Filed Pursuant to Rule 424(b)(3)
Registration No. 333-217320

27,367,117 Shares of Common Stock

This prospectus relates to the offering and resale by the selling stockholders identified herein of up to 27,367,117 shares of common stock of Aerpio Pharmaceuticals, Inc., par value $0.0001 per share. A portion of these shares were privately issued to the selling stockholders on March 15, 2017 in exchange for shares of Aerpio Therapeutics, Inc., a Delaware corporation, which became our wholly-owned subsidiary on March 15, 2017, a portion are held by the pre-Merger stockholders of Zeta Acquisition Corp. II, a portion were issued through a private placement offering on March 15, 2017, and a portion are issuable upon exercise of warrants to purchase shares of common stock that we issued to the placement agents in connection with the private placement offering. We will not receive any proceeds from the sale of these shares by the selling stockholders. The selling stockholders may sell the shares as set forth herein under "Plan of Distribution." For a list of the selling stockholders, see the section entitled "Selling Stockholders" on page 126. We have borne and will continue to bear the costs relating to the registration of these shares.

There is not currently, and there has never been, any established public trading market for any of our securities. Our securities are not currently eligible for trading on any national securities exchange, including the NASDAQ Stock Market, or any over-the-counter markets, including the OTC Markets—OTCQB tier, or OTCQB. We cannot assure you that our securities will become eligible for trading on any exchange or market. In connection with this offering, we have arranged for a registered broker-dealer to apply to have our common stock quoted on the OTCQB or another over-the-counter system. Until such time as our common stock is quoted on the OTCQB or another public trading market otherwise develops, the selling stockholders identified herein may only sell their shares of our common stock pursuant to this prospectus at a fixed price of $5.00 per share, for a total offering amount of $136,835,585. At and after such time, the selling stockholders may sell all or a portion of their shares through public or private transactions at prevailing market prices or at privately negotiated prices.

We may amend or supplement this prospectus from time to time by filing amendments or supplements as required. You should read the entire prospectus and any amendments or supplements carefully before you make your investment decision.

We are an "emerging growth company" as defined under the federal securities laws, and, as such, are eligible for reduced public company reporting requirements. See "Prospectus Summary—Implications of Being an Emerging Growth Company."

Investment in our common stock involves risks. See "Risk Factors" beginning on page 9 of this prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus is June 23, 2017

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ABOUT THIS PROSPECTUS

You should rely only on the information contained in this prospectus or contained in any prospectus supplement or free writing prospectus filed with the Securities and Exchange Commission. Neither we nor the selling stockholders have authorized anyone to provide you with additional information or information different from that contained in this prospectus filed with the Securities and Exchange Commission. The selling stockholders are offering to sell, and seeking offers to buy, shares of our common stock only in jurisdictions where offers and sales are permitted. The information contained in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of this prospectus or of any sale of shares of our common stock. Our business, financial condition, results of operations and prospects may have changed since that date.

For investors outside the United States: Neither we nor the selling stockholders have done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the shares of common stock and the distribution of this prospectus outside the United States.

PROSPECTUS SUMMARY

The following summary highlights selected information contained elsewhere in this prospectus. This summary is not complete and does not contain all the information that should be considered before investing in our common stock. Before making an investment decision, investors should carefully read the entire prospectus, paying particular attention to the risks referred to under the headings "Risk Factors" and "Cautionary Statement Regarding Forward-Looking Statements" and our financial statements and the notes to those financial statements.

As used in this prospectus, unless the context requires otherwise, the terms "Company," "we," "our" and "us" refer to Aerpio Pharmaceuticals, Inc.

Overview

We are a biopharmaceutical company focused on advancing first-in-class treatments for ocular disease. Our lead product candidate, AKB-9778, a small molecule activator of the tyrosine kinase with immunoglobulin-like and epidermal growth factor-like domains 2, or Tie-2, pathway, is being developed for the treatment of diabetic retinopathy, or DR. The Tie-2 receptor is expressed almost exclusively in endothelial cells (cells that make up blood vessels) in humans. Tie-2 signaling is essential for regulating blood vessel development and the stability of mature vessels. We have completed a Phase 2a trial of AKB-9778 in 144 patients with diabetic macular edema, or DME, a swelling of the retina that is a common cause of vision loss in patients with DR. DME occurs when fluid and protein deposits collect on or under the macula of the eye (a yellow central area of the retina) and causes it to thicken and swell (edema). The swelling may distort a person's central vision, because the macula holds tightly packed cones that provide sharp, clear, central vision to enable a person to see detail, form, and color that is directly in the center of the field of view. Based on the results from this trial, we believe AKB-9778 monotherapy has the potential to reduce the severity of DR. In contrast to marketed treatments for diabetic eye diseases that are administered by a physician via intravitreal injection, which is an injection into the eye, we intend to deliver AKB-9778 systemically by self-administered subcutaneous injection. We believe that this delivery method provides an opportunity to treat patients at an earlier stage, reducing the likelihood of these patients developing vision-threatening complications. We plan to initiate a twelve month, double-blind Phase 2b trial of AKB-9778 in patients with DR who have not developed more serious complications such as diabetic macular edema, or proliferative DR, in the second quarter of 2017. We expect to report topline results of this trial in the second quarter of 2019.

The underlying problem in diabetic complications is damage to the blood vessels caused by the presence of high blood glucose, commonly referred to as diabetic vasculopathy. This damage causes blood vessels to leak fluid and proteins into the surrounding tissue, leading to complications. For example, in the eyes, this damage leads to DR which can progress to diabetic macular edema, or DME. In other parts of the body such as the kidney, the damage leads to diabetic nephropathy and in the lower extremities, the damage leads to non-healing foot ulcers, peripheral artery disease and critical limb ischemia. These diabetic complications lead to life- and sight-threatening conditions including kidney dialysis, amputations and blindness that are costly to treat. Diabetic patients with complications are estimated to cost the health care system 3.5 times more than patients without complications. For example, the cost for kidney dialysis for diabetic patients averages $89,000 per year and the cost for the first year of DME therapy with Eylea (aflibercept) is $14,400 per eye, based on published Medicare allowable charges per dose and the frequency of dosing as approved by the FDA. If approved, we believe that systemic treatment with AKB-9778 has the potential to change the treatment paradigm for diabetics, initially for DR, and address a major societal problem by lowering the cost of care associated with this diabetic complication.

Diabetic eye disease is one of the most common and debilitating complications of diabetes. Over time, diabetes damages blood vessels in the eye. When this happens, a patient is said to have DR. These damaged blood vessels can leak blood proteins and fluid into the central portion of the retina, called the macula, which is

responsible for high resolution central vision. The leakage of protein and fluid into the macula causes swelling, a condition called diabetic macular edema, or DME, which if left untreated results in decreased visual acuity and eventual blindness. According to the World Health Organization's Global Report of Diabetes, there are an estimated 422 million individuals living with diabetes worldwide (Types 1 and 2), and, according to a 2012 article titled "Global Prevalence and Major Risk Factors of Diabetic Retinopathy," or the 2012 Article, 34.6% or 146 million, have diabetic retinopathy and 6.81%, or 28 million, have DME. The likelihood of a person developing DME increases as DR progresses.

According to a 2016 article titled "Therapeutic Categories Outlook," sales of the two leading approved therapies for DME, Eylea (aflibercept), which is marketed by Regeneron and Lucentis (ranibizumab), which is marketed by Genentech, were estimated to be over $5 billion worldwide in 2015. According to the 2012 Article, given that the number of patients with DR is roughly five times of that for DME, we believe that a therapy that can reverse early ocular damage in patients with DR and slow or prevent the development of DME could have substantial clinical and commercial value. There is currently no approved disease-modifying therapy for treatment of diabetic retinopathy until after sight-threatening conditions like DME have developed.

AKB-9778 is a small molecule activator of the Tie-2 pathway that helps to stabilize blood vessel walls and prevent leaks in the eye, and based on pre-clinical models, potentially elsewhere in the body. Such leaks in the eye may eventually lead to the onset of DME and, in many cases, to loss of vision or even blindness. AKB-9778's mechanism of action reduces vasculature damage and restores vascular integrity. In contrast to current therapies for DME, which are all administered by a physician via an injection into the eye, AKB-9778 is being developed as a self-administered subcutaneous injection.

In addition to DR, the Tie-2 pathway is also implicated in other diabetic complications. Therefore, systemic treatment with AKB-9778 may address diabetic nephropathy and non-healing foot ulcers. If we are successful in developing and commercializing AKB-9778 for DR, we intend to conduct longer term clinical trials to evaluate AKB-9778's potential to reduce or delay the need for kidney dialysis and reduce amputations.

In addition to AKB-9778, we have two additional pipeline programs in development. AKB-4924 is a selective stabilizer of hypoxia-inducible factor-1 alpha, or HIF-1-alpha, that is being developed for the treatment of inflammatory bowel disease. HIF-1-alpha is a subunit of hypoxia-inducible factor 1, or HIF-1, a transcription factor thought to be involved with mucosal wound healing and the reduction of inflammation in the gastrointestinal tract. Multiple compounds that target this transcription factor are under investigation for the treatment of inflammatory bowel disease. We have completed a Phase 1a clinical trial in healthy volunteers for AKB-4924. We may develop AKB-4924, subject to receiving additional funding, which we may seek to obtain in connection with a collaboration with a strategic and commercial partner. We may also advance ARP-1536, a humanized monoclonal antibody directed at the same target as AKB-9778. Humanized antibodies are antibodies from non-human species whose protein sequences have been modified to increase their similarity to antibodies produced naturally in humans. Humanization can be necessary to reduce the potential for immunogenic reactions when administered to human patients. ARP-1536 is currently in preclinical development and may be developed for wet age-related macular degeneration and DME and subject to receiving additional funding, which may be from a collaboration with a strategic or commercial partner.

Our Strategy

Our objective is to become the leader in the treatment of diabetic eye disease. We are taking the following critical steps to achieve this goal:

- Advance the development of AKB-9778 for DR;
- If approved, establish collaborations to commercialize AKB-9778 globally;
- Investigate the potential of AKB-9778 in other indications; and
- Advance or partner our pipeline programs AKB-4924 and ARP-1536.

Risks Associated with Our Business

Our business is subject to a number of risks of which you should be aware before making an investment decision. These risks are discussed more fully in the "Risk Factors" section of this prospectus immediately following this prospectus summary. These risks include the following:

- we have incurred significant losses since inception and anticipate that we will continue to incur significant losses for the foreseeable future and may never achieve or maintain profitability;
- we will require substantial additional financing. A failure to obtain this necessary capital when needed could force us to delay, limit, reduce or terminate our product development or commercialization efforts;
- we depend heavily on the success of one product candidate, AKB-9778, which is in Phase 2 clinical development. Even if we obtain favorable clinical results, we may not be able to obtain regulatory approval for, or successfully commercialize, AKB-9778;
- we have not obtained agreement with the FDA, EMA or other regulatory authorities on the design of our Phase 3 development program;
- clinical drug development is a lengthy and expensive process with an uncertain outcome, and positive results from Phase 1 and Phase 2a clinical trials of AKB-9778 are not necessarily predictive of the results of our completed and any future clinical trials of AKB-9778. If we cannot replicate the positive results from our Phase 1 and Phase 2a clinical trials of AKB-9778 in our ongoing and subsequent clinical trials, we may be unable to successfully develop, obtain regulatory approval for and commercialize AKB-9778;
- we may experience delays in our planned Phase 2b clinical trial for AKB-9778 and we do not know whether planned clinical trials will begin on time, need to be redesigned, enroll patients on time or be completed on schedule, if at all;
- we rely on third parties to conduct preclinical studies and clinical trials for our product candidates, and if they do not properly and successfully perform their obligations to us, we may not be able to obtain regulatory approvals for our product candidates;
- we may not be successful in establishing and maintaining strategic collaborations, which could adversely affect our ability to develop and commercialize our product candidates, negatively impacting our operating results;
- if our efforts to protect our proprietary technologies are not adequate, we may not be able to compete effectively in our market;
- our future commercial success depends upon attaining significant market acceptance of our product candidates, if approved, among physicians, patients, third-party payors and others in the medical community;
- our independent registered public accounting firm has identified a material weakness in our internal control over financial reporting which will require remediation; and
- our shareholders will have limited ability to influence corporate matters because a small number of our existing shareholders hold a significant amount of our outstanding common stock.

Reverse Merger, Private Placement Offering and the Selling Stockholders

We were incorporated as Zeta Acquisition Corp. II in the State of Delaware on November 16, 2007. Prior to the Merger (as defined below), we were a "shell company" (as defined in Rule 12b-2 of the Securities Exchange Act of 1934, as amended).

On March 15, 2017, we changed our name to Aerpio Pharmaceuticals, Inc. by filing a Certificate of Amendment to our Certificate of Incorporation. On March 3, 2017, our board of directors, and on March 10, 2017, our pre-Merger (as defined below) stockholders, approved an amended and restated certificate of incorporation, which, among other things, will increase our authorized capital stock from 100,000,000 shares of common stock, par value $0.0001 per share, and 10,000,000 shares of preferred stock, par value $0.0001 per share, to 300,000,000 shares of common stock, par value $0.0001 per share, or the Common Stock, and 10,000,000 shares of preferred stock, par value $0.0001 per share. Our amended and restated certificate of incorporation will be effective upon its filing with the Secretary of State of the State of Delaware on the date that is 20 days after the mailing of a definitive Schedule 14C information statement to our pre-Merger stockholders, which occurred on March 27, 2017. On March 15, 2017, our board of directors adopted the amended and restated bylaws.

On March 15, 2017, our wholly-owned subsidiary, Aerpio Acquisition Corp., a corporation formed in the State of Delaware on March 3, 2017, or the Acquisition Sub, merged with and into Aerpio Therapeutics, Inc., a corporation incorporated on November 17, 2011 in the State of Delaware referred to herein as Aerpio. Pursuant to this transaction, or the Merger, Aerpio was the surviving corporation and became our wholly-owned subsidiary. All of the outstanding capital stock of Aerpio was converted into shares of our Common Stock on a 2.3336572:1 basis, as described in more detail below.

As a result of the Merger, we acquired the business of Aerpio and will continue the existing business operations of Aerpio as a public reporting company under the name Aerpio Pharmaceuticals, Inc. Immediately after the effective time of the Merger, on March 15, 2017, Aerpio converted into a Delaware limited liability company by the filing of a Certificate of Conversion with the Secretary of State of the State of Delaware, which we refer to as the Conversion.

Immediately following the Conversion, the pre-Merger stockholders of Zeta Acquisition Corp. II surrendered for cancellation 4,000,000 of the 5,000,000 shares of the outstanding Common Stock of Zeta Acquisition Corp. II. We refer to these transactions as the Share Cancellation. Following the Share Cancellation, on March 15, 2017, we closed a private placement offering, or the Offering, of 8,049,555 shares of our Common Stock, at a purchase price of $5.00 per share.

Unless otherwise indicated in this prospectus, all share and per share figures reflect the exchange of each 2.3336572 shares of Aerpio common stock then outstanding for 1 share of our common stock at the effective time of the Merger; however, the share and per share numbers in the audited financial statements of Aerpio for the year ended December 31, 2016 included in this prospectus are not adjusted to give effect to the Merger.

The issuance of shares of our common stock in the Merger and in the Offering was exempt from registration under Section 4(a)(2) of the Securities Act of 1933, as amended, or the Securities Act, and Regulation D promulgated thereunder. This prospectus relates to the sale or other disposition from time to time of up to 27,367,117 shares of our common stock issued in the Merger and in the Offering that are held by the selling stockholders named in this prospectus.

Implications of Being an Emerging Growth Company

We qualify as an “emerging growth company” as defined in the Jumpstart Our Business Startups Act, or JOBS Act, enacted in April 2012. An emerging growth company may take advantage of reduced reporting requirements that are otherwise applicable to public companies. These provisions include, but are not limited to:

- not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes- Oxley Act of 2002, or Sarbanes-Oxley Act;
- reduced disclosure obligations regarding executive compensation in our periodic reports, proxy statements and registration statements; and

- exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved.

We may take advantage of these provisions for up to five years after the first sale of our common equity securities pursuant to an effective registration statement under the Securities Act, which we expect will be pursuant to this registration statement of which this prospectus forms a part or a registration statement on Form S-8 that we may file in the future. However, if certain events occur prior to the end of such five year period, including if we become a "large accelerated filer," our annual gross revenues exceed $1.07 billion or we issue more than $1 billion of non-convertible debt in any three year period, we would cease to be an emerging growth company prior to the end of such five year period.

We may choose to take advantage of some but not all of these reduced burdens. We have taken advantage of certain of the reduced disclosure obligations regarding executive compensation in this registration statement and may elect to take advantage of other reduced burdens in future filings. As a result, the information that we provide to our stockholders may be different than you might receive from other public reporting companies in which you hold equity interests.

Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards until such time as those standards apply to private companies. However, we have irrevocably elected not to avail ourselves of this extended transition period for complying with new or revised accounting standards and, therefore, we will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

We are also a "smaller reporting company" as defined in Rule 12b-2 of the Securities Exchange Act of 1934, as amended, or the Exchange Act, and have elected to take advantage of certain of the scaled disclosure available to smaller reporting companies.

Our Corporate Information

We were originally incorporated in the State of Delaware in November 2007 under the name "Zeta Acquisition Corp. II." Prior to the Merger, Zeta Acquisition Corp. II was a "shell" company registered under the Exchange Act with no specific business plan or purpose until it began operating the business of Aerpio through the Merger transaction on March 15, 2017. Aerpio was incorporated in the State of Delaware in November 2011 to focus primarily on advancing first-in-class treatments for ocular disease. Effective upon the Merger, a wholly-owned subsidiary of Zeta Acquisition Corp. II merged with and into Aerpio, and Aerpio continued as the operating subsidiary of Zeta Acquisition Corp. II. Immediately following the Merger, Aerpio converted into a Delaware limited liability company with the name Aerpio Therapeutics LLC.

Our corporate headquarters are located at 9987 Carver Road, Cincinnati, Ohio 45242, and our telephone number is (513) 985-1920. We maintain a website at www.aerpio.com, to which we regularly post copies of our press releases as well as additional information about us. Our filings with the Securities and Exchange Commission, or SEC, will be available free of charge through the website as soon as reasonably practicable after being electronically filed with or furnished to the SEC. Information contained in our website does not constitute a part of this prospectus or our other filings with the SEC.

All brand names or trademarks appearing in this prospectus are the property of their respective holders. Use or display by us of other parties' trademarks, trade dress, or products in this prospectus is not intended to, and does not, imply a relationship with, or endorsements or sponsorship of, us by the trademark or trade dress owners.

THE OFFERING

Common stock offered by selling stockholders	27,367,117 shares (including 317,562 shares of common stock issuable upon the exercise of warrants to purchase common stock held by certain selling stockholders)
Common stock outstanding	27,049,555 shares
Use of proceeds	We will not receive any proceeds from the sale of the shares of common stock offered by the selling stockholders.
Offering price	The selling stockholders may only sell their shares of our common stock pursuant to this prospectus at a fixed price of $5.00 per share until such time as our common stock is quoted on the OTC Markets—OTCQB tier, or OTCQB, or another public trading market for our common stock otherwise develops. At and after such time, the selling stockholders may sell all or a portion of their shares through public or private transactions at prevailing market prices or at privately negotiated prices.
Risk factors	You should read the “Risk Factors” section of this prospectus for a discussion of factors to consider carefully before deciding to invest in shares of our common stock.
Market for our shares	There is not now and never has been any market for our securities and an active market may never develop. In connection with this offering, we have arranged for a broker-dealer to apply to have our common stock quoted on the OTCQB or another over-the-counter system. In the future, we intend to seek to have our common stock quoted on a national securities exchange. However, we may not be successful in having our shares quoted on an over-the-counter market or listed on a national securities exchange.

The number of shares of common stock outstanding is based on an aggregate of 27,049,555 shares outstanding as of March 31, 2017, and excludes:

- 927,592 shares of common stock issuable upon the exercise of stock options outstanding as of March 31, 2017 under our 2011 Equity Incentive Plan, or the 2011 Plan, at a weighted average exercise price of $1.69 per share;
- 317,562 shares of common stock issuable upon the exercise of warrants to purchase common stock outstanding as of March 31, 2017, at an exercise price of $5.00 per share;
- 3,672,408 shares of common stock reserved for future issuance under our 2017 Stock Option and Incentive Plan, or the 2017 Plan; and
- 300,000 shares of common stock reserved for future issuance under our 2017 Employee Stock Purchase Plan, or the 2017 ESPP.

Unless otherwise indicated in this prospectus, all share and per share figures assume no exercise of outstanding options or warrants after March 31, 2017, and reflect (i) the exchange of 2.3336572 shares of Aerpio common stock then outstanding for 1 share of our common stock upon the effective time of the Merger on March 15, 2017; and (ii) the filing and effectiveness of our amended and restated certificate of incorporation which is expected to occur on the date that is 20 days after the mailing of a definitive Schedule 14C information statement to our pre-Merger stockholders, which occurred on March 27, 2017; provided, however, the share and per share numbers in the audited financial statements of Aerpio for the year ended December 31, 2016 included in this prospectus are not adjusted to give effect to the Merger.

SUMMARY FINANCIAL DATA

The following tables summarize Aerpio's financial data for the periods presented and should be read together with the sections of this prospectus entitled "Risk Factors," "Unaudited Pro Forma Condensed Combined Financial Information," and "Management's Discussion and Analysis of Financial Condition and Results of Operations," and our financial statements and related notes appearing elsewhere in this prospectus. The summary financial data in this section are not intended to replace our financial statements and related notes. The following summary consolidated financial data for the years ended December 31, 2016 and 2015 are derived from our audited consolidated financial statements appearing elsewhere in this prospectus. The summary consolidated financial data as of March 31, 2017 and for the three months ended March 31, 2017 and 2016 have been derived from our unaudited consolidated financial statements included elsewhere in this prospectus. In our opinion, these unaudited financial statements have been prepared on a basis consistent with our audited consolidated financial statements and contain all adjustments, consisting only of normal and recurring adjustments, necessary for a fair presentation of such consolidated financial data. Our historical results are not necessarily indicative of our future results, and our operating results for the three-month period ended March 31, 2017 are not necessarily indicative of the results that may be expected for the fiscal year ending December 31, 2017 or any other interim periods or any future year or period.

	Three months ended March 31,		Year Ended December 31,	
	2017	2016	2016	2015
	(unaudited)			
Statement of Operations data:				
Operating expenses:				
Research and development	$ 2,255,584	$ 2,989,558	$ 11,367,590	$ 11,625,404
General and administrative	2,504,001	1,215,885	5,265,995	5,861,151
Total operating expenses	4,759,585	4,205,443	16,633,585	17,486,555
Loss from operations	(4,759,585)	(4,205,443)	(16,633,585)	(17,486,555)
Grant income	35,657	8,670	131,281	369,688
Interest (expense) income, net	(271,775)	1,078	(482,204)	19,622
Other income, net	—	997	997	27,022
Total other (expense) income	(236,118)	10,745	(349,926)	416,332
Net loss and comprehensive loss	$ (4,995,703)	$ (4,194,698)	$ (16,983,511)	$ (17,070,223)
Net loss attributable to common shareholders	$ (5,939,000)	$ (5,210,069)	$ (20,912,088)	$ (17,418,659)
Net loss per share attributable to common shareholders, basic and diluted	$ (1.06)	$ (7.07)	$ (24.52)	$ (31.14)
Weighted average number of shares used in computing net loss per share attributable to common shareholders, basic and diluted	5,605,151	737,016	852,665	559,419

	March 31, 2017	December 31,	
		2016	2015
	(unaudited)		
Balance Sheet data:			
Cash and cash equivalents	$ 35,139,109	$ 1,609,694	$ 5,144,211
Total assets	36,280,315	2,396,878	6,092,534
Working capital, net	33,151,160	(12,631,294)	3,805,729
Redeemable convertible preferred stock	—	73,757,890	70,487,415
Accumulated deficit	(92,157,753)	(86,218,753)	(66,554,870)
Total stockholders' equity (deficit)	33,310,267	(86,218,629)	(66,554,755)

RISK FACTORS

Item 1A. Risk Factors.

Investing in our common stock involves a high degree of risk. In addition to the information, documents or reports included or incorporated by reference in this prospectus and, if applicable, any prospectus supplement or other offering materials, you should carefully consider the risks described below in addition to the other information contained in this prospectus, before making an investment decision. Our business, financial condition or results of operations could be harmed by any of these risks. As a result, you could lose some or all of your investment in our common stock. The risks and uncertainties described below are not the only ones we face. Additional risks not currently known to us or other factors not perceived by us to present significant risks to our business at this time also may impair our business operations.

Risks Related to Our Financial Position and Need for Additional Capital

We have incurred significant losses since inception and anticipate that we will continue to incur significant losses for the foreseeable future and may never achieve or maintain profitability.

We have incurred net losses each year since our inception, including net losses of $17.0 million and $17.1 million for the years ended December 31, 2016 and 2015, respectively, and $5.0 million for the three months ended March 31, 2017. As of March 31, 2017, we had an accumulated deficit of $92.2 million. To date, we have not commercialized any products or generated any revenues from the sale of products, and we do not expect to generate any product revenues in the foreseeable future. We do not know whether or when we will generate revenue or become profitable.

We have devoted most of our financial resources to research and development, including our clinical and preclinical development activities. To date, we have financed our operations primarily through private placements of our preferred stock. The amount of our future net losses will depend, in part, on the rate of our future expenditures, and our financial position will depend, in part, on our ability to obtain funding through equity or debt financings, strategic collaborations or grants. Our lead product candidate, AKB-9778, recently completed a proof of concept Phase 2 clinical trial in April 2015. Our product candidate AKB-4924 in our HIF-1-a stabilization program recently completed a Phase 1a trial. Our other product candidates are in preclinical development. As a result, we expect that it will be several years, if ever, before we have a product candidate ready for commercialization. Even if we obtain regulatory approval to market AKB-9778, our future revenues will depend upon the size of any markets in which AKB-9778 has received approval, our ability to achieve sufficient market acceptance, reimbursement from third-party payors and other factors.

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

- continue our Phase 2 program and prepare for a future Phase 3 development program of AKB-9778 for the treatment of diabetic retinopathy, or DR.
- seek regulatory approvals for our product candidates that successfully complete clinical trials;
- have our product candidates manufactured for clinical trials and for commercial sale;
- establish a sales, marketing and distribution infrastructure to commercialize any products for which we may obtain marketing approval;
- initiate additional preclinical, clinical or other studies for AKB-9778, AKB-4924, ARP-1536 and other product candidates that we may develop or acquire;
- seek to discover and develop additional product candidates;
- acquire or in-license other commercial products, product candidates and technologies;
- make royalty, milestone or other payments under any future in-license agreements;

- maintain, protect and expand our intellectual property portfolio;
- attract and retain skilled personnel; and
- create additional infrastructure to support our operations as a public company.

Because of the numerous risks and uncertainties associated with pharmaceutical product development, we are unable to accurately predict the timing or amount of increased expenses or when, if at all, we will be able to achieve profitability. If we are required by the United States Food and Drug Administration, or FDA, the European Medicines Agency, or EMA, or other regulatory authorities to perform studies in addition to those currently expected, or if there are any delays in completing our clinical trials or the development of any of our product candidates, our expenses could increase.

The net losses we incur may fluctuate significantly from quarter to quarter and year to year, such that a period-to-period comparison of our results of operations may not be a good indication of our future performance. In any particular quarter or quarters, our operating results could be below the expectations of securities analysts or investors, which could cause our stock price to decline.

To become and remain profitable, we must succeed in developing and commercializing our product candidates, which must generate significant revenue. This will require us to be successful in a range of challenging activities, including completing preclinical testing and clinical trials of our product candidates, discovering additional product candidates, obtaining regulatory approval for these product candidates and manufacturing, marketing and selling any products for which we may obtain regulatory approval. We are only in the preliminary stages of most of these activities. We may never succeed in these activities and, even if we do, may never generate revenues that are significant enough to achieve profitability.

Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to become and remain profitable could depress the value of our company and could impair our ability to raise capital, expand our business, maintain our research and development efforts, diversify our product offerings or even continue our operations. A decline in the value of our company could cause you to lose all or part of your investment.

We will require substantial additional financing. A failure to obtain this necessary capital when needed could force us to delay, limit, reduce or terminate our product development or commercialization efforts.

As of March 31, 2017, our cash and cash equivalents were $35.1 million. We believe that we will continue to expend substantial resources for the foreseeable future developing AKB-9778 and any other product candidates that we may develop or acquire. Additionally, we may expend substantial resources to further develop AKB-4924 if we secure sufficient additional funding, likely from a strategic and commercial partner for that candidate, as well as ARP-1536 if we secure sufficient additional funding, which may be from a partner for that candidate. These expenditures will include costs associated with research and development, potentially obtaining regulatory approvals and having our products manufactured, as well as marketing and selling products approved for sale, if any. In addition, other unanticipated costs may arise. Because the outcome of our current and anticipated clinical trials is highly uncertain, we cannot reasonably estimate the actual amounts necessary to successfully complete the development and commercialization of our product candidates.

Our future capital requirements depend on many factors, including:

- the rate of progress, results and cost of completing our Phase 2 program of AKB-9778 and our operating costs incurred as we conduct these trials and through our end of Phase 2 meeting with the FDA, and equivalent meetings with the EMA and other regulatory authorities;
- assuming AKB-9778 advances to Phase 3 clinical trials, the scope, size, rate of progress, results and costs of initiating and completing our Phase 3 development program of AKB-9778;

- assuming favorable clinical results, the cost, timing and outcome of our efforts to obtain marketing approval for AKB-9778 in the United States, Europe and in other jurisdictions, including to fund the preparation and filing of regulatory submissions for AKB-9778 with the FDA, the EMA and other regulatory authorities;
- the scope, progress, results and costs of preclinical development, laboratory testing and clinical trials that we may undertake for AKB-4924, ARP-1536 and any other product candidates that we may develop or acquire;
- the timing of, and the costs involved in, obtaining regulatory approvals for AKB-4924 and ARP-1536 if we continue their further development upon securing sufficient additional funding and/or a strategic and commercial partner, and clinical trials of these product candidates are successful;
- the cost and timing of future commercialization activities for our products, if any of our product candidates are approved for marketing, including product manufacturing, marketing, sales and distribution costs;
- the revenue, if any, received from commercial sales of our product candidates for which we receive marketing approval;
- the cost of having our product candidates manufactured for clinical trials in preparation for regulatory approval and in preparation for commercialization;
- our ability to establish and maintain strategic collaborations, licensing or other arrangements and the financial terms of such agreements; and
- the costs involved in preparing, filing, prosecuting patent applications, maintaining, defending and enforcing our intellectual property rights, including litigation costs and the outcome of such litigation.

Based on our current operating plan, and absent any future financings or strategic partnerships, we believe that our existing cash and cash equivalents and investments will be sufficient to fund our projected operating expenses and capital expenditure requirements into the first quarter of fiscal year 2019. However, our operating plan may change as a result of many factors currently unknown to us, and we may need additional funds sooner than planned. In addition, we may seek additional capital due to favorable market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. Additional funds may not be available when we need them on terms that are acceptable to us, or at all. If adequate funds are not available to us on a timely basis, we may be required to delay, limit, reduce or terminate preclinical studies, clinical trials or other development activities for AKB-9778, AKB-4924, ARP-1536 or any other product candidates that we develop or acquire, or delay, limit, reduce or terminate our establishment of sales and marketing capabilities or other activities that may be necessary to commercialize our product candidates.

Raising additional capital may cause dilution to our existing stockholders, restrict our operations or require us to relinquish rights to product candidates on unfavorable terms to us.

Until such time, if ever, as we can generate substantial product revenues, we expect to finance our cash needs through a combination of equity offerings, debt financings and license, development and commercialization agreements with collaborators. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms may include liquidation or other preferences and anti-dilution protections that adversely affect your rights as a stockholder. Debt financing, if available, may involve agreements that include covenants limiting or restricting our ability to take certain actions, such as incurring additional debt, making capital expenditures or declaring dividends. If we raise additional funds through strategic collaborations with third parties, we may have to relinquish valuable rights to our product candidates, future revenue streams, research programs or product candidates or grant licenses on terms that are not favorable to us. If we are unable to raise additional funds through equity or debt financing when needed, we may be required to delay, limit, reduce or terminate our product development or commercialization efforts for AKB-9778 and, if we secure sufficient additional funding and/or a strategic and

commercial partner, to continue their development, for AKB-4924, ARP-1536 or any other product candidates that we develop or acquire, or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

Our limited operating history may make it difficult for you to evaluate the success of our business to date and to assess our future viability.

We commenced active operations in 2011, and our operations to date have been limited to organizing and staffing our company, business planning, raising capital, identifying potential product candidates, undertaking preclinical studies and conducting clinical trials. We currently have three product candidates, one of which is in preclinical development. Of these product candidates, we may further develop AKB-4924 and ARP-1536 only if we secure sufficient additional funding and/or a strategic and commercial partner, to continue their clinical development. Biopharmaceutical product development is a highly speculative undertaking and involves a substantial degree of risk. Only a small fraction of biopharmaceutical development programs ultimately result in commercial products or even product candidates and a number of events could delay our development efforts and negatively impact our ability to obtain regulatory approval for, and to manufacture, market and sell, a product. We have not yet demonstrated our ability to successfully complete later stage clinical trials, obtain regulatory approvals, manufacture a commercial scale product, or arrange for a third party to do so on our behalf, or conduct sales and marketing activities necessary for successful product commercialization. Consequently, any predictions you make about our future success or viability may not be as accurate as they could be if we had a longer operating history.

In addition, as a young business, we may encounter unforeseen expenses, difficulties, complications, delays and other known and unknown factors. We will need to expand our capabilities to support commercial activities. We may not be successful in adding such capabilities.

Risks Related to Our Business and the Clinical Development, Regulatory Review and Approval of Product Candidates

We depend heavily on the success of one product candidate, AKB-9778, which is in Phase 2 clinical development. Even if we obtain favorable clinical results, we may not be able to obtain regulatory approval for, or successfully commercialize, AKB-9778.

We currently have only one product candidate, AKB-9778, in clinical development, and our business depends almost entirely on the successful clinical development, regulatory approval and commercialization of that product candidate, which may never occur. We currently have no products for sale, generate no revenues from sales of any drugs, and may never be able to develop marketable products. AKB-9778, which recently completed a proof of concept Phase 2 clinical trial, will require substantial additional clinical development, testing, manufacturing process development, and regulatory approval before we are permitted to commence its commercialization. Our other product candidate, AKB-4924, recently completed a Phase 1a trial. We currently may further develop AKB-4924 only if we secure sufficient additional funding, likely from a strategic and commercial partner, to continue its development. In addition, we currently may further develop ARP-1536 only if we secure sufficient additional funding , which may be from a strategic and commercial partner to continue its clinical development. There can be no assurance that we will be able to secure such additional funding or a strategic or commercial partner on commercially reasonable terms or at all. Any failure to do so would impair our ability to advance AKB-4924 and ARP-1536, resulting in our even greater dependence on AKB-9778. None of our product candidates has advanced into a pivotal trial, and it may be years before such trial is initiated, if ever. The clinical trials of our product candidates are, and the manufacturing and marketing of our product candidates will be, subject to extensive and rigorous review and regulation by numerous government authorities in the United States and in other countries where we intend to test and, if approved, market any product candidates. Before obtaining regulatory approval for the commercial sale of any product candidate, we must demonstrate through extensive preclinical testing and clinical trials that any drug candidate is safe and effective and any biological product candidate is safe, pure, and potent for use in each target indication. This process can

take many years. Of the large number of drugs in development in the United States, only a small percentage successfully complete the FDA regulatory approval process and are commercialized. Accordingly, even if we are able to obtain the requisite capital to continue to fund our development and clinical programs, we may be unable to successfully develop or commercialize AKB-9778.

We are not permitted to market AKB-9778 in the United States until we receive approval of an NDA from the FDA, or in any foreign countries until we receive the requisite approval from such countries. As a condition to submitting an NDA to the FDA for AKB-9778 regarding its ability to treat patients with DR, we must complete our ongoing clinical trials, Phase 3 trials, and any additional non-clinical studies or clinical trials required by the FDA. To date, we have only completed a Phase 2 clinical trial for AKB-9778 and five other early stage trials. AKB-9778 may not be successful in clinical trials or receive regulatory approval. Further, AKB-9778 may not receive regulatory approval even if it is successful in clinical trials. Obtaining approval of an NDA is a complex, lengthy, expensive and uncertain process that typically takes many years following the commencement of clinical trials and depends upon numerous factors, including the substantial discretion of the regulatory authorities. In addition, the policies or regulations, or the type and amount of clinical data necessary to gain approval, may change during the course of a product candidate's clinical development and may vary among jurisdictions. We have not obtained regulatory approval for any product candidate and it is possible that AKB-9778 will never obtain regulatory approval. The FDA may delay, limit or deny approval of AKB-9778 for many reasons, including, among others:

- we may not be able to demonstrate that AKB-9778 is safe and effective in treating patients with DR to the satisfaction of the FDA;
- the results of our clinical trials may not meet the level of statistical or clinical significance required by the FDA for marketing approval;
- the FDA may disagree with the number, design, size, conduct or implementation of our clinical trials;
- the FDA may not approve the formulation, labeling or specifications of AKB-9778;
- the FDA may require that we conduct additional clinical trials;
- the contract research organizations, or CROs, that we retain to conduct our clinical trials may take actions outside of our control that materially adversely impact our clinical trials;
- we may fail to perform in accordance with the FDA's good clinical practice, or GCP, requirements;
- the FDA may disagree with our interpretation of data from our preclinical studies and clinical trials;
- the FDA may find deficiencies with the manufacturing processes or facilities of third-party manufacturers with which we contract; or
- the policies or regulations of the FDA may significantly change in a manner that renders our clinical data insufficient for approval, or requiring that we amend or submit new clinical protocols.

In addition, similar reasons may cause the EMA or other regulatory authorities to delay, limit or deny approval of AKB-9778 outside the United States.

Any of these factors, many of which are beyond our control, could jeopardize our ability to obtain regulatory approval for and successfully market AKB-9778. Because our business is almost entirely dependent upon AKB-9778, any such setback in our pursuit of regulatory approval would have a material adverse effect on our business and prospects.

Alternatively, even if we obtain regulatory approval, that approval may be for indications or patient populations that are not as broad as we intend or desire or may require labeling that includes significant use or distribution restrictions or safety warnings. We may also be required to perform additional, unanticipated clinical

trials to obtain approval or be subject to additional post marketing testing requirements to maintain regulatory approval. In addition, regulatory authorities may withdraw their approval of a product or the FDA may require a risk evaluation and mitigation strategy, or REMS, for a product, which could impose restrictions on its distribution. Any of the foregoing scenarios could materially harm the commercial prospects for our product candidates.

We have not obtained agreement with the FDA, EMA or other regulatory authorities on the design of our Phase 3 development program.

We have not obtained agreement with the FDA on the design of our Phase 3 development program. We plan to hold an end of Phase 2 meeting with the FDA upon successful completion of our Phase 2 clinical program. If the FDA determines that the Phase 2 trial results do not support moving into a pivotal program, we would be required to conduct additional Phase 2 studies. Alternatively, the FDA could disagree with our proposed design of our Phase 3 development program and could suggest a larger number of subjects or a longer course of treatment than our current expectations. If the FDA takes such positions, the costs of our AKB-9778 development program could increase materially and the potential market introduction of AKB-9778 could be delayed or we could risk not obtaining FDA approval even if the Phase 3 trials meet their primary endpoints. The FDA also may require that we conduct additional clinical, nonclinical or manufacturing validation studies and submit that data before it will consider an NDA application.

While we intend to follow the regulatory pathway that ranibizumab and aflibercept undertook when they were approved for DR in the presence of DME, we have not yet sought guidance for the regulatory path for AKB-9778 with the EMA or other regulatory authorities. We cannot predict what additional requirements may be imposed by these regulatory authorities or how such requirements might delay or increase costs for our planned Phase 3 development program. For example, ranibizumab and aflibercept are anti-vascular endothelial growth factor, or anti-VEGF, therapies while AKB-9778 is a small molecule activator of the Tie-2 pathway, and such differences may result in a different regulatory pathway for AKB-9778, including one that may be longer, more complex or expensive than that of ranibizumab or aflibercept. Anti-VEGF therapy is the use of medications that block vascular endothelial growth factor. This is done in the treatment of diabetic retinopathy, diabetic macular edema, age-related macular degeneration, and retinal vein occlusion. Because our business is almost entirely dependent upon the successful development, regulatory approval, and commercialization of AKB-9778, any such delay or increase costs would have an adverse effect on our business.

We may find it difficult to enroll patients in our clinical trials, which could delay or prevent clinical trials of our product candidates.

Identifying and qualifying patients to participate in clinical trials of our product candidates is critical to our success. The timing of our clinical trials depends on the speed at which we can recruit patients to participate in testing our product candidates. Our competitors may have ongoing clinical trials for product candidates that could be competitive with our product candidates, and patients who would otherwise be eligible for our clinical trials may instead enroll in clinical trials of our competitors' product candidates. As a result, the timeline for recruiting patients, conducting trials and obtaining regulatory approval of potential products may be delayed. These delays could result in increased costs, delays in advancing our development of AKB-9778 or termination of the clinical trials altogether.

We may not be able to identify, recruit and enroll a sufficient number of patients, or those with required or desired characteristics to achieve diversity in a trial, to complete our clinical trials in a timely manner. Patient enrollment is affected by factors including:

- severity of the disease under investigation;
- design of the trial protocol;
- size and nature of the patient population;

- eligibility criteria for the trial in question;
- perceived risks and benefits of the product candidate under study;
- proximity and availability of clinical trial sites for prospective patients;
- availability of competing therapies and clinical trials and clinicians' and patients' perceptions as to the potential advantages of AKB-9778 in relation to available therapies or other products under development;
- efforts to facilitate timely enrollment in clinical trials;
- patient referral practices of physicians; and
- ability to monitor patients adequately during and after treatment.

We may not be able to initiate or continue clinical trials if we cannot enroll a sufficient number of eligible patients to participate in the clinical trials required by regulatory agencies. If we have difficulty enrolling a sufficient number of patients to conduct our clinical trials as planned, we may need to delay, limit or terminate ongoing or planned clinical trials, any of which would have an adverse effect on our business.

We may not be able to comply with requirements of foreign jurisdictions in conducting trials outside of the United States. In addition, we may not be able to obtain regulatory approval in foreign jurisdictions.

If AKB-9778 is successful in Phase 2 development, we currently expect to conduct our Phase 3 clinical trial of AKB-9778 that may include trial sites outside of the United States, including Japan and the European Union, and seek regulatory approval for AKB-9778 for the treatment of patients with DR in major markets in addition to the United States, including the European Union. Our ability to successfully initiate, enroll and complete a clinical trial in any foreign country, should we attempt to do so, is subject to numerous risks unique to conducting business in international markets, including:

- difficulty in establishing or managing relationships with qualified CROs and physicians;
- different local standards for the conduct of clinical trials;
- the potential burden of complying with a variety of foreign laws, medical standards and regulatory requirements, including the regulation of pharmaceutical and biotechnology products and treatments; and
- the acceptability of data obtained from trials conducted in the United States to the EMA and other regulatory authorities.

If we fail to successfully meet requirements for the conduct of clinical trials outside of the United States, we may be delayed in obtaining, or be unable to obtain, regulatory approval for AKB-9778 in countries outside of the United States.

Regulatory authorities outside the United States will require compliance with numerous and varying regulatory requirements. The approval procedures vary among jurisdictions and may involve requirements for additional testing, and the time required to obtain approval may differ from that required to obtain FDA approval. In addition, in many countries outside the United States, a product must be approved for reimbursement before it can be approved for sale in that country. In some cases, the price that we intend to charge for our products is also subject to approval. Approval by the FDA does not ensure approval by regulatory authorities in other countries or jurisdictions, and approval by one foreign regulatory authority does not ensure approval by regulatory authorities in other foreign countries or by the FDA. However, the failure to obtain approval in one jurisdiction may negatively impact our ability to obtain approval in another jurisdiction. The foreign regulatory approval process may include all of the risks associated with obtaining FDA approval. We may not obtain foreign regulatory approvals on a timely basis, if at all. We may not be able to file for regulatory approvals and may not receive necessary approvals to commercialize our products in any market.

Clinical drug development is a lengthy and expensive process with an uncertain outcome, and positive results from Phase 1 and Phase 2 clinical trials of AKB-9778 are not necessarily predictive of the results of our completed and any future clinical trials of AKB-9778. If we cannot replicate the positive results from our Phase 1 and Phase 2 clinical trials of AKB-9778 in our ongoing and subsequent clinical trials, we may be unable to successfully develop, obtain regulatory approval for and commercialize AKB-9778.

Clinical testing is expensive and can take many years to complete, and its outcome is inherently uncertain. Failure can occur at any time during the clinical trial process. Success in preclinical studies may not be predictive of similar results in humans during clinical trials, and successful results from early or small clinical trials may not be replicated in later and larger clinical trials. For example, our early encouraging preclinical and clinical results for AKB-9778 do not ensure that the results of our ongoing clinical trials or any future clinical trials will demonstrate similar results. Our planned Phase 2 and Phase 3 development program will enroll a larger number of subjects and will treat subjects for longer periods than our prior trials, which will result in a greater likelihood that adverse events may be observed. Many companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in late-stage clinical trials after achieving positive results in early stage development, and we may face similar setbacks. If the results of our ongoing or future clinical trials for AKB-9778 are inconclusive with respect to efficacy, if we do not meet our clinical endpoints with statistical significance, or if there are safety concerns or adverse events, we may be prevented from or delayed in obtaining marketing approval for AKB-9778.

We may experience delays in our planned Phase 2 clinical trial for AKB-9778 and we do not know whether planned clinical trials will begin on time, need to be redesigned, enroll patients on time or be completed on schedule, if at all.

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

- obtain regulatory approval to commence a clinical trial;
- reach agreement on acceptable terms with prospective CROs and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and trial sites;
- obtain institutional review board, or IRB, approval at each site;
- recruit, enroll and retain patients through the completion of clinical trials;
- maintain clinical sites in compliance with trial protocols and regulatory requirements through the completion of clinical trials;
- address any patient safety concerns that arise during the course of the trial;
- initiate or add a sufficient number of clinical trial sites; or
- manufacture sufficient quantities of our product candidate for use in clinical trials.

We could encounter delays if a clinical trial is suspended or terminated by us, by the relevant IRBs at the sites at which such trials are being conducted, by the Data Safety Monitoring Board, or DSMB, for such trial or by the FDA or other regulatory authorities. Such authorities may impose such a suspension or termination due to a number of factors, including failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols, inspection of the clinical trial operations or trial site by the FDA or other regulatory authorities resulting in the imposition of a clinical hold, unforeseen safety issues or adverse side effects, changes in laws or regulations, or lack of adequate funding to continue the clinical trial. Any delays in completing our clinical trials will increase our costs, slow down our product candidate development and approval process and jeopardize our ability to commence product sales and generate revenues. Any of these occurrences may harm our business, financial condition and prospects significantly.

Even if we receive regulatory approval for our product candidates, such products will be subject to ongoing regulatory review, which may result in significant additional expense. Additionally, our product candidates, if approved, could be subject to labeling and other restrictions, and we may be subject to penalties if we fail to comply with regulatory requirements or experience unanticipated problems with our products.

Any regulatory approvals that we receive for our product candidates may be subject to limitations on the approved indicated uses for which the product may be marketed or to conditions of approval, or contain requirements for potentially costly post-marketing testing, including Phase 4 clinical trials, and surveillance to monitor the safety and efficacy of the products. In addition, if the FDA approves any of our product candidates, the manufacturing processes, labeling, packaging, distribution, adverse event reporting, storage, advertising, promotion and recordkeeping for the product will be subject to extensive and ongoing regulatory requirements. These requirements include submissions of safety and other post-marketing information and reports, registration, as well as continued compliance with current Good Manufacturing Practice, or cGMP, requirements and GCP requirements for any clinical trials that we conduct post-approval.

Post-approval discovery of previously unknown problems with an approved product, including adverse events of unanticipated severity or frequency or relating to manufacturing operations or processes, or failure to comply with regulatory requirements, may result in, among other things:

- restrictions on the marketing or manufacturing of the product, withdrawal of the product from the market, or product recalls;
- fines, untitled or warning letters or holds on clinical trials;
- refusal by the FDA to approve pending applications or supplements to approved applications submitted by us, or suspension or revocation of product approvals;
- product seizure or detention, or refusal to permit the import or export of products;
- a REMS program; and
- injunctions or the imposition of civil or criminal penalties.

The FDA's policies may change and additional government regulations may be enacted. We cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative action, either in the United States or abroad. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or are not able to maintain regulatory compliance, we may lose any marketing approval that may have been obtained and we may not achieve or sustain profitability, which would adversely affect our business.

Risks Related to Our Reliance on Third Parties

We rely on third parties to conduct preclinical studies and clinical trials for our product candidates, and if they do not properly and successfully perform their obligations to us, we may not be able to obtain regulatory approvals for our product candidates.

We rely on third party CROs and other third parties to assist in managing, monitoring and otherwise carrying out our ongoing trials of AKB-9778. We expect to continue to rely on third parties, such as CROs, clinical data management organizations, medical institutions and clinical investigators to conduct our clinical trials in the future, including our Phase 3 development program for AKB-9778. We compete with many other companies for the resources of these third parties. The third parties on whom we rely may terminate their engagements with us at any time, and having to enter into alternative arrangements would delay development and commercialization of our product candidates.

Our reliance on these third parties for research and development activities will reduce our control over these activities but will not relieve us of our responsibilities. For example, the FDA and foreign regulatory authorities

require compliance with regulations and standards, including GCP requirements, for designing, conducting, monitoring, recording, analyzing and reporting the results of clinical trials to ensure that the data and results are credible and accurate and that the rights, integrity and confidentiality of trial participants are protected. Although we rely on third parties to conduct our clinical trials, we are responsible for ensuring that each of these clinical trials is conducted in accordance with its general investigational plan and protocol under legal and regulatory requirements. Regulatory authorities enforce these GCP requirements through periodic inspections of trial sponsors, principal investigators and trial sites. If we or any of our investigators or CROs fail to comply with applicable GCP requirements, the clinical data generated in our clinical trials may be deemed unreliable and the FDA, EMA or other regulatory authorities may require us to perform additional clinical trials before approving our marketing applications. We cannot assure you that upon inspection by a given regulatory authority, such regulatory authority will determine that any of our clinical trials comply with GCP requirements. In addition, our clinical trials must be conducted with product produced under applicable cGMP regulations. Failure to comply with these regulations may require us to repeat clinical trials, which would delay the regulatory approval process.

If these third parties do not successfully carry out their duties under their agreements, if the quality or accuracy of the data they obtain is compromised due to their failure to adhere to clinical trial protocols or to regulatory requirements, or if they otherwise fail to comply with clinical trial protocols or meet expected deadlines, the clinical trials of our product candidates may not meet regulatory requirements. If clinical trials do not meet regulatory requirements or if these third parties need to be replaced, preclinical development activities or clinical trials may be extended, delayed, suspended or terminated. If any of these events occur, we may not be able to obtain regulatory approval of our product candidates on a timely basis or at all.

We also expect to rely on other third parties to store and distribute drug supplies for our clinical trials. Any performance failure on the part of our distributors could delay clinical development or marketing approval of our product candidates or commercialization of our products, producing additional losses and depriving us of potential product revenue.

We intend to rely on third parties to conduct some or all aspects of our product manufacturing, and these third parties may not perform satisfactorily.

We do not have any manufacturing facilities and do not expect to independently conduct our product candidate manufacturing for research and preclinical and clinical testing. We currently rely, and expect to rely, on third parties to manufacture and supply drug products for our AKB-9778 clinical trials, and we expect to continue to rely on third parties for the manufacture of clinical and, if necessary, commercial quantities of our product candidates. This reliance on third parties increases the risk that we will not have sufficient quantities of our product candidates or such quantities at an acceptable cost or quality, which could delay, prevent or impair our development or commercialization efforts.

Any of these third parties may terminate their engagement with us at any time. We believe we have sufficient drug product to complete our ongoing trials of AKB-9778. We have entered into an agreement for the manufacturing of the drug substance for the Phase 2 development program of AKB-9778. However, if this manufacturer cannot perform as agreed, we may be required to find replacement manufacturers. We do not currently have arrangements in place for the manufacturing of drug product for the Phase 3 development program. Although we believe that there are several potential alternative manufacturers who could manufacture our product candidates, we may incur significant delays and added costs in identifying, qualifying and contracting with any such replacement, as well as producing the drug product. The FDA or comparable foreign regulatory authorities may find deficiencies with the manufacturing processes or facilities of third-party manufacturers with which we contract for clinical and commercial supplies. Manufacturers of drug products and their facilities are subject to continual review and periodic inspections by the FDA and other regulatory authorities for compliance with cGMP requirements relating to quality control, quality assurance and corresponding maintenance of records and documents. In addition, we have to enter into technical transfer agreements and share our know-how with the third-party manufacturers, which can be time-consuming and may

result in delays. These delays could result in a suspension of our clinical trials or, if AKB-9778 is approved and marketed, a failure to satisfy patient demand.

Reliance on third party manufacturers entails risks to which we would not be subject if we manufactured the product candidates ourselves, including:

- the inability to negotiate manufacturing agreements with third parties under commercially reasonable terms;
- reduced control as a result of using third party manufacturers for all aspects of manufacturing activities, including regulatory compliance and quality assurance;
- termination or nonrenewal of manufacturing agreements with third parties in a manner or at a time that is costly or damaging to us;
- the possible misappropriation of our proprietary information, including our trade secrets and know-how; and
- disruptions to the operations of our manufacturers or suppliers caused by conditions unrelated to our business or operations, including the bankruptcy of the manufacturer or supplier or a catastrophic event affecting our manufacturers or suppliers.

Any of these events could lead to clinical study delays or failure to obtain regulatory approval, or affect our ability to successfully commercialize future products. Some of these events could be the basis for FDA action, including injunction, recall, seizure or total or partial suspension of production.

The facilities used by our contract manufacturers to manufacture our product candidates must be evaluated by the FDA pursuant to inspections that will be conducted after we submit our NDA to the FDA. We do not control the manufacturing process of, and are completely dependent on, our contract manufacturers for compliance with cGMP requirements for manufacture of both drug substance and finished drug product. If our contract manufacturers cannot successfully manufacture material that conforms to our specifications and the strict regulatory requirements of the FDA, we will not be able to secure and/or maintain regulatory approval for our product candidates. In addition, we have no control over the ability of our contract manufacturers to maintain adequate quality control, quality assurance and qualified personnel. If the FDA, EMA or other regulatory authorities find deficiencies with or do not approve these facilities for the manufacture of our product candidates or if they find deficiencies or withdraw any such approval in the future, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain regulatory approval for or market our product candidates, if approved. Moreover, our failure, or the failure of our third party manufacturers, to comply with applicable regulations could result in sanctions being imposed on us, including clinical holds, fines, injunctions, civil penalties, delays, suspension or withdrawal of approvals, license revocation, seizures or recalls of product candidates or products, operating restrictions and criminal prosecutions, any of which could significantly and adversely affect supplies of our drug products or product candidates.

In addition, our product candidates and any products that we may develop may compete with other product candidates and products for access to manufacturing facilities. Certain of these manufacturing facilities may be contractually prohibited from manufacturing our product due to non-compete agreements with our competitors. There are a limited number of manufacturers that operate under cGMP regulations and that might be capable of manufacturing for us.

Our current and anticipated future dependence upon others for the manufacture of our product candidates or products may adversely affect our future profit margins and our ability to commercialize any products that receive marketing approval on a timely and competitive basis.

If we are unable to manufacture our product candidates in sufficient quantities, at sufficient yields, we may experience delays in product development, clinical trials, regulatory approval and commercial distribution.

Completion of our clinical trials and commercialization of our product candidates require access to, or development of, facilities to manufacture our product candidates at sufficient yields and at commercial scale. We have limited experience manufacturing, or managing third parties in manufacturing, any of our product candidates in the volumes that will be necessary to support large-scale clinical trials or commercial sales. Efforts to establish these capabilities may not meet initial expectations as to scheduling, scale-up, reproducibility, yield, purity, cost, potency or quality.

Our reliance on contract manufacturers may adversely affect our operations or result in unforeseen delays or other problems beyond our control. Because of contractual restraints and the limited number of third-party manufacturers with the expertise and facilities to manufacture our bulk drug product on a commercial scale, replacement of a manufacturer may be expensive and time-consuming and may cause interruptions in the production of our drug product. A third-party manufacturer may also encounter difficulties in production. These problems may include:

- difficulties with production costs, scale-up and yields;
- availability of raw materials and supplies;
- quality control and assurance;
- shortages of qualified personnel;
- compliance with strictly enforced federal, state and foreign regulations that vary in each country where a product might be sold; and
- lack of capital funding.

Any delay or interruption in our supply of product candidates could have a material adverse effect on our business, financial condition, results of operations and cash flows.

We may not be successful in establishing and maintaining strategic collaborations, which could adversely affect our ability to develop and commercialize our product candidates, negatively impacting our operating results.

If approved, we plan to commercialize AKB-9778 ourselves in the United States and intend to seek one or more strategic collaborators to commercialize AKB-9778 in additional markets. In addition, we may further develop and, if approved, commercialize, AKB-4924 only if we secure sufficient additional funding, likely from a strategic and commercial partner for that candidate. With respect to ARP-1536, we may further develop and, if approved, commercialize ARP-1536 only if we secure sufficient additional funding, which may be from a strategic or commercial partner. There can be no assurance that we will be able to secure such additional funding or a strategic or commercial partner on commercially reasonable terms or at all. We face competition in seeking appropriate collaborators for our product candidates, and the negotiation process is time-consuming and complex. In order for us to successfully collaborate with a third party on our product candidates, potential collaborators must view these product candidates as economically valuable. Even if we are successful in our efforts to establish strategic collaborations, the terms that we agree upon may not be favorable to us, and we may not be able to maintain such strategic collaborations if, for example, development or approval of a product is delayed or sales of an approved product are disappointing. Any delay in entering into strategic collaboration agreements related to our product candidates could delay the development and commercialization of our product candidates and reduce their competitiveness even if they reach the market.

In addition, our strategic collaborators may terminate any agreements they enter into with us, and we may not be able to adequately protect our rights under these agreements. Furthermore, our strategic collaborators will

likely negotiate for certain rights to control decisions regarding the development and commercialization of our product candidates, if approved, and may not conduct those activities in the same manner as we do.

If we fail to establish and maintain strategic collaborations related to our product candidates for the indications and in the geographies in which we do not intend develop and commercialize ourselves, we will bear all of the risk and costs related to the development and commercialization of any such product candidate, and we may need to seek additional financing, hire additional employees and otherwise develop expertise. This could negatively affect the development of any product candidate for which we do not locate a suitable strategic partner.

Risks Related to Our Intellectual Property

If our efforts to protect our proprietary technologies are not adequate, we may not be able to compete effectively in our market.

We rely upon a combination of patents, trade secret protection and confidentiality agreements to protect the intellectual property related to our technologies. We will only be able to protect our product candidates, proprietary technologies and their uses from unauthorized use by third parties to the extent that valid and enforceable patents or trade secrets cover them. Any disclosure to or misappropriation by third parties of our confidential proprietary information could enable competitors to quickly duplicate or surpass our technological achievements, thus eroding our competitive position in our market.

Composition-of-matter patents on the active pharmaceutical ingredient are generally considered to be the strongest form of intellectual property protection for pharmaceutical products, as such patents provide protection without regard to any method of use. Method-of-use patents protect the use of a product for the specified method.

This type of patent does not prevent a competitor from making and marketing a product that is identical to our products for an indication that is outside the scope of the patented method. Moreover, even if competitors do not actively promote their product for our targeted indications, physicians may prescribe these products “off-label.” Although off-label prescriptions may infringe or contribute to the infringement of method-of-use patents, the practice is common and such infringement is difficult to prevent or prosecute.

The strength of patents in the biotechnology and pharmaceutical field involves complex legal and scientific questions and can be uncertain. The patent applications that we own or license may fail to result in issued patents in the United States or in other foreign countries. Even if the patents do successfully issue, third parties may challenge the validity, enforceability, inventorship, or scope thereof, which may result in such patents being narrowed, invalidated or held unenforceable. Furthermore, even if they are unchallenged, our patents and patent applications may not adequately protect our intellectual property or prevent others from designing around our claims. If the breadth or strength of protection provided by the patent applications we hold with respect to our product candidates is threatened, it could dissuade companies from collaborating with us to develop, and threaten our ability to commercialize, our product candidates. Further, if we encounter delays in our clinical trials, the period of time during which we could market our product candidates under patent protection would be reduced. Since patent applications in the United States and most other countries are confidential for a period of time after filing, we cannot be certain that we were the first to file any patent application related to our product candidates. Furthermore, for applications in which all claims are entitled to a priority date before March 16, 2013, an interference proceeding can be provoked by a third-party or instituted by the United States Patent and Trademark Office or the USPTO, to determine who was the first to invent any of the subject matter covered by the patent claims of our applications. For applications containing a claim not entitled to priority before March 16, 2013, there is greater level of uncertainty in the patent law with the passage of the America Invents Act (2011), which brings into effect significant changes to the U.S. patent laws and which introduces new procedures for challenging pending patent applications and issued patents. A primary change under this reform is creating a “first to file” system in the United States. This will require us to be cognizant of the time from invention to filing of a patent application.

In addition to the protection afforded by patents, we seek to rely on trade secret protection and confidentiality agreements to protect proprietary know-how that is not patentable, processes for which patents are difficult to enforce and any other elements of our drug discovery and development processes that involve proprietary know-how, information or technology that is not covered by patents. Although we require all of our employees to assign their inventions to us, and require all of our employees, consultants, advisors and any third parties who have access to our proprietary know-how, information or technology to enter into confidentiality agreements, we cannot be certain that our trade secrets and other confidential proprietary information will not be disclosed or that competitors will not otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. Furthermore, the laws of some foreign countries do not protect proprietary rights to the same extent or in the same manner as the laws of the United States. As a result, we may encounter significant problems in protecting and defending our intellectual property both in the United States and abroad. If we are unable to prevent unauthorized material disclosure of our intellectual property to third parties, we will not be able to establish or maintain a competitive advantage in our market, which could materially adversely affect our business, operating results and financial condition.

We currently have a non-exclusive license to one U.S. patent. We rely on the licensor to maintain this patent and otherwise protect the intellectual property covered by this non-exclusive license. We have limited control over these activities or over any other intellectual property that may be related to our in-licensed intellectual property. For example, we cannot be certain that activities by the licensor have been or will be conducted in compliance with applicable laws and regulations. We may have no control or input over whether, and in what manner, our licensor may enforce or defend the patent against a third-party. The licensor may enforce or defend the patent less vigorously than if we had enforced or defended the patent ourselves. Further, the licensor may not necessarily seek enforcement in scenarios in which we would feel that enforcement was in our best interests. For example, the licensor may not enforce the patent against a competitor of ours who is not a direct competitor of the licensor. If our in-licensed intellectual property is found to be invalid or unenforceable, then the licensor may not be able to enforce the patent against a competitor of ours. Our non-exclusive license does not prevent a third party from seeking and obtaining a non-exclusive license to the same patent that we license. If we fail to meet our obligations under the non-exclusive license agreement, then the licensor may terminate the license agreement. If the license agreement is terminated, the former licensor may seek to enforce the intellectual property against us. We may choose to terminate the license agreement, and doing so would allow a third party to seek and obtain an exclusive license to the patent. If a third party obtains an exclusive license to intellectual property formerly licensed to us, then the third party may seek to enforce the intellectual property against us.

Our patents covering one or more of our products or product candidates could be found invalid or unenforceable if challenged.

Any of our intellectual property rights could be challenged or invalidated despite measures we take to obtain patent and other intellectual property protection with respect to our product candidates and proprietary technology. For example, if we were to initiate legal proceedings against a third party to enforce a patent covering one of our product candidates, the defendant could counterclaim that our patent is invalid and/or unenforceable. In patent litigation in the U.S. and in some other jurisdictions, defendant counterclaims alleging invalidity and/or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, for example, lack of novelty, obviousness or non-enablement. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld material information from the USPTO or the applicable foreign counterpart, or made a misleading statement, during prosecution. A litigant or the USPTO itself could challenge our patents on this basis even if we believe that we have conducted our patent prosecution in accordance with the duty of candor and in good faith. The outcome following such a challenge is unpredictable.

With respect to challenges to the validity of our patents, for example, there might be invalidating prior art, of which we and the patent examiner were unaware during prosecution. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, we would lose at least part, and perhaps all, of the patent

protection on a product candidate. Even if a defendant does not prevail on a legal assertion of invalidity and/or unenforceability, our patent claims may be construed in a manner that would limit our ability to enforce such claims against the defendant and others. The cost of defending such a challenge, particularly in a foreign jurisdiction, and any resulting loss of patent protection could have a material adverse impact on one or more of our product candidates and our business. Enforcing our intellectual property rights against third parties may also cause such third parties to file other counterclaims against us, which could be costly to defend, particularly in a foreign jurisdiction, and could require us to pay substantial damages, cease the sale of certain products or enter into a license agreement and pay royalties (which may not be possible on commercially reasonable terms or at all). Any efforts to enforce our intellectual property rights are also likely to be costly and may divert the efforts of our scientific and management personnel.

Our reliance on third parties requires us to share our trade secrets, which increases the possibility that a competitor will discover them or that our trade secrets will be misappropriated or disclosed.

Because we rely on third parties to research and develop and to manufacture our product candidates, we must, at times, share trade secrets with them. We seek to protect our proprietary technology in part by entering into confidentiality agreements and, if applicable, material transfer agreements, consulting agreements or other similar agreements with our advisors, employees, third-party contractors and consultants prior to beginning research or disclosing proprietary information. These agreements typically limit the rights of the third parties to use or disclose our confidential information, including our trade secrets. Despite the contractual provisions employed when working with third parties, the need to share trade secrets and other confidential information increases the risk that such trade secrets become known by our competitors, are inadvertently incorporated into the technology of others, or are disclosed or used in violation of these agreements. Given that our proprietary position is based, in part, on our know-how and trade secrets, a competitor's discovery of our trade secrets or other unauthorized use or disclosure would impair our competitive position and may have a material adverse effect on our business.

In addition, these agreements typically restrict the ability of our advisors, employees, third-party contractors and consultants to publish data potentially relating to our trade secrets, although our agreements may contain certain limited publication rights. For example, any academic institution that we may collaborate with in the future will usually expect to be granted rights to publish data arising out of such collaboration, provided that we are notified in advance and given the opportunity to delay publication for a limited time period in order for us to secure patent protection of intellectual property rights arising from the collaboration, in addition to the opportunity to remove confidential or trade secret information from any such publication. In the future we may also conduct joint research and development programs that may require us to share trade secrets under the terms of our research and development or similar agreements. Despite our efforts to protect our trade secrets, our competitors may discover our trade secrets, either through breach of our agreements with third parties, independent development or publication of information by any of our third-party collaborators. A competitor's discovery of our trade secrets would impair our competitive position and have an adverse impact on our business.

Third-party claims of intellectual property infringement may be costly and time consuming, and may delay or harm our drug discovery and development efforts.

Our commercial success depends in part on our avoiding infringement of the patents and proprietary rights of third parties. The pharmaceutical and biotechnology industries are characterized by extensive litigation over patent and other intellectual property rights. We may become a party to, or threatened with, future adversarial litigation or other proceedings regarding intellectual property rights with respect to our drug candidates. As the pharmaceutical and biotechnology industries expand and more patents are issued, the risk increases that our drug candidates may give rise to claims of infringement of the patent rights of others.

While our product candidates are in preclinical studies and clinical trials, we believe that the use of our product candidates in these preclinical studies and clinical trials in the United States falls within the scope of the

exemptions provided by 35 U.S.C. Section 271(e), which provides that it shall not be an act of infringement to make, use, offer to sell, or sell within the United States or import into the United States a patented invention solely for uses reasonably related to the development and submission of information to the FDA. As our product candidates progress toward commercialization, the possibility of a patent infringement claim against us increases. We attempt to ensure that our product candidates and the methods we employ to manufacture them, as well as the methods for their use we intend to promote, do not infringe other parties' patents and other proprietary rights. There can be no assurance they do not, however, and competitors or other parties may assert that we infringe their proprietary rights in any event.

Third parties may hold or obtain patents or other intellectual property rights and allege in the future that the use of our product candidates infringes these patents or intellectual property rights, or that we are employing their proprietary technology without authorization. Under U.S. law, a party may be able to patent a discovery of a new way to use a previously known compound, even if such compound itself is patented, provided the newly discovered use is novel and nonobvious. Such a method-of-use patent, however, if valid, only protects the use of a claimed compound for the specified methods claimed in the patent. This type of patent does not prevent persons from using the compound for any previously known use of the compound. Further, this type of patent does not prevent persons from making and marketing the compound for an indication that is outside the scope of the patented method.

There may be patents of third parties of which we are currently unaware with claims to materials, formulations, methods of manufacture or methods for treatment related to the use or manufacture of our drug candidates. Also, because patent applications can take many years to issue, there may be currently pending patent applications which may later result in issued patents that our product candidates may infringe. Notwithstanding the above, third parties may in the future claim that our product candidates and other technologies infringe upon these patents and may file suit against us.

Parties making claims against us may seek and obtain injunctive or other equitable relief, which could effectively block our ability to further develop and commercialize AKB-9778 or AKB-4924. If any third-party patents were held by a court of competent jurisdiction to cover the manufacturing process of any of our product candidates, any molecules formed during the manufacturing process or any final product itself, the holders of any such patents may be able to block our ability to commercialize such product candidate unless we obtained a license under the applicable patents, or until such patents expire or they are finally determined to be held invalid or unenforceable. Similarly, if any third-party patent were held by a court of competent jurisdiction to cover aspects of our formulations, processes for manufacture or our intended methods of use, the holders of any such patent may be able to block or impair our ability to develop and commercialize the applicable product candidate unless we obtained a license or until such patent expires or is finally determined to be held invalid or unenforceable. We may also elect to enter into a license in order to settle litigation or in order to resolve disputes prior to litigation. Furthermore, even in the absence of litigation, we may need to obtain licenses from third parties to advance our research or allow commercialization of our product candidates. Should a license to a third party patent become necessary, we cannot predict whether we would be able to obtain a license, or if a license were available, whether it would be available on commercially reasonable terms. If such a license is necessary and a license under the applicable patent is unavailable on commercially reasonable terms, or at all, our ability to commercialize our product candidates may be impaired or delayed, which could in turn significantly harm our business.

Further, defense of infringement claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of employee resources from our business. In the event of a successful claim of infringement against us, we may have to pay substantial damages, including treble damages and attorneys' fees for willful infringement, pay royalties or redesign our products, which may be impossible or require substantial time and monetary expenditure.

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

Competitors may infringe or otherwise violate our patents, trademarks, copyrights or other intellectual property. To counter infringement or other violations, we may be required to file claims, which can be expensive and time consuming. Any such claims could provoke these parties to assert counterclaims against us, including claims alleging that we infringe their patents or other intellectual property rights. In addition, in a patent infringement proceeding, a court may decide that one or more of the patents we assert is invalid or unenforceable, in whole or in part, construe the patent's claims narrowly or refuse to prevent the other party from using the technology at issue on the grounds that our patents do not cover the technology. Similarly, if we assert trademark infringement claims, a court may determine that the marks we have asserted are invalid or unenforceable or that the party against whom we have asserted trademark infringement has superior rights to the marks in question. In such a case, we could ultimately be forced to cease use of such marks. In any intellectual property litigation, even if we are successful, any award of monetary damages or other remedy we receive may not be commercially valuable. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation.

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

Periodic maintenance fees on any issued patent are due to be paid to the USPTO and foreign patent agencies in several stages over the lifetime of the patent. The USPTO and various foreign governmental patent agencies also require compliance with a number of procedural, documentary, fee payment (such as annuities) and other similar provisions during the patent application process. While an inadvertent lapse can in many cases be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. Non-compliance events that could result in abandonment or lapse of a patent or patent application include, but are not limited to, failure to respond to official actions within prescribed time limits, non-payment of fees and failure to properly legalize and submit formal documents. In such an event, our competitors might be able to enter the market, which would have a material adverse effect on our business.

We may be subject to claims that our employees, consultants or independent contractors have wrongfully used or disclosed confidential information of third parties.

We have received confidential and proprietary information from collaborators, prospective licensees and other third parties. In addition, we employ individuals who were previously employed at other biotechnology or pharmaceutical companies. We may be subject to claims that we or our employees, consultants or independent contractors have inadvertently or otherwise used or disclosed confidential information of these third parties or our employees' former employers. We may also be subject to claims that former employees, collaborators or other third parties have an ownership interest in our patents or other intellectual property. We may be subject to ownership disputes in the future arising, for example, from conflicting obligations of consultants or others who are involved in developing our drug candidates. Litigation may be necessary to defend against these claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights, such as exclusive ownership of, or right to use, valuable intellectual property. Such an outcome could have a material adverse effect on our business. Even if we are successful in defending against these claims, litigation could result in substantial cost and be a distraction to our management and employees.

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

Filing, prosecuting and defending patents on product candidates in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States can be less extensive than those in the United States. In addition, the laws of some countries do not protect intellectual property rights to the same extent as laws in the United States. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States, or from selling or importing products made using our inventions in and into the United States or other countries. Competitors may use our technologies in countries where we have not obtained patent protection to develop their own products and further, may infringe our patents in territories where we have patent protection, but enforcement is not as strong as in the United States. These products may compete with our products and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Many companies have encountered significant problems in protecting and defending intellectual property rights in certain countries. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, trade secrets and other intellectual property, particularly those relating to pharmaceutical and biotechnology products, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our proprietary rights generally. Proceedings to enforce our patent rights in foreign countries could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate and the damages or other remedies awarded, if any, may not be commercially meaningful. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

Risks Related to Commercialization

Our future commercial success depends upon attaining significant market acceptance of our product candidates, if approved, among physicians, patients, third-party payors and others in the medical community.

Even if we obtain marketing approval for AKB-9778, AKB-4924 or any other product candidates that we may develop or acquire in the future, these product candidates may not gain market acceptance among physicians, third-party payors, patients and others in the medical community. In addition, market acceptance of any approved products depends on a number of other factors, including:

- the efficacy and safety of the product, as demonstrated in clinical trials;
- the clinical indications for which the product is approved and the label approved by regulatory authorities for use with the product, including any warnings that may be required on the label;
- acceptance by physicians and patients of the product as a safe and effective treatment and the willingness of the target patient population to try new therapies and of physicians to prescribe new therapies;
- the cost, safety and efficacy of treatment in relation to alternative treatments;
- the availability of adequate coverage and reimbursement by third party payors and government authorities;
- relative convenience and ease of administration;
- the prevalence and severity of adverse side effects;
- the effectiveness of our sales and marketing efforts; and
- the restrictions on the use of our products together with other medications, if any.

For example, the current established treatments for DME are anti-VEGF medications, including bevacizumab and ranibizumab, and the current established treatments for DR in the absence of DME include laser photocoagulation. We believe that that prescribers may be resistant to prescribing AKB-9778 with or instead of anti-VEGF medications, or instead of laser photocoagulation, which is currently the standard of care for DME and DR, respectively.

Market acceptance is critical to our ability to generate significant revenue. In addition, any product candidate, if approved and commercialized, may be accepted in only limited capacities or not at all. If any approved products are not accepted by the market at all or to the extent that we expect, we may not be able to generate significant revenue and our business would suffer.

If we are unable to establish sales, marketing and distribution capabilities or to enter into agreements with third parties to market and sell our product candidates, we may not be successful in commercializing our product candidates if and when they are approved.

We do not have a sales or marketing infrastructure and have no experience in the sale, marketing or distribution of pharmaceutical products. To achieve commercial success for any product for which we obtain marketing approval, we will need to establish a sales and marketing organization or make arrangements with third parties to perform these services.

There are risks involved with establishing our own sales, marketing and distribution capabilities. For example, recruiting and training a sales force are expensive and time consuming and could delay any product launch. If the commercial launch of a product candidate for which we recruit a sales force and establish marketing capabilities is delayed or does not occur for any reason, we would have prematurely or unnecessarily incurred these commercialization expenses. This may be costly, and our investment would be lost if we cannot retain or reposition our sales and marketing personnel.

Factors that may inhibit our efforts to commercialize our products on our own include:

- our inability to recruit, train and retain adequate numbers of effective sales and marketing personnel;
- the inability of sales personnel to obtain access to physicians or persuade adequate numbers of physicians to prescribe any future products;
- our inability to effectively manage geographically dispersed sales and marketing team;
- the lack of complementary products to be offered by sales personnel, which may put us at a competitive disadvantage relative to companies with more extensive product lines; and
- unforeseen costs and expenses associated with creating an independent sales and marketing organization.

If we are unable to establish our own sales, marketing and distribution capabilities and have to enter into arrangements with third parties to perform these services, our profitability, if any, is likely to be materially diminished in relation to if we were to market, sell and distribute any products that we develop ourselves. In addition, we may not be successful in entering into arrangements with third parties to sell, market and distribute our product candidates or may be unable to do so on terms that are favorable to us. We likely will have little control over such third parties, and any of them may fail to devote the necessary resources and attention to sell and market our products effectively. If we do not establish sales, marketing and distribution capabilities successfully, either on our own or in collaboration with third parties, we will not be successful in commercializing our product candidates.

Coverage and reimbursement may be limited or unavailable in certain market segments for any approved products, which could make it difficult for us to sell our products profitably.

Market acceptance and sales of any approved products will depend significantly on the availability of adequate coverage and reimbursement from third-party payors and may be affected by existing and future

healthcare reform measures. Government authorities and third-party payors decide which drugs they will pay for and establish formularies and reimbursement levels. Coverage and reimbursement by a third-party payor may depend upon a number of factors, including the third-party payor's determination that use of a product is:

- a covered benefit under its health plan;
- safe, effective and medically necessary;
- appropriate for the specific patient;
- cost-effective; and
- neither experimental nor investigational.

Obtaining coverage and reimbursement approval for a product from a government or other third party payor is a time consuming and costly process that could require us to provide supporting scientific, clinical and cost-effectiveness data for the use of our products to the payor. Additionally, we may be required to enter into contracts with third-party payors to obtain favorable formulary status. We may not be able to provide data sufficient to gain acceptance with respect to coverage and reimbursement. We cannot be sure that coverage or adequate reimbursement will be available for any of our product candidates. Even if we obtain coverage for our product candidates, third-party payors may not establish adequate reimbursement amounts, which may reduce the demand for, or the price of, our products. If reimbursement is not available or is available only to limited levels, we may not be able to commercialize certain of our products. In addition, in the United States 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, significant uncertainty exists as to whether and how much third-party payors will reimburse patients for their use of newly approved drugs, which in turn will put pressure on the pricing of drugs.

Price controls may be imposed, which may adversely affect our future profitability.

In some countries, particularly member states of the European Union, the pricing of prescription pharmaceuticals is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take considerable time after receipt of marketing approval for a product. In addition, there can be considerable pressure by governments and other stakeholders on prices and reimbursement levels, including as part of cost containment measures. Political, economic and regulatory developments may further complicate pricing negotiations, and pricing negotiations may continue after reimbursement has been obtained. Reference pricing used by various European Union member states and parallel distribution, or arbitrage between low-priced and high-priced member states, can further reduce prices. In some countries, we may be required to conduct a clinical trial or other studies that compare the cost-effectiveness of our product candidates to other available products in order to obtain or maintain reimbursement or pricing approval. Publication of discounts by third-party payors or authorities may lead to further pressure on the prices or reimbursement levels within the country of publication and other countries. If reimbursement of our products is unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, our business could be adversely affected.

The impact of recent healthcare reform and other changes in the healthcare industry and in healthcare spending is currently unknown, and may adversely affect our business model.

Our revenue prospects could be affected by changes in healthcare spending and policy in the United States and abroad. We operate in a highly regulated industry and new laws, regulations or judicial decisions, or new interpretations of existing laws, regulations or decisions, related to healthcare availability, the method of delivery or payment for healthcare products and services could negatively impact our business, operations and financial condition.

In the United States, the Medicare Prescription Drug, Improvement, and Modernization Act of 2003, also called the MMA, changed the way Medicare covers and pays for pharmaceutical products. The legislation

expanded Medicare coverage for drug purchases by the elderly and introduced a new reimbursement methodology based on average sales prices for physician-administered drugs. In addition, this legislation provided authority for limiting the number of drugs that will be covered in any therapeutic class. As a result of this legislation and the expansion of federal coverage of products, we expect that there will be additional pressure to reduce costs. While the MMA applies only to drug benefits for Medicare beneficiaries, private payors often follow Medicare coverage policies and payment limitations in setting their own reimbursement rates, and any reduction in reimbursement that results from the MMA may cause a similar reduction in payments from private payors. Similar regulations or reimbursement policies may be enacted in international markets which could similarly impact our business.

In addition, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010, or collectively ACA, was enacted in 2010 with a goal of reducing the cost of healthcare and substantially changing the way healthcare is financed by both government and private insurers. The ACA, among other things, increases the minimum Medicaid rebates owed by manufacturers under the Medicaid Drug Rebate Program and extends the rebate program to individuals enrolled in Medicaid managed care organizations, establishes annual fees and taxes on manufacturers of certain branded prescription drugs and biologic products, and creates a new Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 50% point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period as a condition for the manufacturer's outpatient drugs to be covered under Medicare Part D. In addition, other legislative changes have been proposed and adopted in the United States since the ACA was enacted. On August 2, 2011, the Budget Control Act of 2011 created measures for spending reductions by Congress. A Joint Select Committee on Deficit Reduction, tasked with recommending a targeted deficit reduction of at least $1.2 trillion for the years 2013 through 2021, was unable to reach required goals, thereby triggering the legislation's automatic reduction to several government programs. This includes aggregate reductions of Medicare payments to providers of up to 2% per fiscal year, which went into effect on April 1, 2013.

It is likely that federal and state legislatures within the United States and foreign governments will continue to consider changes to existing healthcare legislation. Some of the provisions of the ACA have yet to be fully implemented, while certain provisions have been subject to judicial and Congressional challenges. In January 2017, Congress voted to adopt a budget resolution for fiscal year 2017, that while not a law, is widely viewed as the first step toward the passage of legislation that would repeal certain aspects of the ACA. Further, on January 20, 2017, President Trump signed an Executive Order directing federal agencies with authorities and responsibilities under the ACA to waive, defer, grant exemptions from, or delay the implementation of any provision of the ACA that would impose a fiscal burden on states or a cost, fee, tax, penalty or regulatory burden on individuals, healthcare providers, health insurers, or manufacturers of pharmaceuticals or medical devices. Congress also could consider subsequent legislation to replace elements of the ACA Act that are repealed. We cannot predict the reform initiatives that may be adopted in the future or whether initiatives that have been adopted will be repealed or modified. The continuing efforts of the government, insurance companies, managed care organizations and other payors of healthcare services to contain or reduce costs of healthcare may adversely affect:

- the demand for any products for which we may obtain regulatory approval;
- our ability to set a price that we believe is fair for our products;
- our ability to obtain coverage and reimbursement approval for a product;
- our ability to generate revenues and achieve or maintain profitability; and
- the level of taxes that we are required to pay.

We face substantial competition, which may result in others discovering, developing or commercializing products before, or more successfully, than we do.

The development and commercialization of new products is highly competitive. Our future success depends on our ability to demonstrate and maintain a competitive advantage with respect to the development and commercialization of our product candidates. Our objective is to develop and commercialize new products with superior efficacy, convenience, tolerability and safety. In many cases, the products that we commercialize will compete with existing, market-leading products.

If AKB-9778 is approved and launched commercially, competing drugs may include current anti-VEGF drugs, including Lucentis, Eylea and Avastin in the treatment of DME, and current therapies including laser photocoagulation in the treatment of DR. We may face competition from potential DME and DR treatments.

Many of our potential competitors have significantly greater financial, manufacturing, marketing, drug development, technical and human resources than we do. Large pharmaceutical companies, in particular, have extensive experience in clinical testing, obtaining regulatory approvals, recruiting patients and in manufacturing pharmaceutical products. Large and established companies such as Roche and Regeneron, among others, compete in the market for products to treat DR and DME. In particular, these companies have greater experience and expertise in securing government contracts and grants to support their research and development efforts, conducting testing and clinical trials, obtaining regulatory approvals to market products, manufacturing such products on a broad scale and marketing approved products. These companies also have significantly greater research and marketing capabilities than we do and may also have products that have been approved or are in late stages of development, and have collaborative arrangements in our target markets with leading companies and research institutions. Established pharmaceutical companies may also invest heavily to accelerate discovery and development of novel compounds or to in-license novel compounds that could make the product that we develop obsolete. As a result of all of these factors, our competitors may succeed in obtaining patent protection and/or FDA approval or discovering, developing and commercializing products before, or more effectively than, we do. In addition, any new product that competes with an approved product must demonstrate compelling advantages in efficacy, convenience, tolerability and safety in order to overcome price competition and to be commercially successful. If we are not able to compete effectively against potential competitors, our business will not grow and our financial condition and operations will suffer.

Our products may cause undesirable side effects or have other properties that delay or prevent their regulatory approval or limit their commercial potential.

Undesirable side effects caused by our products or even competing products in development that utilize a common mechanism of action could cause us or regulatory authorities to interrupt, delay or halt clinical trials and could result in the denial of regulatory approval by the FDA or other regulatory authorities and potential products liability claims. AKB-9778 is currently in Phase 2 clinical development. Serious adverse events deemed to be caused by our product candidates could have a material adverse effect on the development of our product candidates and our business as a whole. The most common drug-related adverse events to date in the clinical trial evaluating the safety and tolerability of AKB-9778 in DME have been dizziness and asymptomatic decreases in blood pressure. Our understanding of the relationship between AKB-9778 and these events, as well as our understanding of adverse events in future clinical trials of other product candidates, may change as we gather more information, and additional unexpected adverse events may be observed.

If we or others identify undesirable side effects caused by our product candidates either before or after receipt of marketing approval, a number of potentially significant negative consequences could result, including:

- our clinical trials may be put on hold;
- patient recruitment could be slowed, or enrolled patients may not want to complete a clinical trial;
- we may be unable to obtain regulatory approval for our product candidates or regulatory authorities may withdraw approvals of product candidates;

- regulatory authorities may require additional warnings on the label;
- a medication guide outlining the risks of such side effects for distribution to patients may be required;
- we could be sued and held liable for harm caused to patients; and
- our reputation may suffer.

Any of these events could prevent us from achieving or maintaining market acceptance of our products and could substantially increase commercialization costs.

Risks Related to Our Business and Industry

If we fail to attract and keep senior management and key scientific personnel, we may be unable to successfully develop our products, conduct our clinical trials and commercialize our product candidates.

We are highly dependent on members of our senior management, including Joseph Gardner, our President and Chief Executive Officer, Kevin G. Peters, our Chief Scientific Officer and Stephen Pakola, our Chief Medical Officer. The loss of the services of any of these persons could impede the achievement of our research, development and commercialization objectives.

Recruiting and retaining qualified scientific, clinical, manufacturing and sales and marketing personnel will also be critical to our success. The loss of the services of our executive officers or other key employees could impede the achievement of our research, development and commercialization objectives and seriously harm our ability to successfully implement our business strategy. Furthermore, replacing executive officers and key employees may be difficult and may take an extended period of time because of the limited number of individuals in our industry with the breadth of skills and experience required to successfully develop, gain regulatory approval of and commercialize products. We may be unable to hire, train, retain or motivate these key personnel on acceptable terms given the intense competition among numerous biopharmaceutical companies for similar personnel.

We also experience competition for the hiring of scientific and clinical personnel from universities and research institutions. In addition, we rely on consultants and advisors, including scientific and clinical advisors, to assist us in formulating our research and development and commercialization strategy. Our consultants and advisors may be employed by employers other than us and may have commitments under consulting or advisory contracts with other entities that may limit their availability to us. If we are unable to continue to attract and retain high quality personnel, our ability to pursue our growth strategy will be limited.

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

We are exposed to the risk that our employees, independent contractors, principal investigators, contract research organizations or CROs, consultants and vendors may engage in fraudulent conduct or other illegal activity. Misconduct by these parties could include intentional, reckless and/or negligent conduct or unauthorized activities that violate: (1) FDA regulations, including those laws that require the reporting of true, complete and accurate information to the FDA, (2) manufacturing standards, (3) federal and state healthcare fraud and abuse laws and regulations, or (4) laws that require the reporting of true and accurate financial information and data. Specifically, sales, marketing and business arrangements in the healthcare industry are subject to extensive laws and regulations intended to prevent fraud, kickbacks, self-dealing and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs and other business arrangements. It is not always possible to identify and deter misconduct by employees and other third parties, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such

laws or regulations. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business, including the imposition of civil, criminal and administrative penalties, damages, monetary fines, possible exclusion from participation in Medicare, Medicaid and other federal healthcare programs, contractual damages, reputational harm, diminished profits and future earnings, and curtailment of our operations, any of which could adversely affect our ability to operate our business and our results of operations.

We may encounter difficulties in managing our growth and expanding our operations successfully.

As we seek to advance our product candidates through clinical trials and commercialization, we will need to expand our development, regulatory, manufacturing, marketing and sales capabilities or contract with third parties to provide these capabilities for us. As our operations expand, we expect that we will need to manage additional relationships with various strategic collaborators, suppliers and other third parties. Future growth will impose significant added responsibilities on members of management. Our future financial performance and our ability to commercialize AKB-9778, if approved, and any other product candidates and to compete effectively will depend, in part, on our ability to manage any future growth effectively. To that end, we must be able to manage our development efforts and clinical trials effectively and hire, train and integrate additional management, administrative and, if necessary, sales and marketing personnel. We may not be able to accomplish these tasks, and our failure to accomplish any of them could prevent us from successfully growing our company.

If product liability lawsuits are brought against us, we may incur substantial liabilities and may be required to limit commercialization of our product candidates.

We face an inherent risk of product liability as a result of the clinical testing of our product candidates and will face an even greater risk if we commercialize any products. For example, we may be sued if any product we develop allegedly causes injury or is found to be otherwise unsuitable during product testing, manufacturing, marketing or sale. Any such product liability claims may include allegations of defects in manufacturing, defects in design, a failure to warn of dangers inherent in the product, negligence, strict liability and a breach of warranties. Claims could also be asserted under state consumer protection acts. If we cannot successfully defend ourselves against product liability claims, we may incur substantial liabilities or be required to limit commercialization of our product candidates. Even a successful defense would require significant financial and management resources. Regardless of the merits or eventual outcome, liability claims may result in:

- decreased demand for any product candidates or products that we may develop;
- injury to our reputation and significant negative media attention;
- withdrawal of clinical trial participants;
- significant costs to defend the related litigation;
- a diversion of management’s time and our resources;
- substantial monetary awards to trial participants or patients;
- product recalls, withdrawals, or labeling, marketing or promotional restrictions;
- loss of revenue;
- the inability to commercialize any product candidates that we may develop; and
- a decline in our stock price.

Failure to obtain and retain sufficient product liability insurance at an acceptable cost to protect against potential product liability claims could prevent or inhibit the commercialization of products we develop. We currently carry product liability insurance covering our clinical trials in the amount of $10 million in the aggregate. Although we maintain product liability insurance, any claim that may be brought against us could

result in a court judgment or settlement in an amount that is not covered, in whole or in part, by our insurance or that is in excess of the limits of our insurance coverage. Our insurance policies also have various exclusions, and we may be subject to a product liability claim for which we have no coverage. We will have to pay any amounts awarded by a court or negotiated in a settlement that exceed our coverage limitations or that are not covered by our insurance, and we may not have, or be able to obtain, sufficient capital to pay such amounts.

If we fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs that could harm our business.

We are subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and wastes. Our operations involve the use of hazardous and flammable materials, including chemicals and biological materials. Our operations also produce hazardous waste products. We generally contract with third parties for the disposal of these materials and wastes. We cannot eliminate the risk of contamination or injury from these materials. In the event of contamination or injury resulting from our use of hazardous materials, we could be held liable for any resulting damages, and any liability could exceed our resources. We also could incur significant costs associated with civil or criminal fines and penalties for failure to comply with such laws and regulations.

Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials, this insurance may not provide adequate coverage against potential liabilities. We do not maintain insurance for environmental liability or toxic tort claims that may be asserted against us in connection with our storage or disposal of biological, hazardous or radioactive materials.

In addition, we may incur substantial costs in order to comply with current or future environmental, health and safety laws and regulations. These current or future laws and regulations may impair our research, development or production efforts. Our failure to comply with these laws and regulations also may result in substantial fines, penalties or other sanctions.

Risks Related to Ownership of Our Common Stock

We are eligible to be treated as an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, and we cannot be certain if the reduced disclosure requirements applicable to emerging growth companies will make our common stock less attractive to investors.

We are an "emerging growth company", as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. For as long as we continue to be an emerging growth company, we may take advantage of exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies. These exemptions include:

- being permitted to provide only two years of audited financial statements, in addition to any required unaudited interim financial statements, with correspondingly reduced "Management's Discussion and Analysis of Financial Condition and Results of Operations" disclosure;
- not being required to comply with the auditor attestation requirements in the assessment of our internal control over financial reporting;
- not being required to comply with any requirement that may be adopted by the Public Company Accounting Oversight Board;
- reduced disclosure obligations regarding executive compensation; and
- exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and shareholder approval of any golden parachute payments not previously approved.

We have taken advantage of these reduced reporting burdens. In particular, we have provided only two years of audited financial statements and have not included all of the executive compensation related information that would be required if we were not an emerging growth company. Investors may find our common stock less attractive if we continue to rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile. In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This allows an emerging growth company to delay the adoption of these accounting standards until they would otherwise apply to private companies. We have irrevocably elected not to avail ourselves of this exemption and, therefore, we will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

We could be an emerging growth company for up to five years, although circumstances could cause us to lose that status earlier, including if the market value of our common stock held by non-affiliates exceeds $700 million as of any June 30 before that time or if we have total annual gross revenue of $1.07 billion (as may be inflation-adjusted by the SEC from time to time) or more during any fiscal year before that time, in which cases we would no longer be an emerging growth company as of the following December 31 or, if we issue more than $1 billion in non-convertible debt during any three-year period before that time, we would cease to be an emerging growth company immediately. Even after we no longer qualify as an emerging growth company, we may still qualify as a “smaller reporting company” if the market value of our common stock held by non-affiliates is below $75 million as of June 30 in any given year, which would allow us to take advantage of many of the same exemptions from disclosure requirements, including exemption from the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act and reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements.

There is currently no market for our common stock and there can be no assurance that any market will ever develop. You may therefore be unable to re-sell shares of our common stock at times and prices that you believe are appropriate.

Our common stock is not listed on a national securities exchange or any other exchange, or quoted on an over-the-counter market. Therefore, there is no trading market, active or otherwise, for our common stock and our common stock may never be included for trading on any stock exchange, automated quotation system or any over- the-counter market. Accordingly, our common stock is highly illiquid and you will likely experience difficulty in re-selling such shares at times and prices that you may desire.

Our common stock may not be eligible for listing or quotation on any securities exchange.

Our common stock is not listed or quoted on any securities exchange, and we cannot assure you that we will be able to meet the initial listing standards of any national securities exchange, or, if we do meet such initial listing standards, that we will be able to maintain any such listing. Further, the national securities exchanges are adopting so-called “seasoning” rules that will require that we meet certain requirements, including prescribed periods of time trading over-the-counter and minimum filings of periodic reports with the SEC, before we are eligible to apply for listing on such national securities exchanges. We intend to contact an authorized market maker for an over-the-counter quotation system for sponsorship of our common stock, but we cannot guarantee that such sponsorship will be approved and our common stock listed and quoted for sale. Even if our common stock is quoted for sale on an over-the-counter quotation system, buyers may be insufficient in numbers to allow for a robust market and it may prove impossible to sell your shares. In addition, an investor may find it difficult to obtain accurate quotations as to the market value of our common stock. In addition, if we fail to meet the criteria set forth in SEC regulations, various requirements would be imposed by law on broker-dealers who sell our securities to persons other than established customers and accredited investors. Consequently, such regulations may deter broker-dealers from recommending or selling our common stock, which may further affect its liquidity. This would also make it more difficult for us to raise additional capital.

The designation of our common stock as a "penny stock" would limit the liquidity of our common stock.

Our common stock may be deemed a "penny stock" (as that term is defined under Rule 3a51-1 of the Exchange Act) in any market that may develop in the future. Generally, a "penny stock" is a common stock that is not listed on a securities exchange and trades for less than $5.00 a share. Prices often are not available to buyers and sellers and the market may be very limited. Penny stocks in start-up companies are among the riskiest equity investments. Broker-dealers who sell penny stocks must provide purchasers of these stocks with a standardized risk-disclosure document prepared by the SEC. The document provides information about penny stocks and the nature and level of risks involved in investing in the penny stock market. A broker must also provide purchasers with bid and offer quotations and information regarding broker and salesperson compensation and make a written determination that the penny stock is a suitable investment for the purchaser and obtain the purchaser's written agreement to the purchase. Many brokers choose not to participate in penny stock transactions. Because of the penny stock rules, there may be less trading activity in penny stocks in any market that develops for our common stock in the future and stockholders are likely to have difficulty selling their shares.

FINRA sales practice requirements may limit a stockholder's ability to buy and sell our stock.

The Financial Industry Regulatory Authority, or FINRA, has adopted rules requiring that, in recommending an investment to a customer, a broker-dealer must have reasonable grounds for believing that the investment is suitable for that customer. Prior to recommending speculative or low-priced securities to their non-institutional customers, broker-dealers must make reasonable efforts to obtain information about the customer's financial status, tax status, investment objectives and other information. Under interpretations of these rules, FINRA has indicated its belief that there is a high probability that speculative or low-priced securities will not be suitable for at least some customers. If these FINRA requirements are applicable to us or our securities, they may make it more difficult for broker-dealers to recommend that at least some of their customers buy our common stock, which may limit the ability of our stockholders to buy and sell our common stock and could have an adverse effect on the market for and price of our common stock.

The market price of our common stock may be highly volatile, and may be influenced by numerous factors, some of which are beyond our control.

If a market for our common stock develops, its market price could fluctuate substantially due to a variety of factors, including market perception of our ability to meet our growth projections and expectations, quarterly operating results of other companies in the same industry, trading volume in our common stock, changes in general conditions in the economy and the financial markets or other developments affecting our business and the business of others in our industry. In addition, the stock market itself is subject to extreme price and volume fluctuations. This volatility has had a significant effect on the market price of securities issued by many companies for reasons related and unrelated to their operating performance and could have the same effect on our common stock. The market price of shares of our common stock could be subject to wide fluctuations in response to many risk factors listed in this section, and others beyond our control, including:

- results of clinical trials of our product candidates;
- the timing of the release of results of our clinical trials;
- results of clinical trials of our competitors' products;
- safety issues with respect to our products or our competitors' products;
- regulatory actions with respect to our products or our competitors' products;
- actual or anticipated fluctuations in our financial condition and operating results;
- publication of research reports by securities analysts about us or our competitors or our industry;

- our failure or the failure of our competitors to meet analysts' projections or guidance that we or our competitors may give to the market;
- additions and departures of key personnel;
- strategic decisions by us or our competitors, such as acquisitions, divestitures, spin-offs, joint ventures, strategic investments or changes in business strategy;
- the passage of legislation or other regulatory developments affecting us or our industry;
- fluctuations in the valuation of companies perceived by investors to be comparable to us;
- sales of our common stock by us, our insiders or our other stockholders;
- speculation in the press or investment community;
- announcement or expectation of additional financing efforts;
- changes in accounting principles;
- terrorist acts, acts of war or periods of widespread civil unrest;
- natural disasters and other calamities;
- changes in market conditions for biopharmaceutical stocks; and
- changes in general market and economic conditions.

In addition, the stock market has recently experienced significant volatility, particularly with respect to pharmaceutical, biotechnology and other life sciences company stocks. The volatility of pharmaceutical, biotechnology and other life sciences company stocks often does not relate to the operating performance of the companies represented by the stock. As we operate in a single industry, we are especially vulnerable to these factors to the extent that they affect our industry or our products, or to a lesser extent our markets. In the past, securities class action litigation has often been initiated against companies following periods of volatility in their stock price. This type of litigation could result in substantial costs and divert our management's attention and resources, and could also require us to make substantial payments to satisfy judgments or to settle litigation.

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

As of March 15, 2017, our executive officers, directors and principal stockholders, together with their respective affiliates, owned approximately 65.9% of our common stock, including shares subject to outstanding options that are exercisable within 60 days after such date. Accordingly, these stockholders will be able to exert a significant degree of influence over our management and affairs and over matters requiring stockholder approval, including the election of our board of directors and approval of significant corporate transactions. This concentration of ownership could have the effect of entrenching our management and/or the board of directors, delaying or preventing a change in our control or otherwise discouraging a potential acquirer from attempting to obtain control of us, which in turn could have a material and adverse effect on the fair market value of our common stock.

The shares of common stock issued in the Merger and the Offering are "restricted securities" and, as such, may not be sold except in limited circumstances.

None of the shares of common stock issued in the Merger and the Offering have been registered under the Securities Act of 1933, as amended, or the Securities Act, or registered or qualified under any state securities laws. The shares of common stock issued in the Merger and the Offering were sold and/or issued pursuant to exemptions contained in and under those laws. Accordingly, such shares of common stock are "restricted securities" as defined in Rule 144 under the Securities Act and must, therefore, be held indefinitely unless

registered under applicable federal and state securities laws, or an exemption is available from the registration requirements of those laws. The certificates representing the shares of common stock issued in the Merger and the Offering reflect their restricted status.

We have agreed to register the shares of common stock issued in the Merger and the Offering. There can be no assurance, however, that the SEC will declare this registration statement effective, thereby enabling the shares of common stock issued in the Merger or the Offering to be freely tradable. In addition, Rule 144 under the Securities Act, which permits the resale, subject to various terms and conditions, of limited amounts of restricted securities after they have been held for six months will not immediately apply to our common stock because we were at one time designated as a "shell company" under SEC regulations. Pursuant to Rule 144(i), securities issued by a current or former shell company that otherwise meet the holding period and other requirements of Rule 144 nevertheless cannot be sold in reliance on Rule 144 until one year after the date on which the issuer filed current "Form 10 information" (as defined in Rule 144(i)) with the SEC reflecting that it ceased being a shell company, and provided that at the time of a proposed sale pursuant to Rule 144, the issuer has satisfied certain reporting requirements under the Exchange Act. We believe this requirement to file Form 10 information has been satisfied by the filing of our current report on Form 8-K on March 17, 2017. Because, as a former shell company, the reporting requirements of Rule 144(i) will apply regardless of holding period, the restrictive legends on certificates for the shares of common stock issued in the Merger and the Offering cannot be removed except in connection with an actual sale that is subject to an effective registration statement under, or an applicable exemption from the registration requirements of, the Securities Act.

If we are unable to register in a timely manner the shares of common stock issued to stockholders in the Merger or the Offering, then the ability to re-sell shares of our common stock so issued will be delayed.

We have agreed, at our expense, to prepare this registration statement, and to cause our Company to file this registration statement with the SEC registering the resale of 27,367,117 shares of our common stock issued in connection with the Merger and the Offering. There are many reasons, including some over which we have little or no control, which could keep this registration statement from being declared effective by the SEC, including delays resulting from the SEC review process and comments raised by the SEC during that process. Accordingly, in the event that this registration statement is not declared effective within these timeframes, the shares of common stock proposed to be covered by such registration statement will not be eligible for resale until this registration statement is effective or an exemption from registration, such as Rule 144, becomes available. If this registration statement is not filed within 60 days of the closing of the Merger, then we may be subject to certain liquidated damages pursuant to the registration rights agreement we entered into with the holders of 27,049,555 shares of our common stock issued in connection with the Merger and the Offering.

Because we became a reporting company under the Exchange Act by means other than a traditional underwritten initial public offering, we may not be able to attract the attention of research analysts at major brokerage firms.

Because we did not become a reporting company by conducting an underwritten initial public offering of our common stock, and because we will not be listed on a national securities exchange, security analysts of brokerage firms may not provide coverage of our company. In addition, investment banks may be less likely to agree to underwrite secondary offerings on our behalf than they might if we became a public reporting company by means of an underwritten initial public offering, because they may be less familiar with our company as a result of more limited coverage by analysts and the media, and because we became public at an early stage in our development. The failure to receive research coverage or support in the market for our shares will have an adverse effect on our ability to develop a liquid market for our common stock.

Because the Merger was a reverse merger, this registration statement that we file with respect to the shares of common stock received by investors in the Merger might be subject to heightened scrutiny by the SEC, and we may not be able to attract the attention of major brokerage firms.

Additional risks may exist as a result of our becoming a public reporting company through a "reverse merger." Certain SEC rules are more restrictive when applied to reverse merger companies, such as the ability of stockholders to re-sell their shares of common stock pursuant to Rule 144, and the SEC may subject this registration statement that we file with respect to the shares of common stock received by investors in the Merger and the Offering to heightened scrutiny. In addition, securities analysts of major brokerage firms may not provide coverage of our capital stock or business. Because we became a public reporting operating company through a reverse merger, there is no incentive to brokerage firms to recommend the purchase of our common stock. We cannot assure you that brokerage firms will want to provide analyst coverage of our capital stock or business in the future.

The resale of shares covered by a registration statement could adversely affect the market price of our common stock in the public market, should one develop, which result would in turn negatively affect our ability to raise additional equity capital.

The sale, or availability for sale, of our common stock in the public market may adversely affect the prevailing market price of our common stock and may impair our ability to raise additional capital by selling equity or equity-linked securities. We have agreed, at our expense, to prepare this registration statement, and to cause us to file this registration statement with the SEC registering the resale of 27,367,117 shares of our common stock issued in connection with the Merger and the Offering. Once effective, this registration statement will permit the resale of these shares at any time. The resale of a substantial number of shares of our common stock in the public market could adversely affect the market price for our common stock and make it more difficult for you to sell shares of our Common Stock at times and prices that you feel are appropriate. Furthermore, we expect that, because there will be a large number of shares registered pursuant to a registration statement, selling stockholders will continue to offer shares covered by such registration statement for a significant period of time, the precise duration of which cannot be predicted. Accordingly, the adverse market and price pressures resulting from an offering pursuant to a registration statement may continue for an extended period of time and continued negative pressure on the market price of our common stock could have a material adverse effect on our ability to raise additional equity capital.

Issuance of stock to fund our operations may dilute your investment and reduce your equity interest.

We may need to raise capital in the future to fund the development of our drug candidates or for other purposes. Any equity financing may have significant dilutive effect to stockholders and a material decrease in our stockholders' equity interest in us. Equity financing, if obtained, could result in substantial dilution to our existing stockholders. At its sole discretion, our board of directors may issue additional securities without seeking stockholder approval, and we do not know when we will need additional capital or, if we do, whether it will be available to us.

We have broad discretion in the use of our cash and may not use them effectively.

We currently intend to use our cash resources for continuing clinical development of AKB-9778 in patients with diabetic retinopathy, including the continuation of our ongoing trials and the preparation for and initiation of the Phase 3 trials and for working capital and other general corporate purposes. Although we currently intend to use our cash resources in such a manner, we will have broad discretion in the application of such cash resources. Our failure to apply these funds effectively could affect our ability to continue to develop and commercialize our product candidates. Pending their use, we may invest our cash resources in a manner that does not produce income or loses value.

We will incur increased costs as a result of being a public company and our management expects to devote substantial time to public company compliance programs.

As a public company, we will incur significant legal, insurance, accounting and other expenses that we did not incur as a private company. In addition, our administrative staff will be required to perform additional tasks. We intend to invest resources to comply with evolving laws, regulations and standards, and this investment will result in increased general and administrative expenses and may divert management's time and attention from product development activities. If our efforts to comply with new laws, regulations and standards differ from the activities intended by regulatory or governing bodies due to ambiguities related to practice, regulatory authorities may initiate legal proceedings against us and our business may be harmed. In connection with the Merger, pursuant to which we acquired Aerpio, we are increasing our directors' and officers' insurance coverage, which will increase our insurance cost. In the future, it will be more expensive for us to obtain director and officer liability insurance, and we may be required to accept reduced coverage or incur substantially higher costs to obtain coverage. These factors could also make it more difficult for us to attract and retain qualified members of our board of directors, particularly to serve on our audit committee and compensation committee, and qualified executive officers.

In addition, in order to comply with the requirements of being a public company, we may need to undertake various actions, including implementing new internal controls and procedures and hiring new accounting or internal audit staff. The Sarbanes-Oxley Act requires that we maintain effective disclosure controls and procedures and internal control over financial reporting. We are continuing to develop and refine our disclosure controls and other procedures that are designed to ensure that information required to be disclosed by us in the reports that we file with the SEC is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that information required to be disclosed in reports under the Securities Exchange Act of 1934 as amended, or the Exchange Act, is accumulated and communicated to our principal executive and financial officers. Any failure to develop or maintain effective controls could adversely affect the results of periodic management evaluations. In the event that we are not able to demonstrate compliance with the Sarbanes-Oxley Act, that our internal control over financial reporting is perceived as inadequate, or that we are unable to produce timely or accurate financial statements, investors may lose confidence in our operating results and the price of our ordinary shares could decline. In addition, if we are unable to continue to meet these requirements, we may not be able to obtain listing on a national securities exchange.

Our management team and board of directors will need to devote significant efforts to maintaining adequate and effective disclosure controls and procedures and internal control over financial reporting in order to comply with applicable regulations, which may include hiring additional legal, financial reporting and other finance and accounting staff and engaging consultants to assist in designing and implementing such procedures. Additionally, any of our efforts to improve our internal controls and design, implement and maintain an adequate system of disclosure controls may not be successful and will require that we expend significant cash and other resources. In addition, our management will be required to certify financial and other information in our quarterly and annual reports and provide an annual management report on the effectiveness of our internal control over financial reporting commencing with our second annual report. This assessment will need to include the disclosure of any material weaknesses in our internal control over financial reporting identified by our management or our independent registered public accounting firm. To achieve compliance with Section 404 within the prescribed period, we will be engaged in a process to document and evaluate our internal control over financial reporting, which is both costly and challenging. In this regard, we will need to continue to dedicate internal resources, potentially engage outside consultants and adopt a detailed work plan to assess and document the adequacy of internal control over financial reporting, continue steps to improve control processes as appropriate, validate through testing that controls are functioning as documented and implement a continuous reporting and improvement process for internal control over financial reporting. Despite our efforts, there is a risk that we will not be able to conclude, within the prescribed timeframe or at all, that our internal control over financial reporting is effective as required by Section 404. If we identify one or more material weaknesses, it could result

in an adverse reaction in the financial markets due to a loss of confidence in the reliability of our financial statement.

Our independent registered public accounting firm will not be required to formally attest to the effectiveness of our internal control over financial reporting until the later of our second annual report or the first annual report required to be filed with the SEC following the date we are no longer an "emerging growth company" as defined in the JOBS Act. We cannot assure you that there will not be material weaknesses or significant deficiencies in our internal controls in the future.

Our independent registered public accounting firm has identified a material weakness in our internal control over financial reporting which will require remediation.

Our independent registered public accounting firm issued a letter to our audit committee and management in which they identified certain matters that they consider to constitute material weaknesses in the design and operation of our internal control over financial reporting as of December 31, 2016. A deficiency in internal control over financial reporting exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent or detect misstatements on a timely basis. A significant deficiency is a deficiency, or a combination of deficiencies, in internal control over financial reporting that is less severe than a material weakness, yet important enough to merit attention by those responsible for the oversight of the company's financial reporting. A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the company's annual or interim financial statements will not be prevented or detected on a timely basis.

The material weaknesses identified by our auditors relate to deficiencies with our disclosure controls and procedures, including review and approval procedures with respect to financial information generated to prepare our consolidated financial statements, coupled with a lack of segregation of duties as a result of our size and overall lack of resources in the accounting department. This resulted in not ensuring appropriate segregation of duties between incompatible functions, and made it more difficult to ensure review of financial reporting issues.

We are taking steps to remediate this material weakness. If we fail to remediate the material weakness, we may fail to meet our future reporting obligations, our financial statements may contain material misstatements and our operational results may be harmed. Any such failure could also adversely affect the results of the periodic management evaluations and, to the extent we are no longer an emerging growth company, the annual auditor attestation reports regarding the effectiveness of our internal control over financial reporting that will be required under Section 404 of the Sarbanes-Oxley Act of 2002. Internal control deficiencies could also cause investors to lose confidence in our reported financial information.

Provisions in our charter documents and Delaware law may have anti-takeover effects that could discourage an acquisition of us by others, even if an acquisition would be beneficial to our stockholders, and may prevent attempts by our stockholders to replace or remove our current management.

Provisions in our amended and restated certificate of incorporation and amended and restated by-laws may have the effect of discouraging, delaying or preventing a change in control of us or changes in our management. These provisions could also limit the price that investors might be willing to pay in the future for shares of our common stock, thereby depressing the market price of our common stock. In addition, because our board of directors is responsible for appointing the members of our management team, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors. Among other things, these provisions:

- authorize "blank check" preferred stock, which could be issued by our board of directors without stockholder approval and may contain voting, liquidation, dividend and other rights superior to our common stock;

- create a classified board of directors whose members serve staggered three-year terms;
- specify that special meetings of our stockholders can be called only by our board of directors pursuant to a resolution adopted by a majority of the directors then in office;
- prohibit stockholder action by written consent;
- establish an advance notice procedure for stockholder approvals to be brought before an annual meeting of our stockholders, including proposed nominations of persons for election to our board of directors;
- prohibit the consummation of a liquidation event unless approved by a supermajority (66 2/3% and majority of the minority, if applicable) vote of the holders of our voting stock;
- prohibit the consummation of an affiliate transaction with a majority stockholder that holds more than 50% of the voting power of our capital stock unless approved by a supermajority (66 2/3%) vote of directors then in office;
- provide that the number of directors on our board of directors may only be changed with a supermajority (66 2/3%) of directors then in office, even though less than a quorum;
- provide that our directors may be removed only for cause and by a supermajority (66 2/3%) vote of the holders of our voting stock;
- provide that vacancies on our board of directors may be filled only by a supermajority (66 2/3%) of directors then in office, even though less than a quorum;
- require a supermajority (66 2/3% and majority of the minority, if applicable) vote of the holders of our voting stock or the supermajority (66 2/3%) vote of the members of our board of directors then in office to amend our amended and restated by-laws; and
- require a supermajority (66 2/3% and majority of the minority, if applicable) vote of the holders of our voting stock and a supermajority (66 2/3%) vote of the holders of each class of our voting stock entitled to vote thereon to amend certain provisions of our amended and restated certificate of incorporation.

These provisions, alone or together, could delay or prevent hostile takeovers and changes in control or changes in our management.

Moreover, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which prohibits a person who owns in excess of 15% of our outstanding voting stock from merging or combining with us for a period of three years after the date of the transaction in which the person acquired in excess of 15% of our outstanding voting stock, unless the merger or combination is approved in a prescribed manner.

Any provision of our amended and restated certificate of incorporation, our amended and restated by-laws or Delaware law that has the effect of delaying or deterring a change in control could limit the opportunity for our stockholders to receive a premium for their shares of our common stock, and could also affect the price that some investors are willing to pay for our common stock.

Our ability to use net operating losses to offset future taxable income may be subject to certain limitations.

In general, under Section 382 of the Internal Revenue Code of 1986, as amended, or the Code, a corporation that undergoes an “ownership change” is subject to limitations on its ability to utilize its pre-change net operating losses, or NOLs, to offset future taxable income. Our existing NOLs may be subject to substantial limitations arising from previous ownership changes, and if we undergo an ownership change in connection with our private

placement offering, our ability to utilize NOLs could be further limited by Section 382 of the Code. In addition, future changes in our stock ownership, many of which are outside of our control, could result in an ownership change under Section 382 of the Code. Our NOLs may also be impaired under state law. Accordingly, we may not be able to utilize a material portion of our NOLs. Furthermore, our ability to utilize our NOLs is conditioned upon our attaining profitability and generating U.S. federal taxable income. As described above under "—Risks related to our financial position and need for additional capital," we have incurred significant net losses since our inception and anticipate that we will continue to incur significant losses for the foreseeable future; thus, we do not know whether or when we will generate the U.S. federal taxable income necessary to utilize our NOLs. A full valuation allowance has been provided for the entire amount of our NOLs.

Because we do not anticipate paying any cash dividends on our capital stock in the foreseeable future, capital appreciation, if any, will be your sole source of gain.

You should not rely on an investment in our common stock to provide dividend income. We do not anticipate that we will pay any cash dividends to holders of our common stock in the foreseeable future. Instead, we plan to retain any earnings to maintain and expand our operations. In addition, any future debt financing arrangement may contain terms prohibiting or limiting the amount of dividends that may be declared or paid on our common stock. Accordingly, investors must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize any return on their investment. As a result, investors seeking cash dividends should not purchase our common stock.

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference in this prospectus, including the sections entitled “Risk Factors,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and “Description of Our Business,” contains express or implied forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act that are based on our management’s belief and assumptions and on information currently available to our management. Although we believe that the expectations reflected in these forward-looking statements are reasonable, these statements relate to future events or our future operational or financial performance, and involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by these forward-looking statements. Forward-looking statements in this prospectus include, but are not limited to, statements about:

- the initiation, timing, progress and results of our research and development programs and future preclinical and clinical studies;
- our ability to advance any product candidates into, and successfully complete, clinical studies and obtain regulatory approval for them;
- the timing or likelihood of regulatory filings and approvals;
- the commercialization, marketing and manufacturing of our product candidates, if approved;
- the pricing and reimbursement of our product candidates, if approved;
- the rate and degree of market acceptance and clinical utility of any products for which we receive marketing approval;
- the implementation of our strategic plans for our business, product candidates and technology;
- the scope of protection we are able to establish and maintain for intellectual property rights covering our product candidates and technology;
- our expectations related to the use of proceeds from private placement offering, and estimates of our expenses, future revenues, capital requirements and our needs for additional financing;
- our ability to maintain and establish collaborations;
- our financial performance;
- developments relating to our competitors and our industry, including the impact of government regulation; and
- other risks and uncertainties, including those listed under the caption “Risk Factors.”

In some cases, forward-looking statements can be identified by terminology such as “may,” “should,” “expects,” “intends,” “plans,” “anticipates,” “believes,” “estimates,” “predicts,” “potential,” “continue” or the negative of these terms or other comparable terminology. These statements are only predictions. You should not place undue reliance on forward-looking statements because they involve known and unknown risks, uncertainties and other factors, which are, in some cases, beyond our control and which could materially affect results. Factors that may cause actual results to differ materially from current expectations include, among other things, those listed under the section entitled “Risk Factors” and elsewhere in this prospectus. If one or more of these risks or uncertainties occur, or if our underlying assumptions prove to be incorrect, actual events or results may vary significantly from those implied or projected by the forward-looking statements. No forward-looking statement is a guarantee of future performance. You should read this prospectus and the documents that we reference in this prospectus and have filed with the Securities and Exchange Commission as exhibits hereto completely and with the understanding that our actual future results may be materially different from any future results expressed or implied by these forward-looking statements.

The forward-looking statements in this prospectus represent our views as of the date of this prospectus. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements at some point in the future, we have no current intention of doing so except to the extent required by applicable law. You should therefore not rely on these forward-looking statements as representing our views as of any date subsequent to the date of this prospectus.

This prospectus includes statistical and other industry and market data that we obtained from industry publications and research, surveys and studies conducted by third parties. Industry publications and third-party research, surveys and studies generally indicate that their information has been obtained from sources believed to be reliable, although they do not guarantee the accuracy or completeness of such information. We are responsible for all of the disclosure contained in this prospectus, and we believe these industry publications and third-party research, surveys and studies are reliable.

DESCRIPTION OF THE MERGER, THE OFFERING AND RELATED TRANSACTIONS

On March 7, 2017, we and Aerpio Therapeutics, Inc., or Aerpio, entered into an Agreement and Plan of Merger and Reorganization, or the Merger Agreement. Pursuant to the terms of the Merger Agreement, on March 15, 2017, or the Closing Date, Aerpio Acquisition Corp. merged with and into Aerpio, which was the surviving corporation and thus became our wholly-owned subsidiary.

Pursuant to the Merger, we acquired the business of Aerpio. See "*Description of Business*" below.

At the effective time of the Merger, or the Effective Time, the 2,895,994 shares of Aerpio's common stock issued and outstanding immediately prior to the closing of the Merger (including restricted common stock, whether vested or unvested, issued under the Aerpio 2011 Equity Incentive Plan, or the 2011 Plan) were converted into 1,240,925 shares of our Common Stock, and the 32,706,307 shares of Aerpio's preferred stock issued and outstanding immediately prior to the closing of the Merger were converted into 14,015,016 shares of our Common Stock. In addition, immediately prior to the Merger, the outstanding amounts under certain Senior Secured Convertible Promissory Notes issued by Aerpio to its pre-Merger noteholders were converted into an aggregate of 6,403,748 shares of Aerpio common stock, which shares of Aerpio common stock were converted into 2,744,059 shares of our Common Stock, together with the other shares of Aerpio common stock described above. As a result, an aggregate of 18,000,000 shares of our Common Stock were issued to the holders of Aerpio's capital stock.

In addition, pursuant to the Merger Agreement options to purchase 2,164,776 shares of Aerpio's common stock issued and outstanding immediately prior to the closing of the Merger were assumed and converted into options to purchase 927,592 shares of our Common Stock. See "*Description of Capital Stock—Options*" below for more information.

Immediately after the Effective Time, on March 15, 2017, Aerpio converted into a Delaware limited liability company by the filing of a Certificate of Conversion with the Secretary of State of the State of Delaware, which we refer to as the Conversion.

Following the Merger and Conversion, and immediately prior to the closing of the Offering, the pre-Merger stockholders of Zeta Acquisition Corp. II surrendered for cancellation 4,000,000 of the 5,000,000 shares of the outstanding Common Stock of Zeta Acquisition Corp. II. We refer to these transactions as the Share Cancellation. Following the Share Cancellation, on March 15, 2017, we closed a private placement offering, or the Offering, of 8,049,555 shares of our Common Stock, at a purchase price of $5.00 per share.

The Merger Agreement and the subscription agreements for the Offering contained customary representations and warranties and covenants of the parties and customary closing conditions.

The Merger was treated as a recapitalization and reverse acquisition for our company for financial reporting purposes. Aerpio is considered the acquirer for accounting purposes, and our historical financial statements before the Merger have been replaced with the historical financial statements of Aerpio before the Merger for our filings with the SEC. The Merger and the Conversion are intended to be treated as a tax-free reorganization under Section 368(a)(1)(F) of the Internal Revenue Code of 1986, as amended.

The issuance of shares of our Common Stock, and options to purchase our Common Stock, to holders of Aerpio's capital stock and options in connection with the Merger, and the issuance of the shares in the Offering, were not registered under the Securities Act, in reliance upon the exemption from registration provided by Section 4(a)(2) of the Securities Act, which exempts transactions by an issuer not involving any public offering, and Regulation D promulgated by the Securities and Exchange Commission, or the SEC, under that section. These securities may not be offered or sold in the United States absent registration or an applicable exemption from the registration requirement, and are subject to further contractual restrictions on transfer as described below.

The Merger Agreement and the form of subscription agreement used in the Offering are each filed as an exhibit to this registration statement of which this prospectus forms a part. All descriptions of the Merger Agreement and the subscription agreements herein are qualified in their entirety by reference to the text thereof filed as exhibits hereto, which are incorporated herein by reference.

UNAUDITED PRO FORMA COMBINED FINANCIAL INFORMATION

We were incorporated as Zeta Acquisition Corp. II, or Zeta, in the State of Delaware on November 16, 2007. Prior to the Merger, we were a "shell company" (as defined in Rule 12b-2 of the Securities Exchange Act of 1934, as amended).

On March 15, 2017, our wholly-owned subsidiary, Aerpio Acquisition Corp., a corporation formed in the State of Delaware on March 3, 2017, or the Acquisition Sub, merged with and into Aerpio Therapeutics, Inc., a corporation incorporated on November 17, 2011 in the State of Delaware referred to herein as Aerpio. Pursuant to this transaction, or the Merger, Aerpio was the surviving corporation and became our wholly-owned subsidiary and the resulting company is referred to in this section of the prospectus captioned "Unaudited Pro Forma Combined Financial Information" as the Company. All of the outstanding capital stock of Aerpio was converted into shares of our Common Stock, as described in more detail below.

Immediately following the Merger, Aerpio was converted into a Delaware limited liability company in the Conversion.

On March 15, 2017, we changed our name to Aerpio Pharmaceuticals, Inc. by filing the Certificate of Amendment to our Certificate of Incorporation. On March 3, 2017, our board of directors, and on March 10, 2017, our pre-Merger stockholders, approved an Amended and Restated Certificate of Incorporation, which, among other things, would increase our authorized capital stock from 100,000,000 shares of common stock, par value $0.0001 per share, and 10,000,000 shares of preferred stock, par value $0.0001 per share, to 300,000,000 shares of common stock, par value $0.0001 per share, or the Common Stock, and 10,000,000 shares of undesignated preferred stock, par value $0.0001 per share, respectively. Our Amended and Restated Certificate of Incorporation will be effective upon its filing with the Secretary of State of the State of Delaware on the date that is 20 days after the mailing of a definitive Schedule 14C information statement to our pre- Merger stockholders, which occurred on March 27, 2017. On March 15, 2017, our board of directors adopted the Amended and Restated Bylaws.

Immediately following the Conversion, the pre-Merger stockholders of Zeta surrendered for cancellation 4,000,000 of the 5,000,000 shares of the outstanding common stock of Zeta, or the Share Cancellation. Immediately following the Share Cancellation, on March 15, 2017, we closed the Offering of 8,049,555 shares of our Common Stock, at a purchase price of $5.00 per share. Additional information concerning the Offering is presented in the section of this prospectus captioned, "Description of the Merger, the Offering and Related Transactions."

Immediately following the closing of the Merger, the Conversion, the Share Cancellation and the Offering, our outstanding shares of Common Stock (on a fully diluted basis) are owned as follows:

- Former holders of Aerpio's capital stock hold an aggregate of 18,000,000 shares of our Common Stock, or approximately 55.8% on a fully diluted basis;
- The other stockholders of Zeta hold 1,000,000 shares of our Common Stock, or approximately 3.1% on a fully diluted basis;
- The Offering resulted in the issuance of an aggregate of 8,049,555 shares of our Common Stock, consisting of 3,512,955 shares issued to existing Company shareholders, 4,536,600 shares issued to new shareholders, or together approximately 24.9% on a fully diluted basis;
- 317,562 shares of Common Stock underlying warrants to brokers as payment for services provided, or approximately 1.0% on a fully diluted basis;
- 300,000 shares of our Common Stock are reserved under the 2017 Employee Stock Purchase Plan, or approximately 0.9% on a fully diluted basis; and

- An aggregate of 4,600,000 shares (less the 927,592 shares described below) of Common Stock are reserved for issuance under the 2017 Plan, and options to purchase 927,592 shares of our Common Stock that have been granted to employees under the Aerpio 2011 Equity Incentive Plan that we assumed in the Merger, together representing approximately 14.3% on a fully diluted basis.

The Merger is being accounted for as a reverse-merger and recapitalization. Aerpio is the acquirer for financial reporting purposes, and Zeta is the acquired company under the acquisition method of accounting in accordance with FASB ASC Topic 805, *Business Combination*. Consequently, the assets, liabilities and operations that will be reflected in the historical financial statements prior to the Merger will be those of the Company and will be recorded at the historical cost basis of the Company, and the consolidated financial statements after completion of the Merger will include the assets, liabilities and results of operations of Aerpio up to the day prior to the closing of the Merger and the assets, liabilities and results of operations of the combined company from and after the closing date of the Merger. The unaudited pro forma combined financial information is based on individual historical financial statements of Aerpio and Zeta prepared under U.S. GAAP and is adjusted to give effect to the Merger Agreement.

Certain fees associated with the Merger that were incurred by Aerpio and Zeta, such as fees for legal and financial services, are not reflected in these unaudited pro forma combined financial statements. The unaudited pro forma combined statements of operations eliminate any non-recurring charges directly related to the Merger that the combined entities incurred upon completion of the Merger.

The unaudited pro forma combined statements of operations for the three months ended March 31, 2017 and for the year ended December 31, 2016 gives effect to the Merger as if it had been consummated on January 1, 2016 and include adjustments that give effect to events that are directly attributable to the Merger, are expected to have a continuing impact, and that are factually supportable. The notes to the unaudited pro forma combined financial information describe the pro forma amounts and adjustments presented below.

The unaudited pro forma combined financial information does not purport to represent what the combined company’s results of operations and comprehensive loss or financial position would actually have been had the Merger occurred on the dates described above or to project the combined company’s results of operations and comprehensive loss or financial position for any future date or period.

The unaudited pro forma combined financial information should be read together with the Company’s financial statements as of and for the years ended December 31, 2016 and 2015 and the Company’s interim financial statements as of and for the three months ended March 31, 2017.

UNAUDITED PRO FORMA COMBINED STATEMENT OF OPERATIONS AND COMPREHENSIVE LOSS
For the Three Months Ended March 31, 2017 of Aerpio Therapeutics, Inc. and Zeta Acquisition Corp. II

	Aerpio Therapeutics, Inc. (unaudited)	Zeta Acquisition Corp. II (unaudited)	Pro Forma Adjustments (unaudited)	Combined Pro Forma (unaudited)
Operating expenses:				
Research and development	$ 2,255,584	$ —	$ —	$ 2,255,584
General and administrative	2,504,001	1,463	—	2,505,464
Total operating expenses	4,759,585	1,463	—	4,761,048
Loss from Operations	(4,759,585)	(1,463)	—	(4,761,048)
Grant income	35,657	—	—	35,657
Interest (expense) income, net	(271,775)	—	204,929(A)	(66,846)
Total other (expense) income	(236,118)	—	204,929	(31,189)
Net loss and comprehensive loss	$(4,995,703)	$ (1,463)	$ 204,929	$ (4,792,237)
Reconciliation to net loss attributable to common stockholders:				
Net loss and comprehensive loss	$(4,995,703)	$ (1,463)	$ 204,929	$ (4,792,237)
Accretion of preferred stock to redemption value	(943,297)	—	943,297(B)	—
Net loss attributable to common shareholders	$(5,939,000)	$ (1,463)	$1,148,226	$ (4,792,237)
Net loss per share attributable to common shareholders, basic and diluted	$ (1.06)			$ (0.18)
Weighted-average common shares used in computing net loss per share attributable to common stockholders, basic and diluted	5,605,151			26,825,580(C)

UNAUDITED PRO FORMA COMBINED STATEMENT OF OPERATIONS AND COMPREHENSIVE LOSS
For the Year Ended December 31, 2016 of Aerpio Therapeutics, Inc. and Zeta Acquisition Corp. II

	Aerpio Therapeutics Inc.	Zeta Acquisition Corp. II (unaudited)	Pro Forma Adjustments (unaudited)	Combined Pro Forma (unaudited)
Operating expenses:				
Research and development	$ 11,367,590	$ —	$ —	$ 11,367,590
General and administrative	5,265,995	29,492	—	5,295,487
Total operating expenses	16,633,585	29,492	—	16,663,077
Loss from Operations	(16,633,585)	(29,492)		(16,663,077)
Grant income	131,281	—	—	131,281
Interest (expense) income, net	(482,204)	(9,942)	493,384(A)	1,238
Other income, net	997	—	—	997
Total other (expense) income	(349,926)	(9,942)	493,384	133,516
Net loss and comprehensive loss	$(16,983,511)	$ (39,434)	$ 493,384	$(16,529,561)
Reconciliation to net loss attributable to common stockholders:				
Net loss and comprehensive loss	$(16,983,511)	$ (39,434)	$ 493,384	$(16,529,561)
Extinguishment of preferred stock	224,224	—	(224,224)(B)	—
Accretion of preferred stock to redemption value	(4,152,801)	—	4,152,801(B)	—
Net loss attributable to common shareholders	$(20,912,088)	$ (39,434)	$4,421,961	$(16,529,561)
Net loss per share attributable to common shareholders, basic and diluted	$ (10.51)			$ (0.62)
Weighted-average common shares used in computing net loss per share attributable to common stockholders, basic and diluted	1,989,863			26,590,980(C)

Merger Pro Forma Adjustments

A – The unaudited pro forma condensed statements of operations reflect an adjustment for the reduction in interest expense to reflect the conversion of the convertible notes of Aerpio as if the conversion occurred on January 1, 2016 and the extinguishment of the outstanding debt to the stockholder of Zeta Acquisition Corp. II.

B – To adjust for the impact of the conversion of the redeemable convertible preferred stock of Aerpio into common stock followed by the exchange of such shares for shares of common stock of the Company, as if the transaction had been consummated on January 1, 2016.

C – The increase in the weighted average common shares outstanding reflect the impact of the Merger and Offering, as if the transaction had been consummated on January 1, 2016.

DESCRIPTION OF OUR BUSINESS

Overview

Aerpio is a biopharmaceutical company focused on advancing first-in-class treatments for ocular disease. Our lead product candidate, AKB-9778, a small molecule activator of the tyrosine kinase with immunoglobulin-like and epidermal growth factor-like domains 2, or Tie-2, pathway, is being developed for the treatment of diabetic retinopathy, or DR. The Tie-2 receptor is expressed almost exclusively in endothelial cells (cells that make up blood vessels) in humans. Tie-2 signaling is essential for regulating blood vessel development and the stability of mature vessels. We have completed a Phase 2a trial of AKB-9778 in 144 patients with diabetic macular edema, or DME, a swelling of the retina that is a common cause of vision loss in patients with DR. DME occurs when fluid and protein deposits collect on or under the macula of the eye (a yellow central area of the retina) and causes it to thicken and swell (edema). The swelling may distort a person's central vision, because the macula holds tightly packed cones that provide sharp, clear, central vision to enable a person to see detail, form, and color that is directly in the center of the field of view. Based on the results from this trial, we believe AKB-9778 monotherapy has the potential to reduce the severity of DR. In contrast to marketed treatments for diabetic eye diseases that are administered by a physician via intravitreal injection, which is an injection into the eye, we intend to deliver AKB-9778 systemically by self-administered subcutaneous injection. We believe that this delivery method provides an opportunity to treat patients at an earlier stage, reducing the likelihood of these patients developing vision-threatening complications. We plan to initiate a twelve month, double-blind Phase 2b trial of AKB-9778 in patients with DR who have not developed more serious complications such as diabetic macular edema, or proliferative DR, in the second quarter of 2017. We expect to report topline results of this trial in the second quarter of 2019.

The underlying problem in diabetic complications is damage to the blood vessels caused by the presence of high blood glucose, commonly referred to as diabetic vasculopathy. This damage causes blood vessels to leak fluid and proteins into the surrounding tissue, leading to complications. For example, in the eyes, this damage leads to DR which can progress to diabetic macular edema, or DME. In other parts of the body such as the kidney, the damage leads to diabetic nephropathy and in the lower extremities, the damage leads to non-healing foot ulcers, peripheral artery disease and critical limb ischemia. These diabetic complications lead to life- and sight-threatening conditions including kidney dialysis, amputations and blindness that are costly to treat. Diabetic patients with complications are estimated to cost the health care system 3.5 times more than patients without complications. For example, the cost for kidney dialysis for diabetic patients averages $89,000 per year and the cost for the first year of DME therapy with Eylea (aflibercept) is $14,400 per eye, based on published Medicare allowable charges per dose and the frequency of dosing as approved by the FDA. If approved, we believe that systemic treatment with AKB-9778 has the potential to change the treatment paradigm for diabetics, initially for DR, and address a major societal problem by lowering the cost of care associated with this diabetic complication.

Diabetic eye disease is one of the most common and debilitating complications of diabetes. Over time, diabetes damages blood vessels in the eye. When this happens, a patient is said to have DR. These damaged blood vessels can leak blood proteins and fluid into the central portion of the retina, called the macula, which is responsible for high resolution central vision. The leakage of protein and fluid into the macula causes swelling, a condition called diabetic macular edema, or DME, which if left untreated results in decreased visual acuity and eventual blindness. According to the World Health Organization's Global Report of Diabetes, there are an estimated 422 million individuals living with diabetes worldwide (Types 1 and 2), and, according to a 2012 article titled "Global Prevalence and Major Risk Factors of Diabetic Retinopathy," or the 2012 Article, 34.6% or 146 million, have diabetic retinopathy and 6.81%, or 28 million, have DME. The likelihood of a person developing DME increases as DR progresses.

According to a 2016 article titled "Therapeutic Categories Outlook," sales of the two leading approved therapies for DME, Eylea (aflibercept), which is marketed by Regeneron and Lucentis (ranibizumab), which is marketed by Genentech, were estimated to be over $5 billion worldwide in 2015. According to the 2012 Article,

given that the number of patients with DR is roughly five times of that for DME, we believe that a therapy that can reverse early ocular damage in patients with DR and slow or prevent the development of DME could have substantial clinical and commercial value. There is currently no approved disease-modifying therapy for treatment of diabetic retinopathy until after sight-threatening conditions like DME have developed.

AKB-9778 is a small molecule activator of the Tie-2 pathway that helps to stabilize blood vessel walls and prevent leaks in the eye, and based on pre-clinical models, potentially elsewhere in the body. Such leaks in the eye may eventually lead to the onset of DME and, in many cases, to loss of vision or even blindness. AKB-9778's mechanism of action reduces vasculature damage and restores vascular integrity. In contrast to current therapies for DME, which are all administered by a physician via an injection into the eye, AKB-9778 is being developed as a self-administered subcutaneous injection.

In addition to DR, the Tie-2 pathway is also implicated in other diabetic complications. Therefore, systemic treatment with AKB-9778 may address diabetic nephropathy and non-healing foot ulcers. If we are successful in developing and commercializing AKB-9778 for DR, we intend to conduct longer term clinical trials to evaluate AKB-9778's potential to reduce or delay the need for kidney dialysis and reduce amputations.

In addition to AKB-9778, we have two additional pipeline programs in development. AKB-4924 is a selective stabilizer of hypoxia-inducible factor-1 alpha, or HIF-1-alpha, that is being developed for the treatment of inflammatory bowel disease. HIF-1-alpha is a subunit of hypoxia-inducible factor 1, or HIF-1, a transcription factor thought to be involved with mucosal wound healing and the reduction of inflammation in the gastrointestinal tract. Multiple compounds that target this transcription factor are under investigation for the treatment of inflammatory bowel disease. We have completed a Phase 1a clinical trial in healthy volunteers for AKB-4924. We may develop AKB-4924, subject to receiving additional funding, which we may seek to obtain in connection with a collaboration with a strategic and commercial partner. We may also advance ARP-1536, a humanized monoclonal antibody directed at the same target as AKB-9778. Humanized antibodies are antibodies from non-human species whose protein sequences have been modified to increase their similarity to antibodies produced naturally in humans. Humanization can be necessary to reduce the potential for immunogenic reactions when administered to human patients. ARP-1536 is currently in preclinical development and may be developed for wet age-related macular degeneration and DME and subject to receiving additional funding, which may be from a collaboration with a strategic or commercial partner.

Our Strategy

Our objective is to become the leader in the treatment of diabetic eye disease. We are taking the following critical steps to achieve this goal:

- **Advance the development of AKB-9778 for DR**

  We plan to initiate a year-long, multi-center, randomized, placebo-controlled Phase 2 trial of AKB-9778 in approximately 150 patients for the treatment of non-proliferative DR in the second quarter of 2017. We expect to report topline data in the second quarter of 2019.

- **If approved, establish collaborations to commercialize AKB-9778 globally**

  If approved, we plan on commercializing AKB-9778 globally via a number of different collaborations. We intend to independently pursue the approval and commercialization of AKB-9778 for DR in the U.S. We believe that a number of health care providers, including ophthalmologists and endocrinologists, have the potential to treat early diabetic eye disease with AKB-9778, and we plan on utilizing a multi-faceted strategy that will engage these various health care providers. Outside of the U.S., we intend to pursue the approval and commercialization of AKB-9778 for DR through strategic collaborations. We may develop and commercialize AKB-9778 for other indications independently or through collaborations with third parties.

- **Investigate the potential of AKB-9778 in other indications**

  The downregulation of Tie-2 occurs in the vasculature of diabetics systemically, particularly in the kidney and in the peripheral circulation. While we are initially focused on the development of AKB-9778 for DR, our Phase 2 trial will include exploratory endpoints which will study the effects of AKB-9778 on diabetic kidney disease. If we observe signals of potential clinical benefit, we plan to engage with regulatory authorities to rapidly develop and seek approval in this indication.

- **Advance or partner our pipeline programs AKB-4924 and ARP-1536**

  We may develop our pipeline asset AKB-4924 in inflammatory bowel disease. For AKB-4924, we may partner or find new sources of financing to further advance this program. In addition, we may advance the clinical development of ARP-1536 for the treatment of wet age-related macular degeneration, or wet AMD, and for DME. We may explore partnering opportunities in order to potentially combine ARP-1536 with existing anti-vascular endothelial growth factor, or anti-VEGF, therapies such as Lucentis or Eylea.

Our lead program: AKB-9778 for diabetic retinopathy and prevention of DME

We are developing AKB-9778, a small molecule activator of the Tie-2 pathway, for the treatment of diabetic retinopathy. We have completed a Phase 2 trial of AKB-9778 in 144-patients with diabetic eye disease. We observed the following results in this trial:

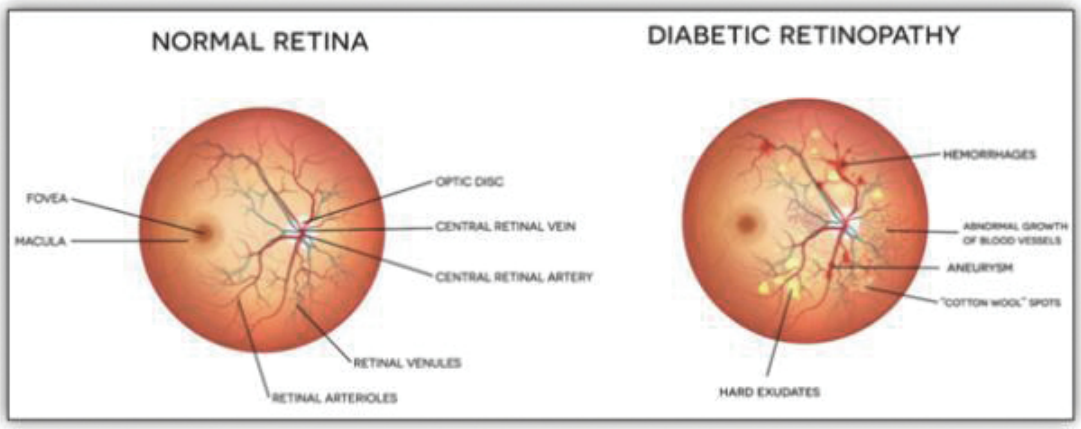
- We observed promising signs of reduction in the severity of diabetic retinopathy when AKB-9778 was used as a monotherapy.
- When AKB-9778 was used in combination with Lucentis (ranibizumab), we observed significant improvement in the central retinal thickness or CRT, an objective measure of macular edema, compared to ranibizumab monotherapy.
- AKB-9778 monotherapy had fewer ocular, non-ocular, and severe adverse events than either Lucentis (ranibizumab) monotherapy or combination therapy. All serious events resolved without any further complications.

Based on these results and the expected route of administration, via a subcutaneous injection, we made the strategic decision to pursue AKB-9778 as a treatment for DR, an indication with a prevalence of approximately five times that of DME.

Diabetic Retinopathy and Diabetic Macular Edema Overview

DR is a frequent complication of diabetes and is a leading cause of visual impairment and blindness among working-age individuals. Patients with diabetes develop leaky blood vessels that allow fluid and blood to leak into surrounding tissues. This leakage presents particular problems in areas of the body that are highly vascularized such as the retina of the eye. Fluid leakage in the eye can distort vision directly and the loss of blood flow to other parts of the retina can result in local oxygen deprivation or hypoxia. This hypoxia then triggers the formation of new blood vessels; however, these new vessels are often not well-formed and leaky, leading to further deterioration of vision. In some cases, there is excessive accumulation of fluid or edema near the center of the retina or macula that has severe effects on vision. This accumulation is referred to as macular edema or, in diabetic patients, diabetic macular edema or DME. This edema leads to thickening of the macula region of the retina and loss of visual acuity.

The severity of DR is evaluated using the Early Treatment Diabetic Retinopathy Study or ETDRS severity scale, also referred to as the Diabetic Retinopathy Severity Scale, or DRSS. This scale can be divided into steps with less severe disease having low scores. In its initial stages, DR is characterized by vascular changes in the retina that are detectable by color photography of the back of the eye, or fundus. In these early stages, visual function remains fairly intact although abnormalities in color vision and contrast sensitivity are often present. The natural history of DR in most patients is a progressive worsening that can be captured in fundus photographs. The progression of DR severity is associated with increased risk for vision loss due to the growth of abnormal blood vessels, which is typically classified as proliferative diabetic retinopathy (PDR) due to the development of DME. The various features of DR vascular dysfunction are illustrated in the following graphic.



The majority of diabetic patients will develop DR. By 20 years after disease diagnosis, nearly 100% of type 1 diabetics and 60% of type 2 diabetics develop DR. Among an estimated 19.8 million US adults forty years and older known to have diabetes (Types 1 and 2), prevalence rates for DR and DME were 23.7% (4.7 million) and 3.8% (746,000), respectively. We believe both DR and DME are likely to persist as public health problems due to both the aging of the global population and increasing prevalence of diabetes over time.

Current Treatments for DR and DME

Laser photocoagulation is sometimes used to treat DR prior to the development of DME. This treatment entails using a high-energy laser to destroy diseased retinal tissue and cauterize leaking blood vessels. While this therapy temporarily prevents further vision loss, it does not address the pathology of constant and prolonged vascular damage that happens in the diabetic retina, and is therefore not considered a disease-modifying therapy. In addition to destroying retinal tissue, laser photocoagulation can be associated with a number of adverse events including transient decreases in central vision, black spots in the center or around the center of a patient's vision, delayed or impaired adaption of vision in dark settings, or proliferation of abnormal blood vessels leading to macular edema.

All other currently approved therapies for diabetic eye disease, including anti-VEGF biologics and corticosteroids, treat vision loss associated with DME or PDR. Although these therapies are effective in either stabilizing or improving vision, most treated patients still lose a significant amount of visual acuity. There is no approved disease-modifying therapy for treatment of DR until after the sight-threatening conditions of DME or PDR have developed.

Once DME is present, the standard of care is frequent, monthly or every other month, injections of drugs into the eye that target vascular endothelial growth factor or VEGF. Intravitreal injections of anti-VEGF agents such as Lucentis (ranibizumab) or Eylea (aflibercept) are effective at reducing retinal thickness; however, the fluid and swelling often recur with discontinued therapy. These anti-VEGF therapies rarely provide a complete

solution to the underlying vascular problem associated with DR and DME. In addition, both ranibizumab and aflibercept are associated with increased risks of blood clots in the arteries.

The typical response in DME from anti-VEGF therapy is that 30-40% of patients improve their visual acuity by 15 letters or more, referring to the number of letters, arranged in lines, that the patient can read on the ETDRS eye chart. This leaves a significant portion of the patients with inadequate control of their disease.

There are a number of additional therapies that have been used to treat DME including corticosteroid anti-inflammatories such as triamcinolone, fluocinolone, and dexamethasone, which are all administered via injections into the eye. Novel sustained release corticosteroids such as Illuvien (fluocinolone), marketed by Alimera, and Ozurdex (dexamethasone), marketed by Allergan, have recently been approved for use in DME, which reduce the number of injections required to obtain and maintain clinical responses. Illuvien led to 15 letter improvements in visual acuity in approximately 15-30% of patients. Corticosteroid treatment, however, is associated with a significant increase in cataract formation and a rise in intraocular pressure, eliminating these agents as potential therapies in many patients.

Other than AKB-9778, through its Tie2 mechanism, we are currently not aware of any other drug candidates that have the potential to seal the leaky vasculature and prevent the fluid from building up.

Role of Tie-2 in Diabetic Disease

Tie-2 is an enzyme that is normally found in an activated state in healthy blood vessels. When active, Tie-2 is a key regulator of vascular stability and function. Tie-2 maintains blood vessel stability by several mechanisms, including tightening the junctions between the cells that line blood vessels; preventing fluid leak; and inhibiting the inflammation of blood vessels. A protein known as angiopoietin-1, or Ang-1, helps to maintain Tie-2 in an activated state by stimulating the addition of an activating phosphate group to Tie-2. In diabetic patients, the pathology of the disease leads to inappropriate inhibition of Tie-2, and hence greater destabilization of the vasculature, by two related mechanisms. First, the body produces excess levels of an endogenous inhibitor of Tie-2 known as angiopoietin 2, or Ang-2. Second, the body inappropriately upregulates the activity of an enzyme that removes the activating phosphate group from Tie-2, overcoming the positive impact of Ang-1. This enzyme is known as vascular endothelial protein tyrosine phosphatase, or VE-PTP.

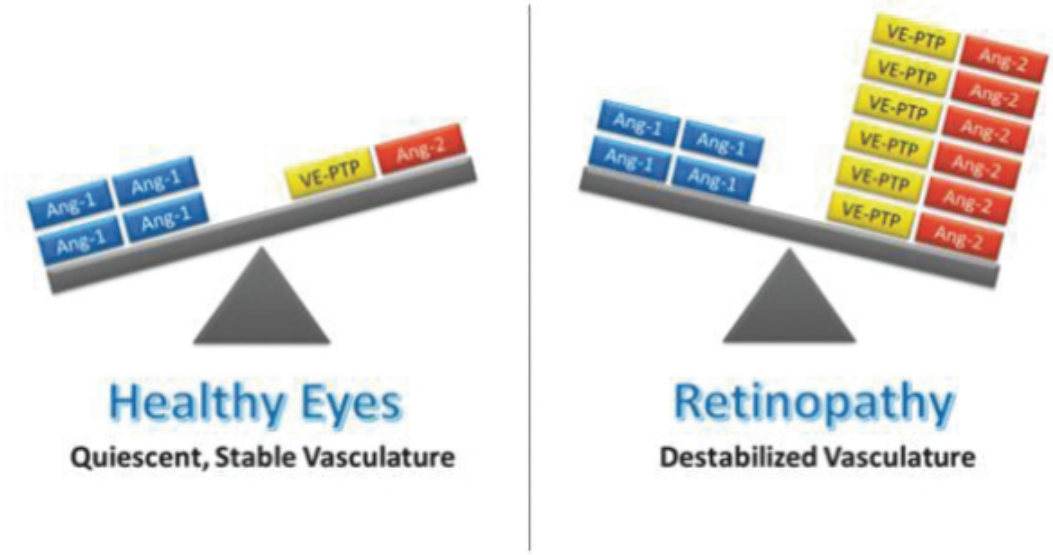


Figure 1: Ratio to Tie-2 activating mechanism, Ang-1, and Tie-2 deactivating mechanisms, Ang-2 and VE-PTP, are altered in the eyes affected by vascular dysfunction. This leads to vascular breakdown in the retina and ultimately to vision loss and blindness.

Our Solution AKB-9778

AKB-9778 works by inhibiting VE-PTP, an enzyme that is upregulated in diabetic eye disease and that is responsible for inactivating Tie-2. AKB-9778 was developed using modern drug discovery techniques such as structure-based drug design to selectively target VE-PTP. The methods employed were similar to those described in a 2006 publication in the journal Bioorganic & Medicinal Chemistry Letters by Amarasinghe et al. AKB-9778 inhibits VE-PTP at sub-nanomolar concentrations and has a high degree of selectivity. AKB-9778 does not significantly inhibit other human protein tyrosine phosphatases, and thereby minimizes the potential for off-target side effects. Inhibition of VE-PTP by AKB-9778 then leads to activation of Tie-2.

We believe that AKB-9778 may hold a competitive advantage versus other product candidates that are currently in development that target other aspects of the Tie-2 pathway. We are aware that two other companies are developing agents that inhibit Ang-2, a natural antagonist of Tie-2. Ang-2 can bind to Tie-2 and prevent Ang-1 dependent activation. However, simply reducing the levels of Ang-2 has no effect on the activity of VE-PTP, which inactivates Tie-2 further downstream of Ang-2 binding. Direct inhibition of VE-PTP has a larger effect on Tie-2 activation than elimination of Ang-2.

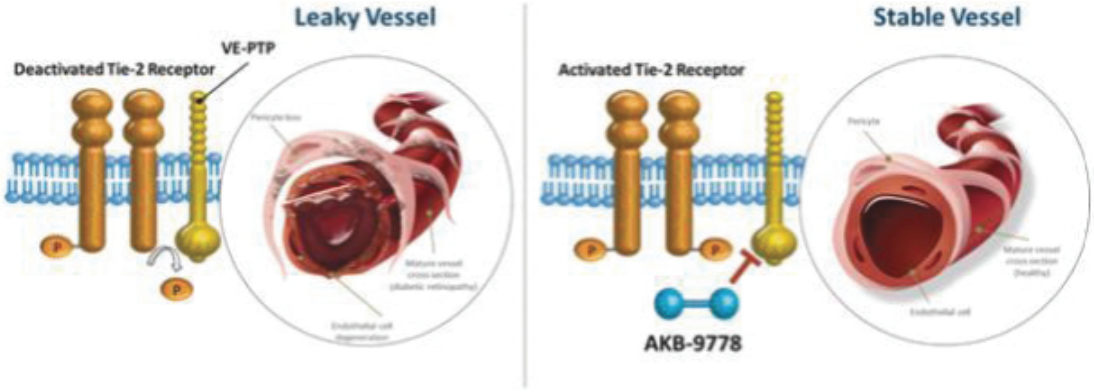


Figure 2: High VE-PTP and Ang2 levels inactivate Tie-2 in the in diabetic eyes. The upregulation of VE-PTP in diabetic eyes deactivates the Tie-2 receptor via removal of activating phosphate groups, left panel. AKB-9778 inhibits VE-PTP rendering it unable to deactivate the Tie-2 receptor; thereby activating Tie-2 and promoting vessel stability, right panel.

Clinical Results in DME

In the design of our completed phase 2 study we took advantage of the systemic route of administration with the ability to treat both eyes. The treatment of both eyes provided us the opportunity to measure fluid build-up in the study eye, which had DME, using the central subfield thickness endpoint (CST), and also measure improvement in diabetic retinopathy severity in both eyes. It is well known in the literature that the majority of patients with DME and DR in one eye, the designated study eye, will also have DR in the fellow eye as the majority of the patients have bilateral disease; i.e., they have DR in both eyes.

We completed a double-blind Phase 2 trial in 144 patients with AKB-9778 in DME. In this trial 15 mg of AKB-9778 was administered by subcutaneous injection twice daily (BID) for three months either as monotherapy or in combination with intravitreal injections of ranibizumab. Patients were randomized to receive subcutaneous AKB-9778 + sham intravitreal injections, subcutaneous AKB-9778 + ranibizumab intravitreal injections, or subcutaneous placebo + ranibizumab intravitreal injections. Only one eye, designated as the study eye, received the intravitreal injections. In addition to efficacy measures based on parameters related to DME, the efficacy of these agents on DR was also evaluated using predefined criteria. The DR efficacy in the study eyes

was assessed in 118 patients with study eyes having DRSS scores of less than seven, which represents moderate to severe disease severity, a level of disease that we believe may be reversible. Because AKB-9778 was dosed systemically, as stated above, we were also able to assess the potential efficacy of AKB-9778 in the absence of any intravitreal injections. Of the 144 patients in this trial, 94 of them had DR in the other eye, or the fellow eye, with a DRSS score of less than seven and had not received other treatments during the study treatment period.

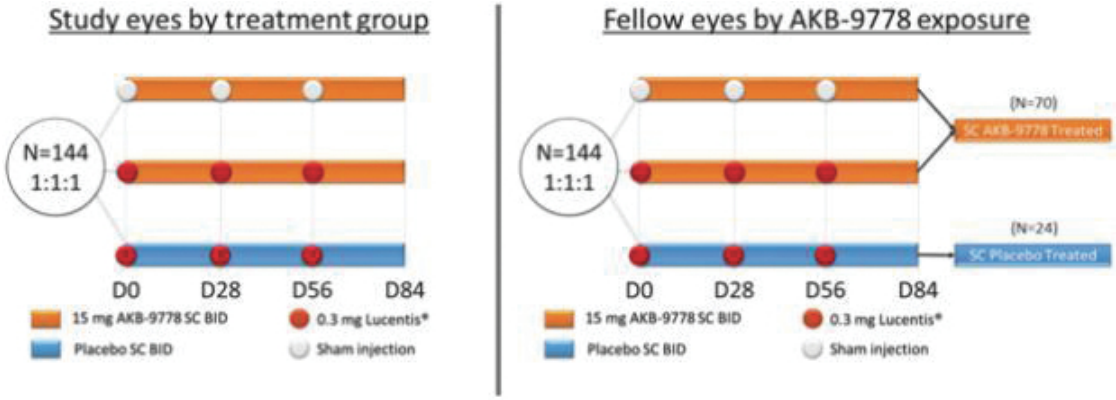


Figure 3. AKB-9778 Phase 2a Trial Design. In the study eye, groups were analyzed by treatment assignment for change in central retinal thickness and change in diabetic retinopathy severity score (DRSS). In the fellow eye, change in DRSS was analyzed by whether the patient had been exposed to systemic AKB-9778 or not.

Efficacy in DME was evaluated by measuring the thickness of the macula using a standard criterion called central subfield thickness, or CST. As edema, or fluid leak from blood vessels increases, the macula layer becomes distended, and rather than having a normal thickness of less than 300 µm, the DME patients in this trial had an average CST of approximately 500 µm. The reduction in retinal thickness was measured using optical coherence tomography or OCT, an imaging technology providing high resolution images showing changes in retinal thickness.

In our completed phase 2a study the cohort of patients treated with the combination of AKB-9778 and ranibizumab showed a significantly greater reduction in macular edema (mean reduction = 164.4 µm) compared to that achieved by ranibizumab monotherapy (mean reduction = 110.4 µm; with p=0.008, ANCOVA using baseline values as covariate). The mean CST at end of treatment was 340.0 µm with 29.2% of eyes achieving a CST less than 300 µm in the AKB-9778 combination group versus 392.1 µm with 17.0% of eyes achieving a CST less than 300 µm in the ranibizumab monotherapy group. The improvement in CST when AKB-9778 was used in combination increased between the second and third months of treatment. Based on this pattern, we believe that longer treatments with the combination of AKB-9778 and ranibizumab have the potential to further reduce CST. AKB-9778 monotherapy did not show efficacy in reducing macular edema. The long standing DME in the TIME-2 study, duration of DME roughly 5 years, is characterized by large VEGF loads. Anti-VEGF therapy is required to reduce the VEGF load and the resultant permeability. In animal models, we observed that concurrent therapy with AKB-9778 activates the Tie2 receptor and normalizes vasculature in the back of the retina improving blood flow and oxygenation and reducing the stimulation of VEGF. This is why combination therapy may produce greater clinical activity than anti-VEGF alone and why Tie2 therapy alone has minimal benefit as it relates to VEGF-driven vascular permeability. In earlier disease, where vascular compromise has not progressed far enough to stimulate a VEGF response, we believe AKB-9778 may be able to restore vascular architecture and re-establish flow and oxygenation to retinal tissue delaying or preventing the onset of DME.

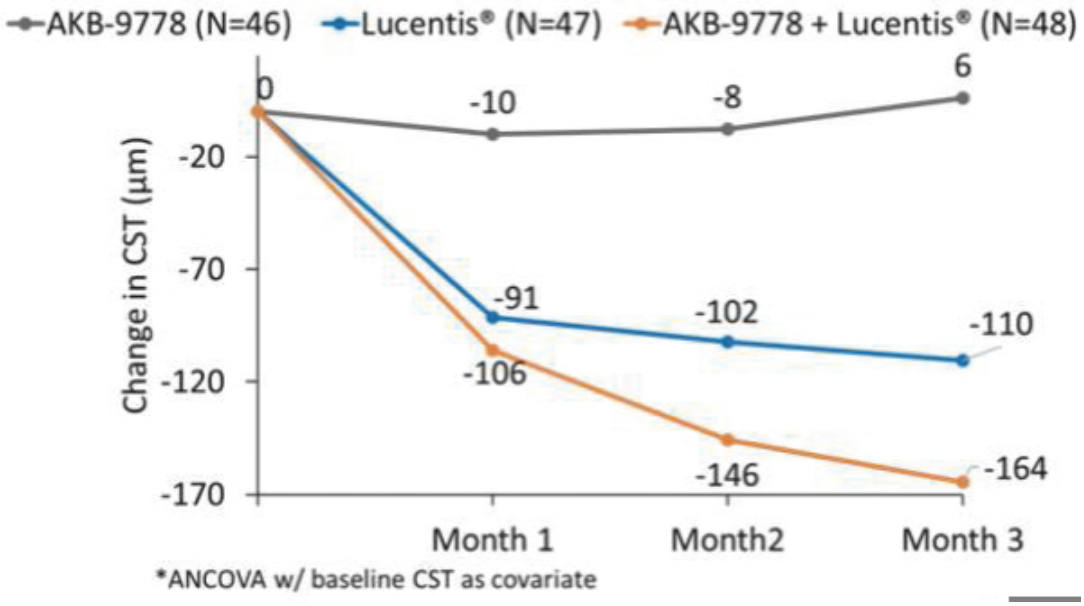


Figure 5. Aggregate Data for Reduction in CST in Phase 2a trial in patients with DME. Patients received AKB-9778 or placebo by subcutaneous injection twice a day or ranibizumab or placebo by intravitreal injection once per month or a combination of both agents for a total of three months.

In addition to CST score, a second measure of efficacy in DME is the improvement in visual acuity as determined by the number of letters, arranged in lines, that the patient can read on the ETDRS eye chart. Each line on the ETDRS eye chart has five letters. This is a well-established standardized chart of vision testing used in trials involving visual acuity. The difference between the best corrected visual acuity, or BCVA, at baseline and after three months on the trial in these patients was 1.5 letters in the AKB-9778 monotherapy group, 5.7 letters in the Lucentis monotherapy group, and 6.3 letters in the AKB-9778 combination group. The percentage of eyes that gained ³10 letters or ³15 letters was 8.7% and 4.3% in the AKB-9778 monotherapy group, respectively; 29.8% and 17.0% in the Lucentis monotherapy group, respectively; and 35.4% and 20.8% in the AKB-9778 combination group, respectively. We believe that although treatment with AKB-9778 did not lead to a statistically significant improvement in BCVA after three months of treatment in DME patients, the trend towards improved scores may become statistically significant upon longer treatment. Based on the data from the Lucentis pivotal trials, we believe that longer duration therapy, such as six months or one year, may produce larger improvements in visual acuity.

	AKB-9778 (N=46)	Lucentis® (N=47)	AKB-9778 + Lucentis® (N=48)
Mean Δ from BL, letters	1.5	5.7	6.3
≥ 10 letters, %	8.7	29.8	35.4
≥ 15 letters, %	4.3	17.0	20.8

BL = Baseline

Figure 6. BCVA changes in AKB-9778 Phase 2a DME trial.

Clinical Results in DR

The severity of DR was assessed using the ETDRS grading of standard retinal photographs. Grading is based on an 11-point scale whose progression is measured through a series of discrete steps. These steps are referred to as the DRSS.

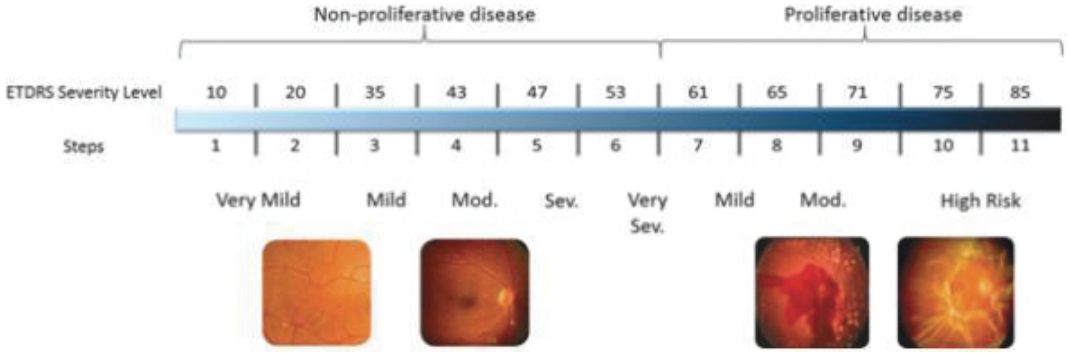


Figure 7: The Diabetic Retinopathy Severity Scale or DRSS is based on the presence of pathology in standardized photographs of the retina. Progression is measured in a series of discrete steps, with a higher step number indicating more severe disease.

Improvement in diabetic retinopathy severity in study eyes was similar across groups in the three-month, AKB-9778 Phase 2a study, with approximately 10% of patients in each group achieving a ³ 2 step improvement in DRSS. Importantly, AKB-9778 was associated with approximately the same response rate as ranibizumab. A

key difference between these two agents is that ranibizumab was administered by an injection into the eye by a clinician while AKB-9778 was administered by subcutaneous injection, which we believe may result in greater patient compliance due to ease of administration.

The activity of AKB-9778 in the fellow eye was assessed using the same criteria. None of the fellow eyes received any intravitreal injections of ranibizumab or sham. Out of the 94 patients with fellow eyes with previously untreated DR, 24 of them received subcutaneous placebo and 70 of them received subcutaneous AKB-9778. In the placebo group, 4.2% of fellow eyes showed [3] 2-step improvement in diabetic retinopathy severity score after three months of treatment, compared to 11.4% of such eyes in the AKB-9778. The systemic nature of this treatment approach allows AKB-9778 to reach the vasculature of both eyes, potentially treating both eyes with one treatment.

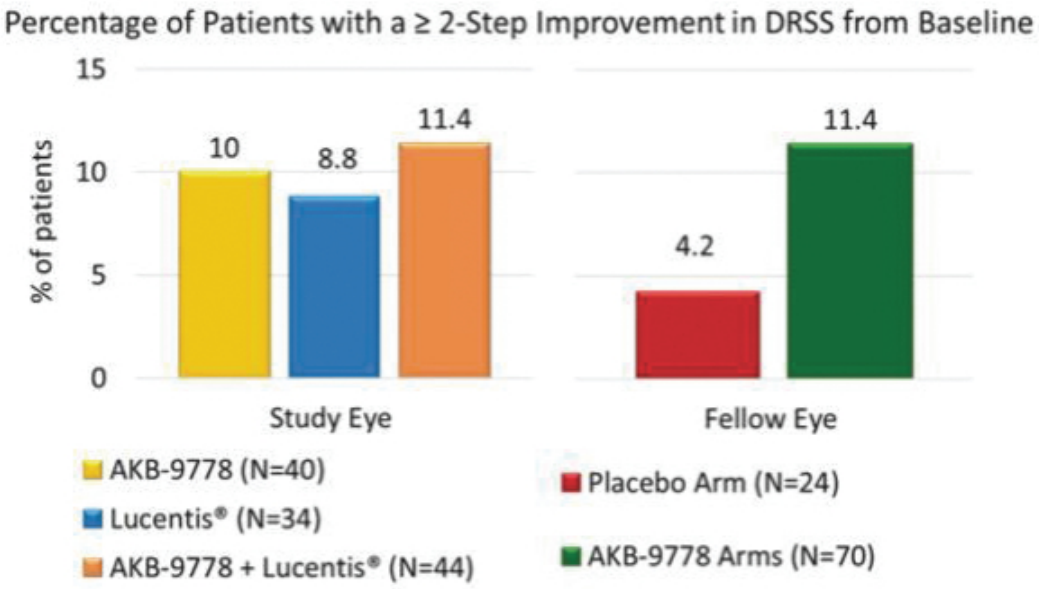


Figure 8. Percent of patients where the severity of their diabetic retinopathy improved by 2 or more steps in three months of treatment in a Phase 2a trial.

Because the likelihood of development of macular edema or proliferative diabetic retinopathy increases as DR severity increases, we believe improvement of underlying DR or prevention of its progression could reduce visual disability associated with diabetes.

Safety

There were a total of fifteen severe adverse events in the three-month treatment period of the Phase 2a trial with four considered to be treatment-related. Three of these treatment-related events occurred in a single patient who was enrolled in the ranibizumab monotherapy arm and who experienced two severe headaches and one migraine event. A second patient in the AKB-9778 combination therapy group reported a severe treatment-related hypoglycemia event.

Preclinical Results

In vitro experiments confirmed that manipulation of VE-PTP is a critical component of Tie-2 regulation. The presence of Ang-1 or Ang-2 has little impact on Tie-2 activity when AKB-9778 is present and inhibiting VE-PTP. Thus we believe that inhibition of VE-PTP by AKB-9778 has the potential to have greater activity than other product candidates in development that specifically target Ang-2 to activate the Tie-2 receptor.

Approved therapies for DME currently target two underlying mechanisms: overexpression of VEGF which is targeted by the anti-VEGF antibody based therapies such as ranibizumab and aflibercept; and inflammation, which is targeted by corticosteroids such as fluocinolone and dexamethasone. In a well-established model of vascular leakage, the Miles assay, AKB-9778 was able to significantly reduce leakage induced by histamine, a mediator of inflammation, and VEGF suggesting that AKB-9778 may demonstrate activity regardless of the underlying mediator of vascular leak.

Considering this broad activity, we believe AKB-9778 may have a stronger disease modifying effect versus competing products, particularly in diabetic patients where several inflammatory mediators are known to impact the vasculature.

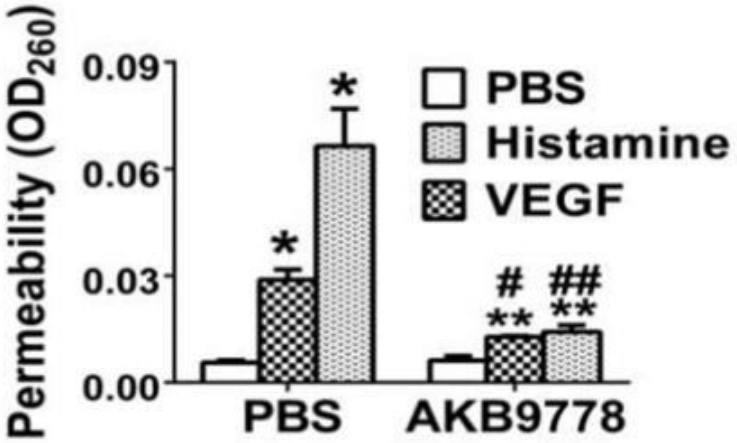


Figure 9. AKB-9778 significantly reduces both histamine and VEGF induced leakage in a Miles assay. In a mouse model of vascular permeability, AKB-9778 reduces the ability of dye to leak into surrounding tissue. (*p<0.01 compared with PBS control; #p<0.01versus VEGF/vehicle control; ##p<0.01 versus histamine/vehicle control; **p<0.05 versus PBS control, t-test)

Rationale for Selecting Diabetic Retinopathy as Development Indication

We have chosen to focus our development of AKB-9778 in DR for several reasons:

- Opportunity to treat diabetic eye disease at an earlier stage
- Patient compliance and convenience benefit of subcutaneous method of administration
- High unmet medical need and market potential
- An established regulatory path for the treatment of diabetic retinopathy

Treating patients earlier in the disease process, before the onset of vision-threatening pathology, represents a market opportunity with significant unmet need. Currently, no disease modifying therapy exists for earlier stage DR with the same convenience of AKB-9778. We believe systemic treatment with AKB-9778 has the potential to reverse or prevent vascular damage that is the hallmark of early diabetic eye disease potentially resulting in the delay or prevention of development of advanced complications such as DME. Current therapies, including ranibizumab and aflibercept, are only approved for the treatment of DR that exists in the presence of DME. These therapies are administered by repeat injections into the eye and are associated with significant risks. These existing therapies, therefore, are not appropriate for treating a broader patient population with early stage disease where these factors are associated with significant morbidity.

We believe AKB-9778 monotherapy provides a promising opportunity for the treatment of early stage DR. As a patient self-administered therapy, AKB-9778 could potentially reduce the burden of treatments and office visits associated with other treatments for diabetic eye disease. This is of particular importance given emerging evidence that even patients with more advanced disease whose vision is at risk from diabetic eye disease do not visit ophthalmologists and receive treatment on a regular basis. A treatment that does not require an office visit could potentially be a solution to this problem. A majority of patients with early DR will have bilateral disease with fairly well preserved visual acuity. We believe these patients are more likely to accept a therapy based on subcutaneous injections, a delivery method that is already familiar to most diabetics, than an injection into the eye. The systemic nature of this treatment approach allows AKB-9778 to reach the vasculature of both eyes, treating both eyes with one administration.

If approved by the FDA, AKB-9778 will, to our knowledge, be the only patient self-administered drug to treat non-proliferative diabetic retinopathy with subcutaneous injections, a delivery method that, according to market research we have conducted, is preferred by patients compared to injections into the eye. In addition, AKB-9778 has the potential to decrease the need for the anti-VEGF drugs if it delays or prevents disease progression to DME, an effect we intend to investigate in post marketing studies.

According to the 2012 Article, it is estimated that roughly one in every three diabetics has underlying diabetic retinopathy while one in every fifteen diabetics has underlying diabetic macular edema. This translates into the DR market being roughly five times larger than the DME market.

The recent approval of ranibizumab and aflibercept for the treatment of DR in the setting of DME as well as the recently agreed upon special protocol assessment between Regeneron and the FDA on the Phase III PANORAMA study has established a development path in DR. We are powering our Phase 2b trial to show a statistically significant difference between AKB-9778 and placebo in the proportion of patients improving by ^{3} 2-steps on the ETDRS diabetic retinopathy severity scale.

Clinical Plans in Diabetic Retinopathy

In the second quarter of 2017, we plan on initiating a 150 patient, double-blind Phase 2b trial of once- and twice-daily AKB-9778 compared to placebo to evaluate the safety and efficacy of AKB-9778 dosed for twelve months in subjects with moderate to severe DR without DME. We expect to enroll patients at 35 to 45 sites for this trial, and expect to have topline data from this trial available in mid-2019.

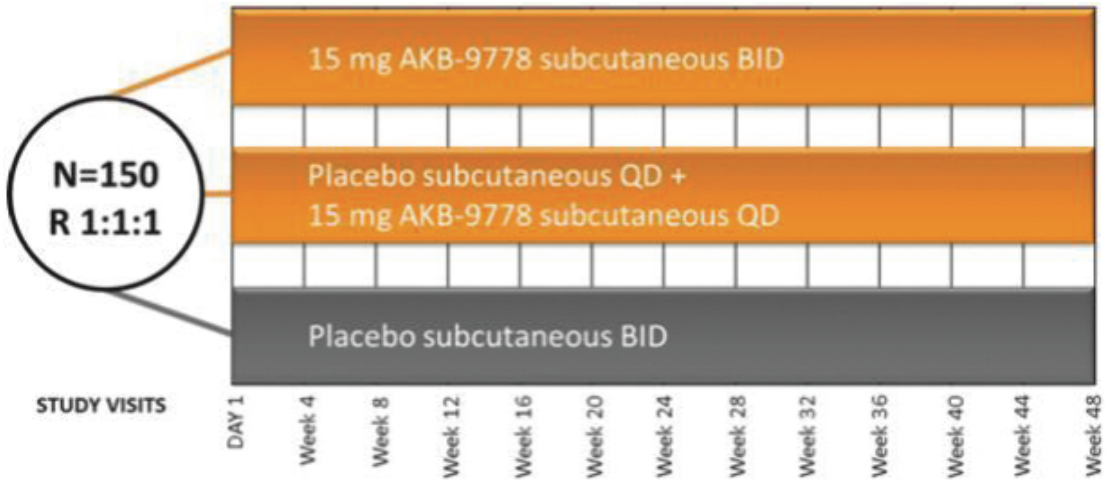


Figure 10. Trial design for Phase 2b trial in DR with AKB-9778

Other Potential Indications

Systemic therapy with AKB-9778 could also provide therapeutic benefits in other areas of the body affected by diabetes, including in the kidneys and the lower legs. Treatment that could affect these tissues could potentially prevent or delay the need for more extreme interventions such as kidney dialysis or amputation of the lower extremities. We intend to include in our Phase 2 trial of AKB-9778 exploratory endpoints to study the effects of AKB-9778 on parameters of diabetic kidney disease, including urine creatinine albumin ratio. If approved for such indications, we believe that systemic treatment with AKB-9778 has the potential to change the treatment paradigm for diabetics and solve a major societal problem by lowering the cost of care associated with diabetic complications. The cost to society is significant. Diabetic patients with complications are estimated to cost the health care system 3.5 times more than patients without complications. For example, dialysis patients cost an average of $89,000 per year and the cost for the first year of DME therapy with Eylea® cost is $14,400 per eye based on published Medicare allowable charges per dose and the frequency of dosing as approved by the FDA.

ARP-1536

We may advance the clinical development of ARP-1536 for the treatment of wet age-related macular degeneration or wet AMD, as well as of DME. We believe that, in combination with anti-VEGF therapy, ARP-1536 could represent the next standard of care for vision-threatening retinopathies such as wet AMD and DME.

ARP-1536 is a humanized monoclonal antibody currently in late stage preclinical development that is directed at the same target as AKB-9778. We believe that ARP-1536 has potential to increase the effectiveness of current therapies in DME based on the proof of concept activity generated by AKB-9778 in a Phase 2a trial. In this trial, AKB-9778 led to a significant reduction in the severity of DME when used in combination with ranibizumab, a VEGF inhibitor approved for the treatment of DME. This result helps validate the hypothesis that activating Tie-2 can have therapeutic benefit even in patients with late stage diabetic eye disease. Subject to obtaining sufficient funding to support further development, we may advance ARP-1536 in DME. We believe that intravitreal administration of ARP-1536 in patients with DME would be complimentary to current DME therapies that are administered by intravitreal injection. We may explore partnering opportunities in order to potentially combine ARP-1536 with existing anti-VEGF therapies.

ARP-1536 binds the extracellular domain of VE-PTP inhibiting its ability to interact with Tie-2. Our preclinical development program has shown that inhibiting VE-PTP with an antibody results in an activity profile similar to AKB-9778 in a number of different models of retinopathy.

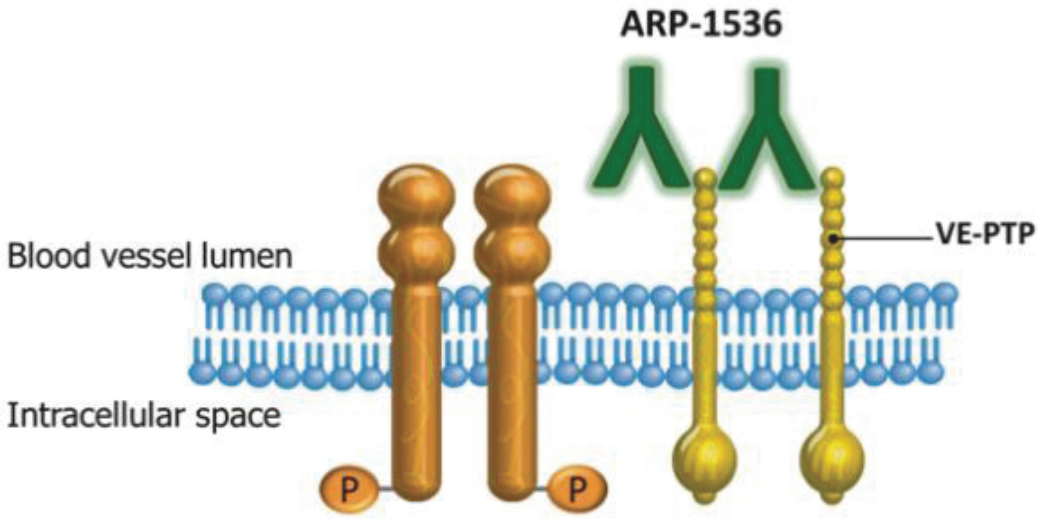
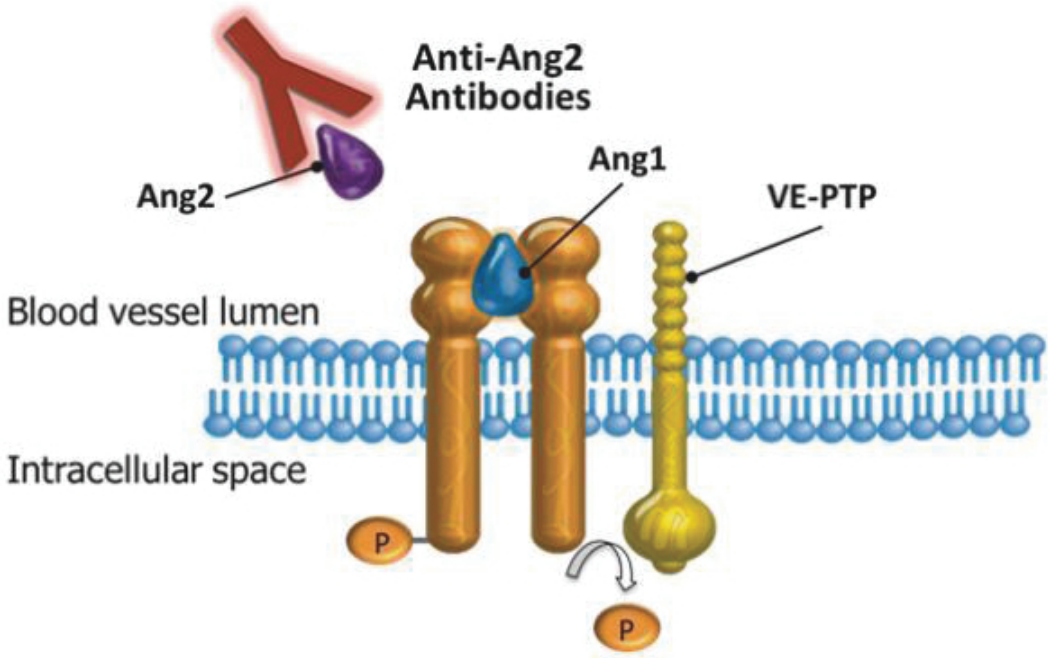


Figure 11. ARP-1536 binds the extracellular domain of the VE-PTP inhibiting its ability to interact with and inactivate the Tie-2 receptor.

Our Phase 2a trial with AKB-9778 demonstrated a significant reduction in central retinal thickness or CRT, a standard measure of the severity of macular edema, when AKB-9778 was administered in combination with ranibizumab. We believe that, based on the combination of this result and preclinical data that we and others have generated, inhibition of VE-PTP is a therapeutically relevant mechanism for the treatment of macular edema. Treating wet AMD and DME by inhibiting VE-PTP with a monoclonal antibody approach allows for dosing as an intravitreal injection either as a standalone in combination with anti-VEGF therapy as a single syringe approach.

We believe that ARP-1536 may hold a competitive advantage versus other product candidates that are currently in development that target other aspects of the Tie-2 pathway. We are aware that two other companies are developing agents that inhibit Ang-2, a natural antagonist of Tie-2. Ang-2 can bind to Tie-2 and prevent Ang-1 dependent activation. However, simply reducing the levels of Ang-2 has no effect on the activity of VE-PTP, which inactivates Tie-2 further downstream of Ang-2 binding. Direct inhibition of VE-PTP has a larger effect on Tie-2 activation than elimination of Ang-2.

A.



B.

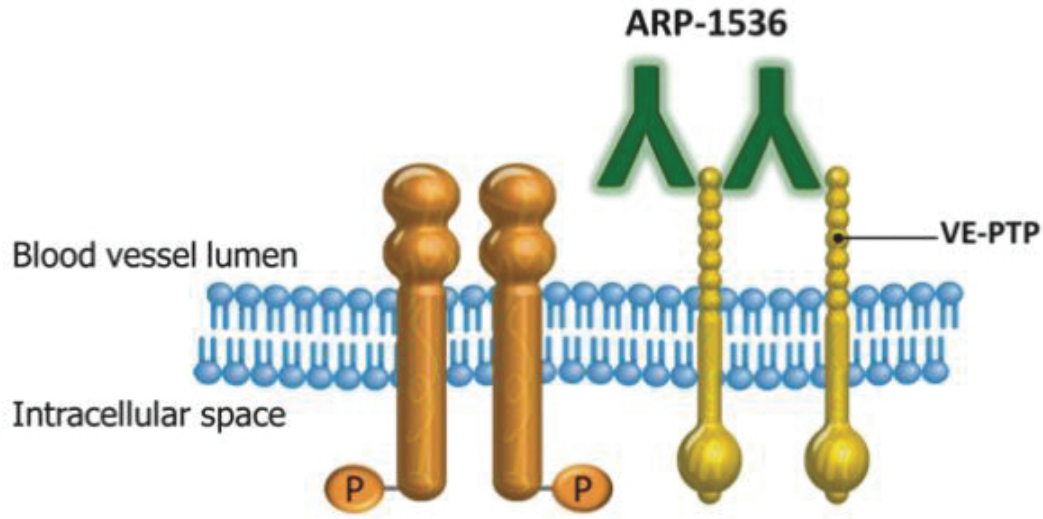


Figure 12. (A) Inhibiting Ang2 does not address VE-PTP, the most downstream inhibitor of Tie2. (B) ARP-1536 inhibits VE-PTP, the most downstream and critical negative regulator of Tie2.

Preclinical Data

Preclinical experiments with a mouse version of ARP-1536 have demonstrated that it leads to activation of Tie-2 and reduced neovascularization in multiple models of retinopathy. We believe that this VE-PTP antibody offers the potential for targeting the Tie-2 pathway in DME as well as in multiple vascular diseases while providing the benefit of less frequent dosing. We have a number of issued patents and pending patent applications covering anti-VE-PTP antibodies and their uses. We are currently pursuing IND enabling studies with this antibody.

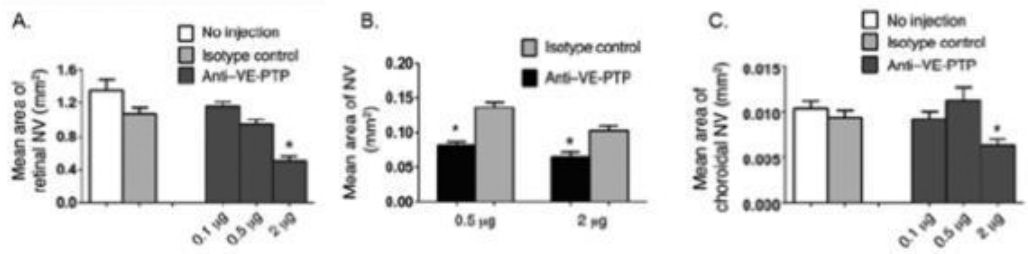


Figure 13. Anti-mouse VE-PTP reduces neovascularization in multiple animal models of retinopathy. A. Ischemic retinopathy, B. Rho/VEGF, C. CNV (choroidal neovascularization).

All currently approved anti-VEGF therapies in DME have also been approved for use in wet age-related macular degeneration. This suggests that ARP-1536 may also demonstrate activity in this disease. In a mouse choroidal neovascularization model that is predictive of drug effects in patients with neovascular AMD, inhibition of VE-PTP significantly reduced CNV in comparison to placebo.

AKB-4924

We may develop AKB-4924 as a once-daily oral pill for the treatment of inflammatory bowel disease, or IBD. IBD is a group of inflammatory and autoimmune conditions that affect the gastrointestinal tract, typically resulting in severe abdominal pain, weight loss, vomiting and diarrhea. The most common forms of IBD include ulcerative colitis and Crohn's disease, which are estimated to affect approximately 1.3 million people in the United States. Chronic IBD can be a debilitating condition, and advanced cases may require surgery to remove the affected region of the bowel. Based on the data observed in preclinical and clinical studies to date, we believe that AKB-4924 may have advantages over other products that are either currently approved or in late stage development for IBD. We are considering our path forward to develop AKB-4924 including potentially seeking a strategic and commercial partner.

AKB-4924 is a selective stabilizer of hypoxia-inducible factor-1 alpha or HIF-1-alpha. Current therapies are primarily focused on broad spectrum immunosuppressants which only indirectly promote healing of damaged tissue. In contrast, HIF-1-alpha stabilization has been shown to selectively reduce inflammation as well as directly stimulate restoration of the intestinal barrier in animal models and thus represents an attractive novel target.

AKB-4924 works by inhibiting HIF prolyl-hydroxylase enzymes. Unlike other compounds currently in development that act broadly against all forms of HIF, AKB-4924 selectively stabilizes a specific form of HIF, HIF-1-alpha. HIF-1-alpha has a profound effect on innate immunity and epithelial barrier function. However, HIF-1alpha differs from these other HIF forms in that it does not stimulate the formation of new red blood cells. That characteristic of greater selectivity could, we believe, make AKB-4924 a more attractive means to target

HIF in IBD. We have tested AKB-4924 in multiple preclinical models of IBD and it has shown activity in these models. We recently completed a Phase 1a single-ascending dose trial in healthy volunteers with orally administered AKB-4924. We observed a consistent dose/exposure relationship with no notable adverse events at any dose level. Importantly, we observed no stimulation of erythropoietin expression, an effect which could lead to a dose-limiting safety effect. Based on preclinical data, we believe that AKB-4924 has therapeutic potential for the treatment of IBD via a once-daily, oral route of administration. We believe that the potency, selectivity, activity in animal models, and the ability to dose AKB-4924 orally distinguish it from other agents targeting this pathway.

Current IBD Treatments

Current therapies that are primarily focused on broad spectrum anti-inflammatory molecules or immunosuppressants which only indirectly promote healing of damaged tissue. These therapies include aminosalicylate derivatives such as mesalazine, corticosteroids such as prednisone, and immunomodulatory biologics such as infliximab. Each of these therapies is associated with their own side effects ranging from hypersensitivity to increasing the risks of developing malignancies or reactivation of latent viral infections.

While reducing inflammation and modulating the immune response address key pathological processes in IBD, these approaches do not directly target some of the underlying causes of the disease. Those causes include defects in the cell-to-cell junctions of the intestinal cell wall that can lead to the triggering of the immune system. HIF-1-alpha stabilization has been shown to selectively reduce inflammation as well as directly stimulate restoration of this intestinal barrier in animal models, and, thus, represents an attractive novel approach to treating this disease.

Our Solution AKB-4924

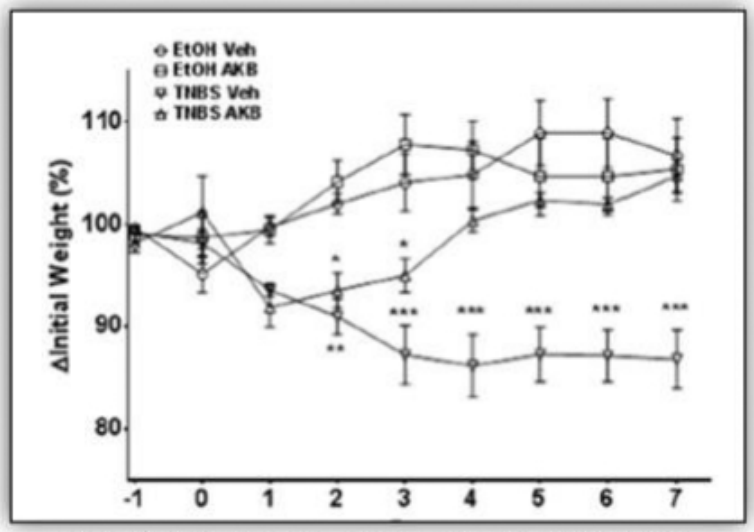
AKB-4924 belongs to a group of compounds known as prolyl hydroxylase inhibitors. Prolyl-hydroxylase enzymes promote the breakdown of hypoxia-inducible factor or HIF proteins, and, as the breakdown is inhibited, the level of these HIF proteins increases in cells. HIF proteins are the primary protein mediators that enable the body and all of its individual cells to adapt to changes in levels of oxygen. There are multiple HIF proteins in the cell and they regulate pathways that influence metabolic adaptation, erythropoiesis, angiogenesis and vascular tone, cell growth and differentiation, and survival and apoptosis, and are critical factors in development, physiology and disease.

Similar to other HIF-stabilizers currently in development, AKB-4924 works by inhibiting HIF prolyl-hydroxylase enzymes. Unlike other prolyl hydroxylase inhibitors currently in development, AKB-4924 selectively stabilizes hypoxia-inducible factor-1-alpha, or HIF-1-alpha, and not the other HIF proteins. Stabilization of HIF-1-alpha by orally administered AKB-4924 has been shown to stimulate innate immunity and to promote homeostasis or balance of the epithelial cells that line the gastrointestinal tract. Consistent with the selectivity of AKB-4924 for HIF-1-alpha, AKB-4924 does not stimulate the formation of new red blood cells in the process known as erythropoiesis, an effect commonly triggered by HIF-2 stabilizers that can lead to dose-limiting safety effects.

Clinical Data for AKB-4924

We recently completed a Phase 1a single-ascending dose trial in healthy male volunteers in Canada with orally administered AKB-4924. A consistent dose/exposure relationship was observed with no notable adverse events at any dose level. Additionally, there was no stimulation of erythropoietin expression. Based on the preclinical data, and the expected once-daily, oral route of administration, we believe that, if approved, AKB-4924 has therapeutic potential to treat IBD.

In preclinical models of inflammatory bowel disease, AKB-4924 significantly improved disease in both the maintenance and induction treatment modes, including reducing key inflammatory cytokines and increasing the expression of mucosal wound healing factors. In a mouse model of colitis 2,4,6-trinitrobenzenesulfonic acid, or TNBS, is used to induce severe inflammation in the colon resulting in multiple symptoms that mimic human disease including easy to measure signs such as weight loss. Oral dosing of 5 mg/kg AKB-4924 showed significant levels of recovery from this weight loss within four days. In addition, levels of inflammatory cytokines including interleukin 1 beta, TNFalpha, interleukin 12 p70, and interleukin 6 were significantly reduced in animals receiving AKB-4924 ($p < 0.05$ in all cases).



N = 6, *P < 0.05, **P ,<0.01, and ***P < 0.001; two-way ANOVA, multiple comparison

Figure 14. Orally dosed AKB-4924 (5 mg/kg) reverses weight loss induced by trinitrobezenesulfonic acid (TNBS) colitis.

AKB-4924 was also tested in an alternate model of IBD induced by overexpression of tumor necrosis factor-alpha or TNF-alpha in a model of Crohn's Disease known as the DARE model. In this model, the induced high levels of TNF-alpha lead to the development of Crohn's-like disease due to inflammation of intestinal tissues or ileitis. AKB-4924 administered at 5 mg/kg protected against development of ileitis and led to significantly reduced overall inflammation in the intestine.

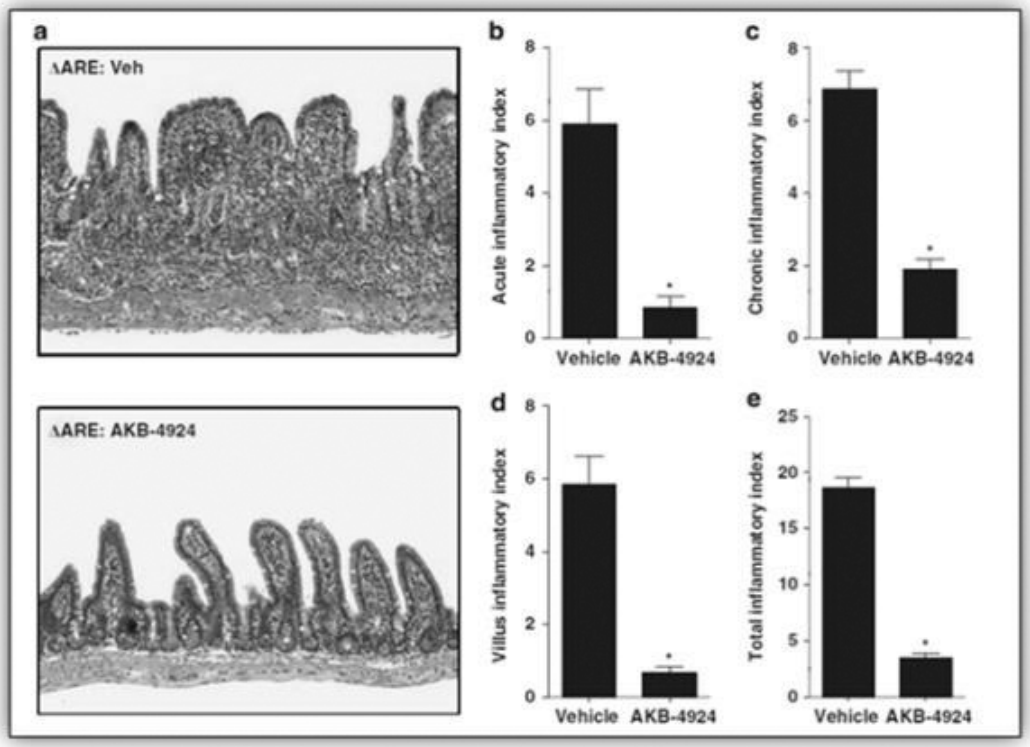


Figure 15. Terminal ileitis in control animals (a-top panel), terminal ileitis was completely reversed via administration of AKB-4924 (a-bottom panel). AKB-4924 administration resulted in a decrease of all inflammatory scores. REFERENCE: Keely 2014 Nature

To date, AKB-4924 has completed a single-ascending dose trial in healthy male volunteers. Healthy volunteers were given a single dose of AKB-4924 of 20mg, 60mg, 120 mg, or 240 mg. Findings from this trial support the safety, local activity, selective HIF-1alpha stabilization, and dose proportional exposure of oral AKB-4924. Consistent with the selectivity of AKB-4924 for HIF-1alpha, there were no significant changes in levels of erythropoietin or EPO in this trial. Other studies have shown that regulation of EPO is primarily dependent on the activity of HIF-2.

We believe that the data observed in nonclinical and clinical studies with orally administered AKB-4924 provide a compelling rationale to advance its development for the treatment of inflammatory bowel disease.

Intellectual Property

As of February 15, 2017, we owned at least 31 U.S. patents, at least 18 pending U.S. provisional or non-provisional patent applications, at least 268 foreign patents, and at least 143 pending foreign applications, and a had a non-exclusive license to one U.S. patent, with claims directed toward various aspects of our product candidates and research programs. Specifically, the claims of these patents and patent applications include compositions of matter, methods of use, drug product formulations, and methods of manufacture. Such patents and patent applications, if issued, are expected to expire on various dates from 2027 to 2037, without taking into account any possible patent term adjustments or extensions. Within the foregoing patent portfolio, as of February 15, 2017, we owned at least 3 U.S. patents, at least 6 pending U.S. provisional or non-provisional patent applications, at least 17 foreign patents, and at least 27 pending foreign applications that are directed toward ARP-1536, and formulations or uses thereof. As of February 15, 2017, within the foregoing patent portfolio, we owned at least 19 U.S. patents, at least 12 pending U.S. provisional or non-provisional patent applications, at least 161 foreign patents, and at least 85 pending foreign applications that are directed toward AKB-9778, and formulations, medicinal chemistry variants, or uses thereof. As of February 15, 2017, within the foregoing patent portfolio, we owned at least 9 U.S. patents, at least 1 pending U.S. provisional or non-provisional patent application, at least 90 foreign patents, and at least 31 pending foreign applications, and had 1 non-exclusively in-licensed U.S. patent that are directed toward AKB-4924, and formulations, manufacturing processes, medicinal chemistry variants, or uses thereof. Such patents claiming compositions of matter directed toward ARP-1536 are set to expire in 2027, without taking into account any possible patent term adjustments or extensions. Such patents claiming compositions of matter directed toward AKB-9778 are set to expire in 2027, without taking into account any possible patent term adjustments or extensions. Such patents claiming compositions of matter directed toward AKB-4924 are set to expire in 2030, without taking into account any possible patent term adjustments or extensions.

Competition

The biotechnology and pharmaceutical industries are characterized by rapidly advancing technologies, intense competition and a strong emphasis on proprietary products. While we believe that our technologies, knowledge, experience and scientific resources provide us with competitive advantages, we face potential competition from many different sources, including major pharmaceutical, specialty pharmaceutical and biotechnology companies, academic institutions and governmental agencies and public and private research institutions. Any product candidates that we successfully develop and commercialize will compete with existing therapies and new therapies that may become available in the future.

There are a number of currently marketed products and product candidates in preclinical research and clinical development by third parties to treat the various diseases that we are targeting. If AKB-9778 and our other product candidates are approved for the indications that we are targeting, they will compete with the products and product candidates discussed below.

DR – There are no disease-modifying therapies for DR until after DME has developed. However, laser photocoagulation is sometimes used to treat DR prior to the onset of DME and temporarily prevent further vision loss. The anti-VEGF agent, Eylea (aflibercept), which is injected into the eye, is in a Phase III study for DR without DME, entitled PANORAMA.

DME – The principal competitors for our program in DME are the anti-Ang-2 antibodies REGN-910 (nesvacumab) and RG7716 (bi-specific antibody which targets VEGF-A and Ang-2). Both of these compounds are in Phase 2 studies in DME, RUBY and BOULEVARD, respectively.

IBD – Current therapies for IBD include anti-inflammatory molecules, or immunosuppressants such as aminosalicylate derivatives, corticosteroids, and immunomodulatory biologics. In addition, we are aware that there are a number of other companies that are actively developing product candidates for the treatment of IBD, including: filgotinib; ozanimod; mongresen; ABT-494; ADP-334; MT-1303; PTG-100; TD-1473; amongst others.

Wet AMD – The principal competitors for our program in wet AMD are the anti-Ang-2 antibodies REGN-910 (nesvacumab) and RG7716 (bi-specific antibody which targets VEGF-A and Ang-2). Both of these compounds are in Phase 2 studies in wet AMD, ONYX and AVENUE, respectively.

Sales and Marketing

We hold worldwide commercialization rights to all of our product candidates. Subject to receiving marketing approval, we intend to independently pursue the commercialization of AKB-9778 in the United States for DR by building a focused sales and marketing organization in these geographies. We believe that such an organization will be able to address the community of physicians who are key specialists in treating the patient populations for which our product candidates are being developed.

We also plan to build a marketing and sales management organization to create and implement marketing strategies for any products that we market through our own sales organization and to oversee and support our sales force. The responsibilities of the marketing organization would include developing educational initiatives with respect to approved products and establishing relationships with researchers and practitioners in relevant fields of medicine.

Outside of the United States, we intend to pursue the approval and commercialization of AKB-9778 for DR through strategic collaborations. We may develop and commercialize AKB-9778 for other indications either independently or through collaborations with third parties. We may develop and commercialize AKB-4924, subject to receiving additional funding, which we may seek to obtain in connection with a collaboration with a strategic and commercial partner. We may also develop and commercialize ARP-1536, subject to receiving additional funding, which may be from a collaboration with a strategic or commercial partner.

Manufacturing

We do not currently own or operate manufacturing facilities for the production of clinical or commercial quantities of our product candidates. We have relied on and intend to continue to rely on qualified third-party contract manufacturers to produce our product candidates, including clinical supplies to support our clinical trials. We expect that commercial quantities of any compound and materials for our product candidates, if approved, will be manufactured in facilities and by processes that comply with FDA and other regulations. At the appropriate time in the product development process, we will determine whether to establish manufacturing facilities or continue to rely on third parties to manufacture commercial quantities of any products that we may successfully develop.

Government Regulation

Government authorities in the United States, including federal, state, and local authorities, and in other countries, extensively regulate, among other things, the manufacturing, research and clinical development, marketing, labeling and packaging, storage, distribution, post-approval monitoring and reporting, advertising and promotion, and export and import of pharmaceutical and biological products, such as those we are developing. In addition, some government authorities regulate the pricing of such products. The process of obtaining regulatory approvals and the subsequent compliance with appropriate federal, state, local, and foreign statutes and regulations require the expenditure of substantial time and financial resources.

U.S. Government Regulation

In the United States, the FDA regulates drugs under the Federal Food, Drug, and Cosmetic Act, or FDCA, and its implementing regulations, and biologics under the FDCA and the Public Health Service Act, or PHSA, and its implementing regulations. FDA approval is required before any new unapproved drug or biologic or dosage form, including a new use of a previously approved drug, can be marketed in the United States. Drugs and biologics are also subject to other federal, state, and local statutes and regulations. If we fail to comply with

applicable FDA or other requirements at any time during the product development process, clinical testing, the approval process or after approval, we may become subject to administrative or judicial sanctions. These sanctions could include the FDA's refusal to approve pending applications, license suspension or revocation, withdrawal of an approval, untitled or warning letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, civil penalties or criminal prosecution. Any FDA enforcement action could have a material adverse effect on us.

The process required by the FDA before product candidates may be marketed in the United States generally involves the following:

- completion of extensive nonclinical laboratory tests and nonclinical animal studies, all performed in accordance with the Good Laboratory Practices, or GLP, regulations;
- submission to the FDA of an investigational new drug application, or IND, which must become effective before human clinical trials may begin and must be updated annually;
- approval by an independent institutional review board, or IRB, or ethics committee representing each clinical site before each clinical trial may be initiated;
- performance of adequate and well-controlled human clinical trials to establish the safety and efficacy of the product candidate for each proposed indication;
- preparation of and submission to the FDA of a biologics license application, or BLA, or a new drug application, or NDA, after completion of all pivotal clinical trials;
- potential review of the product application by an FDA advisory committee, where appropriate and if applicable;
- a determination by the FDA within 60 days of its receipt of a BLA or NDA to file the application for review;
- satisfactory completion of an FDA pre-approval inspection of the manufacturing facilities where the proposed product is produced to assess compliance with current Good Manufacturing Practices, or cGMP;
- satisfactory completion of any FDA audits of the clinical study sites to assure compliance with GCPs, and the integrity of clinical data in support of the BLA or NDA; and
- FDA review and approval of a BLA for a biologic drug candidate that is safe, pure, and potent or an NDA for a drug candidate that is safe and effective prior to any commercial marketing or sale of the product in the United States.

The nonclinical and clinical testing and approval process requires substantial time, effort, and financial resources, and we cannot be certain that any approvals for our product candidates will be granted on a timely basis, if at all.

An IND is a request for authorization from the FDA to administer an investigational new drug product to humans in clinical trials. The central focus of an IND submission is on the general investigational plan and the protocol(s) for human trials. The IND also includes results of animal and in vitro studies assessing the toxicology, pharmacokinetics, pharmacology, and pharmacodynamic characteristics of the product; chemistry, manufacturing, and controls information; and any available human data or literature to support the use of the investigational new drug. An IND must become effective before human clinical trials may begin. An IND will automatically become effective 30 days after receipt by the FDA, unless before that time the FDA raises concerns or questions related to the proposed clinical trials. In such a case, the IND may be placed on clinical hold and the IND sponsor and the FDA must resolve any outstanding concerns or questions before clinical trials can begin. Accordingly, submission of an IND may or may not result in the FDA allowing clinical trials to commence. The FDA may impose a clinical hold at any time during clinical trials and may impose a partial clinical hold that would limit trials, for example, to certain doses or for a certain length of time.

Clinical Trials

Clinical trials involve the administration of the investigational new drug to human subjects under the supervision of qualified investigators in accordance with Good Clinical Practices, or GCPs, which include the requirement that all research subjects provide their informed consent for their participation in any clinical trial. Clinical trials are conducted under protocols detailing, among other things, the objectives of the study, the inclusion and exclusion criteria, the parameters to be used in monitoring safety, and the efficacy criteria to be evaluated. A protocol for each clinical trial and any subsequent protocol amendments must be submitted to the FDA as part of the IND. Additionally, approval must also be obtained from each clinical trial site's institutional review board, or IRB, before the trials may be initiated, and the IRB must monitor the trial until completed. There are also requirements governing the reporting of ongoing clinical trials and clinical trial results to public registries.

The clinical investigation of a drug is generally divided into three or four phases. Although the phases are usually conducted sequentially, they may overlap or be combined.

- *Phase 1.* The drug is initially introduced into healthy human subjects or patients with the target disease or condition. These studies are designed to evaluate the safety, dosage tolerance, metabolism and pharmacologic actions of the investigational new drug in humans, the side effects associated with increasing doses, and if possible, to gain early evidence on effectiveness.
- *Phase 2.* The drug is administered to a limited patient population to evaluate dosage tolerance and optimal dosage, identify possible adverse side effects and safety risks, and preliminarily evaluate efficacy.
- *Phase 3.* The drug is administered to an expanded patient population, generally at geographically dispersed clinical trial sites to generate enough data to statistically evaluate dosage, clinical effectiveness and safety, to evaluate the overall benefit-risk relationship of the investigational new drug product, and to provide an adequate basis for physician labeling.
- *Phase 4.* In some cases, the FDA may condition approval of a BLA or NDA for a product candidate on the sponsor's agreement to conduct additional clinical trials after approval. In other cases, a sponsor may voluntarily conduct additional clinical trials after approval to gain more information about the drug. Such post-approval studies are typically referred to as Phase 4 clinical trials.

Sponsors must also report to the FDA, within certain timeframes, serious and unexpected adverse reactions, any clinically important increase in the rate of a serious suspected adverse reaction over that listed in the protocol or investigator's brochure, or any findings from other studies or animal or in vitro testing that suggest a significant risk in humans exposed to the product candidate. The FDA, the IRB, or the clinical trial sponsor may suspend or terminate a clinical trial at any time on various grounds, including a finding that the research subjects are being exposed to an unacceptable health risk. Additionally, some clinical trials are overseen by an independent group of qualified experts organized by the clinical trial sponsor, known as a data safety monitoring board or committee. This group provides authorization for whether or not a trial may move forward at designated check points based on access to certain data from the trial. We may also suspend or terminate a clinical trial based on evolving business objectives or competitive climate.

Submission of a BLA or NDA to the FDA

Assuming successful completion of all required testing in accordance with all applicable regulatory requirements, detailed investigational new drug product information is submitted to the FDA in the form of a BLA or NDA requesting approval to market the product for one or more indications. Under federal law, the submission of most BLAs and NDAs is subject to an application user fee. For fiscal year 2017, the application user fee is $2,038,100, and the sponsor of an approved BLA or NDA is also subject to annual product and establishment user fees, set at $97,750 per product and $512,000 per establishment. These fees are typically increased annually. Applications for orphan drug products are exempted from the BLA and NDA user fees and may be exempted from product and establishment user fees, unless the application includes an indication for other than a rare disease or condition.

A BLA or NDA must include all relevant data available from pertinent nonclinical studies and clinical trials, including negative or ambiguous results as well as positive findings, together with detailed information relating to the product's chemistry, manufacturing, controls, and proposed labeling, among other things. Data can come from company-sponsored clinical trials intended to test the safety and effectiveness of a use of a product, or from a number of alternative sources, including trials initiated by investigators. To support marketing approval, the data submitted must be sufficient in quality and quantity to establish the safety and effectiveness of the investigational new drug product to the satisfaction of the FDA.

Once a BLA or NDA has been submitted, the FDA's goal is to review the application within ten months after it accepts the application for filing, or, if the application relates to an unmet medical need in a serious or life-threatening indication, six months after the FDA accepts the application for filing. The review process is often significantly extended by the FDA's requests for additional information or clarification.

Before approving a BLA or NDA, the FDA typically will inspect the facility or facilities where the product is manufactured. The FDA will not approve an application unless it determines that the manufacturing processes and facilities are in compliance with cGMP requirements and adequate to assure consistent production of the product within required specifications. Additionally, before approving a BLA or NDA, the FDA will typically inspect one or more clinical sites to assure compliance with GCP.

The FDA is required to refer an application for a novel drug to an advisory committee or explain why such referral was not made. Typically, an advisory committee is a panel of independent experts, including clinicians and other scientific experts, that reviews, evaluates and provides a recommendation as to whether the application should be approved and under what conditions. The FDA is not bound by the recommendations of an advisory committee, but it considers such recommendations carefully when making decisions.

The FDA's Decision on a BLA or NDA

After the FDA evaluates the BLA or NDA and conducts inspections of manufacturing facilities where the product will be produced, it may issue an approval letter or a Complete Response Letter. An approval letter authorizes commercial marketing of the drug with specific prescribing information for specific indications. A Complete Response Letter indicates that the review cycle of the application is complete and the application is not ready for approval. A Complete Response Letter may require additional clinical data or an additional Phase 3 clinical trial(s), or other significant, expensive and time-consuming requirements related to clinical trials, nonclinical studies or manufacturing. Even if such additional information is submitted, the FDA may ultimately decide that the BLA or NDA does not satisfy the criteria for approval and issue a denial.

The FDA could also approve the BLA or NDA with a Risk Evaluation and Mitigation Strategy, or REMS, plan to mitigate risks, which could include medication guides, physician communication plans, or elements to assure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. The FDA also may condition approval on, among other things, changes to proposed labeling, development of adequate controls and specifications, or a commitment to conduct one or more post-market studies or clinical trials. Such post-market testing may include Phase 4 clinical trials and surveillance to further assess and monitor the product's safety and effectiveness after commercialization.

New government requirements, including those resulting from new legislation, may be established, or the FDA's policies may change, which could delay or prevent regulatory approval of our products under development.

Expedited Review and Accelerated Approval Programs

A sponsor may seek approval of its product candidate under programs designed to accelerate FDA's review and approval of BLAs and NDAs. For example, Fast Track Designation may be granted to a drug intended for

treatment of a serious or life-threatening disease or condition that has potential to address unmet medical needs for the disease or condition. The key benefits of fast track designation are more frequent interactions with the FDA during development and testing, the eligibility for priority review, and rolling review, which is submission of portions of an application before the complete marketing application is submitted.

Based on results of the Phase 3 clinical trial(s) submitted in a BLA or NDA, the FDA may grant the BLA or NDA a priority review designation, which sets the target date for FDA action on the application at six months after the FDA accepts the application for filing. Priority review is granted where there is evidence that the proposed product would be a significant improvement in the safety or effectiveness of the treatment, diagnosis, or prevention of a serious condition. If criteria are not met for priority review, the application is subject to the standard FDA review period of ten months after FDA accepts the application for filing. Priority review designation does not change the scientific/medical standard for approval or the quality of evidence necessary to support approval.

Under the accelerated approval program, the FDA may approve a BLA or NDA on the basis of either a surrogate endpoint that is reasonably likely to predict clinical benefit, or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality, that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity, or prevalence of the condition and the availability or lack of alternative treatments. Post-marketing trials or completion of ongoing trials after marketing approval are generally required to verify the drug's clinical benefit in relationship to the surrogate endpoint or ultimate outcome in relationship to the clinical benefit.

In addition, the Food and Drug Administration Safety and Innovation Act, or FDASIA, which was enacted and signed into law in 2012, established the new Breakthrough Therapy designation. A sponsor may seek FDA designation of its product candidate as a breakthrough therapy if the drug is intended, alone or in combination with one or more other drugs, to treat a serious or life-threatening disease or condition and preliminary clinical evidence indicates that the drug may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development.

Post-Approval Requirements

Drugs manufactured or distributed pursuant to FDA approvals are subject to pervasive and continuing regulation by the FDA, including, among other things, requirements relating to recordkeeping, periodic reporting, product sampling and distribution, advertising and promotion and reporting of adverse experiences with the product. After approval, most changes to the approved product, such as adding new indications or other labeling claims, are subject to prior FDA review and approval. There also are continuing, annual user fee requirements for any marketed products and the establishments at which such products are manufactured, as well as new application fees for supplemental applications with clinical data.

Drug manufacturers are subject to periodic unannounced inspections by the FDA and state agencies for compliance with cGMP requirements. Changes to the manufacturing process are strictly regulated, and, depending on the significance of the change, may require prior FDA approval before being implemented. FDA regulations also require investigation and correction of any deviations from cGMP and impose reporting and documentation requirements upon us and any third-party manufacturers that we may decide to use. Accordingly, manufacturers must continue to expend time, money and effort in the area of production and quality control to maintain compliance with cGMP and other aspects of regulatory compliance.

We rely, and expect to continue to rely, on third parties for the production of clinical quantities of our product candidates, and expect to rely in the future on third parties for the production of commercial quantities. Future FDA and state inspections may identify compliance issues at our facilities or at the facilities of our contract manufacturers that may disrupt production or distribution, or require substantial resources to correct. In

addition, discovery of previously unknown problems with a product or the failure to comply with applicable requirements may result in restrictions on a product, manufacturer or holder of an approved BLA or NDA, including withdrawal or recall of the product from the market or other voluntary, FDA-initiated or judicial action that could delay or prohibit further marketing.

The FDA may withdraw approval if compliance with regulatory requirements and standards is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with manufacturing processes, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical trials to assess new safety risks; or imposition of distribution restrictions or other restrictions under a REMS program. Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of the product, complete withdrawal of the product from the market or product recalls;
- fines, untitled or warning letters or holds on post-approval clinical trials;
- refusal of the FDA to approve pending BLAs or NDAs or supplements to approved BLAs or NDAs, or suspension or revocation of product license approvals;
- product seizure or detention, or refusal to permit the import or export of products; or
- injunctions or the imposition of civil or criminal penalties.

The FDA strictly regulates marketing, labeling, advertising, and promotion of products that are placed on the market. Drugs may be promoted only for the approved indications and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses, and a company that is found to have improperly promoted off-label uses may be subject to significant liability.

Pediatric Trials and Exclusivity

A sponsor who is planning to submit a marketing application for a drug that includes a new active ingredient, new indication, new dosage form, new dosing regimen or new route of administration must submit an initial Pediatric Study Plan, or PSP, within sixty days of an end of Phase 2 meeting or as may be agreed between the sponsor and FDA. The initial PSP must include an outline of the pediatric study or studies that the sponsor plans to conduct, including study objectives and design, age groups, relevant endpoints and statistical approach, or a justification for not including such detailed information, and any request for a deferral of pediatric assessments or a full or partial waiver of the requirement to provide data from pediatric studies along with supporting information. Development program candidates designated as orphan drugs are exempt from the above requirements. FDA and the sponsor must reach agreement on the PSP. A sponsor can submit amendments to an agreed upon initial PSP at any time if changes to the pediatric plan need to be considered based on data collected from nonclinical studies, early phase clinical trials, and/or other clinical development programs.

Pediatric exclusivity is another type of non-patent exclusivity in the United States and, if granted, provides for the attachment of an additional six months of marketing protection to the term of any existing regulatory exclusivity, including the five-year and three-year non-patent and orphan exclusivity. This six-month exclusivity may be granted if a BLA or NDA sponsor submits pediatric data that fairly respond to a written request from the FDA for such data. The data do not need to show the product to be effective in the pediatric population studied; rather, if the clinical trial is deemed to fairly respond to the FDA's request, the additional protection is granted. If reports of FDA-requested pediatric trials are submitted to and accepted by the FDA within the statutory time limits, whatever statutory or regulatory periods of exclusivity or patent protection covering the product are extended by six months. This is not a patent term extension, but it effectively extends the regulatory period during which the FDA cannot accept or approve another application relying on the BLA or NDA sponsor's data.

Patent Term Restoration

Depending upon the timing, duration, and specifics of the FDA approval of the use of our product candidates, some of our U.S. patents may be eligible for limited patent term extension under the Drug Price Competition and Patent Term Restoration Act of 1984, commonly referred to as the Hatch-Waxman Amendments. The Hatch-Waxman Amendments permit a patent restoration term of up to five years as compensation for patent term lost during product development and the FDA regulatory review process. However, patent term restoration cannot extend the remaining term of a patent beyond a total of 14 years from the product's approval date. The patent term restoration period is generally one-half the time between the effective date of an IND and the submission date of a BLA or NDA, plus the time between the submission date and the approval of that application. Only one patent applicable to an approved product is eligible for the extension and the application for the extension must be submitted prior to the expiration of the patent and within 60 days of the product's approval. The U.S. Patent and Trademark Office, in consultation with the FDA, reviews and approves the application for any patent term extension or restoration. In the future, we may apply for restoration of patent term for one of our currently owned or licensed patents to add patent life beyond its current expiration date, depending on the expected length of the clinical trials and other factors involved in the filing of the relevant BLA or NDA.

Biosimilars and Exclusivity

The Patient Protection and Affordable Care Act, or Affordable Care Act, signed into law on March 23, 2010, includes a subtitle called the Biologics Price Competition and Innovation Act of 2009, or BPCI Act, which created an abbreviated approval pathway for biological products shown to be similar to, or interchangeable with, an FDA-licensed reference biological product. This amendment to the PHSA attempts to minimize duplicative testing. Biosimilarity, which requires that there be no clinically meaningful differences between the biological product and the reference product in terms of safety, purity, and potency, can be shown through analytical studies, animal studies, and a clinical trial or trials. Interchangeability requires that a product is biosimilar to the reference product and the product must demonstrate that it can be expected to produce the same clinical results as the reference product and, for products administered multiple times, the biologic and the reference biologic may be switched after one has been previously administered without increasing safety risks or risks of diminished efficacy relative to exclusive use of the reference biologic.

A reference biologic is granted twelve years of exclusivity from the time of first licensure of the reference product. The first biologic product submitted under the abbreviated approval pathway that is determined to be interchangeable with the reference product has exclusivity against other biologics submitting under the abbreviated approval pathway for the lesser of (i) one year after the first commercial marketing, (ii) eighteen months after approval if there is no legal challenge, (iii) eighteen months after the resolution in the applicant's favor of a lawsuit challenging the biologics' patents if an application has been submitted, or (iv) 42 months after the application has been approved if a lawsuit is ongoing within the 42-month period.

Abbreviated New Drug Applications for Generic Drugs

In 1984, with passage of the Hatch-Waxman Amendments, Congress authorized the FDA to approve generic drugs that are the same as drugs previously approved by the FDA under the NDA provisions of the statute. To obtain approval of a generic drug, an applicant must submit an abbreviated new drug application, or ANDA, to the agency. In support of such applications, a generic manufacturer may rely on the nonclinical and clinical testing previously conducted for a drug product previously approved under an NDA, known as the reference listed drug, or RLD.

Specifically, in order for an ANDA to be approved, the FDA must find that the generic version is identical to the RLD with respect to the active ingredients, the route of administration, the dosage form, and the strength of the drug. At the same time, the FDA must also determine that the generic drug is "bioequivalent" to the innovator drug. Under the statute, a generic drug is bioequivalent to an RLD if "the rate and extent of absorption of the [generic] drug do not show a significant difference from the rate and extent of absorption of the listed drug. . . ."

Upon approval of an ANDA, the FDA indicates that the generic product is "therapeutically equivalent" to the RLD and it assigns a therapeutic equivalence rating to the approved generic drug in its publication "Approved Drug Products with Therapeutic Equivalence Evaluations," also referred to as the "Orange Book." Physicians and pharmacists consider an "AB" therapeutic equivalence rating to mean that a generic drug is fully substitutable for the RLD. In addition, by operation of certain state laws and numerous health insurance programs, the FDA's designation of an "AB" rating often results in substitution of the generic drug without the knowledge or consent of either the prescribing physician or patient.

The FDCA provides a period of five years of non-patent exclusivity for a new drug containing a new chemical entity. In cases where such exclusivity has been granted, an ANDA (or a 505(b)(2) NDA, which is a marketing application in which sponsors may rely on investigations that were not conducted by or for the applicant and for which the applicant has not obtained a right of reference or use from the person by or for whom the investigations were conducted) may not be filed with the FDA until the expiration of five years unless the submission is accompanied by a Paragraph IV certification, discussed below, in which case the applicant may submit its application four years following the original product approval. The FDCA also provides for a period of three years of exclusivity if the NDA includes reports of one or more new clinical investigations, other than bioavailability or bioequivalence studies, that were conducted by or for the applicant and are essential to the approval of the application. This three-year exclusivity period often protects changes to a previously approved drug product, such as a new dosage form, route of administration, combination or indication.

Hatch-Waxman Patent Certification and the 30-Month Stay

Upon approval of an NDA or a supplement thereto, NDA sponsors are required to list with the FDA each patent with claims that cover the applicant's product or a method of using the product. Each of the patents listed by the NDA sponsor is published in the Orange Book. When an ANDA or 505(b)(2) applicant files its application with the FDA, the applicant is required to certify to the FDA concerning any patents listed for the reference product in the Orange Book, except for patents covering methods of use for which the ANDA or 505(b)(2) applicant is not seeking approval.

Specifically, the applicant must certify with respect to each patent that:

- the required patent information has not been filed;
- the listed patent has expired;
- the listed patent has not expired, but will expire on a particular date and approval is sought after patent expiration; or
- the listed patent is invalid, unenforceable or will not be infringed by the new product.

A certification that the new product will not infringe the already approved product's listed patents or that such patents are invalid or unenforceable is called a Paragraph IV certification. If the applicant does not challenge the listed patents or indicates that it is not seeking approval of a patented method of use, the ANDA or 505(b)(2) application will not be approved until all the listed patents claiming the referenced product have expired.

If the applicant has provided a Paragraph IV certification to the FDA, the applicant must also send notice of the Paragraph IV certification to the NDA and patent holders once the ANDA or 505(b)(2) application has been accepted for filing by the FDA. The NDA and patent holders may then initiate a patent infringement lawsuit in response to the notice of the Paragraph IV certification. The filing of a patent infringement lawsuit within 45 days after the receipt of a Paragraph IV certification automatically prevents the FDA from approving the ANDA or 505(b)(2) application until the earlier of 30 months after the receipt of the Paragraph IV notice, expiration of the patent, or a decision in the infringement case that is favorable to the ANDA or 505(b)(2) applicant.

European Union/Rest of World Government Regulation

In addition to regulations in the United States, we will be subject to a variety of regulations in other jurisdictions governing, among other things, clinical trials and any commercial sales and distribution of our products. The cost of establishing a regulatory compliance system for numerous varying jurisdictions can be very significant. Although many of the issues discussed above with respect to the United States apply similarly in the context of the European Union and in other jurisdictions, the approval process varies between countries and jurisdictions and can involve additional product testing and additional administrative review periods. The time required to obtain approval in other countries and jurisdictions might differ from and be longer than that required to obtain FDA approval. Regulatory approval in one country or jurisdiction does not ensure regulatory approval in another, but a failure or delay in obtaining regulatory approval in one country or jurisdiction may negatively impact the regulatory process in others.

Whether or not we obtain FDA approval for a product, we must obtain the requisite approvals from regulatory authorities in foreign countries prior to the commencement of clinical trials or marketing of the product in those countries. Certain countries outside of the United States have a similar process that requires the submission of a clinical trial application much like the IND prior to the commencement of human clinical trials. In the European Union, for example, a clinical trial authorization application, or CTA, must be submitted for each clinical protocol to each country's national health authority and an independent ethics committee, much like the FDA and IRB, respectively. Once the CTA is accepted in accordance with a country's requirements, the clinical trial may proceed.

The requirements and process governing the conduct of clinical trials vary from country to country. In all cases, the clinical trials are conducted in accordance with GCP, the applicable regulatory requirements, and the ethical principles that have their origin in the Declaration of Helsinki.

To obtain regulatory approval of an investigational medicinal product under European Union regulatory systems, we must submit a marketing authorization application. The content of the BLA or NDA filed in the United States is similar to that required in the European Union, with the exception of, among other things, country-specific document requirements.

For other countries outside of the European Union, such as countries in Eastern Europe, Latin America or Asia, the requirements governing product licensing, pricing, and reimbursement vary from country to country.

Countries that are part of the European Union, as well as countries outside of the European Union, have their own governing bodies, requirements, and processes with respect to the approval of pharmaceutical and biologic products. If we fail to comply with applicable foreign regulatory requirements, we may be subject to, among other things, fines, suspension or withdrawal of regulatory approvals, product recalls, seizure of products, operating restrictions and criminal prosecution.

Authorization Procedures in the European Union

Medicines can be authorized in the European Union by using either the centralized authorization procedure or national authorization procedures.

- *Centralized procedure.* The EMA implemented the centralized procedure for the approval of human medicines to facilitate marketing authorizations that are valid throughout the European Economic Area, or EEA, which is comprised of the 28 member states of the European Union plus Norway, Iceland, and Lichtenstein. This procedure results in a single marketing authorization issued by the EMA that is valid across the EEA. The centralized procedure is compulsory for human medicines that are: derived from biotechnology processes, such as genetic engineering, contain a new active substance indicated for the treatment of certain diseases, such as HIV/AIDS, cancer, diabetes, neurodegenerative disorders or autoimmune diseases and other immune dysfunctions, and officially designated orphan medicines.

- For medicines that do not fall within these categories, an applicant has the option of submitting an application for a centralized marketing authorization to the European Commission following a favorable opinion by the EMA, as long as the medicine concerned is a significant therapeutic, scientific or technical innovation, or if its authorization would be in the interest of public health.
- *National authorization procedures.* There are also two other possible routes to authorize medicinal products in several European Union countries, which are available for investigational medicinal products that fall outside the scope of the centralized procedure:
- *Decentralized procedure.* Using the decentralized procedure, an applicant may apply for simultaneous authorization in more than one European Union country of medicinal products that have not yet been authorized in any European Union country and that do not fall within the mandatory scope of the centralized procedure.
- *Mutual recognition procedure.* In the mutual recognition procedure, a medicine is first authorized in one European Union Member State, in accordance with the national procedures of that country. Following this, further marketing authorizations can be sought from other European Union countries in a procedure whereby the countries concerned agree to recognize the validity of the original, national marketing authorization.

In some cases, a Pediatric Investigation Plan, or PIP, or a request for waiver or deferral, is required for submission prior to submitting a marketing authorization application. A PIP describes, among other things, proposed pediatric trials and their timing relative to clinical trials in adults.

New Chemical Entity Exclusivity

In the European Union, new chemical entities, sometimes referred to as new active substances, qualify for eight years of data exclusivity upon marketing authorization and an additional two years of market exclusivity. This data exclusivity, if granted, prevents regulatory authorities in the European Union from referencing the innovator's data to assess a generic (abbreviated) application for eight years, after which generic marketing authorization can be submitted, and the innovator's data may be referenced, but not approved for two years. The overall ten-year period will be extended to a maximum of eleven years if, during the first eight years of those ten years, the marketing authorization holder obtains an authorization for one or more new therapeutic indications which, during the scientific evaluation prior to their authorization, are held to bring a significant clinical benefit in comparison with existing therapies.

Accelerated Review

Under the centralized procedure in the European Union, the maximum timeframe for the evaluation of a marketing authorization application is 210 days (excluding clock stops, when additional written or oral information is to be provided by the applicant in response to questions asked by the EMA's Committee for Medicinal Products for Human Use, or CHMP). Accelerated evaluation might be granted by the CHMP in exceptional cases, when a medicinal product is expected to be of a major public health interest, particularly from the point of view of therapeutic innovation. In this circumstance, EMA ensures that the opinion of the CHMP is given within 150 days, excluding clock stops.

Pharmaceutical Coverage, Pricing and Reimbursement

Significant uncertainty exists as to the coverage and reimbursement status of any products for which we obtain regulatory approval. In the United States and markets in other countries, sales of any products for which we receive regulatory approval for commercial sale will depend in part on the availability of coverage and reimbursement from third-party payors. Third-party payors include government authorities, managed care providers, private health insurers and other organizations. The process for determining whether a payor will provide coverage for a product may be separate from the process for setting the reimbursement rate that the payor

will pay for the product. Third-party payors may limit coverage to specific products on an approved list, or formulary, which might not include all of the FDA-approved products for a particular indication. Moreover, a payor's decision to provide coverage for a drug product does not imply that an adequate reimbursement rate will be approved. Adequate third- party reimbursement may not be available to enable us to maintain price levels sufficient to realize an appropriate return on our investment in product development.

Third-party payors are increasingly challenging the price and examining the medical necessity and cost-effectiveness of medical products and services, in addition to their safety and efficacy. In order to obtain coverage and reimbursement for any product that might be approved for sale, we may need to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of our products, in addition to the costs required to obtain regulatory approvals. Our product candidates may not be considered medically necessary or cost-effective. If third-party payors do not consider a product to be cost-effective compared to other available therapies, they may not cover the product after approval as a benefit under their plans or, if they do, the level of payment may not be sufficient to allow a company to sell its products at a profit.

The U.S. government, state legislatures and foreign governments have shown significant interest in implementing cost containment programs to limit the growth of government-paid health care costs, including price controls, restrictions on reimbursement and requirements for substitution of generic products for branded prescription drugs. By way of example, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, collectively, the Affordable Care Act, contains provisions that may reduce the profitability of drug products, including, for example, increased rebates for drugs sold to Medicaid programs, extension of Medicaid rebates to Medicaid managed care plans, mandatory discounts for certain Medicare Part D beneficiaries and annual fees based on pharmaceutical companies' share of sales to federal health care programs. Some of the provisions of the Affordable Care Act have yet to be fully implemented, while certain provisions have been subject to judicial and Congressional challenges. In January 2017, Congress voted to adopt a budget resolution for fiscal year 2017, that while not a law, is widely viewed as the first step toward the passage of legislation that would repeal certain aspects of the Affordable Care Act. Further, on January 20, 2017, President Trump signed an Executive Order directing federal agencies with authorities and responsibilities under the Affordable Care Act to waive, defer, grant exemptions from, or delay the implementation of any provision of the Affordable Care Act that would impose a fiscal burden on states or a cost, fee, tax, penalty or regulatory burden on individuals, healthcare providers, health insurers, or manufacturers of pharmaceuticals or medical devices. Congress also could consider subsequent legislation to replace elements of the Affordable Care Act that are repealed. Thus, the full impact of the Affordable Care Act, or any law replacing elements of it, on our business remains unclear. Adoption of government controls and measures, and tightening of restrictive policies in jurisdictions with existing controls and measures, could limit payments for pharmaceuticals.

In the European Community, governments influence the price of pharmaceutical products through their pricing and reimbursement rules and control of national health care systems that fund a large part of the cost of those products to consumers. Some jurisdictions operate positive and negative list systems under which products may only be marketed once a reimbursement price has been agreed to by the government. To obtain reimbursement or pricing approval, some of these countries may require the completion of clinical trials that compare the cost-effectiveness of a particular product candidate to currently available therapies. Other member states allow companies to fix their own prices for medicines, but monitor and control company profits. The downward pressure on health care costs in general, particularly prescription drugs, has become very intense. As a result, increasingly high barriers are being erected to the entry of new products. In addition, in some countries, cross-border imports from low-priced markets exert a commercial pressure on pricing within a country.

The marketability of any products for which we receive regulatory approval for commercial sale may suffer if the government and third-party payors fail to provide adequate coverage and reimbursement. In addition, an increasing emphasis on cost containment measures in the United States and other countries has increased and we expect will continue to increase the pressure on pharmaceutical pricing. Coverage policies and third-party

reimbursement rates may change at any time. Even if favorable coverage and reimbursement status is attained for one or more products for which we receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

Other Healthcare Laws and Compliance Requirements

If we obtain regulatory approval for any of our product candidates, we may be subject to various federal and state laws targeting fraud and abuse in the healthcare industry. These laws may impact, among other things, our proposed sales, marketing and education programs. In addition, we may be subject to patient privacy regulation by both the federal government and the states in which we conduct our business. The laws that may affect our ability to operate include:

- the federal Anti-Kickback Statute, which prohibits, among other things, persons from knowingly and willfully soliciting, receiving, offering or paying remuneration, directly or indirectly, to induce, or in return for, the purchase or recommendation of an item or service reimbursable under a federal healthcare program, such as the Medicare and Medicaid programs;
- federal civil and criminal false claims laws and civil monetary penalty laws, which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment from Medicare, Medicaid, or other third-party payors that are false or fraudulent;
- the federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, which created new federal criminal statutes that prohibit executing a scheme to defraud any healthcare benefit program and making false statements relating to healthcare matters;
- the federal Physician Payment Sunshine Act, that requires drug and biologics manufacturers to disclose payments and other transfers of value provided to physicians and teaching hospitals;
- HIPAA, as amended by the Health Information Technology and Clinical Health Act, or HITECH, and its implementing regulations, which imposes certain requirements relating to the privacy, security and transmission of individually identifiable health information; and
- state law equivalents of each of the above federal laws, such as anti-kickback and false claims laws that may apply to items or services reimbursed by any third-party payor, including commercial insurers, and state laws governing the privacy and security of health information in certain circumstances, many of which differ from each other in significant ways and may not have the same effect, thus complicating compliance efforts.

The Affordable Care Act broadened the reach of the fraud and abuse laws by, among other things, amending the intent requirement of the federal Anti-Kickback Statute and the applicable criminal healthcare fraud statutes contained within 42 U.S.C. § 1320a-7b. Pursuant to the statutory amendment, a person or entity no longer needs to have actual knowledge of this statute or specific intent to violate it in order to have committed a violation. In addition, the Affordable Care Act provides that the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the civil False Claims Act or the civil monetary penalties statute. Many states have adopted laws similar to the federal Anti-Kickback Statute, some of which apply to the referral of patients for healthcare items or services reimbursed by any source, not only the Medicare and Medicaid programs.

We are also subject to the U.S. Foreign Corrupt Practices Act, or FCPA, which prohibits improper payments or offers of payments to foreign governments and their officials for the purpose of obtaining or retaining business and requires companies to maintain accurate books and records and a system of internal accounting controls. Safeguards we implement to discourage improper payments or offers of payments by our employees, consultants, and others may be ineffective, and violations of the FCPA and similar laws may result in severe criminal or civil sanctions, or other liabilities or proceedings against us, any of which would likely harm our reputation, business, financial condition and result of operations.

If our operations are found to be in violation of any of the laws described above or any other governmental regulations that apply to us, including environmental, health and safety laws and regulations, we may be subject to penalties, including civil and criminal penalties, exclusion from participation in government healthcare programs, such as Medicare and Medicaid and imprisonment, damages, fines and the curtailment or restructuring of our operations, any of which could adversely affect our ability to operate our business and our results of operations.

Employees

As of March 15, 2017, we had 21 full-time or part-time employees, including 11 employees with doctorate level degrees. Of these employees, 16 employees are engaged in research and development activities and 5 employees are engaged in general and administrative activities. None of our employees are represented by labor unions or covered by collective bargaining agreements. We consider the relationship with our employees to be good.

Facilities

We occupy approximately 7,580 rentable square feet of office and laboratory space in Ohio under a lease that expires on June 30, 2018. We have an option to extend the lease term until June 30, 2021. We believe that this office and laboratory space is sufficient to meet our current needs and that suitable additional space will be available as and when needed.

Legal Proceedings

We are not currently subject to any material legal proceedings.

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

The following discussion of the financial condition and results of operations of Aerpio Pharmaceuticals, Inc. should be read in conjunction with the consolidated financial statements and the notes to those statements appearing at the end of this prospectus. Some of the information contained in this discussion and analysis or set forth elsewhere in this prospectus, including information with respect to our plans and strategy for our business, includes forward-looking statements that involve risks and uncertainties. You should read the "Risk Factors" section of this prospectus for a discussion of important factors that could cause actual results to differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis.

Operating Overview

We are a biopharmaceutical company focused on advancing first-in-class treatments for ocular disease. Our lead product candidate, AKB-9778, a small molecule activator of the tie-2 pathway, is being developed for the treatment of diabetic retinopathy ("DR"). Tie-2 signaling is essential for regulating blood vessel development and the stability of mature vessels. We have completed a Phase 2a clinical trial in diabetic macular edema ("DME"), a swelling of the retina that is a common cause of vision loss in patients with DR and intends to initiate a twelve month, double blind Phase 2b clinical trial in patients with DR who have not developed more serious complications such as DME or proliferative diabetic retinopathy. The DR clinical trial will be initiated in the second quarter of 2017.

In addition, we have two pipeline programs. AKB-4924 is a drug candidate for the treatment of inflammatory bowel disease and ARP-1536, humanized monoclonal antibody is a drug candidate for ocular disease. Humanized antibodies are antibodies from non-human species whose protein sequences have been modified to increase their similarity to antibodies produced naturally in humans. We completed a Phase 1a clinical trial in healthy volunteers for AKB-4924 and APR-1536 is currently in preclinical development. Further development on the pipeline programs is subject to receiving additional funding, which we may seek through collaborations with potential strategic and commercial partners.

Our operations to date have been limited to organizing and staffing our company, business planning, raising capital, acquiring and developing our technology, identifying potential product candidates, and undertaking preclinical and clinical studies. We have not generated any revenues to date, nor is there any assurance of future revenues. Our product candidates are subject to long development cycles, and there is no assurance we will be able to successfully develop, obtain regulatory approval for, or market our product candidates. As of March 31, 2017, we had an accumulated deficit of $92.2 million and anticipate incurring additional losses for the next several years.

Our primary source of liquidity to date has been through the private placement offering of our common stock in March 2017 and the historical sales of redeemable convertible preferred stock, common stock and proceeds from convertible debt. The aggregate net proceeds from the private placement offering of our common stock in March 2017 were $37.2 million. In 2016, we raised a total of $12.5 million through the issuance of secured convertible notes. In 2017, we raised a total of $0.3 million through the issuance of secured convertible notes. In 2014, we raised a total of $22.0 million ($21.8 million net of offering costs) through the issuance of redeemable convertible preferred stock. Based on our current plans, we expect that our existing cash and cash equivalents, will enable us to conduct our planned operations into the first quarter of fiscal 2019. We will need to raise additional funds to further advance our clinical research programs, commence additional clinical trials, and commercialize our products, if approved. Future financing alternatives, which may include equity financing, business development arrangements, licensing arrangements and business combination transactions, may not be available to us in the necessary time frame, in the amounts that we need, on terms that are acceptable to us or at all. If we are unable to raise the necessary funds when needed or reduce spending on currently planned activities,

we may not be able to continue the development of our product candidates or we could be required to delay, scale back, or eliminate some or all of our development programs and other operations and will materially harm our business and financial position.

We expect to continue to incur significant expenses and increasing operating losses for the foreseeable future. We expect our expenses will increase substantially in connection with our ongoing activities, as we:

- continue our research and development efforts;
- add personnel to support our clinical development program; and
- operate as a public company.

We are subject to a number of risks similar to other life science companies in the current stage of our life cycle, including, but not limited to, the need to obtain adequate additional funding, possible failure of preclinical testing or clinical trials, competitors developing new technological innovations, and protection of proprietary technology. If we do not successfully mitigate any of these risks, we will be unable to generate revenue or achieve profitability. The accompanying financial statements have been prepared assuming our company will continue as a going concern, which contemplates the realization of assets and payments of liabilities in the ordinary course of business. We had cash and cash equivalents and short-term investments of $35.2 million at March 31, 2017. We believe our existing cash and cash equivalents and short-term investments, will be sufficient to fund currently planned operations into the first quarter of fiscal year 2019.

Basis of Presentation

The unaudited interim financial statements of the Company for the three-months ended March 31, 2017 and 2016, and the audited financials for the fiscal years ended December 31, 2016 and 2015, contained herein, include a summary of our significant accounting policies and should be read in conjunction with the discussion below.

Recent Developments

Merger

On March 15, 2017, our wholly-owned subsidiary, Aerpio Acquisition Corp., a corporation formed in the State of Delaware, or the Acquisition Sub, merged with and into Aerpio Therapeutics, Inc., or Aerpio, a corporation incorporated on November 17, 2011 under the laws of the State of Delaware. Pursuant to this transaction, or the Merger, Aerpio was the surviving corporation and became our wholly-owned subsidiary. We changed our name from Zeta Acquisition Corp II to Aerpio Pharmaceuticals, Inc. All the outstanding stock of Aerpio was converted into shares of our common stock.

At the effective time of the Merger, the legal existence of Acquisition Sub ceased and each 2.3336572 shares of Aerpio common and preferred stock that was issued and outstanding immediately prior to the effective time of the Merger, including share based awards, whether vested or unvested issued under the Aerpio Therapeutics, Inc. 2011 Equity Incentive Plan (the “2011 Plan”), was automatically exchanged for one share of our common stock. In addition, immediately prior to the Merger, the outstanding amounts under certain senior secured convertible notes issued by Aerpio to its pre-Merger noteholders were converted into Aerpio common stock, which were converted in the Merger into shares of our common stock at the same ratio. We issued an aggregate of 18,000,000 shares of our common stock upon such exchange of the outstanding shares of Aerpio common stock. In addition, at the effective time of the Merger, we assumed Aerpio’s 2011 Equity Incentive Plan. At the effective time of the Merger, we assumed the outstanding options under the 2011 Plan and converted them into options to purchase 927,592 shares of our common stock. As a result of the Merger, we acquired the business of Aerpio and will continue the existing business operations of Aerpio as a public reporting company under the name Aerpio Pharmaceuticals, Inc. Immediately after the Merger, Aerpio was converted into a Delaware limited liability company (the “Conversion”).

The Merger was treated as a recapitalization and reverse acquisition for financial reporting purposes. We are the legal acquirer of Aerpio in the transaction. However, Aerpio is considered the acquiring company for accounting purposes since (i) former Aerpio stockholders own in excess of 50% of the combined enterprise on a fully diluted basis immediately following the Merger and Offering, and (ii) all members of the Company's executive management and Board of Directors are from Aerpio. In accordance with the "reverse merger" or "reverse acquisition" accounting treatment, the unaudited condensed consolidated interim financial statements for the period ended March 31, 2017 include the accounts of the Company and its wholly owned subsidiary, Aerpio Therapeutics, LLC. The comparative historical financial statements for periods ended prior to the date of the Merger are the historical financial statements of Aerpio.

The following discussion highlights Aerpio's results of operations and the principal factors that have affected our financial condition as well as our liquidity and capital resources for the periods described, and provides information that management believes is relevant for an assessment and understanding of the statements of financial condition and results of operations presented herein. The following discussion and analysis are based on the Company's unaudited condensed consolidated financial statements as of March 31, 2017 and for each of the three month periods ended March 31, 2017 and 2016, and the audited financial statements of the Company as of and for each of the years ended December 31, 2016 and 2015, contained herein, which we have prepared in accordance with United States generally accepted accounting principles. You should read the discussion and analysis together with such financial statements and the related notes thereto.

Share Cancellation

Following the Merger and Conversion, and immediately prior to the closing of the private placement offering, an aggregate of 4,000,000 of the 5,000,000 shares of our common stock that were held by the pre-Merger stockholders of Zeta Acquisition Corp. II were surrendered for cancellation (the "Share Cancellation").

Offering

Following the Merger, the Conversion and the Share Cancellation, we closed a private placement offering, or the Offering, and sold to accredited investors approximately $40.2 million of our shares of common stock, or 8,049,555 shares, at a price of $5.00 per share, (net proceeds of $37.2 million after deducting placement agent fees and expenses of the offering). In connection with the Offering, we issued warrants to purchase 317,562 shares of our common stock at $5.00 per share to the placement agents for the Offering. The warrants are exercisable for three years. The Offering closed on March 15, 2017.

Components of Statements of Operations

Operating Expenses

Research and Development. Research and development expenses consist primarily of compensation and related costs for personnel, including stock-based compensation, employee benefits and travel. These costs also consist of third-party service providers for our potential product development activities, third-party consulting services, laboratory supplies, research materials, medical equipment, computer equipment, and related depreciation and amortization. We expense research and development expenses as incurred. As we continue to invest in basic research and clinical development of our product candidates, we expect research and development expenses to increase in absolute dollars.

General and Administrative. Our general and administrative expenses consist primarily of compensation and related costs for personnel, including stock-based compensation, employee benefits and travel, for our finance, human resources, regulatory and other administrative personnel. In addition, general and administrative expenses include third-party consulting, legal, audit, accounting services, and facilities costs. We expect general and administrative expenses to increase in absolute dollars following the consummation of the Merger due to additional legal, accounting, insurance, investor relations and other costs associated with being a public company, as well as other costs associated with growing our business.

Interest (Expense) Income, Net

Interest income consists primarily of interest income received on our cash and cash equivalents. Interest expense consists primarily of interest related to our secured convertible promissory notes issued in 2016 and 2017.

Grant Income

Grant income is recognized as earned based on contract work performed.

Results of Operations for the Three Months Ended March 31, 2017 and 2016 (Unaudited)

The following tables set forth our results of operations:

	Three Months Ended March 31,	
	2017	2016
Operating expenses:		
Research and development	$ 2,255,584	$ 2,989,558
General and administrative	2,504,001	1,215,885
Total operating expenses	4,759,585	4,205,443
Operating loss	(4,759,585)	(4,205,443)
Other:		
Grant income	35,657	8,670
Interest (expense) income, net	(271,775)	1,078
Other income, net	—	997
Total other (expense) income, net	(236,118)	10,745
Net loss and comprehensive loss	$ (4,995,703)	$ (4,194,698)

Research and Development

Research and development expenses for the three months ended March 31, 2017 decreased $0.7 million, or 24.6%, compared to the three months ended March 31, 2016. This decrease was across all three of our programs and was primarily attributable to the development stage of our lead program and companywide discretionary cost constraints put in place during the 2017 period as we pursued financing alternatives.

The decrease in spending in our lead program, AKB-9778, for the three months ended March 31, 2017 from the corresponding period in 2016 is primarily attributed to reductions in costs associated with conducting a toxicology study in the 2016 period, which were completed prior to 2017. The reduction in toxicology expense is partially offset by an increase in external development expenses for drug formulation and expenses to prepare for the initiation of a Phase 2b clinical trial in diabetic retinopathy that is planned to begin in the second quarter of 2017.

The decrease in spending in our AKB-4924 program for the three months ended March 31, 2017 from the corresponding period in 2016, is primarily attributable to the expense associated with toxicology and pharmacokinetics studies during the 2016 period, which were completed prior to 2017. The reduction in costs associated with the toxicology studies is offset by costs associate with the initiation of the first human clinical study of this compound and includes an increase in spending on personnel related costs.

The decrease in spending in the ARP-1536 program for the three months ended March 31, 2017 from the corresponding period in 2016 is primarily due to cell line development expenses incurred in the 2016 period, which were completed prior to 2017 and had minimal activity in the 2017 period to conserve cash until the completion of a financing event.

General and Administrative.

General and administrative expenses in the three months ended March 31, 2017, increased $1.3 million, or 105.9%, compared to the three months ended March 31, 2016. This increase was primarily attributable to legal and accounting costs associated with the Merger and related transactions.

Grant income

Grant income is recognized as earned based on contract work performed. Grant income amounts can vary greatly from period to period depending on the funding and needs of the party for whom we perform the requested services.

Interest (expense) income, Net

Interest expense in the three months ended March 31, 2017 is primarily related to interest on the senior secured convertible notes issued during 2016 and in January 2017, offset in part by a small amount of interest income. The principal and accrued interest on the secured convertible notes was converted into common stock on March 15, 2017, in connection with the Merger. We completed three note financings in fiscal 2016 totaling an aggregate principal amount of approximately $12.5 million. The financings were funded in four tranches', beginning with one in April 2016 for $4.5 million, one in July 2016 for $4.5 million, one in October for $3.5 million and one in January 2017 for $0.3 million. The notes had interest at the rate of eight percent (8%) per annum, compounded annually. Interest income reflects amounts earned on invested cash balances in short term money market instruments.

Other income, net

Other income represents amounts received from Akebia Therapeutics, Inc. (Akebia) for services rendered under the shared services agreements. The agreements expired in 2016.

Liquidity and Capital Resources

Since inception, we have incurred significant net losses and negative cash flows from operations. For the three months ended March 31, 2017 and 2016, we had net losses of $5.0 million and $4.2 million, respectively. At March 31, 2017 and December 31, 2016, we had an accumulated deficit of $92.2 million and $86.2 million, respectively.

At March 31, 2017, we had cash and cash equivalents and short term investments of $35.2 million. To date, we have financed our operations principally through the Offering, private placements of our redeemable convertible preferred stock, common stock and issuances of secured convertible promissory notes. Based on our current plans**,** we expect that our existing cash and cash equivalents, will enable us to conduct our planned operations into the first quarter of fiscal 2019.

We could potentially use our available financial resources sooner than we currently expect, and we may incur additional indebtedness to meet future financing needs. Adequate additional funding may not be available to us on acceptable terms or at all. In addition, although we anticipate being able to obtain additional financing through non-dilutive means, we may be unable to do so. Our failure to raise capital as and when needed could have significant negative consequences for our business, financial condition and results of operations. Our future capital requirements and the adequacy of available funds will depend on many factors, including those set forth in the section titled "Risk Factors."

The following table summarizes our cash flows for the periods presented:

	Three Months Ended March 31,	
	2017	2016
Net cash used in operating activities	$ (3,929,121)	$ (3,873,127)
Net cash used in investing activities	(2,208)	(110,449)
Net cash provided by financing activities	37,460,744	—
Net increase (decrease) in cash and cash equivalents	$ 33,529,415	$ (3,983,576)

Operating Activities

We have historically experienced negative cash outflows as we developed AKB-9778, ARP-1536 and AKB-4924. Our net cash used in operating activities primarily results from our net loss adjusted for non-cash expenses and changes in working capital components. Our primary uses of cash from operating activities are amounts due to contract research organizations for the conduct of our clinical programs and employee-related expenditures for research and development, and general and administrative activities. Our cash flows from operating activities will continue to be affected principally by increased spending to advance of our product candidates in the clinic, personnel to support those activities and other operating and general administrative activities.

For the three months ended March 31, 2017, operating activities used approximately $3.9 million in cash, primarily as a result of our net loss of $5.0 million, offset by approximately $0.6 million from changes in working capital and $0.5 million in non-cash charges that consisted of stock compensation expense, non-cash interest expense, amortization of debt issuance costs and depreciation expense. For the three months ended March 31, 2016, operating activities used $3.9 million in cash, primarily as a result of our net loss of $4.2 million, offset by approximately $0.2 million net change in our working capital, and $0.1 million of non-cash charges consisting of stock compensation expense and depreciation expense.

Investing Activities

Cash used in investing activities for both three month periods ended March 31, 2017 and 2016 was due to capital expenditures to support our operations.

Financing Activities

During the three months ended March 31, 2017, we received net proceeds of $37.2 million from the sale of common stock at $5.00 per share, issued in the Offering and $0.3 million in January from an extension to the Aerpio senior secured convertible notes.

On March 31, 2016, Aerpio entered into a senior secured convertible note financing with certain preferred stock investors of Aerpio. The secured convertible notes accrued interest at 8% per annum, compounded annually. Each of the secured convertible notes were also subject to mandatory prepayment and were also convertible into preferred stock of Aerpio upon the occurrence of certain events, as described in the Note Agreements.

We received proceeds from the first tranche in April 2016 and subsequent tranches in July 2016, October 2016 and January 2017. The outstanding principal and accrued interest under the secured convertible notes was converted into shares of Aerpio common stock immediately prior to the effective time of the Merger, and exchanged for shares of our common stock pursuant to the Merger.

Results of Operations for the Year Ended December 31, 2016 and 2015

The following tables set forth our results of operations:

	Year Ended December 31	
	2016	**2015**
Operating expenses:		
Research and development	**$ 11,367,590**	$ 11,625,404
General and administrative	**5,265,995**	5,861,151
Total operating expenses	**16,633,585**	17,486,555
Operating loss	**(16,633,585)**	(17,486,555)
Other:		
Grant income	**131,281**	369,688
Interest (expense) income, net	**(482,204)**	19,622
Other income, net	**997**	27,022
Total other (expense) income, net	**(349,926)**	416,332
Net loss and comprehensive loss	**$ (16,983,511)**	$ (17,070,223)

Research and Development

Research and development expenses in 2016 decreased $0.3 million, or 2.2%, compared to 2015. This decrease was primarily attributable to a decrease in spending on our lead program AKB 9778 of $2.1 million, offset by an increase in spending for our AKB 4924 program of $1.1 million and an increase in spending on our ARP 1536 program of $0.8 million.

The decrease in spending in the AKB 9778 program for the year ended December 31, 2016 from the corresponding period in 2015 is primarily attributed to reductions in costs to develop alternative formulations of our drug product candidate and the conclusion of our Phase 2a study in Diabetic Macular Edema in fiscal 2015. These reductions were offset by small increases in spending for non-clinical related studies and in personnel related costs as we began to prepare for the next human clinical study of this compound.

The increase in spending in our AKB 4924 program for the year ended December 31, 2016 from the corresponding period in 2015 is primarily attributable to the initiation of the first human clinical study of this compound and to a lesser degree an increase in spending on personnel related costs, costs to develop and make drug product and regulatory related costs offset by a reduction in expenses for non-clinical toxicology studies.

The increase in spending in the ARP 1536 program for the year ended December 31, 2016 from the corresponding period in 2015 is primarily due to drug substance development costs and to a lesser extent an increase in personnel related costs.

General and Administrative

General and administrative expenses in 2016 decreased $0.6 million, or 10.2%, compared to 2015. This decrease was primarily attributable to reduced spending on our patent prosecution and support costs offset by increased spending for professional service related costs and higher personnel related costs.

Grant income

Grant income is recognized as earned based on contract work performed. Grant income amounts can vary greatly from period to period depending on the funding and needs of the party for whom we perform the requested services.

Interest (expense) income, net

Interest expense in fiscal 2016 is primarily related to interest on the senior secured convertible notes issued during the year, offset in part by a small amount of interest income. We completed three note financings in fiscal 2016 totaling an aggregate principal amount of approximately $12.5 million. The financings were done in the three separate tranche's over the course of 2016, one in March and April 2016 for $4.5 million, one in July 2016 for $4.5 million and one in October for $3.5 million. The notes bear interest at the rate of eight percent (8%) per annum, compounded annually, until paid in full or converted as provided in the note agreements. In fiscal 2015, there was no interest expense. Interest income reflects amounts earned on invested cash balances in short term money market instruments.

Other income, net

When we were spun out of Akebia in 2011, we continued to provide some services to Akebia until they could begin to establish their own capability provide such services. The reduction in amounts reimbursed from Akebia in fiscal 2016 from fiscal 2015, reflects a reduction in the amount and number of services provided to Akebia from period to period. The agreements expired in 2016.

Liquidity and Capital Resources

Since inception,we have incurred significant net losses and negative cash flows from operations. For the years ended December 31, 2015 and 2016, we had net losses of $17.1 million and $17.0 million, respectively. At December 31, 2015 and 2016, we had an accumulated deficit of $66.6 million and $86.2 million, respectively.

At December 31, 2015 and 2016, we had cash and cash equivalents and short term investments of $5.2 million and $1.6 million, respectively. We have financed our operations principally through private placements of our convertible preferred stock and issuances of convertible promissory notes. Through December 31, 2016, we have received proceeds of $54.0 million from the issuance of shares of our convertible preferred stock and approximately $12.5 million from the issuance of convertible notes. In January 2017, we received proceeds of approximately $0.3 million from the issuance of convertible notes.

The following table summarizes our cash flows for the periods presented:

	Years Ended December 31,	
	2016	**2015**
Net cash used in operating activities	**$ (15,718,144)**	$ (17,884,682)
Net cash used in investing activities	**(113,297)**	(41,037)
Net cash provided by financing activities	**12,296,924**	3,000
Net decrease in cash and cash equivalents	**$ (3,534,517)**	$ (17,922,719)

Operating Activities

We have historically experienced negative cash outflows as we developed AKB-9778, ARP-1536 and AKB-4924. Our net cash used in operating activities primarily results from our net loss adjusted for non-cash expenses and changes in working capital components. Our primary uses of cash from operating activities are amounts due to contract research organizations for the conduct of our clinical programs and employee-related expenditures for research and development, and general and administrative activities. Our cash flows from operating activities will continue to be affected principally by increased spending to advance of our product candidates in the clinic, personnel to support those activities and other operating activities.

For the year ended December 31, 2016, operating activities used approximately $15.7 million in cash, primarily as a result of our net loss of $17.0 million, offset by approximately $0.5 million from changes in working

capital and $0.8 million in non-cash charges that consisted of stock compensation expense, interest expense on the convertible notes and depreciation expense. For the year ended December 31, 2015, operating activities used $17.9 million in cash, primarily as a result of our net loss of $17.1 million and a $1.3 million net change in our working capital, mostly a reduction in our accounts payable and accrued expense balances, offset by non-cash charges of approximately $0.5 million consisting of stock compensation expense and depreciation expense.

Investing Activities

Cash used in investing activities for both twelve month periods ended December 31, 2016 and 2015 was due to capital expenditures to support our operations.

Financing Activities

For the year ended December 31, 2016, virtually all of the cash from financing activities relates to the completion of a senior secured convertible financings. In March 2016, Aerpio entered into a senior secured convertible note financing, which we refer to as the Convertible Notes or Convertible Note Financing totaling $9.0 million with certain preferred stock investors of Aerpio. In October 2016, Aerpio entered into an additional senior secured convertible financing totaling $3.5 million with certain preferred stock investors of Aerpio. The Convertible Notes accrued interest at 8% per annum, compounded annually. Aerpio incurred approximately $0.1 million of costs in association with the issuance of the Convertible Notes that were amortized over the seven month expected life of the Convertible Notes from the date of issuance. Each of the Convertible Notes were also subject to mandatory prepayment and were also convertible into preferred shares of Aerpio upon the occurrence of certain events, as described in the Note Agreements. The outstanding principal and accrued interest under the Convertible Notes were converted into shares of Aerpio common stock immediately prior to the Effective Time, and exchanged for shares of our Common Stock pursuant to the Merger.

During 2015, financing activities provided a small amount in cash from the exercise of stock options.

Contractual Obligations and Commitments of Aerpio

The following table summarizes Aerpio's contractual obligations and commitments as of December 31, 2016 that will affect our future liquidity:

	2017	2018	2019 and Thereafter	Total
Operating leases	$ 104,440	$52,978	$ —	$ 157,418
All other operating commitments	2,761,501	—	—	2,761,501
Total commitments	$2,865,941	$52,978	$ —	$2,918,919

Aerpio's commitment for operating leases relates to its lease of office space in Cincinnati, Ohio.

Aerpio enters into contracts in the normal course of business with clinical sites for the conduct of clinical trials, CROs for preclinical research studies, professional consultants for expert advice and other vendors for clinical supply manufacturing or other services. These contracts generally provide for termination on notice, and therefore are cancelable contracts.

Off-Balance Sheet Arrangements

During the three months ended March 31, 2017 and the years ended December 31, 2016 and 2015, we did not have any off-balance sheet arrangements as defined by applicable SEC regulations.

Critical Accounting Policies and Estimates

Our consolidated financial statements are prepared in accordance with generally accepted accounting principles in the United States, or GAAP. The preparation of these financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, expenses and related disclosures. We evaluate our estimates and assumptions on an ongoing basis. Our estimates are based on historical experience and various other assumptions that we believe to be reasonable under the circumstances. Our actual results could differ from these estimates.

We believe that the assumptions and estimates have the greatest potential impact on our financial statements. Therefore, we consider these to be our critical accounting policies and estimates. For further information on all of our significant accounting policies, see the notes to our consolidated financial statements.

Prepaid and Accrued Research and Development Expenses

As part of the process of preparing our consolidated financial statements, we are required to estimate our prepaid and accrued research and development expenses. This process involves reviewing open contracts and purchase orders, communicating with our personnel to identify services that have been performed on our behalf and estimating the level of service performed and the associated cost incurred for the service when we have not yet been invoiced or otherwise notified of the actual cost. The majority of our service providers invoice us monthly in arrears for services performed. We make estimates of our prepaid and accrued research and development expenses as of each balance sheet date in our financial statements based on facts and circumstances known to us at the time. We confirm the accuracy of estimates with the service providers and make adjustments if necessary. Examples of estimated prepaid and accrued research and development expenses include expenses for:

- Clinical Research Organizations (“CROs”) in connection with clinical studies;
- Investigative sites in connection with clinical studies;
- Vendors in connection with preclinical development activities; and
- Vendors related to product manufacturing, development and distribution of clinical materials.

We base our expenses related to clinical studies on our estimates of the services received and efforts expended pursuant to contracts with multiple CROs that conduct and manage clinical studies on our behalf. The financial terms of these agreements are subject to negotiation, vary from contract to contract and may result in uneven payment flows. The scope of services under these contracts can be modified and some of the agreements may be cancelled by either party upon written notice. There may be instances in which payments made to our vendors will exceed the level of services provided and result in a prepayment of the clinical expense. Payments under some of these contracts depend on factors such as the successful enrollment of subjects and the completion of clinical study milestones. In accruing service fees, we estimate the time period over which services will be performed and the level of effort to be expended in each period. If the actual timing of the performance of services or the level of effort varies from our estimate, we adjust the accrual or prepaid accordingly.

Although we do not expect our estimates to be materially different from amounts actually incurred, if our estimates of the status and timing of services performed differ from the actual status and timing of services performed we may report amounts that are too high or too low in any particular period. To date, there have been no material differences between our estimates and the amount actually incurred.

Stock-Based Compensation

We issue stock-based awards generally in the form of stock options and restricted stock. We account for our stock-based compensation awards in accordance with FASB ASC Topic 718, Compensation—Stock Compensation, or ASC 718. ASC 718 requires all stock-based payments to employees, including grants of

employee stock options and restricted stock and modifications to existing stock awards to be recognized in the statements of operations and comprehensive loss based on their fair values. Described below is the methodology we have utilized in measuring stock-based compensation expense.

We estimate the fair value of our options to purchase shares of common stock to employees using the Black-Scholes option pricing model, which requires the input of highly subjective assumptions, including (a) the expected stock price volatility, (b) the calculation of the expected term of the award, (c) the risk-free interest rate and (d) expected dividends. Due to the lack of a public market for the trading of our common stock and a lack of company-specific historical and implied volatility data, we have based our estimate of expected volatility on the historical volatility of a group of similar companies that are publicly traded. The historical volatility is calculated based on a period of time commensurate with the expected term assumption. The computation of expected volatility is based on the historical volatility of a representative group of companies with similar characteristics to our company, including stage of product development and life science industry focus. We are a development stage company in an early stage of product development with no revenues and the representative group of companies has certain similar characteristics. We believe the group selected has sufficient similar economic and industry characteristics, and includes companies that are most representative of our company. We use the simplified method as prescribed by the SEC Staff Accounting Bulletin No. 107, Share-Based Payment, to calculate the expected term for options granted to employees as we do not have sufficient historical exercise data to provide a reasonable basis upon which to estimate the expected term. The expected term is applied to the stock option grant group as a whole, as we do not expect substantially different exercise or post-vesting termination behavior among our employee population. The risk-free interest rate is based on a treasury instrument whose term is consistent with the expected life of the stock options. The expected dividend yield is assumed to be zero as we have never paid dividends and have no current plans to pay any dividends on our common stock, similar to our peer group. The grant date fair value of restricted stock award grants is based on the estimated value of our common stock at the date of grant.

Our stock-based awards are subject to service-based vesting conditions. Compensation expense related to awards to employees with service-based vesting conditions is recognized on a straight-line basis based on the grant date fair value over the associated service period of the award, which is generally the vesting term.

During the three months ended March 31, 2017 and 2016, stock-based compensation expense was approximately $0.2 million and $0.1 million, respectively. As of March 31, 2017, we had $0.3 million of total unrecognized stock-based compensation costs for stock options, which we expect to recognize over a weighted-average period of 2.1 years. As of March 31, 2016, we had $0.4 million of total unrecognized stock-based compensation costs for restricted stock awards, which we expect to recognize over a weighted-average period of 1.4 years.

During 2015 and 2016, stock-based compensation expense was $0.5 million for each of the two fiscal year periods. As of December 31, 2016, we had $0.3 million of total unrecognized stock-based compensation costs for stock options, which we expect to recognize over a weighted-average period of 2.4 years. As of December 31, 2016, we had $0.4 million of total unrecognized stock-based compensation costs for restricted stock awards, which we expect to recognize over a weighted average period of 1.7 years.

Common Stock Valuations. The fair value of the common stock was determined by our board of directors, which intended all stock options granted to be exercisable at a price per share not less than the per share fair value of our common stock underlying those options on the date of grant. As a privately held company, the valuations of our common stock were determined in accordance with the guidelines outlined in the American Institute of Certified Public Accountants Practice Aid, *Valuation* of *Privately-Held-Company Equity Securities Issued as Compensation*, or AICPA Practice Aid. The assumptions used in the valuation model were based on future expectations combined with management judgment. In the absence of a public trading market, our board of directors, with input from management, exercised significant judgment and considered numerous objective

and subjective factors to determine the fair value of our common stock as of the date of each option grant, including the following factors:

- valuations performed by unrelated third-party specialists;
- the prices, rights, preferences, and privileges of our convertible preferred stock relative to those of our Common Stock;
- the prices of Aerpio's former convertible preferred stock sold to outside investors in arm's-length transactions;
- the lack of marketability of our Common Stock;
- our actual operating and financial performance;
- current business conditions and projections;
- our hiring of key personnel and the experience of our management;
- our stage of development;
- the likelihood of achieving a liquidity event, such as a public offering or a merger or acquisition of our business given prevailing market conditions;
- the illiquidity of stock-based awards involving securities in a private company;
- the market performance of comparable publicly traded companies; and
- the U.S. and global capital market conditions.

For the valuation of our common stock at December 31, 2016, we used the hybrid method. As described in the AICPA's accounting and valuation guide, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*, the hybrid method is a hybrid between the probability-weighted expected returns method (PWERM) and the option-pricing method (OPM). We considered a "go-public scenario", in which our preferred shares convert to common stock, and a second scenario, in which equity value is allocated using the OPM. We used the guideline public company method under the market approach to value our equity. We estimated our equity value based on a multiple of paid-in capital as indicated by a group of guideline public companies. The group consisted of clinical-stage drug development companies which completed initial public offerings in the six months preceding our appraisal date. In addition, for each of the guideline companies, we considered the increase, or step-up, in per share value from the preferred financing preceding the public offering to the common stock value in the public offering. We also considered the equity value of each guideline company, not including the proceeds of the public offering.

The OPM treats common stock and preferred stock as call options on the total equity value of a company, with exercise prices based on the value thresholds at which the allocation among the various holders of a company's securities changes. Under this method, the common stock has value only if the funds available for distribution to stockholders exceed the value of the preferred liquidation preference at the time of a liquidity event, such as a strategic sale, merger or initial public offering. For each Black-Scholes calculation in the OPM, the option "strike price" is determined by the company's capital structure. Additional inputs to the OPM include the estimated time to liquidity and estimated equity volatility.

We applied a discount for lack of marketability to the values indicated for the common stock in the go- public and OPM scenarios. Our estimate of the appropriate discount for lack of marketability relied on an Asian put option calculation.

The following table summarizes the significant assumptions used in the hybrid method to determine the fair value of our common stock as of December 31, 2016:

	Go-Public Scenario	OPM
Key assumptions		
Probability weighting	50%	50%
Years to liquidity	0.2	2.8
Weighted-average cost of equity	25%	
Annual volatility		61%
Risk-free interest rate		1.4%
Discount for lack of marketability (DLOM)	5%	23%

Based on these assumptions, we estimated the fair value of our common stock on a pre-Merger basis to be $1.20 as of December 31, 2016, ($2.80 as of December 31, 2016 on an as converted basis to reflect the effect of the Merger).

There are significant judgments and estimates inherent in the determination of these valuations. These judgments and estimates include assumptions regarding our future performance, including the successful enrollment and completion of our clinical studies as well as the determination of the appropriate valuation methods. If we had made different assumptions, our stock-based compensation expense could have been different. The foregoing valuation methodologies are not the only methodologies available and they will not be used to value our common stock once this offering is complete. We cannot make assurances as to any particular valuation for our common stock. Accordingly, we caution you not to place undue reliance on the foregoing valuation methodologies as an indicator of future stock prices.

For the valuation of our common stock at March 31, 2017, we used $5.00 per share; the share price paid by outside investors in the Offering that closed on March 15, 2017. There were no stock awards granted or issued in the three months ended March 31, 2017.

JOBS Act Accounting Election

We are an “emerging growth company” within the meaning of the JOBS Act. Section 107 of the JOBS Act provides that an emerging growth company can take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act for complying with new or revised accounting standards. Thus, an emerging growth company can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have irrevocably elected not to avail ourselves of this extended transition period and, as a result, we will adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for other public companies that are not emerging growth companies.

Quantitative and Qualitative Disclosures about Market Risk

Interest Rate Risk

Aerpio’s cash balance as of March 31, 2017 and December 31, 2016 consisted of cash held in an operating account that earns nominal interest income. Therefore, there was no or minimal interest rate risk.

Recently Issued and Adopted Accounting Pronouncements

We review new accounting standards to determine the expected financial impact, if any, that the adoption of each such standard will have. For the recently issued accounting standards that we believe may have an impact on our financial statements, see the section entitled “Notes to Financial Statements – Note 2 – Summary of Significant Accounting Policies” in the financial information attached hereto as Exhibit 99.1.

Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

Effective with the Merger on March 15, 2017, the Company determined Ernst & Young LLP would serve as the ongoing independent registered public accounting firm. Prior to the Merger, LWBJ, LLP served as Zeta Acquisition Corp. II's independent registered public accounting firm.

The reports of LWBJ, LLP on Zeta Acquisition Corp. II's financial statements as of and for the years ended December 31, 2016 and 2015 did not contain an adverse opinion or a disclaimer of opinion, and were not qualified or modified as to uncertainty, audit scope or accounting principles.

During the years ended December 31, 2016 and 2015, and through the effective date of the Merger, there were no (a) disagreements with LWBJ, LLP on any matter of accounting principles or practices, financial statement disclosure, or auditing scope or procedure, which disagreements, if not resolved to LWBJ, LLP's satisfaction, would have caused LWBJ, LLP to make reference to the subject matter thereof in connection with its reports for such years; or (b) reportable events, as described under Item 304(a)(1)(v) of Regulation S-K.

During the fiscal years ended December 31, 2015 and 2016 and the subsequent interim period through the date of LWBJ's dismissal, neither Zeta Acquisition Corp. II nor anyone acting on its behalf consulted Ernst & Young LLP regarding the application of accounting principles to a specified transaction, either completed or proposed or the type of audit opinion that might be rendered on Zeta Acquisition Corp. II's financial statements. Zeta Acquisition Corp. II did not consult with Ernst & Young LLP regarding any of the matters or events set forth in Item 304(a)(2) of Regulation S-K.

The Company provided LWBJ, LLP with a copy of the disclosures it is making in this Registration Statement on Form S-1 and requested from a letter addressed to the Securities and Exchange Commission indicating whether it agrees with such disclosures. A copy of LWBJ, LLP's letter dated June 9, 2017, is attached as Exhibit 16.1.

Contemporaneous with the Merger, the Audit Committee engaged Ernst & Young LLP as the Company's independent registered public accounting firm for the year ended December 31, 2017.

DIRECTORS AND EXECUTIVE OFFICERS

The following table sets forth certain information concerning our executive officers and directors as of March 15, 2017:

Name	Age	Position(s)
Executive Officers		
Joseph Gardner	61	President, Chief Executive Officer and Director
Steve Pakola	48	Chief Medical Officer
Kevin G. Peters	60	Chief Scientific Officer
James Murphy	60	Interim Chief Financial Officer
Non-Employee Directors		
Muneer Satter(3)	56	Director, Chairman
Paul M. Weiss(2)	59	Director
Caley Castelein(1)	46	Director
Anupam Dalal(2)	45	Director
Steven Prelack(1)	59	Director
Chau Khuong(3)	41	Director
Pravin Dugel(1)	53	Director

(1) Member of audit committee.
(2) Member of compensation committee.
(3) Member of the nominating and corporate governance committee.

Executive Officers

Joseph Gardner, Ph.D. has served as Aerpio's Chief Executive Officer and President since December 2011. Dr. Gardner co-founded Akebia Therapeutics in 2007 and has been an Advisor for Akebia since 2013. He served as the Chief Executive Officer, President and as a member of the board of directors of Akebia until September 2013. Prior to that, Dr. Gardner worked in pharmaceutical discovery and development at Procter & Gamble Pharmaceuticals for 23 years, including two years in P&G's health care mergers and acquisition group and 10 years managing discovery licensing. He served as a Director of Chemistry and Intellectual Property Management of the Pharmaceutical Division of Procter & Gamble, and as a Director of Juvenile Diabetes Research Foundation International Inc. Dr. Gardner received his B.S. with honors in Biological Chemistry from Tulane University in 1977, earned his M.S. in Chemistry in 1980 from Utah State University and Ph.D. in 1983 in Medicinal Chemistry from University of Wisconsin. We believe that based on Dr. Gardner's knowledge of our company, industry and business and his service as our Chief Executive Officer and President, Dr. Gardner is qualified to serve on our board of directors.

Steve Pakola, M.D. has served as Aerpio's Chief Medical Officer since October 2015. Since May 2012, Dr. Pakola has served as the Chief Medical Officer of Amakem NV and the Chief Medical Officer, Senior Vice President of Clinical Development and as Director at ThromboGenics NV from 2000 to 2012. Previously, Dr. Pakola served as an Associate Director of Cardiovascular Clinical Research at Boehringer-Ingelheim Pharmaceuticals, where he served as Global Medical Lead on the Lipid-Lowering Development Programme, as well as USA Medical Lead for the Direct Thrombin Inhibitor Development Programme. From 1996 to 1998, Dr. Pakola served in senior-level clinical development positions at Quintiles Cardiovascular Therapeutics and Organon. Dr. Pakola received his B.A and his MD from the University of Pennsylvania.

Kevin G. Peters, M.D., Ph.D. has served as Aerpio's Chief Scientific Officer since November 2011. Dr. Peters guided the development of AKB-9778 while at Akebia Therapeutics, and continues to be in charge of scientific discovery and development for Aerpio. From 2006 to 2010 he served as Medical Director of Cardiovascular and Metabolic Disease in Global and Discovery Medicine at Bristol Myers Squibb and from 1998 to 2006 he served as head of Therapeutic Angiogenesis research at P&G Pharmaceuticals. He served as a

Member of the Scientific Advisory Board of Akebia. Dr. Peters served as an Associate Professor of Medicine and Pharmacology in the Division of Cardiology at Duke University Medical Center. Dr. Peters received his M.D. from the University of Iowa, Ph.D. and B.A. from Augustana College.

James Murphy has served as Aerpio's Chief Financial Officer since March 2014. From 2012 to 2017. Mr. Murphy has provided CFO Services primarily to emerging life sciences companies through both Danforth Advisors and Firmus CFO. From 2004 to 2012, he served as a vice president and chief financial officer for OXiGene. Mr. Murphy has experience in senior financial management positions, including at publicly-held companies in the healthcare, medical device and pharmaceutical industries. He also served as the Vice President of Finance for Whatman Inc. where he supervised the successful integration of Hemasure. He had previously served as Senior Vice President and CFO of Hemasure and as a Corporate Controller of Sepracor. Mr. Murphy received his B.A. in economics and accounting from the College of the Holy Cross and is a Certified Public Accountant.

Board Composition

Non-Employee Directors

Muneer A. Satter has served as a member of Aerpio's board of directors since October 2013. Mr. Satter has been Founder and Managing Partner of Satter Medical Technology Partners, L.P. since 2016, Chairman of Satter Investment Management LLC since 2012, and he also manages the Satter Foundation. Prior to Satter Investment Management, Mr. Satter was a partner at Goldman Sachs where he spent 24 years in various roles, most recently as the Global Head of the Mezzanine Group in the Merchant Banking Division, where he raised and managed over $30 billion of assets. Mr. Satter is co-chairman of the board of directors of Vital Therapies, Inc. and Linq3 Technologies LLC, chairman of the board of directors of Akebia Therapeutics and Restorsea Holdings, LLC and a director of Annexon Biosciences. He also serves as vice chairman of Goldman Sachs Foundation and GS Gives, is a director of World Business Chicago, is on the Board of Advisors of the American Enterprise Institute, is on the Board of Directors of the Navy SEAL Foundation, and is on the Board of Trustees of Northwestern University where he is Chairman of the Finance Committee. Mr. Satter received a B.A. in Economics from Northwestern University, a J.D. from Harvard Law School and an M.B.A. from Harvard Business School. We believe that Mr. Satter is qualified to serve on our board of directors due to his extensive investment experience.

Paul M. Weiss Ph.D. has served on Aerpio's board of directors since November 2011. Since 2006, Dr. Weiss has been Managing Director of Venture Investors. From 2001 to 2006 Dr. Weiss served as the President at Gala Design, which was sold to Cardinal Health (now part of Catalent). From 1997 to 2000, Dr. Weiss served as the VP of Business Development/VP of Technology and Product Licensing at 3-Dimensional Pharmaceuticals (IPO and subsequent sale to Johnson & Johnson). Prior to that, Dr. Weiss worked as Director of Licensing for the pharmaceutical company Wyeth-Ayerst (now part of Pfizer). Currently, he also serves as a director at Euthymics Bioscience, FluGen, Madison Vaccines, and Neurovance. He served as a director of Akebia Therapeutics and Tissue Regeneration Systems. Dr. Weiss holds a Ph.D. in Biochemistry and an M.B.A. from the University of Wisconsin-Madison and a B.Sc. in Biochemistry from Carleton University Institute of Biochemistry. We believe Dr. Weiss is qualified to serve on our board based on his industry experience and service on multiple boards.

Caley Castelein, M.D. has served on Aerpio's board of directors since March 2017. Dr. Castelein is the Founder and has been a Managing Director for Kearny Venture Partners since 2006. Dr. Castelein is also the Founder and has been the Managing Director for KVP Capital since 2013. He is a director for ViewRay, Alivecor, Boreal, Newbridge Pharmaceuticals, WellPartner, and Waterstone Pharmaceuticals. Dr. Castelein received his M.D. from University of California, San Francisco and his A.B. in Biology from Harvard University. We believe that Dr. Castelein is qualified to serve as a director based on his industry experience and service on multiple company boards.

Anupam Dalal, M.D. has served on Aerpio's board of directors since November 2011. Since August 1, 2016, Dr. Dalal has been working at Acuta Capital. From 2006 to 2016, Dr. Dalal was the Managing Director of Kearny Venture Partners. He was a Founder and Managing Member of KVP Capital. He served as a director of Akebia Therapeutics from 2008 to 2016. Dr. Dalal received an M.D. degree from the University of California in San Francisco with honors; an M.B.A., with distinction, from Harvard Business School; and a B.A. degree in Economics, Phi Beta Kappa and highest honors, from the University of California at Berkeley. We believe that Dr. Dalal is qualified to serve as a director based on his industry experience.

Steven Prelack has served on Aerpio's board of directors since March 2017. Mr. Prelack has been the Chief Operating Officer and Senior Vice President of VetCor since 2010. He is a director at Galectin Therapeutics and Pieris, Mr. Prelack holds a CPA and has a B.B.A. in Finance and Accounting from the University of Massachusetts, Amherst. We believe Mr. Prelack is qualified to serve as a director based on his industry experience and service on multiple company boards.

Chau Khuong has served on Aerpio's board of directors since April 2014. Since 2003, Mr. Khuong has been a Private Equity Partner at OrbiMed Advisors. He is currently on the boards of Pieris Pharmaceuticals, Synlogic, Cerapedics, Nabriva Therapeutics AG, and Inspire Medical Systems. Mr. Khuong holds a B.S. degree in Molecular, Cellular and Developmental Biology and a Master's in Public Health from Yale University. We believe that Mr. Khoung is qualified to serve as a director based on his industry experience and service on multiple company boards.

Pravin U. Dugel, M.D. has served as a member of Aerpio's board of directors since March 2017. Since 1994, Dr. Dugel has served as the Managing Partner of Retinal Consultants of Arizona and is a Founding Member of the Spectra Eye Institute. He is a Clinical Professor at the USC Roski Eye Institute, Keck School of Medicine at the University of Southern California. Dr. Dugel serves on the Advisory Board of Acucela, Inc. and as a member of the Scientific Advisory Board at MacuSight, Inc., Alcon Surgical, Genentech and Novartis. He also serves as a Member of the Medical Advisory Board at TrueVision Systems, Inc. and a Member of the Clinical Advisory Board at Opthea Limited. Dr. Dugel received his M.D. from UCLA School of Medicine and his BA from Columbia University. We believe that Dr. Dugel is qualified to serve as a director based on his industry experience and service on multiple boards.

Director Independence

Our securities are not listed on a national securities exchange or on any inter-dealer quotation system which has a requirement that a majority of directors be independent. We evaluate independence by the standards for director independence set forth in the NASDAQ Marketplace Rules. Under such rules, our board of directors has determined that all members of the board of directors, except Joseph Gardner, are independent directors. Joseph Gardner is not an independent director under these rules because he is an executive officer of our company. In making such independence determination, our board of directors considered the relationships that each non-employee director has with us and all other facts and circumstances that our board of directors deemed relevant in determining their independence, including the beneficial ownership of our capital stock by each non-employee director. In considering the independence of the directors listed above, our board of directors considered the association of our directors with the holders of more than 5% of our Common Stock. We expect that the composition and functioning of our board of directors and each of our committees will comply with all applicable requirements of the NASDAQ Stock Market and the rules and regulations of the SEC. There are no family relationships among any of our directors or executive officers.

Staggered Board of Directors

In accordance with the terms of our amended and restated certificate of incorporation to be effective on the date that is 20 days after the mailing of a definitive Schedule 14C information statement to our pre-Merger stockholders, our board of directors will be divided into three staggered classes of directors and each will be

assigned to one of the three classes. At each annual meeting of the stockholders, a class of directors will be elected for a three-year term to succeed the directors of the same class whose terms are then expiring. The terms of the directors will expire upon the election and qualification of successor directors at the annual meeting of stockholders to be held during the years 2018 for Class I directors, 2019 for Class II directors and 2020 for Class III directors.

- Our Class I directors will be Paul Weiss and Caley Castelein;
- Our Class II directors will be Steven Prelack, Anupam Dalal and Pravin Dugel; and
- Our Class III directors will be Joseph Gardner, Muneer Satter and Chau Khuong.

Our amended and restated certificate of incorporation and amended and restated bylaws provide that the number of directors shall be fixed from time to time by a resolution of a supermajority (66 2/3%) vote of the directors then in office, even if less than a quorum.

The division of our board of directors into three classes with staggered three-year terms may delay or prevent stockholder efforts to effect a change of our management or a change in control.

Role of Board in Risk Oversight Process

We have established a role of the chairman of the board, who will be Muneer Satter and we plan to keep this role separated from the role of Chief Executive Officer. We believe that separating these positions allows our Chief Executive Officer to focus on our day-to-day business, while allowing a chairman of the board to lead the board of directors in its fundamental role of providing advice to and independent oversight of management. Our board of directors recognizes the time, effort and energy that the Chief Executive Officer is required to devote to his position in the current business environment, as well as the commitment required to serve as our chairman, particularly as the board of directors' oversight responsibilities continue to grow. Our amended and restated by-laws and corporate governance guidelines require that our chairman of the board not be an employee an executive officer of our company, and our board of directors believes that having separate positions is the appropriate leadership structure for us at this time and demonstrates our commitment to good corporate governance.

Risk is inherent with every business, and how well a business manages risk can ultimately determine its success. We face a number of risks, including risks relating to our financial condition, development and commercialization activities, operations, strategic direction and intellectual property as more fully discussed in the section entitled "Risk Factors" appearing elsewhere in this prospectus. Management is responsible for the day-to-day management of risks we face, while our board of directors, as a whole and through its committees, has responsibility for the oversight of risk management. In its risk oversight role, our board of directors has the responsibility to satisfy itself that the risk management processes designed and implemented by management are adequate and functioning as designed.

The role of the board of directors in overseeing the management of our risks is conducted primarily through committees of the board of directors, as disclosed in the descriptions of each of the committees below and in the charters of each of the committees. The full board of directors (or the appropriate board committee in the case of risks that are under the purview of a particular committee) discusses with management our major risk exposures, their potential impact on us, and the steps we take to manage them. When a board committee is responsible for evaluating and overseeing the management of a particular risk or risks, the chairman of the relevant committee reports on the discussion to the full board of directors during the committee reports portion of the next board meeting. This enables the board of directors and its committees to coordinate the risk oversight role, particularly with respect to risk interrelationships.

Board Committees

As our Common Stock is not presently listed for trading or quotation on a national securities exchange, we are not presently required to have board committees. However, our board of directors has established an audit committee, a compensation committee and a nominating and corporate governance committee, each of which operates pursuant to a charter adopted by our board of directors. The composition and functioning of all of our committees complies with all applicable requirements of the Sarbanes-Oxley Act of 2002 and SEC rules and regulations, and we intend to comply with those of the NASDAQ Stock Market.

Audit Committee

Steven Prelack, Caley Castelein and Pravin Dugel serve on the audit committee, which is chaired by Steven Prelack. Our board of directors has determined that Steven Prelack, Caley Castelein and Pravin Dugel are "independent" for audit committee purposes as that term is defined in the rules of the SEC and the applicable NASDAQ rules, and each has sufficient knowledge in financial and auditing matters to serve on the audit committee. Our board of directors has designated each of Steven Prelack and Pravin Dugel as an "audit committee financial expert," as defined under the applicable rules of the SEC. The audit committee's responsibilities include:

- appointing, approving the compensation of, and assessing the independence of our independent registered public accounting firm;
- pre-approving auditing and permissible non-audit services, and the terms of such services, to be provided by our independent registered public accounting firm;
- reviewing the overall audit plan with our independent registered public accounting firm and members of management responsible for preparing our financial statements;
- reviewing and discussing with management and our independent registered public accounting firm our annual and quarterly financial statements and related disclosures as well as critical accounting policies and practices used by us;
- coordinating the oversight and reviewing the adequacy of our internal control over financial reporting;
- establishing policies and procedures for the receipt and retention of accounting-related complaints and concerns;
- recommending based upon the audit committee's review and discussions with management and our independent registered public accounting firm whether our audited financial statements shall be included in our Annual Report on Form 10-K;
- monitoring the integrity of our financial statements and our compliance with legal and regulatory requirements as they relate to our financial statements and accounting matters;
- preparing the audit committee report required by SEC rules to be included in our annual proxy statement;
- reviewing all related person transactions for potential conflict of interest situations and making recommendations to our board of directors regarding all such transactions; and
- reviewing quarterly earnings releases.

Compensation Committee

Anupam Dalal and Paul Weiss serve on the compensation committee, which is chaired by Anupam Dalal. Our board of directors has determined that each member of the compensation committee is "independent" as defined in the applicable NASDAQ rules. The compensation committee's responsibilities include:

- annually reviewing and recommending to the independent directors on the board of directors the corporate goals and objectives relevant to the compensation of our Chief Executive Officer;
- evaluating the performance of our Chief Executive Officer in light of such corporate goals and objectives and based on such evaluation: (i) recommending to the independent directors on the board of directors the cash compensation of our Chief Executive Officer and (ii) reviewing and recommending to the independent directors on the board of directors regarding grants and awards to our Chief Executive Officer under equity-based plans;
- reviewing and approving or recommending to the independent directors on the board of directors the cash compensation of our other executive officers;
- reviewing and establishing our overall management compensation, philosophy and policy;
- overseeing and administering our compensation and similar plans;
- evaluating and assessing potential and current compensation advisors in accordance with the independence standards identified in the applicable NASDAQ rules;
- reviewing and approving our policies and procedures for the grant of equity-based awards;
- reviewing and recommending to the independent directors on the board of directors the compensation of our directors;
- preparing the compensation committee report required by SEC rules, if and when required, to be included in our annual proxy statement; and
- reviewing and approving the retention, termination or compensation of any consulting firm or outside advisor to assist in the evaluation of compensation matters.

Nominating and Corporate Governance Committee

Chau Khuong and Muneer Satter serve on the nominating and corporate governance committee, which is chaired by Chau Khuong. Our board of directors has determined that each member of the nominating and corporate governance committee is "independent" as defined in the applicable NASDAQ rules. The nominating and corporate governance committee's responsibilities include:

- developing and recommending to the board of directors criteria for board and committee membership;
- establishing procedures for identifying and evaluating board of director candidates, including nominees recommended by stockholders;
- reviewing the composition of the board of directors to ensure that it is composed of members containing the appropriate skills and expertise to advise us;
- identifying individuals qualified to become members of the board of directors;
- recommending to the board of directors the persons to be nominated for election as directors and to each of the board's committees;
- developing and recommending to the board of directors a code of business conduct and ethics and a set of corporate governance guidelines; and
- overseeing the evaluation of our board of directors and management.

Our board of directors may from time to time establish other committees.

Compensation Committee Interlocks and Insider Participation

None of the members of our compensation committee has at any time during the prior three years been one of our officers or employees. None of our executive officers currently serves, or in the past fiscal year has served, as a member of the board of directors or compensation committee of any entity that has one or more executive officers serving on our board of directors or compensation committee.

Board Diversity

Our nominating and corporate governance committee is responsible for reviewing with the board of directors, on an annual basis, the appropriate characteristics, skills and experience required for the board of directors as a whole and its individual members. In evaluating the suitability of individual candidates (both new candidates and current members), the nominating and corporate governance committee, in recommending candidates for election, and the board of directors, in approving (and, in the case of vacancies, appointing) such candidates, will take into account many factors, including the following:

- personal and professional integrity;
- ethics and values;
- experience in corporate management, such as serving as an officer or former officer of a publicly held company;
- experience in the industries in which we compete;
- experience as a director or executive officer of another publicly held company;
- diversity of expertise and experience in substantive matters pertaining to our business relative to other board members;
- conflicts of interest; and
- practical and mature business judgment.

Our board of directors evaluates each individual in the context of the board of directors as a whole, with the objective of assembling a group that can best maximize the success of the business and represent stockholder interests through the exercise of sound judgment using its diversity of experience in these various areas.

Code of Business Conduct and Ethics

We have adopted a code of business conduct and ethics that applies to all of our employees, officers and directors, including those officers responsible for financial reporting. The code of business conduct and ethics is available on our website at www.aerpio.com. We expect that any amendments to the code, or any waivers of its requirements, will be disclosed on our website. The reference to our web address does not constitute incorporation by reference of the information contained at or available through our website.

Limitation on Liability and Indemnification Matters

Our certificate of incorporation contains and our amended and restated certificate of incorporation will contain provisions that limit the liability of our directors for monetary damages to the fullest extent permitted by Delaware law. Consequently, our directors will not be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duties as directors, except liability for:

- any breach of the director’s duty of loyalty to us or our stockholders;

- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the Delaware General Corporation Law; or
- any transaction from which the director derived an improper personal benefit.

Our certificate of incorporation and bylaws provide and our amended and restated certificate of incorporation will provide that we are required to indemnify our directors and officers, in each case to the fullest extent permitted by Delaware law. Our bylaws also provide that we are obligated to advance expenses incurred by a director or officer in advance of the final disposition of any action or proceeding, and permit us to secure insurance on behalf of any officer, director, employee or other agent for any liability arising out of his, her or its actions in that capacity regardless of whether we would otherwise be permitted to indemnify him, her or it under Delaware law.

In addition to the indemnification required in our certificate of incorporation (and, upon its effectiveness, our amended and restated certificate of incorporation) and bylaws, we have entered or intend to enter into indemnification agreements with each of our directors, officers and certain other employees. These agreements will provide for the indemnification of our directors, officers and certain other employees for all reasonable expenses and liabilities incurred in connection with any action or proceeding brought against them by reason of the fact that they are or were our agents. We believe that these provisions in our certificate of incorporation, amended and restated certificate of incorporation, bylaws and indemnification agreements are necessary to attract and retain qualified persons as directors and officers. This description of the limitation of liability and indemnification provisions of our certificate of incorporation, amended and restated certificate of incorporation, our bylaws and our indemnification agreements is qualified in its entirety by reference to these documents, each of which is attached as an exhibit to this prospectus.

The limitation of liability and indemnification provisions in our certificate of incorporation, amended and restated certificate of incorporation and bylaws may discourage stockholders from bringing a lawsuit against directors for breach of their fiduciary duties. They may also reduce the likelihood of derivative litigation against directors and officers, even though an action, if successful, might benefit us and our stockholders. A stockholder's investment may be harmed to the extent we pay the costs of settlement and damage awards against directors and officers pursuant to these indemnification provisions. Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers and controlling persons pursuant to the foregoing provisions, or otherwise, we have been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. There is no pending litigation or proceeding naming any of our directors, officers or employees as to which indemnification is being sought, nor are we aware of any pending or threatened litigation that may result in claims for indemnification by any director, officer or employee.

Director Compensation

From our inception to March 15, 2017, no compensation was earned by or paid to our directors.

Aerpio became our wholly owned subsidiary upon the closing of the Merger on March 15, 2017. The following summarizes the compensation earned by Aerpio's non-employee directors in Aerpio's fiscal year ending December 31, 2016.

Aerpio did not pay any cash compensation to any of the non-employee members of Aerpio's board of directors, and Aerpio did not pay director fees to our directors who are Aerpio's employees. However, Aerpio reimbursed Aerpio's non-employee directors for travel and other necessary business expenses incurred in the performance of their services for Aerpio.

In addition, in 2012 and 2014, Aerpio granted Dr. Gardner options to purchase Aerpio common stock, which were converted into options to purchase 27,727 and 207,628 shares of our Common Stock respectively, each having an exercise prices of $1.65 and $2.10 per share respectively. In 2014, Aerpio granted Dr. Dugel options to purchase Aerpio common stock, which were converted into options to purchase 16,742 shares of our Common Stock, having an exercise price of $1.40 per share. These options vest and become exercisable in monthly installments, subject to the individual continuing to provide services through each such vesting date. In 2011, 2013, and 2014, Aerpio also granted Dr. Gardner Aerpio restricted common stock which were converted into 32,231, 113,225, 175,473 shares of our restricted Common Stock respectively. These restricted stock vest in monthly installments, subject to the individual continuing to provide services through each such vesting date.

In connection with the Merger, we approved a compensation policy for our non-employee directors, or the Director Compensation Program. Pursuant to the Director Compensation Program, our non-employee directors will receive cash compensation, paid quarterly, as follows:

- Each non-employee director will receive an annual cash retainer in the amount of $35,000 per year.
- Any non-employee Chairman will receive an additional annual cash retainer in the amount of $25,000 per year.
- The chairperson of the audit committee will receive additional annual cash compensation in the amount of $15,000 per year for such chairperson's service on the audit committee. Each non-chairperson member of the audit committee will receive additional annual cash compensation in the amount of $7,500 per year for such member's service on the audit committee.
- The chairperson of the compensation committee will receive additional annual cash compensation in the amount of $10,000 per year for such chairperson's service on the compensation committee. Each non-chairperson member of the compensation committee will receive additional annual cash compensation in the amount of $5,000 per year for such member's service on the compensation committee.
- The chairperson of the nominating and corporate governance committee will receive additional annual cash compensation in the amount of $7,000 per year for such chairperson's service on the nominating and corporate governance committee. Each non-chairperson member of the nominating and corporate governance committee will receive additional annual cash compensation in the amount of $3,500 per year for such member's service on the nominating and corporate governance committee.

Under the Director Compensation Program, upon the director's initial appointment or election to our board of directors, each non-employee director will receive an option (the Initial Grant) to purchase that number of shares of our Common Stock such that the award has an aggregate grant date fair value (as defined below) equal to $181,400, rounded down to the nearest whole share (subject to adjustment as provided in the applicable equity plan). In addition, each non-employee director who has been serving as a director for the prior three months and will continue to serve as a director immediately following each annual stockholder meeting, will receive, on the date of such annual stockholder meeting, an option (the Annual Grant) to purchase that number of shares of our Common Stock such that the award has an aggregate grant date fair value equal to $90,700, rounded down to the nearest whole share (subject to adjustment as provided in the applicable equity plan). For purposes of the Initial Grant and the Annual Grant, "grant date fair value" will mean the fair value of an award as of the date of grant as determined in accordance with ASC Topic 718, "Share-Based Payment", using the Black-Scholes pricing model and the valuation assumptions used by the company in accounting for options as of such date of grant. The Initial Grant will vest as to one-third of the shares subject to Initial Grant on each yearly anniversary of the applicable grant date, subject to continued service through each applicable vesting date, and the Annual Grant will fully vest on the earlier of the first anniversary of the applicable grant date or the date of the next annual stockholder meeting, subject to continued service through such vesting date.

2016 Director Compensation Table

The following table sets forth information for the year ended December 31, 2016 regarding the compensation awarded to, earned by or paid to Aerpio's non-employee directors as of such date as if Aerpio been a reporting company on December 31, 2016:

Name	Fees Earned or Paid in Cash($)	Option Awards ($)	Total($)
Muneer Satter	0	0	0
Paul M. Weiss	0	0	0
Anupam Dalal	0	0	0
Chau Khuong	0	0	0

Involvement in Certain Legal Proceedings

None of our directors or executive officers has been involved in any of the following events during the past 10 years:

- any bankruptcy petition filed by or against any business of which such person was a general partner or executive officer either at the time of the bankruptcy or within two years prior to that time;
- any conviction in a criminal proceeding or being subject to a pending criminal proceeding (excluding traffic violations and other minor offences);
- being subject to any order, judgment, or decree, not subsequently reversed, suspended or vacated, of any court of competent jurisdiction, permanently or temporarily enjoining, barring, suspending or otherwise limiting his or her involvement in any type of business, securities or banking activities; or
- being found by a court of competent jurisdiction (in a civil action), the Commission or the Commodity Futures Trading Commission to have violated a federal or state securities or commodities law, and the judgment has not been reversed, suspended, or vacated.

EXECUTIVE COMPENSATION

From our inception to the date of this prospectus, no compensation was earned by or paid to our executive officers. Aerpio became our wholly owned subsidiary upon the closing of the Merger on March 15, 2017. The following summarizes the compensation earned by Aerpio's executive officers named in the "Summary Compensation Table" below (referred to herein as our "named executive officers") in Aerpio's fiscal year ending December 31, 2016.

This section also discusses the material elements of Aerpio's executive compensation policies and decisions and important factors relevant to an analysis of these policies and decisions. It provides qualitative information regarding the manner and context in which compensation is awarded to and earned by our named executive officers and is intended to place in perspective the information presented in the following tables and the corresponding narrative. Aerpio became our wholly-owned subsidiary upon the closing of the Merger on March 15, 2017. The following section is historical and has not been adjusted to give effect to the Merger or the share conversion ratio pursuant to the Merger Agreement.

Overview

Historically, Aerpio's executive compensation program has reflected its growth and corporate goals. To date, the compensation of the named executive officers has consisted of a combination of base salary, annual cash bonus, and long-term equity incentive compensation in the form of restricted stock and stock options, and other employee benefits generally available to Aerpio's employees. The named executive officers are also entitled to certain compensation and benefits upon certain terminations of employment pursuant to their executive employment agreements as described below.

The named executive officers for the year ended December 31, 2016 were as follows:

- Joseph H. Gardner, our President and Chief Executive Officer;
- Stephen Pakola M.D., our Chief Medical Officer;
- Kevin G. Peters M.D., our Senior Vice President and Chief Scientific Officer.

Elements of Executive Compensation

Base Salaries. Base salaries for the named executive officers are determined annually by the compensation committee, subject to review and approval by the board of directors, based on the scope of each officer's responsibilities along with his respective experience and contributions during the prior year. When reviewing base salaries, the compensation committee takes factors into account such as each officer's experience and individual performance, our performance as a whole, data from surveys of compensation paid by comparable companies, and general industry conditions, but does not assign any specific weighting to any factor.

Annual Cash Bonuses. Prior to the Merger, all of the named executive officers participated in an annual cash program sponsored by Aerpio and, following the Merger, all of the named executive officers will participate in the Aerpio Pharmaceuticals, Inc. annual cash bonus program, which promotes and rewards the executives for the achievement of key strategic and business goals. In anticipation of possible fund raising activities to be completed in 2017, no bonuses were declared for 2016. The 2015 bonus plan period covers the 12-month period beginning on January 1, 2015 and ending on December 31, 2015. For the 2016 bonus plan period, the target annual bonus as a percentage of base salary, as determined based on the salary earned throughout the bonus plan period, for each of the named executive officers was up to 20%. At the beginning of the 2015 bonus plan period, the compensation committee established corporate performance goals, each having a designated weighting, which related to key development, strategic and financial goals of or company. At the end of the 2015 bonus plan period, the compensation committee met and evaluated the performance of Aerpio against the specified

performance goals. Based on its evaluation, the compensation committee recommended, and the board of directors approved, that we achieved 75% of our corporate goals. Consequently, the board of directors approved payment of cash bonuses for the 2015 bonus plan period of: $52,500 for Dr. Gardner, $48,000 for Dr. Peters, which in each case represented 75% of the named executive officer's target bonus, and $12,364 for Dr. Pakola, who joined us in October 2015.

Equity Awards. The named executive officers have historically participated in Aerpio's 2011 Plan. During fiscal year 2016, Dr. Gardner, Dr. Peters and Dr. Pakola did not receive option awards. In December 2015, Dr. Pakola received a grant of 390,724 stock options in connection with the commencement of his employment in 2015.

Other Benefits. Our named executive officers are eligible for additional benefits, such as participation in our 401(k) plan, our employee stock purchase plan and basic health benefits that are generally available to all of our employees.

Summary Compensation Table

The following table sets forth information regarding compensation awarded to, earned by or paid to each of the named executive officers for the periods ending December 31, 2016 and 2015.

Name and Principal Position	Year	Salary ($)	Non-Equity Incentive Compensation ($)(1)	Option Awards ($)(2)	All Other Compensation ($)(3)	Total ($)
Joseph Gardner	2016	350,000	—	—	1,069	351,069
Chief Executive Officer and President	2015	350,000	52,500	—	1,069	403,569
Kevin G. Peters	2016	320,000	—	—	1,069	321,069
Senior Vice President and Chief Scientific Officer	2015	320,000	48,000	—	697	368,697
Stephen Pakola	2016	340,000	—	—	243	340,243
Chief Medical Officer	2015	82,424(4)	12,364	204,739	41	299,568

(1) No bonuses were declared for 2016. Amounts for 2015 represent cash bonuses earned for the 12-month bonus plan period from January 1, to December 31, 2015.

(2) The amounts reported in the Option Awards column granted to the named executive officers represent the fair value of the stock options as of the grant date as computed in accordance with FASB ASC Topic 718, not including any estimates of forfeitures. The assumptions used in calculating the grant date fair value of the stock options reported in the Option Awards column are set forth in Note 8 to our financial statements for the year ended December 31, 2016 and 2015. Note that the amounts reported in this column reflect the accounting cost for these stock options, and do not correspond to the actual economic value that may be received by the named executive officers from the options. The amounts reported in the Stock Awards column granted to the named executive officers represent the fair value of the stock awards as determined by our board of directors, with input from management and third party valuation experts.

(3) Amounts represent the dollar value of life insurance premiums paid by us on behalf of the named executive officers.

(4) Dr. Pakola joined Aerpio in October 2015, with an annual base salary of $340,000. The amount in the table reflects his partial year of service for 2015.

Outstanding Equity Awards at Fiscal Year-End 2016

The following table sets forth information concerning outstanding equity awards for each of the named executive officers as of December 31, 2016 and the numbers below have not been adjusted to give effect to the Merger or the share conversion ratio pursuant to the Merger Agreement:

		Option Awards				Stock Awards	
Name and Principal Position	Vesting Commencement Date(1)	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable	Option Exercise Price ($)	Option Expiration Date	Number of Securities That Have Not Vested (#)	Market Value of Securities That Have Not Vested ($)
Joseph Gardner	3/22/2012	64,706	—	$ 0.71	3/21/2022	—	$ —
Chief Executive Officer and	2/18/2014	353,305	131,228	$ 0.90	2/17/2024	—	$ —
President	10/23/2014					179,154	$168,405
Kevin G. Peters	3/22/2012	4,464	—	$ 0.71	3/21/2022	—	—
Senior Vice President and	2/18/2014					49,314	$ 17,260
Chief Scientific Officer	10/23/2014					97,058	$ 91,235
Stephen Pakola							
Chief Medical Officer	12/29/2015	113,961	276,763(2)	$ 0.77	12/27/2025	—	—

(1) Except as otherwise noted, options vest and become exercisable in 48 equal installments on each monthly anniversary of the vesting commencement date, such that all awards will be vested on the fourth anniversary of the vesting commencement date, subject to the holder continuing to provide services to the company through such vesting date.

(2) Vests 25% on the first anniversary of the vesting commencement date, then vests in 36 equal monthly installments thereafter, such that the option is vested on the fourth anniversary of the vesting commencement date, subject to the holder continuing to provide services to the company through such vesting date.

Employment Agreements

In connection with the Merger, we entered into new employment agreements with our named executive officers. Each employment agreement provides for “at will” employment, meaning that either we or the named executive officer may terminate the employment relationship at any time without cause.

Executive Employment Agreement with Joseph H. Gardner. Dr. Gardner’s initial base salary under his employment agreement will be $385,000, which is subject to annual review and adjustment, and he will be eligible to earn an annual cash incentive bonus with a target amount equal to 25% of his base salary. Dr. Gardner is also eligible to participate in the employee benefit plans available to our employees, subject to the terms of those plans.

Dr. Gardner’s employment agreement provides that, in the event that his employment is terminated by us without “cause” (as defined in his new employment agreement) or Dr. Gardner resigns for “good reason” (as defined his new employment agreement) subject to the execution and effectiveness of a separation agreement, including a general release of claims in our favor, he will be entitled to receive (i) an amount equal to nine months of his base salary, (ii) if Dr. Gardner is participating in our group health plan immediately prior to his termination, a monthly cash payment until the earlier of nine months following termination or the end of Dr. Gardner’s COBRA health continuation period in an amount equal to the amount that we would have made to provide health insurance to Dr. Gardner had he remained employed with us, and (iii) acceleration of all time-based equity awards held by Dr. Gardner in which Dr. Gardner would have vested if he had remained employed for an additional six months. All amounts payable to Dr. Gardner shall be made in substantially equal installments over nine months following his termination.

In lieu of the payments and benefits described in the preceding paragraph, in the event that Dr. Gardner's employment is terminated by us without cause or Dr. Gardner resigns for good reason, in either case within 12 months following a "change in control" (as defined in his employment agreement), subject to the execution and effectiveness of a separation agreement, including a general release of claims in our favor, he will be entitled to receive (i) a lump sum cash payment equal to 0.75 times the sum of (x) Dr. Gardner's then-current base salary (or his base salary in effect immediately prior to the change in control, if higher) and (y) his target annual incentive compensation, (ii) if Dr. Gardner is participating in our group health plan immediately prior to his termination, a monthly cash payment until the earlier of nine months following termination or the end of Dr. Gardner's COBRA health continuation period in an amount equal to the amount that we would have made to provide health insurance to him had he remained employed with us and (iii) full acceleration of all time-based equity awards held by Dr. Gardner.

In addition, Dr. Gardner remains bound by certain restrictive covenants, including non-competition and non-solicitation provisions, which have been incorporated by reference into the new employment agreement from his prior employment agreement. These restrictive covenants apply during the term of Dr. Gardner's employment and for one year thereafter.

Executive Employment Agreement with Kevin G. Peters. Dr. Peters' initial base salary under his employment agreement will be $329,600, which is subject to annual review and adjustment, and he will be eligible to earn an annual cash incentive bonus with a target amount equal to 20% of his base salary. Dr. Peters is also eligible to participate in the employee benefit plans available to our employees, subject to the terms of those plans.

Dr. Peters' employment agreement provides that, in the event that his employment is terminated by us without "cause" (as defined in his new employment agreement) or Dr. Peters resigns for "good reason" (as defined his new employment agreement) subject to the execution and effectiveness of a separation agreement, including a general release of claims in our favor, he will be entitled to receive (i) an amount equal to six months of his base salary, (ii) if Dr. Peters is participating in our group health plan immediately prior to his termination, a monthly cash payment until the earlier of six months following termination or the end of Dr. Peters' COBRA health continuation period in an amount equal to the amount that we would have made to provide health insurance to Dr. Peters had he remained employed with us, and (iii) acceleration of all time-based equity awards held by Dr. Peters in which Dr. Peters would have vested if he had remained employed for an additional six months. All amounts payable to Dr. Peters shall be made in substantially equal installments over six months following his termination.

In lieu of the payments and benefits described in the preceding paragraph, in the event that Dr. Peters' employment is terminated by us without cause or Dr. Peters resigns for good reason, in either case within 12 months following a "change in control" (as defined in his employment agreement), subject to the execution and effectiveness of a separation agreement, including a general release of claims in our favor, he will be entitled to receive (i) a lump sum cash payment equal to 0.5 times the sum of (x) Dr. Peters' then-current base salary (or his base salary in effect immediately prior to the change in control, if higher) and (y) his target annual incentive compensation, (ii) if Dr. Peters is participating in our group health plan immediately prior to his termination, a monthly cash payment until the earlier of six months following termination or the end of Dr. Peters' COBRA health continuation period in an amount equal to the amount that we would have made to provide health insurance to him had he remained employed with us and (iii) full acceleration of all time-based equity awards held by Dr. Peters.

In addition, Dr. Peters remains bound by certain restrictive covenants, including non-competition and non-solicitation provisions, which have been incorporated by reference into the new employment agreement from his prior employment agreement. These restrictive covenants apply during the term of Dr. Peters' employment and for one year thereafter.

Executive Employment Agreement to Stephen Pakola, M.D. Dr. Pakola's initial base salary under his employment agreement will be $350,200, which is subject to annual review and adjustment, and he will be eligible to earn an annual cash incentive bonus with a target amount equal to 20% of his base salary. Dr. Pakola is also eligible to participate in the employee benefit plans available to our employees, subject to the terms of those plans.

Dr. Pakola's employment agreement provides that, in the event that his employment is terminated by us without "cause" (as defined in his new employment agreement) or Dr. Pakola resigns for "good reason" (as defined in his new employment agreement) subject to the execution and effectiveness of a separation agreement, including a general release of claims in our favor, he will be entitled to receive (i) an amount equal to six months of his base salary, (ii) if Dr. Pakola is participating in our group health plan immediately prior to his termination, a monthly cash payment until the earlier of six months following termination or the end of Dr. Pakola's COBRA health continuation period in an amount equal to the amount that we would have made to provide health insurance to Dr. Pakola had he remained employed with us, and (iii) acceleration of all time-based equity awards held by Dr. Pakola in which Dr. Pakola would have vested if he had remained employed for an additional six months. All amounts payable to Dr. Pakola shall be made in substantially equal installments over six months following his termination.

In lieu of the payments and benefits described in the preceding paragraph, in the event that Dr. Pakola's employment is terminated by us without cause or Dr. Pakola resigns for good reason, in either case within 12 months following a "change in control" (as defined in his employment agreement), subject to the execution and effectiveness of a separation agreement, including a general release of claims in our favor, he will be entitled to receive (i) a lump sum cash payment equal to 0.5 times the sum of (x) Dr. Pakola's then-current base salary (or his base salary in effect immediately prior to the change in control, if higher) and (y) his target annual incentive compensation, (ii) if Dr. Pakola is participating in our group health plan immediately prior to his termination, a monthly cash payment until the earlier of six months following termination or the end of Dr. Pakola's COBRA health continuation period in an amount equal to the amount that we would have made to provide health insurance to him had he remained employed with us and (iii) full acceleration of all time-based equity awards held by Dr. Pakola.

In addition, Dr. Pakola has also entered into an employee confidentiality and assignment agreement with us that also contains certain restrictive covenants, including non-competition and non-solicitation provisions that apply during the term of Dr. Pakola's employment and for one year thereafter.

Employee Benefit Plans

2017 Stock Option and Incentive Plan

On March 3, 2017, our board of directors adopted, and on March 10, 2017 our stockholders approved, our 2017 Stock Option and Incentive Plan, or the 2017 Plan, which will be effective on the date that is 20 days after the mailing of a definitive Schedule 14C information statement to our pre-Merger stockholders, which occurred on March 27, 2017. The 2017 Plan replaces our 2011 Equity Incentive Plan, or the 2011 Plan, as our board of directors has determined not to make additional awards under the 2011 Plan. Our 2017 Plan provides flexibility to our compensation committee to use various equity-based incentive awards as compensation tools to motivate our workforce.

We have initially reserved 4,600,000 shares of our Common Stock, less the number of shares subject to issued and outstanding awards under the 2011 Plan that were assumed in the Merger, or the Initial Limit, for the issuance of awards under the 2017 Plan. The 2017 Plan provides that the number of shares reserved and available for issuance under the plan will automatically increase each January 1, beginning on January 1, 2018, by 4% of the outstanding number of shares of our Common Stock on the immediately preceding December 31, or such lesser number of shares as determined by our board of directors, or the Annual Increase. This number is subject to adjustment in the event of a stock split, stock dividend or other change in our capitalization.

The shares we issue under the 2017 Plan will be authorized but unissued shares or shares that we reacquire. The shares of Common Stock underlying any awards that are forfeited, cancelled, held back upon exercise or settlement of an award to satisfy the exercise price or tax withholding, reacquired by us prior to vesting, satisfied without any issuance of stock, expire or are otherwise terminated (other than by exercise) under the 2017 Plan will be added back to the shares of Common Stock available for issuance under the 2017 Plan.

Stock options and stock appreciation rights with respect to no more than 4,600,000 shares of stock may be granted to any one individual in any one calendar year. The maximum aggregate number of shares that may be issued in the form of incentive stock options shall not exceed the Initial Limit cumulatively increased on January 1, 2018 and on each January 1 thereafter by the lesser of the Annual Increase for such year or 4,600,000 shares of Common Stock.

The 2017 Plan will be administered by our compensation committee. Our compensation committee has full power to select, from among the individuals eligible for awards, the individuals to whom awards will be granted, to make any combination of awards to participants, and to determine the specific terms and conditions of each award, subject to the provisions of the 2017 Plan. Persons eligible to participate in the 2017 Plan will be those full or part-time officers, employees, non-employee directors and other key persons (including consultants) as selected from time to time by our compensation and committee in its discretion.

The 2017 Plan permits the granting of both options to purchase Common Stock intended to qualify as incentive stock options under Section 422 of the Internal Revenue Code, or the Code, and options that do not so qualify. The option exercise price of each option will be determined by our compensation committee but may not be less than 100% of the fair market value of our Common Stock on the date of grant. The term of each option will be fixed by our compensation committee and may not exceed 10 years from the date of grant. Our compensation committee will determine at what time or times each option may be exercised.

Our compensation committee may award stock appreciation rights subject to such conditions and restrictions as it may determine. Stock appreciation rights entitle the recipient to shares of Common Stock, or cash, equal to the value of the appreciation in our stock price over the exercise price. The exercise price of each stock appreciation right may not be less than 100% of the fair market value of the Common Stock on the date of grant.

Our compensation committee may award restricted shares of Common Stock and restricted stock units to participants subject to such conditions and restrictions as it may determine. These conditions and restrictions may include the achievement of certain performance goals and/or continued employment with us through a specified vesting period. Our compensation committee may also grant shares of Common Stock that are free from any restrictions under the 2017 Plan. Unrestricted stock may be granted to participants in recognition of past services or other valid consideration and may be issued in lieu of cash compensation due to such participant. Our compensation committee may grant cash bonuses under the 2017 Plan to participants, subject to the achievement of certain performance goals.

Our compensation committee may grant awards of restricted stock, restricted stock units or stock- or cash-based awards under the 2017 Plan that are intended to qualify as “performance-based compensation” under Section 162(m) of the Code. Those awards would only vest or become payable upon the attainment of performance goals that are established by our compensation committee and related to one or more performance criteria. The performance criteria that would be used with respect to any such awards include: total shareholder return, earnings before interest, taxes, depreciation and amortization, net income (loss) (either before or after interest, taxes, depreciation and/or amortization), changes in the market price of our Common Stock, economic value-added, funds from operations or similar measure, sales or revenue, development, clinical or regulatory milestones, acquisitions or strategic transactions, operating income (loss), cash flow (including, but not limited to, operating cash flow and free cash flow), return on capital, assets, equity, or investment, return on sales, gross or net profit levels, productivity, expense, margins, operating efficiency, customer satisfaction, working capital,

earnings (loss) per share of stock, sales or market shares and number of customers, any of which may be measured either in absolute terms or as compared to any incremental increase or as compared to results of a peer group. From and after the time that we become subject to Section 162(m) of the Code, the maximum award that is intended to qualify as "performance-based compensation" under Section 162(m) of the Code that may be made to any one employee during any one calendar year is 4,600,000 shares of Common Stock with respect to a stock-based award and $2,000,000 with respect to a cash-based award.

The 2017 Plan provides that in the case of, and subject to, the consummation of a "sale event" (as defined in the 2017 Plan), all outstanding awards may be assumed, substituted or otherwise continued by the successor entity. To the extent that the successor entity does not assume, substitute or otherwise continue such awards, then (i) all stock options and stock appreciation rights will automatically become fully exercisable and the restrictions and conditions on all other awards with time-based conditions will automatically be deemed waived, and awards with conditions and restrictions relating to the attainment of performance goals may become vested and non-forfeitable in connection with a sale event in the compensation committee's discretion and (ii) upon the effectiveness of the sale event, the 2017 Plan and all awards will automatically terminate. In the event of such termination, (i) individuals holding options and stock appreciation rights will be permitted to exercise such options and stock appreciation rights (to the extent exercisable) prior to the sale event; or (ii) we may make or provide for a cash payment to participants holding options and stock appreciation rights equal to the difference between the per share cash consideration payable to stockholders in the sale event and the exercise price of the options or stock appreciation rights (to the extent then exercisable).

Our board of directors may amend or discontinue the 2017 Plan and our compensation committee may amend the exercise price of options and amend or cancel outstanding awards for purposes of satisfying changes in law or any other lawful purpose but no such action may adversely affect rights under an award without the holder's consent. Certain amendments to the 2017 Plan require the approval of our stockholders. No awards may be granted under the 2017 Plan after the date that is 10 years from the date of stockholder approval. No awards under the 2017 Plan have been made prior to the date of this Form 8-K.

2011 Equity Incentive Plan

The 2011 Equity Incentive Plan, or the 2011 Plan, was approved by Aerpio's board of directors and Aerpio's stockholders on December 22, 2011, and was most recently amended in April 2014, and was assumed by us upon the Merger. Aerpio had reserved an aggregate of 5,860,874 shares of Aerpio's common stock for the issuance of options and other equity awards under the 2011 Plan. As of March 3, 2017, after we assumed the 2011 Plan, options to purchase 927,592 shares of our Common Stock were outstanding under the 2011 Plan at a weighted average exercise price of $1.69 per share and no shares remained available for future grant under the 2011 Plan. Effective upon the closing of the Merger, our board of directors has determined not to grant any further awards under our 2011 Plan, but all outstanding awards under the 2011 Plan will continue to be governed by their existing terms. The shares to be issued under options we assumed that were issued under the 2011 Plan will be authorized but unissued shares or shares we reacquire.

The 2011 Plan is administered by our board of directors. The board of directors or a committee appointed by the board has the authority to select the individuals to whom awards will be granted, to make any combination of awards to participants and to determine the specific terms and conditions of each award.

The option exercise price of each option issued under the 2011 Plan was determined by our board of directors but was not less than 100% of the fair market value of Aerpio's common stock on the date of grant. In the case of an incentive stock option granted to a participant who, at the time of grant of such option, owned stock representing more than 10% of the voting power of all classes of our stock, then the exercise price was not less than 110% of the fair market value of the Aerpio's common stock on the date of grant. The term of each option was fixed by the board of directors and did not exceed 10 years from the date of grant.

The 2011 Plan provides that upon the occurrence of a "corporate transaction" as defined in the 2011 Plan, awards may be assumed, substituted for new awards of a successor entity, or otherwise terminated at the effective time of such corporate transaction. In the case of the termination of all outstanding options, such options may be exercised to the extent then exercisable within a period of time prior to the consummation of the corporate transaction. In the case of restricted stock or stock bonuses, the unvested portion of such awards will terminate in exchange for a cash payment in amount equal to the product of the per share cash consideration and the number of shares subject to each such award. Our board of directors may also provide alternative consideration for any outstanding awards that it determines to be equitable in the circumstances, including cash.

Our board of directors may amend or terminate the 2011 Plan at any time, subject to stockholder approval where such approval is required by applicable law, provided that no such action may materially and adversely affect any of the rights of a participant under any awards previously granted without his or her written consent. The board of directors has determined not to make any further grants under the 2011 Plan as of the Effective Time of the Merger.

Employee Stock Purchase Plan

On March 3, 2017 our board of directors adopted, and on March 10, 2017 our stockholders approved, our 2017 Employee Stock Purchase Plan, or the ESPP, which will be effective upon the date that is 20 days after the mailing of a definitive Schedule 14C information statement to our pre-Merger stockholders. The ESPP authorizes the issuance of up to a total of 300,000 shares of common stock to participating employees. The ESPP provides that the number of shares reserved and available for issuance under the ESPP shall be cumulatively increased each January 1, beginning on January 1, 2018, by the lesser of (i) 1% of the outstanding number of shares of our common stock on the immediately preceding December 31 or (ii) such lesser number of shares as determined by our board of directors. The number of shares reserved and available for issuance under the ESPP is subject to adjustment in the event of a stock split, stock dividend or other change in our capitalization.

All employees who we have employed for at least 30 days and whose customary employment is for more than 20 hours a week are eligible to participate in the ESPP. Any employee who owns five percent or more of the voting power or value of our shares of common stock is not eligible to purchase shares under the ESPP.

We may make one or more offerings each year to our employees to purchase shares under the ESPP. Each eligible employee may elect to participate in any offering by submitting an enrollment form at least 15 business days before the relevant offering date.

Each employee who is a participant in the ESPP may purchase shares by authorizing payroll deductions of up to one percent of his or her base compensation during an offering period. Unless the participating employee has previously withdrawn from the offering, his or her accumulated payroll deductions will be used to purchase shares of common stock on the last business day of the offering period at a price equal to 85 percent of the fair market value of the common stock on the first business day or the last business day of the offering period, whichever is lower, subject to the limits set forth in the ESPP with respect to the number of shares of common stock that may be purchased by any one employee during each offering period. Under applicable tax rules, an employee may purchase no more than $25,000 worth of common stock, valued at the start of the purchase period, under the ESPP in any calendar year.

The accumulated payroll deductions of any employee who is not a participant on the last day of an offering period will be refunded. An employee's rights under the ESPP terminate upon voluntary withdrawal from the plan or when the employee ceases employment with us for any reason.

The ESPP may be terminated or amended by our board of directors at any time. An amendment that increases the number of shares of common stock that are authorized under the ESPP and certain other amendments require the approval of our stockholders.

Senior Executive Cash Incentive Bonus Plan

On March 15, 2017 our board of directors adopted the Aerpio Pharmaceuticals, Inc. Senior Executive Cash Incentive Bonus Plan, or the Bonus Plan. The Bonus Plan provides for cash bonus payments based upon the attainment of performance targets established by our compensation committee. The payment targets will be related to financial and operational measures or objectives with respect to our company, or corporate performance goals, as well as individual performance objectives.

Our compensation committee may select corporate performance goals from among the following: cash flow (including, but not limited to, operating cash flow and free cash flow); revenue; corporate revenue; earnings before interest, taxes, depreciation and amortization; net income (loss) (either before or after interest, taxes, depreciation and/or amortization); changes in the market price of our Common Stock; economic value-added; development, clinical, regulatory or commercial milestones; acquisitions or strategic transactions; operating income (loss); return on capital, assets, equity, or investment; stockholder returns; return on sales; gross or net profit levels; productivity; expense efficiency; margins; operating efficiency; customer satisfaction; working capital; earnings (loss) per share of our Common Stock; bookings, new bookings or renewals; sales or market shares; number of customers, number of new customers or customer references; operating income and/or net annual recurring revenue, any of which may be measured in absolute terms, as compared to any incremental increase, in terms of growth, as compared to results of a peer group, against the market as a whole or applicable market, indices and/or on a pre-tax or post-tax basis.

Each executive officer who is selected to participate in the Bonus Plan will have a target bonus opportunity set for each performance period. The bonus formulas will be adopted in each performance period by the governance committee and communicated to each executive. The corporate performance goals will be measured at the end of each performance period after our financial reports have been published or such other appropriate time as the compensation committee determines. If the corporate performance goals and individual performance objectives are met, payments will be made as soon as practicable following the end of each performance period. Subject to the rights contained in any agreement between the executive officer and us, an executive officer must be employed by us on the bonus payment date to be eligible to receive a bonus payment. The Bonus Plan also permits the compensation committee to approve additional bonuses to executive officers in its sole discretion.

Retirement Plan

We offer a 401(k) plan to eligible employees, including our named executive officers. In accordance with this plan, all eligible employees may contribute a percentage of compensation up to a maximum of the statutory limits per year. Company contributions are discretionary. We made no contributions during the year ended December 31, 2016. We intend for the 401(k) plan to qualify, depending on the employee's election, under Section 401(a) of the Code, so that contributions by employees, and income earned on those contributions, are not taxable to employees until withdrawn from the 401(k) plan.

Indemnification of Officers and Directors

We have agreed to indemnify our directors and executive officers in certain circumstances. See *"Directors, Executive Officers, Promoters and Control Persons—Limitation on Liability and Indemnification Matters."*

Compensation Consultant As a part of determining compensation for our named executive officers, the compensation committee has engaged Radford, a business unit of Aon plc, as an independent compensation consultant. Radford provides analysis and recommendations to the compensation committee regarding:

- trends and emerging topics with respect to executive compensation;
- peer group selection for executive compensation benchmarking;
- compensation practices of our peer group;

- compensation programs for executives and all of our employees; and
- stock utilization and related metrics.

When requested, Radford consultants attend meetings of the compensation committee, including executive sessions in which executive compensation issues are discussed. Radford reports to the compensation committee and not to management, although Radford meets with management for purposes of gathering information for its analyses and recommendations.

In determining to engage Radford, the compensation committee considered the independence of Radford taking into consideration relevant factors, including the absence of other services provided to us by Radford, the amount of fees we paid to Radford as a percentage of Radford's total revenue, the policies and procedures of Radford that are designed to prevent conflicts of interest, any business or personal relationship of the individual compensation advisors employed by Radford with any of our executive officers, any business or personal relationship the individual compensation advisors employed by Radford have with any member of the compensation committee, and any shares of our stock owned by Radford or the individual compensation advisors employed by Radford. The compensation committee has determined, based on its analysis in light of all relevant factors, including the factors listed above, that the work of Radford and the individual compensation advisors employed by Radford as compensation consultants to the compensation committee has not created any conflicts of interest, and that Radford is independent pursuant to the independence standards set forth in the NASDAQ Stock Market listing standards promulgated pursuant to Section 10C of the Exchange Act.

CERTAIN RELATIONSHIPS AND RELATED PERSON TRANSACTIONS

SEC rules require us to disclose any transaction or currently proposed transaction in which we were a participant and in which any related person has or will have a direct or indirect material interest involving the lesser of $120,000 or 1% of the average of our total assets as of the end of last two completed fiscal years. A related person is any executive officer, director, nominee for director, or holder of 5% or more of our Common Stock, or an immediate family member of any of those persons.

The following is a description of transactions since January 1, 2014 to which we have been a party, in which the amount involved exceeded or will exceed $120,000, and in which any of our directors, executive officers or holders of more than 5% of Aerpio's pre-Merger capital stock, or an affiliate or immediate family member thereof, had or will have a direct or indirect material interest, other than compensation and other arrangements that are described in the section titled "Executive Compensation." The following description is historical and has not been adjusted to give effect to the Merger or the share conversion ratio pursuant to the Merger Agreement.

Sales and Purchases of Securities

Sales of Series A2 Preferred Stock

In April 2014, Aerpio issued an aggregate of 10,476,182 shares of Series A2 convertible preferred stock at a price per share of $2.10 for aggregate gross consideration of approximately $22 million to 37 accredited investors. The table below sets forth the number of shares of Series A2 convertible preferred stock sold to our directors, executive officers or holders of more than 5% of Aerpio's pre-Merger capital stock, or an affiliate or immediate family member thereof. Each outstanding 2.3336572 shares of Aerpio's Series A2 convertible preferred stock was converted into one share of our Common Stock in connection with the Merger.

Purchasers	Shares of Series A2 Preferred Stock	Aggregate Purchase Price
Joseph Gardner	44,043	$ 92,491.26
Entities affiliated with Kearny Venture(1)	349,749	$ 734,474.87
Novartis Bioventures Ltd.	1,585,609	$ 3,329,780.14
Trusts and Other Entities affiliated with Muneer A. Satter(2)	519,973	$ 1,091,943.34
Triathlon Medical Ventures	65,264	$ 137,055.70
Venture Investors Early Stage Fund IV	139,598	$ 293,156.50
OrbiMed Private Investments V, L.P.	7,142,857	$ 14,999,999.70

(1) Consists of 342,757 shares held by Kearny Venture Partners, L.P. and 6,992 shares held by Kearny Venture Partners Entrepreneurs Fund, L.P.

(2) Consists of (a) 285,073 shares of Series A2 convertible preferred stock that are held by the Muneer A. Satter Revocable Trust for which Muneer A. Satter serves as trustee and, in such capacity, has sole voting and dispositive power over all such shares and (b) 234,900 shares Series A2 convertible preferred stock that are held by various other trusts and other entities for which Muneer A. Satter serves as trustee, investment advisor or manager and, in such capacity, has sole voting and dispositive power over all such shares.

Convertible Promissory Note Purchase Agreement

In March, April and July 2016, Aerpio issued convertible promissory notes for an aggregate principal amount of approximately $9 million to 54 accredited investors. The Convertible Notes accrued interest at 8% per annum, compounded annually. There was approximately $437,000 of accrued interest outstanding as of December 31, 2016. All outstanding principal and interest under these Spring 2016 Notes converted into shares of Aerpio common stock immediately prior to the Merger, which were then converted into shares of our Common Stock on a 2.3336572:1 basis at the effective time of the Merger. The table below sets forth the

principal amount of the convertible promissory notes sold to our directors, executive officers or holders of more than 5% of Aerpio's pre-Merger capital stock, or an affiliate or immediate family member thereof.

Purchasers	Aggregate Principal Price
Joseph Gardner	$ 89,664.26
Entities affiliated with Kearny Venture(1)	$ 680,312.16
Entities affiliated with Novartis Bioventures Ltd.(2)	$ 2,788,558.02
Trusts and Other Entities affiliated with Muneer A. Satter(3)	$ 1,127,983.60
Triathlon Medical Ventures	$ 439,298.86
Venture Investors Early Stage Fund IV	$ 693,140.72
OrbiMed Private Investments V, L.P.	$ 1,942,191.32

(1) Consists of an aggregate principal price of (a) $627,011.90 by Kearny Venture Partners, L.P., (b) $12,788.60 by Kearny Venture Partners Entrepreneurs Fund, L.P., (c) $36,320.76 by Revelation TWHVP, LLC, and (d) $4,190.90 by TWHVP SPV, LLC.

(2) Consists of an aggregate principal price of $2,788,558.02 held by Novartis International Pharmaceutical Investment Ltd., an entity affiliated with Novartis Bioventures Ltd.

(3) Consists of an aggregate principal price of (a) $521,039.22 by the Muneer A. Satter Revocable Trust for which Muneer A. Satter serves as trustee and, in such capacity, has sole voting and dispositive power over all such amount and (b) $606,944.38 by various other trusts and other entities for which Muneer A. Satter serves as trustee, investment advisor or manager and, in such capacity, has sole voting and dispositive power over all such amount.

Convertible Promissory Note Purchase Agreement

In October 2016 and January 2017, Aerpio issued convertible promissory notes for an aggregate principal amount of approximately $3.8 million to 53 accredited investors. The Convertible Notes accrued interest at 8% per annum, compounded annually. There was approximately $46,000 of accrued interest outstanding as of December 31, 2016. All outstanding principal and interest under these Winter 2016 Notes converted into shares of Aerpio common stock immediately prior to the Merger, which were then converted into shares of our Common Stock on a 2.3336572:1 basis at the effective time of the Merger. The table below sets forth the principal amount of the convertible promissory notes sold to our directors, executive officers or holders of more than 5% of Aerpio's pre-Merger capital stock, or an affiliate or immediate family member thereof.

Purchasers	Aggregate Principal Price
Joseph Gardner	$ 37,553.38
Entities affiliated with Kearny Venture(1)	$ 284,929.84
Entities affiliated with Novartis Bioventures Ltd.(2)	$ 1,167,910.04
Trusts and Other Entities affiliated with Muneer A. Satter(3)	$ 472,424.59
Triathlon Medical Ventures	$ 183,988.12
Venture Investors Early Stage Fund IV	$ 290,302.73
OrbiMed Private Investments V, L.P.	$ 813,432.86

(1) Consists of an aggregate principal price of (a) $262,606.51 by Kearny Venture Partners, L.P. (b) $5,356.15 by Kearny Venture Partners Entrepreneurs Fund, L.P., (c) $15,211.94 by Revelation TWHVP, LLC, and (d) $1,755.24 by TWHVP SPV, LLC.

(2) Consists of an aggregate principal price of $1,167,910.04 held by Novartis International Pharmaceutical Investment Ltd., an entity affiliated with Novartis Bioventures Ltd.

(3) Consists of an aggregate principal price of (a) $200,994.68 by the Muneer A. Satter Revocable Trust for which Muneer A. Satter serves as trustee and, in such capacity, has sole voting and dispositive power over all such amount and (b) $271,429.91 by various other trusts and other entities for which Muneer A. Satter serves as trustee, investment advisor or manager and, in such capacity, has sole voting and dispositive power over all such amount.

Participation in the Offering

Certain of our existing investors, including investors affiliated with certain of our directors, have purchased an aggregate of 3,512,955 shares of our Common Stock in the Offering, for an aggregate purchase price of $17,564,787.73. Such purchases were made on the same terms as the shares that were sold to other investors in the Offering and not pursuant to any pre-existing contractual rights or obligations.

Indemnification Agreements and Directors' and Officers' Liability Insurance

We have entered into indemnification agreements with each of our directors and executive officers. These agreements, among other things, require us to indemnify each director and executive officer to the fullest extent permitted by Delaware law, including indemnification of expenses such as attorneys' fees, judgments, fines and settlement amounts incurred by the director or executive officer in any action or proceeding, including any action or proceeding by or in right of us, arising out of the person's services as a director or executive officer.

Employment Agreements and Offer Letters

In connection with the Merger, each of our new executive officers, other than Mr. Murphy, became employed with us under the terms of their employment agreement or offer letter, as applicable. For more information regarding these employment agreements for Messrs. Gardner, Peters and Pakola, see the section titled "*Executive Compensation—Narrative to Summary Compensation Table and Outstanding Equity Awards at 2016 Year End*."

Other Transactions

We have granted stock options to our executive officers. For a description of these stock options granted to such individuals, see the section titled "*Executive Compensation*." We have also granted stock options to certain members of the board of directors, and will do so in the future pursuant to our non-employee director compensation policy. For a description of these stock options, see the section titled "*Management—Director Compensation Table*."

Policies and Procedures for Related-Person Transactions

Our board of directors has adopted a written related-person transaction policy, to be effective upon the consummation of the Merger, setting forth the policies and procedures for the review and approval or ratification of related-person transactions. This policy will cover, with certain exceptions set forth in Item 404 of Regulation S-K under the Securities Act, any transaction, arrangement or relationship, or any series of similar transactions, arrangements or relationships in which we were or are to be a participant, where the amount involved exceeds $120,000 and a related person had or will have a direct or indirect material interest, including, without limitation, purchases of goods or services by or from the related person or entities in which the related person has a material interest, indebtedness, guarantees of indebtedness and employment by us of a related person. In reviewing and approving any such transactions, our audit committee is tasked to consider all relevant facts and circumstances, including, but not limited to, whether the transaction is on terms comparable to those that could be obtained in an arm's-length transaction and the extent of the related person's interest in the transaction. Furthermore, all related-person transactions with a majority stockholder requires a supermajority (66 2/3%) vote of the directors then in office. All of the transactions described in this section occurred prior to the adoption of this policy.

USE OF PROCEEDS

We are filing this registration statement of which this prospectus forms a part to permit holders of the shares of our common stock described in the section entitled “Selling Stockholders” to resell such shares. We will not receive any proceeds from the resale of any shares offered by this prospectus by the selling stockholders.

DIVIDEND POLICY

We have never paid any cash dividends on our capital stock and do not anticipate paying any cash dividends on our Common Stock in the foreseeable future. We intend to retain future earnings to fund ongoing operations and future capital requirements. Any future determination to pay cash dividends will be at the discretion of our board of directors and will be dependent upon financial condition, results of operations, capital requirements and such other factors as the board of directors deems relevant.

DETERMINATION OF OFFERING PRICE

The selling stockholders may only sell their shares of our common stock pursuant to this prospectus at a fixed price of $5.00 per share until such time as our common stock is quoted on the OTCQB or another public trading market for our common stock otherwise develops. At and after such time, the selling stockholders may sell all or a portion of their shares through public or private transactions at prevailing market prices or at privately negotiated prices. The fixed price of $5.00 at which the selling stockholders may sell their shares pursuant to this prospectus was determined based upon the purchase price per share of our Common Stock in the Offering which was completed on March 15, 2017. This exercise price at which any holder of a warrant may purchase shares was determined based upon the purchase price per share of our Common Stock in the Offering which was completed on March 15, 2017. We have included a fixed price at which selling stockholders may sell their shares pursuant to this prospectus prior to the time there is a public market for our stock in order to comply with the rules of the SEC that require that, if there is no market for the shares being registered, this registration statement must include a price at which the shares may be sold. Except to the extent that we are involved in an underwritten secondary offering of Common Stock, if any, by the selling stockholders, all shares being offered pursuant to this prospectus will be sold by the selling stockholders without our involvement.

MARKET FOR COMMON EQUITY AND RELATED STOCKHOLDER MATTERS

There is not currently, and there has never been, any market for any of our securities. Our securities are not eligible for trading on any national securities exchange and are not quoted for sale on any over-the-counter markets, including the OTCQB.

As of March 15, 2017, we had 27,049,555 outstanding shares of common stock held by 298 holders of record.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth information relating to the beneficial ownership of our Common Stock at March 15, 2017, by:

- each person, or group of affiliated persons, known by us to beneficially own more than 5% of the outstanding shares of our Common Stock;
- each of our directors;
- each of our named executive officers; and
- all current directors and executive officers as a group.

The number of shares beneficially owned by each entity, person, director or executive officer is determined in accordance with the rules of the SEC, and the information is not necessarily indicative of beneficial ownership for any other purpose. Under such rules, beneficial ownership includes any shares over which the individual has sole or shared voting power or investment power as well as any shares that the individual has the right to acquire within 60 days of March 15, 2017 through the exercise of any stock option, warrants or other rights. Except as otherwise indicated, and subject to applicable community property laws, the persons named in the table have sole voting and investment power with respect to all shares of Common Stock held by such person.

The percentage of shares beneficially owned is computed on the basis of 27,049,555 shares of Common Stock outstanding as of March 15, 2017, giving effect to the Merger, the Conversion, the Share Cancellation, and the Offering. Shares of Common Stock that a person has the right to acquire within 60 days of March 15, 2017 are deemed outstanding for purposes of computing the percentage ownership of the person holding such rights, but are not deemed outstanding for purposes of computing the percentage ownership of any other person, except with respect to the percentage ownership of all directors and executive officers as a group. Unless otherwise indicated below, the address for each beneficial owner listed in the table is c/o Aerpio Pharmaceuticals, Inc., 9987 Carver Road, Suite 420, Cincinnati, Ohio 45242.

	Shares Beneficially Owned	
	Number	Percentage
5% Stockholders:		
Novartis Bioventures Ltd.(1)	5,805,550	21.5%
Entities Affiliated with OrbiMed Private Investments III, LP(2)	4,416,446	16.3%
Trusts and Other Entities Affiliated with Muneer A. Satter(3)	3,241,835	12.0%
Venture Investors Early Stage Fund IV(4)	1,576,167	5.8%
Kearny Venture Partners, L.P. and related funds(5)	1,603,526	5.9%
Named Executive Officers and Directors:		
Muneer A. Satter(3)	3,241,835	12.0%
Chau Khuong(2)	4,416,446	16.3%
Steven Prelack	—	*
Paul Weiss(4)	1,576,167	5.8%
Caley Castelein(5)	1,603,526	5.9%
Anupam Dalal(6)	76,204	*
Pravin Dugel(7)	10,464	*
Joseph Gardner(8)	789,436	2.9%
Kevin Peters(9)	322,448	1.2%
Steve Pakola(10)	66,273	*
All directors and executive officers as a group (11 persons)	12,102,799	44.3%

* Indicates beneficial ownership of less than 1% of the total outstanding Common Stock.

(1) Consists of 5,805,550 shares of Common Stock owned directly by Novartis Bioventures, Ltd. The board of directors of Novartis Bioventures Ltd. has sole voting and investment control and power over such shares. None of the members of its board of directors has individual voting or investment power with respect to such shares and each disclaims beneficial ownership of such shares. Novartis Bioventures Ltd. is an indirectly-owned subsidiary of Novartis AG. The address of Novartis Bioventures Ltd. is 131 Front Street, Hamilton, HM12, Bermuda.

(2) Consists of 4,416,446 shares of Common Stock owned directly by OrbiMed Private Investments III, LP, or OPI III. OrbiMed Advisors LLC, or OrbiMed, is the managing member of GP III, which is the general partner of OPI III. Samuel D. Isaly is the managing member of and owner of a controlling interest in OrbiMed. By virtue of such relationships, GP III, OrbiMed and Mr. Isaly may be deemed to have voting and investment power over the shares held by OPI III and as a result may be deemed to have beneficial ownership of such shares. Chau Khuong, an employee of OrbiMed, is a member of our board of directors. Each of GP III, OrbiMed, Mr. Isaly and Mr. Khuong disclaims beneficial ownership of the shares held by OPI III, except to the extent of its or his pecuniary interest therein, if any. The address of OrbiMed Investments and OrbiMed Associates is c/o OrbiMed Advisors LLC, 601 Lexington Avenue, 54th Floor, New York, New York 10022.

(3) Consists of (a) 976,568 shares that are held by the Muneer A. Satter Revocable Trust for which Muneer A. Satter serves as trustee and, in such capacity, has sole voting and dispositive power over all such shares, (b) 1,145,267 shares that are held by various other trusts and other entities for which Muneer A. Satter serves as trustee, investment advisor or manager and, in such capacity, has sole voting and dispositive power over all such shares (collectively, the “Satter Investors”), and (c) 1,120,000 shares that are held by Satter Medical Technology Partners, L.P., or SMTP, and Muneer A. Satter has sole voting and dispositive power over all such shares. The address of the Satter Investors and SMTP is c/o Satter Management Co., L.P., 676 North Michigan Avenue, Suite 4000, Chicago, Illinois 60610.

(4) Consists of 1,576,475 shares of Common Stock owned directly by Venture Investors Early Stage Fund IV Limited Partnership, or VIESF. The general partner of VIESF, VIESF IV GP LLC, has sole voting and investment control over the shares owned by VIESF. The members of VIESF IV GP LLC, John Neis, Paul M. Weiss, Scott Button, George Arida, James R. Adox, Loren G. Peterson, and Venture Investors Southeast LLC (of which Roger H. Ganser is the sole member), have sole voting and investment power for VIESF IV GP LLC with respect to its voting power in its capacity as General Partner for the shares held by VIESF. None of the members of VIESF IV GP LLC has individual voting or investment power with respect to such shares and each disclaims beneficial ownership of such shares except to the extent of any pecuniary interest therein. The address of Venture Investors Early Stage Fund IV Limited Partnership is 505 South Rosa Road, Suite 201, Madison, Wisconsin, 53719.

(5) Consists of (i) 1,571,475 shares of Common Stock owned directly by Kearny Venture Partners, L.P., or KVP and (ii) 32,051 shares of Common Stock owned directly by Kearny Venture Partners Entrepreneurs Fund, L.P., or KVPE. The general partner of both KVP and KVPE is Kearny Venture Associates, L.L.C., or KVA. KVA has the sole voting and investment control over the shares owned by KVP and KVPE, and the Managing Members of KVA share in the voting and investment control over such shares controlled by KVA. The Managing Members of KVA are Caley Castelein, Richard Spalding and James Shapiro. None of the Managing Members of KVA has individual voting or investment power with respect to such shares and each disclaims beneficial ownership of such shares except to the extent of any pecuniary interest therein. The address of KVA is One Embarcadero, Suite 3700, San Francisco, CA 94111.

(6) Consists of (i) 7,882 shares of Common Stock owned directly by TWHVP SPV, LLC, or TWHVP, and (ii) 68,322 shares of Common Stock owned directly by Revelation TWHVP, LLC, or Revelation. The general partner of TWHVP and Revelation is Kearny Venture Associates II, LLC or KVA II. KVA II has the sole voting and investment control over the shares owned by TWHVP and Revelation, and the Managing Members of KVA II have sole voting and investment control over the shares controlled by KVA II. The Managing Members of KVA II are Caley Castelein, Anupam Dalal and Andrew Jensen. None of the Managing Members of KVA II has individual voting or investment power with respect to such shares and each disclaims beneficial ownership of such shares except to the extent of any pecuniary interest therein. The address of KVA II is One Embarcadero, Suite 3700, San Francisco, CA 94111.

(7) Consists of 10,464 shares of Common Stock issuable directly to Pravin Dugel upon the conversion of options within 60 days of March 15, 2017.
(8) Consists of (i) 593,019 shares of Common Stock held directly by Joseph Gardner and (ii) 196,417 shares of Common Stock issuable upon the conversion of options within 60 days of March 15, 2017.
(9) Consists of (i) 320,536 shares of Common Stock held directly by Kevin G. Peters and (ii) 1,912 shares of Common Stock issuable upon the conversion of options within 60 days of March 15, 2017.
(10) Consists of 66,273 shares of Common Stock issuable directly to Steve Pakola upon the conversion of options within 60 days of March 15, 2017.

SELLING STOCKHOLDERS

This prospectus covers the resale by the selling stockholders identified below of 27,367,117 shares of our common stock. The selling stockholders acquired our securities pursuant to the Merger, the Share Cancellation and the Offering and, with respect to 317,562 shares underlying warrants to purchase shares of our Common Stock, in connection with their services as placement agents for the Offering. We will not receive any proceeds from the resale of the common stock by the selling stockholders.

Except as disclosed in the footnotes below, none of the selling stockholders has been an officer or director of ours or any of our predecessors or affiliates within the past three years. Except as disclosed in the footnotes below, no selling stockholder had a material relationship with the company or any of its affiliates within the last three years.

The following table and the accompanying footnotes are based in part on information supplied to us by the selling stockholders. The table and footnotes assume that the selling stockholders will sell all of the shares listed. However, because the selling stockholders may sell all or some of their shares under this prospectus from time to time, or in another permitted manner, we cannot assure you as to the actual number of shares that will be sold by the selling stockholders or that will be held by the selling stockholders after completion of any sales. We do not know how long the selling stockholders will hold the shares before selling them.

The inclusion of any shares in this table does not constitute an admission of beneficial ownership by the persons named below. The selling stockholders listed below are sorted alphabetically by first name.

	Shares Owned Before the Offering		Shares Being Offered	Shares Owned After the Offering	
Name of Selling Stockholders	(#)	(%) (1)	(#)	(#) (1) (2)	(%) (1) (2)
3700 Bigelow Boulevard LLC	10,000	*	10,000	—	*
Abdus Satter(3)	8,040	*	8,040	—	*
ABG Innovation- SO Ltd	400,000	1.5%	400,000	—	*
Achyut Sahasrabudhe	20,000	*	20,000	—	*
Adam Saitman	10,000	*	10,000	—	*
AddSamDev Family LLC	5,000	*	5,000	—	*
Adrienne Graves	13,192	*	13,192	—	*
Aerpio Angels, LLC	253,056	*	253,056	—	*
AgeChem Venture Fund L.P.	47,655	*	47,655	—	*
Alan Fishman	14,219	*	14,219	—	*
Alan J. Young Profit Sharing Plan	10,000	*	10,000	—	*
Albert Gentile & Hiedi Gentile	10,000	*	10,000	—	*
Alexander J. Brown Trust DTD Apr 11 1996	15,000	*	15,000	—	*
Allen Chase Foundation-Special Investment Account	2,000	*	2,000	—	*
Allen O. Cage Jolaine Cage	10,000	*	10,000	—	*
Andrew Brenner	5,000	*	5,000	—	*
Anna Kotsakis Ruehlmann	1,413	*	1,413	—	*
Athenian Venture Partners III L.P.	381,324	1.4%	381,324	—	*
AVP Ohio Technology I L.P.	219,820	*	219,820	—	*
Barbara Withers	29,027	*	29,027	—	*
Barratt L. Phillips	15,000	*	15,000	—	*
Barry D. Chandler & Diane E. Chandler	10,000	*	10,000	—	*
Barry Donner	15,000	*	15,000	—	*
Bisgaier Family LLC	20,000	*	20,000	—	*
Blue Ocean LLC	10,000	*	10,000	—	*
Boost Ventures, Inc.	2,911	*	2,911	—	*

Name of Selling Stockholders	Shares Owned Before the Offering (#)	Shares Owned Before the Offering (%) (1)	Shares Being Offered (#)	Shares Owned After the Offering (#)(1) (2)	Shares Owned After the Offering (%)(1) (2)
Brandi L. Soldo	20,152	*	20,152	—	*
Brent L. Mills	10,000	*	10,000	—	*
Brett House	10,000	*	10,000	—	*
Brett L. Beckfield	10,000	*	10,000	—	*
Brian V. Skillern	10,000	*	10,000	—	*
Brian Walker	7,915	*	7,915	—	*
Bruce Locker	15,000	*	15,000	—	*
Bruce Seyburn	5,000	*	5,000	—	*
Capretti Grandi LLC	10,000	*	10,000	—	*
Castellini Management Company L.P.	97,396	*	97,396	—	*
Charles Hill	10,000	*	10,000	—	*
Charles K. Eby Trust	15,000	*	15,000	—	*
Charles W. Matthews	10,000	*	10,000	—	*
Charlotte S. Hartman	23,144	*	23,144	—	*
Christopher Ernst	25,111	*	25,111	—	*
Christopher Guttilla & Anna Guttilla	30,000	*	30,000	—	*
Christopher L. Fister	21,642	*	21,642	—	*
CincyTech Fund I, LLC	52,806	*	52,806	—	*
Cindy Flinn	9,753	*	9,753	—	*
Clayton A. Struve	20,000	*	20,000	—	*
Clearwater Partners, LLC	20,000	*	20,000	—	*
Clint N. Duty	10,000	*	10,000	—	*
Collar Ltd.	14,890	*	14,890	—	*
Craig Denis Fishman & Lisa E. Fishman	10,000	*	10,000	—	*
Craig Whited	10,000	*	10,000	—	*
D & J Managers LLC	10,000	*	10,000	—	*
Daniel M. Carney	20,000	*	20,000	—	*
Daniel P. Wikel	10,000	*	10,000	—	*
Daniel Pan & Stefany Pan	2,000	*	2,000	—	*
Daniel Pietro & Annette Pietro	10,000	*	10,000	—	*
Daniel Salvas	15,000	*	15,000	—	*
Dapesa Corp	10,000	*	10,000	—	*
David J. Prystash & Lisa J. Prystash	15,000	*	15,000	—	*
David K. Herzog	10,000	*	10,000	—	*
David M. Laurenson	10,000	*	10,000	—	*
David M. Swersky	10,000	*	10,000	—	*
David Moore	10,000	*	10,000	—	*
David P. Bacon & Lucia Warner Bacon	10,000	*	10,000	—	*
David S. Safran & Susan Safran	10,000	*	10,000	—	*
Dennis L. Ross Living Trust	20,000	*	20,000	—	*
Dhaval Desai	75,342	*	75,342	—	*
Diane H. Janusz Trust	4,237	*	4,237	—	*
DJDDT Properties LLC	10,000	*	10,000	—	*
Doreen Mermelstein & Tod Marvin Mermelstein	10,000	*	10,000	—	*
Dov S Rosenberg	205	*	205	—	*
Dover Street VII L.P.	704	*	704	—	*
Doverhill Partners LLC	20,000	*	20,000	—	*
Dr. Larry Burton	10,000	*	10,000	—	*
Duane H. Mathiowetz	10,000	*	10,000	—	*

Name of Selling Stockholders	Shares Owned Before the Offering (#)	(%) (1)	Shares Being Offered (#)	Shares Owned After the Offering (#)(1) (2)	(%) (1)(2)
Duane Nash	38,354	*	38,354	—	*
Duncan M. Scott	20,000	*	20,000	—	*
Dyke Rogers	10,000	*	10,000	—	*
Dyke Rogers 2011 Children's Trust DTD Dec 2 2011	12,000	*	12,000	—	*
Equus Holdings (HK) Limited	5,000	*	5,000	—	*
Ermest S. Riling	10,000	*	10,000	—	*
Ernest W. Moody Revocable Trust dtd Jan 14, 2009	100,000	*	100,000	—	*
F&M Star Alliance Inc.	5,000	*	5,000	—	*
FBO Linoleum City, Inc. M/P/P UTA DTD 12-28-97	10,000	*	10,000	—	*
FirstFire Global Opportunities Fund LLC	40,000	*	40,000	—	*
Fish Creek Partners LLC	40,000	*	40,000	—	*
Four Jr. Investment Ltd	10,000	*	10,000	—	*
Fred Couples	20,000	*	20,000	—	*
Fred Harried & Cindy A. Harried	10,000	*	10,000	—	*
Fred J. Stifter & Regina Tozar Stifter	10,000	*	10,000	—	*
Fred Shalwitz Trust	4,972	*	4,972	—	*
Fred W. Bakker-Arkema & Rebecca W. Bakker-Arkema	7,000	*	7,000	—	*
Gayla W. Carney	10,000	*	10,000	—	*
Gene Ng	4,462	*	4,462	—	*
Geoffrey K. Beach	10,000	*	10,000	—	*
Gerald R. Salerno	10,000	*	10,000	—	*
Gerald T. Aaron Living Trust	15,000	*	15,000	—	*
Gibralt Capital Corporation	50,000	*	50,000	—	*
Grant Beglan	10,000	*	10,000	—	*
H. Alan Gocha	10,000	*	10,000	—	*
Harbourvest Partners VIII-Venture Fund L.P.	1,254	*	1,254	—	*
Harbourvest VII-Venture Ltd	242	*	242	—	*
Harry E. Tyler Trust	10,000	*	10,000	—	*
Ian A.W. Howes	38,796	*	38,796	—	*
Ian A.W. Howes, IRA, Sterling Trust Custodian	9,608	*	9,608	—	*
Ian Jacobs	55,000	*	55,000	—	*
IndoAmerican Trading, Inc.	10,000	*	10,000	—	*
Iroquis Master Fund Ltd	20,000	*	20,000	—	*
Iroquois Capital Investment Group, LLC	40,000	*	40,000	—	*
Irwin Blitt Rev. Trust DTD 1.28.79	40,000	*	40,000	—	*
Isaiah Shalwitz	5,038	*	5,038	—	*
Jaime Vieser	100,000	*	100,000	—	*
James Edwards	10,000	*	10,000	—	*
James F. Holmes	20,000	*	20,000	—	*
James Kevin Snyder	10,000	*	10,000	—	*
James Nealis	10,000	*	10,000	—	*
James R. Grier III Carolyn E. Grier	10,000	*	10,000	—	*
James R. Riggins Trust DTD 4/24/2012	10,000	*	10,000	—	*
Jay Holmes	10,000	*	10,000	—	*
Jay Miselis	10,000	*	10,000	—	*
Jay Zises	70,000	*	70,000	—	*
Jeff Phipps	50,000	*	50,000	—	*
Jennifer Bonfrisco	25,449	*	25,449	—	*
Jeremy J. Klein	10,000	*	10,000	—	*

Name of Selling Stockholders	Shares Owned Before the Offering (#)	Shares Owned Before the Offering (%) (1)	Shares Being Offered (#)	Shares Owned After the Offering (#) (1) (2)	Shares Owned After the Offering (%) (1) (2)
Jerry J. Sokol	10,000	*	10,000	—	*
Jessica Greenfield	5,000	*	5,000	—	*
Jim G. Melton	20,000	*	20,000	—	*
John C. Geraci	20,000	*	20,000	—	*
John D. Brocklehurst	40,000	*	40,000	—	*
John E. Bishop	10,000	*	10,000	—	*
John H. Pomeroy & Jyl E. Pomeroy	15,000	*	15,000	—	*
John H. Wyant	15,355	*	15,355	—	*
John J. Todd	15,000	*	15,000	—	*
John Janusz	31,436	*	31,436	—	*
John Olsen	10,000	*	10,000	—	*
John V. & Michelle Kay Family Trust	10,000	*	10,000	—	*
John V. Wagner, Jr.	10,000	*	10,000	—	*
Jonathan & Gina Blatt Childrens' Trust UA 02.20.2002	3,000	*	3,000	—	*
Jonathan Blatt & Gina Blatt	5,000	*	5,000	—	*
Joseph Aikins	10,000	*	10,000	—	*
Joseph C. Poggio &	10,000	*	10,000	—	*
Joseph F. Lord III	15,000	*	15,000	—	*
Joseph Gardner(4)	593,019	2.2%	593,019	—	*
Joseph H. Alhadeff	10,000	*	10,000	—	*
Joseph Schump	40,000	*	40,000	—	*
Jules P. Devigne	10,000	*	10,000	—	*
Justin Keener d/b/a JMJ Financial	60,000	*	60,000	—	*
Kadi Family Trust DTD 8.31.06	6,000	*	6,000	—	*
Kearny Venture Partners Entrepreneurs Fund, L.P.(5)	32,051	*	32,051	—	*
Kearny Venture Partners, L.P.(5)	1,571,475	5.8%	1,571,475	—	*
Keith Murphy	50,000	*	50,000	—	*
Kevin Mack	10,000	*	10,000	—	*
Kevin Peters(6)	320,536	1.2%	320,536	—	*
Kevin Stadler	10,000	*	10,000	—	*
Kraig Ecker	10,000	*	10,000	—	*
Laura Gambino	29,027	*	29,027	—	*
Laurence Zalk	40,000	*	40,000	—	*
Lawrence Coolidge	20,000	*	20,000	—	*
Lee Harrison Corbin	15,000	*	15,000	—	*
Leonard Samuels & Leah Kaplan-Samuels	6,000	*	6,000	—	*
Leslie Walter	10,000	*	10,000	—	*
Lester Petracca	40,000	*	40,000	—	*
Lies Holdings LLC	10,000	*	10,000	—	*
Lina Kay	27,600	*	27,600	—	*
Lindsay A. Rosenwald	10,000	*	10,000	—	*
Mark Brand	10,000	*	10,000	—	*
Mark N. Jacobson	10,000	*	10,000	—	*
Mark Tompkins	840,000	3.1%	840,000	—	*
Mark W. Lang & Harriet Goldman-Lang	10,000	*	10,000	—	*
Matthew Morgan Bogust	10,000	*	10,000	—	*
McIlwraith Investments, LLC	15,355	*	15,355	—	*
Megos Trading Corp. Limited	5,000	*	5,000	—	*
Michael Bernstein & Marilyn Bernstein	20,000	*	20,000	—	*

Name of Selling Stockholders	Shares Owned Before the Offering (#)	Shares Owned Before the Offering (%) (1)	Shares Being Offered (#)	Shares Owned After the Offering (#) (1) (2)	Shares Owned After the Offering (%) (1) (2)
Michael Bigger	10,000	*	10,000	—	*
Michael Bigger Custodian for Andeas Bigger	10,000	*	10,000	—	*
Michael Bigger Custodian for Mathias Bigger	10,000	*	10,000		
Michael Casey	10,000	*	10,000	—	*
Michael J. Spezia	10,000	*	10,000	—	*
Michael L. Tyler & Melanie B. Tyler	10,000	*	10,000	—	*
Michael L. Willis & Sharon D. Willis	5,000	*	5,000	—	*
Michael Mantaky	10,000	*	10,000	—	*
Michael T. Fricke	20,000	*	20,000	—	*
Michael Zimmerman	2,000	*	2,000	—	*
Michelle Wos	5,276	*	5,276	—	*
Millennium Trust Company Custodian FBO Muneer A. Satter IRA(3)	62,141	*	62,141	—	*
Milton Berlinski	224,282	*	224,282	—	*
Mintz and Co.	60,000	*	60,000	—	*
Mitchell K. Antoon, Jr.	8,251	*	8,251	—	*
Montrose Capital Partners Limited	75,000	*	75,000	—	*
MRB ICBC LLC	224,282	*	224,282	—	*
MRK International, LLC	10,359	*	10,359	—	*
MTAD, LLC	369	*	369	—	*
Muneer A. Satter Revocable Trust(3)	976,568	3.6%	976,568	—	*
NAP SM Investments LLC	86,573	*	86,573	—	*
Neel B. Ackerman & Martha N. Ackerman	10,000	*	10,000	—	*
Neponsit Properties LLC	20,000	*	20,000	—	*
Norman Liss	100,000	*	100,000	—	*
Normand F. Smith	10,000	*	10,000	—	*
Novartis Bioventures Ltd.(7)	5,805,550	21.5%	5,805,550	—	*
O. Lynn Roach & Tammy Jane Roach	10,000	*	10,000	—	*
O. Stuart Chase	2,000	*	2,000	—	*
OrbiMed Private Investments V, LP(8)	4,416,446	16.3%	4,416,446	—	*
Osprey I, LLC	15,000	*	15,000	—	*
Paramount Biosciences LLC	10,000	*	10,000	—	*
Patrick J. Lapone	20,000	*	20,000	—	*
Patti Thomas	10,314	*	10,314	—	*
Paul F. Berlin	10,000	*	10,000	—	*
Paul Sallwasser Teri Kemmerer	10,000	*	10,000	—	*
Paul Tompkins	220,000	*	220,000	—	*
Perry Sutaria	10,000	*	10,000	—	*
QCA First Fund II, LLC	4,932	*	4,932	—	*
QCA First Fund III, LLC	29,074	*	29,074	—	*
R. David Morris	10,000	*	10,000	—	*
Ralph Gitz	20,000	*	20,000	—	*
Randall B. Hall	10,000	*	10,000	—	*
RAQ LLC	10,000	*	10,000	—	*
Revelation TWHVP, LLC(9)	68,322	*	68,322	—	*
Richard A. Buckheim & Susan Bailey	20,000	*	20,000	—	*
Richard Brown	50,000	*	50,000	—	*
Richard C. Eden	40,000	*	40,000	—	*
Richard J. Hall Trust	10,000	*	10,000	—	*

Name of Selling Stockholders	Shares Owned Before the Offering (#)	Shares Owned Before the Offering (%) (1)	Shares Being Offered (#)	Shares Owned After the Offering (#) (1) (2)	Shares Owned After the Offering (%) (1) (2)
Richard J. Kavanagh	10,000	*	10,000	—	*
Richard Mulkerrins	10,000	*	10,000	—	*
RNW LLC	10,000	*	10,000	—	*
Rob Gile	10,000	*	10,000	—	*
Robert A. Green & Lucina Green	10,000	*	10,000	—	*
Robert Burkhardt	5,000	*	5,000	—	*
Robert C. Sorenson	50,000	*	50,000	—	*
Robert D. Frankel	5,000	*	5,000	—	*
Robert H. Castellini Trust DTD 9/7/82	97,396	*	97,396	—	*
Robert J. Reutter	10,000	*	10,000	—	*
Robert J. Viani	20,000	*	20,000	—	*
Robert Kipperman	10,000	*	10,000	—	*
Robert P. Ramchand	20,000	*	20,000	—	*
Robert R. Crawford Revocable Trust	10,000	*	10,000	—	*
Robert Shalwitz	110,923	*	110,923	—	*
Rogco Management	10,000	*	10,000	—	*
Ronald Bonelli & Annette Bonelli	18,000	*	18,000	—	*
Ronald C. Arndorfor & Joan C. Arndorfer	10,000	*	10,000	—	*
Ronald Dozoretz	90,000	*	90,000	—	*
Ronald L. Asher	10,000	*	10,000	—	*
Russel L. Nowack	10,000	*	10,000	—	*
Salvatore T. Butera Jacqueline Butera	10,000	*	10,000	—	*
Sara Graves	15,471	*	15,471	—	*
Satter Medical Technology Partners, L.P.(3)	1,120,000	4.1%	1,120,000	—	*
Scott M. Welsh	15,000	*	15,000	—	*
Selig Zises	20,000	*	20,000	—	*
Shalwitz-Feuerstein Revocable Trust DTD 2/10/2011	10,000	*	10,000	—	*
Sid Kresses & Lee Kresses	10,000	*	10,000	—	*
Sigvion Fund 1, LP	10,475	*	10,475	—	*
SIM—ACWIT Investment Holdings, LLC(3)	31,070	*	31,070	—	*
SIM—GBAHIT Investment Holdings, LLC(3)	8,040	*	8,040	—	*
SIM—KHH Investment Holdings, LLC(3)	31,070	*	31,070	—	*
SIM—RHSIT Investment Holdings, LLC(3)	31,070	*	31,070	—	*
SIM—RSFIT Investment Holdings, LLC(3)	31,070	*	31,070	—	*
SIM—SCT Investment Holdings, LLC(3)	405,764	1.5%	405,764	—	*
SIM—SFT Investment Holdings, LLC(3)	138,930	*	138,930	—	*
Simon Muzio & Enas Muzio	10,000	*	10,000	—	*
SJO Worldwide, LLC	20,000	*	20,000	—	*
Smokeshire Partners LLC	100,000	*	100,000	—	*
Stan Rabinovich	20,000	*	20,000	—	*
Stanton Rowe	30,000	*	30,000	—	*
Stephen Park & Tracy Park	10,000	*	10,000	—	*
Stephen Shumpert	20,000	*	20,000	—	*
Steven C. Nadeau	10,000	*	10,000	—	*
Stuart L. Updegrove & Christine Updegrove	20,000	*	20,000	—	*
Sunstone Partners III LLC	30,000	*	30,000	—	*
The Bahr Family Limited Partnership	10,000	*	10,000	—	*
The Edward J. Mazur Revocable Trust	10,000	*	10,000	—	*
The Gardner Family Trust	116,069	*	116,069	—	*

Name of Selling Stockholders	Shares Owned Before the Offering (#)	Shares Owned Before the Offering (%) (1)	Shares Being Offered (#)	Shares Owned After the Offering (#) (1) (2)	Shares Owned After the Offering (%) (1) (2)
The Gitana Trust	29,894	*	29,894	—	*
The Procter & Gamble Company	31,267	*	31,267	—	*
The Robert A. Shalwitz and Paula Krasnoff Family Trust	2,009	*	2,009	—	*
The Satter Foundation(3)	398,072	1.5%	398,072	—	*
The Trust of Abraham Schloss UAD 06/15/2011	4,000	*	4,000	—	*
Thiruven Narasimhan	10,000	*	10,000	—	*
Thomas L. duPont	10,000	*	10,000	—	*
Thomas McGurk	5,000	*	5,000	—	*
Thomas Zahavi	10,000	*	10,000	—	*
Tim Elmes	5,000	*	5,000	—	*
Todd Carpenter & Debora Carpenter	10,000	*	10,000	—	*
Tom Giftos	20,000	*	20,000	—	*
Trebbah Ltd.	20,000	*	20,000	—	*
Triathlon Medical Ventures	894,933	3.3%	894,933	—	*
Tri-State Growth Capital Fund II, L.P.	326,066	1.2%	326,066	—	*
TWHVP SPV, LLC(9)	7,882	*	7,882	—	*
Venture Investors Early Stage Fund IV Limited Partnership(10)	1,576,167	5.8%	1,576,167	—	*
Veronica Marano Thomas M. Volckening	10,000	*	10,000	—	*
W.F. Miller Revocable Trust	10,000	*	10,000	—	*
White Rock Capital Partners, L.P.	400,000	1.5%	400,000	—	*
William Daly	55,158	*	55,158	—	*
William Haas	10,000	*	10,000	—	*
William M. Huff	10,000	*	10,000	—	*
WS Investment Company, LLC (2016A)	20,727	*	20,727	—	*
WS Investment Company, LLC (2016C)	9,756	*	9,756	—	*
Wuethrich Investments LLC	10,000	*	10,000	—	*
Wyant Family LLC	554	*	554	—	*
Yomi Rodaik	60,000	*	60,000	—	*
Michael Silverman	17,892	*	17,892	—	*
Stephen Renaud	15,092	*	15,092	—	*
Roman Livson	1,984	*	1,984	—	*
Morgan Janssen	2,352	*	2,352	—	*
Peter Janssen	23,968	*	23,968	—	*
EFD Capital Inc.	2,224	*	2,224	—	*
Stuart Updegrove	10,000	*	10,000	—	*
David Morgan	4,220	*	4,220	—	*
Christopher Kazan	1,500	*	1,500	—	*
Eric Hilderbrand	1,000	*	1,000	—	*
Frank Avallone	650	*	650	—	*
Rob Bonaventura	650	*	650	—	*
Marc Goldstein	480	*	480	—	*
Peter Mallone	300	*	300	—	*
Michael Mullen	1,628	*	1,628	—	*
Eric James	1,000	*	1,000	—	*
Vincent D’Albora	500	*	500	—	*
Craig Bonn	360	*	360	—	*
Rob Rotunno	360	*	360	—	*
Nancy Reif	180	*	180	—	*

Name of Selling Stockholders	Shares Owned Before the Offering (#)	Shares Owned Before the Offering (%) (1)	Shares Being Offered (#)	Shares Owned After the Offering (#)(1) (2)	Shares Owned After the Offering (%) (1)(2)
Russ Zalatimo	720	*	720	—	*
Scott Shames	1,780	*	1,780	—	*
Rob Bookbinder	100	*	100	—	*
Todd Rosenzweig	100	*	100	—	*
Roger Monteforte	8,100	*	8,100	—	*
Eric Rapczyk	100	*	100	—	*
Joon Rhee	80	*	80	—	*
National Securities Corporation	61,871	*	61,871	—	*
Jonathan Rich	13,921	*	13,921	—	*
Nikhil Bhambi	1,547	*	1,547	—	*
Raymond James & Associates, Inc.	142,903	*	142,903	—	*

* Less than 1%

(1) Applicable percentage ownership is based on 27,049,555 shares of our common stock outstanding as of March 15, 2017.

(2) Assumes the sale of all shares offered in this prospectus.

(3) Muneer A. Satter, who is our Director, has sole voting and investing power with respect to these shares.

(4) Joseph Gardner is our President, Chief Executive Officer and Director.

(5) Consists of shares owned directly by Kearny Venture Partners, L.P., or KVP, and Kearny Venture Partners Entrepreneurs Fund, L.P., or KVPE. The general partner of both KVP and KVPE is Kearny Venture Associates, L.L.C., or KVA. KVA has the sole voting and investment control over the shares owned by KVP and KVPE, and the Managing Members of KVA share in the voting and investment control over such shares controlled by KVA. The Managing Members of KVA are Caley Castelein, Richard Spalding and James Shapiro. None of the Managing Members of KVA has individual voting or investment power with respect to such shares and each disclaims beneficial ownership of such shares except to the extent of any pecuniary interest therein. Caley Castelein is our Director.

(6) Kevin Peters is our Chief Scientific Officer

(7) Consists of shares owned directly by Novartis Bioventures, Ltd. The board of directors of Novartis Bioventures Ltd. has sole voting and investment control and power over such shares. None of the members of its board of directors has individual voting or investment power with respect to such shares and each disclaims beneficial ownership of such shares. Novartis Bioventures Ltd. is an indirectly-owned subsidiary of Novartis AG.

(8) Consists of shares owned directly by OrbiMed Private Investments III, LP, or OPI III. OrbiMed Advisors LLC, or OrbiMed, is the managing member of GP III, which is the general partner of OPI III. Samuel D. Isaly is the managing member of and owner of a controlling interest in OrbiMed. By virtue of such relationships, GP III, OrbiMed and Mr. Isaly may be deemed to have voting and investment power over the shares held by OPI III and as a result may be deemed to have beneficial ownership of such shares. Chau Khuong, an employee of OrbiMed, is a member of our board of directors. Each of GP III, OrbiMed, Mr. Isaly and Mr. Khuong disclaims beneficial ownership of the shares held by OPI III, except to the extent of its or his pecuniary interest therein, if any.

(9) Consists of shares owned directly by TWHVP SPV, LLC, or TWHVP, and Revelation TWHVP, LLC, or Revelation. The general partner of TWHVP and Revelation is Kearny Venture Associates II, LLC or KVA II. KVA II has the sole voting and investment control over the shares owned by TWHVP and Revelation, and the Managing Members of KVA II have sole voting and investment control over the shares controlled by KVA II. The Managing Members of KVA II are Caley Castelein, Anupam Dalal and Andrew Jensen. None of the Managing Members of KVA II has individual voting or investment power with respect to such shares and each disclaims beneficial ownership of such shares except to the extent of any pecuniary interest therein. Caley Castelein and Anupam Dalal, are each our Directors.

(10) Consists of shares owned directly by Venture Investors Early Stage Fund IV Limited Partnership, or VIESF. The general partner of VIESF, VIESF IV GP LLC, has sole voting and investment control over the shares owned by VIESF. The members of VIESF IV GP LLC, John Neis, Paul M. Weiss, Scott Button, George Arida, James R. Adox, Loren G. Peterson, and Venture Investors Southeast LLC (of which Roger H. Ganser is the sole member), have sole voting and investment power for VIESF IV GP LLC with respect to its voting power in its capacity as General Partner for the shares held by VIESF. None of the members of VIESF IV GP LLC has individual voting or investment power with respect to such shares and each disclaims beneficial ownership of such shares except to the extent of any pecuniary interest therein. Paul Weiss is our Director.

PLAN OF DISTRIBUTION

The selling stockholders, which as used herein includes donees, pledgees, transferees or other successors-in-interest selling shares of common stock or interests in shares of common stock received after the date of this prospectus from a selling stockholder as a gift, pledge, partnership distribution or other transfer, may, from time to time, sell, transfer or otherwise dispose of any or all of their shares of common stock or interests in shares of common stock on any stock exchange, market or trading facility on which the shares are traded or in private transactions. These dispositions may be at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market price, at varying prices determined at the time of sale, or at negotiated prices.

The selling stockholders may use any one or more of the following methods when disposing of shares or interests therein:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent, but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- short sales;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- broker-dealers may agree with the selling stockholders to sell a specified number of such shares at a stipulated price per share;
- a combination of any such methods of sale; and
- any other method permitted pursuant to applicable law.

The selling stockholders may, from time to time, pledge or grant a security interest in some or all of the shares of common stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the shares of common stock, from time to time, under this prospectus, or under an amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act amending the list of selling stockholders to include the pledgee, transferee or other successors in interest as selling stockholders under this prospectus. The selling stockholders also may transfer the shares of common stock in other circumstances, in which case the transferees, pledgees or other successors in interest will be the selling beneficial owners for purposes of this prospectus.

In connection with the sale of our common stock or interests therein, the selling stockholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the common stock in the course of hedging the positions they assume. The selling stockholders may also sell shares of our common stock short and deliver these securities to close out their short positions, or loan or pledge the common stock to broker-dealers that in turn may sell these securities. The selling stockholders may also enter into option or other transactions with broker-dealers or other financial institutions or the creation of one or more derivative securities which require the delivery to such broker-dealer or other financial institution of shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The aggregate proceeds to the selling stockholders from the sale of the common stock offered by them will be the purchase price of the common stock less discounts or commissions, if any. Each of the selling stockholders reserves the right to accept and, together with their agents from time to time, to reject, in whole or

in part, any proposed purchase of common stock to be made directly or through agents. We will not receive any of the proceeds from this offering.

The selling stockholders and any underwriters, broker-dealers or agents that participate in the sale of the common stock or interests therein may be "underwriters" within the meaning of Section 2(11) of the Securities Act. Any discounts, commissions, concessions or profit they earn on any resale of the shares may be underwriting discounts and commissions under the Securities Act. Selling stockholders who are "underwriters" within the meaning of Section 2(11) of the Securities Act will be subject to the prospectus delivery requirements of the Securities Act.

To the extent required, the shares of our common stock to be sold, the names of the selling stockholders, the respective purchase prices and public offering prices, the names of any agents, dealer or underwriter, any applicable commissions or discounts with respect to a particular offer will be set forth in an accompanying prospectus supplement or, if appropriate, a post-effective amendment to this registration statement that includes this prospectus.

In order to comply with the securities laws of some states, if applicable, the common stock may be sold in these jurisdictions only through registered or licensed brokers or dealers. In addition, in some states the common stock may not be sold unless it has been registered or qualified for sale or an exemption from registration or qualification requirements is available and is complied with.

We have advised the selling stockholders that the anti-manipulation rules of Regulation M under the Exchange Act may apply to sales of shares in the market and to the activities of the selling stockholders and their affiliates. In addition, we will make copies of this prospectus (as it may be supplemented or amended from time to time) available to the selling stockholders for the purpose of satisfying the prospectus delivery requirements of the Securities Act. The selling stockholders may indemnify any broker-dealer that participates in transactions involving the sale of the shares against certain liabilities, including liabilities arising under the Securities Act.

We have agreed to indemnify the selling stockholders against liabilities, including liabilities under the Securities Act and state securities laws, relating to the registration of the shares offered by this prospectus.

We have agreed with the selling stockholders to keep this registration statement of which this prospectus constitutes a part effective until the earlier of the fifth anniversary of the date this registration statement is declared effective by the SEC (or, if later, the fifth anniversary of the date that all of the shares required to be registered by us have been included in this registration statement) and such time as all of the shares covered by this prospectus have been disposed of pursuant to and in accordance with the registration statement. With respect to the 17,544,908 shares held by certain of the selling stockholders, we have agreed to grant certain registration rights following the termination of this registration statement of which this prospectus forms a part. See the section of this prospectus captioned "Shares Eligible for Future Sale—Registration Rights."

DESCRIPTION OF CAPITAL STOCK

We have authorized capital stock consisting of 100,000,000 shares of Common Stock and 10,000,000 shares of preferred stock. Following the filing of an amended and restated certificate of incorporation reflecting the capitalization increase, which we expect to occur on the date that is 20 days after the mailing of a definitive Schedule 14C information statement to our pre-Merger stockholders, which occurred on March 27, 2017, our authorized capital stock will consist of 300,000,000 shares of Common Stock and 10,000,000 shares of preferred stock. As of the date of this prospectus, we had 27,049,555 shares of Common Stock issued and outstanding, and no shares of preferred stock issued and outstanding. Unless stated otherwise, the following discussion summarizes the term and provisions of our amended and restated certificate of incorporation and our amended and restated bylaws.

Common Stock

The holders of outstanding shares of Common Stock are entitled to receive dividends out of assets or funds legally available for the payment of dividends of such times and in such amounts as the board from time to time may determine. Holders of Common Stock are entitled to one vote for each share held on all matters submitted to a vote of stockholders. There is no cumulative voting of the election of directors then standing for election. The Common Stock is not entitled to pre-emptive rights and is not subject to conversion or redemption. Upon liquidation, dissolution or winding up of our company, the assets legally available for distribution to stockholders are distributable ratably among the holders of the Common Stock after payment of liquidation preferences, if any, on any outstanding payment of other claims of creditors. Each outstanding share of Common Stock is duly and validly issued, fully paid and non-assessable.

Preferred Stock

Shares of preferred stock may be issued from time to time in one or more series, each of which will have such distinctive designation or title as shall be determined by our board of directors prior to the issuance of any shares thereof. Preferred stock will have such voting powers, full or limited, or no voting powers, and such preferences and relative, participating, optional or other special rights and such qualifications, limitations or restrictions thereof, as shall be stated in such resolution or resolutions providing for the issue of such class or series of preferred stock as may be adopted from time to time by the board of directors prior to the issuance of any shares thereof. Subject to the terms of any preferred stock designation that we may adopt from time to time, the number of authorized shares of preferred stock may be decreased (but not below the number of shares thereof then outstanding) by the affirmative vote of the holders of a supermajority (66 2/3%) of the voting power of all the then outstanding shares of our capital stock entitled to vote generally in the election of the directors, voting together as a single class, plus a supermajority (66 2/3%) of the voting power of the outstanding shares of each class entitled to vote thereon as a class.

While we do not currently have any plans for the issuance of additional preferred stock, the issuance of such preferred stock could adversely affect the rights of the holders of Common Stock and, therefore, reduce the value of the Common Stock. It is not possible to state the actual effect of the issuance of any shares of preferred stock on the rights of holders of the Common Stock until the board of directors determines the specific rights of the holders of the preferred stock; however, these effects may include:

- Restricting dividends on the Common Stock;
- Diluting the voting power of the Common Stock;
- Impairing the liquidation rights of the Common Stock; or
- Delaying or preventing a change in control of our company without further action by the stockholders.

Other than in connection with shares of preferred stock (as explained above), which preferred stock is not currently designated nor contemplated by us, we do not believe that any provision of our amended and restated certificate of incorporation or bylaws would delay, defer or prevent a change in control.

Warrants

As of the date hereof, the Placement Agent Warrants entitle their holders to purchase 317,562 shares of Common Stock, with a term of three years and an exercise price of $5.00 per share.

The Placement Agent Warrants contain customary provisions for adjustment in the event of stock splits, subdivision or combination, mergers, etc.

This summary descriptions of the warrants described above is qualified in their entirety by reference to the forms of such warrants filed as an exhibit to this registration statement of which this prospectus is a part.

Options

Options to purchase shares of Aerpio common stock that were originally granted under Aerpio's 2011 Plan to certain of Aerpio's employees, officers and directors were converted into option to purchase 927,592 shares of our Common Stock with a weighted average exercise price of $1.69 per share when they were assumed by us in connection with the Merger.

Other Convertible Securities

As of the date hereof, other than the securities described above, we do not have any outstanding convertible securities.

Lock-up Agreements

In connection with the Offering, holders of approximately 18.9 million of our Common Stock have entered into Lock-Up Agreements. See "*Shares Eligible for Future Sale—Lock-Up Agreements*" below for more information.

Registration Rights

In connection with the Merger and the Offering, we entered into a Registration Rights Agreement with our investors. See "*Shares Eligible for Future Sale—Registration Rights*" below for more information.

In addition, we entered into a separate registration rights agreement with certain of the pre-Merger stockholders of Aerpio and their affiliates, which we refer to as the Aerpio Registration Rights Agreement. See "*Shares Eligible for Future Sale—Registration Rights*" below for more information.

Anti-Takeover Effects of Provisions of our Amended and Restated Certificate of Incorporation, our Amended and Restated Bylaws and Delaware Law

Some provisions of Delaware law, our amended and restated certificate of incorporation and our amended and restated bylaws contain provisions that could make the following transactions more difficult: acquisition of us by means of a tender offer; acquisition of us by means of a proxy contest or otherwise; or removal of our incumbent officers and directors. It is possible that these provisions could make it more difficult to accomplish or could deter transactions that stockholders may otherwise consider to be in their best interest or in our best interests, including transactions that might result in a premium over the price of our Common Stock.

These provisions, summarized below, are expected to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of us to first negotiate with our board of directors. We believe that the benefits of increased protection of our potential ability to negotiate with the proponent of an unfriendly or unsolicited proposal to acquire or restructure us outweigh the disadvantages of discouraging these proposals because negotiation of these proposals could result in an improvement of their terms.

Delaware Anti-Takeover Statute

We are subject to Section 203 of the Delaware General Corporation Law, which prohibits a person deemed an "interested stockholder" from engaging in a "business combination" with a publicly held Delaware corporation for three years following the date such person becomes an interested stockholder unless the business combination is, or the transaction in which the person became an interested stockholder was, approved in a prescribed manner or another prescribed exception applies. Generally, an "interested stockholder" is a person who, together with affiliates and associates, owns, or within three years prior to the determination of interested stockholder status did own, 15% or more of a corporation's voting stock. Generally, a "business combination" includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. The existence of this provision may have an anti-takeover effect with respect to transactions not approved in advance by the board of directors, such as discouraging takeover attempts that might result in a premium over the price of our Common Stock.

Undesignated Preferred Stock

The ability to authorize undesignated preferred stock makes it possible for our board of directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change control of our company. These and other provisions may have the effect of deterring hostile takeovers or delaying changes in control or management of our company.

Special Stockholder Meetings

Our bylaws provide that a special meeting of stockholders may be called only by a majority of our board of directors then in office.

Requirements for Advance Notification of Stockholder Nominations and Proposals

Our bylaws establish advance notice procedures with respect to stockholder proposals and the nomination of candidates for election as directors, other than nominations made by or at the direction of the board of directors or a committee of the board of directors.

Elimination of Stockholder Action by Written Consent

Our certificate of incorporation will eliminates the right of stockholders to act by written consent without a meeting.

Classified Board; Election and Removal of Directors

Our board of directors is divided into three classes. The directors in each class will serve for a three-year term, one class being elected each year by our stockholders, with staggered three-year terms. Only one class of directors will be elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms. Because our stockholders do not have cumulative voting rights, our stockholders holding a majority of the shares of our Common Stock outstanding will be able to elect all of our directors. In addition, our directors may not be removed without cause, and removal of our directors for cause will require a supermajority (66 2/3%) stockholder vote. For more information on the classified board of

directors, see the section titled *"Management—Board Composition."* This system of electing and removing directors may tend to discourage a third party from making a tender offer or otherwise attempting to obtain control of us, because it generally makes it more difficult for stockholders to replace a majority of the directors.

Choice of Forum

Our amended and restated certificate of incorporation will provide that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware (or, if the Court of Chancery does not have jurisdiction, then the United States District Court for the District of Delaware) will be the exclusive forum for any derivative action or proceeding brought on our behalf; any action asserting a breach of fiduciary duty; any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our amended and restated certificate of incorporation or our bylaws; or any action asserting a claim against us that is governed by the internal affairs doctrine.

Amendment of Charter and Bylaw Provisions

The amendment of any of the above provisions in our amended and restated certificate of incorporation and bylaws, except for the provision making it possible for our board of directors to issue convertible preferred stock, would require a supermajority (66 2/3% and majority of the minority, if applicable) stockholder vote.

Sale or Liquidation

Our amended and restated certificate of incorporation will include provisions that require the approval of a supermajority (66 2/3% and majority of the minority, if applicable) vote of the outstanding shares of our capital stock in order to consummate a liquidation event.

The provisions of the Delaware General Corporation Law, our amended and restated certificate of incorporation and our bylaws could have the effect of discouraging others from attempting hostile takeovers and, as a consequence, they may also inhibit temporary fluctuations in the price of our Common Stock that often result from actual or rumored hostile takeover attempts. These provisions may also have the effect of preventing changes in our management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders may otherwise deem to be in their best interests.

Limitations of Liability and Indemnification Matters

For a discussion of liability and indemnification, please see the section titled *"Directors, Executive Officers, Promoters and Control Persons—Limitation on Liability and Indemnification Matters."*

Transfer Agent

The transfer agent and registrar for our Common Stock is American Stock Transfer & Trust Company, LLC, or AST. AST's address is 6201 15th Avenue, Brooklyn, New York 11219 and its telephone number is 718-921-8200.

SHARES ELIGIBLE FOR FUTURE SALE

Prior to the Merger, there has been a limited public market for our Common Stock. Future sales of our Common Stock, including shares issued upon the exercise of outstanding options or warrants, in the public market after the Merger, or the perception that those sales may occur, could cause the prevailing price for our Common Stock to fall or impair our ability to raise equity capital in the future. As described below, only a limited number of shares of our Common Stock will be available for sale in the public market for a period of several months after consummation of the Merger due to contractual and legal restrictions on resale described below. Future sales of our Common Stock in the public market either before (to the extent permitted) or after restrictions lapse, or the perception that those sales may occur, could adversely affect the prevailing price of our Common Stock at such time and our ability to raise equity capital at a time and price we deem appropriate.

Upon the completion of the Offering, we had 27,049,555 shares of Common Stock outstanding, of which our directors and executive officers beneficially own an aggregate of 12,174,678 shares. Of those outstanding shares, no shares of our Common Stock are freely tradable, without restriction, as of March 15, 2017. No shares issued in connection with the Merger or the Offering can be publicly sold under Rule 144 promulgated under the Securities Act until 12 months after the date of filing of our current report on Form 8-K filed on March 17, 2017.

Sale of Restricted Shares

Of the approximately 27,049,555 shares of Common Stock outstanding upon completion of the Offering, all of such shares will be “restricted securities” as such term is defined in Rule 144. These restricted securities were issued and sold by us, or will be issued and sold by us, in private transactions and are eligible for public sale only if registered under the Securities Act or if they qualify for an exemption from registration under the Securities Act, including the exemptions provided by Rule 144 or Rule 701, which rules are summarized below.

Lock-up Agreements

In connection with the Offering, holders of approximately 18.9 million of our Common Stock have agreed, subject to certain exceptions, not to dispose of or hedge any (or 80% in case of the holders of 915,000 shares) shares of Common Stock or securities convertible into or exchangeable for shares of Common Stock during the period from the date of the lock-up agreement continuing through the date 9 months after the date of the Merger, except with our prior written consent.

Following the lock-up periods set forth in the agreements described above, and assuming that no parties are released from these agreements and that there is no extension of the lock-up period, certain of the shares of Common Stock that are restricted securities or are held by our affiliates as of the date of the Merger will be eligible for sale in the public market in compliance with Rule 144 under the Securities Act.

Rule 144

Pursuant to Rule 144 promulgated under the Securities Act, sales of the securities of a former shell company, such as us, under that rule are not permitted (i) until at least 12 months have elapsed from the date on which our current report on Form 8-K, reflecting our status as a non-shell company, was filed with the SEC, which occurred on March 17, 2017 and (ii) unless at the time of a proposed sale, we are subject to the reporting requirements of Section 13 or 15(d) of the Exchange Act and have filed all reports and other materials required to be filed by Section 13 or 15(d) of the Exchange Act, as applicable, during the preceding 12 months, other than Form 8-K reports. We intend to register such shares for sale under the Securities Act, but are currently a “voluntary filer” and are not subject to the reporting requirements of Section 13 or Section 15(d) of the Exchange Act. As a result, unless we register such shares for sale under the Securities Act, most of our stockholders will be forced to hold their shares of our Common Stock for at least that 12-month period before they are eligible to sell those shares, and even after that 12-month period, sales may not be made under Rule 144 unless we and the selling stockholders are in compliance with other requirements of Rule 144.

In general, Rule 144 provides that (i) any of our non-affiliates that has held restricted Common Stock for at least 12 months is thereafter entitled to sell its restricted stock freely and without restriction, provided that we remain compliant and current with our SEC reporting obligations, and (ii) any of our affiliates, which includes our directors, executive officers and other person in control of us, that has held restricted Common Stock for at least 12 months is thereafter entitled to sell its restricted stock subject to the following restrictions: (a) we are compliant and current with our SEC reporting obligations, (b) certain manner of sale provisions are satisfied, (c) a Form 144 is filed with the SEC, and (d) certain volume limitations are satisfied, which limit the sale of shares within any three-month period to a number of shares that does not exceed 1% of the total number of outstanding shares or, if our Common Stock is then listed or quoted for trading on a national securities exchange, then the greater of 1% of the total number of outstanding shares and the average weekly trading volume of our Common Stock during the four calendar weeks preceding the filing of the Form 144 with respect to the sale. A person who has ceased to be an affiliate at least three months immediately preceding the sale and who has owned such shares of common stock for at least one year is entitled to sell the shares under Rule 144 without regard to any of the limitations described above.

Regulation S

Regulation S under the Securities Act provides that shares owned by any person may be sold without registration in the U.S., provided that the sale is effected in an offshore transaction and no directed selling efforts are made in the U.S. (as these terms are defined in Regulation S), subject to certain other conditions. In general, this means that our shares of Common Stock may be sold in some other manner outside the U.S. without requiring registration in the U.S.

Rule 701

In general, under Rule 701 as currently in effect, any of our employees, directors, officers, consultants or advisors who acquired Common Stock from us in connection with a written compensatory stock or option plan or other written agreement, in compliance with Rule 701 under the Securities Act, before the effective date of the Merger (to the extent such Common Stock is not subject to a lock-up agreement) is entitled to rely on Rule 701 to resell such shares beginning 90 days after we become subject to the public company reporting requirements of the Exchange Act in reliance on Rule 144, but without compliance with the holding period requirements contained in Rule 144. Accordingly, subject to any applicable lock-up agreements, beginning 90 days after we become subject to the public company reporting requirements of the Exchange Act, under Rule 701 persons who are not our “affiliates,” as defined in Rule 144, may resell those shares without complying with the minimum holding period or public information requirements of Rule 144, and persons who are our “affiliates” may resell those shares without compliance with Rule 144’s minimum holding period requirements (subject to the terms of the lock-up agreement referred to above, if applicable).

Registration Rights

Registration Rights Agreement. In connection with the Merger and the Offering, we entered into a Registration Rights Agreement, pursuant to which we have agreed that promptly, but no later than 60 calendar days from the final closing of the Offering, we will file a registration statement with the SEC, or the Registration Statement, covering (a) the shares of Common Stock issued in the Offering, (b) the shares of Common Stock issuable upon exercise of the Placement Agent Warrants, (c) the shares of Common Stock issued in exchange for the equity securities of Aerpio outstanding prior to the Merger and (d) 1,000,000 shares of Common Stock, or collectively, the Registrable Shares. We will use our commercially reasonable efforts to ensure that such Registration Statement is declared effective within 150 calendar days after the final closing of the Offering. If we are late in filing the Registration Statement, if the Registration Statement is not declared effective within 150 days after the final closing of the Offering, if we fail to maintain the Registration Statement continuously effective as to all Registrable Shares included in such Registration Statement or the holders of Registrable Shares cannot use the Registration Statement to resell the Registrable Shares for a period of more than 15 trading days (other than suspension of the Registration Statement in connection with its post-effective amendment in

connection with filing our Annual Report on Form 10-K for the time reasonably required to respond to any comments from the SEC or during a permitted blackout period as described in the Registration Rights Agreement) or after September 15, 2017, the Registrable Shares are not listed for quotation on OTC Markets, Nasdaq, NYSE, or NYSE MKT or trading of the Common Stock is suspended for more than 3 consecutive trading days, we will make payments to each holder of Registrable Shares as monetary penalties at a rate equal to 12% of the Offering Price per annum for each share affected during the period; provided, however, that in no event will the aggregate of any such penalties exceed 5% of the Offering Price per share. No monetary penalties will accrue with respect to any Registrable Shares removed from the Registration Statement in response to a comment from the staff of the SEC limiting the number of shares of Common Stock which may be included in the Registration Statement, or Cutback Comment, or after the Registrable Shares may be resold without volume or other limitations under Rule 144 or another exemption from registration under the Securities Act. Any cutback resulting from a Cutback Comment shall be allocated first to the shares of Common Stock issuable upon the exercise of the Placement Agent Warrants and second to the other Registrable Shares taken together, in each case pro rata based on the total number of such shares held by or issuable to each holder in such group.

We must keep the Registration Statement effective for five years from the date it is declared effective by the SEC or until (i) the Registrable Shares have been sold in accordance with such effective Registration Statement or (ii) the Registrable Shares have been previously sold in accordance with Rule 144. We must comply with the informational requirements of Rule 144 so long as any shares of Common Stock issued in the Offering are subject to Rule 144, regardless of whether we are subject to filing requirements under the Exchange Act.

We will pay all expenses in connection with any registration obligation provided in the Registration Rights Agreement, including, without limitation, all registration, filing, stock exchange fees, printing expenses, all fees and expenses of complying with applicable securities laws, and the fees and disbursements of our counsel and of our independent accountants and reasonable fees and disbursements of counsel to the investors. Each investor will be responsible for its own sales commissions, if any, transfer taxes and the expenses of any attorney or other advisor such investor decides to employ.

Aerpio Registration Rights Agreement. In addition, we entered into a separate registration rights agreement with certain of the pre-Merger stockholders of Aerpio and their affiliates, which we refer to as the Aerpio Registration Rights Agreement. The rights granted to such stockholders under the Aerpio Registration Rights Agreement take effect following such time as the Registration Statement described above no longer remains effective. The holders of 17,544,908 shares of our Common Stock are entitled to rights with respect to the registration of these securities under the Securities Act. The Aerpio Registration Rights Agreement includes demand registration rights, short-form registration rights and piggyback registration rights. All fees, costs and expenses of underwritten registrations under this agreement will be borne by us and all selling expenses, including underwriting discounts and selling commissions, will be borne by the holders of the shares being registered.

Following the date on which the Aerpio Registration Rights Agreement takes effect, we will be required, upon the written request of the holders of 30% of the registrable securities under the Aerpio Registration Rights Agreement, to file a registration statement on Form S-1 (if Form S-3 is not then available to us to use) and use commercially reasonable efforts to effect the registration of all or a portion of these shares for public resale. We are required to effect only two registrations pursuant to this provision of the Aerpio Registration Rights Agreement. In addition, if we are eligible to file a registration statement on Form S-3, upon the written request of the holders of at least 20% of the registrable securities, we will be required to use commercially reasonable efforts to effect a registration of such shares. We are required to effect only two registrations in any twelve month period pursuant to this provision of the Aerpio Registration Rights Agreement. The right to have such shares registered on Form S-3 is further subject to other specified conditions and limitations. If we register any of our securities either for our own account or for the account of other security holders, the holders of these shares are entitled to include their shares in the registration. Subject to certain exceptions contained in the Aerpio Registration Rights Agreement, we and the underwriters may limit the number of shares included in the

underwritten offering to the number of shares which we and the underwriters determine in our sole discretion will not jeopardize the success of the offering. The Aerpio Registration Rights Agreement contains customary cross-indemnification provisions, under which we are obligated to indemnify holders of registrable securities in the event of material misstatements or omissions in the registration statement attributable to us, and they are obligated to indemnify us for material misstatements or omissions attributable to them.

All descriptions of the Registration Rights Agreement herein are qualified in their entirety by reference to the text thereof filed as Exhibit 10.5 hereto, and all descriptions of the Aerpio Registration Rights Agreement herein are qualified in their entirety by reference to the text thereof filed as Exhibit 10.9 hereto each of which is incorporated herein by reference.

Stock Plans

We intend to file with the SEC a registration statement under the Securities Act covering the shares of Common Stock that we may issue (i) upon exercise of outstanding options under the assumed 2011 Plan, and (ii) that are outstanding or reserved for issuance under the 2017 Plan and the ESPP. Such registration statement is expected to be filed and become effective as soon as practicable after the consummation of the Merger and registration of our shares of Common Stock with the SEC pursuant to this registration statement on Form S-1. Accordingly, shares registered under such registration statement will be available for sale in the open market following its effective date, subject to Rule 144 volume limitations and the lock-up agreements described above, if applicable.

LEGAL MATTERS

The validity of the shares of common stock being offered by this prospectus will be passed upon for us by Goodwin Procter LLP, Boston, Massachusetts.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited the financial statements of Aerpio Pharmaceuticals, Inc. at December 31, 2016 and 2015, and for each of the two years in the period ended December 31, 2016, as set forth in their report. We have included the financial statements of Aerpio Pharmaceuticals, Inc. in the prospectus and elsewhere in this registration statement in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC this registration statement on Form S-1 under the Securities Act with respect to the shares of common stock being offered by this prospectus. This prospectus, which constitutes a part of this registration statement, does not contain all of the information in this registration statement and its exhibits. For further information with respect to us and the common stock offered by this prospectus, you should refer to this registration statement and the exhibits filed as part of that document. Statements contained in this prospectus as to the contents of any contract or any other document referred to are not necessarily complete, and in each instance, we refer you to the copy of the contract or other document filed as an exhibit to this registration statement. Each of these statements is qualified in all respects by this reference.

We are subject to the informational requirements of the Exchange Act and file annual, quarterly and current reports, proxy statements and other information with the SEC. You can read our SEC filings, including this registration statement, over the Internet at the SEC's website at http://www.sec.gov. You may also read and copy any document we file with the SEC at its public reference facilities at 100 F Street, N.E., Washington, D.C. 20549. You may also obtain copies of these documents at prescribed rates by writing to the Public Reference Section of the SEC at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the public reference facilities. You may also request a copy of these filings, at no cost, by writing or telephoning us at: 9987 Carver Road, Cincinnati, OH 45242, (513) 985-1920. In addition, all documents subsequently filed by us pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, prior to the termination of the offering (excluding any information furnished rather than filed) shall be deemed to be incorporated by reference into this prospectus.

AERPIO PHARMACEUTICALS, INC.

Unaudited Condensed Consolidated Financial Statements

Three Months Ended March 31, 2017 and 2016

Contents

PART I—FINANCIAL INFORMATION

Item 1. Financial Statements.

AERPIO PHARMACEUTICALS, INC.

Condensed Consolidated Balance Sheets

	March 31, 2017 (unaudited)	December 31, 2016
Assets		
Current assets:		
Cash and cash equivalents	**$ 35,139,109**	$ 1,609,694
Short-term investments	**50,000**	50,000
Accounts receivable	**32,453**	4,157
Prepaid research and development contracts	**297,158**	353,434
Other current assets	**602,488**	209,038
Total current assets	**36,121,208**	2,226,323
Furniture and equipment, net	**138,147**	149,595
Deposits	**20,960**	20,960
Total assets	**$ 36,280,315**	$ 2,396,878
Liabilities, redeemable convertible preferred stock, and stockholders' equity (deficit)		
Current liabilities:		
Accounts payable and accrued expenses	**$ 2,970,048**	$ 2,470,970
Convertible notes	**—**	12,386,647
Total current liabilities	**2,970,048**	14,857,617
Commitments and contingencies (Note 10)		
Redeemable convertible preferred stock (all classes)	**—**	73,757,890
Stockholders' equity (deficit):		
Common stock, $0.0001 par value per share; 300,000,000 and 17,440,436 shares authorized and 27,049,555 and 1,240,925 shares issued and outstanding at March 31, 2017 and December 31, 2016 respectively.	**2,705**	124
Additional paid-in capital	**125,465,315**	—
Accumulated deficit	**(92,157,753)**	(86,218,753)
Total stockholders' equity (deficit)	**33,310,267**	(86,218,629)
Total liabilities, redeemable convertible preferred stock, and stockholders' equity (deficit)	**$ 36,280,315**	$ 2,396,878

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

AERPIO PHARMACEUTICALS, INC.

Condensed Consolidated Statements of Operations and Comprehensive Loss

	Three months ended March 31,	
	2017	2016
	(unaudited)	
Operating expenses:		
Research and development	**$ 2,255,584**	$ 2,989,558
General and administrative	**2,504,001**	1,215,885
Total operating expenses	**4,759,585**	4,205,443
Loss from operations	**(4,759,585)**	(4,205,443)
Grant income	**35,657**	8,670
Interest (expense) income, net	**(271,775)**	1,078
Other income, net	**—**	997
Total other (expense) income	**(236,118)**	10,745
Net loss and comprehensive loss	**$ (4,995,703)**	$ (4,194,698)
Reconciliation to net loss attributable to common stockholders:		
Net loss and comprehensive loss	**$ (4,995,703)**	$ (4,194,698)
Accretion of preferred stock to redemption value	**(943,297)**	(1,015,371)
Net Loss attributable to common stockholders	**$ (5,939,000)**	$ (5,210,069)
Net loss per share attributable to common stockholders, basic and diluted	**$ (1.06)**	$ (7.07)
Weighted average number of common shares used in computing net loss per share attributable to common stockholders, basic and diluted	**5,605,151**	737,016

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

AERPIO PHARMACEUTICALS, INC.

Condensed Consolidated Statements of Stockholders Equity (Deficit)

	Redeemable Convertible Preferred Stock (all classes)		Stockholders' Equity (Deficit)				
			Common Stock		Additional Paid-In Capital	Accumulated Deficit	Total
	Shares	Total	Shares	Par Value			
Balance at December 31, 2016	14,015,016	$ 73,757,890	1,240,925	$ 124	—	$(86,218,753)	$(86,218,629)
Adjustment of redeemable convertible preferred stock to redemption value	—	943,297	—	—	—	(943,297)	(943,297)
Conversion of preferred stock	(14,015,016)	(74,701,187)	14,015,016	1,402	74,699,785	—	74,701,187
Conversion of convertible notes and accrued interest	—	—	2,744,059	274	13,447,660	—	13,447,934
Share exchange in connection with Merger	—	—	1,000,000	100	(100)	—	—
Issuance of common stock, net of issuance costs	—	—	8,049,555	805	37,162,585	—	37,163,390
Share-based compensation expense	—	—	—	—	155,385	—	155,385
Net loss	—	—	—	—	—	(4,995,703)	(4,995,703)
Balance at March 31, 2017	—	—	27,049,555	$ 2,705	$125,465,315	$(92,157,753)	$ 33,310,267

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

AERPIO PHARMACEUTICALS, INC.

Condensed Consolidated Statements of Cash Flows

	Three months ended March 31, 2017	2016
	(unaudited)	
Operating activities:		
Net loss	**$ (4,995,703)**	$ (4,194,698)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation	**13,656**	16,485
Stock-based compensation	**155,385**	125,215
Amortization of debt issuance costs	**75,561**	—
Interest expense related to convertible note conversion	**204,929**	—
Changes in operating assets and liabilities:		
Accounts receivable	**(28,296)**	63,457
Prepaid expenses and current other assets	**(337,174)**	214,040
Accounts payable and other current liabilities	**982,521**	(97,626)
Net cash used in operating activities	**(3,929,121)**	(3,873,127)
Investing activities:		
Purchase of furniture and equipment	**(2,208)**	(110,449)
Net cash used in investing activities	**(2,208)**	(110,449)
Financing activities:		
Proceeds from issuances of convertible notes	**297,354**	—
Proceeds from sale of common stock	**40,247,775**	—
Cash paid in connection with the sale of common stock	**(3,084,385)**	—
Net cash provided by financing activities	**37,460,744**	—
Net increase (decrease) in cash and cash equivalents	**33,529,415**	(3,983,576)
Cash and cash equivalents at beginning of year	**1,609,694**	5,144,211
Cash and cash equivalents, three months ended	**$ 35,139,109**	$ 1,160,635
Non-cash financing activities		
Conversion of preferred stock into common stock	**$ 74,701,187**	$ —
Conversion of notes and accrued interest into common stock	**13,447,934**	—
Accretion of preferred stock to redemption value	**943,297**	1,015,371

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

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(UNAUDITED)

1. Nature of Organization and Operations

Aerpio Pharmaceuticals, Inc. (the "Company") was incorporated as Zeta Acquisition Corp. II ("Zeta") in the State of Delaware on November 16, 2007. Prior to the Merger, (as defined below), Zeta was a "shell company" (as defined in Rule 12b-2 of the Securities Exchange Act of 1934, as amended).

On March 3, 2017, the Company's Board of Directors, and on March 10, 2017, the Company's pre-Merger (as defined below) stockholders, approved an amended and restated certificate of incorporation, which, among other things, increased authorized capital stock from 100,000,000 shares of common stock, par value $0.0001 per share, and 10,000,000 shares of preferred stock, par value $0.0001 per share, to 300,000,000 shares of common stock, par value $0.0001 per share, and 10,000,000 shares of preferred stock, par value $0.0001 per share.

On March 15, 2017, Zeta changed its name to Aerpio Pharmaceuticals, Inc. and its wholly-owned subsidiary, Aerpio Acquisition Corp., a corporation formed in the State of Delaware on March 3, 2017, merged with and into Aerpio Therapeutics, Inc., ("Aerpio"), (the "Merger"), a corporation incorporated on November 17, 2011 in the State of Delaware. Pursuant to the Merger, Aerpio remained as the surviving corporation and became the Company's wholly-owned subsidiary.

At the effective time of the Merger, the shares of the Aerpio's (i) common stock issued and outstanding immediately prior to the closing of the Merger (including restricted common stock, whether vested or unvested, issued under the Aerpio's 2011 Equity Incentive Plan), and (ii) redeemable convertible preferred stock issued and outstanding immediately prior to the closing of the Merger, were converted into shares of the Company's common stock. In addition, immediately prior to the Merger, the outstanding amounts under certain Senior Secured Convertible Promissory Notes issued by Aerpio to its pre-Merger noteholders were converted into shares of Aerpio's preferred stock, which were then converted to shares of Aerpio's common stock and subsequently were converted into shares of the Company's common stock, together with the other shares of the Aerpio's common stock described above. In addition, pursuant to the Merger Agreement options to purchase shares of the Aerpio's common stock issued and outstanding immediately prior to the closing of the Merger were assumed and converted into options to purchase shares of the Company's common stock. All the outstanding capital stock of Aerpio was converted into shares of the Company's common stock on a 2.3336572:1 basis.

As a result of the Merger, the Company acquired the business of Aerpio and will continue the existing business operations of Aerpio as a public reporting company under the name Aerpio Pharmaceuticals, Inc. Immediately after the Merger, on March 15, 2017, Aerpio converted into a Delaware limited liability company (the "Conversion").

Immediately following the Conversion, the pre-Merger stockholders of Zeta surrendered for cancellation 4,000,000 of the 5,000,000 shares of the outstanding common stock of Zeta, (the "Share Cancellation"). Following the Share Cancellation, on March 15, 2017, the Company closed a private placement offering (the "Offering") of 8,049,555 shares of the Company's common stock, at a purchase price of $5.00 per share, for net proceeds of approximately $37.2 million and the issuance of warrants with a term of three years, to purchase 317,562 shares of the Company's common stock at an exercise price of $5.00 per share.

The Merger was treated as a recapitalization and reverse acquisition for financial reporting purposes. The Company is the legal acquirer of Aerpio in the transaction. However, Aerpio is considered the acquiring company for accounting purposes since (i) former Aerpio stockholders own in excess of 50% of the combined enterprise on a fully diluted basis immediately following the Merger and Offering, and (ii) all members of the Company's executive management and Board of Directors are from Aerpio. In accordance with "reverse merger" or "reverse acquisition" accounting treatment, the unaudited condensed consolidated interim financial statements

for the period ended March 31, 2017 include the accounts of the Company and its wholly owned subsidiary, Aerpio Therapeutics, LLC. The comparative historical financial statements for periods ended prior to the date of the Merger are the historical financial statements of Aerpio. Consequently, the assets and liabilities and the historical operations that are reflected in these condensed consolidated financial statements of the company are those of Aerpio, which were recorded at their historical cost basis. Unless otherwise indicated, all share and per share figures reflect the exchange of each 2.3336572 shares of Aerpio capital stock, convertible notes and share based awards, then outstanding, for 1 share of the Company's common stock at the effective time of the Merger.

The Company is a biopharmaceutical company focused on advancing first-in-class treatments for ocular disease. The Company's lead product candidate, AKB-9778, a small molecule activator of the tie-2 pathway, is being developed for the treatment of diabetic retinopathy ("DR"). Tie-2 signaling is essential for regulating blood vessel development and the stability of mature vessels. The Company has completed a Phase 2a clinical trial in diabetic macular edema ("DME"), a swelling of the retina that is a common cause of vision loss in patients with DR and intends to initiate a twelve month, double blind Phase 2b clinical trial in patients with DR who have not developed more serious complications such as DME or proliferative diabetic retinopathy. The DR clinical trial will be initiated in the second quarter of 2017.

In addition, the Company has two pipeline programs. AKB-4924 is a drug candidate for the treatment of inflammatory bowel disease and ARP-1536, humanized monoclonal antibody is a drug candidate for ocular disease. Humanized antibodies are antibodies from non-human species whose protein sequences have been modified to increase their similarity to antibodies produced naturally in humans. The Company completed a Phase 1a clinical trial in healthy volunteers for AKB-4924 and APR-1536 is currently in preclinical development. Further development on the pipeline programs is subject to receiving additional funding, which the Company may seek through collaborations with potential strategic and commercial partners.

The Company's operations to date have been limited to organizing and staffing the Company, business planning, raising capital, acquiring and developing its technology, identifying potential product candidates, and undertaking preclinical and clinical studies. The Company has not generated any revenues to date, nor is there any assurance of any future revenues. The Company's product candidates are subject to long development cycles, and there is no assurance the Company will be able to successfully develop, obtain regulatory approval for, or market its product candidates.

The Company is subject to a number of risks similar to other life science companies in the current stage of its life cycle, including, but not limited to, the need to obtain adequate additional funding, possible failure of preclinical testing or clinical trials, the need to obtain marketing approval for its product candidates, competitors developing new technological innovations, the need to successfully commercialize and gain market acceptance of any of the Company's products that are approved, and protection of proprietary technology. If the Company does not successfully commercialize any of its products or mitigate any of these other risks, it will be unable to generate revenue or achieve profitability.

2. Summary of Significant Accounting Policies

Basis of Presentation

The unaudited condensed consolidated financial statements have been prepared in accordance with U.S. Securities and Exchange Commission (SEC) regulations and include all of the information and disclosures required by generally accepted accounting principles in the United States ("U.S. GAAP" or "GAAP") for interim financial reporting, and, in the opinion of management include all adjustments necessary for a fair presentation of the results of operations, financial position and cash flows for each period presented. All adjustments are of a normal and recurring nature. These unaudited condensed consolidated financial statements should be read in conjunction with the consolidated financial statements of Aerpio Pharmaceuticals, Inc. and related footnotes for the year ended December 31, 2016, included in the Company's Registration Statement on Form S-1. The results of operations for the interim periods are not necessarily indicative of results of operations for a full year. The Company's condensed consolidated financial statements are stated in U.S. Dollars.

Segment Information

Operating segments are defined as components of an enterprise about which separate discrete information is available for evaluation by the chief operating decision maker, or decision-making group, in deciding how to allocate resources and in assessing performance. The Company views its operations and manages its business in one operating segment, which is the business of developing and commercializing proprietary therapeutics. All the assets and operations of the Company's sole operating segment are located in the United States of America.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results may differ from those estimates. Management considers many factors in selecting appropriate financial accounting policies and controls and in developing the estimates and assumptions that are used in the preparation of these consolidated financial statements. Management must apply significant judgment in this process. In addition, other factors may affect estimates, including expected business and operational changes, sensitivity and volatility associated with the assumptions used in developing estimates, and whether historical trends are expected to be representative of future trends. The estimation process often may yield a range of potentially reasonable estimates of the ultimate future outcomes, and management must select an amount that falls within that range of reasonable estimates. Estimates are used in the following areas, among others: fair value of the Company's common stock and other equity instruments, accrued expenses, and income taxes.

The Company utilizes significant estimates and assumptions in determining the fair value of its common stock and other equity instruments. The Company granted stock options at exercise prices not less than the fair value of its common stock, as determined by the Board of Directors contemporaneously at the date such grants were made. The Board of Directors has determined the estimated fair value of the Company's common stock based on a number of objective and subjective factors, including external market conditions affecting the biotechnology industry sector and the prices at which the Company sold shares of preferred stock, the superior rights and preferences of securities senior to the Company's common stock at the time, and the likelihood of achieving a liquidity event, such as a public offering or sale of the Company.

Historically, the Company utilized various valuation methodologies in accordance with the framework of the American Institute of Certified Public Accountants Technical Practice Aid, *Valuation of Privately-Held Company Equity Securities Issued as Compensation*, to estimate the fair value of its common stock. Each valuation methodology includes estimates and assumptions that require the Company's judgment. These estimates and assumptions include a number of objective and subjective factors, including external market conditions, the prices at which the Company sold shares of redeemable convertible preferred stock, the superior rights and preferences of securities senior to the Company's common stock at the time, and, at December 31, 2016, a probability analysis of various liquidity events under differing scenarios, including both a potential public trading scenario and potential sale scenario. Significant changes to the key assumptions used in the valuations could result in different fair values of common stock and other equity instruments at each valuation date.

The Company's results can also be affected by economic, political, legislative, regulatory, and legal actions. Economic conditions, such as recessionary trends, inflation, interest and monetary exchange rates, government fiscal policies, and changes in the prices of research studies, can have a significant effect on operations. While the Company maintains reserves for anticipated liabilities and carries various levels of insurance, the Company could be affected by civil, criminal, regulatory or administrative actions, claims, or proceedings.

Cash and Cash Equivalents

Cash and cash equivalents consist of all cash on hand, deposits, and funds invested in short-term investments with remaining maturities of three months or less at the time of purchase. The Company may maintain balances with its banks in excess of federally insured limits.

Short-Term Investments

Time deposits with remaining maturities of greater than three months but less than one year at the time of purchase are classified as short-term investments in the accompanying balance sheets.

Grant Income

Grant income is recognized as earned based on contract work performed.

Research and Development

Costs incurred in connection with research and development activities are expensed as incurred. Research and development expense consists of (i) employee-related expenses, including salaries, benefits, travel, and stock-based compensation expense; (ii) external research and development expenses incurred under arrangements with third parties, such as contract research organizations and consultants; (iii) the cost of acquiring, developing, and manufacturing clinical study materials; (iv) facilities and other expenses, which include direct and allocated expenses for rent and maintenance of facilities and laboratory and other supplies; and (v) costs associated with preclinical activities and regulatory operations.

The Company enters into consulting, research, and other agreements with commercial firms, researchers, universities, and others for the provision of goods and services.

Under such agreements, the Company may pay for services on a monthly, quarterly, project, or other basis. Such arrangements are generally cancellable upon reasonable notice and payment of costs incurred. Costs are considered incurred based on an evaluation of the progress to completion of specific tasks under each contract using information and data provided to the Company by its clinical sites and vendors. These costs consist of direct and indirect costs associated with specific projects, as well as fees paid to various entities that perform certain research on behalf of the Company.

Patents

Costs incurred in connection with the application for and issuances of patents are expensed as incurred.

Income Taxes

Income taxes are recorded in accordance with Financial Accounting Standards Board (“FASB”) Accounting Standards Codification (ASC) Topic 740, *Income Taxes*, which provides for deferred taxes using an asset and liability approach. The Company recognizes deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the financial statements or tax returns. Deferred tax assets and liabilities are determined based on the difference between the financial statement and tax bases of assets and liabilities and for loss and credit carryforwards using enacted tax rates anticipated to be in effect for the year in which the differences are expected to reverse. Valuation allowances are provided, if, based upon the weight of available evidence, it is more likely than not that some or all of the deferred tax assets will not be realized.

The Company accounts for uncertain tax positions in accordance with the provisions of ASC 740. When uncertain tax positions exist, the Company recognizes the tax benefit of tax positions to the extent that some or

all of the benefit will more likely than not be realized. The determination as to whether the tax benefit will more likely than not be realized is based upon the technical merits of the tax position, as well as consideration of the available facts and circumstances. As of March 31, 2017, and December 31, 2016, the Company does not have any significant uncertain tax positions. If incurred, the Company would classify interest and penalties on uncertain tax positions as income tax expense.

Net Loss per Share

The Company's basic net loss per share attributable to common stockholders is calculated by dividing the net loss attributable to common stockholders by the weighted average number of shares of common stock outstanding for the period. The diluted net loss per share attributable to common stockholders is computed by adjusting the weighted average shares outstanding for the dilutive effect of common stock equivalents outstanding for the period, determined using the treasury stock method. For purposes of this calculation, convertible preferred stock, convertible notes payable, stock options to purchase common stock, warrants, and unvested restricted stock awards are considered to be common stock equivalents but have been excluded from the calculation of diluted net loss per share attributable to common stockholders as their effect is anti-dilutive for all periods presented. Therefore, basic and diluted net loss per share were the same for all periods presented.

For all periods presented, all share and per share amounts have been retrospectively adjusted to reflect the exchange of each 2.3336572 shares of Aerpio capital stock and share based awards then outstanding, for 1 share of the Company's common stock at the effective time of the Merger.

Stock-Based Compensation

The Company accounts for its stock-based compensation awards in accordance with FASB ASC Topic 718, *Compensation—Stock Compensation*. ASC 718 requires all stock-based payments to employees, including grants of employee stock options and restricted stock, to be recognized in the statements of operations and comprehensive loss based on their fair values. All the Company's stock-based awards are subject only to service-based vesting conditions. The Company estimates the fair value of its stock-based awards using the Black-Scholes option pricing model, which requires the input of subjective assumptions, including (a) the expected stock price volatility, (b) the calculation of expected term of the award, (c) the risk-free interest rate, and (d) expected dividends. The fair value of restricted stock awards is determined based on the Company's estimated common stock value.

Due to the lack of a public market for the trading of the Company's common stock and a lack of company-specific historical and implied volatility data, the Company has based its estimate of expected volatility on the historical volatility of a group of similar companies that are publicly traded. The computation of expected volatility is based on the historical volatility of a representative group of companies with similar characteristics to the Company, including stage of product development and life science industry focus. The Company believes the group selected has sufficient similar economic and industry characteristics and includes companies that are most representative of the Company.

The Company uses the simplified method as prescribed by the Securities and Exchange Commission Staff Accounting Bulletin No. 107, *Share-Based Payment*, to calculate the expected term, as it does not have sufficient historical exercise data to provide a reasonable basis upon which to estimate the expected term for options granted to employees, and utilizes the contractual term for options granted to non-employees. The expected term is applied to the stock option grant group as a whole, as the Company does not expect substantially different exercise or post-vesting termination behavior among its employee population. The risk-free interest rate is based on a treasury instrument whose term is consistent with the expected life of the stock options.

Compensation expense related to awards to employees is calculated on a straight-line basis by recognizing the grant date fair value over the associated service period of the award, which is generally the vesting term.

Awards to non-employees are adjusted through share-based compensation expense as the award vests to reflect the current fair value of such awards and are expensed using an accelerated attribution model.

Fair Value of Financial Instruments

The Company's financial instruments consist of cash equivalents, short-term investments, accounts receivable, and accounts payable. The Company values cash equivalents using quoted market prices. The valuation technique used to measure the fair value of short-term investments was based on net asset values corroborated with observable market data. The fair value of accounts receivable and accounts payable approximate the carrying value because of their short-term nature.

The Company is required to disclose information on all assets and liabilities reported at fair value that enables an assessment of the inputs used in determining the reported fair values. FASB ASC Topic 820, *Fair Value Measurements and Disclosures*, establishes a hierarchy of inputs used in measuring fair value that maximizes the use of observable inputs and minimizes the use of unobservable inputs by requiring that the observable inputs be used when available.

Observable inputs are inputs that market participants would use in pricing the asset or liability based on market data obtained from sources independent of the Company. Unobservable inputs are inputs that reflect the Company's assumptions about the inputs that market participants would use in pricing the asset or liability and are developed based on the best information available in the circumstances. The fair value hierarchy applies only to the valuation inputs used in determining the reported fair value of the investments and is not a measure of the investment credit quality. The three levels of the fair value hierarchy are described below:

- Level 1—Valuations based on unadjusted quoted prices in active markets for identical assets or liabilities that the Company has the ability to access at the measurement date
- Level 2—Valuations based on quoted prices for similar assets or liabilities in markets that are not active or for which all significant inputs are observable, either directly or indirectly
- Level 3—Valuations that require inputs that reflect the Company's own assumptions that are both significant to the fair value measurement and unobservable

To the extent that a valuation is based on models or inputs that are less observable or unobservable in the market, the determination of fair value requires more judgment. Accordingly, the degree of judgment exercised by the Company in determining fair value is greatest for instruments categorized in Level 3. A financial instrument's level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. There were no transfers within the fair value hierarchy in the three months ended March 31, 2017 or March 31, 2016. The assets of the Company measured on a recurring basis as of March 31, 2017 and December 31, 2016 basis are summarized below:

	Fair Value Measurements Using			
	Level 1	Level 2	Level 3	Total
March 31, 2017				
Assets:				
Cash and cash equivalents	**$35,139,109**	**$ —**	**$ —**	**$35,139,109**
Short-term investments	**—**	**50,000**	**—**	**50,000**
Total assets	**$35,139,109**	**$50,000**	**$ —**	**$35,189,109**
December 31, 2016				
Assets:				
Cash and cash equivalents	$ 1,609,694	$ —	$ —	$ 1,609,694
Short-term investments	—	50,000	—	50,000
	$ 1,609,694	$50,000	$ —	$ 1,659,694

Concentrations of Credit Risk and Off-Balance Sheet Risk

Cash and cash equivalents and short-term investments are the only financial instruments that potentially subject the Company to concentrations of credit risk. At March 31, 2017 and December 31, 2016, all the Company's cash was deposited in accounts at two principal financial institutions. The Company maintains its cash and cash equivalents and short-term investments with a high-quality, accredited financial institution and, accordingly, such funds are subject to minimal credit risk. The Company has no significant off-balance sheet concentrations of credit risk, such as foreign currency exchange contracts, option contracts, or other hedging arrangements.

Comprehensive Loss

Comprehensive loss is defined as the change in equity of a business enterprise during a period from transactions and other events and circumstances from non-owner sources, if any. Comprehensive loss equaled net loss for all periods presented.

Furniture and Equipment

Furniture and equipment is stated at cost, less accumulated depreciation. Furniture and equipment is depreciated using the straight-line method over the estimated useful lives of the assets, generally three to seven years. Such costs are periodically reviewed for recoverability when impairment indicators are present. Such indicators include, among other factors, operating losses, unused capacity, market value declines, and technological obsolescence. Recorded values of asset groups of property, plant, and equipment that are not expected to be recovered through undiscounted future net cash flows are written down to current fair value, which generally is determined from estimated discounted future net cash flows (assets held for use) or net realizable value (assets held for sale).

Research and Development Costs

Research and development costs are expensed as incurred.

Recent Accounting Pronouncements

From time to time, new accounting pronouncements are issued by the FASB or other standard setting bodies and adopted by the Company as of the specified effective date. Unless otherwise discussed, the Company believes the impact of recently issued standards that are not yet effective will not have a material impact on its financial position or results of operations upon adoption.

In March 2016, the FASB issued ASU 2016-09, "Improvements to Employee Share-Based Payment Accounting." This ASU is intended to simplify accounting for share-based payments and requires that excess tax benefits for share-based payments be recorded as a reduction of income tax expense and reflected within operating cash flows rather than being recorded within equity and reflected within financing cash flows. The ASU also provides an option for companies to recognize forfeitures as they occur rather than estimating the number of awards expected to be forfeited. The Company adopted this ASU on January 1, 2017 and is applying the new guidance related to excess tax benefits on a prospective basis. The Company has also elected to account for forfeitures of share-based payments as they occur. The effect of adoption was not material to the condensed consolidated financial statements.

In February 2016, the FASB issued ASU 2016-02, *Leases*. This ASU will require lessees to recognize almost all leases on the balance sheet as a right-of-use asset and a lease liability. For income statement purposes, the FASB retained a dual model, requiring leases to be classified as finance leases or operating leases. This update is effective for interim and annual periods beginning after December 15, 2018, with early adoption permitted. The Company is currently assessing the effect that adoption of the new standard will have on its condensed consolidated financial statements.

3. Related-Party Arrangements

Aerpio was initially capitalized in December 2011 in a spinout transaction from Akebia Therapeutics, Inc. (Akebia) to enable more rapid development of its compounds. In connection with the spinout of Aerpio from Akebia, the companies entered into shared services agreements. Under the terms of the shared services agreements, Akebia and Aerpio obtained from and provided to each other certain services, as outlined below. These agreements were expired at December 31, 2016.

Below is a summary of the activities included in the statements of operations and comprehensive loss:

Activity	Financial Statement Caption	Three Months Ended March 31, 2017	2016
Akebia related employee costs	Research and development operating expenses	$ —	$ 12,923
Facility-related reimbursement	Other income, net	—	997

4. Accounts Payable and Accrued Expenses

Accounts payable and accrued expenses are as follows:

	March 31, 2017	December 31, 2016
Accounts payable	**$ 1,871,662**	$ 1,135,608
Professional fees	**300,356**	200,468
Accrued bonus	**125,576**	—
Accrued interest	**—**	483,442
Accrued vacation	**106,199**	52,835
Accrued project costs	**510,828**	541,158
Other	**55,427**	57,459
Total accounts payable and accrued expenses	**$ 2,970,048**	$ 2,470,970

5. Notes Payable to Investors

In March 2016, Aerpio entered into a senior secured convertible note financing (the “Convertible Notes” or the “Convertible Note Financing”) totaling approximately $9,000,000, with certain preferred investors of Aerpio. All preferred investors were invited to participate in the Convertible Notes Financing. At March 31, 2017 and December 31, 2016 the unamortized debt issuance costs related to Convertible Note financings was $0 and $75,561. In connection with the Convertible Note Financing, Aerpio’s Articles of Incorporation were amended such that any Aerpio preferred that did not participate in the Aerpio Convertible Note Financing would have their respective shares of Aerpio preferred stock automatically converted into Aerpio common stock using a 3-to-1 conversion ratio and such preferred stockholders would lose the right to representation on the Aerpio Board of Directors and other preferred rights.

The Convertible Note Financing had two separate closings of approximately $4,500,000 each on April 14, 2016 and July 15, 2016. Certain Aerpio preferred stockholders chose not to participate in the Aerpio Convertible Note Financing and their respective Aerpio preferred stock was converted into shares of Aerpio common stock in April 2016 in accordance with the terms of the Articles of Incorporation. Aerpio treated this as an extinguishment of its preferred stock. The Convertible Notes accrued interest at 8% per annum, compounded annually. The Company incurred $138,312 of costs in association with the issuance of the Convertible Notes that was amortized over the seven-month expected life of the Convertible Notes, from the date of execution (March 31, 2016). The Convertible Notes were also subject to mandatory prepayment upon the occurrence of certain events, such as a liquidation, dissolution, or the sale of Aerpio. In addition, and prior to maturity, the Convertible Notes

were automatically convertible into shares of Aerpio capital stock upon the occurrence of a sale of Aerpio's capital stock in a single transaction resulting in gross proceeds to Aerpio of $30,000,000 (hereinafter referred to as an "Investor Sale"). The type and class of Aerpio capital stock of to be issued to the holder of each Convertible Note upon conversion would have been identical to the type and class of Aerpio capital stock issued in the Investor Sale. The holder of each Convertible Note was entitled to a number of shares of Aerpio capital determined by dividing (i) the outstanding principal amount of the Convertible Note plus any unpaid accrued interest by (ii) an amount equal to the price per share of Aerpio capital stock paid by the purchasers of such shares in connection with the Investor Sale. The Convertible Notes were secured by a first priority perfected security interest in all of the Aerpio's assets.

In October 2016 and February 2017, Aerpio executed an additional senior secured Convertible Note financings (the "Additional Convertible Notes" or the "Additional Convertible Note Financings") totaling approximately $3,500,000 and $300,000 respectively, with certain preferred investors of Aerpio. The terms of the Additional Convertible Notes are identical to the Convertible Notes and are treated as extensions of the original Convertible Note Financing. The Company incurred $125,935 of costs associated with these transactions, which were amortized to the maturity date of March 31, 2017. In connection with the Additional Convertible Note Financings, the Convertible Notes were amended and their respective maturity dates were extended from October 31, 2016 to March 31, 2017. The amendments are accounted for as a modification for accounting purposes.

In connection with the Merger (Note 1) the Convertible Notes and accrued interest were converted into the Company's common stock.

6. Common Stock

As of March 31, 2017, and December 31, 2016, the Company had 300,000,000 and 17,440,436 shares, respectively, of authorized common stock with par value of $0.0001 per share. On March 15, 2017, in connection with the Merger, (Note 1) all the outstanding redeemable convertible preferred stock, was converted into 14,015,016 shares of the Company's common stock and the Convertible Notes, both principal and accrued interest, were converted into 2,744,059 shares of the Company's common stock.

The common stock has the following characteristics.

Voting

The holders of common stock are entitled to one vote for each share of common stock held at all meetings of stockholders and written actions in lieu of meetings.

Dividends

The holders of common stock are entitled to receive dividends, if and when declared by the Board of Directors. Since the Company's inception, no dividends have been declared or paid to the holders of common stock.

Liquidation

In the event of any voluntary or involuntary liquidation, dissolution, or winding-up of the Company, the holders of common stock are entitled to share ratably in the Company's assets.

Lock-up Agreements and Other Restrictions

In connection with the Merger, each of the Company's executive officers, directors, stockholders holding substantially all of the shares of common stock issued in exchange for shares held in Aerpio immediately prior to

the Merger, certain other stockholders, and certain key employees, (the “Restricted Holders”), holding at the closing date of the Merger (the “Closing Date”) an aggregate of approximately 18.9 million shares of common stock, entered into lock-up agreements,(the “Lock-Up Agreements”), whereby they are restricted for a period of nine months after the Merger, or the Restricted Period, from certain sales or dispositions (including pledge) of all (or 80% in the case of the holders of 915,000 shares) of the Company’s common stock held by (or issuable to) them, (such restrictions together referred to as the “Lock-Up”). The foregoing restrictions will not apply to the resale of shares of common stock by any Restricted Holder in any registered secondary offering of equity securities by the Company (and, if such offering is underwritten, with the written consent of the lead or managing underwriter), or to certain other transfers customarily excepted.

In addition, each Restricted Holder and any stockholders holding or beneficially owning 1% or more of our common stock after giving effect to the Merger, agreed, for a period of 12 months following the Closing Date, that it will not, directly or indirectly, effect or agree to effect any short sale (as defined in Rule 200 under Regulation SHO of the Exchange Act), whether or not against the box, establish any “put equivalent position” (as defined in Rule 16a-1(h) under the Exchange Act) with respect to the common stock, borrow or pre-borrow any shares of common stock, or grant any other right (including, without limitation, any put or call option) with respect to the common stock or with respect to any security that includes, relates to or derives any significant part of its value from the common stock or otherwise seek to hedge its position in the common stock.

Anti-dilution protection

Investors in the Offering have anti-dilution protection with respect to the shares of the Company’s common stock sold in the Offering such that if within six (6) months after the initial closing of the Offering the Company issues additional shares of common stock or common stock equivalents (subject to certain exceptions), for consideration per share less than the Offering Price, or the Lower Price, each such investor will be entitled to receive from the Company additional shares of common stock in an amount such that, when added to the number of shares of common stock initially purchased by such investor and still held of record and beneficially owned by such investor at the time of the dilutive issuance, or the Held Shares, will equal the number of shares of common stock that such investor’s Offering subscription amount for the Held Shares would have purchased at the Lower Price. Either (i) holders of a majority of the then-held Held Shares or (ii) a representative of the holders of the then-held Held Shares, which representative shall be appointed by three (3) investors who then hold the largest number of Held Shares, may waive the anti-dilution rights of all Offering investors with respect to a particular issuance by the Company. These anti-dilution rights were determined not to be a freestanding financial instrument and do not meet the definition of a derivative. Accordingly, the anti-dilution rights are embedded into the shares of the Company’s common stock and do not require separate accounting at March 31, 2017.

Warrants to Purchase Common Stock

At March 31, 2017, the Company had warrants outstanding for the purchase of 317,562 shares of the Company’s common stock at an exercise price of $5.00 per share. The warrants have a three-year term and expire on March 15, 2020. The Warrants were issued in connection with the Offering. At the expiration date of the warrant, if the fair value of the Company’s common stock exceeds the exercise price, the warrant will be automatically exercised and the exercise price will be fulfilled through the net share settlement provisions. The number of shares and the exercise price shall be adjusted for standard ant-dilution events such as stock splits, combinations, reorganizations, or issue shares as part of a stock dividend. Upon a change of control, the warrant holder will have the right to receive securities, cash or other properties it would have been entitled to receive had the warrant been exercised. The Warrants are equity classified instruments and do not contain contingent exercise provisions, or other features, that would preclude the Company from concluding that the Warrants are indexed solely to the Company’s stock.

7. Preferred Stock

At March 31, 2017, the Company had 10,000,000 shares of preferred stock, par value $0.0001 per share, in authorized capital. No preferred stock was issued and outstanding at March 31, 2017. In connection with the Merger (Note 1), all the Aerpio redeemable convertible preferred stock issued and outstanding prior to the Merger was converted into shares of the Company's common stock.

At December 31, 2016, Aerpio's redeemable convertible preferred stock consisted of the following:

- Series A redeemable convertible preferred stock: 1,326,147 shares authorized and 1,239,338 shares issued and outstanding;
- Series A1 redeemable convertible preferred stock: 8,368,247 shares authorized and 8,289,663 shares issued and outstanding; and
- Series A2 redeemable convertible preferred stock: 4,660,573 shares authorized and 4,486,015 shares issued and outstanding.

All share and per share amounts are on an as converted basis to reflect the effect of the Merger. The rights, preferences, and privileges of the redeemable convertible preferred stock issued and outstanding prior to the Merger were as follows:

Voting

The holders of redeemable convertible preferred stock were entitled to the number of votes equal to the number of whole shares of Aerpio common stock into which the shares of redeemable convertible preferred stock were convertible. Except as provided by law or otherwise, the holders of redeemable convertible preferred stock voted together with the holders of Aerpio common stock as a single class. Certain significant actions required approval by at least 50% of the holders of redeemable convertible preferred stock voting as a single class on an as converted basis. Such significant actions include significant asset transfers, acquisitions, liquidation, amendments to the certificate of incorporation, new indebtedness, repurchase of common stock, changes in the authorized numbers of directors constituting the Board of Directors, and the declaration of dividends.

The holders of shares of redeemable convertible preferred stock were entitled to elect six members of Aerpio's Board of Directors, which was subject to reduction to not less than four directors under certain circumstances. The holders of Aerpio common stock (including any holders of all shares of redeemable convertible preferred stock on an as converted basis) were entitled to elect two members of Aerpio's Board of Directors, which was subject to reduction to one director under certain circumstances.

Dividends

Dividends were payable, if permitted by law, in accordance with redeemable convertible preferred stock terms or when and if declared by Aerpio Board of Directors. Prior to the issuance of Series A2 Preferred Stock, dividends on Series A Preferred Stock and Series A1 Preferred Stock were cumulative and accrued daily at a rate of 6% per annum whether or not declared. As part of the Series A2 Preferred Stock issuance, the dividend provisions for Series A Preferred Stock and Series A1 Preferred Stock were retrospectively amended to be noncumulative with the cumulative provision to begin after the Series A2 Preferred Stock issuance date at a rate of 6% per annum. This amendment did not significantly affect the nature of the Series A Preferred Stock and Series A1 Preferred Stock or their fair value. Accordingly, the amendment was treated as a modification for accounting purposes.

Liquidation

In the event of any voluntary or involuntary liquidation, dissolution, or winding-up of Aerpio, or upon the occurrence of a Deemed Liquidation Event, as defined, at the election of more than 50% of the holders of Series

A2 Preferred Stock and Series A1 Preferred Stock, those holders were entitled to be paid, in preference to the holders of Series A Preferred Stock and Aerpio common stock, out of the assets of Aerpio available for distribution at $4.90 per share for Series A2 Preferred Stock and $3.97 per share for Series A1 Preferred Stock, plus any accrued but unpaid dividends. After the holders of Series A1 Preferred Stock and Series A2 Preferred Stock are satisfied, the holders of Series A Preferred Stock were paid at $4.27 per share, plus any accrued but unpaid dividends before any payment was made to the holders of Aerpio's common stock.

In the event the assets of Aerpio available for distribution to stockholders were insufficient to pay the full amount to which the holder was entitled, the holders of Series A2 Preferred Stock and Series A1 Preferred Stock would share ratably any assets available for distribution in proportion to their relative original investment amounts. Any remaining assets of Aerpio would be distributed ratably among the holders of Series A Preferred Stock based upon aggregate applicable dividends accrued on Series A Preferred Stock not previously paid.

After the payment of all preferential amounts required to be paid to the holders of redeemable convertible preferred stock, the remaining assets available for distribution would be distributed among the holders of redeemable convertible preferred stock and Aerpio common stock based on the pro rata number of shares held by each holder, treating such securities as if they had been converted to Aerpio common stock immediately prior to such dissolution, liquidation, or winding-up of Aerpio.

Conversion

Each share of redeemable convertible preferred stock was convertible at the option of the holder, at any time and from time to time, into fully paid and non-assessable shares of Aerpio common stock. The initial conversion ratio was one share of redeemable convertible preferred stock for one share of Aerpio's common stock. The applicable conversion rate was subject to adjustments upon the occurrence of certain events.

Each share of redeemable convertible preferred stock was automatically convertible into fully paid and non-assessable shares of Aerpio common stock at the then-applicable conversion ratio, as defined, upon either: (i) the closing of the sale of shares of Aerpio's common stock to the public in an underwritten public offering at a price of $14.70 resulting in at least $40,000,000 of gross proceeds, or (ii) the date and time, or the occurrence of an event, specified by vote or written consent of the holders of more than 50% of the then outstanding shares of redeemable convertible preferred stock on an as-converted basis.

Aerpio evaluated each series of its redeemable convertible preferred stock and determined that each individual series is considered an equity host under ASC Topic 815, Derivatives and Hedging. In making this determination, Aerpio's analysis followed the whole instrument approach, which compares an individual feature against the entire redeemable convertible preferred stock instrument that includes that feature. Aerpio's analysis was based on a consideration of the economic characteristics and risks of each series of redeemable convertible preferred stock. More specifically, Aerpio evaluated all the stated and implied substantive terms and features, including: (i) whether the redeemable convertible preferred stock included redemption features, (ii) how and when any redemption features could be exercised, (iii) whether the holders of redeemable convertible preferred stock were entitled to dividends, (iv) the voting rights of the redeemable convertible preferred stock, and (v) the existence and nature of any conversion rights. Aerpio concluded that as the redeemable convertible preferred stock represents an equity host, the conversion feature included in all series of redeemable convertible preferred stock is clearly and closely related to the associated host instrument. Accordingly, the conversion feature of all series of redeemable convertible preferred stock was not considered an embedded derivative that required bifurcation.

Aerpio accounted for potentially beneficial conversion features under ASC Topic 470-20, Debt with Conversion and Other Options. At the time of each of the issuances of redeemable convertible preferred stock, Aerpio's common stock into which each series of the redeemable convertible preferred stock was convertible had an estimated fair value less than the effective conversion prices of the redeemable convertible preferred stock. Therefore, there was no beneficial conversion element on the respective commitment dates.

In March 2016, in connection with the Convertible Note Financing described more fully in Note 5, Aerpio's Articles of Incorporation were amended such that any preferred stockholder that did not participate in the Convertible Note Financing would have their respective shares of redeemable convertible preferred stock automatically converted into Aerpio common stock using a 3-to-1 conversion ratio and such preferred stockholders would lose the right to representation on Aerpio's Board of Directors and other preferred rights. The amendment did not represent an increase in value to the preferred stockholders and was treated as a modification to the redeemable convertible preferred stock for accounting purposes. Certain shares of redeemable convertible preferred stock held by preferred stockholders that elected to not participate in the Convertible Note Financing were converted to shares in Aerpio's common stock.

Redemption

The redeemable convertible preferred stock was redeemable on or after July 31, 2017, upon a request by more than 50% of the holders of redeemable convertible preferred stock then outstanding, payable in three annual installments commencing not more than 60 days following receipt by notice at a price equal to the greater of (i) the applicable original purchase price and dividends accrued but unpaid (Applicable Accrued Value), which is equal to its liquidation preference, or (ii) the redeemable convertible preferred stock fair value per share. Due to this redemption option, the redeemable convertible preferred stock was recorded in the mezzanine equity and subject to subsequent measurement under the guidance provided under ASC 480-10-S99. In accordance with that guidance, Aerpio elected to recognize changes in redemption value immediately as they occur through adjustments to the carrying amounts of the instruments at the end of each reporting period. As of December 31, 2016, the redemption values of all series of redeemable convertible preferred stock were equal to their respective Applicable Accrued Value. The fair values of redeemable convertible preferred stock were based upon a hybrid of the probability-weighted expected returns method and an option pricing model (OPM), which is a nonrecurring Level 3 fair value measurement within the fair value hierarchy. Under this hybrid model, share value is based on the probability weighted value of Aerpio in a potential public trading scenario, in which the redeemable convertible preferred stock converted to Aerpio common stock, and a second scenario in which equity value is allocated using the OPM. For the public trading scenario, Aerpio used the guideline public company method under the market approach.

8. Stock-Based Compensation

Pursuant to the Merger (Note 1), the Company assumed each option to purchase Aerpio common stock that remained outstanding under the Aerpio Therapeutics, Inc. 2011 Equity Incentive Plan (the "Plan"), whether vested or unvested, and converted it into an option to purchase such number of shares of the Company's common stock equal to the number of shares of Aerpio common stock subject to the option immediately prior to the Merger, divided by the applicable Merger exchange rate of 2.3336572, with any fraction rounded down to the nearest whole number. The exercise price per share of each assumed option is equal to the exercise price of the Aerpio option prior to the assumption, multiplied by the applicable Merger exchange rate of 2.3336572, rounded up to the nearest whole cent. The terms of the 2011 Plan continue to govern the options covering an aggregate of 924,706 shares of the Company's common stock at March 31, 2017 and December 31, 2016, subject to awards assumed by the Company, except that all references in the 2011 Plan to Aerpio, will now be the Company. In addition, each unvested share of Aerpio restricted common stock issued under the 2011 Plan that was outstanding immediately prior to the effective time of the Merger, was converted by virtue of the Merger into restricted common stock of the Company, equal to the number of shares of Aerpio common stock subject to the unvested shares of Aerpio restricted common stock immediately prior to the Merger divided by the applicable Merger exchange rate of 2.3336572, with any fraction rounded down to the nearest whole number.

In March 2017, the Company's Board of Directors adopted, and the stockholders approved, the 2017 Stock Option and Incentive Plan (the "2017 Plan"), that became effective in April 2017. The 2017 Plan provides for the issuance of incentive awards up to 4,600,000 shares of common stock to officers, employees, consultants and directors, less the number of shares subject to issued and outstanding awards under the 2011 Plan that were

assumed in the Merger. The 2017 Plan also provides that the number of shares reserved for issuance thereunder will be increased annually on the first day of each year beginning in 2018 by four percent (4%) of the shares of our common stock outstanding on the last day of the immediately preceding year or such smaller increase as determined by our board of directors. No awards were granted under the 2017 Plan as of March 31, 2017.

Stock Options

The options granted generally vest over 48 months. For employees with less than one year's service, options vest in installments of 25% at the one-year anniversary and thereafter in 36 equal monthly installments beginning in the 13 month after the initial Vesting Commencement Date (as defined), subject to the employee's continuous service with the Company. Options granted to other employees vest in 48 equal monthly installments after the initial Vesting Commencement Date, subject to the employee's continuous service with the Company. The options generally expire ten years after the date of grant. The fair value of the options at the date of grant is recognized as an expense over the requisite service period. No option awards were granted in the three months ended March 31, 2017 and 2016.

The following table summarizes the stock option activity during the three-months ended March 31, 2017:

	Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (in Years)	Aggregate Intrinsic Value
Outstanding, January 1, 2017	927,592	$ 1.70	7.48	$1,030,217
Granted	—	$ —		
Exercised	—	$ —		
Expired/cancelled	(2,886)	$ 2.11		
Outstanding, March 31, 2017	924,706	$ 1.70	7.24	$3,056,035
Expected to vest, March 31, 2017	265,647	$ 1.81	8.45	$ 848,613
Options exercisable, March 31, 2017	659,059	$ 1.65	6.75	$2,207,422

Aggregate intrinsic value represents the estimated fair value of the Company's common stock at the end of the period in excess of the weighted average exercise price multiplied by the number of options outstanding or exercisable.

Compensation expense for stock options was $81,120 and $42,816 for the three months ended March 31, 2017 and 2016, respectively. As of March 31, 2017, there was $264,823 of unrecognized compensation cost related to stock options, which is expected to be recognized over a weighted average period of 2.1 years.

Restricted Stock

Shares of restricted stock generally have similar vesting terms as stock options. A summary of the Company's restricted stock activity and related information during the three months ended March 31, 2017 is as follows:

	Shares	Weighted Average Grant Date Fair Value
Nonvested, January 1, 2017	241,096	$ 1.91
Granted	—	—
Vested	(39,455)	$ 1.79
Forfeited	(5,222)	$ 2.20
Nonvested, March 31, 2017	196,419	$ 1.93

The Company recognized compensation expense for restricted stock of $74,265 and $82,399 for the three months ended March 31, 2017 and 2016, respectively. As of March 31, 2017, there was $366,970 of unrecognized compensation cost related to these restricted stock grants, which is expected to be recognized over a weighted average period of 1.4 years.

Compensation Expense Summary

The Company has recognized the following compensation cost related to employee and non-employee stock-based compensation activity:

	Three Months Ended March 31,	
	2017	**2016**
Research and development	**$ 115,302**	$ 81,733
General and administrative	**40,083**	43,482
Total	**$ 155,385**	$ 125,215

9. Income Taxes

The Company did not record a current or deferred income tax expense of benefit for the three months ended March 31, 2017 and 2016, due to the Company's net losses and increases in its deferred tax asset valuation allowance.

10. Net Loss per Share

The following table sets forth the computation of the Company's basic and diluted net loss per share for the periods presented:

	Three Months Ended March 31,	
	2017	**2016**
Net loss and comprehensive loss	**$ (4,995,703)**	$ (4,194,698)
Accretion of preferred stock to redemption value	**(943,297)**	(1,015,371)
Net loss attributable to common stockholders	**$ (5,939,000)**	$ (5,210,069)
Net loss per share attributable to common stockholders, basic and diluted	**$ (1.06)**	$ (7.07)
Weighted average common shares used in computing net loss per share attributable to common stockholders, basic and diluted	**5,605,151**	737,016

The following weighted average common stock equivalents were excluded from the calculation of diluted net loss per share for the periods presented because including them would have had an anti-dilutive effect:

	March 31,	
	2017	**2016**
Convertible preferred stock (if converted)	**—**	14,183,564
Options to purchase common stock	**924,706**	907,485
Unvested restricted stock	**196,419**	241,096
Warrants to purchase common stock	**317,562**	—

11. Commitments and Contingencies

The Company contracts with various organizations to conduct research and development activities. In addition, the Company is a party to a lease covering 7,580 square feet of space in Cincinnati, Ohio that expires in June 2018. Total rent expense for all operating leases was $51,289 and $45,180 for the three months ended March 31, 2017 and 2016, respectively. The lease agreement contains free rent, escalating rent payments and reimbursement for tenant improvements that amounted to $46,390 in the three months ended March 31, 2016. Rent expense is recorded on the straight-line basis over the initial term with the differences between rent expense and rent payments recorded as deferred rent. As of March 31, 2017, the Company had deferred rent of $47,948, which is included in accrued expenses in the accompanying condensed consolidated balance sheet. As of March 31, 2017, non-cancelable future minimum lease payments under the existing operating lease were $131,684. In addition, as of December 31, 2016, future payments related to operating leases and other operating commitments arising from contracts related to research and development activities are presented in the table below.

	2017	2018	2019 and Thereafter	Total
Operating leases	$ 104,440	$52,978	$ —	$ 157,418
All other operating commitments	2,761,501	—	—	2,761,501
Total commitments	$2,865,941	$52,978	$ —	$2,918,919

12. Employee Stock Purchase Plan

In March 2017, the Board of Directors adopted and the stockholders approved, the Employee Stock Purchase Plan (the “ESPP”), that became effective in April 2017. The ESPP provides for the issuance of up to 300,000 shares of the Company’s common stock for the purchases made under the ESPP. The ESPP also provides that the number of shares reserved for issuance thereunder will be increased annually on the first day of each year beginning in 2018 by one percent (1%) of the shares of the Company’s common stock outstanding on the last day of the immediately preceding year or such smaller increase as determined by the Company’s Board of Directors. The Board of Directors has not yet determined the timing for the offering periods under the ESPP.

AERPIO PHARMACEUTICALS, INC.

Consolidated Financial Statements

Years Ended December 31, 2016 and 2015

Contents

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders
Aerpio Pharmaceuticals, Inc.

We have audited the accompanying balance sheets of Aerpio Pharmaceuticals, Inc. (formerly known as Aerpio Therapeutics, Inc.) as of December 31, 2016 and 2015, and the related statements of operations and comprehensive loss, redeemable convertible preferred stock and stockholders' deficit and cash flows for each of the two years then ended. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. We were not engaged to perform an audit of the Company's internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes 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. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Aerpio Pharmaceuticals, Inc. at December 31, 2016 and 2015, and the results of its operations and its cash flows for each of the two years in the period then ended, in conformity with U.S. generally accepted accounting principles.

Since the date of completion of our audit of the accompanying financial statements and initial issuance of our report thereon dated March 9, 2017, which report contained an explanatory paragraph regarding the Company's ability to continue as a going concern, the Company, as discussed in Notes 1 and 15, has completed a common stock exchange and an issuance of additional common stock resulting in net proceeds of $37.2 million. Therefore, the conditions that raised substantial doubt about whether the Company will continue as a going concern no longer exist.

/s/ Ernst & Young LLP

Cincinnati, Ohio
March 9, 2017, except for the paragraphs included under the caption "Merger and Offering" described in Notes 1 and 15, as to which the date is May 22, 2017

Aerpio Pharmaceuticals, Inc.

Balance Sheets

	December 31	
	2016	**2015**
Assets		
Current assets:		
Cash and cash equivalents	**$ 1,609,694**	$ 5,144,211
Short-term investments	**50,000**	50,000
Accounts receivable	**4,157**	118,516
Prepaid research and development contracts	**353,434**	266,327
Other current assets	**209,038**	386,549
Total current assets	**2,226,323**	5,965,603
Furniture and equipment, net	**149,595**	105,971
Deposits	**20,960**	20,960
Total assets	**$ 2,396,878**	$ 6,092,534
Liabilities, redeemable convertible preferred stock, and stockholders' deficit		
Current liabilities:		
Accounts payable and accrued expenses	**$ 2,470,970**	$ 2,159,874
Convertible notes	**12,386,647**	—
Total current liabilities	**14,857,617**	2,159,874
Commitments and contingencies (Note 12)		
Series A redeemable convertible preferred stock; 1,326,147 shares authorized; 1,239,338 and 1,326,145 shares issued and outstanding at December 31, 2016 and 2015	**7,016,515**	7,119,204
Series A1 redeemable convertible preferred stock; 8,368,247 shares authorized; 8,289,663 and 8,368,230 shares issued and outstanding at December 31, 2016 and 2015	**40,897,311**	39,016,008
Series A2 redeemable convertible preferred stock; 4,660,573 and 4,489,169 shares authorized; 4,486,015 and 4,489,160 shares issued and outstanding at December 31, 2016 and 2015	**25,844,064**	24,352,203
Total redeemable convertible preferred stock	**73,757,890**	70,487,415
Stockholders' deficit:		
Common stock; $.0001 par value; 17,440,436 and 17,140,478 shares authorized; 1,240,925 and 1,157,251 shares issued and outstanding at December 31, 2016 and 2015, respectively	**124**	115
Accumulated deficit	**(86,218,753)**	(66,554,870)
Total stockholders' deficit	**(86,218,629)**	(66,554,755)
Total liabilities, redeemable convertible preferred stock, and stockholders' deficit	**$ 2,396,878**	$ 6,092,534

See accompanying notes.

Aerpio Pharmaceuticals, Inc.

Statements of Operations and Comprehensive Loss

	Year Ended December 31	
	2016	**2015**
Operating expenses:		
Research and development	**$ 11,367,590**	$ 11,625,404
General and administrative	**5,265,995**	5,861,151
Total operating expenses	**16,633,585**	17,486,555
Loss from operations	**(16,633,585)**	(17,486,555)
Grant income	**131,281**	369,688
Interest (expense) income, net	**(482,204)**	19,622
Other income, net	**997**	27,022
Total other (expense) income	**(349,926)**	416,332
Net loss and comprehensive loss	**$ (16,983,511)**	$ (17,070,223)
Reconciliation to net loss attributable to common stockholders:		
Net loss and comprehensive loss	**$ (16,983,511)**	$ (17,070,223)
Extinguishment of preferred stock	**224,224**	—
Accretion of preferred stock to redemption value	**(4,152,801)**	(348,436)
Net loss attributable to common stockholders	**$ (20,912,088)**	$ (17,418,659)
Net loss per share attributable to common stockholders, basic and diluted	**$ (24.52)**	$ (31.14)
Weighted average common shares used in computing net loss per share attributable to common stockholders, basic and diluted	**852,665**	559,419

See accompanying notes.

Aerpio Pharmaceuticals, Inc.

Statements of Redeemable Convertible Preferred Stock and Stockholders' Deficit

	Redeemable Convertible Preferred Stock							Stockholders' Deficit				
	Series A		Series A1		Series A2			Common Stock				
	Shares	Amount	Shares	Amount	Shares	Amount	Total	Shares	Par Value	Additional Paid In Capital	Accumulated Deficit	Total
Balance at January 1, 2015	1,326,145	$6,754,096	8,368,230	$40,180,140	4,489,160	$23,204,743	$70,138,979	1,153,235	$ 115	$ —	$(49,609,057)	$(49,608,942)
Adjustment of redeemable convertible preferred stock to redemption value	—	365,108	—	(1,164,132)	—	1,147,460	348,436	—	—	(472,846)	124,410	(348,436)
Exercise of stock options	—	—	—	—	—	—	—	4,016	—	3,000	—	3,000
Share-based compensation expense	—	—	—	—	—	—	—	—	—	469,846	—	469,846
Net loss	—	—	—	—	—	—	—	—	—	—	(17,070,223)	(17,070,223)
Balance at December 31, 2015	1,326,145	7,119,204	8,368,230	39,016,008	4,489,160	24,352,203	70,487,415	1,157,251	115	—	(66,554,870)	(66,554,755)
Adjustment of redeemable convertible preferred stock to redemption value	—	379,777	—	2,263,804	—	1,509,220	4,152,801	—	—	(1,273,631)	(2,879,170)	(4,152,801)
Conversion of preferred stock	(57,877)	(324,774)	(68,191)	(333,328)	—	—	(658,102)	61,803	6	658,096	—	658,102
Extinguishment of preferred stock	(28,930)	(157,692)	(10,376)	(49,173)	(3,145)	(17,359)	(224,224)	—	—	25,426	198,798	224,224
Conversion of Convertible Notes	—	—	—	—	—	—	—	—	—	82,818	—	82,818
Exercise of stock options	—	—	—	—	—	—	—	21,871	3	18,965	—	18,968
Share-based compensation expense	—	—	—	—	—	—	—	—	—	488,326	—	488,326
Net loss	—	—	—	—	—	—	—	—	—	—	(16,983,511)	(16,983,511)
Balance at December 31, 2016	1,239,338	$7,016,515	8,289,663	$40,897,311	4,486,015	$25,844,064	$73,757,890	1,240,925	$124	$ —	$(86,218,753)	$(86,218,629)

See accompanying notes.

Aerpio Pharmaceuticals, Inc.

Statements of Cash Flows

	Year Ended December 31 2016	2015
Operating activities		
Net loss	**$ (16,983,511)**	$ (17,070,223)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation	**69,673**	57,977
Compensation recognized under equity incentive plan	**488,326**	469,846
Amortization of debt issuance costs	**188,686**	—
Interest expense related to convertible note conversion	**2,823**	—
Accounts receivable	**114,359**	(60,566)
Prepaid expenses and other current assets	**90,404**	(210,106)
Accounts payable and accrued expenses	**311,096**	(1,071,610)
Net cash used in operating activities	**(15,718,144)**	(17,884,682)
Investing activities		
Purchase of furniture and equipment	**(113,297)**	(41,037)
Net cash used in investing activities	**(113,297)**	(41,037)
Financing activities		
Proceeds from exercise of stock options	**18,968**	3,000
Proceeds from issuances of convertible notes	**12,542,203**	—
Cash paid for debt issuance costs	**(264,247)**	—
Net cash provided by financing activities	**12,296,924**	3,000
Net decrease in cash and cash equivalents	**(3,534,517)**	(17,922,719)
Cash and cash equivalents, beginning of year	**5,144,211**	23,066,930
Cash and cash equivalents, end of year	**$ 1,609,694**	$ 5,144,211
Non-cash financing activities		
Accretion of preferred stock to redemption value	**$ 4,152,801**	$ 348,436
Extinguishment of preferred stock	**$ (224,224)**	$ —

See accompanying notes.

Aerpio Pharmaceuticals, Inc.

Notes to Financial Statements

December 31, 2016 and 2015

1. Nature of Organization and Operations

Merger and Offering

Aerpio Pharmaceuticals, Inc. (the "Company") was incorporated as Zeta Acquisition Corp. II ("Zeta") in the State of Delaware on November 16, 2007. Prior to the Merger, (as defined below), Zeta was a "shell company" (as defined in Rule 12b-2 of the Securities Exchange Act of 1934, as amended).

On March 3, 2017, the Company's Board of Directors, and on March 10, 2017, the Company's pre-Merger (as defined below) stockholders, approved an amended and restated certificate of incorporation, which, among other things, increased authorized capital stock from 100,000,000 shares of common stock, par value $0.0001 per share, and 10,000,000 shares of preferred stock, par value $0.0001 per share, to 300,000,000 shares of common stock, par value $0.0001 per share, and 10,000,000 shares of preferred stock, par value $0.0001 per share.

On March 15, 2017, Zeta changed its name to Aerpio Pharmaceuticals, Inc. and its wholly-owned subsidiary, Aerpio Acquisition Corp., a corporation formed in the State of Delaware on March 3, 2017, merged with and into Aerpio Therapeutics, Inc., ("Aerpio"), (the "Merger"), a corporation incorporated on November 17, 2011 in the State of Delaware. Aerpio was initially capitalized in December 2011 in a spinout transaction from Akebia Therapeutics, Inc. (Akebia) to enable more rapid development of its compounds. Pursuant to the Merger, Aerpio remained as the surviving corporation and became the Company's wholly-owned subsidiary.

At the effective time of the Merger, the shares of the Aerpio's (i) common stock issued and outstanding immediately prior to the closing of the Merger (including restricted common stock, whether vested or unvested, issued under the Aerpio's 2011 Equity Incentive Plan), and (ii) redeemable convertible preferred stock issued and outstanding immediately prior to the closing of the Merger, were converted into shares of the Company's common stock. In addition, immediately prior to the Merger, the outstanding amounts under certain Senior Secured Convertible Promissory Notes issued by Aerpio to its pre-Merger noteholders were converted into shares of Aerpio's preferred stock, which were then converted to shares of Aerpio's common stock and subsequently were converted into shares of the Company's common stock, together with the other shares of the Aerpio's common stock described above. In addition, pursuant to the Merger Agreement options to purchase shares of the Aerpio's common stock issued and outstanding immediately prior to the closing of the Merger were assumed and converted into options to purchase shares of the Company's common stock. All the outstanding capital stock of Aerpio was converted into shares of the Company's common stock on a 2.3336572:1 basis.

As a result of the Merger, the Company acquired the business of Aerpio and will continue the existing business operations of Aerpio as a public reporting company under the name Aerpio Pharmaceuticals, Inc. Immediately after the Merger, on March 15, 2017, Aerpio converted into a Delaware limited liability company (the "Conversion").

Immediately following the Conversion, the pre-Merger stockholders of Zeta surrendered for cancellation 4,000,000 of the 5,000,000 shares of the outstanding common stock of Zeta, (the "Share Cancellation"). Following the Share Cancellation, on March 15, 2017, the Company closed a private placement offering (the "Offering") of 8,049,555 shares of the Company's common stock, at a purchase price of $5.00 per share, for net proceeds of approximately $37.2 million and the issuance of warrants with a term of three years, to purchase 317,562 shares of the Company's common stock at an exercise price of $5.00 per share.

The Merger was treated as a recapitalization and reverse acquisition for financial reporting purposes. The Company is the legal acquirer of Aerpio in the transaction. However, Aerpio is considered the acquiring

company for accounting purposes since (i) former Aerpio stockholders own in excess of 50% of the combined enterprise on a fully diluted basis immediately following the Merger and Offering, and (ii) all members of the Company's executive management and Board of Directors are from Aerpio. In accordance with "reverse merger" or "reverse acquisition" accounting treatment, the consolidated financial statements as of and for each of the years ended December 31, 2016 and 2015 are the historical financial statements of Aerpio. Consequently, the assets and liabilities and the historical operations that are reflected in these consolidated financial statements are those of Aerpio, which were recorded at their historical cost basis. Unless otherwise indicated, all share and per share figures reflect the exchange of each 2.3336572 shares of Aerpio capital stock, convertible notes and share based awards, then outstanding, for 1 share of the Company's common stock at the effective time of the Merger.

Operations Background

The Company is a biopharmaceutical company focused on advancing first-in-class treatments for ocular disease. The Company's lead product candidate, AKB-9778, a small molecule activator of the tie-2 pathway, is being developed for the treatment of diabetic retinopathy ("DR"). Tie-2 signaling is essential for regulating blood vessel development and the stability of mature vessels. The Company has completed a Phase 2a clinical trial in diabetic macular edema ("DME"), a swelling of the retina that is a common cause of vision loss in patients with DR and intends to initiate a twelve month, double blind Phase 2b clinical trial in patients with DR who have not developed more serious complications such as DME or proliferative diabetic retinopathy. The DR clinical trial will be initiated in the second quarter of 2017.

In addition, the Company has two pipeline programs. AKB-4924 is a drug candidate for the treatment of inflammatory bowel disease and ARP-1536, humanized monoclonal antibody is a drug candidate for ocular disease. Humanized antibodies are antibodies from non-human species whose protein sequences have been modified to increase their similarity to antibodies produced naturally in humans. The Company completed a Phase 1a clinical trial in healthy volunteers for AKB-4924 and APR-1536 is currently in preclinical development. Further development on the pipeline programs is subject to receiving additional funding, which the Company may seek through collaborations with potential strategic and commercial partners.

The Company's operations to date have been limited to organizing and staffing the Company, business planning, raising capital, acquiring and developing its technology, identifying potential product candidates, and undertaking preclinical and clinical studies. The Company has not generated any revenues to date, nor is there any assurance of any future revenues. The Company's product candidates are subject to long development cycles, and there is no assurance the Company will be able to successfully develop, obtain regulatory approval for, or market its product candidates.

The Company is subject to a number of risks similar to other life science companies in the current stage of its life cycle, including, but not limited to, the need to obtain adequate additional funding, possible failure of preclinical testing or clinical trials, the need to obtain marketing approval for its product candidates, competitors developing new technological innovations, the need to successfully commercialize and gain market acceptance of any of the Company's products that are approved, and protection of proprietary technology. If the Company does not successfully commercialize any of its products or mitigate any of these other risks, it will be unable to generate revenue or achieve profitability.

2. Summary of Significant Accounting Policies

Basis of Presentation

The Company's financial statements are prepared in accordance with U.S. generally accepted accounting principles ("U.S. GAAP") and stated in U.S. dollars.

Segment Information

Operating segments are defined as components of an enterprise about which separate discrete information is available for evaluation by the chief operating decision maker, or decision-making group, in deciding how to allocate resources and in assessing performance. The Company views its operations and manages its business in one operating segment, which is the business of developing and commercializing proprietary therapeutics in vascular disorders of the eye. All of the assets and operations of the Company's sole operating segment are located in the United States of America.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results may differ from those estimates. Management considers many factors in selecting appropriate financial accounting policies and controls and in developing the estimates and assumptions that are used in the preparation of these financial statements. Management must apply significant judgment in this process. In addition, other factors may affect estimates, including expected business and operational changes, sensitivity and volatility associated with the assumptions used in developing estimates, and whether historical trends are expected to be representative of future trends. The estimation process often may yield a range of potentially reasonable estimates of the ultimate future outcomes, and management must select an amount that falls within that range of reasonable estimates. Estimates are used in the following areas, among others: fair value of the Company's common stock and other equity instruments, accrued expenses, and income taxes.

The Company utilizes significant estimates and assumptions in determining the fair value of its common stock and other equity instruments. The Company granted stock options at exercise prices not less than the fair value of its common stock, as determined by the Board of Directors contemporaneously at the date such grants were made. The Board of Directors has determined the estimated fair value of the Company's common stock based on a number of objective and subjective factors, including external market conditions affecting the biotechnology industry sector and the prices at which the Company sold shares of preferred stock, the superior rights and preferences of securities senior to the Company's common stock at the time, and the likelihood of achieving a liquidity event, such as a public offering or sale of the Company.

The Company utilized various valuation methodologies in accordance with the framework of the American Institute of Certified Public Accountants Technical Practice Aid, *Valuation of Privately-Held Company Equity Securities Issued as Compensation*, to estimate the fair value of its common stock. Each valuation methodology includes estimates and assumptions that require the Company's judgment. These estimates and assumptions include a number of objective and subjective factors, including external market conditions, the prices at which the Company sold shares of redeemable convertible preferred stock, the superior rights and preferences of securities senior to the Company's common stock at the time, and, at December 31, 2016, a probability analysis of various liquidity events under differing scenarios, including both a potential public trading scenario and potential sale scenario. Significant changes to the key assumptions used in the valuations could result in different fair values of common stock and other equity instruments at each valuation date.

The Company's results can also be affected by economic, political, legislative, regulatory, and legal actions. Economic conditions, such as recessionary trends, inflation, interest and monetary exchange rates, government fiscal policies, and changes in the prices of research studies, can have a significant effect on operations. While the Company maintains reserves for anticipated liabilities and carries various levels of insurance, the Company could be affected by civil, criminal, regulatory or administrative actions, claims, or proceedings.

Cash and Cash Equivalents

Cash and cash equivalents consist of all cash on hand, deposits, and funds invested in short-term investments with remaining maturities of three months or less at the time of purchase. The Company may maintain balances with its banks in excess of federally insured limits.

Short-Term Investments

Time deposits with remaining maturities of greater than three months but less than one year at the time of purchase are classified as short-term investments in the accompanying balance sheets.

Grant Income

Grant income is recognized as earned based on contract work performed. Grant income also includes qualifying therapeutic credits from the U.S. Treasury related to discovery projects.

Research and Development

Costs incurred in connection with research and development activities are expensed as incurred. Research and development expense consists of (i) employee-related expenses, including salaries, benefits, travel, and stock-based compensation expense; (ii) external research and development expenses incurred under arrangements with third parties, such as contract research organizations and consultants; (iii) the cost of acquiring, developing, and manufacturing clinical study materials; (iv) facilities and other expenses, which include direct and allocated expenses for rent and maintenance of facilities and laboratory and other supplies; and (v) costs associated with preclinical activities and regulatory operations.

The Company enters into consulting, research, and other agreements with commercial firms, researchers, universities, and others for the provision of goods and services.

Under such agreements, the Company may pay for services on a monthly, quarterly, project, or other basis. Such arrangements are generally cancellable upon reasonable notice and payment of costs incurred. Costs are considered incurred based on an evaluation of the progress to completion of specific tasks under each contract using information and data provided to the Company by its clinical sites and vendors. These costs consist of direct and indirect costs associated with specific projects, as well as fees paid to various entities that perform certain research on behalf of the Company.

Patents

Costs incurred in connection with the application for and issuances of patents are expensed as incurred.

Income Taxes

Income taxes are recorded in accordance with Financial Accounting Standards Board (“FASB”) Accounting Standards Codification (“ASC”) Topic 740, *Income Taxes*, which provides for deferred taxes using an asset and liability approach. The Company recognizes deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the financial statements or tax returns. Deferred tax assets and liabilities are determined based on the difference between the financial statement and tax bases of assets and liabilities and for loss and credit carryforwards using enacted tax rates anticipated to be in effect for the year in which the differences are expected to reverse. Valuation allowances are provided, if, based upon the weight of available evidence, it is more likely than not that some or all of the deferred tax assets will not be realized.

The Company accounts for uncertain tax positions in accordance with the provisions of ASC 740. When uncertain tax positions exist, the Company recognizes the tax benefit of tax positions to the extent that some or

all of the benefit will more likely than not be realized. The determination as to whether the tax benefit will more likely than not be realized is based upon the technical merits of the tax position, as well as consideration of the available facts and circumstances. As of December 31, 2016 and 2015, the Company does not have any significant uncertain tax positions. If incurred, the Company would classify interest and penalties on uncertain tax positions as income tax expense.

Net Loss per Share

The Company's basic net loss per share attributable to common stockholders is calculated by dividing the net loss attributable to common stockholders by the weighted average number of shares of common stock outstanding for the period. The diluted net loss per share attributable to common stockholders is computed by adjusting weighted average shares outstanding for the dilutive effect of common stock equivalents outstanding for the period, determined using the treasury stock method. For purposes of this calculation, convertible preferred stock, stock options to purchase common stock, and restricted stock awards are considered to be common stock equivalents but have been excluded from the calculation of diluted net loss per share attributable to common stockholders as their effect is anti-dilutive for all periods presented. Therefore, basic and diluted net loss per share were the same for all periods presented.

For all periods presented, all share and per share amounts have been retrospectively adjusted to reflect the exchange of each 2.3336572 shares of Aerpio capital stock and share based awards then outstanding, for 1 share of the Company's common stock at the effective time of the Merger.

Stock-Based Compensation

The Company accounts for its stock-based compensation awards in accordance with FASB ASC Topic 718, *Compensation—Stock Compensation*. ASC 718 requires all stock-based payments to employees, including grants of employee stock options and restricted stock, to be recognized in the statements of operations and comprehensive loss based on their fair values. All of the Company's stock-based awards are subject only to service-based vesting conditions. The Company estimates the fair value of its stock-based awards using the Black-Scholes option pricing model, which requires the input of subjective assumptions, including (a) the expected stock price volatility, (b) the calculation of expected term of the award, (c) the risk-free interest rate, and (d) expected dividends. The fair value of restricted stock award are determined based on the Company's estimated common stock value.

Due to the lack of a public market for the trading of the Company's Common Stock and a lack of company-specific historical and implied volatility data, the Company has based its estimate of expected volatility on the historical volatility of a group of similar companies that are publicly traded. The computation of expected volatility is based on the historical volatility of a representative group of companies with similar characteristics to the Company, including stage of product development and life science industry focus. The Company believes the group selected has sufficient similar economic and industry characteristics and includes companies that are most representative of the Company.

The Company uses the simplified method as prescribed by the Securities and Exchange Commission Staff Accounting Bulletin No. 107, *Share-Based Payment*, to calculate the expected term, as it does not have sufficient historical exercise data to provide a reasonable basis upon which to estimate the expected term for options granted to employees, and utilizes the contractual term for options granted to non-employees. The expected term is applied to the stock option grant group as a whole, as the Company does not expect substantially different exercise or post-vesting termination behavior among its employee population. The risk-free interest rate is based on a treasury instrument whose term is consistent with the expected life of the stock options.

Compensation expense related to awards to employees is calculated on a straight-line basis by recognizing the grant date fair value over the associated service period of the award, which is generally the vesting term. Awards to non-employees are adjusted through share-based compensation expense as the award vests to reflect the current fair value of such awards and are expensed using an accelerated attribution model.

Fair Value of Financial Instruments

The Company's financial instruments consist of cash equivalents, short-term investments, accounts receivable, and accounts payable. The Company values cash equivalents using quoted market prices. The valuation technique used to measure the fair value of short-term investments was based on net asset values corroborated with observable market data. The fair value of accounts receivable and accounts payable approximate the carrying value because of their short-term nature.

The Company is required to disclose information on all assets and liabilities reported at fair value that enables an assessment of the inputs used in determining the reported fair values. FASB ASC Topic 820, *Fair Value Measurements and Disclosures*, establishes a hierarchy of inputs used in measuring fair value that maximizes the use of observable inputs and minimizes the use of unobservable inputs by requiring that the observable inputs be used when available.

Observable inputs are inputs that market participants would use in pricing the asset or liability based on market data obtained from sources independent of the Company. Unobservable inputs are inputs that reflect the Company's assumptions about the inputs that market participants would use in pricing the asset or liability and are developed based on the best information available in the circumstances. The fair value hierarchy applies only to the valuation inputs used in determining the reported fair value of the investments and is not a measure of the investment credit quality. The three levels of the fair value hierarchy are described below:

- Level 1—Valuations based on unadjusted quoted prices in active markets for identical assets or liabilities that the Company has the ability to access at the measurement date
- Level 2—Valuations based on quoted prices for similar assets or liabilities in markets that are not active or for which all significant inputs are observable, either directly or indirectly
- Level 3—Valuations that require inputs that reflect the Company's own assumptions that are both significant to the fair value measurement and unobservable

To the extent that a valuation is based on models or inputs that are less observable or unobservable in the market, the determination of fair value requires more judgment. Accordingly, the degree of judgment exercised by the Company in determining fair value is greatest for instruments categorized in Level 3. A financial instrument's level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. There were no transfers within the fair value hierarchy in 2016 or 2015.

Based on the fair value hierarchy, assets measured or disclosed at fair value on a recurring basis are summarized below:

	Fair Value Measurements Using			
	Level 1	Level 2	Level 3	Total
December 31, 2016				
Assets:				
Cash and cash equivalents	**$1,609,694**	**$ —**	**$ —**	**$1,609,694**
Short-term investments	**—**	**50,000**	**—**	**50,000**
Total assets	**$1,609,694**	**$50,000**	**$ —**	**$1,659,694**
December 31, 2015				
Assets:				
Cash and cash equivalents	$5,144,211	$ —	$ —	$5,144,211
Short-term investments	—	50,000	—	50,000
	$5,144,211	$50,000	$ —	$5,194,211

Concentrations of Credit Risk and Off-Balance Sheet Risk

Cash and cash equivalents and short-term investments are the only financial instruments that potentially subject the Company to concentrations of credit risk. At December 31, 2016 and 2015, all of the Company's cash was deposited in accounts at two principal financial institutions. The Company maintains its cash and cash equivalents and short-term investments with a high-quality, accredited financial institution and, accordingly, such funds are subject to minimal credit risk. The Company has no significant off-balance sheet concentrations of credit risk, such as foreign currency exchange contracts, option contracts, or other hedging arrangements.

Comprehensive Loss

Comprehensive loss is defined as the change in equity of a business enterprise during a period from transactions and other events and circumstances from non-owner sources, if any. Comprehensive loss equaled net loss for all periods presented.

Furniture and Equipment

Furniture and equipment is stated at cost, less accumulated depreciation. Furniture and equipment is depreciated using the straight-line method over the estimated useful lives of the assets, generally three to seven years. Such costs are periodically reviewed for recoverability when impairment indicators are present. Such indicators include, among other factors, operating losses, unused capacity, market value declines, and technological obsolescence. Recorded values of asset groups of property, plant, and equipment that are not expected to be recovered through undiscounted future net cash flows are written down to current fair value, which generally is determined from estimated discounted future net cash flows (assets held for use) or net realizable value (assets held for sale).

Research and Development Costs

Research and development costs are expensed as incurred.

Reclassifications

Certain prior year balances in the balance sheet have been reclassified to conform to the current year presentation. The reclassifications were not material to the financial statements.

Recent Accounting Pronouncements

From time to time, new accounting pronouncements are issued by the FASB or other standard setting bodies and adopted by the Company as of the specified effective date. Unless otherwise discussed, the Company believes the impact of recently issued standards that are not yet effective will not have a material impact on its financial position or results of operations upon adoption.

In March 2016, the FASB issued Accounting Standards Update ("ASU") 2016-09, *Improvements to Employee Share-Based Payment Accounting*. This ASU is intended to simplify accounting for share-based payments. Upon adoption, this ASU will require that excess tax benefits for share-based payments be recorded as a reduction of income tax expense and reflected within operating cash flows rather than being recorded within equity and reflected within financing cash flows. This update is effective for the Company on January 1, 2017. The adoption of this new standard will not have a material impact on the Company's financial position or results of operations.

In February 2016, the FASB issued ASU 2016-02, *Leases*. This ASU will require lessees to recognize almost all leases on the balance sheet as a right-of-use asset and a lease liability. For income statement purposes, the FASB retained a dual model, requiring leases to be classified as finance leases or operating leases. This

update is effective for interim and annual periods beginning after December 15, 2018, with early adoption permitted. The Company is currently assessing the effect that adoption of the new standard will have on its financial statements.

In April 2015, the FASB issued ASU 2015-03, *Simplifying the Presentation of Debt Issuance Costs*. This ASU requires debt issuance costs to be presented in the balance sheet as a direct deduction from the carrying value of the associated debt liability, consistent with the presentation of a debt discount. This ASU was effective for interim and annual periods beginning after December 15, 2015 and was required to be applied retrospectively. The Company adopted this ASU as of December 31, 2016, and as a result debt issuance costs of $75,561 are reducing the carrying amounts of the Company's Convertible Notes as of December 31, 2016. There was no outstanding debt at December 31, 2015 to apply retrospective application.

In November 2015, the FASB issued ASU 2015-17, *Balance Sheet Classification of Deferred Taxes*. This ASU requires all deferred tax assets and liabilities to be classified as non-current on the balance sheet instead of separating into current and non-current amounts. This update is effective for annual periods beginning after December 15, 2016, and may be applied on a prospective or retrospective basis. The Company elected to early adopt this standard on a retrospective basis as of December 31, 2015. As described in Note 9, there was no impact on the current or prior period balance sheets as a result of the adoption of ASU 2015-17.

3. Related-Party Arrangements

On December 22, 2011, in connection with the spinout of the Company from Akebia, the Company's former parent company, Akebia assigned certain assets and liabilities to the Company.

In connection with the spinout of Aerpio from Akebia, the companies entered into shared services agreements. Under the terms of the shared services agreements, Akebia and Aerpio obtain from and provide to each other certain services, as outlined below. These agreements are cancelable upon mutual agreement or a sale of either company.

Below is a summary of the activities included in the statements of operations and comprehensive loss:

		Year Ended December 31	
Activity	**Financial Statement Caption**	**2016**	**2015**
Payments to Akebia for employee costs	Research and development operating expenses	**$31,246**	$ 263,501
Payments from Akebia for facility-related charges and employee costs	Other income, net	**997**	27,022

A summary of Akebia receivables and payables included in the accompanying balance sheets are as follow:

		December 31	
Activity	**Financial Statement Caption**	**2016**	**2015**
Amounts receivable from Akebia	Accounts receivable	**$—**	$ 997
Amounts payable to Akebia	Accounts payable	**—**	15,173

4. Furniture and Equipment

Furniture and equipment and accumulated depreciation balances are as follows:

	December 31	
	2016	2015
Furniture	**$ 156,928**	$ 143,435
Computers	**111,446**	107,160
Equipment	**141,067**	81,418
Leasehold improvements	**35,869**	—
Total furniture and equipment	**445,310**	332,013
Accumulated depreciation	**(295,715)**	(226,042)
Furniture and equipment, net	**$ 149,595**	$ 105,971

5. Accounts Payable and Accrued Expenses

Accounts payable and accrued expenses are as follows:

	December 31	
	2016	2015
Accounts payable	**$ 1,135,608**	$ 890,610
Professional fees	**200,468**	126,722
Accrued bonus	**—**	380,020
Accrued interest	**483,442**	—
Accrued vacation	**52,835**	56,796
Accrued project costs	**541,158**	696,158
Other	**57,459**	9,568
Total accounts payable and accrued expenses	**$ 2,470,970**	$ 2,159,874

6. Notes Payable to Investors

In March 2016, Aerpio entered into a senior secured convertible note financing (the Convertible Notes or Convertible Note Financing) totaling $9,000,000, with certain preferred investors of Aerpio. All preferred investors were invited to participate in the Convertible Notes Financing. In connection with the Convertible Note Financing, Aerpio's Articles of Incorporation were amended such that any Aerpio preferred stockholder that did not participate in the Convertible Note Financing would have their respective shares of Aerpio preferred stock automatically converted into Aerpio's common stock using a 3-to-1 conversion ratio and such Aerpio preferred stockholders would lose the right to representation on Aerpio's Board of Directors and other preferred rights.

The Convertible Note Financing had two separate closings of $4,500,000 each on April 14, 2016 and July 15, 2016. Certain Aerpio Preferred Stockholders chose not to participate in the Convertible Note Financing and their respective Aerpio preferred stock was converted into shares of Aerpio's common stock in April 2016 in accordance with the terms of Aerpio's Articles of Incorporation. Aerpio treated this as an extinguishment of its preferred stock. The Convertible Notes accrue interest at 8% per annum, compounded annually. Aerpio incurred $138,312 of costs in association with the issuance of the Convertible Notes that was amortized over the seven month expected life of the Convertible Notes from the date of issuance (October 31, 2016). The Convertible Notes are also subject to mandatory prepayment upon the occurrence of certain events, such as a liquidation, dissolution, or sale of Aerpio. In addition and prior to maturity, the Convertible Notes are automatically convertible into shares of capital stock of Aerpio upon the occurrence of a sale of Aerpio's capital stock in a single transaction resulting in gross proceeds to Aerpio of $30,000,000 (hereinafter referred to as an "Investor

Sale"). The type and class of capital stock of Aerpio to be issued to the holder of each Convertible Note upon conversion shall be identical to the type and class of the Aerpio capital stock issued in the Investor Sale. The holder of each Convertible Note will be entitled to a number of shares of capital determined by dividing (i) the outstanding principal amount of the Convertible Note plus any unpaid accrued interest by (ii) an amount equal to the price per share of Aerpio capital stock paid by the purchasers of such shares in connection with the Investor Sale. The Convertible Notes are secured by a first priority perfected security interest in all of Aerpio's assets.

In October 2016, Aerpio executed an additional senior secured Convertible Note financing (the October Convertible Notes or October Convertible Note Financing) totaling $3,500,000 with a certain preferred investors of Aerpio. The terms of the October Convertible Notes are identical to the Convertible Notes and are treated as an extension of the original Convertible Note Financing. Aerpio incurred $125,935 of costs associated with this transaction which will be amortized to the maturity date of March 31, 2017. In connection with the October Convertible Note Financing, the Convertible Notes were amended and their respective maturity dates were extended from October 31, 2016 to March 31, 2017. The amendments are accounted for as a modification for accounting purposes.

7. Redeemable Convertible Preferred Stock

All share and per share amounts are on an as converted basis to reflect the effect of the Merger. The rights, preferences, and privileges of the redeemable convertible preferred stock issued and outstanding prior to the Merger follows.

On December 23, 2011, Aerpio issued 1,326,147 shares of $.00001 par value of Series A Redeemable Convertible Preferred Stock (Series A Preferred Stock) to Akebia's stockholders in exchange for the assignment of certain development programs and related intellectual property, assets, and liabilities as part of the spinout from Akebia (see Note 3). The Company's Series A Preferred Stock and common stock were distributed to Akebia's stockholders as a distribution on the basis of 0.4285120 share of Aerpio's Series A Preferred Stock for every 35 shares of Akebia's Series A Preferred Stock, 0.4285120 share of Aerpio's Series A Preferred Stock for every 100 shares of Akebia's Series B Preferred Stock, and 0.4285120 share of Aerpio's Common Stock for every 175 shares of Akebia's Common Stock.

On August 28, 2012, Aerpio issued 2,520,658 shares of $.00001 par value of Series A1 Redeemable Convertible Preferred Stock (Series A1 Preferred Stock) at $3.97 per share for gross proceeds of $10,000,000, less issuance costs of $210,638, for net proceeds to Aerpio of $9,789,362. In connection with the financing, Aerpio exchanged its then outstanding convertible promissory notes and accrued interest into 1,562,469 shares of Series A1 Preferred Stock. The exchange was pursuant to the contractual provisions of the promissory notes and was accounted for as an extinguishment and share-settled redemption. In August and November 2013, Aerpio issued 2,016,526 and 2,268,594 shares, respectively, of Series A1 Preferred Stock at $3.97 for gross proceeds of $8,000,000 and $9,000,000, respectively, and incurred total issuance costs of $94,326.

On April 22, 2014, Aerpio issued 4,489,169 shares of $.00001 par value Series A2 Redeemable Convertible Preferred Stock (Series A2 Preferred Stock) at $4.90 per share for total gross proceeds of $22,000,000. Aerpio incurred issuance costs of $168,648 for net proceeds to Aerpio of $21,831,352.

In March 2016, in connection with the Convertible Note Financing described more fully in Note 6, Aerpio's Articles of Incorporation were amended such that any Aerpio Preferred Stockholder that did not participate in the Convertible Note Financing would have their respective shares of Aerpio Preferred Stock automatically converted into Aerpio common stock using a 3-to-1 conversion ratio and such Aerpio Preferred Stockholders would lose the right to representation on Aerpio's Board of Directors and other preferred rights. The amendment did not represent an increase in value to the Aerpio preferred stockholders and was treated as a modification to the Aerpio Preferred Stock for accounting purposes. Certain shares of redeemable convertible preferred stock held by Aerpio's Preferred Stockholders that elected to not participate in the Convertible Note Financing were converted to shares in Aerpio's common stock.

The rights, preferences, and privileges of Aerpio's Preferred Stock are as follows:

Voting

The holders of Aerpio's Preferred Stock are entitled to the number of votes equal to the number of whole shares of Aerpio common stock into which the shares of Aerpio Preferred Stock are convertible. Except as provided by law or otherwise, the holders of Aerpio's Preferred Stock vote together with the holders of Aerpio's common stock as a single class. Certain significant actions must be approved by at least 50% of the holders of Aerpio's Preferred Stock voting as a single class on an as converted basis. Such significant actions include significant asset transfers, acquisitions, liquidation, amendments to the certificate of incorporation, new indebtedness, repurchase of Aerpio common stock, changes in the authorized numbers of directors constituting the Aerpio Board of Directors, and the declaration of dividends.

The holders of shares of Aerpio's Preferred Stock are entitled to elect six members of Aerpio's Board of Directors, which is subject to reduction to not less than four directors under certain circumstances. The holders of shares of Aerpio common stock (including any holders of all shares of Aerpio Preferred Stock on an as converted basis) are entitled to elect two members of Aerpio's Board of Directors, which is subject to reduction to one director under certain circumstances.

Dividends

Dividends are payable, if permitted by law, in accordance with Preferred Stock terms or when and if declared by Aerpio's Board of Directors. Prior to the issuance of Series A2 Preferred Stock, dividends on Series A Preferred Stock and Series A1 Preferred Stock were cumulative and accrued daily at a rate of 6% per annum whether or not declared. As part of the Series A2 Preferred Stock issuance, the dividend provisions for Series A Preferred Stock and Series A1 Preferred Stock were retrospectively amended to be noncumulative with the cumulative provision to begin after the Series A2 Preferred Stock issuance date at a rate of 6% per annum. This amendment did not significantly affect the nature of the Series A Preferred Stock and Series A1 Preferred Stock or their fair value. Accordingly, the amendment was treated as a modification for accounting purposes.

Liquidation

In the event of any voluntary or involuntary liquidation, dissolution, or winding-up of Aerpio, or upon the occurrence of a Deemed Liquidation Event, as defined, at the election of more than 50% of the holders of Series A2 Preferred Stock and Series A1 Preferred Stock, those holders are entitled to be paid, in preference to the holders of Series A Preferred Stock and Aerpio common stock, out of the assets of Aerpio available for distribution at $4.90 per share for Series A2 Preferred Stock and $3.97 per share for Series A1 Preferred Stock, plus any accrued but unpaid dividends. After the holders of Series A1 Preferred Stock and Series A2 Preferred Stock are satisfied, the holders of Series A Preferred Stock are paid at $4.27 per share, plus any accrued but unpaid dividends before any payment is made to the holders of Aerpio common stock.

In the event the assets of Aerpio available for distribution to stockholders are insufficient to pay the full amount to which the holder are entitled, the holders of Series A2 Preferred Stock and Series A1 Preferred Stock will share ratably any assets available for distribution in proportion to their relative original investment amounts. Any remaining assets of Aerpio will be distributed ratably among the holders of Series A Preferred Stock based upon aggregate applicable dividends accrued on Series A Preferred Stock not previously paid.

After the payment of all preferential amounts required to be paid to the holders of Preferred Stock, the remaining assets available for distribution will be distributed among the holders of Preferred Stock and Aerpio common stock based on the pro rata number of shares held by each holder, treating such securities as if they had been converted to Aerpio common stock immediately prior to such dissolution, liquidation, or winding-up of Aerpio .

Conversion

Each share of Preferred Stock is convertible at the option of the holder, at any time and from time to time, into fully paid and non-assessable shares of Aerpio common stock. The initial conversion ratio is one share of Preferred Stock for one share of the Aerpio's common stock. The applicable conversion rate is subject to future adjustments upon the occurrence of certain events.

Each share of Preferred Stock is automatically convertible into fully paid and non-assessable shares of Aerpio common stock at the then-applicable conversion ratio, as defined, upon either: (i) the closing of the sale of shares of the Aerpio's common stock to the public in an underwritten public offering at a price of $14.70 resulting in at least $40,000,000 of gross proceeds to Aerpio, or (ii) the date and time, or the occurrence of an event, specified by vote or written consent of the holders of more than 50% of the then outstanding shares of Preferred Stock on an as-converted basis.

Aerpio evaluated each series of its Preferred Stock and determined that each individual series is considered an equity host under ASC Topic 815, *Derivatives and Hedging.* In making this determination, Aerpio's analysis followed the whole instrument approach, which compares an individual feature against the entire Preferred Stock instrument that includes that feature. Aerpio's analysis was based on a consideration of the economic characteristics and risks of each series of Preferred Stock. More specifically, Aerpio evaluated all of the stated and implied substantive terms and features, including: (i) whether the Preferred Stock included redemption features, (ii) how and when any redemption features could be exercised, (iii) whether the holders of Preferred Stock were entitled to dividends, (iv) the voting rights of the Preferred Stock, and (v) the existence and nature of any conversion rights. Aerpio concluded that as the Preferred Stock represents an equity host, the conversion feature included in all series of Preferred Stock is clearly and closely related to the associated host instrument. Accordingly, the conversion feature of all series of Preferred Stock is not considered an embedded derivative that requires bifurcation.

Aerpio accounts for potentially beneficial conversion features under ASC Topic 470-20, *Debt with Conversion and Other Options*. At the time of each of the issuances of Preferred Stock, Aerpio's common stock into which each series of Aerpio's Preferred Stock is convertible had an estimated fair value less than the effective conversion prices of the convertible Preferred Stock. Therefore, there was no beneficial conversion element on the respective commitment dates.

Redemption

Preferred Stock are redeemable on or after July 31, 2017, upon a request by more than 50% of the holders of Preferred Stock then outstanding, payable in three annual installments commencing not more than 60 days following receipt by notice at a price equal to the greater of (i) the applicable original purchase price and dividends accrued but unpaid (Applicable Accrued Value), which is equal to its liquidation preference, or (ii) the Preferred Stock fair value per share. Due to this redemption option, the Preferred Stock is are recorded in mezzanine equity and subject to subsequent measurement under the guidance provided under ASC 480-10-S99. In accordance with that guidance, Aerpio has elected to recognize changes in redemption value immediately as they occur through adjustments to the carrying amounts of the instruments at the end of each reporting period. As of December 31, 2016 and 2015, the redemption values of all series of Preferred Stock were equal to their respective Applicable Accrued Value. The fair values of Preferred Stock are based upon a hybrid of the probability-weighted expected returns method and an option pricing model (OPM), which is a nonrecurring Level 3 fair value measurement within the fair value hierarchy. Under this hybrid model, share value is based on the probability weighted value of Aerpio in an a potential public trading scenario, in which the Preferred Stock converts to Aerpio common stock, and a second scenario in which equity value is allocated using the OPM. For the public trading scenario, Aerpio used the guideline public company method under the market approach.

8. Common Stock

As of December 31, 2016, Aerpio had 17,440,436 shares of authorized Aerpio common stock with par value of $0.0001 per share. All share and per share amounts are on an as converted basis to reflect the effect of the Merger. The voting, dividend, and liquidation rights of the holders of Aerpio common stock are subject to and qualified by the rights, powers, and preferences of the holders of Preferred Stock. The Aerpio common stock has the following characteristics prior to the Merger.

Voting

The holders of Aerpio common stock are entitled to one vote for each share of Aerpio common stock held at all meetings of stockholders and written actions in lieu of meetings. Notwithstanding the foregoing, except as otherwise required by law, holders of Aerpio common stock shall not be entitled to vote on any amendment to the certificate of incorporation that relates solely to the terms of one or more outstanding series of Preferred Stock or pursuant to General Corporation Law.

Dividends

The holders of Aerpio common stock are entitled to receive dividends, if and when declared by the Aerpio Board of Directors. Aerpio may not declare or pay any cash dividends to the holders of Aerpio common stock unless, in addition to obtaining any necessary consents, dividends are paid on each series of Preferred Stock in accordance with their respective terms. Since Aerpio's inception, no dividends have been declared or paid to the holders of Aerpio common stock.

Liquidation

In the event of any voluntary or involuntary liquidation, dissolution, or winding-up of Aerpio, the holders of Aerpio common stock are entitled to share ratably in Aerpio's assets available for distribution to stockholders after payment to the holders of Preferred Stock of their liquidation preferences have been satisfied.

Common Stock Reserved for Future Issuance

As of December 31, 2016, Aerpio has reserved the following shares of Aerpio common stock for future issuance:

Conversion of Series A Preferred Stock	1,239,338
Conversion of Series A1 Preferred Stock	8,289,663
Conversion of Series A2 Preferred Stock	4,486,015
Conversion of unvested restricted stock awards	241,096
Exercise of options to purchase Aerpio common stock	927,593
Total	15,183,705

9. Stock-Based Compensation

On November 17, 2011, Aerpio established the Aerpio Therapeutics, Inc. 2011 Equity Incentive Plan (the Plan). The Plan allows for the grant of either incentive stock options or non-qualified stock options to purchase Common Stock, stock bonuses, or restricted stock awards for management and certain persons performing services for the Company. As of December 31, 2016, a total of 5,860,874 shares of Aerpio common stock were authorized for issuance in accordance with the provisions of the Plan.

Stock Options

The options granted generally vest over 48 months. For employees with less than one year's service, options vest in installments of 25% at the one-year anniversary and thereafter in 36 equal monthly installments beginning

in the 13 month after the initial Vesting Commencement Date (as defined), subject to the employee's continuous service with the Company. Options granted to other employees vest in 48 equal monthly installments after the initial Vesting Commencement Date, subject to the employee's continuous service with the Company. The options generally expire ten years after the date of grant. The fair value of these options granted is recognized as an expense over the requisite service period.

The fair value of each stock option award granted during the year ended December 31, 2016 and 2015 respectively, was estimated on the grant date using the Black-Scholes option pricing model using the following weighted average assumptions:

	Year Ended December 31	
	2016	2015
Expected term (years)	**6.00**	6.00
Risk-free interest rate	**1.39%**	1.97%
Expected volatility	**61.00%**	78.00%
Expected dividend yield	**—**	—

The determination of the fair value of stock option awards on the date of grant using the Black-Scholes option pricing model is affected by the estimated fair value of Aerpio's common stock price, as well as a number of subjective variables. The Company engaged an independent valuation firm to assist management in estimating the fair value of Aerpio's common stock to be used for purposes of estimating the fair value of options to purchase shares of Aerpio's common stock. The Company estimates the expected term of options granted utilizing the simplified method. As there has been no public market for Aerpio's common stock, Aerpio has determined the volatility assumption for options granted based on data from a peer group of companies that issued options with substantially similar terms. The expected volatility of options granted has been determined using the average of the historical volatility measures of this peer group of companies for a period equal to the expected life of the option. The risk-free interest rate is based on the rate applicable to U.S. Treasury zero-coupon issues, with remaining maturities commensurate with the expected term of the options granted in effect on the date of grant. The Company has not paid, and does not anticipate paying, cash dividends on shares of Aerpio common stock; therefore, the expected dividend yield is assumed to be zero in the option valuation model.

The following table summarizes the stock option activity during 2016:

	Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (in Years)	Aggregate Intrinsic Value
Outstanding, January 1, 2016	907,485	$ 1.66		$ 135,711
Granted	50,228	1.80		
Exercised	(21,870)	0.87		
Expired/cancelled	(8,251)	1.24		
Outstanding, December 31, 2016	927,592	$ 1.70	7.48	$1,030,217
Expected to vest, December 31, 2016	312,547	$ 1.82	8.60	$ 308,767
Options exercisable, December 31, 2016	615,045	$ 1.63	6.92	$ 721,451

Aggregate intrinsic value represents the estimated fair value of Aerpio's common stock at the end of the period in excess of the weighted average exercise price multiplied by the number of options outstanding or exercisable. The aggregate intrinsic value of options exercisable at December 31, 2015 was $116,924.

The weighted average grant date fair value of stock options granted during the years ended December 31, 2016 was $1.22. Stock options exercised during 2016 and 2015 had an intrinsic value of $20,335 and $5,813

respectively. Compensation expense for stock options was $180,399 and $125,926 for the years ended December 31, 2016 and 2015, respectively. As of December 31, 2016, there was $293,796 of unrecognized compensation cost related to stock options, which is expected to be recognized over a weighted average period of 2.4 years.

Restricted Stock

Shares of restricted stock generally have similar vesting terms as stock options. A summary of the Company's restricted stock activity and related information during 2016 is as follows:

	Shares	Weighted Average Grant Date Fair Value
Nonvested, January 1, 2016	444,199	$ 1.69
Granted	—	—
Vested	(203,103)	1.54
Forfeited	—	—
Nonvested, December 31, 2016	241,096	$ 1.91

The Company recognized compensation expense for restricted stock of $307,927 and $343,919 for the years ended December 31, 2016 and 2015, respectively. As of December 31, 2016, there was $447,617 of unrecognized compensation cost related to these restricted stock grants, which is expected to be recognized over a weighted average period of 1.7 years.

Compensation Expense Summary

The Company has recognized the following compensation cost related to employee and non-employee stock-based compensation activity:

	Year Ended December 31 2016	2015
Research and development	**$ 317,644**	$ 295,304
General and administrative	**170,682**	174,542
Total	**$ 488,326**	$ 469,846

10. Income Taxes

There was no current or deferred income tax expense or benefit for the years ended December 31, 2016 and 2015, due to the Company's net losses and increases in its deferred tax asset valuation allowance. The components of loss before income taxes and a reconciliation of the statutory federal income tax with the provision for income taxes are as follows:

	Year Ended December 31 2016	2015
Federal tax at statutory rate	**34.00%**	34.00%
State and local tax at statutory rates	**0.83**	0.83
Research and development credits	**3.77**	4.06
Change in valuation allowance	**(37.28)**	(38.26)
Other	**(1.32)**	(0.63)
Effective tax rate	**0.00%**	0.00%

The Company's income tax provision was computed based on the federal statutory rate and the average state statutory rates, net of the related federal benefit.

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income and for tax carryforwards. Significant components of the Company's deferred tax assets and liabilities are as follows:

	December 31	
	2016	**2015**
Deferred tax assets:		
Net operating loss carryforwards	**$ 23,146,178**	$ 17,427,880
Accrued expenses	**18,400**	143,295
Stock-based compensation	**96,570**	—
Research and development credits	**2,670,688**	2,031,211
Other	**20,784**	19,565
Total deferred tax assets	**25,952,620**	19,621,951
Deferred tax liabilities:		
Stock-based compensation	**—**	2,803
Fixed assets	**8,434**	9,220
Total deferred tax liabilities	**8,434**	12,023
Net deferred tax assets before valuation allowance	**25,944,186**	19,609,928
Less valuation allowance	**(25,944,186)**	(19,609,928)
Net deferred tax asset	**$ —**	$ —

When realization of the deferred tax asset is more likely than not to occur, the benefit related to the deductible temporary differences attributable to operations is recognized as a reduction of income tax expense. Valuation allowances are provided against deferred tax assets when, based on all available evidence, it is considered more likely than not that some portion or all of the recorded deferred tax assets will not be realized in future periods. The Company cannot be certain that future taxable income will be sufficient to realize its deferred tax assets, and accordingly, a full valuation allowance has been provided on its net deferred tax assets. The valuation allowance increased $6,334,258 in 2016 and $6,530,455 in 2015 primarily as a result of an increase in the net operating loss (NOL) and research and development credits carryforwards. The Company continues to monitor the need for a valuation allowance based on the profitability of its future operations.

At December 31, 2016, the Company has approximately $66,464,259 of federal NOL carryforwards and approximately $66,464,259 of state NOL carryforwards that expire at various dates through 2034 and 2019, respectively. At December 31, 2016, the Company had approximately $2,670,688 of federal research and development credit carryforwards that expire at various dates through 2034.

Under the provisions of the Internal Revenue Code, NOL and tax credit carryforwards are subject to review and possible adjustment by the Internal Revenue Service and state tax authorities. NOL and tax credit carryforwards may be subject to an annual limitation in the event of certain cumulative changes in the ownership interest of significant stockholders by more than 50% over a three-year period, as defined in Sections 382 and 383 of the Internal Revenue Code and similar state provisions. The amount of the annual limitation is determined based on the value of the Company immediately before the ownership change. Subsequent ownership changes may further affect the limitation in future years. The Company has not completed a study to assess whether a change of control has occurred or whether there have been multiple changes of control since the date of the Company's formation due to the significant complexity and cost associated with such study and that there could be additional changes in control in the future. As a result, the Company is unable to estimate the effect of these limitations, if any, on the Company's ability to utilize NOL and tax credit carryforwards in the future.

The Company has not yet conducted a study to document whether its research activities may qualify for the research and development tax credit. Such a study may result in an adjustment to the Company's research and development credit carryforwards; however, until a study is completed and any adjustment is known, no amounts are being presented as an uncertain tax position. A full valuation allowance has been provided against the Company's research and development credit and, if an adjustment is required, this adjustment would be offset by an adjustment to the deferred tax asset established for the research and development credit carryforwards and the valuation allowance.

As of December 31, 2016 and 2015, the Company had no accrued uncertain tax positions or associated interest or penalties and no amounts have been recognized in the Company's statements of operations and comprehensive loss.

The Company files income tax returns in the U.S. federal jurisdiction and various state jurisdictions. The tax years since inception remain open and subject to examination by federal and state taxing authorities.

11. Net Loss per Share

The following table sets forth the computation of the Company's basic and diluted net loss per share for the periods presented:

	Year Ended December 31	
	2016	**2015**
Net loss and comprehensive loss	**$ (16,983,511)**	$ (17,070,223)
Extinguishment of preferred stock	**224,224**	—
Accretion of preferred stock to redemption value	**(4,152,801)**	(348,436)
Net loss attributable to common stockholders	**$ (20,912,088)**	$ (17,418,659)
Net loss per share attributable to common stockholders, basic and diluted	**$ (24.52)**	$ (31.14)
Weighted average common shares used in computing net loss per share attributable to common stockholders, basic and diluted	**852,665**	559,419

The following weighted average common stock equivalents were excluded from the calculation of diluted net loss per share for the periods presented because including them would have had an anti-dilutive effect:

	December 31	
	2016	**2015**
Convertible preferred stock (if converted)	**14,015,016**	14,183,535
Options to purchase Aerpio common stock	**615,045**	424,160
Convertible notes (if converted)	**2,641,602**	—

12. Commitments and Contingencies

The Company contracts with various organizations to conduct research and development activities. In addition, the Company is a party to a lease covering 7,580 square feet of space in Cincinnati, Ohio that expires in June 2018. Total rent expense for all operating leases in 2016 and 2015 was $214,595 and $160,221 respectively. The lease agreement contains free rent, escalating rent payments and reimbursement for tenant improvements that amounted to $46,390 in fiscal 2016. Rent expense is recorded on the straight-line basis over the initial terms with the differences between rent expense and rent payments recorded as deferred rent. As of December 31, 2016 and 2015, the Company had deferred rent of $49,209 and $8,486, respectively, which is included in accrued

expenses in the accompanying balance sheets. As of December 31, 2016, non-cancelable future minimum lease payments under the existing operating lease were $157,418. In addition, as of December 31, 2016, future payments related to other operating commitments arising from contracts related to research and development activities were $2,761,501 due in 2017.

	2017	2018	2019 and Thereafter	Total
Operating leases	$ 104,440	$52,978	$ —	$ 157,418
All other operating commitments	2,761,501	—	—	2,761,501
Total commitments	$2,865,941	$52,978	$ —	$2,918,919

13. Employee Retirement Plan

The Company created Aerpio's 401(k) plan in 2015. Before then, the Company's employees participated in Akebia's 401(k) plan (Akebia Plan). In accordance with both Plans, all employees who have attained the age of 21 are eligible to participate in the Plan as of the first Entry Date, as defined, following the employment date. Each employee can contribute a percentage of compensation up to a maximum of the statutory limits per year. Company contributions are discretionary, and no contributions were made during 2016 and 2015.

14. Employee Bonus Plan

During 2012, the Company established a non-calendar year bonus plan for certain employees of the Company based on the achievement of certain milestones. The amount of bonus accrued at December 31, 2015, was $380,020, which was paid in 2016. No bonus was accrued at December 31, 2016.

15. Subsequent Events

In February 2017, Aerpio executed a term sheet for a senior secured convertible note financing (the February Convertible Notes or February Convertible Note Financing) totaling $297,355, with certain preferred investor of Aerpio. The terms of the February Convertible Notes are identical to the Convertible Notes.

Merger and Offering

On March 15, 2017, the Company completed the Merger and Offering as further described in Note 1 to the consolidated financial statements. As a result of the Offering, the conditions that raised substantial doubt about whether the Company will continue as a going concern have been alleviated.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