on Heart Failure Market. Heart failure is a widespread and debilitating syndrome affecting millions of people in the United States. The high and rapidly growing prevalence of heart failure translates into significant hospitalization rates and associated societal costs. About 6.4 million people in the United States have heart failure, resulting in nearly one million hospital discharges with the primary diagnosis of heart failure and approximately 300,000 deaths each year. For people over 65 years of age, heart failure incidences approach 10 per 1000 and approximately 50% of people diagnosed with heart failure will die within 5 years of diagnosis. These numbers are increasing due to the aging of the U.S. population and an increased likelihood of survival following acute myocardial infarctions. The costs to society attributable to the prevalence of heart failure are high, especially as many chronic heart failure patients suffer repeated acute episodes. Despite currently available therapies, readmission rates for heart failure patients remain high. In general, the mortality following hospitalization for patients with heart failure is 10.4% at 30 days, 22% at one year and 42.3% at 5 years, despite the availability of therapeutic alternatives for treatment of these patients. These poor outcomes in the setting of current therapies points to the need for novel therapeutics that may offer further reductions in morbidity and mortality. The annual cost of heart failure to the U.S. health care system is estimated to be $32 billion and is predicted to grow 120% to almost $70 billion by the year 2030. Today, a portion of that cost is attributable to drugs used to treat each of chronic and acute heart failure. Approximately 70% of those costs are due to hospitalization, home health and physician care. In the U.S., Medicare is one of the largest payors for heart failure related costs. Approximately 50% of Medicare beneficiaries with heart failure are concentrated in the top 20% of the hospital referral regions in the U.S. New drug therapies that could reduce the number of hospitalizations could decrease the cost to the health care system.

Beyond Muscle Contractility

We developed preclinical expertise in the mechanics of skeletal, cardiac and smooth muscle that extends from proteins to tissues to intact animal models. Our translational research in muscle contractility has enabled us to better understand the potential impact of small molecule compounds that increase skeletal or cardiac muscle contractility and to apply those findings to the further evaluation of our drug candidates in clinical populations. In addition to contractility, other major functions of muscle play a role in certain diseases that could benefit from novel mechanism treatments. Accordingly, our knowledge of muscle contractility may serve as an entry point to the discovery of novel treatments for disorders involving muscle functions other than muscle contractility. We are leveraging our current understandings of muscle biology to investigate new ways of modulating these other aspects of muscle function for other potential therapeutic applications.

Intellectual Property

Our policy is to seek patent protection for the technologies, inventions and improvements that we develop that we consider important to the advancement of our business. As of December 31, 2016, we owned or co-owned or licensed 87 issued U.S. patents, over 310 issued patents in various foreign jurisdictions, and over 190 additional pending U.S. and foreign patent applications. We also rely on trade secrets, technical know-how

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and continuing innovation to develop and maintain our competitive position. Our commercial success will depend on obtaining and maintaining patent protection and trade secret protection for our drug candidates and technologies and our successfully defending these patents against third-party challenges. We will only be able to protect our technologies from unauthorized use by third parties to the extent that valid and enforceable patents cover them or we maintain them as trade secrets.

With regard to our drug candidates directed to muscle biology targets, we have a U.S. patent covering omecamtiv mecarbil and U.S. patents covering our skeletal muscle sarcomere activators including, but not limited to, tirasemtiv and CK-2127107, each of which will expire in 2027, 2027 and 2031, respectively, unless extended or otherwise adjusted. We also have issued patents in various foreign jurisdictions and additional U.S. and foreign patent applications pending for each of our drug candidates. It is not known or determinable whether other patents will issue from any of our other pending applications or what the expiration dates would be for any other patents that do issue.

All of our drug candidates are still in clinical development and have not yet been approved by the FDA. If any of these drug candidates is approved, then pursuant to federal law, we may apply for an extension of the U.S. patent term for one patent covering the approved drug, which could extend the term of the applicable patent by up to a maximum of five additional years.

The degree of future protection of our proprietary rights is uncertain because legal means may not adequately protect our rights or permit us to gain or keep our competitive advantage. Due to evolving legal standards relating to the patentability, validity and enforceability of patents covering pharmaceutical inventions and the claim scope of these patents, our ability to enforce our existing patents and to obtain and enforce patents that may issue from any pending or future patent applications is uncertain and involves complex legal, scientific and factual questions. The standards that the U.S. Patent and Trademark Office and its foreign counterparts use to grant patents are not always applied predictably or uniformly and are subject to change. To date, no consistent policy has emerged regarding the breadth of claims allowed in biotechnology and pharmaceutical patents. Thus, we cannot be sure that any patents will issue from any pending or future patent applications owned by or licensed to us. Even if patents do issue, we cannot be sure that the claims of these patents will be held valid or enforceable by a court of law, will provide us with any significant protection against competitive products, or will afford us a commercial advantage over competitive products. For example:

- we or our licensors might not have been the first to make the inventions covered by each of our pending patent applications and issued patents;

- we or our licensors might not have been the first to file patent applications for the inventions covered by our pending patent applications and issued patents;

- others may independently develop similar or alternative technologies or duplicate any of our technologies without infringing our intellectual property rights;

- some or all of our or our licensors pending patent applications may not result in issued patents or the claims that issue may be narrow in scope and not provide us with competitive advantages;

our and our licensors issued patents may not provide a basis for commercially viable drugs or therapies or may be challenged and invalidated by third parties;

our or our licensors patent applications or patents may be subject to interference, opposition or similar administrative proceedings that may result in a reduction in their scope or their loss altogether;

we may not develop additional proprietary technologies or drug candidates that are patentable; or

the patents of others may prevent us or our partners from discovering, developing or commercializing our drug candidates.

The defense and prosecution of intellectual property infringement suits, interferences, oppositions and related legal and administrative proceedings are costly, time-consuming to pursue and divert resources. The outcome of these types of proceedings is uncertain and could significantly harm our business.

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Our ability to commercialize drugs depends on our ability to use, manufacture and sell those drugs without infringing the patents or other proprietary rights of third parties. U.S. and foreign issued patents and pending patent applications owned by third parties exist that may be relevant to the therapeutic areas and chemical compositions of our drug candidates. While we are aware of certain relevant patents and patent applications owned by third parties, there may be issued patents or pending applications of which we are not aware that could cover our drug candidates. Because patent applications are often not published immediately after filing, there may be currently pending applications, unknown to us, which could later result in issued patents that our activities with our drug candidates could infringe.

The development of our drug candidates and the commercialization of any resulting drugs may be impacted by patents of companies engaged in competitive programs with significantly greater resources. This could result in the expenditure of significant legal fees and management resources.

We also rely on trade secrets to protect our technology, especially where we do not believe patent protection is appropriate or obtainable. However, trade secrets are often difficult to protect, especially outside of the United States. While we believe that we use reasonable efforts to protect our trade secrets, our employees, consultants, contractors, partners and other advisors may unintentionally or willfully disclose our trade secrets to competitors. Enforcing a claim that a third party illegally obtained and is using our trade secrets would be expensive and time-consuming, and the outcome would be unpredictable. Even if we are able to maintain our trade secrets as confidential, our competitors may independently develop information that is equivalent or similar to our trade secrets.

We seek to protect our intellectual property by requiring our employees, consultants, contractors and other advisors to execute nondisclosure and invention assignment agreements upon commencement of their employment or engagement, through which we seek to protect our intellectual property. Agreements with our employees also preclude them from bringing the proprietary information or materials of third parties to us. We also require confidentiality agreements or material transfer agreements from third parties that receive our confidential information or materials.

For further details on the risks relating to our intellectual property, please see the risk factors under Item 1A of this report, including, but not limited to, the risk factors entitled Our success depends substantially upon our ability to obtain and maintain intellectual property protection relating to our drug candidates and research technologies and If we are sued for infringing third party intellectual property rights, it will be costly and time-consuming, and an unfavorable outcome would have a significant adverse effect on our business.

Government Regulation

The FDA and comparable regulatory agencies in state and local jurisdictions and in foreign countries impose substantial requirements upon the clinical development, manufacture, marketing and distribution of drugs. These agencies and other federal, state and local entities regulate research and development activities and the testing, manufacture, quality control, labeling, storage, record keeping, approval, advertising and promotion of our drug candidates and drugs.

In the United States, the FDA regulates drugs under the Federal Food, Drug and Cosmetic Act and implementing regulations. The process required by the FDA before our drug candidates may be marketed in the United States generally involves the following:

completion of extensive preclinical laboratory tests, preclinical animal studies and formulation studies, all performed in accordance with the FDA s good laboratory practice regulations;

submission to the FDA of an investigational new drug application (IND), which must become effective before clinical trials may begin;

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performance of adequate and well-controlled clinical trials to establish the safety and efficacy of the drug candidate for each proposed indication in accordance with good clinical practices;

submission of a new drug application (NDA) to the FDA, which must usually be accompanied by payment of a substantial user fee;

satisfactory completion of an FDA preapproval inspection of the manufacturing facilities at which the product is produced to assess compliance with current good manufacturing practice (cGMP) regulations and FDA audits of select clinical investigator sites to assess compliance with good clinical practices (GCP); and

FDA review and approval of the NDA prior to any commercial marketing, sale or shipment of the drug.

Similar regulatory procedures generally apply in countries outside of the United States. This testing and approval process requires substantial time, effort and financial resources, and we cannot be certain that any approvals for our drug candidates will be granted on a timely basis, if at all.

Nonclinical tests include laboratory evaluation of product chemistry, formulation and stability, and studies to evaluate toxicity and pharmacokinetics in animals. The results of nonclinical tests, together with manufacturing information and analytical data, are submitted as part of an IND application to the FDA. The IND automatically becomes effective 30 days after receipt by the FDA, unless the FDA, within the 30-day period, raises concerns or questions about the conduct of the clinical trial, including concerns that human research subjects may be exposed to unreasonable health risks. In such a case, the IND sponsor and the FDA must resolve any outstanding concerns before the clinical trial can begin. Our submission of an IND or a foreign equivalent, or those of our collaborators, may not result in authorization from the FDA or its foreign equivalent to commence a clinical trial. A separate submission to an existing IND must also be made for each successive clinical trial conducted during product development. Further, an independent institutional review board (IRB) or its foreign equivalent for each medical center proposing to conduct the clinical trial must review and approve the plan for any clinical trial before it commences at that center and it must monitor the clinical trial until completed. The FDA, the IRB or their foreign equivalents, or the clinical trial sponsor may suspend a clinical trial at any time on various grounds, including a finding that the subjects or patients are being exposed to an unacceptable health risk.

Clinical Trials. For purposes of an NDA or equivalent submission and approval, clinical trials are typically conducted in the following three sequential phases, which may overlap:

Phase 1: Phase 1 includes the initial introduction of a drug candidate into humans. These studies may be conducted in patients, but are usually conducted in healthy volunteer subjects. These studies are designed to determine the metabolic and pharmacologic actions of the drug candidate in humans, the side effects associated with increasing doses, and, if possible, to gain early evidence on effectiveness. During Phase 1, sufficient information about the drug candidate s pharmacokinetics and pharmacological effects should be obtained to permit the design of well-controlled, scientifically valid, Phase 2 trials.

Phase 2: Phase 2 includes the early controlled clinical studies conducted to obtain some preliminary data on the effectiveness of the drug candidate for a particular indication or indications in patients with the disease or

condition. This phase of testing also helps determine the common short-term side effects and risks associated with the drug candidate. These clinical trials are generally conducted in a limited patient population to identify possible adverse effects and safety risks, to make an initial determination of potential efficacy of the drug candidate for specific targeted indications and to determine dose tolerance and optimal dosage. Multiple Phase 2 clinical trials may be conducted by the sponsor to obtain information prior to beginning larger and more expensive Phase 3 clinical trials. Phase 2a clinical trials generally are designed to study the pharmacokinetic or pharmacodynamic properties and to conduct a preliminary assessment of safety of the drug candidate over a measured dose response range. In some cases, a sponsor may decide to conduct a Phase 2b clinical trial, which is a second, typically larger,

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confirmatory Phase 2 trial that could, if positive and accepted by a regulatory authority, support approval of a drug candidate.

Phase 3: If the Phase 2 clinical trials demonstrate that a dose range of the drug candidate is potentially effective and has an acceptable safety profile, Phase 3 clinical trials are then undertaken in large patient populations to further evaluate dosage, to provide substantial evidence of clinical efficacy and to further test for safety in an expanded and diverse patient population at multiple, geographically dispersed clinical trial sites. Phase 3 trials are also intended to provide an adequate basis for extrapolating the results to the general population and transmitting that information in the drug labeling. Phase 3 studies usually include several hundred to several thousand people, and are usually longer in duration than Phase 2 trials.

At any time during the conduct of a clinical trial, the FDA or a foreign equivalent can impose a clinical hold on the trial if it believes the trial is unsafe or that the protocol is clearly deficient in design in meeting its stated objectives, which requires the conduct of the trial to cease until the clinical hold is removed. In some cases, the FDA or foreign equivalent may condition approval of marketing approval for a drug candidate on the sponsor s agreement to conduct additional clinical trials to further assess the drug s safety and effectiveness after marketing approval, known as Phase 4 clinical trials.

The clinical trials we conduct for our drug candidates, both before and after approval, and the results of those trials, are generally required to be included in a clinical trials registry database that is available and accessible to the public via the internet. A failure by us to properly participate in the clinical trial database registry could subject us to significant civil monetary penalties.

Health care providers in the United States, including research institutions from which we or our partners obtain patient information, are subject to privacy rules under the Health Insurance Portability and Accountability Act of 1996 and state and local privacy laws. In the European Union, these entities are subject to the Directive 95/46-EC of the European Parliament on the protection of individuals with regard to the processing of personal data and individual European Union member states implementing additional legislation. Other countries have similar privacy legislation. We could face substantial penalties if we knowingly receive individually identifiable health information from a health care provider that has not satisfied the applicable privacy laws. In addition, certain privacy laws and genetic testing laws may apply directly to our operations and/or those of our partners and may impose restrictions on the use and dissemination of individuals health information and use of biological samples.

New Drug/Marketing Approval Application. The results of drug candidate development, preclinical testing and clinical trials are submitted to the FDA as part of an NDA. The NDA also must contain extensive manufacturing information. In addition, the FDA may require that a proposed Risk Evaluation and Mitigation Strategy, also known as a REMS, be submitted as part of the NDA if the FDA determines that it is necessary to ensure that the benefits of the drug outweigh its risks. Similar, and in some cases additional, requirements apply in foreign jurisdictions for marketing approval applications for drugs in those jurisdictions. The FDA may refer the NDA to an advisory committee for review, evaluation and recommendation as to whether the application should be approved. The FDA often, but not always, follows the advisory committee s recommendations. The FDA may deny approval of an NDA by issuing a complete response letter if the applicable regulatory criteria are not satisfied, or it may require additional clinical data, including data in a pediatric population, or an additional Phase 3 clinical trial or impose other conditions that must be met in order to secure final approval for an NDA.

Even if such data are submitted, the FDA may ultimately decide that the NDA does not satisfy the criteria for approval. Data from clinical trials are not always conclusive and the FDA may interpret data differently than we or our partners do. Once issued, the FDA or foreign equivalent may withdraw a drug approval if ongoing regulatory

requirements are not met or if safety problems occur after the drug reaches the market. In addition, the FDA or its foreign counterparts may require further testing, including Phase 4 clinical trials, and surveillance or restrictive distribution programs to monitor the effect of approved drugs which have been commercialized. The

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FDA and its foreign counterparts have the power to prevent or limit further marketing of a drug based on the results of these post-marketing programs. Drugs may be marketed only for the approved indications and in accordance with the provisions of the approved label. Further, if there are any modifications to a drug, including changes in indications, labeling or manufacturing processes or facilities, we may be required to submit and obtain prior FDA approval of a new NDA or NDA supplement, or the foreign equivalent, which may require us to develop additional data or conduct additional preclinical studies and clinical trials.

Satisfaction of FDA regulations and requirements or similar requirements of state, local and foreign regulatory agencies typically takes several years. The actual time required may vary substantially based upon the type, complexity and novelty of the drug candidate or disease. Typically, if a drug candidate is intended to treat a chronic disease, as is the case with some of our drug candidates, safety and efficacy data must be gathered over an extended period of time. Government regulation may delay or prevent marketing of drug candidates for a considerable period of time and impose costly procedures upon our activities. The FDA or any other regulatory agency may not grant approvals for new indications for our drug candidates on a timely basis, if at all. Even if a drug candidate receives regulatory approval, the approval may be significantly limited to specific disease states, patient populations and dosages or restrictive distribution programs. Further, even after regulatory approval is obtained, later discovery of previously unknown problems with a drug may result in restrictions on the drug or even complete withdrawal of the drug from the market. Delays in obtaining, or failures to obtain, regulatory approvals for any of our drug candidates would harm our business. In addition, we cannot predict what future U.S. or foreign governmental regulations may be implemented.

Orphan Drug Designation. Some jurisdictions, including the United States, may designate drugs for relatively small patient populations as orphan drugs. The FDA grants orphan drug designation to drugs intended to treat a rare disease or condition, which is generally a disease or condition that affects fewer than 200,000 individuals in the United States. For example, the FDA has granted tirasemtiv an orphan drug designation for the treatment of ALS. In addition, the European Medicines Agency has granted tirasemtiv orphan medicinal product status for the treatment of ALS.

An FDA orphan drug designation does not shorten the duration of the regulatory review and approval process. If a drug candidate that has an orphan drug designation receives the first FDA marketing approval for the indication for which the designation was granted, then the approved drug is entitled to orphan drug exclusivity. This means that the FDA may not approve another company s application to market the same drug for the same indication for a period of seven years, except in certain circumstances, such as a showing of clinical superiority to the drug with orphan exclusivity or if the holder of the orphan drug designation cannot assure the availability of sufficient quantities of the orphan drug to meet the needs of patients with the disease or condition for which the designation was granted. Competitors may receive approval of different drugs or biologics for the indications for which the orphan drug has exclusivity.

Fast Track Designation. Fast track is a process designed by the FDA to facilitate the development and expedite the review of drugs to treat serious diseases and fill an unmet medical need. Tirasemtiv has been granted fast track designation by the FDA for the treatment of ALS. Although fast track designation does not affect the standards for approval, the benefits of this designation include scheduled meetings to seek FDA input into development plans, the option of submitting an NDA in sections rather than all components simultaneously, and the potential eligibility for priority review if supported by clinical data.

Other Regulatory Requirements. Any drugs manufactured or distributed by us or our partners pursuant to FDA approvals or their foreign counterparts are subject to continuing regulation by the applicable regulatory authority, including recordkeeping requirements and reporting of adverse experiences associated with the drug. Drug manufacturers and their subcontractors are required to register their establishments with the FDA and other applicable

regulatory authorities, and are subject to periodic unannounced inspections by these regulatory authorities for compliance with ongoing regulatory requirements, including cGMPs, which impose certain procedural and documentation requirements upon us and our third-party manufacturers. Failure to comply with

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the statutory and regulatory requirements can subject a manufacturer to possible legal or regulatory action, such as warning letters, suspension of manufacturing, seizure of product, injunctive action or possible civil penalties. We cannot be certain that we or our present or future third-party manufacturers or suppliers will be able to comply with the cGMP regulations and other ongoing FDA and other regulatory requirements. If our present or future third-party manufacturers or suppliers are not able to comply with these requirements, the FDA or its foreign counterparts may halt our or our partners clinical trials, require us to recall a drug from distribution, or withdraw approval of the NDA for that drug.

For further details on the risks relating to government regulation of our business, please see the risk factors under Item 1A of this report, including, but not limited to, the risk factor entitled The regulatory approval process is expensive, time-consuming and uncertain and may prevent our partners or us from obtaining approvals to commercialize some or all of our drug candidates.

Competition

We compete in the segments of the pharmaceutical, biotechnology and other related markets that address neuromuscular and cardiovascular diseases and other diseases relating to muscle dysfunction, each of which is highly competitive. We face significant competition from most pharmaceutical companies and biotechnology companies that are also researching and selling products designed to address cardiovascular diseases and diseases and medical conditions associated with skeletal muscle weakness and wasting. Many of our competitors have significantly greater financial, manufacturing, marketing and drug development resources than we do. Large pharmaceutical companies in particular have extensive experience in clinical testing and in obtaining regulatory approvals for drugs. These companies also have significantly greater research capabilities than we do. In addition, many universities and private and public research institutes are active in research of neuromuscular and cardiovascular diseases and other diseases where there is muscle dysfunction, some in direct competition with us.

We believe that our ability to successfully compete will depend on, among other things:

- our drug candidates efficacy, safety and tolerability;
- the speed and cost-effectiveness with which we develop our drug candidates;
- the selection of suitable indications for which to develop our drug candidates;
- the successful completion of clinical development and laboratory testing of our drug candidates;
- the timing and scope of any regulatory approvals we or our partners obtain for our drug candidates;
- our or our partners ability to manufacture and sell commercial quantities of our approved drugs to meet market demand;

acceptance of our drugs by physicians and other health care providers;

the willingness of third party payors to provide reimbursement for the use of our drugs;

our ability to protect our intellectual property and avoid infringing the intellectual property of others;

the quality and breadth of our technology;

our employees skills and our ability to recruit and retain skilled employees;

our cash flows under existing and potential future arrangements with licensees, partners and other parties; and

the availability of substantial capital resources to fund development and commercialization activities.

Our competitors may develop drug candidates and market drugs that are less expensive and more effective than our future drugs or that may render our drugs obsolete. Our current or future competitors may also

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commercialize competing drugs before we or our partners can launch any drugs developed from our drug candidates. These organizations also compete with us to attract qualified personnel and potential parties for acquisitions, joint ventures or other strategic alliances.

If tirasemtiv is approved for marketing by the FDA or other regulatory authorities for the treatment of ALS, it may then compete with other potential new therapies for ALS that are currently being developed by companies such as Neuraltus Pharmaceuticals, Inc., Ionis Pharmaceuticals, Inc. (in collaboration with Biogen), Genervon Biopharmaceuticals, LLC, Orion Pharmaceuticals, Orphazyme, Mitsubishi Tanabe Pharma Corporation, Eisai Co., Ltd., Genentech, Inc. Edison Pharma, Q Therapeutics, AB Science, VM Biopharm, Mallinckrodt Pharmaceuticals, Chronos Therapeutics, and MediciNova, Inc. In addition, BrainStorm Cell Therapeutics and Neuralstem, Inc. are each conducting clinical development of stem cell therapies for the potential treatment of ALS. Tirasemtiv may also compete with Riluteck (riluzole), manufactured by Sanofi, Marindale Pharma, and Italfarmaco and several generics manufacturers including Apotex Corp, Glenmark Generics, and Sun Pharmaceuticals.

If CK-2127107 is approved by the FDA or other regulatory authorities for the potential treatment of SMA, potential competitors include Roche (in collaboration with PTC Therapeutics), AveXis, Inc., Pfizer Inc., Ionis Pharmaceuticals, Inc. (in collaboration with Biogen) which is being marketed as Spinraza, Novartis AG, and Bioblast Pharma, Ltd. Drugs that could compete with CK-2127107 could also compete against tirasemtiv in ALS or other neuromuscular diseases, should the appropriate clinical trials be conducted. If CK-2127107 is approved by the FDA for the potential treatment of non-neuromuscular indications associated with muscle weakness, potential competitors include Ligand Pharmaceuticals, Inc., GTx, Inc., Regeneron Pharmaceuticals, Inc. (in collaboration with Sanofi), Eli Lilly & Company, Acceleron Pharma, Stealth Biotherapeutics, Scholar Rock, vTv Therapeutics, Summit Therapeutics, Pfizer Inc., and Novartis (in collaboration with Morphosys AG).

If omecamtiv mecarbil is approved for marketing by the FDA or other regulatory authorities for the treatment of heart failure, it would compete against other drugs used for the treatment of chronic heart failure. These include generic drugs, such as milrinone, dobutamine or digoxin and branded drugs such as Natrecor (nesiritide), Corlanor (ivabradine), and Entresto (LCZ696). Omecamtiv mecarbil could also potentially compete against other novel drug candidates and therapies in development, such as those being developed by ARCA biopharma, Inc., Novartis, Bayer, Capricor Therapeutics, Inc., Cardiorentis AG, Ono Pharmaceutical Company, Juventas Therapeutics, ARMGO Pharma, Inc, Trevena, Inc. in partnership with Forest Laboratories, Inc. (acquired by Allergan, Plc), Stealth Biotherapeutics, Cardioxyl Pharmaceuticals, Inc., Zensun Sci & Tech, Ltd., and Tenax Therapeutics (formerly known as Oxygen Biotherapeutics, Inc.). In addition, there are a number of medical devices both marketed and in development for the potential treatment of heart failure.

Employees

As of December 31, 2016, our workforce consisted of 127 full-time employees, 32 of whom hold Ph.D. or M.D. degrees, or both, and 32 of whom hold other advanced degrees. Of our total full-time employees, 86 are engaged in research and development and 41 are engaged in business and new product development, finance and administration functions

We have no collective bargaining agreements with our employees, and we have not experienced any work stoppages. We believe that our relations with our employees are good.

Investor Information

We file electronically with the SEC our annual reports on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K pursuant to Section 13 or 15(d) of the Exchange Act. The public may read or copy any materials we file with the SEC at the SEC s Public Reference Room at 100 F Street, NE, Washington, DC 20549. The public may obtain information on the operation of the Public Reference Room by calling the SEC at

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1-800-SEC-0330. The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC. The address of that site is www.sec.gov.

You may obtain a free copy of our annual reports on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K and amendments to those reports on the day of filing with the SEC on our website at www.cytokinetics.com or by contacting the Investor Relations Department at our corporate offices by calling 650-624-3060. The information found on our website is not part of this or any other report filed with or furnished to the SEC.

Item 1A. ***Risk Factors***

In evaluating our business, you should carefully consider the following risks in addition to the other information in this report. Any of the following risks could materially and adversely affect our business, results of operations, financial condition or your investment in our securities, and many are beyond our control. The risks and uncertainties described below are not the only ones facing us. Additional risks and uncertainties not presently known to us, or that we currently see as immaterial, may also adversely affect our business.

Risks Related To Our Business

We have a history of significant losses and may not achieve or sustain profitability and, as a result, you may lose all or part of your investment.

We have generally incurred operating losses in each year since our inception in 1997, due to costs incurred in connection with our research and development activities and general and administrative costs associated with our operations. Our drug candidates are all in early through late-stage clinical testing, and we and our partners must conduct significant additional clinical trials before we and our partners can seek the regulatory approvals necessary to begin commercial sales of our drugs. We expect to incur increasing losses for at least several more years, as we continue our research activities and conduct development of, and seek regulatory approvals for, our drug candidates, and commercialize any approved drugs. If our drug candidates fail or do not gain regulatory approval, or if our drugs do not achieve market acceptance, we will not be profitable. If we fail to become and remain profitable, or if we are unable to fund our continuing losses, you could lose all or part of your investment.

We will need substantial additional capital in the future to sufficiently fund our operations.

We have consumed substantial amounts of capital to date, and our operating expenditures will increase over the next several years if we expand our research and development activities. We have funded all of our operations and capital expenditures with proceeds from private and public sales of our equity securities, strategic alliances with Amgen, Astellas and others, long term debt, equipment financings, interest on investments, government grants and other grants. We believe that our existing cash and cash equivalents, short-term investments and interest earned on investments should be sufficient to meet our projected operating requirements for at least the next 12 months. We have based this estimate on assumptions that may prove to be wrong, and we could utilize our available capital resources sooner than we currently expect. Because of the numerous risks and uncertainties associated with the development of our drug candidates and other research and development activities, including risks and uncertainties that could impact the rate of progress of our development activities, we are unable to estimate with certainty the amounts of capital outlays and operating expenditures associated with these activities.

For the foreseeable future, our operations will require significant additional funding, in large part due to our research and development expenses and the absence of any revenues from product sales. For example, we will require

significant additional funding to enable us to conduct further development of tirasemtiv for the potential treatment of ALS, including any additional Phase 3 clinical trials that may be required by regulatory authorities

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to receive marketing approval for tirasemtiv. Until we can generate a sufficient amount of product revenue, we expect to raise future capital through strategic alliance and licensing arrangements, public or private equity offerings and debt financings. We do not currently have any commitments for future funding other than reimbursements, milestone and royalty payments that we may receive under our collaboration agreements with Amgen and Astellas. We may not receive any further funds under those agreements. Our ability to raise funds may be adversely impacted by current economic conditions. As a result of these and other factors, we do not know whether additional financing will be available when needed, or that, if available, such financing would be on terms favorable to our stockholders or us.

To the extent that we raise additional funds through strategic alliances or licensing and other arrangements with third parties, we will likely have to relinquish valuable rights to our technologies, research programs or drug candidates, or grant licenses on terms that may not be favorable to us. To the extent that we raise additional funds by issuing equity securities, our stockholders will experience additional dilution and our share price may decline. To the extent that we raise additional funds through debt financing, the financing may involve covenants that restrict our business activities. In addition, funding from any of these sources, if needed, may not be available to us on favorable terms, or at all, or in accordance with our planned timelines.

If we cannot raise the funds we need to operate our business, we will need to delay or discontinue certain research and development activities. For example, if we cannot raise the funds necessary to enable the conduct of further development for tirasemtiv for the potential treatment of ALS, our ability to continue the development of tirasemtiv will be delayed or suspended. If we delay or discontinue research and development activities, our stock price may be negatively affected.

Covenants in our loan and security agreement restrict our business and operations in many ways and if we do not effectively manage our covenants, our financial conditions and results of operations could be adversely affected. In addition, our operations may not provide sufficient revenue to meet the condition required in order to access the final loan available under the agreement and may also not provide sufficient cash to meet the repayment obligations of our debt incurred under the loan and security agreement.

Our loan and security agreement with Oxford Finance LLC and Silicon Valley Bank provides for up to $40.0 million in term loans due on October 1, 2020, of which $30.0 million in term loans has been borrowed to date. All of our current and future assets, except for intellectual property, are secured for our borrowings under the loan and security agreement. The loan and security agreement requires that we comply with certain covenants applicable to us, including among other things, covenants restricting dispositions, changes in business, management, ownership or business locations, mergers or acquisitions, indebtedness, encumbrances, distributions, investments, transactions with affiliates and subordinated debt, any of which could restrict our business and operations, particularly our ability to respond to changes in our business or to take specified actions to take advantage of certain business opportunities that may be presented to us. Our failure to comply with any of the covenants could result in a default under the loan and security agreement, which could permit the lenders to declare all or part of any outstanding borrowings to be immediately due and payable, or to refuse to permit additional borrowings under the loan and security agreement. If we are unable to repay those amounts, the lenders under the loan and security agreement could proceed against the collateral granted to them to secure that debt, which would seriously harm our business. In addition, should we be unable to comply with these covenants or if we default on any portion of our outstanding borrowings, the lenders can also impose a 5.0% penalty and restrict access to additional borrowings under the loan and security agreement. Moreover, our ability to access the final $10.0 million under the loan and security agreement is subject to our ability to achieve certain conditions, including certain clinical development milestones or an equity financing milestone, which conditions we may not be able to meet. In addition, although we expect to borrow additional funds under the loan and security agreement, before we do so, we must first satisfy ourselves that we will have access to future alternate sources of capital, including cash flow from our own operations, equity capital markets or debt capital

markets in order to repay any principal borrowed, which we may be unable to do, in which case, our liquidity and ability to fund our operations may be substantially impaired.

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We have never generated, and may never generate, revenues from commercial sales of our drugs and we will not have drugs to market for at least several years, if ever.

We currently have no drugs for sale and we cannot guarantee that we will ever develop or obtain approval to market any drugs. To receive marketing approval for any drug candidate, we must demonstrate that the drug candidate satisfies rigorous standards of safety and efficacy to the FDA in the United States and other regulatory authorities abroad. We and our partners will need to conduct significant additional research and preclinical and clinical testing before we or our partners can file applications with the FDA or other regulatory authorities for approval of any of our drug candidates. In addition, to compete effectively, our drugs must be easy to use, cost-effective and economical to manufacture on a commercial scale, compared to other therapies available for the treatment of the same conditions. We may not achieve any of these objectives. Currently, our only drug candidates in clinical development are tirasemtiv for the potential treatment of ALS, CK-2127107 for the potential treatment of SMA, COPD, ALS and potentially other neuromuscular and non-neuromuscular indications associated with muscle weakness and omecamtiv mecarbil for the potential treatment of heart failure. We cannot be certain that the clinical development of these or any future drug candidates will be successful, that they will receive the regulatory approvals required to commercialize them, that they will ultimately be accepted by prescribers or reimbursed by insurers or that any of our other research programs will yield a drug candidate suitable for clinical testing or commercialization. Our commercial revenues, if any, will be derived from sales of drugs that we do not expect to be commercially marketed for at least several years, if at all. The development of any one or all of these drug candidates may be discontinued at any stage of our clinical trials programs and we may not generate revenue from any of these drug candidates.

Clinical trials may fail to demonstrate the desired safety and efficacy of our drug candidates, which could prevent or significantly delay completion of clinical development and regulatory approval.

Prior to receiving approval to commercialize any of our drug candidates, we or our partners must adequately demonstrate to the satisfaction of FDA and foreign regulatory authorities that the drug candidate is sufficiently safe and effective with substantial evidence from well-controlled clinical trials. We or our partners will need to demonstrate efficacy in clinical trials for the treatment of specific indications and monitor safety throughout the clinical development process and following approval. None of our drug candidates have yet met the safety and efficacy standards required for regulatory approval for commercialization and they may never do so. In addition, for each of our preclinical compounds, we or our partners must adequately demonstrate satisfactory chemistry, formulation, stability and toxicity in order to submit an investigational new drug application (IND) to the FDA, or an equivalent application in foreign jurisdictions, that would allow us to advance that compound into clinical trials. Furthermore, we or our partners may need to submit separate INDs (or foreign equivalent) to different divisions within the FDA (or foreign regulatory authorities) in order to pursue clinical trials in different therapeutic areas. Each new IND (or foreign equivalent) must be reviewed by the new division before the clinical trial under its jurisdiction can proceed, entailing all the risks of delay inherent to regulatory review. If our or our partners current or future preclinical studies or clinical trials are unsuccessful, our business will be significantly harmed and our stock price could be negatively affected.

All of our drug candidates are prone to the risks of failure inherent in drug development. Preclinical studies may not yield results that would adequately support the filing of an IND (or a foreign equivalent) with respect to our potential drug candidates. Even if the results of preclinical studies for a drug candidate are sufficient to support such a filing, the results of preclinical studies do not necessarily predict the results of clinical trials. As an example, because the physiology of animal species used in preclinical studies may vary substantially from other animal species and from humans, it may be difficult to assess with certainty whether a finding from a study in a particular animal species will result in similar findings in other animal species or in humans. For any of our drug candidates, the results from Phase 1 clinical trials in healthy volunteers and clinical results from Phase 1 and 2 trials in patients are not necessarily

indicative of the results of later and larger clinical trials that are necessary to establish whether the drug candidate is safe and effective for the applicable indication. Likewise, interim results from a clinical trial may not be indicative of the final results from that trial, and results from early Phase 2

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clinical trials may not be indicative of the results from later clinical trials. For example, early Phase 2 clinical trials of tirasemtiv in patients with ALS showed encouraging dose-related trends in measurements of the ALS Functional Rating Scale in its revised form (ALSFRS-R), a clinically validated instrument designed to measure disease progression and changes in functional status, for patients receiving tirasemtiv compared to those receiving placebo. However, BENEFIT-ALS, a Phase 2b clinical trial of tirasemtiv in patients with ALS, did not achieve its primary efficacy endpoint, the mean change from baseline in the ALSFRS-R for patients receiving tirasemtiv compared to those receiving placebo.

In addition, while the clinical trials of our drug candidates are designed based on the available relevant information, such information may not accurately predict what actually occurs during the course of the trial itself, which may have consequences for the conduct of an ongoing clinical trial or for the eventual results of that trial. For example, the number of patients planned to be enrolled in a placebo-controlled clinical trial is determined in part by estimates relating to expected treatment effect and variability about the primary endpoint. These estimates are based upon earlier nonclinical and clinical studies of the drug candidate itself and clinical trials of other drugs thought to have similar effects in a similar patient population. If information gained during the conduct of the trial shows these estimates to be inaccurate, we may elect to adjust the enrollment accordingly, which may cause delays in completing the trial, additional expense or a statistical penalty to apply to the evaluation of the trial results.

Furthermore, in view of the uncertainties inherent in drug development, such clinical trials may not be designed with focus on indications, patient populations, dosing regimens, endpoints, safety, efficacy or pharmacokinetic parameters or other variables that will provide the necessary safety or efficacy data to support regulatory approval to commercialize the resulting drugs. For example, we believe that effects on respiratory function, including slow vital capacity (SVC), may be appropriate as a clinical endpoint for tirasemtiv; however, regulatory authorities may not accept these effects as a clinical endpoint to support registration of tirasemtiv for the treatment of ALS. Clinical trials of our drug candidates are designed based on guidance or advice from regulatory agencies, which is subject to change during the development of the drug candidate at any time. Such a change in a regulatory agency s guidance or advice may cause that agency to deem results from trials to be insufficient to support approval of the drug candidate and require further clinical trials of that drug candidate to be conducted. In addition, individual patient responses to the dose administered of a drug may vary in a manner that is difficult to predict. Also, the methods we select to assess particular safety, efficacy or pharmacokinetic parameters may not yield the same statistical precision in estimating our drug candidates effects as may other methodologies. Even if we believe the data collected from clinical trials of our drug candidates are promising, these data may not be sufficient to support approval by the FDA or foreign regulatory authorities. Non-clinical and clinical data can be interpreted in different ways. Accordingly, the FDA or foreign regulatory authorities could interpret these data in different ways from us or our partners, which could delay, limit or prevent regulatory approval.

Administering any of our drug candidates or potential drug candidates may produce undesirable side effects, also known as adverse events. Toxicities and adverse events observed in preclinical studies for some compounds in a particular research and development program may also occur in preclinical studies or clinical trials of other compounds from the same program. Potential toxicity issues may arise from the effects of the active pharmaceutical ingredient itself or from impurities or degradants that are present in the active pharmaceutical ingredient or could form over time in the formulated drug candidate or the active pharmaceutical ingredient. These toxicities or adverse events could delay or prevent the filing of an IND (or a foreign equivalent) with respect to our drug candidates or potential drug candidates or cause us, our partners or the FDA or foreign regulatory authorities to modify, suspend or terminate clinical trials with respect to any drug candidate at any time during the development program. Further, the administration of two or more drugs contemporaneously can lead to interactions between them, and our drug candidates may interact with other drugs that trial subjects are taking. For example, co-administration of tirasemtiv and riluzole (an approved treatment for ALS) approximately doubles the average maximum riluzole plasma level. If

the adverse events are severe or frequent enough to outweigh the potential efficacy of a drug candidate, the FDA or other regulatory authorities could deny approval

of that drug candidate for any or all targeted indications. Even if one or more of our drug candidates were approved for sale as drugs, the occurrence of even a limited number of toxicities or adverse events when used in large populations may cause the FDA or foreign regulatory authorities to impose restrictions on, or stop, the further marketing of those drugs. Indications of potential adverse events or toxicities which do not seem significant during the course of clinical trials may later turn out to actually constitute serious adverse events or toxicities when a drug is used in large populations or for extended periods of time.

We have observed certain adverse events in the clinical trials conducted with our drug candidates. For example, in BENEFIT-ALS, adverse events of dizziness, fatigue, nausea, confusional state, muscle spasms, somnolence (sleepiness), decreased appetite, headache, insomnia, dyspnea (difficulty breathing) and dysathria (difficulty speaking) occurred more frequently during treatment with tirasemtiv than with placebo. In addition, weight loss was significantly greater in patients with gastrointestinal adverse events (e.g., nausea and decreased appetite), which occurred more frequently on tirasemtiv than on placebo. In clinical trials of omecamtiv mecarbil, adverse events of chest discomfort, palpitations, dizziness and feeling hot, increases in heart rate, declines in blood pressure, electrocardiographic changes consistent with acute myocardial ischemia and transient rises in the MB fraction of creatine kinase and cardiac troponins I and T, which are indicative of myocardial infarction were observed during treatment with omecamtiv mecarbil.

In addition, clinical trials of tirasemtiv and omecamtiv mecarbil enroll patients who typically suffer from serious diseases which put them at increased risk of death. These patients may die while receiving our drug candidates. In such circumstances, it may not be possible to exclude with certainty a causal relationship to our drug candidate, even though the responsible clinical investigator may view such an event as not study drug-related.

Any failure or significant delay in completing preclinical studies or clinical trials for our drug candidates, or in receiving and maintaining regulatory approval for the sale of any resulting drugs, may significantly harm our business and negatively affect our stock price.

The failure of a number of Phase 3 clinical trials evaluating other compounds as potential treatments for patients with ALS may suggest an increased risk that our planned Phase 3 clinical development program of tirasemtiv in patients with ALS will also fail.

The FDA has not approved any drug for the treatment of ALS since its approval of riluzole in 1995. In recent years, a number of Phase 3 clinical trials of potential treatments for ALS have failed to demonstrate the requisite efficacy for approval or for their continued development. These include Biogen s trial of dexpramipexole, known as EMPOWER, the National Institute of Neurological Disorders and Stroke s trial of ceftriaxone, and Trophos SA s trial of olesoxime. Tirasemtiv, like these compounds, may fail in Phase 3 clinical development if it does not show a statistically significant level of clinical efficacy or if the adverse event profile is too great compared to it benefits. Further, even if we believe the data collected from our planned Phase 3 clinical development program of tirasemtiv are promising and should support approval, the FDA or other regulatory authorities may not deem these data to be sufficient to support approval.

We have never before conducted a Phase 3 clinical trial nor submitted an application for marketing authorization to regulatory authorities, and may be unable to do so for tirasemtiv or any other drug candidates we are developing.

We are conducting VITALITY-ALS, a Phase 3 clinical trial, designed to assess the effects of tirasemtiv versus placebo on slow vital capacity (SVC) and other measure of respiratory function in patients with ALS. Conducting Phase 3 clinical trials and submitting a successful application for marketing authorization is complex, time consuming and expensive. We have not previously conducted a Phase 3 clinical trial and have limited experience in preparing,

submitting and prosecuting a marketing authorization. Consequently, we may be unable to effectively and efficiently execute and complete the trial in a manner that leads to the submission to

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and approval by regulatory authorities of a marketing application for tirasemtiv. We may require more time and incur greater costs than our competitors and may not succeed in obtaining regulatory approvals of products that we develop. Failure to commence or complete, or delays in, our planned clinical trials, would prevent us from or delay us in commercializing tirasemtiv, and other product candidates we are developing.

Neither the FDA nor European regulatory authorities has accepted the primary endpoint in our Phase 3 clinical trial in patients with ALS (a statistically significant reduction in the decline in SVC) as a sufficient measure of clinical significance alone to support regulatory approval of tirasemtiv for the treatment of ALS.

To commercialize tirasemtiv, we must first demonstrate to the satisfaction of the FDA or foreign regulatory authorities that tirasemtiv is sufficiently safe and effective. To date, neither the FDA nor European regulatory authorities has indicated that the primary endpoint that we have specified in our Phase 3 clinical trial in patients with ALS (change from baseline to 24 weeks in SVC) is, in and of itself, a sufficient measure of clinical significance to establish the efficacy of tirasemtiv. Our Phase 3 clinical trial will also be measuring secondary endpoints of respiratory function and patient condition to provide further evidence of the potential clinical significance of a treatment effect. However, there is no assurance as to which of these secondary endpoints (if any) will be affected even if treatment with tirasemtiv achieves the primary efficacy objective of the trial. Further, there is no assurance as to whether regulatory authorities would accept the outcome of the trial as being a sufficient demonstration of clinical efficacy even if the primary endpoint and all secondary endpoints are achieved. We will continue interactions with regulatory authorities regarding the appropriate assessment(s) of the clinical meaningfulness and potential efficacy of therapy in the ALS population. If the results of our Phase 3 clinical trial in ALS are not sufficient to persuade regulatory authorities of the safety and efficacy of tirasemtiv, either because of a failure to achieve pre-specified endpoints or because the authorities do not accept such endpoints as being sufficient, then we would be required to conduct successfully one or more additional Phase 3 clinical trials, prior to receiving marketing authorization, which would be expensive, time consuming and uncertain.

It is not known whether the FDA or other regulatory authorities would accept a single Phase 3 clinical trial as being adequate to support marketing approval of tirasemtiv, even if the results of such trial are positive.

The conventional standard for granting marketing authorization of a new investigational medicine is the demonstration of safety and efficacy in two large, well-controlled Phase 3 clinical trials. The Phase 3 trial of tirasemtiv in ALS that we are currently conducting will be the first Phase 3 trial of this drug candidate. In the case of diseases with high unmet medical need, such as ALS, regulatory authorities may exercise their discretion to approve a new pharmaceutical on the basis of a single outcomes trial (sometimes subject to the conduct of subsequent confirmatory trial(s)). However, this is always within the judgment of the regulatory authorities and is dependent on their assessment of the degree of success achieved in the clinical trial as balanced by the potential risks associated with treatment. In addition, the design of the Phase 3 clinical trial, VITALITY-ALS, may not provide conclusive data on the most safe and effective dose of tirasemtiv in patients with ALS that meets the satisfaction of regulatory authorities, thereby requiring us to conduct another Phase 3 trial. Even if our first Phase 3 trial of tirasemtiv shows positive results, and provides all necessary data to determine appropriate dosing, regulatory authorities may nonetheless require us to successfully conduct one or more additional Phase 3 clinical trials prior to receiving marketing authorization, which would be expensive, time consuming and uncertain.

Clinical trials are expensive, time-consuming and subject to delay.

Clinical trials are subject to rigorous regulatory requirements and are very expensive, difficult and time-consuming to design and implement. The length of time and number of trial sites and patients required for clinical trials vary substantially based on the type, complexity, novelty, intended use of the drug candidate and safety concerns. We

estimate that the clinical trials of our current drug candidates will each continue for several more years. However, the clinical trials for all or any of our drug candidates may take significantly longer to

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complete. The commencement and completion of our or our partners clinical trials could be delayed or prevented by many factors, including, but not limited to:

- delays in obtaining, or inability to obtain, regulatory or other approvals to commence and conduct clinical trials in the manner we or our partners deem necessary for the appropriate and timely development of our drug candidates and commercialization of any resulting drugs;

- delays in identifying and reaching agreement, or inability to identify and reach agreement, on acceptable terms, with prospective clinical trial sites and other entities involved in the conduct of our or our partners clinical trials;

- delays or additional costs in developing, or inability to develop, appropriate formulations of our drug candidates for clinical trial use, including an appropriate modified release oral formulation for omecamtiv mecarbil;

- slower than expected rates of patient recruitment and enrollment, including as a result of competition for patients with other clinical trials; limited numbers of patients that meet the enrollment criteria; patients , investigators or trial sites reluctance to agree to the requirements of a protocol; or the introduction of alternative therapies or drugs by others;

- for those drug candidates that are the subject of a strategic alliance, delays in reaching agreement with our partner as to appropriate development strategies;

- a regulatory authority may require changes to a protocol for a clinical trial that then may require approval from regulatory agencies in other jurisdictions where the trial is being conducted;

- an institutional review board (IRB) or its foreign equivalent may require changes to a protocol that then require approval from regulatory agencies and other IRBs and their foreign equivalents, or regulatory authorities may require changes to a protocol that then require approval from the IRBs or their foreign equivalents;

- for clinical trials conducted in foreign countries, the time and resources required to identify, interpret and comply with foreign regulatory requirements or changes in those requirements, and political instability or natural disasters occurring in those countries;

- lack of effectiveness of our drug candidates during clinical trials;

- unforeseen safety issues;

inadequate supply, or delays in the manufacture or supply, of clinical trial materials;

uncertain dosing issues;

failure by us, our partners, or clinical research organizations, investigators or site personnel engaged by us or our partners to comply with good clinical practices and other applicable laws and regulations, including those concerning informed consent;

inability or unwillingness of investigators or their staffs to follow clinical protocols;

failure by our clinical research organizations, clinical manufacturing organizations and other third parties supporting our or our partners clinical trials to fulfill their obligations;

inability to monitor patients adequately during or after treatment;

introduction of new therapies or changes in standards of practice or regulatory guidance that render our drug candidates or their clinical trial endpoints obsolete; and

results from non-clinical studies that may adversely impact the timing or further development of our drug candidates.

We do not know whether planned clinical trials will begin on time, or whether planned or currently ongoing clinical trials will need to be restructured or will be completed on schedule, if at all. Significant delays in clinical

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trials will impede our ability to commercialize our drug candidates and generate revenue and could significantly increase our development costs.

We depend on Amgen for the conduct and funding of the development and commercialization of omecamtiv mecarbil.

Under our strategic alliance, Amgen holds an exclusive worldwide license to our drug candidate omecamtiv mecarbil. As a result, Amgen is responsible for the development and obtaining and maintaining regulatory approval of omecamtiv mecarbil for the potential treatment of heart failure worldwide.

While we announced in September 2016 that Amgen was advancing omecamtiv mecarbil into Phase 3 clinical development, we do not control the development activities being conducted or that may be conducted in the future by Amgen, including, but not limited to, the timing of initiation, termination or completion of clinical trials, the analysis of data arising out of those clinical trials or the timing of release of data concerning those clinical trials, which may impact our ability to report on Amgen s results. Amgen may conduct these activities more slowly or in a different manner than we would if we controlled the development of omecamtiv mecarbil. Amgen is responsible for filing future applications with the FDA and other regulatory authorities for approval of omecamtiv mecarbil and will be the owner of marketing approvals issued by the FDA or other regulatory authorities for omecamtiv mecarbil, subject to Servier s exclusive rights for the commercialization of omecamtiv mecarbil in Europe, as well as the CIS, including Russia. If the FDA or other regulatory authorities approve omecamtiv mecarbil, Amgen will also be responsible for the marketing and sale of the resulting drug, subject to our right to co-promote omecamtiv mecarbil in North America if we exercise our option to co-fund Phase 3 development costs of omecamtiv mecarbil under the collaboration and subject to Servier s exclusive rights for the commercialization of omecamtiv mecarbil in Europe, as well as the CIS, including Russia. However, we cannot control whether Amgen will devote sufficient attention and resources to the development of omecamtiv mecarbil or will proceed in an expeditious manner, even if we do exercise our option to co-fund the development of omecamtiv mecarbil. Even if the FDA or other regulatory agencies approve omecamtiv mecarbil, Amgen or Servier may elect not to proceed with the commercialization of the resulting drug in one or more countries.

If the results of one or more clinical trials with omecamtiv mecarbil do not meet Amgen s expectations at any time, Amgen may elect to terminate further development of omecamtiv mecarbil or certain of the potential clinical trials for omecamtiv mecarbil, even if the actual number of patients treated at that time is relatively small. In addition, Amgen generally has discretion to elect whether to pursue or abandon the development of omecamtiv mecarbil and may terminate our strategic alliance for any reason upon six months prior notice. With our consent, Amgen granted Servier an option to commercialize omecamtiv mecarbil in Europe and the CIS, including Russia, which Servier decided to exercise. In August 2016, we entered into a letter agreement with Amgen and Servier, which provides that if Amgen s rights to omecamtiv mecarbil are terminated with respect to the territory subject to Servier s sublicense, the sublicensed rights previously granted by Amgen to Servier with respect to omecamtiv mecarbil, will remain in effect and become a direct license or sublicense of such rights by us to Servier, on substantially the same terms as those in the Option, License and Collaboration Agreement between Amgen and Servier. If Amgen abandons omecamtiv mecarbil, it would result in a delay in or could prevent us from commercializing omecamtiv mecarbil, and would delay and could prevent us from obtaining revenues for this drug candidate. In addition, we would be required to provide Servier with a direct license or sublicense and the rights to commercialize omecamtiv mecarbil in Europe and the CIS, including Russia on terms that were not negotiated by us. There can be no assurance that we would be able to negotiate and enter into a definitive agreement with Servier on terms favorable or acceptable to us, or at all.

Disputes may arise between us and Amgen, which may delay or cause the termination of any omecamtiv mecarbil clinical trials, result in significant litigation or cause Amgen to act in a manner that is not in our best interest. The

costs associated with the continuing development of omecamtiv mecarbil may cause Amgen to reconsider the terms of its investment and seek to amend or terminate our collaboration agreement or to suspend the development of omecamtiv mecarbil. If development of omecamtiv mecarbil does not progress for these or

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any other reasons, we would not receive further milestone payments or royalties on product sales from Amgen with respect to omecamtiv mecarbil. If Amgen abandons development of omecamtiv mecarbil prior to regulatory approval or if it elects not to proceed with commercialization of the resulting drug following regulatory approval, we would have to seek a new partner for development or commercialization, curtail or abandon that development or commercialization, or undertake and fund the development of omecamtiv mecarbil or commercialization of the resulting drug ourselves. If we seek a new partner but are unable to do so on acceptable terms, or at all, or do not have sufficient funds to conduct the development or commercialization of omecamtiv mecarbil ourselves, we would have to curtail or abandon that development or commercialization, which could harm our business.

We depend on Astellas for the conduct and funding of the development and commercialization of CK-2127107.

In December 2014, we expanded our strategic alliance with Astellas focused on the research, development and commercialization of skeletal muscle activators, other than tirasemtiv and certain related compounds. The primary objective of the strategic alliance is to advance novel therapies for indications associated with muscle weakness.

Under this strategic alliance, we have granted Astellas an exclusive license to co-develop and commercialize CK-2127107 for potential application in spinal muscular atrophy (SMA) and potentially other indications worldwide. We have initiated a Phase 2 clinical trial of patients with SMA and in June 2016, Astellas, in collaboration with us, initiated a Phase 2 clinical trial of CK-2127107 in patients with COPD.

In September 2016, we expanded our collaboration with Astellas and granted Astellas an option to enter into a pre-negotiated agreement for a global collaboration for the development and commercialization of tirasemtiv, including worldwide commercialization rights for Astellas outside our commercialization territory in North America, Europe and other select countries. In addition, under this 2016 expansion, we will collaborate with Astellas to develop CK-2127107 in ALS. Astellas will be primarily responsible for the development of CK-2127107 in ALS, and the Company will conduct the Phase 2 clinical trial of CK-2127107 in ALS.

We do not control the development activities that may be conducted by Astellas, including, but not limited to, the timing of initiation, termination or completion of clinical trials, the analysis of data arising out of those clinical trials or the timing of release of data concerning those clinical trials, which may impact our ability to report on Astellas results. Astellas may conduct these activities more slowly or in a different manner than we would. In general, Astellas is responsible for filing future applications with the FDA or other regulatory authorities for approval of CK-2127107 and will be the owner of any marketing approvals issued by the FDA or other regulatory authorities for CK-2127107. If the FDA or other regulatory authorities approve CK-2127107, Astellas will also be responsible for the marketing and sale of the resulting drug, subject to our right to co-promote the drug in the United States, Canada and, for neuromuscular indications, Europe. However, we cannot control whether Astellas will devote sufficient attention and resources to the development of CK-2127107 or will proceed in an expeditious manner. Even if the FDA or other regulatory agencies approve CK-2127107, Astellas may elect not to proceed with the commercialization of the resulting drug in one or more countries.

If the results of one or more clinical trials with CK-2127107 do not meet Astellas expectations at any time, Astellas may elect to terminate further development of CK-2127107 or certain of the potential clinical trials for CK-2127107, even if the actual number of patients treated at that time is relatively small. In addition, Astellas generally has discretion to elect whether to pursue or abandon the development of CK-2127107. Astellas may terminate our strategic alliance in whole or in part for any reason upon six months prior notice at any time following expiration of the strategic alliance s research term, which will expire December 31, 2017. If Astellas abandons CK-2127107, it would result in a delay in or could prevent us from further developing or commercializing CK-2127107, and would delay and could prevent us from obtaining revenues for this drug candidate. Disputes may arise between us and

Astellas, which may delay or cause the termination of any CK-2127107 clinical trials, result in significant litigation or cause Astellas to act in a manner that is not in our

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best interest. If development of CK-2127107 does not progress for these or any other reasons, we would not receive further milestone payments or royalties on product sales from Astellas with respect to CK-2127107. If Astellas abandons development of CK-2127107 prior to regulatory approval or if it elects not to proceed with commercialization of the resulting drug following regulatory approval, we would have to seek a new partner for development or commercialization, curtail or abandon that development or commercialization, or undertake and fund the development of CK-2127107 or commercialization of the resulting drug ourselves. If we seek a new partner but are unable to do so on acceptable terms, or at all, or do not have sufficient funds to conduct the development or commercialization of CK-2127107 ourselves, we would have to curtail or abandon that development or commercialization, which could harm our business.

The successful development of CK-2127107 in ALS under our expanded collaboration with Astellas could reduce the commercial potential of tirasemtiv, and our share of the costs of developing CK-2127107 in ALS could limit our ability to pay for other programs, including tirasemtiv.

Tirasemtiv is the lead drug candidate from our skeletal muscle contractility program. We have completed a Phase 2 clinical development program for tirasemtiv, and started a Phase 3 clinical development program for tirasemtiv in patients with ALS in July 2015. In collaboration with Astellas, we are also developing CK-2127107 for potential indications associated with muscle weakness and in 2016 we expanded our collaboration with Astellas to develop CK-2127107 in ALS. We expect that we will commence a Phase 2 clinical development program of CK-2127107 with Astellas in ALS in 2017.

Since we will be developing both tirasemtiv and CK-2127107 for ALS, if both drugs are successfully developed and commercialized, they would potentially compete with one another in the same indication. If approved for commercial sale, the commercial launch of CK-2127107 following the commercial launch of tirasemtiv could negatively affect the sales of tirasemtiv. Successful development of CK-2127107 in ALS, or CK-2127107 data that Astellas views as positive, may reduce the likelihood that Astellas will exercise its option to develop and commercialize tirasemtiv, in which case we would not receive any of the payments from Astellas associated with the option exercise, and our ability to commercially launch tirasemtiv in markets outside of North America and Europe may be diminished.

In addition, Astellas and Cytokinetics will share equally the costs of developing CK-2127107 in ALS for potential registration and marketing authorization in the U.S. and Europe, provided that (i) Astellas has agreed to solely fund Phase 2 development costs of CK-2127107 in ALS subject to a right to recoup our share of such costs plus a 100% premium by reducing future milestone and royalty payments to the Company and (ii) we may defer (but not eliminate) a portion of our co-funding obligation for development activities after Phase 2 for up to 18 months, subject to certain conditions. We will, however, be required to fund one half the cost of any Phase 3 development of CK-2127107 in ALS with limited ability to defer or offset such costs. Our one-half share of the costs of any Phase 3 clinical trial of CK-2127107 in ALS could be significant, and could negatively impact our ability to finance other programs, including potentially limiting our ability to pay for the development and/or commercial launch of tirasemtiv.

If we do not enter into strategic alliances for our unpartnered drug candidates or research and development programs or fail to successfully maintain our current or future strategic alliances, we may have to reduce, delay or discontinue our advancement of our drug candidates and programs or expand our research and development capabilities and increase our expenditures.

Drug development is complicated and expensive. We currently have limited financial and operational resources to carry out drug development. Our strategy for developing, manufacturing and commercializing our drug candidates currently requires us to enter into and successfully maintain strategic alliances with pharmaceutical companies or other industry participants to advance our programs and reduce our expenditures on each program. Accordingly, the

success of our development activities depends in large part on our current and future strategic partners performance, over which we have little or no control.

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Our ability to commercialize drugs that we develop with our partners and that generate royalties from product sales depends on our partners abilities to assist us in establishing the safety and efficacy of our drug candidates, obtaining and maintaining regulatory approvals and achieving market acceptance of the drugs once commercialized. Our partners may elect to delay or terminate development of one or more drug candidates, independently develop drugs that could compete with ours or fail to commit sufficient resources to the marketing and distribution of drugs developed through their strategic alliances with us. Our partners may not proceed with the development and commercialization of our drug candidates with the same degree of urgency as we would because of other priorities they face. In addition, new business combinations or changes in a partner s business strategy may adversely affect its willingness or ability to carry out its obligations under a strategic alliance.

If we are not able to successfully maintain our existing strategic alliances or establish and successfully maintain additional strategic alliances, we will have to limit the size or scope of, or delay or discontinue, one or more of our drug development programs or research programs, or undertake and fund these programs ourselves. Alternatively, if we elect to continue to conduct any of these drug development programs or research programs on our own, we will need to expand our capability to conduct clinical development by bringing additional skills, technical expertise and resources into our organization. This would require significant additional funding, which may not be available to us on acceptable terms, or at all.

To the extent we elect to fund the development of a drug candidate, such as tirasemtiv, CK-2127107, or omecamtiv mecarbil, or the commercialization of a drug at our expense, we will need substantial additional funding.

The discovery, development and commercialization of new drugs is costly. As a result, to the extent we elect to fund the development of a drug candidate, such as tirasemtiv, CK-2127107 or omecamtiv mecarbil, or the commercialization of a drug, we will need to raise additional capital to:

- fund clinical trials and seek regulatory approvals;
- expand our development capabilities;
- engage third party manufacturers for such drug candidate or drug;
- build or access commercialization capabilities;
- implement additional internal systems and infrastructure;
- maintain, defend and expand the scope of our intellectual property; and
- hire and support additional management and scientific personnel.

Our future funding requirements will depend on many factors, including, but not limited to:

the rate of progress and costs of our or our partners clinical trials and other research and development activities;

the costs and timing of seeking and obtaining regulatory approvals;

the costs associated with establishing manufacturing and commercialization capabilities;

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

the costs of acquiring or investing in businesses, products and technologies;

the effect of competing technological and market developments; and

the status of, payment and other terms, and timing of any strategic alliance, licensing or other arrangements that we have entered into or may establish.

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Until we can generate a sufficient amount of product revenue to finance our cash requirements, which we may never do, we expect to continue to finance our future cash needs primarily through strategic alliances, public or private equity offerings and debt financings. We cannot be certain that additional funding will be available on acceptable terms, or at all. If we are not able to secure additional funding when needed, we may have to delay, reduce the scope of or eliminate one or more of our clinical trials or research and development programs or future commercialization initiatives.

We depend on contract research organizations (CROs) to conduct our clinical trials and have limited control over their performance. If these CROs do not successfully carry out their contractual duties or meet expected deadlines, or if we lose any of our CROs, we may not be able to obtain regulatory approval for or commercialize our product candidates on a timely basis, if at all.

We have used and intend to continue to use a limited number of CROs within and outside of the United States to conduct clinical trials of our drug candidates, such as tirasemtiv, CK-2127107 and omecamtiv mecarbil, and related activities. We do not have control over many aspects of our CROs activities, and cannot fully control the amount, timing or quality of resources that they devote to our programs. CROs may not assign as high a priority to our programs or pursue them as diligently as we would if we were undertaking these programs ourselves. The activities conducted by our CROs therefore may not be completed on schedule or in a satisfactory manner. CROs may also give higher priority to relationships with our competitors and potential competitors than to their relationships with us. Outside of the United States, we are particularly dependent on our CROs expertise in communicating with clinical trial sites and regulatory authorities and ensuring that our clinical trials and related activities and regulatory filings comply with applicable laws.

Our CROs failure to carry out development activities on our behalf as agreed and in accordance with our and the FDA s or other regulatory agencies requirements and applicable U.S. and foreign laws, or our failure to properly coordinate and manage these activities, could increase the cost of our operations and delay or prevent the development, approval and commercialization of our drug candidates. For example, in June 2013, we learned from our data management vendor for BENEFIT-ALS that a programming error in the electronic data capture system controlling study drug assignment caused 58 patients initially randomized to and treated with tirasemtiv to receive placebo instead at a certain trial visit and for the remainder of the trial. In order to maintain the originally intended statistical power of the trial, we amended the protocol to permit enrollment of approximately 680 patients, or 180 patients in addition to the 500 patients allowed under the existing protocol. This protocol amendment resulted in additional costs and delays in conducting BENEFIT-ALS. Further, for the quarter ended September 30, 2016, we determined that there was an error in the accounting for the recognition of clinical research and development expenses related to the information received from one of our CROs, which resulted in a restatement of our clinical research and development expenses, related clinical accrual accounts and related financial disclosures as of and for the three and nine month periods ended September 30, 2016. In addition, if a CRO fails to perform as agreed, our ability to collect damages may be contractually limited. If we fail to effectively manage the CROs carrying out the development of our drug candidates or if our CROs fail to perform as agreed, the commercialization of our drug candidates will be delayed or prevented. In many cases, our CROs have the right to terminate their agreements with us in the event of an uncured material breach. Identifying, qualifying and managing performance of third-party service providers can be difficult, time consuming and cause delays in our development programs. In addition, there is a natural transition period when a new CRO commences work and the new CRO may not provide the same type or level of services as the original provider. If any of our relationships with our third-party CROs terminate, we may not be able to enter into arrangements with alternative CROs or to do so timely or on commercially reasonable terms.

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We have no manufacturing capacity and depend on our strategic partners and contract manufacturers to produce our clinical trial materials, including our drug candidates, and anticipate continued reliance on contract manufacturers for the development and commercialization of our potential drugs.

We do not currently operate manufacturing facilities for clinical or commercial production of our drug candidates. We have limited experience in drug formulation and manufacturing, and we lack the resources and the capabilities to manufacture any of our drug candidates on a clinical or commercial scale. Amgen has assumed responsibility to conduct these activities for the ongoing development of omecamtiv mecarbil worldwide. Following our conduct of the early development of CK-2127107, including the ongoing Phase 2 clinical trial in patients with SMA, Astellas will assume primary responsibility to conduct the manufacturing for the ongoing development of CK-2127107 worldwide. For tirasemtiv, we rely on a limited number of contract manufacturers. In particular, we rely on single-source contract manufacturers for the active pharmaceutical ingredient and the drug product supply for our clinical trials, as well as other materials required to conduct our clinical trials. We expect to rely on contract manufacturers to supply all future drug candidates for which we conduct development, as well as other materials required to conduct our clinical trials. If any of our existing or future contract manufacturers fail to perform satisfactorily, it could delay development or regulatory approval of our drug candidates or commercialization of our drugs, producing additional losses and depriving us of potential product revenues. In addition, if a contract manufacturer fails to perform as agreed, our ability to collect damages may be contractually limited.

Our drug candidates require precise high-quality manufacturing. The failure to achieve and maintain high manufacturing standards, including failure to detect or control anticipated or unanticipated manufacturing errors or the frequent occurrence of such errors, could result in patient injury or death, discontinuance or delay of ongoing or planned clinical trials, delays or failures in product testing or delivery, cost overruns, product recalls or withdrawals and other problems that could seriously hurt our business. Contract drug manufacturers often encounter difficulties involving production yields, quality control and quality assurance and shortages of qualified personnel. These manufacturers are subject to stringent regulatory requirements, including the FDA s current good manufacturing practices regulations and similar foreign laws and standards. Each contract manufacturer must pass a pre-approval inspection before we can obtain marketing approval for any of our drug candidates and following approval will be subject to ongoing periodic unannounced inspections by the FDA, the U.S. Drug Enforcement Agency and other regulatory agencies, to ensure strict compliance with current good manufacturing practices and other applicable government regulations and corresponding foreign laws and standards. We seek to ensure that our contract manufacturers comply fully with all applicable regulations, laws and standards. However, we do not have control over our contract manufacturers compliance with these regulations, laws and standards. If one of our contract manufacturers fails to pass its pre-approval inspection or maintain ongoing compliance at any time, the production of our drug candidates could be interrupted, resulting in delays or discontinuance of our clinical trials, additional costs and potentially lost revenues. In addition, failure of any third party manufacturers or us to comply with applicable regulations, including pre- or post-approval inspections and the current good manufacturing practice requirements of the FDA or other comparable regulatory agencies, could result in sanctions being imposed on us. These sanctions could include fines, injunctions, civil penalties, failure of regulatory authorities to grant marketing approval of our products, delay, suspension or withdrawal of approvals, license revocation, product seizures or recalls, operational restrictions and criminal prosecutions, any of which could significantly and adversely affect our business.

In addition, our existing and future contract manufacturers may not perform as agreed or may not remain in the contract manufacturing business for the time required to successfully produce, store and distribute our drug candidates. If a natural disaster, business failure, strike or other difficulty occurs, we may be unable to replace these contract manufacturers in a timely or cost-effective manner and the production of our drug candidates would be interrupted, resulting in delays and additional costs.

Switching manufacturers or manufacturing sites would be difficult and time-consuming because the number of potential manufacturers is limited. In addition, before a drug from any replacement manufacturer or

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manufacturing site can be commercialized, the FDA and, in some cases, foreign regulatory agencies, must approve that site. These approvals would require regulatory testing and compliance inspections. A new manufacturer or manufacturing site also would have to be educated in, or develop substantially equivalent processes for, production of our drugs and drug candidates. It may be difficult or impossible to transfer certain elements of a manufacturing process to a new manufacturer or for us to find a replacement manufacturer on acceptable terms quickly, or at all, either of which would delay or prevent our ability to develop drug candidates and commercialize any resulting drugs.

We may not be able to successfully manufacture our drug candidates in sufficient quality and quantity, which would delay or prevent us from developing our drug candidates and commercializing resulting approved drugs, if any.

To date, our drug candidates have been manufactured in quantities adequate for preclinical studies and early through late-stage clinical trials. In order to conduct large scale clinical trials for a drug candidate and for commercialization of the resulting drug if that drug candidate is approved for sale, we will need to manufacture some drug candidates in larger quantities. We may not be able to successfully repeat or increase the manufacturing capacity for any of our drug candidates, whether in collaboration with third-party manufacturers or on our own, in a timely or cost-effective manner or at all. If a contract manufacturer makes improvements in the manufacturing process for our drug candidates, we may not own, or may have to share, the intellectual property rights to those improvements. Significant changes or scale-up of manufacturing may require additional validation studies, which are costly and which regulatory authorities must review and approve. In addition, quality issues may arise during those changes or scale-up activities because of the inherent properties of a drug candidate itself or of a drug candidate in combination with other components added during the manufacturing and packaging process, or during shipping and storage of the finished product or active pharmaceutical ingredients. If we are unable to successfully manufacture of any of our drug candidates in sufficient quality and quantity, the development of that drug candidate and regulatory approval or commercial launch for any resulting drugs may be delayed or there may be a shortage in supply, which could significantly harm our business. In addition, data demonstrating the stability of both drug substance and drug product, using the commercial manufacturing process and at commercial scale, are required for marketing applications. Failure to produce drug substance and drug products in a timely manner and obtain stability data could result in delay of submission of marketing applications.

The mechanisms of action of our drug candidates are unproven, and we do not know whether we will be able to develop any drug of commercial value.

We have discovered and are currently developing drug candidates that have what we believe are novel mechanisms of action directed against cytoskeletal targets, and intend to continue to do so. Because no currently approved drugs appear to operate via the same biochemical mechanisms as our compounds, we cannot be certain that our drug candidates will result in commercially viable drugs that safely and effectively treat the indications for which we intend to develop them. The results we have seen for our compounds in preclinical models may not translate into similar results in humans, and results of early clinical trials in humans may not be predictive of the results of larger clinical trials that may later be conducted with our drug candidates. Even if we are successful in developing and receiving regulatory approval for a drug candidate for the treatment of a particular disease, we cannot be certain that it will be accepted by prescribers or be reimbursed by insurers or that we will also be able to develop and receive regulatory approval for that or other drug candidates for the treatment of other diseases. If we or our partners are unable to successfully develop and commercialize our drug candidates, our business will be materially harmed.

Our success depends substantially upon our ability to obtain and maintain intellectual property protection relating to our drug candidates, compounds and research technologies.

We own, or hold exclusive licenses to, a number of U.S. and foreign patents and patent applications directed to our drug candidates, compounds and research technologies. Our success depends on our ability to obtain

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patent protection both in the United States and in other countries for our drug candidates, their methods of manufacture and use, and our technologies. Our ability to protect our drug candidates, compounds and technologies from unauthorized or infringing use by third parties depends substantially on our ability to obtain and enforce our patents. If our issued patents and patent applications, if granted, do not adequately describe, enable or otherwise provide coverage of our technologies and drug candidates, including tirasemtiv, CK-2127107 and omecamtiv mecarbil, we or our licensees would not be able to exclude others from developing or commercializing these drug candidates. Furthermore, the degree of future protection of our proprietary rights is uncertain because legal means may not adequately protect our rights or permit us to gain or keep our competitive advantage.

Due to evolving legal standards relating to the patentability, validity and enforceability of patents covering pharmaceutical inventions and the claim scope of these patents, our ability to enforce our existing patents and to obtain and enforce patents that may issue from any pending or future patent applications is uncertain and involves complex legal, scientific and factual questions. The standards which the U.S. Patent and Trademark Office and its foreign counterparts use to grant patents are not always applied predictably or uniformly and are subject to change. To date, no consistent policy has emerged regarding the breadth of claims allowed in biotechnology and pharmaceutical patents. Thus, we cannot be sure that any patents will issue from any pending or future patent applications owned by or licensed to us. Even if patents do issue, we cannot be sure that the claims of these patents will be held valid or enforceable by a court of law, will provide us with any significant protection against competitive products, or will afford us a commercial advantage over competitive products. In particular:

- we or our licensors might not have been the first to make the inventions covered by each of our pending patent applications and issued patents;
- we or our licensors might not have been the first to file patent applications for the inventions covered by our pending patent applications and issued patents;
- others may independently develop similar or alternative technologies or duplicate any of our technologies without infringing our intellectual property rights;
- some or all of our or our licensors pending patent applications may not result in issued patents or the claims that issue may be narrow in scope and not provide us with competitive advantages;
- our and our licensors issued patents may not provide a basis for commercially viable drugs or therapies or may be challenged and invalidated by third parties;
- our or our licensors patent applications or patents may be subject to interference, opposition or similar administrative proceedings that may result in a reduction in their scope or their loss altogether;
- we may not develop additional proprietary technologies or drug candidates that are patentable; or

the patents of others may prevent us or our partners from discovering, developing or commercializing our drug candidates.

Patent protection is afforded on a country-by-country basis. Some foreign jurisdictions do not protect intellectual property rights to the same extent as in the United States. Many companies have encountered significant difficulties in protecting and defending intellectual property rights in foreign jurisdictions. Some of our development efforts are performed in countries outside of the United States through third party contractors. We may not be able to effectively monitor and assess intellectual property developed by these contractors. We therefore may not be able to effectively protect this intellectual property and could lose potentially valuable intellectual property rights. In addition, the legal protection afforded to inventors and owners of intellectual property in countries outside of the United States may not be as protective of intellectual property rights as in the United States. Therefore, we may be unable to acquire and protect intellectual property developed by these contractors to the same extent as if these development activities were being conducted in the United States. If we encounter difficulties in protecting our intellectual property rights in foreign jurisdictions, our business prospects could be substantially harmed.

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We rely on intellectual property assignment agreements with our corporate partners, employees, consultants, scientific advisors and other collaborators to grant us ownership of new intellectual property that is developed. These agreements may not result in the effective assignment to us of that intellectual property. As a result, our ownership of key intellectual property could be compromised.

Changes in either the patent laws or their interpretation in the United States or other countries may diminish the value of our intellectual property or our ability to obtain patents. For example, the America Invents Act of 2011 may affect the scope, strength and enforceability of our patent rights in the United States or the nature of proceedings which may be brought by us related to our patent rights in the United States.

If one or more products resulting from our drug candidates is approved for sale by the FDA and we do not have adequate intellectual property protection for those products, competitors could duplicate them for approval and sale in the United States without repeating the extensive testing required of us or our partners to obtain FDA approval. Regardless of any patent protection, under current law, an application for a generic version of a new chemical entity cannot be approved until at least five years after the FDA has approved the original product. When that period expires, or if that period is altered, the FDA could approve a generic version of our product regardless of our patent protection. An applicant for a generic version of our product may only be required to conduct a relatively inexpensive study to show that its product is bioequivalent to our product, and may not have to repeat the lengthy and expensive clinical trials that we or our partners conducted to demonstrate that the product is safe and effective. In the absence of adequate patent protection for our products in other countries, competitors may similarly be able to obtain regulatory approval in those countries of generic versions of our products.

We also rely on trade secrets to protect our technology, particularly where we believe patent protection is not appropriate or obtainable. However, trade secrets are often difficult to protect, especially outside of the United States. While we endeavor to use reasonable efforts to protect our trade secrets, our or our partners employees, consultants, contractors or scientific and other advisors may unintentionally or willfully disclose our information to competitors. In addition, confidentiality agreements, if any, executed by those individuals may not be enforceable or provide meaningful protection for our trade secrets or other proprietary information in the event of unauthorized use or disclosure. Pursuing a claim that a third party had illegally obtained and was using our trade secrets would be expensive and time-consuming, and the outcome would be unpredictable. Even if we are able to maintain our trade secrets as confidential, if our competitors independently develop information equivalent or similar to our trade secrets, our business could be harmed.

If we are not able to defend the patent or trade secret protection position of our technologies and drug candidates, then we will not be able to exclude competitors from developing or marketing competing drugs, and we may not generate enough revenue from product sales to justify the cost of development of our drugs or to achieve or maintain profitability.

If we are sued for infringing third party intellectual property rights, it will be costly and time-consuming, and an unfavorable outcome could have a significant adverse effect on our business.

Our ability to commercialize drugs depends on our ability to use, manufacture and sell those drugs without infringing the patents or other proprietary rights of third parties. Numerous U.S. and foreign issued patents and pending patent applications owned by third parties exist in the therapeutic areas in which we are developing drug candidates and seeking new potential drug candidates. In addition, because patent applications can take several years to issue, there may be currently pending applications, unknown to us, which could later result in issued patents that our activities with our drug candidates could infringe. There may also be existing patents, unknown to us, that our activities with our drug candidates could infringe.

Other future products of ours may be impacted by patents of companies engaged in competitive programs with significantly greater resources. Further development of these products could be impacted by these patents and result in significant legal fees.

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If a third party claims that our actions infringe its patents or other proprietary rights, we could face a number of issues that could seriously harm our competitive position, including, but not limited to:

- infringement and other intellectual property claims that, even if meritless, can be costly and time-consuming to litigate, delay the regulatory approval process and divert management s attention from our core business operations;
- substantial damages for past infringement which we may have to pay if a court determines that our drugs or technologies infringe a third party s patent or other proprietary rights;
- a court prohibiting us from selling or licensing our drugs or technologies unless the holder licenses the patent or other proprietary rights to us, which it is not required to do; and
- if a license is available from a holder, we may have to pay substantial royalties or grant cross-licenses to our patents or other proprietary rights.

If any of these events occur, it could significantly harm our business and negatively affect our stock price.

We may undertake infringement or other legal proceedings against third parties, causing us to spend substantial resources on litigation and exposing our own intellectual property portfolio to challenge.

Third parties may infringe our patents. To prevent infringement or unauthorized use, we may need to file infringement suits, which are expensive and time-consuming. In an infringement proceeding, a court may decide that one or more of our patents is invalid, unenforceable, or both. In this case, third parties may be able to use our technology without paying licensing fees or royalties. Even if the validity of our patents is upheld, a court may refuse to stop the other party from using the technology at issue on the ground that the other party s activities are not covered by our patents. Policing unauthorized use of our intellectual property is difficult, and we may not be able to prevent misappropriation of our proprietary rights, particularly in countries where the laws may not protect such rights as fully as in the United States. In addition, third parties may affirmatively challenge our rights to, or the scope or validity of, our patent rights.

We may become involved in disputes with our strategic partners over intellectual property ownership, and publications by our research collaborators and clinical investigators could impair our ability to obtain patent protection or protect our proprietary information, either of which would have a significant impact on our business.

Inventions discovered under our current or future strategic alliance agreements may become jointly owned by our strategic partners and us in some cases, and the exclusive property of one of us in other cases. Under some circumstances, it may be difficult to determine who owns a particular invention or whether it is jointly owned, and disputes could arise regarding ownership or use of those inventions. These disputes could be costly and time-consuming, and an unfavorable outcome could have a significant adverse effect on our business if we were not able to protect or license rights to these inventions. In addition, our research collaborators and clinical investigators generally have contractual rights to publish data arising from their work. Publications by our research collaborators and clinical investigators relating to our research and development programs, either with or without our consent, could benefit our current or potential competitors and may impair our ability to obtain patent protection or protect our proprietary information, which could significantly harm our business.

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

Many of our employees were previously employed at universities or other biotechnology or pharmaceutical companies, including our competitors or potential competitors. Although no claims against us are currently pending, we may be subject to claims that these employees or we have inadvertently or otherwise used or disclosed trade secrets or other proprietary information of their former employers. Litigation may be necessary to

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defend against these claims. If we fail in defending these claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. A loss of key research personnel or their work product could hamper or prevent our ability to develop and commercialize certain potential drugs, which could significantly harm our business. Even if we are successful in defending against these claims, litigation could result in substantial costs and distract management.

Our competitors may develop drugs that are less expensive, safer or more effective than ours, which may diminish or eliminate the commercial success of any drugs that we may commercialize.

We compete with companies that have developed drugs or are developing drug candidates for cardiovascular diseases, diseases and conditions associated with muscle weakness or wasting and other diseases for which our drug candidates may be useful treatments. For example, if tirasemtiv is approved for marketing by the FDA or other regulatory authorities for the treatment of ALS, it may then compete with other potential new therapies for ALS that are currently being developed by companies such as Neuraltus Pharmaceuticals, Inc., which is developing NP001; Ionis Pharmaceuticals, Inc., (in collaboration with Biogen Inc.), which is developing Ionis-SOD1Rx; AB Science, which is developing masitinib; Mitsubishi Tanabe Pharma Corporation, which is developing Radicut (edaravone); Eisai Co. Ltd., which is developing mecobalamin; Orion Pharma (UK) Ltd., which is developing levosimendan; Genervon Biopharmaceuticals, LLC, which is developing GM604; Q Therapeutics, which is developing Q Cells; Genentech, Inc., which is developing GCD-0134; MediciNova, Inc. which is developing ibudilast, Edison Pharma which is developing EPI-589, and VM BioPharm which is developing VM202. In addition, BrainStorm Cell Therapeutics and Neuralstem, Inc. are each conducting clinical development of stem cell therapies for the potential treatment of ALS. Tirasemtiv may also compete with Rilutek (riluzole), manufactured by Sanofi and several generics manufacturers including Apotex Corp., Glenmark Generics, and Sun Pharmaceuticals.

If CK-2127107 is approved by the FDA or other regulatory authorities for the potential treatment of SMA, potential competitors include Roche (in collaboration with PTC Therapeutics and Trophos SA), AveXis, Inc., Pfizer Inc., Ionis Pharmaceuticals, Inc., (in collaboration with Biogen Inc.) which is marketed as Spinraza, Novartis AG and Bioblast Pharma, Ltd. Drugs that could compete with CK-2127107 could also compete against tirasemtiv in ALS or other neuromuscular diseases, should the appropriate clinical trials be conducted. If CK-2127107 is approved by the FDA for the potential treatment of non-neuromuscular indications associated with muscle weakness, potential competitors include Regeneron Pharmaceuticals, Inc. (in collaboration with Sanofi), Eli Lilly and Company, Acceleron Pharma, Stealth Biotherapeutics, Scholar Rock, vTv Therapeutics, Summit Therapeutics, Pfizer Inc., and Novartis (in collaboration with Morphosys AG).

If omecamtiv mecarbil is approved for marketing by the FDA or other regulatory authorities for the treatment of heart failure, it would compete against other drugs used for the treatment of acute and chronic heart failure. These include generic drugs, such as milrinone, dobutamine or digoxin and branded drugs such as Natrecor (nesiritide), Corlanor (ivabradine), and Entresto. Omecamtiv mecarbil could also potentially compete against other novel drug candidates and therapies in development, such as those being developed by ARCA biopharma, Inc.; Novartis; Bayer, Capricor Therapeutics, Inc., Cardiorentis AG, Ono Pharmaceutical Company, Juventas Therapeutics, ARMGO Pharma, Inc, Trevena, Inc. in partnership with Forest Laboratories, Inc., Stealth Biotherapeutics, Cardioxyl Pharmaceuticals, Inc., Zensun Sci & Tech, Ltd., and Tenax Therapeutics (formerly known as Oxygen Biotherapeutics, Inc.). In addition, there are a number of medical devices both marketed and in development for the potential treatment of heart failure.

Our competitors may:

develop drug candidates and market drugs that are less expensive or more effective than our future drugs;

commercialize competing drugs before we or our partners can launch any drugs developed from our drug candidates;

hold or obtain proprietary rights that could prevent us from commercializing our products;

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initiate or withstand substantial price competition more successfully than we can;

more successfully recruit skilled scientific workers and management from the limited pool of available talent;

more effectively negotiate third-party licenses and strategic alliances;

take advantage of acquisition or other opportunities more readily than we can;

develop drug candidates and market drugs that increase the levels of safety or efficacy that our drug candidates will need to show in order to obtain regulatory approval; or

introduce therapies or market drugs that render the market opportunity for our potential drugs obsolete.

We will compete for market share against large pharmaceutical and biotechnology companies and smaller companies that are collaborating with larger pharmaceutical companies, new companies, academic institutions, government agencies and other public and private research organizations. Many of these competitors, either alone or together with their partners, may develop new drug candidates that will compete with ours. Many of these competitors have larger research and development programs or substantially greater financial resources than we do. Our competitors may also have significantly greater experience in:

developing drug candidates;

undertaking preclinical testing and clinical trials;

building relationships with key customers and opinion-leading physicians;

obtaining and maintaining FDA and other regulatory approvals of drug candidates;

formulating and manufacturing drugs; and

launching, marketing and selling drugs.

If our competitors market drugs that are less expensive, safer or more efficacious than our potential drugs, or that reach the market sooner than our potential drugs, we may not achieve commercial success. In addition, the life sciences industry is characterized by rapid technological change. If we fail to stay at the forefront of technological change, we may be unable to compete effectively. Our competitors may render our technologies obsolete by improving existing technological approaches or developing new or different approaches, potentially eliminating the advantages in our drug discovery process that we believe we derive from our research approach and proprietary

technologies.

We have been granted orphan designations in the U.S. and in the E.U. for tirasemtiv; however, there can be no guarantee that we will receive orphan approval for tirasemtiv, nor that we will be able to prevent third parties from developing and commercializing products that are competitive to tirasemtiv.

We have been granted orphan drug designation in the U.S. by the FDA and orphan medicinal product designation by the European Medicines Agency, in each case for tirasemtiv for the potential treatment of ALS. In the U.S., upon approval from the FDA of an NDA, products granted orphan drug approval are generally provided with seven years of marketing exclusivity in the U.S., meaning the FDA will generally not approve applications for other product candidates for the same orphan indication that contain the same active ingredient. Even if we are the first to obtain approval of an orphan product and are granted exclusivity in the U.S., there are limited circumstances under which a later competitor product may be approved for the same indication during the seven-year period of marketing exclusivity, such as if the later product is shown to be clinically superior to our product or due to an inability to assure a sufficient quantity of the orphan drug.

Orphan medicinal product status in Europe Union can provide up to 10 years of marketing exclusivity, meaning that another application for marketing authorization of a later similar medicinal product for the same

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therapeutic indication will generally not be approved in the European Union. Although we may have drug candidates that may obtain orphan drug exclusivity in Europe, the orphan approval and associated exclusivity period may be modified for several reasons, including a significant change to the orphan medicinal product designations or approval criteria after-market authorization of the orphan product (e.g., product profitability exceeds the criteria for orphan drug designation), problems with the production or supply of the orphan drug or a competitor drug, although similar, is safer, more effective or otherwise clinically superior than the initial orphan drug.

We are not guaranteed to maintain orphan status for tirasemtiv or to receive orphan status for tirasemtiv for any other indication or for any of our other drug candidates for any indication. If our drug candidates that are granted orphan status were to lose their status as orphan drugs or the marketing exclusivity provided for them in the U.S. or the European Union, our business and results of operations could be materially adversely affected. While orphan status for any of our products, if granted or maintained, would provide market exclusivity in the U.S. and the European Union for the time periods specified above, we would not be able to exclude other companies from manufacturing and/or selling products using the same active ingredient for the same indication beyond the exclusivity period applicable to our product on the basis of orphan drug status. Moreover, we cannot guarantee that another company will not receive approval before we do of an orphan drug application in the U.S. or the European Union for a product candidate that has the same active ingredient or is a similar medicinal product for the same indication as any of our drug candidates for which we plan to file for orphan designation and status. If that were to happen, our orphan drug applications for our drug candidate for that indication may not be approved until the competing company s period of exclusivity has expired in the U.S. or the European Union, as applicable. Further, application of the orphan drug regulations in the U.S. and Europe is uncertain, and we cannot predict how the respective regulatory bodies will interpret and apply the regulations to our or our competitors products.

Our failure to attract and retain skilled personnel could impair our drug development and commercialization activities.

Our business depends on the performance of our senior management and key scientific and technical personnel. The loss of the services of any member of our senior management or key scientific or technical staff may significantly delay or prevent the achievement of drug development and other business objectives by diverting management s attention to transition matters and identifying suitable replacements. We also rely on consultants and advisors to assist us in formulating our research and development strategy. All of our consultants and advisors are either self-employed or employed by other organizations, and they may have conflicts of interest or other commitments, such as consulting or advisory contracts with other organizations, that may affect their ability to contribute to us. In addition, if and as our business grows, we will need to recruit additional executive management and scientific and technical personnel. There is intense competition for skilled executives and employees with relevant scientific and technical expertise, and this competition is likely to continue. Our inability to attract and retain sufficient scientific, technical and managerial personnel could limit or delay our product development activities, which would adversely affect the development of our drug candidates and commercialization of our potential drugs and growth of our business.

Any future workforce and expense reductions may have an adverse impact on our internal programs and our ability to hire and retain skilled personnel.

Our future success will depend in large part upon our ability to attract and retain highly skilled personnel. In light of our continued need for funding and cost control, we may be required to implement future workforce and expense reductions, which could further limit our research and development activities. For example, in October 2011, we reduced our workforce by approximately 18% in order to reduce expenses and to focus resources primarily on our later-stage development programs for tirasemtiv and omecamtiv mecarbil and certain other research and development programs also directed to muscle biology. These headcount reductions and the cost control measures we have

implemented may negatively affect our productivity and limit our research and

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development activities. We may have difficulty retaining and attracting such personnel as a result of a perceived risk of future workforce reductions. In addition, the implementation of any additional workforce or expense reduction programs may divert the efforts of our management team and other key employees, which could adversely affect our business.

We may expand our development and clinical research capabilities and, as a result, we may encounter difficulties in managing our growth, which could disrupt our operations.

We may have growth in our expenditures, the number of our employees and the scope of our operations, in particular with respect to those drug candidates that we elect to develop or commercialize independently or together with a partner. To manage our anticipated future growth, we must continue to implement and improve our managerial, operational and financial systems, expand our facilities and continue to recruit and train additional qualified personnel. Due to our limited resources, we may not be able to effectively manage the expansion of our operations or recruit and train additional qualified personnel. The physical expansion of our operations may lead to significant costs and may divert our management and business development resources. Any inability to manage growth could delay the execution of our business plans or disrupt our operations.

We currently have no sales or marketing capabilities and, if we are unable to enter into or maintain strategic alliances with marketing partners or to develop our own sales and marketing capabilities, we may not be successful in commercializing our potential drugs.

We currently have no sales, marketing or distribution capabilities. We plan to commercialize drugs that can be effectively marketed and sold in concentrated markets that do not require a large sales force to be competitive. To achieve this goal, we will need to establish our own specialized sales force and marketing organization with technical expertise and supporting distribution capabilities. Developing such an organization is expensive and time-consuming and could delay a product launch. In addition, we may not be able to develop this capacity efficiently, cost-effectively or at all, which could make us unable to commercialize our drugs. If we determine not to market our drugs on our own, we will depend on strategic alliances with third parties, such as Amgen and Astellas, which have established distribution systems and direct sales forces to commercialize them. If we are unable to enter into such arrangements on acceptable terms, we may not be able to successfully commercialize these drugs. To the extent that we are not successful in commercializing any drugs ourselves or through a strategic alliance, our product revenues and business will suffer and our stock price would decrease.

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

Despite the implementation of security measures, our internal computer systems and those of our CROs, CMOs, and other contractors and consultants are vulnerable to damage from computer viruses, unauthorized access, natural disasters, terrorism, war and telecommunication and electrical failures. While we have not experienced any such 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 drug development programs. For example, the loss of clinical study data from completed or ongoing clinical studies for any of our drug 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 were to result in a loss of or damage to our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability and the further development of our product candidates could be delayed.

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We are obligated to develop and maintain proper and effective internal control over financial reporting. In the future, we may not complete our execution of our internal control over financial reporting in a timely manner, or these internal controls may not be determined to be effective, which may result in additional material misstatements in our consolidated financial statements and may adversely affect investor confidence in our company and, as a result, the value of our common stock.

We are required, pursuant to Section 404 of the Sarbanes-Oxley Act, to furnish a report by management on, among other things, the effectiveness of our internal control over financial reporting.

Complying with Section 404 requires a rigorous compliance program as well as adequate time and resources. We may not be able to complete our internal control evaluation, testing and any required remediation in a timely fashion. Additionally, if we identify one or more material weaknesses in our internal control over financial reporting, we will not be able to assert that our internal controls are effective. For example, our management concluded that our internal controls over financial reporting were not effective as of September 30, 2016, because a material weakness existed in our internal control over financial reporting related to research and development expenses associated with the review of clinical trial expenses incurred under our clinical research organization trial agreements, including in part, our review of information received from third party service providers that is used in the operation of this control. Even though we remediated this material weakness as of December 31, 2016, if other material weaknesses are identified in the future or we are not able to comply with the requirements of Section 404 in a timely manner, our reported financial results could be materially misstated, we would receive an adverse opinion regarding our internal controls over financial reporting from our independent registered public accounting firm, and we could be subject to investigations or sanctions by regulatory authorities, which would require additional financial and management resources, and the value of our common stock could decline. In addition, because we have concluded that our internal control over financial reporting were not effective as of September 30, 2016, and to the extent we identify future weaknesses or deficiencies, there could be material misstatements in our consolidated financial statements and we could fail to meet our financial reporting obligations. As a result, our ability to obtain additional financing, or obtain additional financing on favorable terms, could be materially and adversely affected which, in turn, could materially and adversely affect our business, our financial condition and the value of our common stock. If we are unable to assert that our internal control over financial reporting is effective in the future, or if our independent registered public accounting firm is unable to express an opinion or expresses an adverse opinion on the effectiveness of our internal controls in the future, investor confidence in the accuracy and completeness of our financial reports could be further eroded, which would have a material adverse effect on the price of our common stock.

Our reported financial results may be adversely affected by changes in accounting principles generally accepted in the U.S.

We prepare our financial statements in conformity with accounting principles generally accepted in the U.S. These accounting principles are subject to interpretation by the Financial Accounting Standards Board (FASB) and the Securities and Exchange Commission. A change in these policies or interpretations could have a significant effect on our reported financial results, may retroactively affect previously reported results, could cause unexpected financial reporting fluctuations, and may require us to make costly changes to our operational processes and accounting systems. In May 2014, the FASB issued ASU 2014-09, Revenue from Contracts with Customers which supersedes nearly all existing U.S. GAAP revenue recognition guidance. The new standard will become effective for us on January 1, 2018. Early application is permitted to the original effective date of January 1, 2017. Although we are continuing to assess all potential impacts of the standard on our financial statements or disclosures, it could change the way we account for certain of our revenue transactions, including the timing of recognition of our license and collaboration revenues. Adoption of the standard could have a significant impact on our financial statements and may retroactively affect the accounting treatment of transactions completed before adoption. See Note 1 Recent

Accounting Pronouncements for additional discussion of the accounting changes.

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Risks Related To Our Industry

The regulatory approval process is expensive, time-consuming and uncertain and may prevent our partners or us from obtaining approvals to commercialize some or all of our drug candidates.

The research, testing, manufacturing, selling and marketing of drugs are subject to extensive regulation by the FDA and other regulatory authorities in the United States and other countries, and regulations differ from country to country. Neither we nor our partners are permitted to market our potential drugs in the United States until we receive approval of a new drug application (NDA) from the FDA. Neither we nor our partners have received NDA or other marketing approval for any of our drug candidates.

Obtaining NDA approval is a lengthy, expensive and uncertain process. In addition, failure to comply with FDA and other applicable foreign and U.S. regulatory requirements may subject us to administrative or judicially imposed sanctions. These include warning letters, civil and criminal penalties, injunctions, product seizure or detention, product recalls, total or partial suspension of production, and refusal to approve pending NDAs or supplements to approved NDAs.

Regulatory approval of an NDA or NDA supplement is never guaranteed, and the approval process typically takes several years and is extremely expensive. The FDA and foreign regulatory agencies also have substantial discretion in the drug approval process, and the guidance and advice issued by such agencies is subject to change at any time. Despite the time and efforts exerted, failure can occur at any stage, and we may encounter problems that cause us to abandon clinical trials or to repeat or perform additional preclinical testing and clinical trials. The number and focus of preclinical studies and clinical trials that will be required for approval by the FDA and foreign regulatory agencies varies depending on the drug candidate, the disease or condition that the drug candidate is designed to address, and the regulations applicable to any particular drug candidate. In addition, the FDA may require that a proposed Risk Evaluation and Mitigation Strategy, also known as a REMS, be submitted as part of an NDA if the FDA determines that it is necessary to ensure that the benefits of the drug outweigh its risks. The FDA and foreign regulatory agencies can delay, limit or deny approval of a drug candidate for many reasons, including, but not limited to:

- they might determine that a drug candidate is not safe or effective;
- they might not find the data from nonclinical testing and clinical trials sufficient and could request that additional trials be performed;
- they might not approve our, our partner s or the contract manufacturer s processes or facilities; or
- they might change their approval policies or adopt new regulations.

Even if we receive regulatory approval to manufacture and sell a drug in a particular regulatory jurisdiction, other jurisdictions regulatory authorities may not approve that drug for manufacture and sale. If we or our partners fail to receive and maintain regulatory approval for the sale of any drugs resulting from our drug candidates, it would significantly harm our business and negatively affect our stock price.

If we or our partners receive regulatory approval for our drug candidates, we or they will be subject to ongoing obligations to and continued regulatory review by the FDA and foreign regulatory agencies, and may be subject to additional post-marketing obligations, all of which may result in significant expense and limit commercialization of our potential drugs.

Any regulatory approvals that we or our partners receive for our drug candidates may be subject to limitations on the indicated uses for which the drug may be marketed or require potentially costly post-marketing follow-up studies or compliance with a REMS. In addition, if the FDA or foreign regulatory agencies approves any of our drug candidates, the labeling, packaging, adverse event reporting, storage, advertising, promotion and record-keeping for the drug will be subject to extensive regulatory requirements. The subsequent discovery of previously unknown problems with the drug, including adverse events of unanticipated severity or frequency, or

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the discovery that adverse events or toxicities observed in preclinical research or clinical trials that were believed to be minor actually constitute much more serious problems, may result in restrictions on the marketing of the drug or withdrawal of the drug from the market.

The FDA and foreign regulatory agencies may change their policies and additional government regulations may be enacted that could prevent or delay regulatory approval of our drug candidates. We cannot predict the likelihood, nature or extent of adverse government regulation that may arise from future legislation or administrative action, either in the United States or abroad. If we are not able to maintain regulatory compliance, we might not be permitted to market our drugs and our business would suffer.

If physicians and patients do not accept our drugs, we may be unable to generate significant revenue, if any.

Even if our drug candidates obtain regulatory approval, the resulting drugs, if any, may not gain market acceptance among physicians, healthcare payors, patients and the medical community. Even if the clinical safety and efficacy of drugs developed from our drug candidates are established for purposes of approval, physicians may elect not to recommend these drugs for a variety of reasons including, but not limited to:

- introduction of competitive drugs to the market;
- clinical safety and efficacy of alternative drugs or treatments;
- cost-effectiveness;
- availability of coverage and reimbursement from health maintenance organizations and other third-party payors;
- convenience and ease of administration;
- prevalence and severity of adverse events;
- other potential disadvantages relative to alternative treatment methods; or
- insufficient marketing and distribution support.

If our drugs fail to achieve market acceptance, we may not be able to generate significant revenue and our business would suffer.

The coverage, reimbursement status and pricing of newly approved drugs is uncertain and failure to obtain adequate coverage and reimbursement could limit our ability to market any drugs we may develop and decrease our ability to generate revenue.

Even if one or more of our drug candidates is approved for sale, the commercial success of our drugs in both domestic and international markets will be substantially dependent on whether third-party coverage and reimbursement is available for our drugs by the medical profession for use by their patients, which is highly uncertain. Medicare, Medicaid, health maintenance organizations and other third-party payors are increasingly attempting to contain healthcare costs by limiting both coverage and the level of reimbursement of new drugs. As a result, they may not cover or provide adequate payment for our drugs. They may not view our drugs as cost-effective and reimbursement may not be available to consumers or may be insufficient to allow our drugs to be marketed on a competitive basis. If we are unable to obtain adequate coverage and reimbursement for our drugs, our ability to generate revenue will be adversely affected. Likewise, current and future legislative or regulatory efforts to control or reduce healthcare costs or reform government healthcare programs could result in lower prices or rejection of coverage and reimbursement for our potential drugs. Changes in coverage and reimbursement policies or healthcare cost containment initiatives that limit or restrict reimbursement for any of our drug candidates that are approved could cause our potential future revenues to decline. In January 2017, Congress voted to adopt a budget resolution for fiscal year 2017, or the Budget Resolution, that authorizes the

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implementation of legislation that would repeal portions of Affordable Care Act. The Budget Resolution is not a law; however, it is widely viewed as the first step toward the passage of legislation that would repeal certain aspects of Affordable Care Act. Further, on January 20, 2017, President Trump signed an Executive Order directing federal agencies with authorities and responsibilities under Affordable Care Act to waive, defer, grant exemptions from, or delay the implementation of any provision of Affordable Care Act that would impose a fiscal or regulatory burden on states, individuals, healthcare providers, health insurers, or manufacturers of pharmaceuticals or medical devices. Congress also could consider subsequent legislation to replace elements of Affordable Care Act that are repealed.

We may be subject to costly product liability or other liability claims and may not be able to obtain adequate insurance.

The use of our drug candidates in clinical trials may result in adverse events. We cannot predict all the possible harms or adverse events that may result from our clinical trials. We currently maintain limited product liability insurance. We may not have sufficient resources to pay for any liabilities resulting from a personal injury or other claim excluded from, or beyond the limit of, our insurance coverage. Our insurance does not cover third parties negligence or malpractice, and our clinical investigators and sites may have inadequate insurance or none at all. In addition, in order to conduct clinical trials or otherwise carry out our business, we may have to contractually assume liabilities for which we may not be insured. If we are unable to look to our own or a third party s insurance to pay claims against us, we may have to pay any arising costs and damages ourselves, which may be substantial.

In addition, if we commercially launch drugs based on our drug candidates, we will face even greater exposure to product liability claims. This risk exists even with respect to those drugs that are approved for commercial sale by the FDA and foreign regulatory agencies and manufactured in licensed and regulated facilities. We intend to secure additional limited product liability insurance coverage for drugs that we commercialize, but may not be able to obtain such insurance on acceptable terms with adequate coverage, or at reasonable costs. Even if we are ultimately successful in product liability litigation, the litigation would consume substantial amounts of our financial and managerial resources and may create adverse publicity, all of which would impair our ability to generate sales of the affected product and our other potential drugs. Moreover, product recalls may be issued at our discretion or at the direction of the FDA and foreign regulatory agencies, other governmental agencies or other companies having regulatory control for drug sales. Product recalls are generally expensive and often have an adverse effect on the reputation of the drugs being recalled and of the drug s developer or manufacturer.

We may be required to indemnify third parties against damages and other liabilities arising out of our development, commercialization and other business activities, which could be costly and time-consuming and distract management. If third parties that have agreed to indemnify us against damages and other liabilities arising from their activities do not fulfill their obligations, then we may be held responsible for those damages and other liabilities.

Our relationships with customers, healthcare providers, clinical trial sites and professionals and third-party payors will be subject to applicable anti-kickback, fraud and abuse and other laws and regulations, which could expose us to criminal sanctions, civil penalties, contractual damages, reputational harm and diminished profits and future earnings.

Healthcare providers, physicians and third-party payors play a primary role in the recommendation and prescription of any drug candidates for which we may obtain marketing approval. Our arrangements with customers, healthcare providers and professionals and third-party payors may expose us to broadly applicable fraud and abuse and other healthcare laws and regulations that may constrain the business or financial arrangements and relationships through which we develop, and may market, sell and distribute, our products for

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which we obtain marketing approval. Restrictions under applicable federal and state healthcare laws and regulations, include, but are not limited to, the following:

The federal healthcare anti-kickback statute prohibits, among other things, persons from knowingly and willfully soliciting, offering, receiving or providing remuneration, directly or indirectly, in cash or in kind, to induce or reward either the referral of an individual for, or the purchase, order or recommendation of, any good or service, for which payment may be made under federally funded healthcare programs such as Medicare and Medicaid. This statute has been broadly interpreted to apply to manufacturer arrangements with prescribers, purchasers and formulary managers, among others. Several other countries, including the United Kingdom, have enacted similar anti-kickback, fraud and abuse, and healthcare laws and regulations.

The federal False Claims Act imposes civil penalties, including civil whistleblower or qui tam actions, against individuals or entities for knowingly presenting, or causing to be presented, to the federal government, claims for payment that are false or fraudulent or making a false statement to avoid, decrease or conceal an obligation to pay money to the federal government. The government and qui tam relators have brought False Claims Act actions against pharmaceutical companies on the theory that their practices have caused false claims to be submitted to the government. There is also a separate false claims provision imposing criminal penalties.

The federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, imposes criminal and civil liability for executing a scheme to defraud any healthcare benefit program. HIPAA also imposes obligations, including mandatory contractual terms, with respect to safeguarding the privacy, security and transmission of individually identifiable health information. HIPAA also imposes criminal liability for knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false statement in connection with the delivery of or payment for healthcare benefits, items or services.

The federal Physician Payments Sunshine Act requires manufacturers of drugs, devices, biologics and medical supplies to report to the Department of Health and Human Services information related to payments and other transfers of value made to or at the request of covered recipients, such as physicians and teaching hospitals, and physician ownership and investment interests in such manufacturers. Payments made to physicians and research institutions for clinical trials are included within the ambit of this law.

Analogous state laws and regulations, such as state anti-kickback and false claims laws, may apply to sales or marketing arrangements and claims involving healthcare items or services reimbursed by non-governmental third-party payors, including private insurers, and some state laws require pharmaceutical companies to comply with the pharmaceutical industry s voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government in addition to requiring drug manufacturers to report information related to payments to physicians and other health care providers or marketing expenditures.

Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. It is possible that governmental authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our operations are found to be in violation of any of these laws or any

other governmental regulations that may apply to us, we may be subject to significant civil, criminal and administrative penalties, damages, fines, exclusion from government funded healthcare programs, such as Medicare and Medicaid, and the curtailment or restructuring of our operations. Exclusion, suspension and debarment from government funded healthcare programs would significantly impact our ability to commercialize, sell or distribute any drug. If any of the physicians or other providers or entities with whom we expect to do business are found to be not in compliance with applicable laws, they may be subject to criminal, civil or administrative sanctions, including exclusions from government funded healthcare programs.

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In addition, health care providers in the United States, including research institutions from which we or our partners obtain patient information, are subject to privacy rules under HIPAA and state and local privacy laws. In the European Union, these entities are subject to the Directive 95/46-EC of the European Parliament on the protection of individuals with regard to the processing of personal data and individual European Union member states implementing additional legislation. Other countries have similar privacy legislation. We could face substantial penalties if we knowingly receive individually identifiable health information from a health care provider that has not satisfied the applicable privacy laws. In addition, certain privacy laws and genetic testing laws may apply directly to our operations and/or those of our partners and may impose restrictions on the use and dissemination of individuals health information and use of biological samples.

Responding to any claims relating to improper handling, storage or disposal of the hazardous chemicals and radioactive and biological materials we use in our business could be time-consuming and costly.

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

Our facilities in California are located near an earthquake fault, and an earthquake or other types of natural disasters, catastrophic events or resource shortages could disrupt our operations and adversely affect our results.

All of our facilities and our important documents and records, such as hard and electronic copies of our laboratory books and records for our drug candidates and compounds and our electronic business records, are located in our corporate headquarters at a single location in South San Francisco, California near active earthquake zones. If a natural disaster, such as an earthquake or flood, a catastrophic event such as a disease pandemic or terrorist attack, or a localized extended outage of critical utilities or transportation systems occurs, we could experience a significant business interruption. Our partners and other third parties on which we rely may also be subject to business interruptions from such events. In addition, California from time to time has experienced shortages of water, electric power and natural gas. Future shortages and conservation measures could disrupt our operations and cause expense, thus adversely affecting our business and financial results.

Risks Related To an Investment in Our Securities

We expect that our stock price will fluctuate significantly, and you may not be able to resell your shares at or at or above your investment price.

The stock market, particularly in recent years, has experienced significant volatility, particularly with respect to pharmaceutical, biotechnology and other life sciences company stocks, which often does not relate to the operating performance of the companies represented by the stock. Factors that could cause volatility in the market price of our common stock include, but are not limited to:

announcements concerning any of the clinical trials for our drug candidates, such as tirasemtiv for the potential treatment of ALS, CK-2127107 for the potential treatment of SMA, COPD, ALS or other indications

associated with muscle weakness and omecamtiv mecarbil for the potential treatment of heart failure (including, but not limited to, the timing of initiation or completion of such trials and the results of such trials, and delays or discontinuations of such trials, including delays resulting from slower than expected or suspended patient enrollment or discontinuations resulting from a failure to meet pre-defined clinical end points);

announcements concerning our strategic alliance with Amgen or Astellas or future strategic alliances;

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failure or delays in entering additional drug candidates into clinical trials;

failure or discontinuation of any of our research programs;

issuance of new or changed securities analysts reports or recommendations;

failure or delay in establishing new strategic alliances, or the terms of those alliances;

market conditions in the pharmaceutical, biotechnology and other healthcare-related sectors;

actual or anticipated fluctuations in our quarterly financial and operating results;

developments or disputes concerning our intellectual property or other proprietary rights;

introduction of technological innovations or new products by us or our competitors;

issues in manufacturing, packaging, labeling and distribution of our drug candidates or drugs;

market acceptance of our drugs;

third-party healthcare coverage and reimbursement policies;

FDA or other U.S. or foreign regulatory actions affecting us or our industry;

litigation or public concern about the safety of our drug candidates or drugs;

additions or departures of key personnel;

substantial sales of our common stock by our existing stockholders, whether or not related to our performance;

automated trading activity by algorithmic and high-frequency trading programs; and

volatility in the stock prices of other companies in our industry or in the stock market generally.

These and other external factors may cause the market price and demand for our common stock to fluctuate substantially, which may limit or prevent investors from readily selling their shares of common stock and may otherwise negatively affect the liquidity of our common stock. In addition, when the market price of a stock has been volatile, holders of that stock have instituted securities class action litigation against the company that issued the stock. If any of our stockholders brought a lawsuit against us, we could incur substantial costs defending the lawsuit. Such a lawsuit could also divert our management s time and attention.

If the ownership of our common stock continues to be highly concentrated, it may prevent you and other stockholders from influencing significant corporate decisions and may result in conflicts of interest that could cause our stock price to decline.

As of February 23, 2017, our executive officers, directors and their affiliates beneficially owned or controlled approximately 10.8% of the outstanding shares of our common stock (after giving effect to the exercise of all outstanding vested and unvested options, restricted stock units and warrants). Accordingly, these executive officers, directors and their affiliates, acting as a group, will have substantial 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 transactions. These stockholders may also delay or prevent a change of control of us, even if such a change of control would benefit our other stockholders. The significant 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.

Volatility in the stock prices of other companies may contribute to volatility in our stock price.

The stock market in general, and the NASDAQ stock exchanges and the market for technology companies in particular, have experienced significant price and volume fluctuations that have often been unrelated or

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disproportionate to the operating performance of those companies. Further, there has been particular volatility in the market prices of securities of early stage and clinical stage life sciences companies. These broad market and industry factors may seriously harm the market price of our common stock, regardless of our operating performance. In the past, following periods of volatility in the market price of a company s securities, securities class action litigation has often been instituted. A securities class action suit against us could result in substantial costs, potential liabilities and the diversion of management s attention and resources, and could harm our reputation and business.

Our common stock is thinly traded and there may not be an active, liquid trading market for our common stock.

There is no guarantee that an active trading market for our common stock will be maintained on NASDAQ, or that the volume of trading will be sufficient to allow for timely trades. Investors may not be able to sell their shares quickly or at the latest market price if trading in our stock is not active or if trading volume is limited. In addition, if trading volume in our common stock is limited, trades of relatively small numbers of shares may have a disproportionate effect on the market price of our common stock.

Our stockholders will experience substantial additional dilution if outstanding options or warrants are exercised for common stock.

As of February 23, 2017, there were 4,205,072 shares of common stock issuable upon the exercise of warrants, having a weighted average exercise price of $5.31 per share, and 5,294,149 shares of common stock issuable upon the exercise of stock options outstanding, having a weighted average exercise price of $10.14 per share. The exercise of outstanding options or warrants for common stock would be substantially dilutive to the outstanding shares of common stock. Any dilution or potential dilution may cause our stockholders to sell their shares, which would contribute to a downward movement in the stock price of our common stock.

Ownership changes may limit our ability to use our net operating losses and tax credits in the future.

In general, under Section 382 of the Internal Revenue Code (Section 382), a corporation that undergoes an ownership change is subject to limitations on its ability to utilize its pre-change net operating losses and tax credits to offset future taxable income. We have performed a Section 382 analysis as of December 31, 2016 and do not believe that we have experienced an ownership change since 2006. A portion of our existing net operating losses and tax credits are subject to limitations arising from previous ownership changes. Future changes in our stock ownership, some of which are outside of our control, could result in an ownership change under Section 382 and result in additional limitations. We intend to continue to monitor public filings made by third parties with the SEC to assess whether an ownership change under Section 382 has occurred. Our ability to accurately assess any such ownership change is limited by the timeliness and accuracy of these public filings.

Evolving regulation of corporate governance and public disclosure may result in additional expenses, use of resources and continuing uncertainty.

Changing laws, regulations and standards relating to corporate governance and public disclosure, including the Sarbanes-Oxley Act of 2002, the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 and new SEC regulations and NASDAQ Stock Market LLC rules create uncertainty for public companies. We regularly evaluate and monitor developments with respect to new and proposed laws, regulations and standards. We cannot accurately predict or estimate the amount of the additional costs we may incur in connection with complying with such laws, regulations and standards or the timing of these costs. For example, compliance with the internal control requirements of Section 404 of the Sarbanes-Oxley Act has to date required us to commit significant resources to document and test the adequacy of our internal control over financial reporting. We can provide no assurance as to conclusions of

management or by our independent registered public accounting firm with respect to the effectiveness of our internal control over financial reporting in the future. In addition, the SEC

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has adopted regulations that require us to file corporate financial statement information in an interactive data format known as XBRL. We may incur significant costs and need to invest considerable resources to remain in compliance with these regulations.

These new or changed laws, regulations and standards are subject to varying interpretations, in many cases due to their lack of specificity, and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices.

We intend to maintain high standards of corporate governance and public disclosure. As a result, we intend to invest the resources necessary to comply with evolving laws, regulations and standards, and this investment may result in increased general and administrative expenses and a diversion of management time and attention from revenue-generating activities to compliance activities. If our efforts to comply with new or changed laws, regulations and standards differ from the activities intended by regulatory or governing bodies, due to ambiguities related to practice or otherwise, regulatory authorities may initiate legal proceedings against us, which could be costly and time-consuming, and our reputation and business may be harmed.

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

We have paid no cash dividends on any of our classes of capital stock to date and we currently intend to retain our future earnings, if any, to fund the development and growth of our businesses. In addition, the terms of existing or any future debts may preclude us from paying these dividends.

Item 1B. ***Unresolved Staff Comments***

None.

It em 2. ***Properties***

Our facilities consist of approximately 81,587 square feet of research and office space. We lease 50,195 square feet located at 280 East Grand Avenue, and 31,392 square feet at 256 East Grand Avenue, in South San Francisco, California until 2018 with an option to renew the lease for an additional three years. We believe that these facilities are suitable and adequate for our current needs.

Item 3. ***Legal Proceedings***

On November 28, 2014, Pharm-Olam International, Ltd. (Pharm-Olam) filed a lawsuit in the U.S. District Court for the Middle District of North Carolina, captioned Pharm-Olam International, Ltd. v. Cytokinetics, Inc. and Datatrak International, Inc., Civil Action No. 1:14-cv-01000 (the North Carolina Lawsuit) in connection with its performance as the Contract Research Organization for the BENEFIT-ALS clinical trial. On September 16, 2015, the U.S. District Court for the Middle District of North Carolina dismissed the North Carolina lawsuit.

On December 1, 2014, we filed a lawsuit in the U.S. District Court for the Northern District of California, captioned Cytokinetics, Inc. v. Pharm-Olam International, Ltd., Case No. 3:14-cv-05256-JCS (the California Lawsuit). This lawsuit alleged fraudulent inducement, breach of contract and negligence by Pharm-Olam in connection with its performance as the Contract Research Organization for the BENEFIT-ALS clinical trial. We sought monetary damages from Pharm-Olam. Pharm-Olam answered the complaint on March 24, 2015. Datatrak International, Inc.

(Datatrak) filed a motion to intervene as a new party plaintiff on June 5, 2015, which the court granted on July 1, 2015. Datatrak sought a declaratory judgment that the indemnification provision of the agreement between Pharm-Olam and Datatrak did not require Datatrak to indemnify Pharm-Olam for the claims asserted against Pharm-Olam by Cytokinetics.

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On or around June 7, 2016, the Company, Pharm-Olam, and Datatrak entered into a Settlement Agreement and Mutual Waiver and General Release of All Claims in the California Lawsuit, thereby resolving all disputes among the parties. The Settlement Agreement includes no admission of liability or wrongdoing by any party. The Court granted the parties joint request for dismissal with prejudice on July 11, 2016. Refer to Note 10, Commitments and Contingencies in the Notes to the Audited Condensed Consolidated Financial Statements and the settlement agreement in June 2016.

Item 4. ***Mine Safety Disclosures***

Not applicable.

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PART II

Item 5. ***Market for Registrant s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities***

Prior to our initial public offering on April 29, 2004, there was no public market for our common stock. Our common stock was quoted under the symbol CYTK on the NASDAQ Global Market from the date of our initial public offering through December 19, 2012, and has since been quoted on the NASDAQ Capital Market. The following table sets forth the high and low closing sales price per share of our common stock as reported on the NASDAQ Global Market or NASDAQ Capital Market, as applicable, for the periods indicated.

	Closing Sale Price	
	High	Low
2015:		
First Quarter	$ 8.17	$ 6.25
Second Quarter	$ 7.43	$ 5.51
Third Quarter	$ 7.79	$ 6.01
Fourth Quarter	$ 12.95	$ 6.60
2016:		
First Quarter	$ 10.60	$ 6.17
Second Quarter	$ 9.49	$ 7.18
Third Quarter	$ 12.26	$ 8.55
Fourth Quarter	$ 12.55	$ 8.83

On February 23, 2017, the last reported sale price for our common stock on the NASDAQ Capital Market was $10.15 per share. We currently expect to retain future earnings, if any, for use in the operation and expansion of our business and have not paid and do not in the foreseeable future anticipate paying any cash dividends. As of February 23, 2017, there were 60 holders of record of our common stock.

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Equity Compensation Information

Information regarding our equity compensation plans and the securities authorized for issuance thereunder is set forth in Part III, Item 12.

Comparison of Historical Cumulative Total Return Among Cytokinetics, Incorporated, the NASDAQ Stock Market (U.S.) Index and the NASDAQ Biotechnology Index (*)

(*) The above graph shows the cumulative total stockholder return of an investment of $100 in cash from December 31, 2011 through December 31, 2016 for: (i) our common stock; (ii) the NASDAQ Stock Market (U.S.) Index; and (iii) the NASDAQ Biotechnology Index. All values assume reinvestment of the full amount of all dividends. Stockholder returns over the indicated period should not be considered indicative of future stockholder returns.

	12/31/11	12/31/12	12/31/13	12/31/14	12/31/15	12/31/16
Cytokinetics, Incorporated	$ 100.00	$ 68.75	$ 112.85	$ 139.06	$ 181.60	$ 210.94
NASDAQ Composite Index	$ 100.00	$ 115.91	$ 160.32	$ 181.80	$ 192.21	$ 206.63
NASDAQ Biotechnology Index	$ 100.00	$ 131.91	$ 218.45	$ 292.93	$ 326.39	$ 255.62

The information contained under this caption Comparison of Historical Cumulative Total Return Among Cytokinetics, Incorporated, the NASDAQ Stock Market (U.S.) Index and the NASDAQ Biotechnology Index shall not be deemed to be soliciting material or to be filed with the SEC, nor shall such information be incorporated by reference into any future filing under the Securities Act or the Exchange Act, except to the extent that we specifically incorporate it by reference into such filing.

Sales of Unregistered Securities

On December 26, 2014, we sold 2,040,816 shares of our common stock at a price per share of $4.90 and an aggregate purchase price of $10.0 million to Astellas.

We relied on the exemption from registration contained in Section 4(2) of the Securities Act, and Regulation D, Rule 506 thereunder, in connection with the issuance and sale of the common stock to Astellas.

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Item 6. ***Selected Financial Data***

The following selected financial data should be read in conjunction with Item 7, Management s Discussion and Analysis of Financial Condition and Results of Operations and Item 8, Financial Statements and Supplemental Data of this report on Form 10-K.

	Year Ended December 31,				
	2016	2015	2014	2013	2012
	(In thousands, except per share amounts)				
Statement of Operations Data:					
Revenues:					
Research and development revenues from related parties, net (1)	$ 42,994	$ 14,665	$ 19,538	$ 2,019	$ 4,177
Research and development, grant and other revenues	1,242	75	17,566	7,547	3,382
License revenues from related parties (1)	62,171	13,918		17,230	
License revenues			9,836	3,852	
Total revenues	106,407	28,658	46,940	30,648	7,559
Operating expenses:					
Research and development	59,897	46,398	44,426	49,450	35,643
General and administrative	27,823	19,667	17,268	15,092	12,429
Restructuring charges (reversals)					(56)
Total operating expenses	87,720	66,065	61,694	64,542	48,016
Operating income (loss)	18,687	(37,407)	(14,754)	(33,894)	(40,457)
Interest and other income (expense), net	(2,234)	(94)	108	177	87
Income (loss) before income taxes	16,453	(37,501)	(14,646)	(33,717)	(40,370)
Income tax provision (benefit)					
Net income (loss)	16,453	(37,501)	(14,646)	(33,717)	(40,370)
Deemed dividend related to beneficial conversion feature of convertible preferred stock					(1,307)
Net income (loss) allocable to common stockholders:	$ 16,453	$ (37,501)	$ (14,646)	$ (33,717)	$ (41,677)
Net income (loss) per share allocable to common stockholders:(2)					
Basic	$ 0.41	$ (0.97)	$ (0.41)	$ (1.24)	$ (2.30)
Diluted	$ 0.39	$ (0.97)	$ (0.41)	$ (1.24)	$ (2.30)
Weighted average shares used in computing net income (loss) per share allocable to common					

stockholders:(3)					
Basic	39,943	38,814	35,709	27,275	18,107
Diluted	42,561	38,814	35,709	27,275	18,107

	As of December 31,				
	2016	2015	2014	2013	2012
	(In thousands)				
Balance Sheet Data:					
Cash and cash equivalents, and investments	$ 163,921	$ 111,621	$ 83,228	$ 80,230	$ 74,000
Working capital	125,375	81,458	107,276	52,634	69,322
Total assets	170,142	115,237	132,968	83,188	77,551
Long-term debt	27,381	14,639			
Accumulated deficit	(518,291)	(534,744)	(497,243)	(482,597)	(448,880)
Total stockholders equity(2)	94,361	68,590	92,064	54,442	70,085

(1) Revenues from related parties consisted of revenues recognized under our research and development arrangements with related parties, including Amgen and Astellas. See Note 7, Related Parties and Related Party Transactions in the Notes to Consolidated Financial Statements for further details.

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(2) On June 24, 2013, we effected a one-for-six reverse stock split of our common stock through an amendment to our amended and restated certificate of incorporation (the COI Amendment). As of the effective time of the reverse stock split, every six shares of our issued and outstanding common stock were converted into one issued and outstanding share of common stock, without any change in par value per share. The reverse stock split affected all shares of our common stock outstanding immediately prior to the effective time of the reverse stock split, as well as the number of shares of common stock available for issuance under equity incentive plans. In addition, the reverse stock split effected a reduction in the number of shares of common stock issuable upon the conversion of shares of preferred stock or upon the exercise of stock options or warrants outstanding immediately prior to the effectiveness of the reverse stock split. No fractional shares were issued as a result of the reverse stock split. Stockholders who would otherwise have been entitled to receive a fractional share received cash payments in lieu thereof. In addition, the COI Amendment reduced the number of authorized shares of common stock to 81.5 million.

All references to shares of common stock and per share data for all periods presented in the accompanying selected financial data have been adjusted to reflect the reverse stock split on a retroactive basis.

(3) In June 2012, we issued to various investors (i) 9,320,176 shares of common stock for a purchase price of $4.56 per share, (ii) 23,026 shares of Series B convertible preferred stock for a purchase price of $760.00 per share, and (iii) warrants to purchase 7,894,704 shares of common stock at an exercise price of $5.28 per share, for aggregate gross proceeds of approximately $60.0 million. In 2012, we sold 432,724 shares of common stock through MLV for net proceeds of $2.8 million. In June 2013, we sold 1,404,100 shares of common stock to Amgen at a price per share of $7.12 and an aggregate purchase price of $10.0 million, pursuant to the Amgen Agreement Amendment. In 2013, we sold 1,170,583 shares of common stock through MLV for net proceeds of $7.5 million. In January, 2014 we sold 364,103 shares of common stock through MLV for net proceeds of $2.4 million. In February 2014, we sold 5,031,250 shares of common stock through an underwritten public offering at a price per share of $8.00 and net proceeds of $37.5 million. In December 2014, we sold 2,040,816 shares of common stock to Astellas at a price per share of $4.90 and an aggregate purchase price of $10.0 million. The 1,114,168 warrants issued in 2011 to Deerfield, expired unexercised on April 20, 2015. In 2015, we sold 808,193 shares of common stock through Cantor pursuant to the CE Offering Sales Agreement for net proceeds of $8.7 million. From January 1, 2017 to February 23, 2017, we sold 185,215 shares of common stock through Cantor pursuant to the CE Offering Sales Agreement for net proceeds of $2,1 million. See Note 11, Stockholders Equity in the Notes to Consolidated Financial Statements for further details.

Item 7. ***Management s Discussion and Analysis of Financial Condition and Results of Operations***

This discussion and analysis should be read in conjunction with our financial statements and accompanying notes included elsewhere in this report. Operating results are not necessarily indicative of results that may occur in future periods.

Overview

We were incorporated in Delaware in August 1997 as Cytokinetics, Incorporated. We are a late-stage biopharmaceutical company focused on the discovery and development of first-in-class muscle activators as potential treatments for debilitating diseases in which muscle performance is compromised and/or declining. Our research and development activities relating to the biology of muscle function have evolved from our knowledge and expertise regarding the cytoskeleton, a complex biological infrastructure that plays a fundamental role within every human cell. Our most advanced research and development programs relate to the biology of muscle function and are directed to

small molecule modulators of the contractility of skeletal or cardiac muscle. We are also conducting earlier-stage research directed to other compounds with the potential to modulate muscle contractility and other muscle functions, such as growth, energetics and metabolism.

Our drug candidates currently in clinical development are our fast skeletal troponin activators tirasemtiv and CK-2127107, and our cardiac muscle activator omecamtiv mecarbil. Tirasemtiv is being evaluated for the

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potential treatment of amyotrophic lateral sclerosis (ALS). CK-2127107 is being evaluated for the potential treatment of spinal muscle atrophy (SMA) and chronic obstructive pulmonary disease (COPD) and for potential use in other indications associated with muscle weakness (including ALS) under a strategic alliance with Astellas Pharma Inc. (Astellas) established in 2013 and expanded in 2014 and 2016. Omecamtiv mecarbil is being evaluated for the potential treatment of heart failure under a strategic alliance with Amgen established in 2006.

Muscle Contractility Programs

Skeletal Muscle Contractility Program

Tirasemtiv is our lead drug candidate from this program. We retain exclusive rights to tirasemtiv, subject to Astellas exercise of its option for a license to tirasemtiv (see *Astellas Option on Tirasemtiv* below). We conducted a Phase 2 clinical development program for tirasemtiv, and we started a Phase 3 clinical development program for this drug candidate in patients with ALS in July 2015 known as VITALITY-ALS (Ventilatory Investigation of Tirasemtiv and Assessment of Longitudinal Indices after Treatment for a Year in ALS). Tirasemtiv has been granted orphan drug designation and fast track status by the FDA and orphan medicinal product designation by the European Medicines Agency, in each case for the potential treatment of ALS.

In collaboration with Astellas, we are also developing another drug candidate from this program, CK-2127107, for potential indications associated with muscle weakness. We started a Phase 2 clinical trial for CK-2127107 in patients with SMA in December 2015. Astellas, in collaboration with Cytokinetics, started a Phase 2 clinical trial of CK-2127107 in patients with COPD in June 2016. Tirasemtiv and CK-2127107 are structurally distinct and selective small molecules that activate the fast skeletal troponin complex in the sarcomere by increasing its sensitivity to calcium, leading to an increase in skeletal muscle contractility. Each of tirasemtiv and CK-2127107 has demonstrated pharmacological activity in preclinical models and evidence of potentially clinically relevant pharmacodynamic effects in humans. We are evaluating other potential indications for which tirasemtiv and CK-2127107 may be useful.

Tirasemtiv

Further details regarding tirasemtiv and VITALITY-ALS can be found in Item 1 of this report under Research and Development Programs Skeletal Muscle Contractility Program Tirasemtiv.

The clinical trials program for tirasemtiv may proceed for several years, and we will not be in a position to generate any revenues or material net cash flows from sales of this drug candidate until the program is successfully completed, regulatory approval is achieved, and the drug is commercialized. Tirasemtiv is at too early a stage of development for us to predict if or when this may occur. Our expenditures are expected to increase as we continue to progress tirasemtiv towards potential registration.

CK-2127107 and Other Skeletal Muscle Activators

Astellas Strategic Alliance. CK-2127107 is being developed jointly by Cytokinetics and Astellas.

In July 2016, we entered into the 2016 Astellas Amendment collectively with the 2014 Astellas Agreement, the Current Astellas Agreement.

Astellas holds an exclusive license to develop and commercialize CK-2127107 worldwide, subject to our development and commercialization participation rights. Under this strategic alliance, Cytokinetics conducted five Phase 1 clinical trials of CK-2127107 and started a Phase 2 clinical trial of CK-2127107 in patients with spinal muscular atrophy

(SMA) in December 2015. CK-2127107 is also being evaluated for the potential use in other indications associated with muscle weakness. Astellas, in collaboration with Cytokinetics, started a Phase 2

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clinical trial of CK-2127107 in patients with COPD in June 2016 and we anticipate Astellas will initiate a Phase 1b clinical trial of CK-2127107 in elderly patients with limited mobility in the first half of 2017. We are also conducting joint research with Astellas directed to next-generation skeletal muscle activators.

Further details regarding our strategic alliance with Astellas can be found in Item 1 of this report under Research and Development Programs Skeletal Muscle Contractility Program CK-2127107 and Other Skeletal Muscle Activators Astellas Strategic Alliance.

During the years ended December 31, 2016, 2015, and 2014, the Company recorded license revenue of $62.2 million, $13.9 million and $9.8 million respectively, reimbursement of sponsored research and development activities of $13.1 million, $12.2 million, and $15.4 million, respectively, and milestone revenues of $2.0 million, zero and $17.0 million, in connection with our strategic alliance with Astellas. Refer to Note 7, Related Parties and Related Party Transactions in the Notes to Consolidated Financial Statements, for the accounting treatment, including the allocation of consideration to the units of accounting, and the revenue recognition of License Revenue and Research and Development Revenue, under the 2016 Astellas Amendment.

The clinical trials programs for CK-2127107 may proceed for several years, and we will not be in a position to generate any revenues or material net cash flows from sales of this drug candidate until the program is successfully completed, regulatory approval is achieved, and the drug is commercialized. CK-2127107 is at too early a stage of development for us to predict if or when this may occur. Our expenditures will increase if Astellas terminates development of CK-2127107 or related compounds and we elect to develop them independently, or if we conduct early-stage development for certain agreed indications at our initial expense, subject to reimbursement if development continues under the collaboration.

Ongoing Research in Skeletal Muscle Activators.

Our research on the direct activation of skeletal muscle continues in two areas. We are conducting translational research in preclinical models of disease and muscle function with fast skeletal troponin activators to explore the potential clinical applications of this novel mechanism in diseases or conditions associated with skeletal muscle dysfunction. We also intend to conduct preclinical research on other chemically and pharmacologically distinct mechanisms to activate the skeletal sarcomere. We advanced a next generation skeletal muscle activator into IND-enabling studies in 2016 and earned a $2.0 million milestone payment. We are conducting a joint research program with Astellas directed to the discovery of next-generation skeletal muscle activators. Under the 2016 Astellas Amendment, the joint research program will continue through 2017 and Astellas will reimburse us for certain research activities.

Research and Development Expenses. We recorded research and development expenses for activities relating to our skeletal muscle contractility program of approximately $53.7 million, $36.3 million and $32.9 million in the years ended December 31, 2016, 2015 and 2014, respectively. We recognized research and development revenue from Astellas of $15.1 million, $12.2 million, and $32.4 million in the years ended December 31, 2016, 2015 and 2014, respectively, consisting of milestone payments, and reimbursements of full-time employee equivalents (FTEs) and other expenses. We anticipate that our expenditures relating to the research and development of compounds in our skeletal muscle contractility program will increase significantly if and as we advance tirasemtiv, CK-2127107 or other compounds from this program into and through development.

Cardiac Muscle Contractility Program

Our lead drug candidate from our cardiac muscle contractility program, omecamtiv mecarbil (formerly known as CK-1827452), is a novel cardiac muscle myosin activator that is being developed under a strategic alliance with Amgen. In June 2013, we expanded this collaboration to include Japan. As a result, Amgen holds an exclusive, worldwide license to omecamtiv mecarbil and related compounds, subject to Cytokinetics

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specified development and commercialization rights. Amgen has also entered an alliance with Servier for exclusive commercialization rights in Europe as well as the Commonwealth of Independent States (CIS), including Russia. In December 2016, we announced the activation of the first trial site for a Phase 3 cardiovascular outcomes clinical trial of omecamtiv mecarbil being conducted by Amgen in collaboration with Cytokinetics, GALACTIC-HF (Global Approach to Lowering Adverse Cardiac Outcomes Through Improving Contractility in Heart Failure). We are continuing our joint research with Amgen directed to next-generation compounds in our cardiac muscle contractility program in 2017.

Further details regarding our strategic alliance with Amgen can be found in Item 1 of this report under Research and Development Programs Cardiac Muscle Contractility Program Amgen Strategic Alliance.

During the years ended December 31, 2016, 2015 and 2014, we recorded $1.2 million, $2.5 million and $4.5 million, respectively, in reimbursement of sponsored research and development activities, respectively and milestone revenues of $26.7 million, zero and zero, relating to the Amgen Agreement. During the years ended December 31, 2016, 2015 and 2014, we recorded zero license revenue under the Amgen Agreement. See our consolidated financial statements for a further discussion of our revenue recognition policy under our agreement with Amgen. Refer to Note 7, Related Parties and Related Party Transactions in the Notes to Consolidated Financial Statements, for the accounting treatment, under the Amgen agreement.

Omecamtiv Mecarbil Clinical Development

GALACTIC-HF is a Phase 3 cardiovascular outcomes clinical trial of omecamtiv mecarbil which is being conducted by Amgen, in collaboration with Cytokinetics. Coincident with the start of the trial, Amgen made a $26.7 million milestone payment to Cytokinetics in December 2016. The primary objective of this double-blind, randomized, placebo-controlled multicenter clinical trial is to determine if treatment with omecamtiv mecarbil when added to standard of care is superior to standard of care plus placebo in reducing the risk of cardiovascular death or heart failure events in patients with high risk chronic heart failure and reduced ejection fraction. GALACTIC-HF will be conducted under a Special Protocol Assessment (SPA) with the U.S. FDA. GALACTIC-HF is planned to enroll approximately 8,000 symptomatic chronic heart failure patients in over 800 sites in 34 countries who are either currently hospitalized for a primary reason of heart failure or have had a hospitalization or admission to an emergency room for heart failure within one year prior to screening. In order to be eligible to participate in GALACTIC-HF patients should have an LVEF £ 35%, be NYHA class II to IV, and have an elevated BNP or NT-proBNP. Patients will be randomized to either placebo or omecamtiv mecarbil with dose titration up to a maximum dose of 50 mg twice daily based on the plasma concentration of omecamtiv mecarbil after initiation of drug therapy. The primary endpoint is a composite of time to cardiovascular death or first heart failure event, which is defined as either a hospitalization for heart failure or other urgent treatment for worsening heart failure. Secondary endpoints include time to cardiovascular death; patient reported outcomes as measured by the Kansas City Cardiomyopathy Questionnaire Total Symptom Score; time to first heart failure hospitalization; and all-cause death.

Cytokinetics and Amgen are also planning a potential exercise performance/cardiac function clinical trial to be conducted by Cytokinetics. Amgen will be responsible for reimbursing us for the out-of-pocket development costs associated with this clinical trial.

Further details regarding the clinical development of omecamtiv mecarbil can be found in Item 1 of this report under Research and Development Programs Cardiac Muscle Contractility Program Omecamtiv Mecarbil

Ongoing Research in Cardiac Muscle Contractility. We continued our joint research program with Amgen directed to next-generation compounds in our cardiac muscle contractility program in 2016. We expect to continue our joint

research program with Amgen into 2017. Under the Amgen Agreement, Amgen will reimburse us for certain research activities we perform.

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The clinical trials program for omecamtiv mecarbil may proceed for several years, and we will not be in a position to generate any revenues or material net cash flows from sales of this drug candidate until the program is successfully completed, regulatory approval is achieved, and the drug is commercialized. Omecamtiv mecarbil is at too early a stage of development for us to predict if or when this may occur. We funded all research and development costs associated with this program prior to Amgen s option exercise in May 2009. We anticipate that our expenditures relating to the research and development of compounds in our cardiac muscle contractility program will increase if we participate in the future advancement of omecamtiv mecarbil through clinical development. Our expenditures will also increase if Amgen terminates development of omecamtiv mecarbil or related compounds and we elect to develop them independently, or if we elect to co-fund later-stage development of omecamtiv mecarbil or other compounds in our cardiac muscle contractility program under our collaboration and option agreement with Amgen.

Research and Development Expenses. We recorded research and development expenses for activities relating to our cardiac muscle contractility program of approximately $8.1 million, $5.8 million and $7.4 million in the years ended December 31, 2016, 2015 and 2014, respectively. We recognized net research and development revenue from Amgen of $1.2 million, $2.5 million and $4.5 million in the years ended December 31, 2016, 2015 and 2014, respectively, consisting of reimbursements of FTEs and other expenses offset by a payment related to Cytokinetics option to co-fund the Phase 3 development program of omecamtiv mecarbil for an increased royalty percentage. We anticipate that our expenditures relating to the research and development of compounds in our cardiac muscle contractility program will increase if we participate in the future advancement of omecamtiv mecarbil through clinical development. We also anticipate incurring future payments related to the co-investment option for which we provided notice of exercise in 2016 that will be offset against research and development revenues.

Beyond Muscle Contractility

We have developed preclinical expertise in the mechanics of skeletal, cardiac and smooth muscle that extends from proteins to tissues to intact animal models. Our translational research in muscle contractility has enabled us to better understand the potential impact of small molecule compounds that increase skeletal or cardiac muscle contractility and to apply those findings to the further evaluation of our drug candidates in clinical populations. In addition to contractility, the other major functions of muscle play a role in certain diseases that could benefit from novel mechanism treatments. Accordingly, our knowledge of muscle contractility may serve as an entry point to the discovery of novel treatments for disorders involving muscle functions other than muscle contractility. We are leveraging our current understandings of muscle biology to investigate new ways of modulating these other aspects of muscle function for other potential therapeutic applications.

Development Risks

The successful development of any of our drug candidates is highly uncertain. We cannot estimate with certainty or know the exact nature, timing and costs of the activities necessary to complete the development of any of our drug candidates or the date of completion of these development activities due to numerous risks and uncertainties, including, but not limited to:

- the results of clinical trials of our drug candidates conducted by us or our partners may not support the further clinical development of those drug candidates;

further clinical development of tirasemtiv for the potential treatment of ALS will require significant additional funding and we may be unable to obtain such additional funding on acceptable terms, if at all;

the FDA and/or other regulatory authorities may not accept effects on respiratory function, including SVC, as appropriate clinical trial endpoints to support the registration of tirasemtiv for the treatment of ALS;

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the FDA and/or other regulatory authorities may not accept the data from the clinical trials of tirasemtiv as sufficient to determine the safest and most effective dose of tirasemtiv for the treatment of ALS;

decisions made by Amgen with respect to the development of omecamtiv mecarbil and by Astellas with respect to the development of CK-2127107;

the uncertainty of the timing of the initiation and completion of patient enrollment and treatment in our or our partners clinical trials;

the possibility of delays in the collection of clinical trial data and the uncertainty of the timing of the analyses of our clinical trial data after these trials have been initiated and completed;

our potential inability to obtain additional funding and resources for our development activities on acceptable terms, if at all, including, but not limited to, our potential inability to obtain or retain partners to assist in the design, management, conduct and funding of clinical trials;

failure by our clinical trial sites, clinical research organizations, clinical manufacturing organizations and other third parties supporting our or our partners clinical trials to fulfill their obligations or otherwise perform as expected;

delays or additional costs in manufacturing of our drug candidates for clinical trial use, including developing appropriate formulations of our drug candidates;

the uncertainty of clinical trial results, including variability in patient response;

the uncertainty of obtaining FDA or other foreign regulatory agency approval required for the clinical investigation of our drug candidates;

the uncertainty related to the development of commercial scale manufacturing processes and qualification of a commercial scale manufacturing facility;

the possibility that results from non-clinical studies may adversely impact the timing or further development of our drug candidates; and

possible delays in the characterization, formulation and manufacture, packaging, labeling and distribution of drug candidates and other compounds.

If we fail to complete the development of any of our drug candidates in a timely manner, it could have a material adverse effect on our operations, financial position and liquidity. In addition, any failure by us or our partners to obtain, or any delay in obtaining, regulatory approvals for our drug candidates could have a material adverse effect on our results of operations. A further discussion of the risks and uncertainties associated with completing our programs as planned, or at all, and certain consequences of failing to do so are discussed further in the risk factors entitled We will need substantial additional capital in the future to sufficiently fund our operations, We have never generated, and may never generate, revenues from commercial sales of our drugs and we may not have drugs to market for at least several years, if ever, Clinical trials may fail to demonstrate the desired safety and efficacy of our drug candidates, which could prevent or significantly delay completion of clinical development and regulatory approval and Clinical trials are expensive, time-consuming and subject to delay, and other risk factors.

Financial Overview

Revenues

Our current revenue sources are limited, and we do not expect to generate any revenue from product sales for several years, if at all. We have recognized revenues from our strategic alliances with Amgen, Astellas, and MyoKardia, Inc. (MyoKardia) and grant revenues from The ALS Association (the ALSA).

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The following table summarizes the sources of our revenue for the years ended December 31, 2016, 2015 and 2014, respectively, as follows (in thousands):

	Years Ended December 31,		
	2016	2015	2014
Astellas			
License revenues	$ 62,171	$ 13,918	$ 9,836
Research and development revenues	15,111	12,184	32,391
Total Revenues from Astellas	77,282	26,102	42,227
Amgen			
Research and development revenues, net	27,882	2,481	4,538
Total Revenues from Amgen	27,882	2,481	4,538
MyoKardia - Research and development revenues	150		100
ALSA - Grant Revenue	1,085	75	
Other Revenue	8		75
Total revenues	$ 106,407	$ 28,658	$ 46,940

Astellas

In June 2013, we entered into a license and collaboration agreement with Astellas (the Original Astellas Agreement), that was amended and restated in December 2014 (the 2014 Astellas Agreement).

Refer to Item 1, Business Skeletal Muscle Contractility Program CK-2127107 Astellas Strategic Alliance for further details regarding the collaboration agreements.

In July 2013, we received an upfront payment of $16.0 million in connection with the execution of the Original Astellas Agreement. The Original Astellas Agreement provided for us to potentially receive over $24.0 million in reimbursement of sponsored research and development activities during the initial two years of the collaboration and for research and early and late stage development milestone payments based on various research and clinical milestones. We determined the license and the research and development services relating to the Original Astellas Agreement are a single unit of accounting as the license was determined to not have stand-alone value. Accordingly, we are recognizing this revenue using the proportional performance model. During 2014, revenue from reimbursement of research and development activities also included $2.0 million in research and development milestone fees and $15.0 million in milestone fees in connection with the decision made by Astellas to advance CK-2127107 into Phase 2 clinical development.

In January 2015, we received an upfront license fee payment of $30.0 million in connection with the execution of the 2014 Astellas Agreement. Also, in conjunction with the execution of the 2014 Astellas Agreement, we entered into a common stock purchase agreement pursuant to which we sold 2,040,816 shares of our common stock to Astellas at a price per share of $4.90. The aggregate purchase price of $10.0 million was received in December 2014. We determined the fair value of the stock issued to Astellas to be $9.1 million. The $0.9 million excess of cash received over fair value of was deferred and will be recognized as revenue as services are performed over approximately 24

months. We determined that the license and the research and development services relating to the 2014 Astellas Agreement are a single unit of accounting as the license was determined to not have stand-alone value. Accordingly, we are recognizing this revenue using the proportional performance model over the initial research term of the 2014 Astellas Agreement.

Concurrently with the execution of the 2014 Astellas Agreement and related common stock purchase agreement, we received $15.0 million as a milestone payment relating to Astellas decision to advance CK-2127107 into Phase 2 clinical development. We were also eligible to potentially receive over $20.0 million in reimbursement of sponsored research and development activities during the two years of the collaboration following the execution of the 2014 Astellas Agreement.

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In 2016, Cytokinetics and Astellas further amended the collaboration agreement to expand the collaboration to include the development of CK-2127107 (2016 Astellas Amendment) for the potential treatment of ALS, as well as the possible development in ALS of other fast skeletal regulatory activators previously licensed by Cytokinetics to Astellas. The 2016 Astellas Amendment became effective in September 2016. In connection with the 2016 Astellas Amendment, we received a non-refundable upfront amendment fee of $35.0 million. In addition, we received the accelerated payment of a $15.0 million milestone for the initiation of the first Phase 2 clinical trial of CK-2127107 as the lead compound in ALS that was otherwise provided for in the 2014 Astellas Agreement, as if such milestone had been achieved upon the execution of the 2016 Astellas Amendment. We determined that the ALS license and the additional research and development services relating to the 2016 Astellas Amendment each have stand-alone value. We have recognized $50.0 million license revenue related to the ALS license on the effective date of the arrangement while the allocated consideration for the research and development services will be recognized over the development term on a proportional basis. During 2016, revenue from reimbursement of research and development activities also included $2.0 million in research and development milestone fees.

Refer to Note 7, Related Parties and Related Party Transactions in the Notes to Consolidated Financial Statements for further details regarding the accounting treatment under this collaboration agreement.

Under the Current Astellas Agreement, additional research and early and late state development milestone payments which are based on various research and clinical milestones, including the initiation of certain clinical studies, the submission for approval of a drug candidate to certain regulatory authorities for marketing approval and the commercial launch of collaboration products could total over $600.0 million, including up to $95.0 million relating to CK-2127107 in non-neuromuscular indications, and over $100.0 million related to CK-2127107 in each of SMA and other neuromuscular indications. Additionally, $200.0 million in commercial milestones could be received under the Current Astellas Agreement provided certain sales targets are met. Due to the nature of drug development, including the inherent risk of development and approval of drug candidates by regulatory authorities, it is not possible to estimate if and when these milestone payments could become due.

In the event Astellas commercializes any collaboration products, the Company will receive royalties on sales of such collaboration products, including royalties ranging from the high single digits to the high teens on sales of products containing CK-2127107. We can co-fund certain development costs for CK-2127107 and other compounds in exchange for increased milestone payments and royalties; such royalties may increase under certain scenarios to exceed twenty percent. Under the Current Astellas Agreement, we retain an option to co-promote collaboration products containing fast skeletal troponin activators for neuromuscular indications in the U.S., Canada and Europe, in addition to its option to co-promote other collaboration products in the U.S. and Canada as provided for in the Original Astellas Agreement. Astellas will reimburse us for certain expenses associated with its co-promotion activities.

In connection with the execution of the 2016 Astellas Amendment, the Company received a $15.0 million non-refundable option fee for the grant of the Option on Tirasemtiv in October 2016. Prior to Astellas exercise of the option, the Company will continue the development of tirasemtiv, including the VITALITY-ALS trial, at its own expense to support regulatory approval in the U.S., EU and certain other jurisdictions and will retain the final decision making authority on the development of tirasemtiv.

Amgen

In June 2013, we and Amgen executed an amendment (the Amgen Agreement Amendment) to the Amgen Agreement to include Japan, resulting in a worldwide collaboration.

Further details regarding our strategic alliance with Amgen can be found in Item 1 of this report under Research and Development Programs Cardiac Muscle Contractility Program Amgen Strategic Alliance.

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We have received reimbursements from Amgen for certain research and development activities during 2016, 2015 and 2014, which we recorded as revenue as the related expenses were incurred. We may be eligible to receive further reimbursements from Amgen for certain research and development activities, which we will record as revenue if and when the related expenses are incurred. We record amounts received in advance of performance as deferred revenue. Revenues related to the reimbursement of FTEs were based on negotiated rates intended to approximate the costs for our FTEs.

Refer to Note 7, Related Parties and Related Party Transactions in the Notes to Consolidated Financial Statements for further details regarding the accounting treatment under this collaboration agreement.

Under the Amgen Agreement, as amended, the Company is eligible to receive over $300.0 million in additional development milestone payments which are based on various clinical milestones, including the initiation of certain clinical studies, the submission of a drug candidate to certain regulatory authorities for marketing approval and the receipt of such approvals. Additionally, the Company is eligible to receive up to $300.0 million in commercial milestone payments provided certain sales targets are met. Due to the nature of drug development, including the inherent risk of development and approval of drug candidates by regulatory authorities, it is not possible to estimate if and when these milestone payments would become due. The achievement of each of these milestones is dependent solely upon the results of Amgen s development and commercialization activities and therefore none of these milestones was deemed to be substantive.

In December 2016, we received a $26.7 million milestone payment from Amgen coincident with the start of GALACTIC-HF. The $26.7 million milestone payment from Amgen was recognized as revenue for the year ended December 31, 2016. We recognized no revenue for milestones achieved under the Amgen Agreement during the years ended December 31, 2015 and 2014. Also in December 2016, we provided notice of our exercise of our option to co-invest in the Phase 3 development program of omecamtiv mecarbil in exchange for increased royalties from Amgen on worldwide sales of omecamtiv mecarbil outside Japan.

MyoKardia

In August 2012, we entered into a collaboration agreement with MyoKardia. Under an agreed research plan, scientists from MyoKardia and our FTEs conducted research focused on small molecule therapeutics that inhibit cardiac sarcomere proteins. We provided MyoKardia access to certain research facilities, and provided FTEs and other resources at agreed reimbursement rates that approximated our costs. We were the primary obligor in the collaboration arrangement, and accordingly, we recorded expense reimbursements from MyoKardia as research and development revenue. The research plan ended as planned in August 2013. In October 2016, we received a $0.2 million milestone payment from MyoKardia for the initiation of first Phase IIa clinical trial.

ALSA Grant

In July 2015, we were awarded a $1.5 million grant from The ALS Association (the ALSA Grant) to support the conduct of VITALITY-ALS as well as the collection of clinical data and plasma samples from patients in VITALITY-ALS in order to help advance the discovery of potentially useful biomarkers in ALS. The grant provides funding for collaboration among Cytokinetics, The ALS Association and the Barrow Neurological Institute to enable plasma samples collected from patients enrolled in VITALITY-ALS to be added to The Northeastern ALS Consortium (NEALS) Repository, a resource for the academic research community to identify biomarkers that may help to assess disease progression and underlying disease mechanisms in ALS. In August 2015, we achieved the first milestone under the ALSA Grant which triggered a payment of $0.5 million in accordance with the ALSA Grant and in 2016, we achieved a second milestone which triggered a payment of $0.3 million in accordance with the ALSA

Grant. We recorded grant revenue as qualified expenses were incurred and approved by management.

Because a substantial portion of our revenues for the foreseeable future will depend on achieving development and other pre-commercialization milestones under our strategic alliances with Amgen and Astellas, our results of operations may vary substantially from year to year.

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If one or more of our drug candidates is approved for sale as a drug, we expect that our future revenues will most likely be derived from royalties on sales from drugs licensed to Amgen and Astellas under our respective strategic alliances and from those licensed to future partners, and from direct sales of our drugs.

Research and Development

We incur research and development expenses associated with both partnered and our own research activities. We expect to incur research and development expenses for the clinical development of tirasemtiv. We expect to incur research and development expenses for CK-2127107 in accordance with agreed upon research and development plans with Astellas. We expect to incur research and development expenses for omecamtiv mecarbil and other next-generation compounds in our cardiac muscle contractility program in accordance with agreed upon research and development plans with Amgen.

Research and development expenses related to any development and commercialization activities we elect to fund consist primarily of employee compensation, supplies and materials, costs for consultants and contract research and manufacturing, facilities costs and depreciation of equipment.

General and Administrative Expenses

General and administrative expenses consist primarily of compensation for employees in executive and administrative functions, including, but not limited to, finance, human resources, legal, business and commercial development and strategic planning. Other significant costs include facilities costs, consulting costs and professional fees for accounting and legal services, including legal services associated with obtaining and maintaining patents and regulatory compliance.

Stock Compensation

The following table summarizes stock-based compensation related to stock options, restricted stock awards, restricted stock units, and employee stock purchases for 2016, 2015 and 2014 (in thousands):

	Years Ended December 31,		
	2016	2015	2014
Research and development	$ 4,252	$ 1,828	$ 1,361
General and administrative	2,894	2,739	1,969
Stock-based compensation included in operating expenses	$ 7,146	$ 4,567	$ 3,330

As of December 31, 2016, there was $8.4 million of unrecognized compensation cost related to unvested stock options, which is expected to be recognized over a weighted-average period of 2.4 years and $3.1 million of unrecognized compensation cost related to unvested restricted stock units, including the performance stock units (PSU s), which is expected to be recognized over a weighted-average period of 1.2 years.

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Results of Operations

Years ended December 31, 2016, 2015 and 2014

Revenues

	Years Ended December 31,			Increase (Decrease)	
	2016	2015	2014	2016	2015
	(In millions)				
Research and development revenues from related parties, net	$ 43.0	$ 14.7	$ 19.5	$ 28.3	$ (4.8)
Research and development, grant and other revenues	1.2	0.1	17.6	1.1	(17.5)
License revenues from related parties	62.2	13.9		48.3	13.9
License revenues			9.8		(9.8)
Total revenues	$ 106.4	$ 28.7	$ 46.9	$ 77.7	$ (18.2)

Research and development revenues from related parties refers to research and development revenues from our strategic alliances with Astellas and Amgen. Revenues from Astellas, which became a related party in December 2014, were $15.1 million, $12.2 million, and $15.0 million for years ended December 31, 2016, 2015 and 2014, respectively, and consisted of reimbursements of internal costs for certain full-time employee equivalents, and other research and development expenses. Revenues from Astellas in 2016 and 2014 included $2.0 million and $15.0 million in milestone revenues, respectively. All research and development revenues from Astellas, prior to it becoming a related party are classified in research and development, grant and other revenues. Revenues from Amgen were $27.9 million, $2.5 million and $4.5 million in 2016, 2015 and 2014, respectively. Revenue from Amgen in 2016 included $26.7 million in a milestone payment, and $0.6 million in reimbursement of internal costs for certain full-time employee equivalents, partially offset by a payment of $1.3 million related to the option to co-fund Phase 3 development of omecamtiv mecarbil for an increased royalty percentage. Revenue from Amgen in 2015 and 2014 consisted of reimbursement of internal costs for certain full-time employee equivalents, and recognition of allocated consideration relating to the Amgen Agreement Amendment.

Research and development, grant and other revenues in 2016 and 2015 consisted primarily of $1.1 million and $0.1 million of research and development revenues from our collaboration with ALSA, respectively. Research and development, grant and other revenues in 2014 consisted primarily of revenues from our strategic alliance with Astellas, prior to becoming a related party in December 2014, including $15.4 million of research and development reimbursement revenues and $2.0 million in milestone revenues from our collaboration with Astellas, as well as $0.1 million in revenue from our collaboration with MyoKardia.

License revenues from related parties refers to license revenues from our strategic alliances with Astellas and Amgen. License revenues from Astellas, which became a related party in December 2014, were $62.2 million and $13.9 million in 2016 and 2015, respectively. License revenue from Astellas in 2016 consisted of the recognition of the $50.0 million upfront license fee received from Astellas under the 2016 Astellas Amendment, and the recognition of a portion of the $30.0 million upfront license fee received from Astellas in January 2015. License revenue from Astellas in 2015 consisted of the recognition of a portion of the $30.0 million upfront license fee received from Astellas in January 2015 and the recognition of a portion of the $16.0 million upfront license fee received from Astellas in July 2013. The upfront license fees were recognized using the proportional performance model.

License revenues refers to license revenues from our collaboration with Astellas, prior to it becoming a related party in December 2014. License revenues from Astellas included $9.8 million in 2014 of the $16.0 million upfront license fee received from Astellas in July 2013 in connection with the execution of the Original Astellas Agreement. We recognized this revenue over the term of the research and development services using the proportional performance model.

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Research and development expenses

	Years Ended December 31,			Increase (Decrease)	
	2016	2015	2014	2016	2015
	(In millions)				
Research and development expenses	$ 59.9	$ 46.4	$ 44.4	$ 13.5	$ 2.0

The increase in research and development expenses in 2016 compared to 2015 was primarily due to an increase of $12.1 million in outsourced clinical costs, $4.5 million in personnel related expenses and non-cash stock compensation expense, and $0.8 million in outsourced research costs, partially offset by a decrease of $4.2 million in outsourced preclinical costs mainly associated with clinical manufacturing activities. The increase in outsourced clinical costs was comprised of an increase of $16.6 million in outsourced clinical costs mainly associated with VITALITY-ALS, offset by a $4.5 million litigation settlement in June 2016 from a contract research organization for BENEFIT-ALS. The increase in research and development expenses in 2015 compared to 2014 was primarily due to an increase of $2.0 million in outsourced preclinical costs, an increase of $1.8 million in personnel related expenses due to increased headcount, and an increase of $0.4 million in lab expenses, partially offset by a decrease of $2.1 million in outsourced clinical costs associated with the completion of BENEFIT-ALS in the second quarter of 2014.

The following presents our research and development expenses by program:

	Years Ended December 31,			Increase (Decrease)	
	2016	2015	2014	2016	2015
	(In millions)				
Cardiac muscle contractility	$ 8.1	$ 5.8	$ 7.4	$ 2.3	$ (1.6)
Skeletal muscle contractility	49.2	36.3	32.9	12.9	3.4
Smooth muscle contractility		0.2		(0.2)	0.2
All other research programs	2.6	4.1	4.1	(1.5)	
Total research and development expenses	$ 59.9	$ 46.4	$ 44.4	$ 13.5	$ 2.0

From a program perspective, the $13.5 million increase in research and development spending in 2016 compared to 2015 was primarily due to increased spending of $12.9 million for our skeletal muscle contractility program, which included our skeletal muscle contractility program for tirasemtiv for the treatment of ALS and the clinical program for CK-2127107 under our collaboration with Astellas, and a $2.3 million increase in our cardiac muscle contractility program under our collaboration with Amgen, partially offset by decreased spending of $1.5 million in our other research and preclinical programs. The $2.0 million increase in research and development spending in 2015 compared to 2014 was primarily due to increased spending of $3.4 million for our skeletal muscle contractility program, which included our skeletal muscle contractility program for tirasemtiv for the treatment of ALS, and the clinical program for CK-2127107 under our collaboration with Astellas, and a $0.2 million increase in our other research and preclinical programs, partially offset by decreased spending of $1.6 million for our cardiac muscle contractility program under our collaboration with Amgen.

Clinical development timelines, the likelihood of success and total completion costs vary significantly for each drug candidate and are difficult to estimate. We anticipate that we will determine on an ongoing basis which research and development programs to pursue and how much funding to direct to each program, taking into account the scientific and clinical success of each drug candidate. The lengthy process of seeking regulatory approvals and subsequent compliance with applicable regulations requires the expenditure of substantial resources. Any failure by us to obtain and maintain, or any delay in obtaining, regulatory approvals could cause our research and development expenditures to increase and, in turn, could have a material adverse effect on our results of operations.

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We expect our research and development expenditures to increase significantly in 2017 compared to 2016. We expect to continue the Phase 3 clinical development of our drug candidate tirasemtiv for the potential treatment of ALS. Under our strategic alliance with Astellas, we expect to continue development of our drug candidate CK-2127107 for the potential treatment of SMA and potentially other diseases and medical conditions associated with muscle weakness or wasting. Under our strategic alliance with Amgen, we expect to continue the Phase 3 development of our drug candidate omecamtiv mecarbil for the potential treatment of heart failure.

General and administrative expenses

	Years Ended December 31,			Increase (Decrease)	
	2016	2015	2014	2016	2015
	(In millions)				
General and administrative expenses	$ 27.8	$ 19.7	$ 17.3	$ 8.1	$ 2.4

General and administrative expenses increased $8.1 million in 2016 compared to 2015 was primarily due to increased spending of $4.2 million in personnel-related expenses due to increased headcount and non-cash stock compensation expense, an increase of $1.7 million in corporate and patent legal fees, and an increase of $1.7 million in outsourced costs related to commercial development, grants and sponsorships, and accounting and finance and recruitment related costs. The increase of $2.4 million in 2015 compared to 2014 was primarily due to increased spending of $1.4 million for personnel-related costs due to increased headcount and increased spending of $0.8 million for outside services mainly related to commercial development. We expect that general and administrative expenses in 2017 will increase significantly compared to 2016, mainly due to increased headcount.

Interest expense

Interest expense for the years ended December 31, 2016 and 2015 primarily consisted of interest expense related to the loan and security agreement with Oxford Finance LLC and Silicon Valley Bank entered into in October 2015. Interest expense increased in 2016 compared to 2015 due to interest expense related to the long-term debt obligations which commenced in fourth quarter 2015.

Interest and Other Income, net

Interest and other income, net for the years ended December 31, 2016, 2015 and 2014, primarily consisted of interest income generated from the Company s cash, cash equivalents and investments. In 2016 and 2015, interest income also included net gains realized upon disposal of equipment.

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Liquidity and Capital Resources

Our financial condition is summarized as follows:

	As of December 31, 2016	2015	Increase (Decrease) 2016
Financial assets:			
Cash and cash equivalents	$ 66.9	$ 65.1	$ 1.8
Short-term investments	89.4	46.4	43.0
Long-term investments	7.6	0.2	7.4
Total cash, cash equivalents and marketable securities	$ 163.9	$ 111.7	$ 52.2
Borrowings:			
Current portions of long-term debt	$ 2.5	$	$ 2.5
Long-term debt	27.4	14.6	12.8
Total borrowings	$ 29.9	$ 14.6	$ 15.3
Working capital:			
Current assets	$ 158.6	$ 113.1	$ 45.5
Current liabilities	(33.3)	(31.6)	(1.7)
Total working capital	$ 125.3	$ 81.5	$ 43.8

From August 5, 1997, our date of inception, through December 31, 2016, we funded our operations through the sale of equity securities, non-equity payments from collaborators, long term debt, capital equipment financings, grants and interest income. Due to our substantial research and development expenditures, we have generated significant operating losses since our inception. Our expenditures are primarily related to research and development activities. As of December 31, 2016, we had available cash, cash equivalents and investments of $163.9 million.

Equity Securities

We have received net proceeds from the sale of equity securities of $500.0 million from August 5, 1997, the date of our inception, through December 31, 2016, excluding sales of equity to Amgen, Astellas, and GlaxoSmithKline (GSK). Included in these proceeds are $94.0 million received upon closing of the initial public offering of our common stock in May 2004. In connection with execution of our collaboration and license agreement with GSK in 2001, GSK made a $14.0 million equity investment in us. GSK made additional equity investments in us in 2003 and 2004 of $3.0 million and $7.0 million, respectively. In January 2007, in connection with the execution of the Amgen Agreement, we received net proceeds of $32.9 million from a stock purchase agreement with Amgen. In June 2013, in conjunction with the Amgen Agreement Amendment, we sold 1,404,100 shares of common stock to Amgen for an aggregate purchase price of $10.0 million. In December 2014, in connection with the 2014 Astellas Agreement, we sold 2,040,816 shares of common stock to Astellas for an aggregate purchase price of $10.0 million.

Collaboration Partners

On a cumulative basis through December 31, 2016, we have received $160.7 million in non-equity payments from Amgen, $169.1 million in non-equity payments from Astellas, and $54.5 million in non-equity payments from GSK, in each case related to our strategic alliances.

Original Astellas Agreement

In June 2013, we entered into the Original Astellas Agreement (see Note 7, Related Party Research and Development Arrangements in the Notes to Consolidated Financial Statements). In July 2013, we received an

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upfront non-refundable license payment of $16.0 million in connection with the execution of the Original Astellas Agreement. Pursuant to that agreement we were eligible to potentially receive over $24.0 million in reimbursement of sponsored research and development activities during the initial two years of the collaboration. In addition, the agreement also provided for payments for the achievement of pre-specified milestones relating to the joint research and development program.

2014 Astellas Agreement

In December 2014, we entered into the 2014 Astellas Agreement, which superseded the Original Astellas Agreement (see Note 7, Related Party Research and Development Arrangements in the Notes to Consolidated Financial Statements). Under the terms of the 2014 Astellas Agreement, we received a non-refundable upfront license fee of $30.0 million in January 2015. In conjunction with the 2014 Astellas Agreement, we also entered into a common stock purchase agreement pursuant to which we sold 2,040,816 shares common stock to Astellas at a price per share of $4.90. The aggregate purchase price of $10.0 million was received in December 2014. We determined the fair value of the stock issued to Astellas to be $9.1 million. The excess of cash received over fair value of $0.9 million was deferred and will be recognized as revenue as services are performed over approximately 24 months.

We were eligible to potentially receive over $20.0 million in reimbursement of sponsored research and development activities during the two years of the collaboration following execution of the 2014 Astellas Agreement.

2016 Astellas Amendment (Inclusion of ALS as an Added Indication and Option on Tirasemtiv)

The 2016 Amendment to the 2014 Astellas Agreement (2016 Astellas Amendment) became effective in September 2016 (collectively with the 2014 Astellas Agreement, the Current Astellas Agreement). Under the 2016 Astellas Amendment, we granted Astellas an option to enter into a pre-negotiated agreement for a global collaboration for the development and commercialization of tirasemtiv. If Astellas exercises the option, Astellas will receive exclusive worldwide commercialization rights for Astellas outside Cytokinetics commercialization territory in North America, Europe and other select countries. In addition, the 2016 Astellas Amendment expands our collaboration with Astellas to include the development of CK-2127107 for the potential treatment of ALS, as well as other fast skeletal regulatory activators licensed to Astellas under the 2014 Astellas Agreement. Finally, the 2016 Astellas Amendment extends the existing joint research program focused on the discovery of additional next-generation skeletal muscle activators through 2017, including sponsored research at Cytokinetics.

In connection with the execution of the 2016 Astellas Amendment, we received a $15.0 million non-refundable option fee for the grant of the Option on Tirasemtiv. Prior to Astellas exercise of the option, we will continue the development of tirasemtiv, including VITALITY-ALS, at our own expense to support regulatory approval in the U.S., EU and certain other jurisdictions and will retain the final decision making authority on the development of tirasemtiv. If Astellas exercises the option, we will grant Astellas an exclusive license to develop and commercialize tirasemtiv outside Cytokinetics own commercialization territory of North America, Europe and other select countries. Each party would be primarily responsible for the further development of tirasemtiv in its territory and have the exclusive right to commercialize tirasemtiv in its territory.

Also in connection with the execution of the 2016 Astellas Amendment, we received a non-refundable upfront amendment fee of $35.0 million. We also received the accelerated payment of a $15.0 million milestone payment for the initiation of the first Phase 2 clinical trial of CK-2127107 as the lead compound in ALS that was otherwise provided for in the 2014 Astellas Agreement, as if such milestone had been achieved upon the execution of the 2016 Astellas Amendment. The parties will share equally the costs of developing CK-2127107 in ALS for the potential registration and marketing authorization in the U.S. and Europe, provided that (i) Astellas has agreed to solely fund

Phase 2 development costs of CK-2127107 in ALS, subject to a right to recoup Cytokinetics share of such costs plus a 100% premium by reducing future milestone and royalty

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payments to Cytokinetics, and (ii) Cytokinetics may defer (but not eliminate) a portion of its co-funding obligation for development activities after Phase 2 for up to 18 months, subject to certain conditions. Cytokinetics has the right to co-fund its share of such Phase 2 development costs on a current basis, in which case there would not be a premium due to Astellas. We are also eligible to receive up to approximately $41.8 million in additional sponsored research and development funding through 2018 which includes Astellas funding of Cytokinetics conduct of the Phase 2 clinical development of CK-2127107 in ALS (approximately $36.6 million) as well as the continuing research collaboration (approximately $5.2 million). In 2016, 2015, and 2014, we recognized revenue of $77.3 million, 26.1 million, and $42.2 million, respectively relating to the Current Astellas Agreement.

Under the Current Astellas Agreement, based on the achievement of pre-specified criteria, Cytokinetics may receive over $600.0 million in milestone payments relating to the development and commercial launch of collaboration products, including up to $95.0 million relating to CK-2127107 in non-neuromuscular indications, and over $100.0 million in development and commercial launch milestones for CK-2127107 in each of SMA, ALS and other neuromuscular indications. Cytokinetics may also receive up to $200.0 million in payments for achievement of pre-specified sales milestones related to net sales of all collaboration products under the Current Astellas Agreement. If Astellas commercializes any collaboration products, Cytokinetics will also receive royalties on sales of such collaboration products, including royalties ranging from the high single digits to the high teens on sales of products containing CK-2127107. Cytokinetics can co-fund certain development costs for CK-2127107 and other compounds in exchange for increased milestone payments and royalties; such royalties may increase under certain scenarios to exceed twenty percent. In addition to the foregoing development, commercial launch and sales milestones, Cytokinetics may also receive payments for the achievement of pre-specified milestones relating to the joint research program.

If Astellas exercises its option for a global collaboration for the development and commercialization of tirasemtiv, Cytokinetics will receive an option exercise payment ranging from $25.0 million (if exercise occurs following receipt of data from the VITALITY-ALS trial) to $80.0 million (if exercise occurs following receipt of FDA approval) and a milestone payment of $30.0 million from Astellas associated with Cytokinetics initiation of the open-label extension trial for tirasemtiv (VIGOR-ALS). Cytokinetics will be responsible for the development costs of tirasemtiv during the option period, but if Astellas exercises the option after the defined review period following receipt of data from VITALITY-ALS, Astellas will at the time of option exercise reimburse Cytokinetics for a share of any additional costs incurred after such review period.

If Astellas exercises the option for tirasemtiv, the parties will share the future development costs of tirasemtiv in North America, Europe and certain other countries (with Cytokinetics bearing 75% of such shared costs and Astellas bearing 25% of such costs), and Astellas will be solely responsible for the development costs of tirasemtiv specific to its commercialization territory. Contingent upon the successful development of tirasemtiv, we may receive milestone payments up to $100.0 million for the initial indication and up to $50.0 million for each subsequent indication. If tirasemtiv is commercialized, Astellas will pay us royalties (at rates ranging from the mid-teens to twenty percent) on sales of tirasemtiv in Astellas territory, and we will pay Astellas royalties (at rates up to the mid-teens) on sales of tirasemtiv in our commercialization territory, in each case subject to various possible adjustments.

Amgen Agreement Amendment

In June 2013, we entered into the Amgen Agreement Amendment, which expanded our strategic alliance to include Japan (see Note 7, Related Party Research and Development Arrangements in the Notes to Consolidated Financial Statements). Under the terms of the Amgen Agreement Amendment, we received a non-refundable upfront license fee of $15 million in June 2013. In conjunction with the Amgen Agreement Amendment, we also entered into a common stock purchase agreement pursuant to which we sold 1,404,100 shares common stock to Amgen at a price per share of

$7.12. The aggregate purchase price of $10.0 million was received in June 2013. We determined the fair value of the stock issued to Amgen to be $7.5 million. The excess

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of cash received over fair value of $2.5 million was deferred and was recognized as revenue as services were performed over approximately 12 months.

Under the Amgen Agreement as amended, we are eligible for potential additional pre-commercialization and commercialization milestone payments of over $600.0 million in the aggregate on omecamtiv mecarbil and other potential products arising from research under the collaboration, and royalties that escalate based on increasing levels of annual net sales of products commercialized under the agreement. In December 2016, we provided notice of our initial exercise of our option to co-invest at the $10.0 million level in the Phase 3 development program of omecamtiv mecarbil in exchange for an incremental royalty from Amgen of up to 1% on increasing worldwide sales of omecamtiv mecarbil outside Japan. In February 2017, we agreed to increase our co-funding to $40 million, which will make us eligible to receive an incremental royalty of up to 4% on increasing worldwide sales of omecamtiv mecarbil outside of Japan and afford us the right to co-promote omecamtiv mecarbil in institutional care settings in North America, with reimbursement by Amgen for certain sales force activities.

Royalty Purchase Agreement

In February 2017, we entered into a Royalty Purchase Agreement (Royalty Agreement) with RPI Finance Trust (RPI), an entity related to Royalty Pharma. Under the Royalty Agreement, we sold a portion of our right to receive royalties on future net sales of omecamtiv mecarbil (and potentially other compounds with the same mechanism of action) under the Amgen Agreement (as amended) to RPI for a payment of $90.0 million and an investment in our common stock of $10.0 million pursuant to a concurrently executed Common Stock Purchase Agreement with RPI. See Note 15 Subsequent Events in the Notes to Consolidated Financial Statements for additional information.

February 2014 Public Offering

On February 25, 2014, we closed an underwritten public offering for the issuance and sale of 5,031,250 shares of our common stock. The gross proceeds from this public offering were $40.3 million and net proceeds were $37.5 million, after deducting the underwriting discount and offering expenses.

Cantor Fitzgerald

On September 4, 2015, we entered into a $40.0 million Controlled Equity Offering Sales Agreement (CE Offering) with Cantor Fitzgerald & Co., pursuant to which we issue and sold, through December 31, 2016, 808,193 shares for total net proceeds of approximately $8.7 million. Through February 23, 2017, we issued and sold 993,408 shares for total net proceeds of approximately $11.0 million and $28.7 million remains available to us under the September 2015 Registration Statement.

Warrants issued in June 2012 Public Offerings

On June 20, 2012, we entered into underwriting agreements for two separate, concurrent offerings of our securities (the June 2012 Public Offerings). The warrants issued in the June 2012 Public Offerings became exercisable upon issuance and will remain exercisable until June 25, 2017. In August 2016, warrants to purchase 104,533 shares of our common stock at an exercise price of $5.28 per share were exercised in accordance with the June 2012 Public Offerings underwriting agreements. In September 2016, we issued 690,580 shares of common stock related to cashless exercise of warrants. As of December 31, 2016, warrants to purchase 4,104,966 shares of our common stock were outstanding and exercisable.

October 2015 Loan Agreement

On October 19, 2015 and February 10, 2016, we entered into a loan and security agreement (the Loan Agreement) with Oxford Finance LLC (Oxford,) as the collateral agent and a lender, and Silicon Valley Bank

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(SVB,) as a lender (Oxford and SVB collectively the Lenders) to fund our working capital and other general corporate needs, for Term A and Term B, respectively. We can, in our sole discretion, draw down an additional $10.0 million under the Loan Agreement from the Lenders, at any time prior to March 31, 2017, subject to Cytokinetics satisfaction of specified conditions precedent related to the earlier of (i) the occurrence of an equity even as described in the Loan Agreement, or (ii) specified results from VITALITY-ALS, the Company s Phase 3 trial of tirasemtiv, each as specified in the Loan Agreement. As of December 31, 2016 we received $29.9 million from these loan and security agreements for Term A and Term B, net of issuance cost. Note 9, Long-Term Debt of the Notes to Consolidated Financial Statements for further details.

Sources and Uses of Cash

Our cash, cash equivalents and investments totaled $163.9 million at December 31, 2016, compared to $111.6 million at December 31, 2015. The increase of $52.3 million was primarily due to the receipt of $65.0 million from Astellas in October 2016, receipt of a $26.7 million milestone payment from Amgen in December 2016, and net proceeds received from the Loan Agreement of $14.9 million and other net cash provided by operations.

Net cash provided by operating activities was $37.0 million in the year ended December 31, 2016 and was largely due to the receipt of $65.0 million from Astellas in October 2016, the receipt of a $26.7 million milestone payment from Amgen in December 2016, partially offset by cash used by operations due to the ongoing research and development activities, and general and administrative spend to support those activities. Net income for the year ended December 31, 2016 included non-cash stock based compensation of $7.1 million. At December 31, 2016, deferred revenue of $23.1 million related primarily to the deferral of revenue for Astellas Option on Tirasemtiv.

Net cash provided by operating activities was $4.9 million in the year ended December 31, 2015 and was largely due to the receipt of $45.0 million from Astellas in January 2015, partially offset by cash used by operations due to the ongoing research and development activities. The net loss for the year ended December 31, 2015 included non-cash stock based compensation of $4.6 million. At December 31, 2015, deferred revenue of $20.9 million related primarily to the deferral of revenue for Astellas based on the proportional performance model.

Net cash used in operating activities was $44.8 million in the year ended December 31, 2014 and was largely due to the ongoing research and development activities and recognition of deferred revenue for which payment had been received in prior periods. The net loss for the year ended December 31, 2014 included non-cash stock based compensation of $3.3 million. At December 31, 2014, deferred revenue of $33.6 million related largely to the deferral of revenue for Astellas based on the proportional performance model.

Net cash used in investing activities of $52.1 million in the year ended December 31, 2016 was primarily due to purchases of investments of $145.2 million and purchases of property and equipment of $1.6 million, partially offset by cash proceeds from the maturities of investments of $94.6 million. Net cash provided by investing activities of $16.1 million in the year ended December 31, 2015 was primarily due to proceeds from the maturity of investments of $132.2 million which exceeded purchases of investments by $16.6 million, partially offset by cash used by investing activities for purchases of property and equipment. Net cash used in investing activities of $4.0 million in the year ended December 31, 2014 was primarily due to purchases of investments, which exceeded proceeds from the maturity of investments by $2.9 million, and purchases of property and equipment.

Net cash provided by financing activities was $16.9 million in the year ended December 31, 2016 was primarily due to net proceeds from the Loan Agreement of $14.9 million, proceeds from common stock purchases under our Employee Stock Purchase Plan of $0.9 million, proceeds from common stock issuances from warrant exercises of $0.6 million, and net proceeds from issuances of restricted stock to employees and

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employee stock option exercises of $0.4 million. Net cash provided by financing activities was $23.9 million in the year ended December 31, 2015 was primarily due to net proceeds from the Loan Agreement of $14.9 million, net proceeds pursuant to the CE Offering of $8.7 million, and net proceeds from issuances of restricted stock to employees and employee stock option exercises of $0.4 million. Net cash provided by financing activities was $48.9 million in the year ended December 31, 2014 and primarily consisted of net proceeds of $37.5 million from the February 2014 public offering, net proceeds of $2.4 million from sales of our common stock pursuant to the MLV Agreement and proceeds of $9.1 million from the sale of common stock to Astellas.

Shelf Registration Statements

In November 2013, we filed a shelf registration statement with the SEC, which was declared effective in December 2013 (the December 2013 Shelf). The December 2013 Shelf allowed us to issue common stock and preferred stock, and/or warrants to purchase any of such securities with a total value of up to $150.0 million. This shelf expired when the January 2017 Shelf became effective.

In September 2015, we filed a registration statement on Form S-3 with the SEC, which was declared effective in September 2015 (the September 2015 Registration Statement) in conjunction with the CE Offering with Cantor Fitzgerald & Co. Pursuant to the terms of the CE Offering we may offer and sell, from time to time through Cantor Fitzgerald, shares of our common stock, having an aggregate offering price of up to $40.0 million. As of December 31, 2016, 808,193 shares of common stock were sold pursuant the CE Offering for total net proceeds of approximately $8.7 million. As of February 23, 2017, $28.7 million remains available to us under the September 2015 Registration Statement.

In December 2016, we filed a registration statement on Form S-3 with the SEC, which was declared effective in January 2017 (the January 2017 Shelf). The January 2017 Shelf registered up to $200.0 million of our common stock and preferred stock, and/or warrants to purchase any of such securities. The specific terms any offering pursuant to under the January 2017 Shelf will be established at the time of such offering.

Contractual Obligations and Commitments

Our contractual obligations for the next five years and thereafter are as follows (in thousands):

	Payments Due by Period				
	2017	2018-2019	2020-2021	Beyond	Total
Long-term debt(1)	$ 2,500	$ 20,000	$ 7,500	$	$ 30,000
Interest obligation on long-term debt(2)	$ 2,268	$ 2,725	$ 1,438	$	$ 6,431
Operating lease obligations(3)	$ 3,703	$ 1,860	$	$	$ 5,563
Co-investment option(4)	$ 5,000	$ 3,750	$	$	$ 8,750
Total obligations	$ 13,471	$ 28,335	$ 8,938	$	$ 47,744

(1) For further discussion regarding long-term debt, see Note 9, Long-Term Debt of the Notes to Consolidated Financial Statements.

(2) Interest obligation on long-term debt has been calculated based on the interest rate applicable as of December 31, 2016.

(3) Our long-term commitment under operating lease relates to payments under our facility lease in South San Francisco, California, which expires in 2018.

(4) In February 2017, the Company provided notice to Amgen of its further exercise of its co-invest option in the additional amount of $30.0 million (i.e. to fully co-invest $40.0 million) in the Phase 3 development program of omecamtiv mecarbil under the Amgen Agreement. For further discussion regarding co-investment option, see Note 7, Related Parties and Related Party Transaction of the Notes to Consolidated Financial Statements.

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In future periods, we expect to incur substantial costs as we continue to expand our research programs and related research and development activities. We plan to continue development of our fast skeletal troponin activator tirasemtiv for the potential treatment of ALS. We plan to continue development of our fast skeletal troponin activator CK-2127107 for the potential treatment of SMA, COPD, ALS and potentially other diseases and conditions related to skeletal muscle weakness or wasting and research of potential next-generation compounds as part of our strategic alliance with Astellas. We plan to continue to support the development of our cardiac muscle myosin activator omecamtiv mecarbil for the potential treatment of heart failure and the research of potential next-generation compounds as part of our strategic alliance with Amgen. We expect to incur significant research and development expenses as we advance the research and development of compounds from our other muscle biology programs through research to candidate selection.

Our future capital uses and requirements depend on numerous factors. These factors include, but are not limited to, the following:

- the initiation, progress, timing, scope and completion of preclinical research, non-clinical development, chemistry, manufacturing, and controls (CMC), and clinical trials for our drug candidates and other compounds;
- the time and costs involved in obtaining regulatory approvals;
- delays that may be caused by requirements of regulatory agencies;
- Amgen s decisions with regard to funding of development and commercialization of omecamtiv mecarbil or other compounds for the potential treatment of heart failure under our collaboration;
- Astellas decisions with regard to funding of development and commercialization of CK-2127107 or other skeletal muscle activators under our collaboration;
- our level of funding for the development of current or future drug candidates;
- the number of drug candidates we pursue;
- the costs involved in filing and prosecuting patent applications and enforcing or defending patent claims;
- our ability to establish and maintain selected strategic alliances required for the development of drug candidates and commercialization of our potential drugs;

our plans or ability to expand our drug development capabilities, including our capabilities to conduct clinical trials for our drug candidates;

our plans or ability to engage third party manufacturers for our drug candidates and potential drugs;

our plans or ability to build or access sales and marketing capabilities and to achieve market acceptance for potential drugs;

the expansion and advancement of our research programs;

the hiring of additional employees and consultants;

the expansion of our facilities;

the acquisition of technologies, products and other business opportunities that require financial commitments; and

our revenues, if any, from successful development of our drug candidates and commercialization of potential drugs.

We have incurred an accumulated deficit of $518.3 million since inception and there can be no assurance that we will attain profitability. We are subject to risks common to clinical-stage companies including, but not limited to, development of new drug candidates, dependence on key personnel, and the ability to obtain

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additional capital as needed to fund our future plans. Our liquidity will be impaired if sufficient additional capital is not available on terms acceptable to us, if at all. To date, we have funded our operations primarily through sales of our common stock and convertible preferred stock, contract payments under our collaboration agreements, debt financing arrangements, grants and interest income. Until we achieve profitable operations, we intend to continue to fund operations through payments from strategic collaborations, additional sales of equity securities, grants and debt financings. We have never generated revenues from commercial sales of our drugs and may not have drugs to market for at least several years, if ever. Our success is dependent on our ability to obtain additional capital by entering into new strategic collaborations and/or through equity or debt financings, and ultimately on our and our collaborators ability to successfully develop and market one or more of our drug candidates. We cannot be certain that sufficient funds will be available from such collaborators or financings when needed or on satisfactory terms. Additionally, there can be no assurance that any of drugs based on our drug candidates will be accepted in the marketplace or that any future products can be developed or manufactured at an acceptable cost. These factors could have a material adverse effect on our future financial results, financial position and cash flows.

Based on the current status of our development plans, we believe that our existing cash and cash equivalents, investments and interest earned on investments will be sufficient to meet our projected operating requirements for at least the next 12 months. If, at any time, our prospects for internally financing our research and development programs decline, we may decide to reduce research and development expenses by delaying, discontinuing or reducing our funding of development of one or more of our drug candidates or of other research and development programs. Alternatively, we might raise funds through strategic relationships, public or private financings or other arrangements. There can be no assurance that funding, if needed, will be available on attractive terms, or at all, or in accordance with our planned timelines. Furthermore, financing obtained through future strategic relationships may require us to forego certain commercialization and other rights to our drug candidates. Similarly, any additional equity financing may be dilutive to stockholders and debt financing, if available, may involve restrictive covenants. 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 strategy.

Off-balance Sheet Arrangements

We are not party to any off-balance sheet arrangements that have, or are reasonably likely to have, a material current or future effect on our financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources.

Critical Accounting Policies and Estimates

Our discussion and analysis of our financial condition and results of operations are based on our financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities and expenses and related disclosure of contingent assets and liabilities. We review our estimates on an ongoing basis. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances. Actual results may differ from these estimates under different assumptions or conditions. While our significant accounting policies are described in more detail in the notes to our financial statements included in this Annual Report on Form 10-K, we believe the following accounting policies to be critical to the judgments and estimates used in the preparation of our financial statements.

Investments

Available-for-sale investments. Our investments consist of U.S. Treasury securities, and money market funds. We designate all investments as available-for-sale. Therefore, they are reported at fair value, with unrealized gains and losses recorded in accumulated other comprehensive income. See Note 4, Cash

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Equivalents and Investments in the Notes to Consolidated Financial Statements for further detailed discussion. Investments with original maturities greater than three months and remaining maturities less than one year are classified as short-term investments. Investments with remaining maturities greater than one year are classified as long-term investments. The amortized cost of debt securities in this category is adjusted for amortization of premiums and accretion of discounts to maturity. Such amortization is included in interest income. Realized gains and losses and declines in value judged to be other-than-temporary, if any, on available-for-sale securities are included in other income or expense. Interest and dividends on securities classified as available-for-sale are included in Interest and Other, net.

Other-than-temporary impairment. All of our available-for-sale investments are subject to a periodic impairment review. We recognize an impairment charge when a decline in the fair value of our investments below the cost basis is judged to be other-than-temporary. Factors considered by management in assessing whether an other-than-temporary impairment has occurred include: the nature of the investment; whether the decline in fair value is attributable to specific adverse conditions affecting the investment; the financial condition of the investee; the severity and the duration of the impairment; and whether we have the intent and ability to hold the investment to maturity. When we determine that an other-than-temporary impairment has occurred, the investment is written down to its market value at the end of the period in which we determine that an other-than-temporary decline occurred.

Revenue Recognition

We recognize revenue when the following criteria have been met: persuasive evidence of an arrangement exists; delivery has occurred or services have been rendered; the fee is fixed or determinable; and collectability is reasonably assured. Determination of whether persuasive evidence of an arrangement exists and whether delivery has occurred or services have been rendered are based on management s judgments regarding the fixed nature of the fee charged for research performed and milestones met, and the collectability of those fees. Should changes in conditions cause management to determine these criteria are not met for certain future transactions, revenue recognized for any reporting period could be adversely affected.

Revenue under our license and collaboration arrangements is recognized based on the performance requirements of the contract. Research and development revenues, which are earned under agreements with third parties for agreed research and development activities, may include non-refundable license fees, research and development funding, cost reimbursements and contingent milestones and royalties. The Company s collaborations prior to January 1, 2011 with multiple elements were evaluated and divided into separate units of accounting if certain criteria are met, including whether the delivered element has stand-alone value to the customer and whether there was vendor-specific objective and reliable evidence (VSOE) of the fair value of the undelivered items. The consideration the Company received was allocated among the separate units based on their respective fair values, and the applicable revenue recognition criteria were applied to each of the separate units. The consideration the Company received was combined and recognized as a single unit of accounting when criteria for separation were not met. On January 1, 2011, ASC Topic 605-25, *Revenue Recognition Multiple-Element Arrangements* (ASC 605-25) on the recognition of revenues for agreements with multiple deliverables became effective and applies to any agreements the Company entered into on or after January 1, 2011. Under this updated guidance, revenue is allocated to each element using a selling price hierarchy, where the selling price for an element is based on VSOE if available; third-party evidence (TPE), if available and VSOE is not available; or the best estimate of selling price, if neither VSOE nor TPE is available.

Upfront, non-refundable licensing payments are assessed to determine whether or not the licensee is able to obtain stand-alone value from the license. Where the license does not have stand-alone value, non-refundable license fees are recognized as revenue as we perform under the applicable agreement. Where the level of effort is relatively consistent over the performance period, we recognize total fixed or determined revenue on a straight-line basis over the

estimated period of expected performance. Where the license has stand-alone value, we recognize total license revenue at the time all revenue recognition criteria have been met.

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Also on January 1, 2011, ASC Topic 605-28, *Revenue Recognition Milestone Method* (ASC 605-28) became effective and established the milestone method as an acceptable method of revenue recognition for certain contingent event-based payments under research and development arrangements. Under the milestone method, a payment that is contingent upon the achievement of a substantive milestone is recognized in its entirety in the period in which the milestone is achieved. A milestone is an event (i) that can be achieved based in whole or in part on either our performance or on the occurrence of a specific outcome resulting from our performance, (ii) for which there is substantive uncertainty at the date the arrangement is entered into that the event will be achieved, and (iii) that would result in additional payments being due to us. The determination that a milestone is substantive is based on management s judgment and is made at the inception of the arrangement. Milestones are considered substantive when the consideration earned from the achievement of the milestone is (i) commensurate with either our performance to achieve the milestone or the enhancement of value of the item delivered as a result of a specific outcome resulting from our performance to achieve the milestone, (ii) relates solely to past performance and (iii) is reasonable relative to all deliverables and payment terms in the arrangement.

Other contingent event-based payments received for which payment is either contingent solely upon the passage of time or the results of a collaborative partner s performance are not considered milestones under ASC 605-28. Such payments will be recognized as revenue when all of the following criteria are met: (i) persuasive evidence of an arrangement exists, (ii) delivery has occurred or services have been rendered, (iii) price is fixed or determinable, (iv) and collectability is reasonably assured.

We account for milestone payments under the provisions of ASC 605-28. We consider an event to be a milestone if there is substantive uncertainty at the date the arrangement is entered into that the event will be achieved, if the event can only be achieved with our performance, and if the achievement of the event results in payment to us. If we determine a milestone is substantive, we recognize revenue when payment is earned and becomes payable. For a milestone to be considered substantive, it must be achieved with our performance, be reasonable relative to the terms of the arrangement and be commensurate with our effort to achieve the milestone or commensurate with the enhanced value of the delivered item(s) as a result of the milestone achievement. If we determine a milestone is not substantive, we defer the payment and recognize revenue over the estimated period of performance as we complete our performance obligations, if any.

Research and development revenues and cost reimbursements are based upon negotiated rates for our FTEs and actual out-of-pocket costs. FTE rates are negotiated rates that are based upon our costs, and which we believe approximate fair value. Any amounts received in advance of performance are recorded as deferred revenue. None of the revenues recognized to date are refundable if the relevant research effort is not successful. In revenue arrangements in which both parties make payments to each other, we evaluate the payments to determine whether payments made by us will be recognized as a reduction of revenue or as expense. Revenue we recognize may be reduced by payments made to the other party under the arrangement unless we receive a separate and identifiable benefit in exchange for the payments and we can reasonably estimate the fair value of the benefit received. In arrangements in which we are the primary obligor, we record expense reimbursements from the other party as research and development revenue. If we are not the primary obligor, we record payments as a reduction of revenue.

Funds received from third parties under grant arrangements are recorded as revenue if we are deemed to be the principal participant in the grant arrangement as the activities under the grant are part of our development programs. If we are not the principal participant, the grant funds are recorded as a reduction to research and development expense. Grant 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 received in advance are recorded as deferred revenue.

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Preclinical Study and Clinical Trial Accruals

A substantial portion of our preclinical studies and all of our clinical trials have been performed utilizing third-party contract research organizations (CROs) and other vendors. For preclinical studies, the significant factors used in estimating accruals include the percentage of work completed to date and contract milestones achieved. For clinical trial expenses, the significant factors used in estimating accruals include the number of patients enrolled, duration of enrollment and percentage of work completed to date. We monitor patient enrollment levels and related activities to the extent possible through internal reviews, correspondence and status meetings with CROs and review of contractual terms. Our estimates are dependent on the timeliness and accuracy of data provided by our CROs and other vendors. If we have incomplete or inaccurate data, we may under- or overestimate activity levels associated with various studies or clinical trials at a given point in time. In this event, we could record adjustments to research and development expenses in future periods when the actual activity levels become known.

Stock-Based Compensation

We apply the accounting guidance for stock compensation, which establishes the accounting for share-based payment awards made to employees and directors, including employee stock options and employee stock purchases. Under this guidance, stock-based compensation cost is measured at the grant date based on the calculated fair value of the award, and is recognized as an expense on a straight-line basis over the employee s requisite service period, generally the vesting period of the award.

Under the guidance for stock compensation for non-employees, we measure the fair value of the award each period until the award is fully vested. Compensation cost for restricted stock awards that contain performance conditions is based on the grant date fair value of the award and compensation expense is recorded over the implicit or explicit requisite service period based on management s best estimate as to whether it is probable that the shares awarded are expected to vest.

As required under the accounting rules, we review our valuation assumptions at each grant date and, as a result, from time to time we will likely change the valuation assumptions we use to value stock based awards granted in future periods. The assumptions used in calculating the fair value of share-based payment awards represent management s best estimates at the time, but these estimates involve inherent uncertainties and the application of management judgment. As a result, if conditions change and we use different assumptions, our stock-based compensation expense could be materially different in the future. In addition, we are required to estimate the expected forfeiture rate and recognize expense only for those shares expected to vest. If our actual forfeiture rate is materially different from our estimate, the stock-based compensation expense could be significantly different from what we have recorded in the current period.

Income Taxes

We account for income taxes under the asset and liability method. Under this method, deferred tax assets and liabilities are determined based on the difference between the financial statement and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to affect taxable income. Valuation allowances are established when necessary to reduce the deferred tax assets to the amounts expected to be realized. We did not record an income tax provision in the years ended December 31, 2016, 2015 or 2014 because we either had net taxable losses in these periods or was able to utilize tax attributes to offset taxable income.

Based upon the weight of available evidence, which includes our historical operating performance, reported cumulative net losses since inception, expected future losses, and difficulty in accurately forecasting our future results,

we maintained a full valuation allowance on the net deferred tax assets as of December 31, 2016, 2015 and 2014. The valuation allowance was determined pursuant to the accounting guidance for income taxes, which

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requires an assessment of both positive and negative evidence when determining whether it is more likely than not that deferred tax assets are recoverable. We intend to maintain a full valuation allowance on the U.S. deferred tax assets until sufficient positive evidence exists to support reversal of the valuation allowance. The valuation allowance decreased by $2.2 million in 2016 and increased by $13.9 million in 2015 and $1.0 million in 2014.

We also follow the accounting guidance that defines the threshold for recognizing the benefits of tax return positions in the financial statements as more-likely-than-not to be sustained by the taxing authorities based solely on the technical merits of the position. If the recognition threshold is met, the tax benefit is measured and recognized as the largest amount of tax benefit that, in our judgment, is greater than 50% likely to be realized.

Interest accrued related to unrecognized tax benefits and penalties was zero for 2016, 2015 and 2014. We account for interest related to unrecognized tax benefits and penalties by classifying both as income tax expense in the financial statements in accordance with the accounting guidance for uncertainty in income taxes. We do not expect our unrecognized tax benefits to change materially over the next twelve months.

The significant jurisdictions in which we file income tax returns are the United States and the state of California. For jurisdictions in which tax filings are made, we are subject to income tax examination for all fiscal years since inception. The IRS s Large Business and International Division concluded its audit of the 2009 tax year with no material adjustments. However, in general, the statute of limitations for tax liabilities for these years remains open for the purpose of adjusting the amounts of the losses and credits carried forward from those years. We believe that we maintain adequate reserves for uncertain tax positions.

In general, under Section 382 of the Internal Revenue Code (Section 382), a corporation that undergoes an ownership change is subject to limitations on its ability to utilize its pre-change net operating losses (NOLs) and tax credits to offset future taxable income. We have performed a Section 382 analysis and do not believe that we have experienced an ownership change since 2006. A portion of our existing NOLs and tax credits are subject to limitations arising from previous ownership changes. Future changes in our stock ownership, some of which are outside of our control, could result in an ownership change under Section 382 and result in additional limitations.

Recent Accounting Pronouncements

See Recent Accounting Pronouncements in Note 1, Organization and Significant Accounting Policies in the Notes to Consolidated Financial Statements for a discussion of recently adopted accounting pronouncements and accounting pronouncements not yet adopted, and their expected impact on our financial position and results of operations.

Item 7A. ***Quantitative and Qualitative Disclosures About Market Risk***

Interest Rate and Market Risk

Investments

Our exposure to market risk is limited to interest rate sensitivity, which is affected by changes in the general level of U.S. interest rates, particularly because the majority of our investments are in short-term debt securities. The primary objective of our investment activities is to preserve principal while at the same time maximizing the income we receive without significantly increasing risk. We are exposed to the impact of interest rate changes and changes in the market values of our investments. Our interest income is sensitive to changes in the general level of U.S. interest rates. Our exposure to market rate risk for changes in interest rates relates primarily to our investment portfolio. We have not used derivative financial instruments in our investment portfolio. We invest the majority of our excess cash in

U.S. Treasuries and, by policy, limit the amount of credit exposure in any one issuer and investment class, with the exception of obligations of the U.S. Treasury and federal agencies, for which there are no such limits. We protect and preserve our invested funds by attempting to limit default, market

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and reinvestment risk. Investments in both fixed-rate and floating-rate interest-earning instruments carry a degree of interest rate risk. Fixed-rate securities may have their fair market value adversely impacted due to a rise in interest rates, while floating-rate securities may produce less income than expected if interest rates fall. Due in part to these factors, our future investment income may fall short of expectations due to changes in interest rates. To minimize risk, we maintain our portfolio of cash and cash equivalents and short- and long-term investments in a variety of interest-bearing instruments, including U.S. government and agency securities, high grade municipal and U.S. bonds and money market funds. Our investment portfolio of short- and long-term investments is subject to interest rate risk, and will fall in value if market interest rates increase.

Our cash and cash equivalents are invested in highly liquid securities with maturities of three months or less at the time of purchase. Consequently, we do not consider our cash and cash equivalents to be subject to significant interest rate risk and have therefore excluded them from the table below. We do not have any foreign currency or derivative financial instruments.

The table below presents the principal amounts and weighted average interest rates by year of maturity for our investment portfolio (dollars in thousands):

	2017	Fair Value at December 31, 2016
Assets:		
Investments, Short Term	$ 89,375	$ 89,375
Average interest rate	0.6%	
Investments U.S. Treasury, Long Term	$ 7,496	$ 7,496
Average interest rate	0.8%	

Long Term Debt

Principal payments on our Loan Agreement are paid in 36 equal installments beginning on October 2017 with the outstanding balance to be repaid in October 2020. The loan bears interest at a rate of 7.5% per annum. The outstanding borrowings carry a fixed interest rate, however, changes in market interest rates may affect the fair value of the loan, but do not impact earnings or cash flows. The net carrying value of the Loan Agreement as of December 31, 2016 is $29.9 million and approximates fair value. Borrowings under the Loan Agreement as of December 31, 2016 totaled $30 million with a weighted average interest rate of 7.5%.

The following are the future payments under the terms of the Loan Agreement:

2017	$ 4,768
2018	11,743
2019	10,982
2020	8,938
Total minimum payments	36,431
Less: Interest and final payment	(6,431)

Notes payable, gross	$ 30,000

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Item 8. ***Financial Statements and Supplementary Data***

CYTOKINETICS, INCORPORATED

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of Cytokinetics, Incorporated:

In our opinion, the accompanying consolidated balance sheets and the related consolidated statements of operations and comprehensive income (loss), of stockholders equity and of cash flows present fairly, in all material respects, the financial position of Cytokinetics, Incorporated and its subsidiary as of December 31, 2016 and 2015, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2016 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2016, based on criteria established in *Internal Control Integrated Framework 2013* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company s management is responsible for these financial statements, for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in Management s Report on Internal Control over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on these financial statements and on the Company s internal control over financial reporting based on our integrated audits. We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

A company s internal control over financial reporting is a process designed 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. A company s internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company s assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ PRICEWATERHOUSECOOPERS LLP

San Jose, California

March 6, 2017

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CYTOKINETICS, INCORPORATED

CONSOLIDATED BALANCE SHEETS

	December 31,	
	2016	2015
	(In thousands, except share and per share data)	
ASSETS		
Current assets:		
Cash and cash equivalents	$ 66,874	$ 65,076
Short-term investments	89,375	46,366
Related party accounts receivable	24	12
Prepaid and other current assets	2,360	1,653
Total current assets	158,633	113,107
Long-term investments	7,672	179
Property and equipment, net	3,637	1,751
Other assets	200	200
Total assets	$ 170,142	$ 115,237
LIABILITIES AND STOCKHOLDERS EQUITY		
Current liabilities:		
Accounts payable	$ 4,236	$ 2,238
Accrued liabilities	18,047	8,421
Deferred revenue, current	8,060	20,858
Current portion of long-term debt	2,500	
Short-term portion of deferred rent and interest payable	415	132
Total current liabilities	33,258	31,649
Long-term debt	27,381	14,639
Deferred revenue, non-current	15,000	
Long-term portion of deferred rent	142	359
Total liabilities	75,781	46,647
Commitments and contingencies (Note 10)		
Stockholders equity:		
Preferred stock, $0.001 par value:		
Authorized: 10,000,000 shares;		
Issued and outstanding: Series A Convertible Preferred Stock zero shares at December 31, 2016 and December 31, 2015		
Common stock, $0.001 par value:		
Authorized: 163,000,000 shares at December 31, 2016 and 81,500,000 shares at December 31, 2015;		

Issued and outstanding: 40,646,595 shares at December 31, 2016 and 39,581,692 shares at December 31, 2015	41	40
Additional paid-in capital	612,474	603,145
Accumulated other comprehensive income	137	149
Accumulated deficit	(518,291)	(534,744)
Total stockholders equity	94,361	68,590
Total liabilities and stockholders equity	$ 170,142	$ 115,237

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

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CYTOKINETICS, INCORPORATED

CONSOLIDATED STATEMENT OF OPERATIONS AND COMPREHENSIVE INCOME (LOSS)

	Years Ended December 31,		
	2016	2015	2014
	(In thousands, except per share data)		
Revenues:			
Research and development revenues from related parties, net	$ 42,994	$ 14,665	$ 19,538
Research and development, grant and other revenues	1,242	75	17,566
License revenues from related parties	62,171	13,918	
License revenues			9,836
Total revenues	106,407	28,658	46,940
Operating expenses:			
Research and development	59,897	46,398	44,426
General and administrative	27,823	19,667	17,268
Total operating expenses	87,720	66,065	61,694
Operating income (loss)	18,687	(37,407)	(14,754)
Interest expense	(2,698)	(268)	
Interest and other income, net	464	174	108
Income (loss) before income taxes	16,453	(37,501)	(14,646)
Income tax benefit			
Net income (loss)	$ 16,453	$ (37,501)	$ (14,646)
Net income (loss) per share basic	$ 0.41	$ (0.97)	$ (0.41)
Net income (loss) per share diluted	$ 0.39	$ (0.97)	$ (0.41)
Weighted-average number of shares used in computing net income (loss) per share basic	39,943	38,814	35,709
Weighted-average number of shares used in computing net income (loss) per share diluted	42,561	38,814	35,709
Other comprehensive income (loss):			
Unrealized gains (losses) on available-for-sale securities, net	(12)	153	(11)
Comprehensive income (loss)	$ 16,441	$ (37,348)	$ (14,657)

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

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CYTOKINETICS, INCORPORATED

CONSOLIDATED STATEMENTS OF STOCKHOLDERS EQUITY

	Common Stock Shares	Amount	Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders Equity
			(In thousands, except share and per share data)			
Balance, December 31, 2013	30,681,624	$ 31	$ 537,001	$ 7	$ (482,597)	$ 54,442
Issuance of common stock upon exercise of stock options for cash at $6.00 per share	390		2			2
Issuance of common stock pursuant to ESPP at a weighted price of $3.38 per share	19,726		67			67
Issuance of common stock upon vesting of restricted stock units, net of taxes withheld	11,704		(96)			(96)
Issuance of common stock upon exercise of warrants	510,125	1	5			6
Issuance of common stock to MLV at $6.64-$6.79 per share, net of commission and issuance costs of $74	364,103		2,376			2,376
Issuance of common stock to collaborative partner for $4.90 per share, net of issuance costs of $8	2,040,816	2	9,100			9,102
Issuance of common stock pursuant to February 2014 public offerings at $8.00 per share, net of issuance costs of $2,800	5,031,250	5	37,487			37,492
Stock-based compensation			3,330			3,330
Other comprehensive loss				(11)		(11)
Net loss					(14,646)	(14,646)
Balance, December 31, 2014	38,659,738	$ 39	$ 589,272	$ (4)	$ (497,243)	$ 92,064
Issuance of common stock upon exercise of stock options at a weighted price of $6.22 per share	68,635		427			427
Issuance of common stock pursuant to ESPP at a weighted price of $3.24 per share	21,167		69			69
Issuance of common stock upon vesting of restricted stock units, net	23,725		(144)			(144)

of taxes withheld						
Issuance of common stock upon exercise of warrants	234					
Issuance of common stock under CE Offering at $7.00-$12.68 per share, net of commission and issuance costs of $205	808,193	1	8,672			8,673
Issuance of warrants pursuant to the Loan Agreement			282			282
Stock-based compensation			4,567			4,567
Other comprehensive income				153		153
Net loss					(37,501)	(37,501)
Balance, December 31, 2015	39,581,692	$ 40	$ 603,145	$ 149	$ (534,744)	$ 68,590
Issuance of common stock upon exercise of stock options at a weighted price of $6.75 per share	74,556		503			503
Issuance of common stock pursuant to ESPP at a weighted price of $7.08 per share	129,604		917			917
Issuance of common stock upon vesting of restricted stock units, net of taxes withheld	25,745		(135)			(135)
Issuance of common stock upon exercise of warrants	834,998	1	610			611
Issuance of warrants pursuant to the Loan Agreement			288			288
Stock-based compensation			7,146			7,146
Other comprehensive loss				(12)		(12)
Net income					16,453	16,453
Balance, December 31, 2016	40,646,595	$ 41	$ 612,474	$ 137	$ (518,291)	$ 94,361

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

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CYTOKINETICS, INCORPORATED

CONSOLIDATED STATEMENTS OF CASH FLOWS

	Years Ended December 31,		
	2016	2015	2014
	(In thousands)		
Cash flows from operating activities:			
Net income (loss)	$ 16,453	$ (37,501)	$ (14,646)
Adjustments to reconcile net income (loss) to net cash provided by (used in) operating activities:			
Depreciation and amortization of property and equipment	741	589	490
Gain on disposal of equipment	(18)	(18)	
Non-cash interest expense	534	3	
Stock-based compensation	7,146	4,567	3,330
Gain on sale of investments		(3)	(6)
Changes in operating assets and liabilities:			
Related party accounts receivable	(12)	46,634	(46,641)
Prepaid and other assets	(707)	(396)	274
Accounts payable	1,698	755	(2,178)
Accrued and other liabilities	8,945	2,995	(2,865)
Deferred revenue	2,202	(12,742)	17,399
Net cash provided by (used in) operating activities	36,982	4,883	(44,843)
Cash flows from investing activities:			
Purchases of investments	(145,158)	(115,566)	(107,043)
Proceeds from sales and maturities of investments	94,645	132,190	104,098
Purchases of property and equipment	(1,596)	(562)	(1,104)
Proceeds from sales of property and equipment	33	1	
Net cash provided by (used in) investing activities	(52,076)	16,063	(4,049)
Cash flows from financing activities:			
Proceeds from public offerings of common stock, net of issuance costs		8,673	48,971
Proceeds from long term debt, net of debt discount and issuance costs	14,996	14,890	
Proceeds (payments) from stock based award activities and warrants, net	1,896	352	(22)
Net cash provided by financing activities	16,892	23,915	48,949
Net increase in cash and cash equivalents	1,798	44,861	57
Cash and cash equivalents, beginning of period	65,076	20,215	20,158

Cash and cash equivalents, end of period	$ 66,874	$ 65,076	$ 20,215

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

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CYTOKINETICS, INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 1 Organization and Significant Accounting Policies

Organization

Cytokinetics, Incorporated (the Company , we or our) was incorporated under the laws of the state of Delaware on August 5, 1997. The Company is a late stage biopharmaceutical company focused on the discovery and development of novel small molecule therapeutics that modulate muscle function for the potential treatment of serious diseases and medical conditions.

The Company s financial statements contemplate the conduct of the Company s operations in the normal course of business. The Company has incurred an accumulated deficit of $518.3 million since inception and there can be no assurance that the Company will attain profitability. The Company had net income of $16.4 million and net cash provided by operations of $37.0 million for the year ended December 31, 2016. Cash, cash equivalents and investments increased to $163.9 million at December 31, 2016 from $111.6 million at December 31, 2015. The Company anticipates that it will have operating losses and net cash outflows in future periods.

The Company is subject to risks common to late stage biopharmaceutical companies including, but not limited to, development of new drug candidates, dependence on key personnel, and the ability to obtain additional capital as needed to fund its future plans. The Company s liquidity will be impaired if sufficient additional capital is not available on terms acceptable to the Company. To date, the Company has funded its operations primarily through sales of its common stock and convertible preferred stock, contract payments under its collaboration agreements, debt financing arrangements, government grants and interest income. Until it achieves profitable operations, the Company intends to continue to fund operations through payments from strategic collaborations, additional sales of equity securities, grants and debt financings. The Company has never generated revenues from commercial sales of its drugs and may not have drugs to market for at least several years, if ever. The Company s success is dependent on its ability to enter into new strategic collaborations and/or raise additional capital and to successfully develop and market one or more of its drug candidates. As a result, the Company may choose to raise additional capital through equity or debt financings to continue to fund its operations in the future. The Company cannot be certain that sufficient funds will be available from such a financing or through a collaborator when required or on satisfactory terms. Additionally, there can be no assurance that the Company s drug candidates will be accepted in the marketplace or that any future products can be developed or manufactured at an acceptable cost. These factors could have a material adverse effect on the Company s future financial results, financial position and cash flows.

Based on the current status of its research and development plans, the Company believes that its existing cash, cash equivalents and investments will be sufficient to fund its cash requirements for at least the next 12 months. If, at any time, the Company s prospects for financing its research and development programs decline, the Company may decide to reduce research and development expenses by delaying, discontinuing or reducing its funding of one or more of its research or development programs. Alternatively, the Company might raise funds through strategic collaborations, public or private financings or other arrangements. Such funding, if needed, may not be available on favorable terms, or at all. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the financial statements and the

CYTOKINETICS, INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Basis of Presentation

The consolidated financial statements include the accounts of Cytokinetics and its wholly owned subsidiary and have been prepared in accordance with U.S. generally accepted accounting principles (US GAAP). Intercompany transactions and balances have been eliminated in consolidation.

Concentration of Credit Risk and Other Risks and Uncertainties

Financial instruments that potentially subject the Company to concentrations of risk consist principally of cash and cash equivalents, investments, long term debt and accounts receivable.

The Company s cash, cash equivalents and investments are invested in deposits with three major financial institutions in the United States. Deposits in these banks may exceed the amount of insurance provided on such deposits. The Company has not experienced any realized losses on its deposits of cash, cash equivalents or investments.

The economic turmoil in the United States in recent years, the extraordinary volatility in the stock markets and other current negative macroeconomic indicators could negatively impact the Company s ability to raise the funds necessary to support its business and may materially adversely affect its business, operating results and financial condition.

The Company performs an ongoing credit evaluation of its strategic partners financial conditions and generally does not require collateral to secure accounts receivable from its strategic partners. The Company s exposure to credit risk associated with non-payment will be affected principally by conditions or occurrences within Amgen Inc. (Amgen) and Astellas Pharma Inc. (Astellas), its strategic partners. Approximately 26%, 9% and 10% of total revenues for the years ended December 31, 2016, 2015 and 2014, respectively, were derived from Amgen. There were no accounts receivable due from Amgen at December 31, 2016 and 2015. Approximately 73%, 91% and 90% of total revenues for the years ended December 31, 2016, 2015 and 2014, respectively, were derived from Astellas. There were no accounts receivable due from Astellas at December 31, 2016 and 2015. See also Note 7, Related Party Transactions, regarding the collaboration agreements with Amgen and Astellas.

Drug candidates developed by the Company may require approvals or clearances from the U.S. Food and Drug Administration (FDA) or international regulatory agencies prior to commercial sales. There can be no assurance that the Company s drug candidates will receive any of the required approvals or clearances. If the Company was to be denied approval or clearance or any such approval or clearance was to be delayed, it would have a material adverse impact on the Company.

The Company s operations and employees are located in the United States. In the year ended December 31, 2016, 27% of the Company s revenues were received from entities located in the United States and 73% were received from a Japanese entity. In the year ended December 31, 2015, 9% of the Company s revenues were received from entities located in the United States and 91% were received from a Japanese entity. In the year ended December 31, 2014,

10% of the Company s revenues were received from entities located in the United States and 90% were received from a Japanese entity.

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CYTOKINETICS, INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Cash and Cash Equivalents

The Company considers all highly liquid investments with a maturity of three months or less at the time of purchase to be cash equivalents.

Investments

Available-for-sale investments. The Company s investments consist of U.S. Treasury securities, and money market funds. The Company designates all investments as available-for-sale and therefore reports them at fair value, based on quoted marked prices, with unrealized gains and losses recorded in accumulated other comprehensive loss. The cost of securities sold is based on the specific-identification method. Investments with original maturities greater than three months and remaining maturities of one year or less are classified as short-term investments. Investments with remaining maturities greater than one year are classified as long-term investments. The amortized cost of debt securities in this category is adjusted for amortization of premiums and accretion of discounts to maturity. Such amortization is included in interest income. Recognized gains and losses and declines in value judged to be other-than-temporary, if any, on available-for-sale securities are included in other income or expense. Interest and dividends on securities classified as available-for-sale are included in Interest and other, net.

Other-than-temporary impairment. All of the Company s available-for-sale investments are subject to a periodic impairment review. The Company recognizes an impairment charge when a decline in the fair value of its investments below the cost basis is judged to be other-than-temporary. Factors considered by management in assessing whether an other-than-temporary impairment has occurred include: the nature of the investment; whether the decline in fair value is attributable to specific adverse conditions affecting the investment; the financial condition of the investee; the severity and the duration of the impairment; and whether the Company has the intent and ability to hold the investment to maturity. When the Company determines that an other-than-temporary impairment has occurred, the investment is written down to its market value at the end of the period in which it is determined that an other-than-temporary decline has occurred.

Fair Value of Financial Instruments

The fair value of financial instruments reflects the amounts that would be received upon the sale of an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

Cash, accounts payable and accrued liabilities are carried at cost, which approximates fair value given their short-term nature. Marketable securities and cash equivalents, are carried at fair value.

Property and Equipment, net

Property and equipment are stated at cost less accumulated depreciation and are depreciated on a straight-line basis over the estimated useful lives of the related assets, which are generally three years for computer equipment and software, five years for laboratory equipment and office equipment, and seven years for furniture and fixtures. Amortization of leasehold improvements is computed using the straight-line method over the shorter of the remaining

lease term or the estimated useful life of the related assets, typically ranging from three to seven years. Upon sale or retirement of assets, the costs and related accumulated depreciation and amortization are removed from the balance sheet and the resulting gain or loss is reflected in operations. Maintenance and repairs are charged to operations as incurred.

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CYTOKINETICS, INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Impairment of Long-lived Assets

In accordance with the accounting guidance for the impairment or disposal of long-lived assets, the Company reviews long-lived assets, including property and equipment, for impairment whenever events or changes in business circumstances indicate that the carrying amount of the assets may not be fully recoverable. Under the accounting guidance, an impairment loss would be recognized when estimated undiscounted future cash flows expected to result from the use of the asset and its eventual disposition are less than its carrying amount. Impairment, if any, is measured as the amount by which the carrying amount of a long-lived asset exceeds its fair value.

Revenue Recognition

The accounting guidance for revenue recognition requires that the following criteria must be met before revenue can be recognized: (i) persuasive evidence of an arrangement exists; (ii) delivery has occurred or services have been rendered; (iii) the fee is fixed or determinable; and (iv) collectability is reasonably assured. Determination of whether persuasive evidence of an arrangement exists and whether delivery has occurred or services have been rendered are based on management s judgments regarding the fixed nature of the fee charged for research performed and milestones met, and the collectability of those fees. Should changes in conditions cause management to determine these criteria are not met for certain future transactions, revenue recognized for any reporting period could be adversely affected.

Revenue under the Company s license and collaboration arrangements is recognized based on the performance requirements of the contract. Research and development revenues, which are earned under agreements with third parties for agreed research and development activities, may include non-refundable license fees, research and development funding, cost reimbursements and contingent milestones and royalties. The Company s collaborations prior to January 1, 2011 with multiple elements were evaluated and divided into separate units of accounting if certain criteria are met, including whether the delivered element has stand-alone value to the customer and whether there was vendor-specific objective and reliable evidence (VSOE) of the fair value of the undelivered items. The consideration the Company received was allocated among the separate units based on their respective fair values, and the applicable revenue recognition criteria were applied to each of the separate units. The consideration the Company received was combined and recognized as a single unit of accounting when criteria for separation were not met. On January 1, 2011, ASC Topic 605-25, *Revenue Recognition Multiple-Element Arrangements* (ASC 605-25) on the recognition of revenues for agreements with multiple deliverables became effective and applies to any agreements the Company entered into on or after January 1, 2011. Under this updated guidance, revenue is allocated to each element using a selling price hierarchy, where the selling price for an element is based on VSOE if available; third-party evidence (TPE), if available and VSOE is not available; or the best estimate of selling price, if neither VSOE nor TPE is available.

Upfront, non-refundable licensing payments are assessed to determine whether or not the licensee is able to obtain stand-alone value from the license. Where the license does not have stand-alone value, non-refundable license fees are recognized as revenue as the Company performs under the applicable agreement. Where the level of effort is relatively consistent over the performance period, the Company recognizes total fixed or determined revenue on a straight-line basis over the estimated period of expected performance. Where the license has stand-alone value, the Company recognizes total license revenue at the time all revenue recognition criteria have been met.

ASC Topic 605-28, *Revenue Recognition Milestone Method* (ASC 605-28), established the milestone method as an acceptable method of revenue recognition for certain contingent event-based payments under research and development arrangements. Under the milestone method, a payment that is contingent upon the

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CYTOKINETICS, INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

achievement of a substantive milestone is recognized in its entirety in the period in which the milestone is achieved. A milestone is an event (i) that can be achieved based in whole or in part on either the Company s performance or on the occurrence of a specific outcome resulting from the Company s performance, (ii) for which there is substantive uncertainty at the date the arrangement is entered into that the event will be achieved, and (iii) that would result in additional payments being due to the Company. The determination that a milestone is substantive is judgmental and is made at the inception of the arrangement. Milestones are considered substantive when the consideration earned from the achievement of the milestone is (i) commensurate with either the Company s performance to achieve the milestone or the enhancement of value of the item delivered as a result of a specific outcome resulting from the Company s performance to achieve the milestone, (ii) relates solely to past performance and (iii) is reasonable relative to all deliverables and payment terms in the arrangement.

Other contingent event-based payments received for which payment is either contingent solely upon the passage of time or the results of a collaborative partner s performance are not considered milestones under ASC 605-28. Such payments will be recognized as revenue when all of the following criteria are met: (i) persuasive evidence of an arrangement exists, (ii) delivery has occurred or services have been rendered, (iii) price is fixed or determinable, and (iv) collectability is reasonably assured.

The Company accounts for milestone payments under the provisions of ASC 605-28. The Company considers an event to be a milestone if there is substantive uncertainty at the date the arrangement is entered into that the event will be achieved, if the event can only be achieved with the Company s performance, and if the achievement of the event results in payment to the Company. If the Company determines a milestone is substantive, the Company recognizes revenue when payment is earned and becomes payable. For a milestone to be considered substantive, it must be achieved with the Company s performance, be reasonable relative to the terms of the arrangement and be commensurate with the Company s effort to achieve the milestone or commensurate with the enhanced value of the delivered item(s) as a result of the milestone achievement. If the Company determines a milestone is not substantive, the Company defers the payment and recognizes revenue over the estimated remaining period of performance as the Company completes its performance obligations, if any.

Research and development revenues and cost reimbursements are based upon negotiated rates for the Company s full-time employee equivalents (FTE) and actual out-of-pocket costs. FTE rates are negotiated rates that are based upon the Company s costs, and which the Company believes approximate fair value. Any amounts received in advance of performance are recorded as deferred revenue. None of the revenues recognized to date are refundable if the relevant research effort is not successful. In revenue arrangements in which both parties make payments to each other, the Company evaluates the payments in accordance with the accounting guidance for arrangements under which consideration is given by a vendor to a customer, including a reseller of the vendor s products, to determine whether payments made by us will be recognized as a reduction of revenue or as expense. In accordance with this guidance, revenue recognized by the Company may be reduced by payments made to the other party under the arrangement unless the Company receives a separate and identifiable benefit in exchange for the payments and the Company can reasonably estimate the fair value of the benefit received. In arrangements in which the Company is the primary obligor, the Company records expense reimbursements from the other party as research and development revenue. If the Company is not the primary obligor, the Company records payments as a reduction of revenue.

Funds received from third parties under grant arrangements are recorded as revenue if the Company is deemed to be the principal participant in the grant arrangement as the activities under the grant are part of the Company s development program. If the Company is not the principal participant, the grant funds are recorded as

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CYTOKINETICS, INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

a reduction to research and development expense. Grant 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 received in advance are recorded as deferred revenue.

Preclinical Studies and Clinical Trial Accruals

A substantial portion of the Company s preclinical studies and all of the Company s clinical trials have been performed by third-party contract research organizations (CROs) and other vendors. For preclinical studies, the significant factors used in estimating accruals include the percentage of work completed to date and contract milestones achieved. For clinical trial expenses, the significant factors used in estimating accruals include the number of patients enrolled, duration of enrollment and percentage of work completed to date. The Company monitors patient enrollment levels and related activities to the extent practicable through internal reviews, correspondence and status meetings with CROs, and review of contractual terms. The Company s estimates are dependent on the timeliness and accuracy of data provided by its CROs and other vendors. If the Company has incomplete or inaccurate data, it may under- or overestimate activity levels associated with various studies or trials at a given point in time. In this event, it could record adjustments to research and development expenses in future periods when the actual activity level becomes known.

Research and Development Expenditures

Research and development costs are charged to operations as incurred. Research and development expenses consist primarily of clinical manufacturing costs, preclinical study expenses, consulting and other third party costs, employee compensation, supplies and materials, allocation of overhead and occupancy costs, facilities costs and depreciation of equipment.

Income Taxes

The Company accounts for income taxes under the asset and liability method. Under this method, deferred tax assets and liabilities are determined based on the difference between the financial statement and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to affect taxable income. Valuation allowances are established when necessary to reduce deferred tax assets to the amounts expected to be realized.

The Company also follows the accounting guidance that defines the threshold for recognizing the benefits of tax return positions in the financial statements as more-likely-than-not to be sustained by the taxing authorities based solely on the technical merits of the position. If the recognition threshold is met, the tax benefit is measured and recognized as the largest amount of tax benefit that, in the Company s judgment, is greater than 50% likely to be realized.

Comprehensive Income (Loss)

The Company follows the accounting standards for the reporting and presentation of comprehensive income (loss) and its components in a continuous statement of comprehensive income (loss). Comprehensive income (loss) includes all changes in stockholders equity during a period from non-owner sources. Comprehensive income (loss) for each of the years ended December 31, 2016, 2015, and 2014 was equal to net loss adjusted for unrealized gains and losses on investments.

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CYTOKINETICS, INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Segment Reporting

The Company has determined that it operates in only one segment the discovery and development of first-in-class muscle activator therapies.

Stock-Based Compensation

The Company accounts for stock-based payment awards made to employees and directors, including employee stock options and employee stock purchases by measuring the stock-based compensation cost at the grant date based on the calculated fair value of the award, and recognizing expense on a straight-line basis over the employee s requisite service period, generally the vesting period of the award. Stock compensation for non-employees is measured at the fair value of the award for each period until the award is fully vested. Compensation cost for restricted stock awards that contain performance conditions is based on the grant date fair value of the award and compensation expense is recorded over the implicit or explicit requisite service period based on management s best estimate as to whether it is probable that the shares awarded are expected to vest.

The Company reviews the valuation assumptions at each grant date and, as a result, from time to time it will likely change the valuation assumptions it uses to value stock based awards granted in future periods. The assumptions used in calculating the fair value of share-based payment awards represent management s best estimates at the time, but these estimates involve inherent uncertainties and the application of management judgment. As a result, if conditions change and the management uses different assumptions, the Company s stock-based compensation expense could be materially different in the future. In addition, the Company is required to estimate the expected forfeiture rate and recognize expense only for those shares expected to vest. If the actual forfeiture rate is materially different from management s estimate, stock-based compensation expense could be significantly different from what has been recorded in the current period.

Recent Accounting Pronouncements

In August 2016, the FASB issued ASU 2016-15, *Statement of cash flows (Topic 230): Classification of certain cash receipts and cash payments* . ASU 2016-15 issued guidance to clarify how certain cash receipts and payments should be presented in the statement of cash flows. ASU 2016-15 is effective for annual and interim reporting periods beginning after December 15, 2017 and early adoption is permitted. The Company does not expect the adoption of this standard to have a material effect on its financial statements or disclosures.

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments Credit Losses Measurement of Credit Losses on Financial Instruments.* ASU 2016-13 changes the impairment model for most financial assets and certain other instruments. ASU 2016-13 is effective for annual and interim reporting periods beginning after December 15, 2019. The Company is in the process of evaluating the impact the adoption of this standard would have on its financial statements and disclosures.

In March 2016, the FASB issued ASU 2016-09, *Stock compensation (Topic 718).* ASU 2016-09 simplifies various aspects of accounting for share-based payments and presentation in the financial statements. ASU 2016-09 is effective

for annual and interim reporting periods beginning after December 15, 2016 and early adoption is permitted. We do not anticipate the adoption to have a material effect on our financial statements.

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842).* ASU 2016-02 requires management to record right-to-use asset and lease liability on the statement of financial position for operating leases. ASU 2016-02 is effective for annual and interim reporting periods beginning on or after December 15, 2018 and modified retrospective approach is required. Adoption of this new standard is not expected to have a material impact on the Company s consolidated financial statements.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

In January 2016, the FASB issued ASU 2016-01, *Financial instruments (Subtopic 825-10).* ASU 2016-01 requires management to measure equity investments at fair value with changes in fair value recognized in net income. ASU 2016-01 is effective for annual and interim reporting periods beginning on or after December 15, 2017 and early adoption is not permitted. The Company does not expect the adoption of ASU 2016-01 to have a material effect upon its financial statements or disclosures.

In August 2014, the FASB issued ASU 2014-15, *Presentation of Financial Statements Going Concern (Subtopic 205-40): Disclosure of Uncertainties about an Entity s Ability to Continue as a Going Concern.* ASU 2014-15 requires management to assess an entity s ability to continue as a going concern, and to provide related footnote disclosures in certain circumstances. ASU 2014-15 is effective for annual and interim reporting periods beginning on or after December 15, 2016 and early adoption is permitted. The Company adopted this new standard for the year ended December 31, 2016, and adoption did not have a material impact on the Company s consolidated financial statements. In June 2014, the FASB issued ASU 2014-12, Stock Compensation (Topic 718) an amendment to its accounting guidance related to stock-based compensation. The amendment requires that a performance target that could be achieved after the requisite service period be treated as a performance condition that affects vesting, rather than a condition that affects the grant-date fair value. ASU 2014-12 is effective for annual and interim periods beginning after December 15, 2015. Early adoption is permitted. The amendment can be applied on a prospective basis to all share-based payments granted or modified on or after the effective date. Entities will also be provided an option to apply the guidance on a modified retrospective basis to existing awards. The Company adopted this new standard for the year ended December 31, 2016, and adoption did not have a material impact on the Company s consolidated financial statements.

In May 2014, the FASB issued ASU 2014-09, *Revenue from Contracts with Customers (Topic 606)*, which requires an entity to recognize the amount of revenue to which it expects to be entitled for the transfer of promised goods or services to customers. The ASU will replace most existing revenue recognition guidance in U.S. GAAP when it becomes effective. In March 2016, the FASB amended the principal-versus-agent implementation guidance and illustrations in the new standard. In April 2016, the FASB amended the guidance on identifying performance obligations and the implementation guidance on licensing in the new standard. In May 2016, the FASB amended the guidance on collectability, noncash consideration, presentation of sales tax and transition in the new standard. In December 2016, the FASB issued ASU No. 2016-20, *Technical Corrections and Improvements to Topic 606, Revenue from Contracts with Customers*, which amends certain narrow aspects of the guidance issued in ASU 2014-09. The new standard will become effective starting on January 1, 2018. Early application is permitted to the original effective date of January 1, 2017. The Company will adopt the standard on January 1, 2018. The standard permits the use of either the modified retrospective method or full retrospective approach for all periods presented. While the Company is continuing to assess all potential impacts of the standard, the Company believes the most significant accounting impact will relate to the timing of the recognition of our license, collaboration, and milestone revenues.

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Note 2 Net Income (Loss) Per Share

Basic net income (loss) per share is computed by dividing net income (loss) by the weighted average number of vested common shares outstanding during the period. Diluted net income (loss) per share is computed by giving effect to all potentially dilutive common shares, including outstanding stock options, unvested restricted stock, warrants, convertible preferred stock and shares issuable under the Company s Employee Stock Purchase Plan (ESPP), by applying the treasury stock method. The following is the calculation of basic and diluted net income (loss) per share (in thousands, except per share data):

	Years Ended December 31,		
	2016	2015	2014
Net income (loss)	$ 16,453	$ (37,501)	$ (14,646)
Weighted-average shares used in computing net income (loss) per share basic	39,943	38,814	35,709
Effect of dilutive securities:			
Warrants to purchase common stock	2,019		
Options to purchase common stock	409		
Restricted stock units	181		
Shares issuable related to the ESPP	9		
Dilutive potential common shares	2,618		
Weighted-average shares used in computing net income (loss) per share diluted	42,561	38,814	35,709
Net income (loss) per share basic	$ 0.41	$ (0.97)	$ (0.41)
Net income (loss) per share diluted	$ 0.39	$ (0.97)	$ (0.41)

The following instruments were excluded from the computation of diluted net income (loss) per share for the periods presented because their effect would have been antidilutive (in thousands):

	December 31,		
	2016	2015	2014
Options to purchase common stock	3,688	4,835	3,298
Warrants to purchase common stock		5,641	6,691
Restricted and Performance stock units		757	63

Shares issuable related to the ESPP		16	15
Total shares	3,688	11,249	10,067

Note 3 Supplementary Cash Flow Data

Supplemental cash flow information was as follows (in thousands):

	Years Ended December 31,		
	2016	2015	2014
Cash paid for interest	$ 1,899	$ 94	$
Cash paid for income taxes	1	1	1
Significant non-cash investing and financing activities:			
Debt discount netted against proceeds from long term debt, recorded in equity	288	282	
Interest paid on the long-term debt, at inception	63	41	
Purchases of property and equipment through accounts payable	(320)	(147)	170
Purchases of property and equipment through accrued liabilities	(747)	(2)	27

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Note 4 Cash Equivalents and Investments

Cash Equivalents and Available for Sale Investments

The amortized cost and fair value of cash equivalents and available for sale investments at December 31, 2016 and 2015 were as follows (in thousands):

	December 31, 2016				
	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value	Maturity Dates
Cash equivalents U. S. Treasury securities and money market funds	$ 55,658	$	$	$ 55,658	
Short-term investments U.S. Treasury securities	$ 89,396	$ 2	$ (23)	$ 89,375	1/2017 12/2017
Long-term investments Equity and U.S. Treasury securities	$ 7,513	$ 176	$ (17)	$ 7,672	2/2018 3/2018

	December 31, 2015				
	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value	Maturity Dates
Cash equivalents money market funds	$ 63,136	$	$	$ 63,136	
Short-term investments U.S. Treasury securities	$ 46,395	$ 1	$ (30)	$ 46,366	2/2016 8/2016
Long-term investments equity securities	$	$ 179	$	$ 179	

As of December 31, 2016 and December 31, 2015, the Company s U.S. Treasury securities classified as short-term investments had unrealized losses of approximately $23,000 and $30,000, respectively. The net unrealized loss at December 31, 2016 and December 31, 2015 was primarily caused by increases in short-term interest rates subsequent to the purchase dates of the related securities. At December 31, 2016 there were no investments that had been in a continuous unrealized loss position for 12 months or longer. The Company collected the contractual cash flows on its U.S. Treasury securities that matured from January 1, 2017 through February 23, 2017 and expects to be able to collect all contractual cash flows on the remaining maturities of its U.S. Treasury securities.

Interest income was as follows (in thousands):

	Years Ended December 31,		
	2016	2015	2014
Interest income	$ 449	$ 156	$ 101

Note 5 Fair Value Measurements

The Company follows the fair value accounting guidance to value its financial assets and liabilities. Fair value is defined as the price that would be received for assets when sold or paid to transfer a liability in an orderly transaction between market participants at the measurement date (exit price). The Company utilizes market data or assumptions that the Company believes market participants would use in pricing the asset or liability, including assumptions about risk and the risks inherent in the inputs to the valuation technique. These inputs can be readily observable, market corroborated or generally unobservable.

The Company primarily applies the market approach for recurring fair value measurements and endeavors to utilize the best information reasonably available. Accordingly, the Company utilizes valuation techniques that

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

maximize the use of observable inputs and minimize the use of unobservable inputs to the extent possible, and considers the security issuers and the third-party insurers credit risk in its assessment of fair value.

The Company classifies the determined fair value based on the observability of those inputs. Fair value accounting guidance establishes a fair value hierarchy that prioritizes the inputs used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurement) and the lowest priority to unobservable inputs (Level 3 measurement). The three defined levels of the fair value hierarchy are as follows:

Level 1 Observable inputs, such as quoted prices in active markets for identical assets or liabilities;

Level 2 Inputs, other than the quoted prices in active markets, that are observable either directly or through corroboration with observable market data; and

Level 3 Unobservable inputs, for which there is little or no market data for the assets or liabilities, such as internally-developed valuation models.

Financial assets measured at fair value on a recurring basis as of December 31, 2016 and 2015 are classified in the table below in one of the three categories described above (in thousands):

	December 31, 2016			
	Fair Value Measurements Using			Assets
	Level 1	Level 2	Level 3	At Fair Value
Assets:				
Money market funds	$ 52,657	$	$	$ 52,657
U.S. Treasury securities	99,872			99,872
Equity securities	176			176
Total	$ 152,705	$	$	$ 152,705
Amounts included in:				
Cash and cash equivalents	$ 55,658	$	$	$ 55,658
Short-term investments	89,375			89,375
Long-term investments	7,672			7,672
Total	$ 152,705	$	$	$ 152,705

	December 31, 2015

	Fair Value Measurements Using			Assets
	Level 1	Level 2	Level 3	At Fair Value
Assets:				
Money market funds	$ 63,136	$	$	$ 63,136
U.S. Treasury securities	46,366			46,366
Equity securities	179			179
Total	$ 109,681	$	$	$ 109,681
Amounts included in:				
Cash and cash equivalents	$ 63,136	$	$	$ 63,136
Short-term investments	46,366			46,366
Long-term investments	179			179
Total	$ 109,681	$	$	$ 109,681

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The valuation technique used to measure fair value for the Company s Level 1 assets is a market approach, using prices and other relevant information generated by market transactions involving identical assets. As of December 31, 2016 and 2015, the Company had no financial assets measured at fair value on a recurring basis using significant Level 2 or Level 3 inputs. The carrying amount of the Company s accounts receivable and accounts payable approximates fair value due to the short-term nature of these instruments.

Long Term Debt:

As of December 31, 2016 and December 31, 2015, the fair value of the long-term debt, payable in installments through year ended 2020, approximated its carrying value of $29.9 million and $14.6 million, respectively, because it is carried at a market observable interest rate, which are considered Level 2.

Note 6 Balance Sheet Components

Property and equipment balances were as follows (in thousands):

	December 31,	
	2016	2015
Property and equipment, net:		
Laboratory equipment	$ 16,742	$ 15,713
Computer equipment and software	2,699	2,510
Office equipment, furniture and fixtures	856	945
Leasehold improvements	4,458	3,425
Total property and equipment	24,755	22,593
Less: Accumulated depreciation and amortization	(21,118)	(20,842)
Total property and equipment, net	$ 3,637	$ 1,751

Depreciation expense was $0.7 million, $0.6 million and $0.5 million for the years ended December 31, 2016, 2015 and 2014 respectively.

Accrued liabilities were as follows (in thousands):

	December 31,	
	2016	2015
Accrued liabilities:		
Clinical and preclinical costs	$ 10,092	$ 3,446

Bonus	3,800	2,720
Other payroll related	1,888	1,464
Other accrued expenses	1,595	791
Leasehold improvements	672	
Total accrued liabilities	$ 18,047	$ 8,421

Interest receivable on cash equivalents and investments of $0.2 million and $0.2 million is included in prepaid and other current assets at December 31, 2016 and 2015, respectively.

The Company sponsors a 401(k) defined contribution plan covering all employees. In 2016, 2015 and 2014, employer contributions to the 401(k) plan were $0.5 million, $0.4 million and $0.3 million, respectively.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Note 7 Related Parties and Related Party Transactions

Research and Development Arrangements

Amgen Inc. (Amgen)

In December 2006, the Company entered into a collaboration and option agreement with Amgen to discover, develop and commercialize novel small molecule therapeutics, including omecamtiv mecarbil, that activate cardiac muscle contractility for potential applications in the treatment of heart failure (the Amgen Agreement). The agreement granted Amgen an option to obtain an exclusive license worldwide, except Japan, to develop and commercialize omecamtiv mecarbil and other drug candidates arising from the collaboration. In May 2009, Amgen exercised its option. As a result, Amgen became responsible for the development and commercialization of omecamtiv mecarbil and related compounds at its expense worldwide (excluding Japan), subject to the Company s development and commercialization participation rights. Amgen reimburses the Company for certain research and development activities it performs under the collaboration.

In June 2013, Cytokinetics and Amgen executed an amendment to the Amgen Agreement to include Japan, resulting in a worldwide collaboration (the Amgen Agreement Amendment). Under the terms of the Amgen Agreement Amendment, the Company received a non-refundable upfront license fee of $15.0 million in June 2013. Under the Amgen Agreement Amendment, the Company conducted a Phase 1 pharmacokinetic study intended to support inclusion of Japan in a potential Phase 3 clinical development program and potential global registration dossier for omecamtiv mecarbil. Amgen reimbursed the Company for the costs of this study. In addition, the Company is eligible to receive additional pre-commercialization milestone payments relating to the development of omecamtiv mecarbil and royalties on sales of omecamtiv mecarbil in Japan.

In conjunction with the Amgen Agreement Amendment, the Company also entered into a common stock purchase agreement which provided for the sale of 1,404,100 shares of its common stock to Amgen at a price per share of $7.12 and an aggregate purchase price of $10.0 million, which was received in June 2013. The Company determined the fair value of the stock issued to Amgen to be $7.5 million. The excess of cash received over fair value of $2.5 million was initially deferred and allocated between the license and services based on their relative selling prices using best estimate of selling price. The allocated consideration was recognized as revenue as revenue criteria were satisfied, or as services were performed over approximately 12 months. Pursuant to this agreement, Amgen agreed to certain trading and other restrictions with respect to the Company s common stock.

The Company determined that the license to the Japan territory granted under the Amgen Agreement Amendment was a separate, non-contingent deliverable under the amendment. The Company determined that the license has stand-alone value based on Amgen s internal product development capabilities since all relevant manufacturing know-how related to omecamtiv mecarbil was previously delivered to Amgen.

In October 2013, the Company determined that the revenue recognition requirements under ASC 605-10 had been met and accordingly, recognized $17.2 million in license revenue attributable to the Amgen Agreement Amendment in the fourth quarter of 2013. In year ended December 31, 2014, the Company recognized the remaining $0.3 million of the

previously deferred consideration attributable to the Amgen Agreement Amendment as research and development revenues from related parties.

Amgen and the Company continued the research program in 2016. Under the amended Amgen Agreement, the Company is entitled to receive reimbursements of internal costs of certain full-time employee equivalents during 2016, as well as potential additional milestone payments related to the research activities.

Under the Amgen Agreement, as amended, the Company is eligible to receive over $300.0 million in additional development milestone payments which are based on various clinical milestones, including the

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initiation of certain clinical studies, the submission of a drug candidate to certain regulatory authorities for marketing approval and the receipt of such approvals. Additionally, the Company is eligible to receive up to $300.0 million in commercial milestone payments provided certain sales targets are met. Due to the nature of drug development, including the inherent risk of development and approval of drug candidates by regulatory authorities, it is not possible to estimate if and when these milestone payments would become due. The achievement of each of these milestones is dependent solely upon the results of Amgen s development and commercialization activities.

During the year ended December 31, 2016, the Company recognized $26.7 million in development milestone payments related to the start of GALACTIC-HF, the Phase 3 cardiovascular outcomes clinical trial of omecamtiv mecarbil which is being conducted by Amgen as the Company has no remaining deliverables under the Amgen Agreement. During the years ended December 31, 2015 and 2014, no milestones were achieved under the Amgen Agreement.

The Amgen Agreement also provides for the Company to receive increased royalties by co-funding Phase 3 development costs of omecamtiv mecarbil and other drug candidates under the collaboration. If the Company elects to co-fund such costs at the $40.0 million level, it would be entitled to co-promote the co-funded drug in North America and participate in agreed commercialization activities in institutional care settings, at Amgen s expense.

In July 2013, Amgen announced that it had granted an option to commercialize omecamtiv mecarbil in Europe to Servier, with the Company s consent, pursuant to an Option, License and Collaboration Agreement (the Servier Agreement).

In August 2016, the Company entered into a Letter Agreement with Amgen and Servier (the Letter Agreement), which (i) expands the territory of the sublicense to Servier to include specified countries in the Commonwealth of Independent States (CIS) and (ii) provides that, if Amgen s rights under the Amgen Agreement, as amended, are terminated with respect to the territory of such sublicense, the sublicensed rights previously granted by Amgen to Servier under the Servier Agreement will remain in effect and become a direct license or sublicense of such rights by us to Servier, on substantially the same terms as set forth in the Servier Agreement, including but not limited to Servier s payment of its share of agreed development costs and future milestone and royalty payments to us. The Letter Agreement does not otherwise modify our rights and obligations under the Amgen Agreement, as amended, or create any additional financial obligations of the Company, unless we otherwise agree in writing.

In September 2016, Amgen and Servier announced Servier s decision to exercise its option to commercialize omecamtiv mecarbil in Europe as well as the CIS, including Russia. The option and related commercialization sublicense to Servier is subject to the terms and conditions of the Amgen Agreement. Amgen remains responsible for the performance of its obligations under the Amgen Agreement relating to Europe and the CIS, including the payment of milestones and royalties relating to the development and commercialization of omecamtiv mecarbil in Europe and the CIS.

In December 2016, the Company provided notice of its exercise of its option under the Amgen Agreement to co-invest in the Phase 3 development program of omecamtiv mecarbil at the level of $10.0 million in exchange for an incremental royalty from Amgen of up to 1% on increasing worldwide sales of omecamtiv mecarbil outside Japan.

The payment of $10.0 million is due to Amgen in eight quarterly installments with the first payment due at the time of providing notice of the option exercise and is contingent on Amgen continuing the Phase 3 development program of omecamtiv mecarbil. As of December 31, 2016, the Company recorded a payment of $1.3 million as a reduction in collaboration revenue, related to the option to co-invest in the Phase 3 development program of omecamtiv mecarbil, as it concluded the benefit to be received in exchange for the

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

co-investment payment to Amgen, was not sufficiently separable from Amgen Agreement. In February 2017, the Company provided notice of its further exercise of its co-invest option in the additional amount of $30.0 million (i.e. to fully co-invest $40.0 million) in the Phase 3 development program of omecamtiv mecarbil. See Note 15 Subsequent Events in the Notes to Consolidated Financial Statements for additional information.

Pursuant to the Amgen Agreement, the Company has recognized research and development revenue from Amgen for reimbursements of internal costs of certain full-time employee equivalents, supporting a collaborative research program directed to the discovery of next-generation cardiac sarcomere activator compounds and of other costs related to that research program. These reimbursements were recorded as research and development revenues from related parties. During the years ended December 31, 2016, 2015 and 2014, the Company recorded net research and development revenue from Amgen of $27.9 million, $2.5 million and $4.5 million, respectively, under the Amgen Agreement. There were no accounts receivable due from Amgen during the years ended December 31, 2016 and 2015.

Revenue from Amgen was as follows (in thousands):

	Years Ended December 31,		
	2016	2015	2014
Research and development revenues from related parties, net:			
Reimbursement of internal costs	$ 2,466	$ 2,460	$ 4,260
Research and development milestone fees	26,666		
Co-invest option payment	(1,250)		
Allocated consideration		21	278
Total Research and development revenues from related parties, net	27,882	2,481	4,538
Total net revenues from Amgen	$ 27,882	$ 2,481	$ 4,538

There were no accounts receivable due from Amgen at December 31, 2016 and 2015.

Astellas Pharma Inc. (Astellas)

Original Astellas Agreement (Non-neuromuscular license)

In June 2013, the Company entered into a license and collaboration agreement with Astellas (the Original Astellas Agreement). The primary objective of the collaboration with Astellas is to advance novel therapies for diseases and medical conditions associated with muscle weakness.

Under the Original Astellas Agreement, the Company granted Astellas an exclusive license to co-develop and jointly commercialize CK-2127107, a fast skeletal troponin activator, for potential application in non-neuromuscular indications worldwide. The Company was primarily responsible for the conduct of Phase 1 clinical trials and certain

Phase 2 readiness activities for CK-2127107 and Astellas was primarily responsible for the conduct of subsequent development and commercialization activities for CK-2127107.

In July 2013, the Company received an upfront, non-refundable license fee of $16.0 million in connection with the execution of the Original Astellas Agreement. Under the agreement, the Company was eligible to potentially receive over $24.0 million in reimbursement of sponsored research and development activities during the initial two years of the collaboration. The Original Astellas Agreement also provided for research and early and late stage development milestone payments based on various research and clinical milestones, including the initiation of certain clinical studies, the submission for approval of a drug candidate to certain regulatory authorities for marketing approval and the commercial launch of collaboration products, and royalties on sales of commercialized products.

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At the inception of the Original Astellas Agreement, the Company deferred revenue related to the Original Astellas Agreement in accordance with ASC 605-25. The Company evaluated whether the delivered elements under the arrangement have value on a stand-alone basis. Upfront, non-refundable licensing payments are assessed to determine whether or not the licensee is able to obtain stand-alone value from the license. Where this is not the case, the Company does not consider the license deliverable to be a separate unit of accounting, and the revenue for the license fee is deferred and recognized in conjunction with the other deliverables that constitute the combined unit of accounting.

The Company determined that the license and the research and development services are a single unit of accounting as the license was determined to not have stand-alone value. Accordingly, the Company is recognizing this revenue using the proportional performance model over the initial research term of the Original Astellas Agreement. During the years ended December 31, 2016, 2015 and 2014, the Company recorded zero, $2.3 million and $9.8 million, respectively, in license revenue based on the proportional performance model under the Original Astellas Agreement. No license revenue remains deferred under the Original Astellas Agreement as of December 31, 2016.

Pursuant to the Original Astellas Agreement, the Company recognized research and development revenue from Astellas for reimbursements of internal costs of certain full-time employee equivalents, supporting collaborative research and development programs, and of other costs related to those programs. During the years ended December 31, 2016, 2015 and 2014, the Company recorded research and development revenue from Astellas of zero, $3.5 million and $15.4 million, respectively, under the Original Astellas Agreement.

2014 Astellas Agreement (Expansion to include neuromuscular indications)

In December 2014, the Company entered into an amended and restated license and collaboration agreement with Astellas (the 2014 Astellas Agreement). This agreement superseded the Original Astellas Agreement. The 2014 Astellas Agreement expanded the objective of the collaboration of advancing novel therapies for diseases and medical conditions associated with muscle weakness to include spinal muscular atrophy (SMA) and potentially other neuromuscular indications for CK-2127107 and other fast skeletal troponin activators, in addition to the non-neuromuscular indications provided for in the Original Astellas Agreement.

Under the 2014 Astellas Agreement, the Company received a non-refundable upfront license fee of $30.0 million in January 2015. Concurrently, the Company received $15.0 million as a milestone payment relating to Astellas decision to advance CK-2127107 into Phase 2 clinical development. Under the 2014 Astellas Agreement, the Company is conducting the initial Phase 2 clinical trial of CK-2127107 in patients with SMA.

The Company determined that the license and the research and development services relating to the 2014 Astellas Agreement are a single unit of accounting as the license was determined to not have stand-alone value. Accordingly, the Company is recognizing this revenue over the research term of the 2014 Astellas Agreement using the proportional performance model.

During the years ended December 31, 2016 and 2015, the Company recorded $12.1 million and $11.6 million, respectively, in license revenue based on the proportional performance model under the 2014 Astellas Agreement. No

such revenues were recognized during the year ended December 31, 2014. As of December 31, 2016, $7.2 million license revenue remains deferred under the 2014 Astellas Agreement. Pursuant to the 2014 Astellas Agreement, the Company recognized research and development revenue from Astellas for reimbursements of internal costs of certain full-time employee equivalents, supporting collaborative research and development programs, and of other costs related to those programs. The Company was eligible to potentially

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receive over $20.0 million in reimbursement of sponsored research and development activities during the two years of the collaboration following the execution of the 2014 Astellas Agreement. During the years ended December 31, 2016 and 2015, the Company recorded research and development revenue from Astellas of $13.0 million and $8.7 million, respectively, under the 2014 Astellas Agreement. No such revenues were recognized during the year ended December 31, 2014.

In conjunction with the 2014 Astellas Agreement, the Company also entered into a common stock purchase agreement which provided for the sale of 2,040,816 shares of its common stock to Astellas at a price per share of $4.90 and an aggregate purchase price of $10.0 million which was received in December 2014. Pursuant to this agreement, Astellas agreed to certain trading and other restrictions with respect to the Company s common stock. The Company determined the fair value of the stock issued to Astellas to be $9.1 million. The excess of cash received over fair value of $0.9 million was deferred along with the license and research and development services. Allocated consideration will be recognized as revenue for the single unit of accounting above, as services are performed following the proportional performance model over the research term of the 2014 Astellas Agreement. Following the common stock purchase, Astellas was determined to be a related party. As such, all revenue earned following the common stock purchase is classified as related party revenue.

2016 Astellas Amendment (Inclusion of ALS as an Added Indication and Option on Tirasemtiv)

In 2016, Cytokinetics and Astellas further amended the collaboration agreement to expand our collaboration to include the development of CK-2127107 for the potential treatment of ALS (2016 Astellas Amendment), as well as the possible development in ALS of other fast skeletal regulatory activators previously licensed by us to Astellas. The 2016 Astellas Amendment became effective in September 2016 (collectively with the 2014 Astellas Agreement, the Current Astellas Agreement).

Under the 2016 Astellas Amendment, the Company granted Astellas the Option on Tirasemtiv. If Astellas exercises the option, Astellas will receive exclusive worldwide commercialization rights outside of the Company s commercialization territory of North America, Europe and other select countries. Tirasemtiv is the Company s fast skeletal troponin activator being evaluated in the ongoing Phase 3 clinical trial, VITALITY-ALS, in people living with amyotrophic lateral sclerosis (ALS).

In addition, the 2016 Astellas Amendment expands the Company s collaboration with Astellas to include the development of CK-2127107, a next-generation fast skeletal troponin activator, for the potential treatment of ALS, as well the possible development in ALS of other fast skeletal regulatory activators licensed to Astellas under the 2014 Astellas Agreement (ALS License). Finally, the 2016 Astellas Amendment extends the existing joint research program focused on the discovery of additional next-generation skeletal muscle activators through 2017, including sponsored research at Cytokinetics.

Astellas Option on Tirasemtiv

In connection with the execution of the 2016 Astellas Amendment, the Company received a $15.0 million non-refundable option fee for the grant of the Option on Tirasemtiv in October 2016. Prior to Astellas exercise of the

option, the Company will continue the development of tirasemtiv, including the VITALITY-ALS trial, at its own expense to support regulatory approval in the U.S., EU and certain other jurisdictions and will retain the final decision making authority on the development of tirasemtiv. If Astellas exercises the option, the Company will grant Astellas an exclusive license to develop and commercialize tirasemtiv outside the Company s own commercialization territory of North America, Europe and other select countries (License on tirasemtiv) under a tirasemtiv License and Collaboration Agreement (tirasemtiv License Agreement). Each party would be

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

primarily responsible for the further development of tirasemtiv in its territory and have the exclusive right to commercialize tirasemtiv in its territory.

If Astellas exercises its option for a global collaboration for the development and commercialization of tirasemtiv, the Company will receive an option exercise payment ranging from $25.0 million (if exercise occurs following receipt of data from the VITALITY-ALS trial) to $80.0 million (if exercise occurs following receipt of FDA approval) and a milestone payment of $30.0 million from Astellas associated with the Company s initiation of the open-label extension trial for tirasemtiv (VIGOR-ALS). The Company will be responsible for the development costs of tirasemtiv during the option period, but if Astellas exercises the option after the defined review period following receipt of data from VITALITY-ALS, Astellas will at the time of option exercise reimburse the Company for a share of any additional costs incurred after such review period.

If Astellas exercises the option for tirasemtiv, the parties will share the future development costs of tirasemtiv in North America, Europe and certain other countries (with Cytokinetics bearing 75% of such shared costs and Astellas bearing 25% of such costs), and Astellas will be solely responsible for the development costs of tirasemtiv specific to its commercialization territory. Contingent upon the successful development of tirasemtiv, the Company may receive milestone payments up to $100.0 million for the initial indication and up to $50.0 million for each subsequent indication. If tirasemtiv is commercialized, Astellas will pay the Company royalties (at rates ranging from the mid-teens to twenty percent) on sales of tirasemtiv in Astellas territory, and the Company will pay Astellas royalties (at rates up to the mid-teens) on sales of tirasemtiv in the Company s territory, in each case subject to various possible adjustments.

The Company concluded that the option to obtain the License on Tirasemtiv is a substantive option, and is therefore not considered a deliverable at the execution of the 2016 Astellas Amendment. The Company determined that the Tirasemtiv License Agreement is contingent upon the exercise of the Option on Tirasemtiv, and is therefore not effective during the periods presented, since the option has not been exercised as of the latest balance sheet date. In addition, the Company did evaluate the consideration set to be received for the License on Tirasemtiv in relation to the fair value of the License on tirasemtiv, and determined that it was not being provided at a significant incremental discount.

The Company further determined that the Option Fee of $15.0 million was deemed to be a prepayment towards the License on tirasemtiv, and therefore deferred revenue recognition either until the option is exercised, or until the option expires unexercised. If the Option on Tirasemtiv expires unexercised, the $15.0 million received would be added to the 2016 Astellas Amendment consideration, to be allocated to the units of accounting. The Option on Tirasemtiv expires, if not exercised by Astellas, following the receipt of the approval letter for tirasemtiv from the FDA.

Prior to Astellas exercise of the option, the Company will continue the development of tirasemtiv, including the VITALITY-ALS trial, at its own expense to support regulatory approval in the U.S., EU and certain other jurisdictions, and the Company has complete discretion to continue to conduct clinical trials, and will retain the final decision making authority on the development of tirasemtiv. Therefore, the Company concluded that there was no obligation related to any development services during the option period.

Addition of ALS as an Added Indication (CK-2127107 and other fast skeletal activators)

In connection with the execution of the 2016 Astellas Amendment, the Company received a non-refundable upfront amendment fee of $35 million. In addition, the Company received an accelerated $15.0 million milestone payment that would have been payable upon the initiation of the first Phase 2 clinical trial of CK-2127107 as the lead compound in ALS, as if such milestone had been achieved upon the execution of the 2016 Astellas Amendment.

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The Company and Astellas are collaborating to develop CK-2127107 in ALS. Astellas is primarily responsible for the development of CK-2127107 in ALS, but the Company will conduct the Phase 2 clinical trial of CK-2127107 in ALS and will share in the operational responsibility for later clinical trials. Subject to specified guiding principles, decision making will be by consensus, subject to escalation and, if necessary, Astellas final decision making authority on the development (including regulatory affairs), manufacturing, medical affairs and commercialization of CK-2127107 and other fast skeletal regulatory activators in ALS. The Company and Astellas will share equally the costs of developing CK-2127107 in ALS for potential registration and marketing authorization in the U.S. and Europe, provided that (i) Astellas has agreed to solely fund Phase 2 development costs of CK-2127107 in ALS subject to a right to recoup the Company s share of such costs plus a 100% premium by reducing future milestone and royalty payments to the Company and (ii) the Company may defer (but not eliminate) a portion of its co-funding obligation for development activities after Phase 2 for up to 18 months, subject to certain conditions. The Company has the right to co-fund its share of such Phase 2 development costs on a current basis, in which case there would not be a premium due to Astellas. Cytokinetics will also receive approximately $41.8 million in additional sponsored research and development funding through 2018 which includes Astellas funding of Cytokinetics conduct of the Phase 2 clinical development of CK-2127107 in ALS (approximately $36.6 million) as well as the continuing research collaboration (approximately $5.2 million).

Pursuant to the 2016 Astellas Amendment, the Company and Astellas will collaborate to develop CK-2127107 in ALS. Astellas will be primarily responsible for the development of CK-2127107 in ALS, but the Company will conduct the Phase 2 clinical trial of CK-2127107 in ALS and will share in the operational responsibility for later clinical trials. Subject to specified guiding principles, decision making will be by consensus, subject to escalation and, if necessary, Astellas final decision making authority on the development (including regulatory affairs), manufacturing, medical affairs and commercialization of CK-2127107 and other fast skeletal regulatory activators in ALS.

The Company determined that the deliverables under the 2016 Astellas Amendment included (1) the ALS License, (2) CK-2127107 development services in ALS through Phase 2 activities (ALS Development Services), and (3) research services added (Additional Research Services). Deliverables that do not provide standalone value have been combined with other deliverables to form a unit of accounting that collectively has standalone value, with revenue being recognized on the combined unit of accounting, rather than the individual deliverables. There are no rights of return provisions for the delivered items in the Current Astellas Agreement.

The Company considered the 2016 Astellas Amendment to be a modification of the 2014 Astellas Agreement. The remaining deliverables under the 2014 Astellas Agreement are: (1) the SMA license; (2) Research Services in connection with the Research Plan (through 2016); and (3) SMA Development Services in connection with the Development Plan. The Company evaluated the components and consideration of the 2016 Astellas Amendment against other Phase 2 collaboration arrangements, and determined that the new 2016 deliverables had standalone value and are delivered at fair value. Therefore no reallocation of consideration to the 2014 deliverables was performed.

The Company concluded that there are two units of accounting; the ALS License, and the Additional Research Services and ALS Development Services (Research and ALS Development Services). The Company also determined that the ALS License has standalone value since (1) Astellas received a worldwide license for ALS, to perform further

research in the field of ALS, to develop and use CK-2127107 to make, have make, sell or otherwise commercialize CK-2127107 in ALS; (2) Astellas has the right to sublicense the rights to CK-2127107 in ALS to a third party; and (3) Astellas has the technical capabilities to advance further development on CK-2127107 in ALS, without the continued involvement of the Company.

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Arrangement Consideration under the 2016 Astellas Amendment related to CK-2127107 and research is comprised of the following (in millions):

	Arrangement Consideration
Amendment Fee	$ 35.0
Accelerated milestone payment	15.0
Total Upfront Consideration	50.0
Additional Research Services	5.1
ALS Development Services	39.1
Total Committed Consideration	44.2
Total Consideration	$ 94.2

The Company allocated the $50.0 million in upfront consideration along with the $44.2 million in then committed research and development consideration, among the two units of accounting, on a relative fair value basis, using the best estimated selling price (BESP). The BESP of the ALS License was determined using a discounted cash flow, risk adjusted for probability of success; while the BESP of the research and development services were determined using estimated research and development cost, included in the research and development programs approved by Astellas. Based on this allocation of consideration, the Company stands to recognize $74.9 million in license revenue and $19.3 in research and development revenue, under the 2016 Astellas Amendment. Since the upfront consideration of $50.0 million is less than the allocated consideration of the ALS License, the Company recognized $50.0 million in license revenue on the Amendment Effective Date, in September 2016, and record the remaining $24.9 million as an allocation from research and development services, when those services are performed.

Allocation of arrangement consideration, and revenue recognition (in millions):

	Allocated Consideration	Upfront Revenue Recognition	Revenue Recognition over Performance Period
Units of Accounting:			
ALS License	$ 74.9	$ 50.0	$ 24.9
Research and ALS Development Services	19.3		19.3

Total consideration	$ 94.2	$ 50.0	$ 44.2

During the year ended December 31, 2016, the Company recorded $50.1 million in license revenue under the 2016 Astellas Amendment.

The Company will recognize the research and development services using the proportional performance model over the initial development term, through the completion of the ALS Development Services. Pursuant to the 2016 Astellas Amendment, the Company receives payment for research and development revenue from Astellas for reimbursements of internal costs of certain full-time employee equivalents, supporting collaborative research and development programs, and of other costs related to those programs.

During the year ended December 31, 2016, the Company recorded $0.1 million research and development revenue from Astellas, under the 2016 Astellas Amendment.

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The Company believes that each of the milestones related to research under the Current Astellas Agreement is substantive and can only be achieved with the Company s past and current performance and each milestone will result in additional payments to the Company. During the year ended December 31, 2016, the Company recorded $2.0 million in milestone revenue for research under this agreement, related to the initiation of IND-enabling studies for a fast skeletal muscle activator. The Company is eligible to receive up to $2.0 million in research milestone payments under the collaboration for each future potential drug candidate.

The achievement of each of the late stage development milestones and the commercialization milestones are dependent solely upon the results of Astellas development activities and therefore these milestones were not deemed to be substantive.

Under the Current Astellas Agreement, additional research and early and late state development milestone payments which are based on various research and clinical milestones, including the initiation of certain clinical studies, the submission for approval of a drug candidate to certain regulatory authorities for marketing approval and the commercial launch of collaboration products could total over $600.0 million, including up to $95.0 million relating to CK-2127107 in non-neuromuscular indications, and over $100.0 million related to CK-2127107 in each of SMA, ALS and other neuromuscular indications. Additionally, $200.0 million in commercial milestones could be received under the Current Astellas Agreement provided certain sales targets are met. Due to the nature of drug development, including the inherent risk of development and approval of drug candidates by regulatory authorities, it is not possible to estimate if and when these milestone payments could become due.

In the event Astellas commercializes any collaboration products, the Company will receive royalties on sales of such collaboration products, including royalties ranging from the high single digits to the high teens on sales of products containing CK-2127107. Cytokinetics can co-fund certain development costs for CK-2127107 and other compounds in exchange for increased milestone payments and royalties; such royalties may increase under certain scenarios to exceed twenty percent. Under the Current Astellas Agreement, Cytokinetics retains an option to co-promote collaboration products containing fast skeletal troponin activators for neuromuscular indications in the U.S., Canada and Europe, in addition to its option to co-promote other collaboration products in the U.S. and Canada as provided for in the Original Astellas Agreement. Astellas will reimburse Cytokinetics for certain expenses associated with its co-promotion activities.

Research and development revenue from Astellas was as follows (in thousands):

	Year Ended December 31, 2016	Year Ended December 31, 2015	Year Ended December 31, 2014
License Revenues from Related Parties	$ 62,171	$ 13,918	$ 9,835
Research and development revenues with related parties:			
Reimbursement of internal costs	6,111	6,210	

Reimbursement of other costs	6,999	5,974	
Research and development milestone fees	2,000		15,000
Total research and development revenue with related parties from Astellas	$ 15,110	$ 12,184	$ 15,000
Research and development revenues:			
Reimbursement of internal costs			8,939
Reimbursement of other costs			6,452
Research and development milestone fees			2,000
Total research and development revenue from Astellas			17,391
Total Revenue from Astellas	$ 77,281	$ 26,102	$ 42,226

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At December 31, 2016 and December 31, 2015, the Company had $23.1 million and $20.4 million, respectively, of deferred revenue under the Current Astellas Agreement, reflecting the unrecognized portion of the license revenue, option fee and payment of expenses. There were no accounts receivable due from Astellas at December 31, 2016 and 2015.

Note 8 Other Research and Development Revenue Arrangements Grants

In July 2015, The ALS Association (the ALSA Grant) awarded to the Company a $1.5 million grant to support the conduct of VITALITY-ALS as well as the collection of clinical data and plasma samples from patients in VITALITY-ALS in order to help advance the discovery of potentially useful biomarkers in ALS. On August 28, 2015 the Company achieved its first milestone under the ALSA Grant which triggered a payment of $0.5 million in accordance with the ALSA Grant. The Company recorded $1.1 million and $0.1 million, as grant revenue as qualified expenses were incurred, for years ended December 31, 2016 and 2015, respectively. At December 31, 2016, the Company had no deferred revenue under the ALSA Grant, reflecting the unrecognized portion of the grant revenue.

Total grant revenues were as follows (in thousands):

	Years Ended December 31,		
	2016	2015	2014
ALSA grant revenue	$ 1,084	$ 75	$
Other grant revenue			75
Total grant revenue	$ 1,084	$ 75	$ 75

MyoKardia, Inc.

In August 2012, the Company entered into a collaboration agreement with MyoKardia, Inc. Under an agreed research plan, scientists from MyoKardia and our FTEs conduct research focused on small molecule therapeutics that inhibit cardiac sarcomere proteins. The Company provided to MyoKardia access to certain research facilities, and continues to provide FTEs and other resources at agreed reimbursement rates that approximate our costs. The research plan terminated as planned in August 2013. The Company may receive development milestone payments which are based on various clinical milestones.

Research and development revenue from MyoKardia was as follows (in thousands):

	Years Ended December 31,		
	2016	2015	2014

Research and development milestone fees	$ 150	$	$ 100
Research and development revenue from Myokardia	$ 150	$	$ 100

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Note 9 Long-Term Debt

Long-term debt and unamortized debt discount balances are as follows (in thousands):

	December 31,	
	2016	2015
Notes payable, gross	$ 30,000	$ 15,000
Less: Unamortized debt discount	(472)	(389)
Accretion of final exit fee	353	28
Carrying value of notes payable	29,881	14,639
Less: Current portion of long-term debt	(2,500)	
Long-term debt	$ 27,381	$ 14,639

In October 2015, the Company entered into a loan and security agreement (the Loan Agreement) with Oxford Finance LLC (Oxford,) as the collateral agent and a lender, and Silicon Valley Bank (SVB,) as a lender (Oxford and SVB collectively the Lenders) to fund its working capital and other general corporate needs. The Loan Agreement provided for (1) term loans of up to $40.0 million in aggregate, (2) warrants to purchase 65,189 shares of the Company s common stock at an exercise price of $6.90 per share under the first term loan, and (3) additional warrants to purchase shares of the Company s common stock to be based on the amount of the additional term loans and a price per share determined on the day of funding in accordance with the Grant Agreement, which is also the exercise price per share for the warrants.

The Company drew down $15.0 million in funds under the Loan Agreement in October 2015 at the time of the first draw down, and at that time, could at its sole discretion draw down an additional $25.0 million under the Loan Agreement in two term loans, provided certain specified conditions stipulated in the Loan Agreement are met preceding those draws.

During February 2016, the Company drew down an additional $15.0 million in funds under the Loan Agreement and issued warrants to purchase 68,285 shares of the Company s common stock at an exercise price of $6.59 per share under the second term loan. As of December 31, 2016, there were 133,474 warrants outstanding and exercisable and are classified under stockholder s equity. In January 2017, the Company issued 33,368 shares of common stock related to the cashless exercise of 16,126 warrants issued under the Loan Agreement. As of December 31, 2016 the Company received $29.8 million from this loan and security agreement, net of issuance cost. The Company can at its sole discretion draw down an additional $10.0 million under the Loan Agreement from the Lenders, at any time prior to March 31, 2017, subject to the Company s satisfaction of specified conditions precedent related to the earlier of (i) the occurrence of an equity event as described in the Loan Agreement, or (ii) specified results from the Company s VITALITY-ALS Phase 3 trial of tirasemtiv, each as specified in the Loan Agreement. The Company is required to repay the outstanding principal in 36 equal installments beginning October 2017 and is due in full in in October 2020.

The first and second term loans bear interest at a rate of 7.5% per annum, respectively. The remaining term loans, if drawn, will bear interest at a rate fixed at the time of draw, equal to the greater of (i) 7.50% and (ii) the sum of the three month U.S. LIBOR rate plus 7.31%. The Company is required to make a final payment fee of 4.00% of the amounts of the Term Loans drawn payable on the earlier of (i) the prepayment of the Term Loans or (ii) the Maturity Date. The loan carries prepayment penalties of 3% and 2% for prepayment within one and two years, respectively, of the loan origination and 1% thereafter. The warrants issued in the Loan Agreement became exercisable upon issuance and will remain exercisable for five years from issuance or the closing of a merger consolidation transaction in which the Company is not the surviving entity.

In accordance with the accounting guidance, the Company allocated a portion of the gross proceeds from each draw down under the Loan Agreement to the underlying warrants, using the relative fair value method. This

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resulted in the allocation of $0.6 million of the draw down proceeds to the warrants, which was accounted for as debt discount. Debt discount is being amortized over the term of the debt, and recorded in interest expense in the statement of operations. The fair value of the warrants was determined using the Black-Scholes pricing model and are classified as equity.

The Loan Agreement contains customary representations and warranties and customary affirmative and negative covenants applicable to the Company and its subsidiaries, including, among other things, restrictions on dispositions, changes in business, management, ownership or business locations, mergers or acquisitions, indebtedness, encumbrances, distributions, investments, transactions with affiliates and subordinated debt. The Agreement also includes customary events of default, including but not limited to the nonpayment of principal or interest, violations of covenants, material adverse changes, attachment, levy, restraint on business, cross-defaults on material indebtedness, bankruptcy, material judgments, misrepresentations, subordinated debt, governmental approvals, lien priority and delisting. Upon an event of default, the Lenders may, among other things, accelerate the loans and foreclose on the collateral. The Company s obligations under the Agreement are secured by substantially all of the Company s current and future assets, other than its intellectual property.

The Company recorded interest expense related to the long-term debt of $2.7 million and $0.3 million for the years ended December 31, 2016 and 2015, respectively. Included in interest expense for this period was interest on principal, amortization of the debt discount and debt issuance costs, and the accretion of the final exit fee. For the years ended December 31, 2016 and 2015, the effective interest rate on the amounts borrowed under the Agreement, including the amortization of the debt discount and issuance cost, and the accretion of the final payment, was 9.3%.

Future minimum payments under the Loan, as of December 31, 2016 are as follows (in thousands):

2017	$ 4,768
2018	11,743
2019	10,982
2020	8,938
Total minimum payments	36,431
Less: Interest and final payment	(6,431)
Notes payable, gross	$ 30,000

Note 10 Commitments and Contingencies

Commitments

Operating Lease

The Company leases office space and equipment under a non-cancelable operating lease that expires in 2018, with an option to extend the lease for an additional three-year period. The lease terms provide for rental payments on a graduated scale and the Company s payment of certain operating expenses. During March 2016, the Company amended the lease agreement to include certain additional operating expenses, related to the replacement of two boilers. The Company recognizes rent expense on a straight-line basis over the lease period.

Rent expense was as follows (in thousands):

	Years Ended December 31,		
	2016	2015	2014
Rent expense	$ 3,448	$ 3,297	$ 3,338

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As of December 31, 2016, future minimum lease payments under noncancelable operating leases were as follows (in thousands):

2017	$ 3,703
2018	1,860
2019	
2020	
2021	
Thereafter	
Total	$ 5,563

Co-investment option

In December 2016, the Company has agreed to exercise its option to co-invest $10.0 million in the Phase 3 development program of omecamtiv mecarbil under the Amgen Agreement with Amgen. In connection with exercising its co-investment option at $10.0 million, the Company will be eligible to receive an incremental royalty of up to 1% on increasing worldwide net sales of omecamtiv mecarbil outside of Japan. The payment of $10.0 million is due to Amgen in eight quarterly installments with the first payment due at the time of providing notice of the option exercise and is contingent on Amgen continuing the Phase 3 development program of omecamtiv mecarbil.

As of December 31, 2016, future minimum payments due to Amgen were as follows (in thousands):

2017	$ 5,000
2018	3,750
Total	$ 8,750

In February 2017, the Company provided notice of its further exercise of its co-invest option in the additional amount of $30.0 million (i.e. to fully co-invest $40.0 million) in the Phase 3 development program of omecamtiv mecarbil. See Note 15 Subsequent Events.

Contingencies

In the ordinary course of business, the Company may provide indemnifications of varying scope and terms to vendors, lessors, business partners and other parties with respect to certain matters, including, but not limited to, losses arising out of the Company s breach of such agreements, services to be provided by or on behalf of the Company, or from intellectual property infringement claims made by third parties. In addition, the Company has entered into

indemnification agreements with its directors and certain of its officers and employees that will require the Company, among other things, to indemnify them against certain liabilities that may arise by reason of their status or service as directors, officers or employees. The Company maintains director and officer insurance, which may cover certain liabilities arising from its obligation to indemnify its directors and certain of its officers and employees, and former officers and directors in certain circumstances. The Company maintains product liability insurance and comprehensive general liability insurance, which may cover certain liabilities arising from its indemnification obligations. It is not possible to determine the maximum potential amount of exposure under these indemnification obligations due to the limited history of prior indemnification claims and the unique facts and circumstances involved in each particular indemnification obligation. Such indemnification

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obligations may not be subject to maximum loss clauses. Management is not currently aware of any matters that could have a material adverse effect on the financial position, results of operations or cash flows of the Company.

In December 2014, the Company filed a lawsuit alleging fraudulent inducement, breach of contract and negligence on the part of a contract research organization for BENEFIT-ALS. The Company was seeking monetary damages. On June 7, 2016 the Company entered into a settlement agreement with the contract research organization for $4.5 million. The Company received payment related to the settlement agreement in July 2016 and the full settlement amount was classified as a reduction of R&D expense in June 2016.

Note 11 Stockholders Equity

Preferred Stock

As of December 31, 2016 and 2015, respectively, there were 10,000,000 shares of preferred stock authorized and no shares outstanding.

Common Stock

As of December 31, 2016 and 2015, respectively, there were 163,000,000 shares and 81,500,000 shares of common stock authorized and 40,646,595 and 39,581,692 shares outstanding.

Accumulated Other Comprehensive Income (Loss)

Comprehensive income (loss) is comprised of net income (loss) and other comprehensive income (loss). Other comprehensive income (loss) is comprised of unrealized holding gains and losses on the Company s available-for-sale securities that are excluded from net loss and reported separately in stockholders equity.

In 2016 and 2015, the Company recorded insignificant amounts of unrealized gains (losses) in available-for-sale securities in accumulated other comprehensive loss.

Common Stock Outstanding

In June 2011, the Company entered into an At-The-Market Issuance Sales Agreement (the MLV Agreement) with McNicoll, Lewis & Vlak LLC (MLV), pursuant to which the Company sold, through December 31, 2014, 2,397,278 shares of common stock through MLV for net proceeds of approximately $15.2 million.

On June 25, 2012, pursuant to the June 2012 Public Offerings, in aggregate the Company issued to various investors (i) 9,320,176 shares of common stock for a purchase price of $4.56 per share, (ii) 23,026 shares of the Series B Preferred Stock for a purchase price of $760.00 per share, and (iii) warrants to purchase 7,894,704 shares of the Company s common stock at an exercise price of $5.28 per share, for aggregate gross proceeds of approximately $60.0 million. After issuance costs of approximately $4.0 million, the net proceeds from the June 2012 Public Offerings were approximately $56.0 million. Through December 31, 2016, the Company issued 4,104.966 shares of

common stock related to exercises of warrants in accordance with the June 2012 Public Offerings.

In conjunction with the Amgen Agreement Amendment (see Note 7), in June 2013, Amgen purchased 1,404,100 shares of the Company s common stock at a price per share of $7.12 and an aggregate purchase price of $10.0 million, which was received in June 2013. Under the terms of this agreement, Amgen agreed to certain

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trading and other restrictions with respect to the Company s common stock. The Company determined the fair value of the stock issued to Amgen to be $7.5 million. The excess of cash received over fair value of $2.5 million was deferred and is being allocated between the license and services based on their relative selling prices using best estimate of selling price.

In February 2014, the Company closed an underwritten public offering for the issuance and sale of 5,031,250 shares of its common stock. The gross public offering proceeds were approximately $40.3 million. The net proceeds from the sale of the shares were approximately $37.5 million, after deducting the underwriting discount and offering expenses.

In December 2014, the Company also entered into a common stock purchase agreement which provided for the sale of 2,040,816 shares of its common stock to Astellas at a price per share of $4.90 and an aggregate purchase price of $10.0 million, which was received in December 2014.

On September 4, 2015, the Company entered into an Committed Equity Offering (an CE Offering) that is an at-the-market issuance sales agreement (the Cantor Fitzgerald Agreement) with Cantor Fitzgerald & Co. (Cantor Fitzgerald), pursuant to which the Company may issue and sell shares of common stock having an aggregate offering price of up to $40.0 million, from time to time through Cantor Fitzgerald as its sales agent. The issuance and sale of these shares by the Company under the Cantor Fitzgerald Agreement, if any, are subject to the continued effectiveness of its registration statement on Form S-3, which was declared effective by the SEC on September 17, 2015.

Sales of the Company s common stock, through Cantor Fitzgerald, will be made on The NASDAQ Global Market by means of ordinary brokers transactions at market prices or as otherwise agreed to by the Company and Cantor Fitzgerald. Subject to the terms and conditions of the Cantor Fitzgerald Agreement, Cantor Fitzgerald will use commercially reasonable efforts to sell the Company s common stock from time to time, based upon our instructions (including any price, time or size limits or other customary parameters or conditions we may impose). The Company is not obligated to make any sales of common stock under the Cantor Fitzgerald Agreement. The offering of shares of common stock pursuant to the Cantor Fitzgerald Agreement will terminate upon the earlier of (1) the sale of all common stock subject to the Cantor Fitzgerald Agreement or (2) termination of the Cantor Fitzgerald Agreement. The Cantor Fitzgerald Agreement may be terminated by Cantor Fitzgerald at any time upon ten days notice to the Company or may be terminated by the Company at any time upon five day s notice to Cantor Fitzgerald, or by Cantor Fitzgerald at any time in certain circumstances, including the occurrence of a material adverse change in the Company s business. The Company will pay Cantor Fitzgerald a commission rate equal to 3.0% of the gross proceeds of the sales price per share of any common stock sold through Cantor Fitzgerald under the Cantor Fitzgerald Agreement. The Company has also provided Cantor Fitzgerald with customary indemnification and contribution rights. As of December 31, 2016, 808,193 shares have been issued through Cantor Fitzgerald under the Cantor Fitzgerald Agreement for total net proceeds of approximately $8.9 million. Through February 23, 2017, the Company issued and sold 993,408 shares for total net proceeds of approximately $11.0 million and $28.7 million remains available to us under the September 2015 Registration Statement.

Warrants

As of December 31, 2016, the Company had warrants outstanding to purchase 4.2 million shares of the Company s common stock.

In June 2012, warrants were issued pursuant to the June 2012 underwriting agreements the Company entered into in connection with two separate, concurrent offerings for our securities (the June 2012 Public

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Offerings). In accordance with the accounting guidance for valuing stock and warrants when stock is issued in conjunction with other securities, and the stock and other securities are to be accounted for as equity, the Company allocated the gross purchase proceeds using the relative fair value method. For accounting purposes, the June 2012 Public Offerings were considered to be one transaction. The fair value of the common stock issued in the June 2012 Public Offerings was calculated based on the closing price of the stock on the commitment date as quoted on The NASDAQ Global Market.

In October 2015, warrants to purchase 65,189 shares of the Company s common stock at an exercise price of $6.90 per share were issued in accordance with the Loan Agreement. Refer to Note 9 Long-Term Debt , for further details regarding the Loan Agreement.

In February 2016, warrants to purchase 68,285 shares of the Company s common stock at an exercise price of $6.59 per share were issued in accordance with the Loan Agreement. The Company valued the warrants as of the date of issuance at $288,000 using the Black-Scholes option pricing model and the following assumptions: a contractual term of five years, a risk-free interest rate of 1.7%, volatility of 75%, and the fair value of the Company s common stock of $7.00.

In August 2016, warrants to purchase 104,533 shares of the Company s common stock at an exercise price of $5.28 per share were cash exercised in accordance with the June 2012 public offerings underwriting agreements.

In September 2016, the Company issued 690,580 shares of common stock related to cashless exercises of warrants in accordance with the June 2012 public offerings.

In December 2016, the Company issued 28,569 shares of common stock related to cashless exercises of warrants in accordance with the June 2012 public offerings.

Outstanding warrants as of December 31, 2016 were as follows:

	Number of Shares	Exercise Price	Expiration Date
Issued 6/25/2012	4,104,966	$ 5.28	06/25/17
Issued 10/19/2015	65,189	$ 6.90	10/19/20
Issued 02/10/2016	68,285	$ 6.59	02/10/21

Equity Incentive Plan

Total employee stock-based compensation expenses were $7.1 million, $4.6 million and $3.3 million for the years ended December 31, 2016, 2015 and 2014, respectively.

Stock Option Plans

2004 Plan

In January 2004, the Board of Directors adopted the 2004 Equity Incentive Plan (the 2004 Plan), which was approved by the stockholders in February 2004. The 2004 Plan provides for the granting of incentive stock options, nonstatutory stock options, restricted stock, stock appreciation rights, stock performance units and stock performance shares to employees, directors and consultants. Under the 2004 Plan, options may be granted at prices not lower than 100% of the fair market value of the common stock on the date of grant for nonstatutory stock options and incentive stock options and may be granted for terms of up to ten years from the date of grant.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Options granted to new employees generally vest 25% after one year and monthly thereafter over a period of four years. Options granted to existing employees generally vest monthly over a period of four years. At the May 2013 Annual Meeting of Stockholders, the number of shares of common stock authorized for issuance under the 2004 Plan was increased by 2,000,000. At the May 2015 Annual Meeting of Stockholders, the number of shares of common stock authorized for issuance under the 2004 Plan was increased by 3,130,000. As of December 31, 2016, there were 1,588,300 shares of common stock reserved for issuance under the 2004 Plan.

Stock Options

Activity under the Equity Incentive Plan was as follows:

	Shares Available for Grant of Option or Award	Stock Options Outstanding	Weighted Average Exercise Price per Share - Stock Options	Weighted Average Remaining Contractual Life	Aggregate Intrinsic Value (in thousands)
Balance at December 31, 2013	2,161,829	2,449,365	$ 15.15		
Options granted	(944,831)	944,831	8.80		
Restricted stock units granted	(43,500)				
Options exercised		(390)	6.00		
Options forfeited/expired	95,980	(95,980)	39.74		
Restricted stock units forfeited	1,000				
Balance at December 31, 2014	1,270,478	3,297,826	$ 12.62		
Increase in authorized shares	3,130,000				
Options granted	(1,175,730)	1,175,730	7.62		
Restricted stock units granted	(739,000)				
Options exercised		(68,635)	6.22		
Options forfeited/expired	326,762	(326,762)	16.83		
Restricted stock units forfeited	3,500				
	2,816,010	4,078,159	$ 10.94		

Balance at December 31, 2015						
Options granted	(1,446,675)	1,446,675	7.10			
Restricted stock units granted	(47,000)					
Options exercised		(74,556)	6.75			
Options forfeited/expired	257,465	(257,465)	24.25			
Restricted stock units forfeited	8,500					
Balance at December 31, 2016	1,588,300	5,192,813	$ 9.27	6.83	$	21,294
Exercisable at December 31, 2016		3,364,286	$ 10.24	5.83	$	12,771
Vested and expected to vest as of December 31, 2016		5,147,387	$ 9.29	6.81	$	21,075

Total intrinsic value of stock options exercised was $202,000, $94,000, and $1,000 during the years ended December 31, 2016, 2015 and 2014, respectively. The intrinsic value is calculated as the difference between the market value at the date of exercise and the exercise price of the shares. The market value as of December 31, 2016 was $12.15 per share as reported by NASDAQ. The weighted average grant date fair value of stock options granted was $4.77, $5.35 and $6.01 per share during the years ended December 31, 2016, 2015 and 2014, respectively.

The number of option shares vested was 970,241, 713,078 and 601,647 in 2016, 2015 and 2014, respectively. The grant date fair value of option shares vested was $4.9 million, $3.6 million and $3.0 million in 2016, 2015 and 2014, respectively.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Restricted Stock Units

Restricted stock unit activity was as follows:

	Number of Shares	Weighted Average Award Date Fair Value per Share
Restricted stock units outstanding at December 31, 2013	41,663	$ 6.00
Restricted stock units granted	43,500	9.65
Restricted stock units vested	(20,833)	6.00
Restricted stock units forfeited	(1,000)	6.00
Unvested restricted stock units outstanding at December 31, 2014	63,330	8.51
Restricted stock units granted	54,000	7.96
Restricted stock units vested	(42,078)	7.82
Restricted stock units forfeited	(3,500)	8.68
Unvested restricted stock units outstanding at December 31, 2015	71,752	8.49
Restricted stock units granted	47,000	6.67
Restricted stock units vested	(45,750)	8.69
Restricted stock units forfeited	(8,500)	7.20
Unvested restricted stock units outstanding at December 31, 2016	64,502	7.19

Restricted stock activities were limited to non-executive employees for years ended December 31, 2016 and 2015.

For the years ended December 31, 2016, 2015 and 2014, the total fair value of restricted stock units vested was $0.4 million, $0.3 million and $0.1 million, respectively. The Company measures compensation expense for restricted stock units at fair value on the grant date and recognizes the expense over the expected vesting period. The fair value for restricted stock units is based on the closing price of the Company s common stock on the grant date. Unvested restricted stock units are subject to repurchase at no cost to the Company.

Restricted Stock Units that Contain Performance Conditions

Performance stock unit activity was as follows:

	Number of Shares	Weighted Average Award Date Fair Value per Share
Performance stock units outstanding at December 31, 2014		$
Restricted stock units granted	685,000	7.00
Restricted stock units vested		
Restricted stock units forfeited		
Unvested restricted stock units outstanding at December 31, 2015	685,000	7.00
Restricted stock units granted		
Restricted stock units vested		
Restricted stock units forfeited		
Unvested restricted stock units outstanding at December 31, 2016	685,000	$ 7.00

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

During the year ended December 31, 2015, the Company granted 685,000 performance stock unit awards with a grant date fair value of $7.00 per share that contain performance conditions. As of December 31, 2016, all these performance stock units remain unvested.

No performance stock units vested during the years ended December 31, 2016, 2015 and 2014 respectively. The Company measures compensation expense for performance stock units at fair value on the grant date and recognizes the expense over the expected vesting period once it is probable that the performance conditions will be achieved. The fair value for performance stock units is based on the closing price of the Company s common stock on the grant date. Unvested performance stock awards are subject to repurchase at no cost to the Company.

Stock-Based Compensation

The Company applies the accounting guidance for stock compensation, which establishes accounting for share-based payment awards made to employees, non-employees and directors, including employee stock options and employee stock purchases. Under this guidance, stock-based compensation cost is measured at the grant date based on the calculated fair value of the award, and is recognized as an expense on a straight-line basis over the employee s requisite service period, generally the vesting period of the award.

The following table summarizes stock-based compensation related to stock options, restricted stock awards, restricted stock unit, and employee stock purchases (in thousands):

	Years Ended December 31,		
	2016	2015	2014
Research and development	$ 4,252	$ 1,828	$ 1,361
General and administrative	2,894	2,739	1,969
Stock-based compensation included in operating expenses	$ 7,146	$ 4,567	$ 3,330

Valuation Assumptions

Employee Stock-Based Compensation

The Company uses the Black-Scholes option pricing model to determine the fair value of stock option grants to employees and directors and employee stock purchase plan shares. The key input assumptions used to estimate fair value of these awards include the exercise price of the award, the expected option term, the expected volatility of the Company s stock over the option s expected term, the risk-free interest rate over the option s expected term, and the Company s expected dividend yield, if any.

The fair value of share-based payments was estimated on the date of grant using the Black-Scholes option pricing model based on the following weighted average assumptions:

	Year Ended December 31, 2016		Year Ended December 31, 2015		Year Ended December 31, 2014	
	Employee Stock Options	ESPP	Employee Stock Options	ESPP	Employee Stock Options	ESPP
Risk-free interest rate	1.9%	0.5%	1.7%	0.3%	1.9%	0.2%
Volatility	74.0%	74.0%	79.4%	75.3%	77.1%	86.0%
Expected term in years	6.44	0.50	6.38	0.56	6.30	1.25
Expected dividend yield	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The risk-free interest rate that the Company uses in the option pricing model is based on the U.S. Treasury zero-coupon issues with remaining terms similar to the expected terms of the options. The Company does not anticipate paying dividends in the foreseeable future and therefore uses an expected dividend yield of zero in the option pricing model. The Company is required to estimate forfeitures at the time of grant and revise those estimates in subsequent periods if actual forfeitures differ from those estimates. Historical data is used to estimate pre-vesting option forfeitures and record stock-based compensation expense only on those awards that are expected to vest.

The Company uses its own historical exercise activity and extrapolates the life cycle of options outstanding to arrive at its estimated expected term for new option grants. The Company uses its own volatility history based on its stock s trading history for the expected term. The Company measures compensation expense for awards of restricted stock and restricted stock units at fair value on the date of grant and recognizes the expense over the expected vesting period. The fair value for restricted stock and restricted stock unit awards is based on the closing price of the Company s common stock on the date of grant.

As of December 31, 2016, there was $8.5 million of unrecognized compensation cost related to unvested stock options, which is expected to be recognized over a weighted-average period of 2.4 years, and there was $3.1 million of unrecognized compensation cost related to unvested restricted stock and performance stock units, which is expected to be recognized over a weighted-average period of 1.2 years. The fair value for restricted stock units is based on the closing price of the Company s common stock on the grant date.

Non-employee Stock-Based Compensation

The Company records stock option grants to non-employees, excluding directors, at their fair value on the measurement date. The measurement of stock-based compensation is subject to adjustment as the underlying equity instruments vest.

There were no stock option grants to non-employees in the years ended December 31, 2016, 2015 or 2014. When terminating, if employees continue to provide service to the Company as consultants and their grants are permitted to continue to vest, the expense associated with the continued vesting of the related stock options is classified as non-employee stock compensation expense after the status change.

In connection with services rendered by non-employees, the Company recorded stock-based compensation expense of $147,000, $27,000, and $50,000 in 2016, 2015 and 2014, respectively.

ESPP

In January 2004, the Board of Directors adopted the 2004 ESPP, which was approved by the stockholders in February 2004. Under the 2004 ESPP, statutory employees may purchase common stock of the Company up to a specified maximum amount through payroll deductions. The stock is purchased semi-annually at a price equal to 85% of the fair market value at certain plan-defined dates. The 2004 ESPP was terminated in October 2015.

In May 2015, the Board of Directors adopted the 2015 ESPP, which was approved by the stockholders in May 2015. The first purchase period under the 2015 ESPP commenced on November 2, 2015. Under the 2015 ESPP, statutory employees may purchase common stock of the Company up to a specified maximum amount through payroll deductions. The stock is purchased semi-annually at a price equal to 85% of the fair market value at certain plan-defined dates.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The Company issued 129,604, 21,167and 19,726 shares of common stock during 2016, 2015 and 2014, respectively, pursuant to the 2004 ESPP at an average price of $7.08, $3.24 and $3.38 per share, in 2016, 2015 and 2014, respectively.

At December 31, 2016 the Company had 519,339 shares of common stock reserved for issuance under the 2015 ESPP.

Note 12 Income Taxes

The Company accounts for income taxes under the asset and liability method. Under this method, deferred tax assets and liabilities are determined based on the difference between the financial statement and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to affect taxable income. Valuation allowances are established when necessary to reduce the deferred tax assets to the amounts expected to be realized. The Company did not record an income tax provision in the years ended December 31, 2016, 2015, or 2014 because the Company either had net taxable losses in these periods or was able to utilize tax attributes to offset taxable income.

For financial statement purposes, income (loss) before taxes includes the following components (in thousands):

	Years Ended December 31,		
	2016	2015	2014
United States	$ 16,453	$ (37,501)	$ (14,646)
Foreign			
Total	$ 16,453	$ (37,501)	$ (14,646)

The Company recorded the following income tax provision as follows (in thousands):

	Years Ended December 31,		
	2016	2015	2014
Current:			
Federal	$	$	$
State			
Total	$	$	$

Deferred:			
Federal	$	$	$
State			
Total	$	$	$

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Deferred income taxes reflect the net tax effect of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. The significant components of the Company s deferred tax assets and liabilities were as follows (in thousands):

	As of December 31,		
	2016	2015	2014
Deferred tax assets:			
Depreciation and amortization	$ 766	$ 769	$ 780
Capitalized R&D	11,675	13,150	15,176
Reserves and accruals	10,258	12,899	6,217
Net operating losses	146,961	153,251	148,184
Tax credits	46,998	38,742	34,543
Total deferred tax assets	216,658	218,811	204,900
Less: Valuation allowance	(216,658)	(218,811)	(204,900)
Net deferred tax assets	$	$	$

Realization of deferred tax assets is dependent upon future earnings, if any, the timing and amount of which are uncertain. Based upon the weight of available evidence, which includes the Company s historical operating performance, reported cumulative net losses since inception, expected future losses, and difficulty in accurately forecasting the Company s future results, the Company maintained a full valuation allowance on the net deferred tax assets as of December 31, 2016, 2015 and 2014. The valuation allowance was determined pursuant to the accounting guidance for income taxes, which requires an assessment of both positive and negative evidence when determining whether it is more likely than not that deferred tax assets are recoverable. The Company intends to maintain a full valuation allowance on the U.S. deferred tax assets until sufficient positive evidence exists to support reversal of the valuation allowance. The valuation allowance decreased by $2.2 million in 2016 and increased by $13.9 million in 2015 and $1.0 million in 2014.

As a result of certain realization requirements of accounting guidance for stock compensation, the table of deferred tax assets and liabilities shown above does not include certain deferred tax assets at December 31, 2016, 2015 and 2014 that arose directly from tax deductions related to equity compensation in excess of compensation recognized for financial reporting. Approximately $2.0 million of Federal and California net operating losses are related to tax stock option deductions in excess of book deductions. This amount will be credited to stockholders equity when it is realized.

The following are the Company s valuation and qualifying accounts (in thousands):

	Balance at Beginning of Period	Charged to Expenses	Charged to Other Accounts	Deductions	Balance at End of Period
Year Ended December 31, 2014:					
Deferred tax valuation allowance	$ 203,863	$ 1,037			$ 204,900
Year Ended December 31, 2015:					
Deferred tax valuation allowance	$ 204,900	$ 13,911			$ 218,811
Year Ended December 31, 2016:					
Deferred tax valuation allowance	$ 218,811	$ (2,153)			$ 216,658

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

The following is a reconciliation of the statutory federal income tax rate to the Company s effective tax rate:

	Years Ended December 31,		
	2016	2015	2014
Tax at federal statutory tax rate	34%	(34)%	(34)%
State income tax, net of federal tax benefit	2%	0%	(1)%
State Apportionment	(7)%	0%	28%
Tax credits (net)	(32)%	(7)%	(7)%
Deferred tax assets (utilized) not benefited	(15)%	37%	7%
Stock-based compensation	7%	2%	5%
NOL Expiration	9%	2%	2%
Other	2%	0%	0%
Total	0%	0%	0%

The Company had federal net operating loss carryforwards of approximately $388.1 million and apportioned state net operating loss carryforwards of approximately $249.9 million before federal benefit at December 31, 2016. If not utilized, the federal and state operating loss carryforwards will begin to expire in various amounts beginning 2020 and 2017, respectively. The net operating loss carryforwards include deductions for stock options.

The Company had general business credit of approximately $44.4 million and $13.6 million for federal and state income tax purposes, respectively, at December 31, 2016. Amounts are comprised of Research and Development Credits and Orphan Drug Credits. If not utilized, the federal carryforwards will expire in various amounts beginning in 2021. The California state credit can be carried forward indefinitely. Since its filing of its 2011 tax return, the Company has claimed the orphan drug credit. For qualifying expenses, the orphan drug credit offers an increased benefit relative to the research and development credit taken in years prior.

As required by California state law, the Company apportions income to California based on a market-based sourcing approach. Accordingly, the Company s California apportionment formula is sensitive to changes in the source of the Company s mix of revenue.

In general, under Section 382 of the Internal Revenue Code (Section 382), a corporation that undergoes an ownership change is subject to limitations on its ability to utilize its pre-change net operating losses and tax credits to offset future taxable income. The Company has performed a section 382 analysis for the year ended December 31, 2016 and has not experienced an ownership change since 2006. A portion of the Company s existing net operating losses and tax credits are subject to limitations arising from previous ownership changes. Future changes in the Company s stock ownership, some of which are outside of our control, could result in an ownership change under Section 382 and result in additional limitations.

Section 59(e) of the Internal Revenue Code allows a Company to capitalize R&D expenses. The Company did not elect to capitalize R&D expenses in its 2014 tax return as they did not anticipate an ownership change under Section 382. For 2016 and 2015, the Company anticipates foregoing the election in its 2016 and 2015 tax return, respectively, as they do not anticipate an ownership change under Section 382.

The Company follows the accounting guidance that prescribes a comprehensive model for how companies should recognize, measure, present, and disclose in their financial statements uncertain tax positions taken or expected to be taken on a tax return. Tax positions are initially recognized in the financial statements when it is

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

more likely than not that the position will be sustained upon examination by the tax authorities. Such tax positions are initially and subsequently measured as the largest amount of tax benefit that is greater than 50% likely of being realized upon ultimate settlement with the tax authority assuming full knowledge of the position and relevant facts.

The significant jurisdictions in which the Company files income tax returns are the United States and California. For jurisdictions in which tax filings are made, the Company is subject to income tax examination for all fiscal years since inception. The IRS s Large Business and International Division concluded its audit of the 2009 tax year with no material adjustments. However, in general, the statute of limitations for tax liabilities for all years remains open for the purpose of adjusting the amounts of the losses and credits carried forward from those years.

The following table summarizes the activity related to our gross unrecognized tax benefits (in thousands):

	Years Ended December 31,	
	2016	2015
Balance at the beginning of the year	$ 6,715	$ 6,274
Decrease related to prior year tax positions	5	
Increase related to current year tax positions	845	441
Balance at the end of the year	$ 7,565	$ 6,715

Included in the balance of unrecognized tax benefits as of December 31, 2016, 2015 and 2014 are $6.3 million, $5.5 million and $5.1 million of tax benefits, respectively, that, if recognized, would result in adjustments to other tax accounts, primarily deferred taxes.

The Company recognizes interest accrued related to unrecognized tax benefits and penalties as income tax expense. Related to the unrecognized tax benefits noted above, the Company did not accrue any penalties or interest during 2016, 2015 or 2014. The Company does not expect its unrecognized tax benefit to change materially over the next twelve months.

Note 13 Interest and Other Income, Net

Interest and other income, net for the years ended December 31, 2016, 2015 and 2014, primarily consisted of interest income generated from the Company s cash, cash equivalents and investments. In 2015, interest income also included net gains realized upon disposal of equipment.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

Note 14 Quarterly Financial Data (Unaudited)

Quarterly results were as follows (in thousands, except per share data):

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
2016				
Total revenues	$ 8,421	$ 5,802	$ 59,047	$ 33,138
Net income (loss)	(12,455)	(11,611)	33,362	7,157
Net income (loss) per share basic	$ (0.31)	$ (0.29)	$ 0.84	$ 0.18
Net income (loss) per share diluted	$ (0.31)	$ (0.29)	$ 0.77	$ 0.16
2015				
Total revenues	$ 4,414	$ 6,542	$ 7,945	$ 9,757
Net loss	(8,872)	(10,551)	(8,849)	(9,229)
Net (loss) per share basic and diluted	$ (0.23)	$ (0.27)	$ (0.23)	$ (0.24)

Note 15 Subsequent Events

On February 1, 2017, the Company entered into a Royalty Purchase Agreement (the Royalty Agreement) with RPI Finance Trust (RPI), an entity related to Royalty Pharma. Under the Royalty Agreement, the Company sold a 4.5 percent royalty on potential worldwide sales of omecamtiv mecarbil (and potentially other compounds with the same mechanism of action) that are subject to the Amgen Agreement (as amended) to RPI for a payment of $90.0 million. The royalty rate purchased may increase up to an additional 1 percent under certain circumstances. In addition, RPI has agreed to purchase $10.0 million of Cytokinetics common stock pursuant to a concurrently executed Common Stock Purchase Agreement with RPI.

In February 2017, the Company provided notice to Amgen of its further exercise of its co-invest option in the additional amount of $30.0 million (i.e. to co-invest $40.0 million) in the Phase 3 development program of omecamtiv mecarbil under the Amgen Agreement. As a result, the Company is eligible to receive an incremental royalty of up to 4% on increasing worldwide sales of omecamtiv mecarbil outside of Japan. Exercising its option and fully co-funding $40.0 million will afford the Company the right to co-promote omecamtiv mecarbil in institutional care settings in North America, with reimbursement by Amgen for certain sales force activities.

From January 1, 2017 to February 23, 2017, the Company sold 185,215 shares pursuant to its CE offering with a weighted average sale price of $11.24 for net proceeds of $2.1 million.

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Item 9. ***Changes in and Disagreements With Accountants on Accounting and Financial Disclosure***

None.

Item 9A. ***Controls and Procedures***

Evaluation of Disclosure Controls and Procedures. Our management evaluated, with the participation and under the supervision of our Chief Executive Officer and our Chief Financial Officer, the effectiveness of our disclosure controls and procedures (as defined in Rule 13a-15(e) under the Exchange Act) as of the end of the period covered by this Annual Report on Form 10-K. Based on this evaluation, our Chief Executive Officer and our Chief Financial Officer have concluded that the Company s disclosure controls and procedures were effective as of December 31, 2016.

Management s Report on Internal Control over Financial Reporting. Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act). Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2016. In making this assessment, our management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission in Internal Control-Integrated Framework 2013. Our management has concluded that, as of December 31, 2016, our internal control over financial reporting is effective based on these criteria.

Our independent registered public accounting firm, PricewaterhouseCoopers LLP, has audited the effectiveness of our internal control over financial reporting as of December 31, 2016, as stated in their report, which is included herein.

Remediation of Previously Reported Material Weakness. A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the annual or interim financial statements will not be prevented or detected on a timely basis. Management previously identified the following material weakness as of September 30, 2016:

We did not maintain effective internal controls over the accounting for the completeness, accuracy and presentation and disclosure of clinical research and development expenses and related clinical accrual accounts due to a design deficiency in the review of clinical trial expenses incurred under our clinical research organization trial agreements, including in part, our review of information received from third party service providers that is used in the operation of this control. This material weakness resulted in the restatement of our clinical research and development expenses, related clinical accrual accounts and related financial disclosures as of and for the three and nine month periods ended September 30, 2016.

In response to the material weakness described above, the Company developed a comprehensive remediation plan to address the material weakness. The remediation included the enhancement of review procedures around monthly fluctuation analysis over clinical research and development expenses and related clinical accruals, as well as the implementation of internal controls over the review of information received from third party service providers that are used in the operation of the control.

During the quarter ended December 31, 2016, management tested the design and operating effectiveness of this new control and found it to be effective and concluded that the material weakness described above was remediated as of December 31, 2016.

Changes in Internal Control over Financial Reporting. The changes described in Remediation of Previously Reported Material Weaknesses above, were changes in our internal control over financial reporting that occurred during the quarter ended December 31, 2016 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

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Inherent Limitations on Effectiveness of Controls. Our management, including our Chief Executive Officer and Chief Financial Officer, does not expect that our disclosure controls and procedures or our internal controls, will prevent all error and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within Cytokinetics have been detected.

Item 9B. ***Other Information***

None.

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PART III

Item 10. ***Directors, Executive Officers and Corporate Governance***

The information regarding our directors and executive officers, our director nominating process and our audit committee is incorporated by reference from our definitive Proxy Statement for our 2016 Annual Meeting of Stockholders, where it appears under the headings Board of Directors and Executive Officers.

Section 16(a) Beneficial Ownership Reporting Compliance

The information regarding our Section 16 beneficial ownership reporting compliance is incorporated by reference from our definitive Proxy Statement described above, where it appears under the headings Section 16(a) Beneficial Ownership Reporting Compliance.

Code of Ethics

We have adopted a Code of Ethics that applies to all directors, officers and employees of the Company. We publicize the Code of Ethics through posting the policy on our website, www.cytokinetics.com. We will disclose on our website any waivers of, or amendments to, our Code of Ethics within four business days following the date of such amendment or waiver.

Item 11. ***Executive Compensation***

The information required by this Item is incorporated by reference from our definitive Proxy Statement referred to in Item 10 above, where it appears under the headings Executive Compensation and Compensation Committee Interlocks and Insider Participation.

Item 12. ***Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters***

The information required by this Item regarding security ownership of certain beneficial owners and management is incorporated by reference from our definitive Proxy Statement referred to in Item 10 above, where it appears under the heading Security Ownership of Certain Beneficial Owners and Management.

The following table summarizes the securities authorized for issuance under our equity compensation plans as of December 31, 2016:

Plan Category	Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and Rights	Weighted Average Exercise Price of Outstanding Options, Warrants and Rights	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans
Equity compensation plans approved by stockholders	3,364,286	$ 10.25	2,107,699(1)

Equity compensation plans not approved by stockholders				
Total	3,364,286	$	10.25	2,107,699

(1) Includes 519,399 shares of common stock reserved for issuance under the Employee Stock Purchase Plan.

Item 13. ***Certain Relationships and Related Transactions, and Director Independence***

The information required by this Item is incorporated by reference from our definitive Proxy Statement referred to in Item 10 above where it appears under the headings Certain Business Relationships and Related Party Transactions and Board of Directors.

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Item 14. ***Principal Accounting Fees and Services***

The information required by this Item is incorporated by reference from our definitive Proxy Statement referred to in Item 10 above, where it appears under the heading Principal Accountant Fees and Services.

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PART IV

Item 15. ***Exhibits and Financial Statement Schedules***

(a) The following documents are filed as part of this Form 10-K:

(1) Financial Statements (included in Part II of this report):

Report of Independent Registered Public Accounting Firm

Consolidated Balance Sheets

Consolidated Statements of Comprehensive Loss

Consolidated Statements of Stockholders Equity

Consolidated Statements of Cash Flows

Notes to Consolidated Financial Statements

(2) Financial Statement Schedules:

None All financial statement schedules are omitted because the information is inapplicable or presented in the notes to the financial statements.

(3) Exhibits:

		Incorporated by Reference				
Exhibit No.	**Exhibits**	**Form**	**File No.**	**Filing Date**	**Exh. No.**	**Filed Herewith**
3.1	Amended and Restated Certificate of Incorporation.	S-3	333-174869	June 13, 2011	3.1	
3.2	Certificate of Amendment of Amended and Restated Certificate of Incorporation.	10-Q	000-50633	August 4, 2011	3.2	
3.3	Certificate of Amendment of Amended and Restated Certificate of	8-K	000-50633	June 25, 2013	5.1	

	Incorporation.				
3.4	Certificate of Amendment of Amended and Restated Certificate of Incorporation	8-K	000-50633	May 20, 2016	3.1
3.5	Amended and Restated Bylaws.	S-1	333-112261	April 29, 2004	3.2
4.1	Specimen Common Stock Certificate.	10-Q	000-50633	May 9, 2007	4.1
4.2	Form of Warrant	10-Q	000-50633	August 6, 2012	4.6
4.3	Form of Common Stock Warrant Issued Pursuant to that certain Loan and Security Agreement, dated as of October 19, 2015, by and among the Company, Oxford Finance LLC and Silicon Valley Bank	10-K	000-50633	March 3, 2016	4.6
10.1+	Amended and Restated 2004 Equity Incentive Plan	10-Q	000-50633	August 5, 2015	10.2

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Exhibit No.	Exhibits	Incorporated by Reference				Filed Herewith
		Form	File No.	Filing Date	Exh. No.	
10.2+	2004 Employee Stock Purchase Plan	10-Q	000-50633	August 7, 2013	10.3	
10.3+	2015 Employee Stock Purchase Plan	10-Q	000-50633	August 5, 2015	10.42	
10.4	Build-to-Suit Lease, dated May 27, 1997, by and between Britannia Pointe Grand Limited Partnership and Metaxen, LLC	S-1	333-112261	April 29, 2004	10.5	
10.5	First Amendment to Lease, dated April 13, 1998, by and between Britannia Pointe Grand Limited Partnership and Metaxen, LLC	S-1	333-112261	January 27, 2004	10.6	
10.6	Sublease Agreement, dated May 1, 1998, by and between the Company and Metaxen, LLC	S-1	333-112261	January 27, 2004	10.7	
10.7	Sublease Agreement, dated March 1, 1999, by and between Metaxen, LLC and Exelixis Pharmaceuticals, Inc.	S-1	333-112261	January 27, 2004	10.8	
10.8	Assignment and Assumption Agreement and Consent, dated July 11, 1999, by and among Exelixis Pharmaceuticals, Metaxen, LLC, Xenova Group PLC and Britannia Pointe Grande Limited Partnership	S-1	333-112261	January 27, 2004	10.9	
10.9	Second Amendment to Lease, dated July 11, 1999, by and between Britannia Pointe Grand Limited Partnership and Exelixis Pharmaceuticals, Inc.	S-1	333-112261	January 27, 2004	10.10	
10.10	First Amendment to Sublease Agreement, dated July 20, 1999, by and between the Company and Metaxen	S-1	333-112261	January 27, 2004	10.11	
10.11	Agreement and Consent, dated July 20, 1999, by and among Exelixis Pharmaceuticals, Inc., the Company and Britannia Pointe Grand Limited Partnership	S-1	333-112261	January 27, 2004	10.12	
10.12	Amendment to Agreement and Consent, dated July 31, 2000, by and between the Company, Exelixis, Inc., and Britannia Pointe Grande Limited Partnership	S-1	333-112261	January 27, 2004	10.13	

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Exhibit No.	Exhibits	Incorporated by Reference				Filed Herewith
		Form	File No.	Filing Date	Exh. No.	
10.13	Assignment and Assumption of Lease, dated September 28, 2000, by and between the Company and Exelixis, Inc.	S-1	333-112261	January 27, 2004	10.14	
10.14	Sublease Agreement, dated September 28, 2000, by and between the Company and Exelixis, Inc.	S-1	333-112261	January 27, 2004	10.15	
10.15*	Collaboration and Option Agreement, dated as of December 29, 2006, by and between the Company and Amgen Inc.	10-K	000-50633	March 12, 2007	10.63	
10.16	Form of Indemnification Agreement between the Company and each of its directors and executive officers	10-Q	000-50633	August 5, 2008	10.1	
10.17*+	Scientific Advisory Board Consulting Agreement, dated April 1, 2008, by and between the Company and James H. Sabry	8-K	000-50633	April 2, 2008	10.66	
10.18+	Amended and Restated Executive Employment Agreement, dated May 21, 2007, by and between the Company and Robert Blum	10-Q	000-50633	August 5, 2008	10.69	
10.19+	Form of Executive Employment Agreement between the Company and its executive officers	10-Q	000-50633	August 5, 2008	10.68	
10.20*	Amendment No. 1, dated June 17, 2008, to the Collaboration and Option Agreement by and between the Company and Amgen Inc.	10-K	000-50633	March 12, 2009	10.62	
10.21*	Amendment No. 2, dated September 30, 2008, to the Collaboration and Option Agreement by and between the Company and Amgen Inc.	10-K	000-50633	March 12, 2009	10.63	
10.22*	Amendment No. 3, dated October 31, 2008, to the Collaboration and Option Agreement by and between the Company and Amgen Inc.	10-K	000-50633	March 12, 2009	10.65	
10.23*	Amendment No. 4, dated February 20, 2009, to the Collaboration and Option Agreement by and between the Company and Amgen Inc.	10-K	000-50633	March 12, 2009	10.67	

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Exhibit No.	Exhibits	Incorporated by Reference				Filed Herewith
		Form	File No.	Filing Date	Exh. No.	
10.24+	Form of Amendment No. 1 to Amended and Restated Executive Employment Agreements	10-K	000-50633	March 12, 2009	10.68	
10.25	Third Amendment to Lease, dated December 10, 2010, by and between the Company and Britannia Pointe Grand Limited Partnership	10-K	000-50633	March 11, 2011	10.65	
10.26*	Amendment No. 5, dated November 1, 2010, to the Collaboration and Option Agreement by and between the Company and Amgen Inc.	10-K	000-50633	March 11, 2011	10.66	
10.27*	Consulting Agreement between the Company and David J. Morgans, dated November 1, 2011	10-K	000-50633	March 13, 2012	10.42	
10.28*	Amendment No. 1, dated May 1, 2012, to Consulting Agreement between the Company and David J. Morgans, dated November 1, 2011	10-Q	000-50633	May 4, 2012	10.43	
10.29*	Amendment No. 2, dated October 30, 2012 to Consulting Agreement between the Company and David J. Morgans, dated November 1, 2011	10-K	000-50633	March 15, 2013	10.44	
10.30+	2015 Compensation Information for the Company s Named Executive Officers	8-K	000-50633	March 2, 2015	10.1	
10.31+	Form of Option Agreement	10-K	000-50633	March 15, 2013	10.46	
10.32+	Form of Restricted Stock Unit Award Agreement	10-K	000-50633	March 15, 2013	10.47	
10.33	Common Stock Purchase Agreement dated June 11, 2013, by and between the Company and Amgen Inc.	8-K	000-50633	June 12, 2013	10.48	
10.34*	Amendment No. 6, dated June 11, 2013, to the Collaboration and Option Agreement by and between the Company and Amgen Inc.	10-Q	000-50633	August 7, 2013	10.46	
10.35+	Form of Executive Employment Agreement between the Company and its executive officers	10-K	000-50633	March 7, 2014	10.39	
10.36		8-K	000-50633	December 23, 2014	10.46	

Common Stock Purchase Agreement by and between the Company and Astellas Pharma Inc. dated December 22, 2014	

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Exhibit No.	Exhibits	Incorporated by Reference				Filed Herewith
		Form	File No.	Filing Date	Exh. No.	
10.37*	Amended and Restated License and Collaboration Agreement, dated December 22, 2014, by and between the Company and Astellas Pharma Inc.	10-K	000-50633	March 6, 2015	10.40	
10.38*	Amendment No. 7, dated March 19, 2015, to the Collaboration and Option Agreement by and between the Company and Amgen Inc.	10-Q	000-50633	May 4, 2015	10.41	
10.39	Controlled Equity Offering Sales Agreement, dated as of September 4, 2015, by and between the Company and Cantor Fitzgerald & Co.	8-K	000-50633	September 4, 2015	10.43	
10.40*	Loan and Security Agreement, dated as of October 19, 2015, by and among the Company, Oxford Finance LLC and Silicon Valley Bank	10-K	000-50633	March 3, 2016	10.40	
10.41	Fourth Amendment to Build to Suit Lease, dated March 1, 2016, by and between the Company and Britannia Pointe Grand Limited Partnership	10-Q	000-50633	May 5, 2016	10.41	
10.42*	Amendment to the Amended and Restated License and Collaboration Agreement between the Company and Astellas Pharma Inc., dated July 27, 2016	10-Q/A	000-50633	January 20, 2017	10.42	
10.43*	Letter of Agreement by and between the Company and Amgen Inc. and Les Laboratoires Servier and Institut de Recherches Internationales Servier, dated August 29, 2016	10-Q	000-50633	November 3, 2016	10.43	
10.44**	Royalty Purchase Agreement by and between the Company and RPI Finance Trust, dated February 1, 2017					X
10.45	Common Stock Purchase Agreement by and between the Company and RPI Finance Trust, dated February 1, 2017					X
23.1						X

Consent of Independent registered
public accounting firm

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Exhibit No.	Exhibits	Incorporated by Reference				Filed Herewith
		Form	File No.	Filing Date	Exh. No.	
24.1	Power of Attorney (included in the signature page to this report)					X
31.1	Certification of Principal Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
31.2	Certification of Principal Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
32.1	Certifications of the Principal Executive Officer and the Principal Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (18 U.S.C. Section 1350) (1)					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 are subject to a confidential treatment order.

** Registrant has requested confidential treatment for portions of this Exhibit.

\+ Management contract or compensatory plan.

(1) This certification accompanies the Form 10-K to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of the Registrant under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before

or after the date of the Form 10-K), irrespective of any general incorporation language contained in such filing.

(b) Exhibits

The exhibits listed under Item 15(a)(3) hereof are filed as part of this Form 10-K, other than Exhibit 32.1 which shall be deemed furnished.

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(c) Financial Statement Schedules

None All financial statement schedules are omitted because the information is inapplicable or presented in the notes to the financial statements.

Item 16. ***Form 10-K Summary***

None.

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SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities and Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

CYTOKINETICS, INCORPORATED

By: /s/ ROBERT I. BLUM
Robert I. Blum

President, Chief Executive Officer and Director

Dated: March 6, 2017

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Robert I. Blum and Sharon A. Barbari, and each of them, his true and lawful attorneys-in-fact, each with full power of substitution, for him in any and all capacities, to sign any amendments to this Annual Report on Form 10-K and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that each of said attorneys-in-fact or their substitute or substitutes may do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities and Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ ROBERT I. BLUM Robert I. Blum	President, Chief Executive Officer and Director (Principal Executive Officer)	March 6, 2017
/s/ SHARON A. BARBARI Sharon A. Barbari	Executive Vice President, Finance and Chief Financial Officer (Principal Financial and Accounting Executive)	March 6, 2017
/s/ L. PATRICK GAGE, PH.D. L. Patrick Gage, Ph.D.	Chairman of the Board of Directors	March 6, 2017
/s/ SANTO J. COSTA Santo J. Costa	Director	March 6, 2017
/s/ JOHN T. HENDERSON, M.B. CH.B.	Director	March 6, 2017

John T. Henderson, M.B. Ch.B.		
/s/ EDWARD KAYE, M.D. Edward Kaye, M.D.	Director	March 6, 2017
/s/ B. LYNNE PARSHALL, ESQ. B. Lynne Parshall, Esq.	Director	March 6, 2017
/s/ SANDFORD D. SMITH Sandford D. Smith	Director	March 6, 2017
/s/ WENDELL WIERENGA, PH.D. Wendell Wierenga, Ph.D.	Director	March 6, 2017

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Exhibit No.	Exhibits	Incorporated by Reference				Filed Herewith
		Form	File No.	Filing Date	Exh. No.	
3.1	Amended and Restated Certificate of Incorporation.	S-3	333-174869	June 13, 2011	3.1	
3.2	Certificate of Amendment of Amended and Restated Certificate of Incorporation.	10-Q	000-50633	August 4, 2011	3.2	
3.3	Certificate of Amendment of Amended and Restated Certificate of Incorporation.	8-K	000-50633	June 25, 2013	5.1	
3.4	Certificate of Amendment of Amended and Restated Certificate of Incorporation	8-K	000-50633	May 20, 2016	3.1	
3.5	Amended and Restated Bylaws.	S-1	333-112261	April 29, 2004	3.2	
4.1	Specimen Common Stock Certificate.	10-Q	000-50633	May 9, 2007	4.1	
4.2	Form of Warrant to Purchase Common Stock, originally issued June 25, 2012	10-Q	000-50633	August 6, 2012	4.6	
4.3	Form of Common Stock Warrant Issued Pursuant to that certain Loan and Security Agreement, dated as of October 19, 2015, by and among the Company, Oxford Finance LLC and Silicon Valley Bank	10-K	000-50633	March 3, 2016	4.6	
10.1+	Amended and Restated 2004 Equity Incentive Plan	10-Q	000-50633	August 5, 2015	10.2	
10.2+	2004 Employee Stock Purchase Plan	10-Q	000-50633	August 7, 2013	10.3	
10.3+	2015 Employee Stock Purchase Plan	10-Q	000-50633	August 5, 2015	10.42	
10.4	Build-to-Suit Lease, dated May 27, 1997, by and between Britannia Pointe Grand Limited Partnership and Metaxen, LLC	S-1	333-112261	April 29, 2004	10.5	
10.5	First Amendment to Lease, dated April 13, 1998, by and between Britannia Pointe Grand Limited Partnership and Metaxen, LLC	S-1	333-112261	January 27, 2004	10.6	
10.6	Sublease Agreement, dated May 1, 1998, by and between the Company and Metaxen, LLC	S-1	333-112261	January 27, 2004	10.7	
10.7	Sublease Agreement, dated March 1, 1999, by and between Metaxen, LLC and Exelixis Pharmaceuticals, Inc.	S-1	333-112261	January 27, 2004	10.8	
10.8	Assignment and Assumption Agreement and Consent, dated July 11, 1999, by and	S-1	333-112261	January 27, 2004	10.9	

among Exelixis Pharmaceuticals, Metaxen, LLC, Xenova Group PLC and Britannia Pointe Grande Limited Partnership

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Exhibit No.	Exhibits	Incorporated by Reference				Filed Herewith
		Form	File No.	Filing Date	Exh. No.	
10.9	Second Amendment to Lease, dated July 11, 1999, by and between Britannia Pointe Grand Limited Partnership and Exelixis Pharmaceuticals, Inc.	S-1	333-112261	January 27, 2004	10.10	
10.10	First Amendment to Sublease Agreement, dated July 20, 1999, by and between the Company and Metaxen	S-1	333-112261	January 27, 2004	10.11	
10.11	Agreement and Consent, dated July 20, 1999, by and among Exelixis Pharmaceuticals, Inc., the Company and Britannia Pointe Grand Limited Partnership	S-1	333-112261	January 27, 2004	10.12	
10.12	Amendment to Agreement and Consent, dated July 31, 2000, by and between the Company, Exelixis, Inc., and Britannia Pointe Grande Limited Partnership	S-1	333-112261	January 27, 2004	10.13	
10.13	Assignment and Assumption of Lease, dated September 28, 2000, by and between the Company and Exelixis, Inc.	S-1	333-112261	January 27, 2004	10.14	
10.14	Sublease Agreement, dated September 28, 2000, by and between the Company and Exelixis, Inc.	S-1	333-112261	January 27, 2004	10.15	
10.15*	Collaboration and Option Agreement, dated as of December 29, 2006, by and between the Company and Amgen Inc.	10-K	000-50633	March 12, 2007	10.63	
10.16	Form of Indemnification Agreement between the Company and each of its directors and executive officers	10-Q	000-50633	August 5, 2008	10.1	
10.17*+	Scientific Advisory Board Consulting Agreement, dated April 1, 2008, by and between the Company and James H. Sabry	8-K	000-50633	April 2, 2008	10.66	
10.18+	Amended and Restated Executive Employment Agreement, dated May 21, 2007, by and between the Company and Robert Blum	10-Q	000-50633	August 5, 2008	10.69	
10.19+	Form of Executive Employment Agreement between the Company and its executive officers	10-Q	000-50633	August 5, 2008	10.68	
10.20*		10-K	000-50633	March 12, 2009	10.62	

Amendment No. 1, dated June 17, 2008, to the Collaboration and Option Agreement by and between the Company and Amgen Inc.	

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Exhibit No.	Exhibits	Incorporated by Reference				Filed Herewith
		Form	File No.	Filing Date	Exh. No.	
10.21*	Amendment No. 2, dated September 30, 2008, to the Collaboration and Option Agreement by and between the Company and Amgen Inc.	10-K	000-50633	March 12, 2009	10.63	
10.22*	Amendment No. 3, dated October 31, 2008, to the Collaboration and Option Agreement by and between the Company and Amgen Inc.	10-K	000-50633	March 12, 2009	10.65	
10.23*	Amendment No. 4, dated February 20, 2009, to the Collaboration and Option Agreement by and between the Company and Amgen Inc.	10-K	000-50633	March 12, 2009	10.67	
10.24+	Form of Amendment No. 1 to Amended and Restated Executive Employment Agreements	10-K	000-50633	March 12, 2009	10.68	
10.25	Third Amendment to Lease, dated December 10, 2010, by and between the Company and Britannia Pointe Grand Limited Partnership	10-K	000-50633	March 11, 2011	10.65	
10.26*	Amendment No. 5, dated November 1, 2010, to the Collaboration and Option Agreement by and between the Company and Amgen Inc.	10-K	000-50633	March 11, 2011	10.66	
10.27*	Consulting Agreement between the Company and David J. Morgans, dated November 1, 2011	10-K	000-50633	March 13, 2012	10.42	
10.28*	Amendment No. 1, dated May 1, 2012, to Consulting Agreement between the Company and David J. Morgans, dated November 1, 2011	10-Q	000-50633	May 4, 2012	10.43	
10.29*	Amendment No. 2, dated October 30, 2012 to Consulting Agreement between the Company and David J. Morgans, dated November 1, 2011	10-K	000-50633	March 15, 2013	10.44	
10.30+	2015 Compensation Information for the Company s Named Executive Officers	8-K	000-50633	March 2, 2015	10.1	
10.31+	Form of Option Agreement	10-K	000-50633	March 15, 2013	10.46	
10.32+	Form of Restricted Stock Unit Award Agreement	10-K	000-50633	March 15, 2013	10.47	
10.33	Common Stock Purchase Agreement dated June 11, 2013, by and between the Company and Amgen Inc.	8-K	000-50633	June 12, 2013	10.48	

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Exhibit No.	Exhibits	Incorporated by Reference				Filed Herewith
		Form	File No.	Filing Date	Exh. No.	
10.34*	Amendment No. 6, dated June 11, 2013, to the Collaboration and Option Agreement by and between the Company and Amgen Inc.	10-Q	000-50633	August 7, 2013	10.46	
10.35+	Form of Executive Employment Agreement between the Company and its executive officers	10-K	000-50633	March 7, 2014	10.39	
10.36	Common Stock Purchase Agreement by and between the Company and Astellas Pharma Inc. dated December 22, 2014	8-K	000-50633	December 23, 2014	10.46	
10.37*	Amended and Restated License and Collaboration Agreement, dated December 22, 2014, by and between the Company and Astellas Pharma Inc.	10-K	000-50633	March 6, 2015	10.40	
10.38*	Amendment No. 7, dated March 19, 2015, to the Collaboration and Option Agreement by and between the Company and Amgen Inc.	10-Q	000-50633	May 4, 2015	10.41	
10.39	Controlled Equity Offering Sales Agreement, dated as of September 4, 2015, by and between the Company and Cantor Fitzgerald & Co.	8-K	000-50633	September 4, 2015	10.43	
10.40*	Loan and Security Agreement, dated as of October 19, 2015, by and among the Company, Oxford Finance LLC and Silicon Valley Bank	10-K	000-50633	March 3, 2016	4.6	
10.41	Fourth Amendment to Build to Suit Lease, dated March 1, 2016, by and between the Company and Britannia Pointe Grand Limited Partnership	10-Q	000-50633	May 5, 2016	10.41	
10.42*	Amendment to the Amended and Restated License and Collaboration Agreement between the Company and Astellas Pharma Inc., dated July 27, 2016	10-Q/A	000-50633	January 20, 2017	10.42	
10.43*	Letter of Agreement by and between the Company and Amgen Inc. and Les Laboratoires Servier and Institut de Recherches Internationales Servier, dated August 29, 2016	10-Q	000-50633	November 3, 2016	10.43	

10.44**	Royalty Purchase Agreement by and between the Company and RPI Finance Trust, dated February 1, 2017	X

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Exhibit No.	Exhibits	Incorporated by Reference				Filed Herewith
		Form	File No.	Filing Date	Exh. No.	
10.45	Common Stock Purchase Agreement by and between the Company and RPI Finance Trust, dated February 1, 2017					X
23.1	Consent of Independent registered public accounting firm					X
24.1	Power of Attorney (included in the signature page to this report)					X
31.1	Certification of Principal Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
31.2	Certification of Principal Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
32.1	Certifications of the Principal Executive Officer and the Principal Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (18 U.S.C. Section 1350) (1)					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 are subject to a confidential treatment order.

** Registrant has requested confidential treatment for portions of this Exhibit.

\+ Management contract or compensatory plan.

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

(b) Exhibits

The exhibits listed under Item 15(a)(3) hereof are filed as part of this Form 10-K, other than Exhibit 32.1 which shall be deemed furnished.

(c) Financial Statement Schedules

None All financial statement schedules are omitted because the information is inapplicable or presented in the notes to the financial statements.