
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

Amendment No. 1 to
FORM S-3
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

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

Delaware
(State or other jurisdiction of
incorporation or organization)

61-1547850
(I.R.S. Employer
Identification Number)

**9987 Carver Road
Cincinnati, OH 45242
(513) 985-1920**
(Address, including zip code, and telephone number, including area code, of principal executive offices)

**Stephen Hoffman
Chief Executive Officer
9987 Carver Road
Cincinnati, OH 45242
(513) 985-1920**
(Name, address, including zip code, and telephone number, including area code, of agent for service)

With copies to:
**Kingsley L. Taft, Esq.
Danielle Lauzon, Esq.
Goodwin Procter LLP
100 Northern Avenue
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Approximate date of commencement of proposed sale to the public: From time to time after this registration statement becomes effective.

If the only securities being registered on this form are being offered pursuant to dividend or interest reinvestment plans, please check the following box. ☐

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, as amended, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box: ☒

If this form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box. ☐

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box. ☐

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

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/> (Do not check if a smaller reporting company)	Smaller reporting company	<input checked="" type="checkbox"/>
		Emerging growth company box	<input checked="" type="checkbox"/>

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act. ☒

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Amount to be Registered(1)	Proposed Maximum Offering Price Per Unit(2)	Proposed Maximum Aggregate Offering Price(3)	Amount of Registration Fee(4)
Common Stock(5)				
Preferred Stock(6)				
Debt Securities(7)				
Warrants(8)				
Units(9)				
Total	\$150,000,000	N.A.	\$150,000,000	\$18,675(10)

- (1) The amount to be registered consists of up to \$150,000,000 of an indeterminate amount of common stock, preferred stock, debt securities, warrants and/or units. There is also being registered hereunder such currently indeterminate number of (i) shares of common stock or other securities of the registrant as may be issued upon conversion of, or in exchange for, convertible or exchangeable debt securities and/or preferred stock registered hereby, or (ii) shares of preferred stock, common stock, debt securities or units as may be issued upon exercise of warrants registered hereby, as the case may be. Any securities registered hereunder may be sold separately or as units with the other securities registered hereunder.
- (2) The proposed maximum aggregate offering price per unit will be determined from time to time by the registrant in connection with the issuance by the registrant of the securities registered hereunder and is not specified as to each class of security pursuant to General Instruction II.D. of Form S-3 under the Securities Act.
- (3) Estimated solely for purposes of computing the registration fee. No separate consideration will be received for (i) common stock or other securities of the registrant that may be issued upon conversion of, or in exchange for, convertible or exchangeable debt securities and/or preferred stock registered hereby, or (ii) preferred stock, common stock, debt securities or units that may be issued upon exercise of warrants registered hereby, as the case may be.
- (4) The registration fee has been calculated in accordance with Rule 457(o) under the Securities Act.
- (5) Including such indeterminate amount of common stock as may be issued from time to time at indeterminate prices or upon conversion of debt securities and/or preferred stock registered hereby, or upon exercise of warrants registered hereby, as the case may be.
- (6) Including such indeterminate amount of preferred stock as may be issued from time to time at indeterminate prices or upon conversion of debt securities and/or preferred stock registered hereby, or upon exercise of warrants registered hereby, as the case may be.
- (7) Including such indeterminate principal amount of debt securities as may be issued from time to time at indeterminate prices or upon exercise of warrants registered hereby, as the case may be.
- (8) Including such indeterminate number of warrants or other rights, including without limitation share purchase or subscription rights, as may be issued from time to time at indeterminate prices.
- (9) Each unit will be issued under a unit agreement and will represent an interest in two or more securities, which may or may not be separable from one another.
- (10) Previously paid.

THE REGISTRANT HEREBY AMENDS THIS REGISTRATION STATEMENT ON SUCH DATE OR DATES AS MAY BE NECESSARY TO DELAY ITS EFFECTIVE DATE UNTIL THE REGISTRANT SHALL FILE A FURTHER AMENDMENT WHICH SPECIFICALLY STATES THAT THIS REGISTRATION STATEMENT SHALL THEREAFTER BECOME EFFECTIVE IN ACCORDANCE WITH SECTION 8(a) OF THE SECURITIES ACT OF 1933, AS AMENDED, OR UNTIL THE REGISTRATION STATEMENT SHALL BECOME EFFECTIVE ON SUCH DATE AS THE COMMISSION ACTING PURSUANT TO SAID SECTION 8(a), MAY DETERMINE.

EXPLANATORY NOTE

This Registration Statement contains the following documents:

- A base prospectus which covers the offering, issuance and sale by us of up to \$150,000,000 in the aggregate of the securities identified above from time to time in one or more offerings; and
- A sales agreement prospectus supplement covering the offering, issuance and sale by us of up to a maximum aggregate offering price of \$75,000,000 of our common stock that may be issued and sold under a sales agreement with Cantor Fitzgerald & Co, or Cantor Fitzgerald.

The base prospectus immediately follows this explanatory note. The specific terms of any securities to be offered pursuant to the base prospectus will be specified in a prospectus supplement to the base prospectus. The sales agreement prospectus supplement immediately follows the base prospectus. The \$75,000,000 of common stock that may be offered, issued and sold under the sales agreement prospectus supplement is included in the \$150,000,000 of securities that may be offered, issued and sold by us under the base prospectus. In accordance with the terms of the sales agreement, we may offer and sell shares of our common stock having an aggregate purchase price of \$75,000,000 from time to time through Cantor Fitzgerald. The sales agreement prospectus supplement covers such aggregate amount. Upon termination of the sales agreement with Cantor Fitzgerald & Co., any portion of the \$75,000,000 included in the sales agreement prospectus that is not sold pursuant to the sales agreement will be available for sale in other offerings pursuant to the base prospectus, and if no shares are sold under the sales agreement, the full \$150,000,000 of securities may be sold in other offerings pursuant to the base prospectus and a corresponding prospectus supplement.

The information in this preliminary prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

PRELIMINARY PROSPECTUS (Subject to Completion)

Dated _____, 2018

\$150,000,000



**Common Stock
Preferred Stock
Debt Securities
Warrants
Units**

We may from time to time issue, in one or more series or classes, up to \$150,000,000 in aggregate principal amount of our common stock, preferred stock, debt securities, warrants and/or units. We may offer these securities separately or together in units. We will specify in the accompanying prospectus supplement the terms of the securities being offered. We may sell these securities to or through underwriters and also to other purchasers or through agents. We will set forth the names of any underwriters or agents, and any fees, conversions or discount arrangements, in the accompanying prospectus supplement. We may not sell any securities under this prospectus without delivery of the applicable prospectus supplement.

You should read this document and any prospectus supplement or amendment carefully before you invest in our securities.

Our common stock is listed on the OTC Markets—OTCQB Tier, under the symbol “ARPO.” On March 22, 2018, the closing price for our common stock, as quoted on the OTCQB, was \$5.00 per share. Our principal executive offices are located at 9987 Carver Road, Cincinnati, OH 45242.

Investing in our securities involves a high degree of risk. You should review carefully the risks and uncertainties referenced under the heading “[Risk Factors](#)” contained in this prospectus beginning on page 2 and any applicable prospectus supplement, and under similar headings in the other documents that are incorporated by reference into this prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this Prospectus is _____, 2018.

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or the SEC, using a “shelf registration process. Under this shelf registration process, we may from time to time sell any combination of the securities described in this prospectus in one or more offerings for an aggregate offering price of up to \$150,000,000.

This prospectus provides you with a general description of the securities we may offer. Each time we sell securities, we will provide one or more prospectus supplements that will contain specific information about the terms of the offering. The prospectus supplement may also add, update or change information contained in this prospectus. You should read both this prospectus and the accompanying prospectus supplement together with the additional information described under the heading “Where You Can Find More Information” beginning on page 33 of this prospectus.

You should rely only on the information contained in or incorporated by reference in this prospectus, any accompanying prospectus supplement or in any related free writing prospectus filed by us with the SEC. We have not authorized anyone to provide you with different information. This prospectus and the accompanying prospectus supplement do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the securities described in the accompanying prospectus supplement or an offer to sell or the solicitation of an offer to buy such securities in any circumstances in which such offer or solicitation is unlawful. You should assume that the information appearing in this prospectus, any prospectus supplement, the documents incorporated by reference and any related free writing prospectus is accurate only as of their respective dates. Our business, financial condition, results of operations and prospects may have changed materially since those dates.

Unless the context otherwise indicates, references in this prospectus to the “company,” “we,” “us” and “our” refer to Aerpio Pharmaceuticals, Inc.

RISK FACTORS

Investing in our securities involves a high degree of risk. You should carefully consider the risks referenced below and described in the documents incorporated by reference in this prospectus and any prospectus supplement, as well as other information we include or incorporate by reference into this prospectus and any applicable prospectus supplement, before making an investment decision. Our business, financial condition or results of operations could be materially adversely affected by the materialization of any of these risks. The trading price of our securities could decline due to the materialization of any of these risks, and you may lose all or part of your investment. The risks described below and incorporated herein by reference are not the only ones we face. Additional risks and uncertainties that are not presently known to us or that we currently believe are immaterial may also impair our business operations or financial condition. This prospectus and the documents incorporated herein by reference also contain forward-looking statements that involve risks and uncertainties. Actual results could differ materially from those anticipated in these forward-looking statements as a result of certain factors, including the risks referenced below and described in the documents incorporated herein by reference, including (i) our annual report on Form 10- K for the fiscal year ended December 31, 2017, as amended, which is incorporated by reference into this prospectus and (ii) other documents we file with the SEC that are deemed incorporated by reference into this prospectus.

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, including the documents that we incorporate by reference, contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. These forward-looking statements may be identified by forward-looking words such as “may,” “could,” “should,” “would,” “will,” “plans,” “intend,” “expect,” “anticipate,” “predicts,” “potential,” “believe,” “continue” or similar words, although not all forward-looking statements contain these identifying words. Forward-looking statements include, but are not limited to, statements regarding the progress and timing of our product development programs and related trials; our future opportunities; our strategy, future operations, anticipated financial position, future revenues and projected costs; our management’s prospects, plans and objectives; and any other statements about management’s future expectations, beliefs, goals, plans or prospects constitute forward-looking statements. Any forward-looking statements are qualified in their entirety by reference to the factors discussed throughout this prospectus, and in particular those factors referenced in the section “Risk Factors.”

Our actual results may differ materially from such forward-looking statements as a result of numerous factors, some of which we may not be able to predict and may not be within our control. Factors that could cause such differences include, but are not limited to, the accuracy of our estimates regarding expense, future revenues, uses of cash, capital requirements and the need for additional financing; our ability to continue as a going concern; the initiation, cost, timing, progress and results of our development activities, preclinical studies and clinical trials; the timing of and our ability to obtain and maintain regulatory approval of our existing product candidates, any product candidates that we may develop, and any related restrictions, limitations, and/or warnings in the label of any approved product candidates; our plans to research, develop and commercialize our current and future product candidates; our ability to attract collaborators with development, regulatory and commercialization expertise; our ability to obtain and maintain intellectual property protection for our product candidates; our ability to successfully commercialize our product candidates; the size and growth of the markets for our product candidates and our ability to serve those markets; the success of competing drugs that are or become available; our ability to obtain additional financing; our ability to attract and retain key personnel, as well as those risks discussed elsewhere in this prospectus, including under the heading “Risk Factors” and any prospectus supplement that we may file.

These forward-looking statements are neither promises nor guarantees of future performance due to a variety of risks and uncertainties and other factors more fully discussed in the “Risk Factors” section in this prospectus, the section of any accompanying prospectus supplement entitled “Risk Factors” and the risk factors and cautionary statements described in other documents that we file from time to time with the SEC, specifically under “Item 1A. Risk Factors” and elsewhere in our most recent Annual Report on Form 10-K for the period ended December 31, 2017, as amended, Quarterly Reports on Form 10-Q and our Current Reports on Form 8-K.

Given these uncertainties, readers should not place undue reliance on our forward-looking statements. These forward-looking statements speak only as of the date on which the statements were made and are not guarantees of future performance. Except as may be required by applicable law, we do not undertake to update any forward-looking statements after the date of this prospectus or the respective dates of documents incorporated by reference herein or therein that include forward-looking statements.

PROSPECTUS SUMMARY

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 Tie2 pathway, is being developed for the treatment of diabetic retinopathy, or DR, a disease characterized by progressive compromise of blood vessels in the back of the eye. The Tie2 receptor is expressed almost exclusively in endothelial cells (cells that make up blood vessels) and is essential for regulating vascular stability and preventing blood vessel compromise associated with diabetes. We have completed a Phase 2a trial of AKB-9778 in 144 patients with diabetic eye disease. Based on the results from this trial, we believe AKB-9778 has the potential to stop, slow down or reverse the damage to blood vessels caused by diabetes. In contrast to marketed treatments for DR that are administered by a physician via intraocular injection, we intend to deliver AKB-9778 systemically by self-administered subcutaneous injection, similar to insulin. We believe that this delivery method provides an opportunity to treat diabetic eye disease at an earlier stage and reduces the likelihood of developing vision-threatening complications. In June 2017, we initiated a 48-week, double-masked, Phase 2b clinical trial, which we refer to as TIME-2b, in patients with DR who have not developed more serious complications such as diabetic macular edema, or DME or proliferative diabetic retinopathy, or PDR. We expect to report top line results of this trial in the second quarter of 2019.

According to the World Health Organization's Global Report of Diabetes, there are an estimated 422 million individuals living with diabetes worldwide. An estimated 34.6% of these individuals, or 146 million people, have DR, 6.81%, or 28 million, have DME and 6.96%, or 29.7 million, have PDR. The underlying problem in diabetic complications is damage to the blood vessels, commonly referred to as diabetic vasculopathy, which is caused by chronic hyperglycemia. This damage causes blood vessels to leak fluid and proteins into the surrounding tissue, leading to complications. In the eyes, this damage leads to DR which can progress to DME and/or PDR. 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, dialysis patients cost an average of \$89,000 per year and the cost for the first year of DME therapy with Eylea® is \$14,400 per eye based on published Medicare allowable charges per dose and the frequency of dosing as approved by the Food and Drug Administration, or FDA. If approved, we believe that systemic treatment with AKB-9778 could have the potential to change the treatment paradigm for diabetics in the future and potentially address a major societal problem by lowering the cost of care associated generally with diabetes.

Diabetic eye disease is one of the most common and debilitating complications of diabetes. Over time, diabetes damages blood vessels in the back of the eye. When this happens, a patient is said to have DR. Eventually, 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 DME. The more progressive stages of DR, referred to as PDR, are characterized by the growth of abnormal new blood vessels. These new blood vessels can bleed into the eye and if left untreated can result in decreased visual acuity and eventual blindness. The likelihood of a person developing these sight-threatening complications increases as DR progresses.

According to the 2017 revenue reports for Regeneron and Roche, sales of the two leading approved therapies for DME, Eylea (aflibercept), which is marketed by Regeneron and Lucentis (ranibizumab), which is marketed by Genentech and Novartis, were estimated to be over \$5.6 billion worldwide in 2017. Given that the number of patients with DR is roughly five times 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 or PDR, without requiring repeated injections into the eye, could have substantial clinical and commercial value.

AKB-9778 is a small molecule activator of the Tie2 pathway that we believe helps to stabilize blood vessel walls and prevent vascular compromise in the eye, and based on pre-clinical models, potentially elsewhere in the body. Such vascular compromise in the eye may eventually lead to DME or PDR and, in many cases, to loss of vision or even blindness. We believe AKB-9778's mechanism of action reduces vascular damage and restores vascular integrity. In contrast to current therapies for diabetic eye disease, which are all administered by a physician via repeated injections into the eye, AKB-9778 is being developed as a self-administered subcutaneous injection that allows for treatment of both eyes.

In addition to DR, the Tie2 pathway is also implicated in other diabetic complications. We believe systemic treatment with AKB-9778 may address diabetic nephropathy and peripheral vascular disease. 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.

The TIME-2b study is a double-masked, placebo-controlled multi-center trial that is currently ongoing and is now fully enrolled with 167 patients randomized evenly to receive either AKB-9778 15 mg subcutaneously once daily, AKB-9778 15 mg subcutaneously twice daily or placebo for a 48-week treatment period. The primary endpoint of the TIME-2b study is the percentage of patients who improve by 2 or more steps in DR Severity Score, or DRSS, in the study eye.

There is emerging scientific literature that supports the role of Tie 2 in the maintenance of conventional outflow, or CO, pathway in the front of the eye. Existing preclinical and clinical evidence suggest the potential of AKB-9778 for reducing intraocular pressure in primary open angle glaucoma, or POAG, and ocular hypertension. We plan to initiate a Phase 1b clinical trial in the first quarter of 2019 to evaluate AKB-9778 for POAG and, if we observe positive results, we expect to initiate a Phase 2 program for this indication.

We are also developing AKB-4924, 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 involved in mucosal wound healing and the reduction of inflammation in the gastrointestinal tract. We have completed a single ascending dose clinical trial in healthy volunteers for AKB-4924 and plan to initiate a multiple ascending dose, or MAD study in the second quarter of 2018. If we successfully complete the MAD study, we expect to initiate a Phase 1b clinical study of AKB-4924 in patients with ulcerative colitis in the second half of 2018.

ARP-1536, our humanized monoclonal antibody directed at the same target as AKB-9778, is in preclinical development. We are evaluating development options for ARP-1536, including once-monthly subcutaneous injection for the treatment of diabetic vascular complications and once-monthly intravitreal injection for the treatment of advanced diabetic eye disease such as DME or PDR.

Company 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. On March 15, 2017, we changed our name to Aerpio Pharmaceuticals, Inc. by filing a Certificate of Amendment to our Certificate of Incorporation.

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.

Implications of Being an Emerging Growth Company

We qualify as an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, as amended, or the JOBS Act. As an emerging growth company, we may take advantage of specified reduced disclosure and other requirements that are otherwise applicable generally to public companies. These provisions include:

- 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;
- reduced disclosure about our executive compensation arrangements;
- no non-binding advisory votes on executive compensation or golden parachute arrangements;
- exemption from the auditor attestation requirement in the assessment of our internal control over financial reporting; and
- an exemption from new or revised financial accounting standards until they would apply to private companies and from compliance with any new requirements adopted by the Public Company Accounting Oversight Board requiring mandatory audit firm rotation.

We may take advantage of these exemptions for up to five years or such earlier time that we are no longer an emerging growth company. We would cease to be an emerging growth company on the date that is the earliest of (i) the last day of the fiscal year in which we have total annual gross revenue of \$1.07 billion or more; (ii) December 31, 2022; (iii) the date on which we have issued more than \$1.07 billion in nonconvertible debt during the previous three years; or (iv) the date on which we are deemed to be a large accelerated filer under the rules of the Securities and Exchange Commission, or SEC. We may choose to take advantage of some but not all of these exemptions. We have irrevocably elected to "opt out" of the exemption for the delayed adoption of certain accounting standards and, therefore, will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

RATIO OF EARNINGS TO FIXED CHARGES

Our earnings were insufficient to cover fixed charges for each of the periods in the table below, and we are unable to disclose a ratio of earnings to fixed charges for such periods. The table below sets forth our deficiency of earnings to cover fixed charges on a historical basis for the periods indicated. You should read this table in conjunction with the financial statements and notes incorporated by reference in this prospectus. The table is qualified by the more detailed information appearing in the computation table found in Exhibit 12.1 to the registration statement of which this prospectus is a part.

	Year Ended December 31		
	2017	2016	2015
		(in thousands)	
Deficiency of Earnings to Fixed Charges	\$(21,295)	\$(16,501)	\$(17,070)

Earnings consist of loss from operations before the benefit from income taxes and fixed charges. Fixed charges consist of the sum of interest expenses and the component of rental expenses that we believe to be representative of the interest factor for these amounts.

USE OF PROCEEDS

We intend to use the net proceeds from the sale of any securities offered under this prospectus for general corporate purposes unless otherwise indicated in the applicable prospectus supplement. General corporate purposes may include costs to commercialize our products, research and development and clinical development costs to support the advancement of our product candidates and the expansion of our product candidate pipeline; funding for the hiring of additional personnel, capital expenditures and the costs of operating as a public company. We may temporarily invest the net proceeds in a variety of capital preservation instruments, including investment grade instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government, or may hold such proceeds as cash, until they are used for their stated purpose. We have not determined the amount of net proceeds to be used specifically for such purposes. As a result, management will retain broad discretion over the allocation of net proceeds.

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.

DILUTION

We will set forth in a prospectus supplement the following information regarding any material dilution of the equity interests of investors purchasing securities in an offering under this prospectus:

- the net tangible book value per share of our equity securities before and after the offering;
- the amount of the increase in such net tangible book value per share attributable to the cash payments made by purchasers in the offering; and
- the amount of the immediate dilution from the public offering price which will be absorbed by such purchasers.

SECURITIES WE MAY OFFER

This prospectus contains summary descriptions of the securities we may offer from time to time. These summary descriptions are not meant to be complete descriptions of each security. The particular terms of any security will be described in the applicable prospectus supplement.

DESCRIPTION OF CAPITAL STOCK

The following description of our common stock and preferred stock, together with the additional information we include in any applicable prospectus supplements, summarizes the material terms and provisions of the common stock and preferred stock that we may offer under this prospectus. The following description of our capital stock does not purport to be complete and is subject to, and qualified in its entirety by, our amended and restated certificate of incorporation and amended and restated bylaws, which are exhibits to the registration statement of which this prospectus forms a part, and by applicable law. The terms of our common stock and preferred stock may also be affected by Delaware law.

General

Our authorized capital stock consists of 300,000,000 shares of common stock, par value \$0.0001 per share, and 10,000,000 shares of undesignated preferred stock, par value \$0.0001 per share.

As of December 31, 2017, there were 27,070,038 shares of common stock outstanding and no shares of preferred stock outstanding. As of December 31, 2017, we had approximately 262 record holders of our capital stock.

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;

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- 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

In connection with the private placement offering in March 2017, we agreed to issue to Raymond James & Associates, Inc., National Securities Corporation and Katalyst Securities LLC, each a U.S. registered broker-dealer, or collectively the Placement Agents, warrants to purchase a number of shares equal to 7% of the number of shares sold in such offering, or the Placement Agent 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

898,962 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 outstanding as of December 31, 2017 under the 2011 Plan with a weighted average exercise price of \$1.70. 280,448 options to purchase shares of our common stock were outstanding as of December 31, 2017 under our 2017 Stock Option and Incentive Plan with a weighted average exercise price of \$5.50 per share. Options to purchase an additional 733,570 shares of common stock were issued outside of our equity incentive plans with a weighted average exercise price of \$5.50 per share.

Other Convertible Securities

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

Registration Rights

Registration Rights Agreement. In connection with the Merger and the Offering, we entered into a Registration Rights Agreement, pursuant to which we filed 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. 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

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SEC or during a permitted blackout period as described in the Registration Rights Agreement), 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 after the Registrable Shares may be resold without volume or other limitations under Rule 144 or another exemption from registration under the Securities Act.

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.

We filed a Registration Statement on April 14, 2017 which was declared effective on June 26, 2017. Additionally, we were listed on the OTC Markets—OTCQB Tier on August 8, 2017.

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.

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

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 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 provides 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 includes 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.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer & Trust Company, LLC.

Listing

Our common stock is listed on the OTC Markets—OTCQB tier under the trading symbol “ARPO.”

DESCRIPTION OF DEBT SECURITIES

This section describes the general terms and provisions of our debt securities that we may issue from time to time. We may issue debt securities, in one or more series, as either senior or subordinated debt or as senior or subordinated convertible debt. While the terms we have summarized below will apply generally to any future debt securities we may offer under this prospectus, the applicable prospectus supplement or free writing prospectus will describe the specific terms of any debt securities offered through that prospectus supplement or free writing prospectus. The terms of any debt securities we offer under a prospectus supplement or free writing prospectus may differ from the terms we describe below. Unless the context requires otherwise, whenever we refer to the “indentures,” we are also referring to any supplemental indentures that specify the terms of a particular series of debt securities.

We will issue any senior debt securities under the senior indenture that we will enter into with the trustee named in the senior indenture. We will issue any subordinated debt securities under the subordinated indenture that we will enter into with the trustee named in the subordinated indenture. We have filed forms of these documents as exhibits to the registration statement, of which this prospectus is a part, and supplemental indentures and forms of debt securities containing the terms of the debt securities being offered will be filed as exhibits to the registration statement of which this prospectus is a part or will be incorporated by reference from reports that we file with the SEC.

The indentures will be qualified under the Trust Indenture Act of 1939, as amended, or the Trust Indenture Act. We use the term “trustee” to refer to either the trustee under the senior indenture or the trustee under the subordinated indenture, as applicable.

The following summaries of material provisions of the senior debt securities, the subordinated debt securities and the indentures are subject to, and qualified in their entirety by reference to, all of the provisions of the indenture applicable to a particular series of debt securities. We urge you to read the applicable prospectus supplement or free writing prospectus and any related free writing prospectuses related to the debt securities that we may offer under this prospectus, as well as the complete applicable indenture that contains the terms of the debt securities. Except as we may otherwise indicate, the terms of the senior indenture and the subordinated indenture are identical.

General

- We will describe in the applicable prospectus supplement or free writing prospectus the terms of the series of debt securities being offered, including:
- the title;
- the principal amount being offered, and if a series, the total amount authorized and the total amount outstanding;
- any limit on the amount that may be issued;
- whether or not we will issue the series of debt securities in global form, and, if so, the terms and who the depository will be;
- the maturity date;
- whether and under what circumstances, if any, we will pay additional amounts on any debt securities held by a person who is not a United States person for tax purposes, and whether we can redeem the debt securities if we have to pay such additional amounts;
- the annual interest rate, which may be fixed or variable, or the method for determining the rate and the date interest will begin to accrue, the dates interest will be payable and the regular record dates for interest payment dates or the method for determining such dates;

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- whether or not the debt securities will be secured or unsecured, and the terms of any secured debt;
- the terms of the subordination of any series of subordinated debt;
- the place where payments will be payable;
- restrictions on transfer, sale or other assignment, if any;
- our right, if any, to defer payment of interest and the maximum length of any such deferral period;
- the date, if any, after which, the conditions upon which, and the price at which, we may, at our option, redeem the series of debt securities pursuant to any optional or provisional redemption provisions and the terms of those redemption provisions;
- the date, if any, on which, and the price at which we are obligated, pursuant to any mandatory sinking fund or analogous fund provisions or otherwise, to redeem, or at the holder's option, to purchase, the series of debt securities and the currency or currency unit in which the debt securities are payable;
- whether the indenture will restrict our ability or the ability of our subsidiaries, if any at such time, to:
 - incur additional indebtedness;
 - issue additional securities;
 - create liens;
 - pay dividends or make distributions in respect of our capital stock or the capital stock of our subsidiaries;
 - redeem capital stock;
 - place restrictions on our subsidiaries' ability to pay dividends, make distributions or transfer assets;
 - make investments or other restricted payments;
 - sell or otherwise dispose of assets;
 - enter into sale-leaseback transactions;
 - engage in transactions with stockholders or affiliates;
 - issue or sell stock of our subsidiaries; or
 - effect a consolidation or merger;
- whether the indenture will require us to maintain any interest coverage, fixed charge, cash flow-based, asset-based or other financial ratios;
- a discussion of certain material or special United States federal income tax considerations applicable to the debt securities;
- information describing any book-entry features;
- provisions for a sinking fund purchase or other analogous fund, if any;
- the applicability of the provisions in the indenture on discharge;
- whether the debt securities are to be offered at a price such that they will be deemed to be offered at an "original issue discount" as defined in paragraph (a) of Section 1273 of the Internal Revenue Code of 1986, as amended;
- the denominations in which we will issue the series of debt securities, if other than denominations of \$1,000 and any integral multiple thereof;

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- the currency of payment of debt securities if other than U.S. dollars and the manner of determining the equivalent amount in U.S. dollars; and
- any other specific terms, preferences, rights or limitations of, or restrictions on, the debt securities, including any additional events of default or covenants provided with respect to the debt securities, and any terms that may be required by us or advisable under applicable laws or regulations or advisable in connection with the marketing of the debt securities.

Conversion or Exchange Rights

We will set forth in the applicable prospectus supplement or free writing prospectus the terms on which a series of debt securities may be convertible into or exchangeable for our common stock, our preferred stock or other securities (including securities of a third-party). We will include provisions as to whether conversion or exchange is mandatory, at the option of the holder or at our option. We may include provisions pursuant to which the number of shares of our common stock, our preferred stock or other securities (including securities of a third-party) that the holders of the series of debt securities receive would be subject to adjustment.

Consolidation, Merger or Sale

Unless we provide otherwise in the prospectus supplement or free writing prospectus applicable to a particular series of debt securities, the indentures will not contain any covenant that restricts our ability to merge or consolidate, or sell, convey, transfer or otherwise dispose of all or substantially all of our assets. However, any successor to or acquirer of such assets must assume all of our obligations under the indentures or the debt securities, as appropriate. If the debt securities are convertible into or exchangeable for other securities of ours or securities of other entities, the person with whom we consolidate or merge or to whom we sell all of our property must make provisions for the conversion of the debt securities into securities that the holders of the debt securities would have received if they had converted the debt securities before the consolidation, merger or sale.

Events of Default Under the Indenture

Unless we provide otherwise in the prospectus supplement or free writing prospectus applicable to a particular series of debt securities, the following are events of default under the indentures with respect to any series of debt securities that we may issue:

- if we fail to pay interest when due and payable and our failure continues for 90 days and the time for payment has not been extended;
- if we fail to pay the principal, premium or sinking fund payment, if any, when due and payable at maturity, upon redemption or repurchase or otherwise, and the time for payment has not been extended;
- if we fail to observe or perform any other covenant contained in the debt securities or the indentures, other than a covenant specifically relating to another series of debt securities, and our failure continues for 90 days after we receive notice from the trustee or holders of at least 25% in aggregate principal amount of the outstanding debt securities of the applicable series; and
- if specified events of bankruptcy, insolvency or reorganization occur.

We will describe in each applicable prospectus supplement or free writing prospectus any additional events of default relating to the relevant series of debt securities.

If an event of default with respect to debt securities of any series occurs and is continuing, other than an event of default specified in the last bullet point above, the trustee or the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series, by notice to us in writing, and to the trustee if notice is given by such holders, may declare the unpaid principal, premium, if any, and accrued interest, if any, due and

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payable immediately. If an event of default specified in the last bullet point above occurs with respect to us, the unpaid principal, premium, if any, and accrued interest, if any, of each issue of debt securities then outstanding shall be due and payable without any notice or other action on the part of the trustee or any holder.

The holders of a majority in principal amount of the outstanding debt securities of an affected series may waive any default or event of default with respect to the series and its consequences, except defaults or events of default regarding payment of principal, premium, if any, or interest, unless we have cured the default or event of default in accordance with the indenture. Any waiver shall cure the default or event of default.

Subject to the terms of the indentures, if an event of default under an indenture shall occur and be continuing, the trustee will be under no obligation to exercise any of its rights or powers under such indenture at the request or direction of any of the holders of the applicable series of debt securities, unless such holders have offered the trustee reasonable indemnity or security satisfactory to it against any loss, liability or expense. The holders of a majority in principal amount of the outstanding debt securities of any series will have the right to direct the time, method and place of conducting any proceeding for any remedy available to the trustee, or exercising any trust or power conferred on the trustee, with respect to the debt securities of that series, provided that:

- the direction so given by the holder is not in conflict with any law or the applicable indenture; and
- subject to its duties under the Trust Indenture Act, the trustee need not take any action that might involve it in personal liability or might be unduly prejudicial to the holders not involved in the proceeding.

A holder of the debt securities of any series will have the right to institute a proceeding under the indentures or to appoint a receiver or trustee, or to seek other remedies if:

- the holder has given written notice to the trustee of a continuing event of default with respect to that series;
- the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series have made written request, and such holders have offered reasonable indemnity to the trustee or security satisfactory to it against any loss, liability or expense or to be incurred in compliance with instituting the proceeding as trustee; and
- the trustee does not institute the proceeding, and does not receive from the holders of a majority in aggregate principal amount of the outstanding debt securities of that series other conflicting directions within 90 days after the notice, request and offer.

These limitations do not apply to a suit instituted by a holder of debt securities if we default in the payment of the principal, premium, if any, or interest on, the debt securities, or other defaults that may be specified in the applicable prospectus supplement or free writing prospectus.

We will periodically file statements with the trustee regarding our compliance with specified covenants in the indentures.

Modification of Indenture; Waiver

Subject to the terms of the indenture for any series of debt securities that we may issue, we and the trustee may change an indenture without the consent of any holders with respect to the following specific matters:

- to fix any ambiguity, defect or inconsistency in the indenture;
- to comply with the provisions described above under “—Consolidation, Merger or Sale;”
- to comply with any requirements of the SEC in connection with the qualification of any indenture under the Trust Indenture Act;

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- to add to, delete from or revise the conditions, limitations, and restrictions on the authorized amount, terms, or purposes of issue, authentication and delivery of debt securities, as set forth in the indenture;
- to provide for the issuance of and establish the form and terms and conditions of the debt securities of any series as provided under “Description of Debt Securities—General,” to establish the form of any certifications required to be furnished pursuant to the terms of the indenture or any series of debt securities, or to add to the rights of the holders of any series of debt securities;
- to evidence and provide for the acceptance of appointment hereunder by a successor trustee;
- to provide for uncertificated debt securities and to make all appropriate changes for such purpose;
- to add to our covenants such new covenants, restrictions, conditions or provisions for the benefit of the holders, to make the occurrence, or the occurrence and the continuance, of a default in any such additional covenants, restrictions, conditions or provisions an event of default or to surrender any right or power conferred to us in the indenture; or
- to change anything that does not materially adversely affect the interests of any holder of debt securities of any series.

In addition, under the indentures, the rights of holders of a series of debt securities may be changed by us and the trustee with the written consent of the holders of at least a majority in aggregate principal amount of the outstanding debt securities of each series that is affected. However, subject to the terms of the indenture for any series of debt securities that we may issue or as otherwise provided in the prospectus supplement or free writing prospectus applicable to a particular series of debt securities, we and the trustee may make the following changes only with the consent of each holder of any outstanding debt securities affected:

- extending the stated maturity of the series of debt securities;
- reducing the principal amount, reducing the rate of or extending the time of payment of interest, or reducing any premium payable upon the redemption or repurchase of any debt securities; or
- reducing the percentage of debt securities, the holders of which are required to consent to any amendment, supplement, modification or waiver.

Discharge

Each indenture provides that, subject to the terms of the indenture and any limitation otherwise provided in the prospectus supplement or free writing prospectus applicable to a particular series of debt securities, we can elect to be discharged from our obligations with respect to one or more series of debt securities, except for specified obligations, including obligations to:

- register the transfer or exchange of debt securities of the series;
- replace stolen, lost or mutilated debt securities of the series;
- maintain paying agencies;
- hold monies for payment in trust;
- recover excess money held by the trustee;
- compensate and indemnify the trustee; and
- appoint any successor trustee.

In order to exercise our rights to be discharged, we must deposit with the trustee money or government obligations sufficient to pay all the principal of, any premium and interest on, the debt securities of the series on the dates payments are due.

Form, Exchange and Transfer

We will issue the debt securities of each series only in fully registered form without coupons and, unless we otherwise specify in the applicable prospectus supplement or free writing prospectus, in denominations of \$1,000 and any integral multiple thereof. The indentures provide that we may issue debt securities of a series in temporary or permanent global form and as book-entry securities that will be deposited with, or on behalf of, The Depository Trust Company or another depository named by us and identified in a prospectus supplement or free writing prospectus with respect to that series.

At the option of the holder, subject to the terms of the indentures and the limitations applicable to global securities described in the applicable prospectus supplement or free writing prospectus, the holder of the debt securities of any series can exchange the debt securities for other debt securities of the same series, in any authorized denomination and of like tenor and aggregate principal amount.

Subject to the terms of the indentures and the limitations applicable to global securities set forth in the applicable prospectus supplement or free writing prospectus, holders of the debt securities may present the debt securities for exchange or for registration of transfer, duly endorsed or with the form of transfer endorsed thereon duly executed if so required by us or the security registrar, at the office of the security registrar or at the office of any transfer agent designated by us for this purpose. Unless otherwise provided in the debt securities that the holder presents for transfer or exchange, we will make no service charge for any registration of transfer or exchange, but we may require payment of any taxes or other governmental charges.

We will name in the applicable prospectus supplement or free writing prospectus the security registrar, and any transfer agent in addition to the security registrar, that we initially designate for any debt securities. We may at any time designate additional transfer agents or rescind the designation of any transfer agent or approve a change in the office through which any transfer agent acts, except that we will be required to maintain a transfer agent in each place of payment for the debt securities of each series. If we elect to redeem the debt securities of any series, we will not be required to:

- issue, register the transfer of, or exchange any debt securities of that series during a period beginning at the opening of business 15 days before the day of mailing of a notice of redemption of any debt securities that may be selected for redemption and ending at the close of business on the day of the mailing; or
- register the transfer of or exchange any debt securities so selected for redemption, in whole or in part, except the unredeemed portion of any debt securities we are redeeming in part.

Information Concerning the Trustee

The trustee, other than during the occurrence and continuance of an event of default under an indenture, undertakes to perform only those duties as are specifically set forth in the applicable indenture. Upon an event of default under an indenture, the trustee must use the same degree of care as a prudent person would exercise or use in the conduct of his or her own affairs.

Subject to this provision, the trustee is under no obligation to exercise any of the powers given it by the indentures at the request of any holder of debt securities unless it is offered reasonable security and indemnity against the costs, expenses and liabilities that it might incur.

Payment and Paying Agents

Unless we otherwise indicate in the applicable prospectus supplement or free writing prospectus, we will make payment of the interest on any debt securities on any interest payment date to the person in whose name the debt securities, or one or more predecessor securities, are registered at the close of business on the regular record date for the interest.

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We will pay principal of and any premium and interest on the debt securities of a particular series at the office of the paying agents designated by us, except that unless we otherwise indicate in the applicable prospectus supplement or free writing prospectus, we will make interest payments by check that we will mail to the holder or by wire transfer to certain holders. Unless we otherwise indicate in the applicable prospectus supplement or free writing prospectus, we will designate the corporate trust office of the trustee as our sole paying agent for payments with respect to debt securities of each series. We will name in the applicable prospectus supplement or free writing prospectus any other paying agents that we initially designate for the debt securities of a particular series. We will maintain a paying agent in each place of payment for the debt securities of a particular series.

All money we pay to a paying agent or the trustee for the payment of the principal of or any premium or interest on any debt securities that remains unclaimed at the end of two years after such principal, premium or interest has become due and payable will be repaid to us, and the holder of the debt security thereafter may look only to us for payment thereof.

Governing Law

The indentures and the debt securities will be governed by and construed in accordance with the laws of the State of Ohio, except to the extent that the Trust Indenture Act is applicable.

Ranking of Debt Securities

The subordinated debt securities will be subordinate and junior in priority of payment to certain of our other indebtedness to the extent described in a prospectus supplement or free writing prospectus. The subordinated indenture does not limit the amount of subordinated debt securities that we may issue. It also does not limit us from issuing any other secured or unsecured debt.

The senior debt securities will rank equally in right of payment to all our other senior unsecured debt. The senior indenture does not limit the amount of senior debt securities that we may issue. It also does not limit us from issuing any other secured or unsecured debt.

DESCRIPTION OF WARRANTS

The following description, together with the additional information we may include in any applicable prospectus supplements, summarizes the material terms and provisions of the warrants that we may offer under this prospectus and the related warrant agreements and warrant certificates. While the terms summarized below will apply generally to any warrants that we may offer, we will describe the particular terms of any series of warrants in more detail in the applicable prospectus supplement. If we indicate in the prospectus supplement, the terms of any warrants offered under that prospectus supplement may differ from the terms described below. Specific warrant agreements will contain additional important terms and provisions and will be incorporated by reference as an exhibit to the registration statement, which includes this prospectus.

General

We may issue warrants for the purchase of common stock, preferred stock and/or debt securities in one or more series. We may issue warrants independently or together with common stock, preferred stock and/or debt securities, and the warrants may be attached to or separate from these securities.

We will evidence each series of warrants by warrant certificates that we will issue under a separate warrant agreement. We will enter into the warrant agreement with a warrant agent. We will indicate the name and address of the warrant agent in the applicable prospectus supplement relating to a particular series of warrants.

We will describe in the applicable prospectus supplement the terms of the series of warrants, including:

- the offering price and aggregate number of warrants offered;
- the currency for which the warrants may be purchased;
- if applicable, the designation and terms of the securities with which the warrants are issued and the number of warrants issued with each such security or each principal amount of such security;
- if applicable, the date on and after which the warrants and the related securities will be separately transferable;
- in the case of warrants to purchase debt securities, the principal amount of debt securities purchasable upon exercise of one warrant and the price at, and currency in which, this principal amount of debt securities may be purchased upon such exercise;
- in the case of warrants to purchase common stock or preferred stock, the number of shares of common stock or preferred stock, as the case may be, purchasable upon the exercise of one warrant and the price at which these shares may be purchased upon such exercise;
- the effect of any merger, consolidation, sale or other disposition of our business on the warrant agreement and the warrants;
- the terms of any rights to redeem or call the warrants;
- any provisions for changes to or adjustments in the exercise price or number of securities issuable upon exercise of the warrants;
- the periods during which, and places at which, the warrants are exercisable;
- the manner of exercise;
- the dates on which the right to exercise the warrants will commence and expire;
- the manner in which the warrant agreement and warrants may be modified;
- federal income tax consequences of holding or exercising the warrants;
- the terms of the securities issuable upon exercise of the warrants; and
- any other specific terms, preferences, rights or limitations of or restrictions on the warrants.

DESCRIPTION OF UNITS

We may issue units comprised of shares of common stock, shares of preferred stock, debt securities and warrants in any combination. We may issue units in such amounts and in as many distinct series as we wish. This section outlines certain provisions of the units that we may issue. If we issue units, they will be issued under one or more unit agreements to be entered into between us and a bank or other financial institution, as unit agent. The information described in this section may not be complete in all respects and is qualified entirely by reference to the unit agreement with respect to the units of any particular series. The specific terms of any series of units offered will be described in the applicable prospectus supplement. If so described in a particular supplement, the specific terms of any series of units may differ from the general description of terms presented below. We urge you to read any prospectus supplement related to any series of units we may offer, as well as the complete unit agreement and unit certificate that contain the terms of the units. If we issue units, forms of unit agreements and unit certificates relating to such units will be incorporated by reference as exhibits to the registration statement, which includes this prospectus.

Each unit that we may issue will be issued so that the holder of the unit is also the holder of each security included in the unit. Thus, the holder of a unit will have the rights and obligations of a holder of each included security. The unit agreement under which a unit is issued may provide that the securities included in the unit may not be held or transferred separately, at any time or at any time before a specified date. The applicable prospectus supplement may describe:

- the designation and terms of the units and of the securities comprising the units, including whether and under what circumstances those securities may be held or transferred separately;
- any provisions of the governing unit agreement;
- the price or prices at which such units will be issued;
- the applicable United States federal income tax considerations relating to the units;
- any provisions for the issuance, payment, settlement, transfer or exchange of the units or of the securities comprising the units; and
- any other terms of the units and of the securities comprising the units.

The provisions described in this section, as well as those described under “Description of Capital Stock,” “Description of Debt Securities” and “Description of Warrants” will apply to the securities included in each unit, to the extent relevant and as may be updated in any prospectus supplements.

Issuance in Series

We may issue units in such amounts and in as many distinct series as we wish. This section summarizes terms of the units that apply generally to all series. Most of the financial and other specific terms of a particular series of units will be described in the applicable prospectus supplement.

Unit Agreements

We will issue the units under one or more unit agreements to be entered into between us and a bank or other financial institution, as unit agent. We may add, replace or terminate unit agents from time to time. We will identify the unit agreement under which each series of units will be issued and the unit agent under that agreement in the applicable prospectus supplement.

The following provisions will generally apply to all unit agreements unless otherwise stated in the applicable prospectus supplement:

Modification without Consent

We and the applicable unit agent may amend any unit or unit agreement without the consent of any holder:

- to cure any ambiguity; any provisions of the governing unit agreement that differ from those described below;
- to correct or supplement any defective or inconsistent provision; or
- to make any other change that we believe is necessary or desirable and will not adversely affect the interests of the affected holders in any material respect.

We do not need any approval to make changes that affect only units to be issued after the changes take effect. We may also make changes that do not adversely affect a particular unit in any material respect, even if they adversely affect other units in a material respect. In those cases, we do not need to obtain the approval of the holder of the unaffected unit; we need only obtain any required approvals from the holders of the affected units.

Modification with Consent

We may not amend any particular unit or a unit agreement with respect to any particular unit unless we obtain the consent of the holder of that unit, if the amendment would:

- impair any right of the holder to exercise or enforce any right under a security included in the unit if the terms of that security require the consent of the holder to any changes that would impair the exercise or enforcement of that right; or
- reduce the percentage of outstanding units or any series or class the consent of whose holders is required to amend that series or class, or the applicable unit agreement with respect to that series or class, as described below.

Any other change to a particular unit agreement and the units issued under that agreement would require the following approval:

- If the change affects only the units of a particular series issued under that agreement, the change must be approved by the holders of a majority of the outstanding units of that series; or
- If the change affects the units of more than one series issued under that agreement, it must be approved by the holders of a majority of all outstanding units of all series affected by the change, with the units of all the affected series voting together as one class for this purpose.

These provisions regarding changes with majority approval also apply to changes affecting any securities issued under a unit agreement, as the governing document.

In each case, the required approval must be given by written consent.

Unit Agreements Will Not Be Qualified under Trust Indenture Act

No unit agreement will be qualified as an indenture, and no unit agent will be required to qualify as a trustee, under the Trust Indenture Act. Therefore, holders of units issued under unit agreements will not have the protections of the Trust Indenture Act with respect to their units.

Mergers and Similar Transactions Permitted; No Restrictive Covenants or Events of Default

The unit agreements will not restrict our ability to merge or consolidate with, or sell our assets to, another corporation or other entity or to engage in any other transactions. If at any time we merge or consolidate with, or

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sell our assets substantially as an entirety to, another corporation or other entity, the successor entity will succeed to and assume our obligations under the unit agreements. We will then be relieved of any further obligation under these agreements.

The unit agreements will not include any restrictions on our ability to put liens on our assets, nor will they restrict our ability to sell our assets. The unit agreements also will not provide for any events of default or remedies upon the occurrence of any events of default.

Governing Law

The unit agreements and the units will be governed by Delaware law.

Form, Exchange and Transfer

We will issue each unit in global—i.e., book-entry—form only. Units in book-entry form will be represented by a global security registered in the name of a depositary, which will be the holder of all the units represented by the global security. Those who own beneficial interests in a unit will do so through participants in the depositary's system, and the rights of these indirect owners will be governed solely by the applicable procedures of the depositary and its participants. We will describe book-entry securities, and other terms regarding the issuance and registration of the units in the applicable prospectus supplement.

Each unit and all securities comprising the unit will be issued in the same form.

If we issue any units in registered, non-global form, the following will apply to them.

The units will be issued in the denominations stated in the applicable prospectus supplement. Holders may exchange their units for units of smaller denominations or combined into fewer units of larger denominations, as long as the total amount is not changed.

- Holders may exchange or transfer their units at the office of the unit agent. Holders may also replace lost, stolen, destroyed or mutilated units at that office. We may appoint another entity to perform these functions or perform them ourselves.
- Holders will not be required to pay a service charge to transfer or exchange their units, but they may be required to pay for any tax or other governmental charge associated with the transfer or exchange. The transfer or exchange, and any replacement, will be made only if our transfer agent is satisfied with the holder's proof of legal ownership. The transfer agent may also require an indemnity before replacing any units.
- If we have the right to redeem, accelerate or settle any units before their maturity, and we exercise our right as to less than all those units or other securities, we may block the exchange or transfer of those units during the period beginning 15 days before the day we mail the notice of exercise and ending on the day of that mailing, in order to freeze the list of holders to prepare the mailing. We may also refuse to register transfers of or exchange any unit selected for early settlement, except that we will continue to permit transfers and exchanges of the unsettled portion of any unit being partially settled. We may also block the transfer or exchange of any unit in this manner if the unit includes securities that are or may be selected for early settlement.

Only the depositary will be entitled to transfer or exchange a unit in global form, since it will be the sole holder of the unit.

Payments and Notices

In making payments and giving notices with respect to our units, we will follow the procedures as described in the applicable prospectus supplement.

PLAN OF DISTRIBUTION

We may sell securities:

- through underwriters;
- through dealers;
- through agents;
- directly to purchasers; or
- through a combination of any of these methods or any other method permitted by law.

In addition, we may issue the securities as a dividend or distribution or in a subscription rights offering to our existing security holders.

We may directly solicit offers to purchase securities, or agents may be designated to solicit such offers. In the prospectus supplement relating to such offering, we will name any agent that could be viewed as an underwriter under the Securities Act and describe any commissions that we must pay to any such agent. Any such agent will be acting on a best efforts basis for the period of its appointment or, if indicated in the applicable prospectus supplement, on a firm commitment basis. This prospectus may be used in connection with any offering of our securities through any of these methods or other methods described in the applicable prospectus supplement.

The distribution of the securities may be effected from time to time in one or more transactions:

- at a fixed price, or prices, which may be changed from time to time;
- at market prices prevailing at the time of sale;
- at prices related to such prevailing market prices; or
- at negotiated prices.

Each prospectus supplement will describe the method of distribution of the securities and any applicable restrictions.

The prospectus supplement with respect to the securities of a particular series will describe the terms of the offering of the securities, including the following:

- the name of the agent or any underwriters;
- the public offering or purchase price;
- any discounts and commissions to be allowed or paid to the agent or underwriters;
- all other items constituting underwriting compensation;
- any discounts and commissions to be allowed or paid to dealers; and
- any exchanges on which the securities will be listed.

If any underwriters or agents are used in the sale of the securities in respect of which this prospectus is delivered, we will enter into an underwriting agreement, sales agreement or other agreement with them at the time of sale to them, and we will set forth in the prospectus supplement relating to such offering the names of the underwriters or agents and the terms of the related agreement with them.

In connection with the offering of securities, we may grant to the underwriters an option to purchase additional securities with an additional underwriting commission, as may be set forth in the accompanying prospectus supplement. If we grant any such option, the terms of such option will be set forth in the prospectus supplement for such securities.

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If a dealer is used in the sale of the securities in respect of which the prospectus is delivered, we will sell such securities to the dealer, as principal. The dealer, who may be deemed to be an “underwriter” as that term is defined in the Securities Act, may then resell such securities to the public at varying prices to be determined by such dealer at the time of resale.

If we offer securities in a subscription rights offering to our existing security holders, we may enter into a standby underwriting agreement with dealers, acting as standby underwriters. We may pay the standby underwriters a commitment fee for the securities they commit to purchase on a standby basis. If we do not enter into a standby underwriting arrangement, we may retain a dealer-manager to manage a subscription rights offering for us.

Agents, underwriters, dealers and other persons may be entitled under agreements which they may enter into with us to indemnification by us against certain civil liabilities, including liabilities under the Securities Act, and may be customers of, engage in transactions with or perform services for us in the ordinary course of business.

If so indicated in the applicable prospectus supplement, we will authorize underwriters or other persons acting as our agents to solicit offers by certain institutions to purchase securities from us pursuant to delayed delivery contracts providing for payment and delivery on the date stated in the prospectus supplement. Each contract will be for an amount not less than, and the aggregate amount of securities sold pursuant to such contracts shall not be less nor more than, the respective amounts stated in the prospectus supplement. Institutions with whom the contracts, when authorized, may be made include commercial and savings banks, insurance companies, pension funds, investment companies, educational and charitable institutions and other institutions, but shall in all cases be subject to our approval. Delayed delivery contracts will not be subject to any conditions except that:

- the purchase by an institution of the securities covered under that contract shall not at the time of delivery be prohibited under the laws of the jurisdiction to which that institution is subject; and
- if the securities are also being sold to underwriters acting as principals for their own account, the underwriters shall have purchased such securities not sold for delayed delivery. The underwriters and other persons acting as our agents will not have any responsibility in respect of the validity or performance of delayed delivery contracts.

Offered securities may also be offered and sold, if so indicated in the prospectus supplement, in connection with a remarketing upon their purchase, in accordance with a redemption or repayment pursuant to their terms, or otherwise, by one or more remarketing firms, acting as principals for their own accounts or as agents for us. Any remarketing firm will be identified and the terms of its agreement, if any, with us and its compensation will be described in the applicable prospectus supplement. Remarketing firms may be deemed to be underwriters in connection with their remarketing of offered securities.

Certain agents, underwriters and dealers, and their associates and affiliates, may be customers of, have borrowing relationships with, engage in other transactions with, or perform services, including investment banking services, for us or one or more of our respective affiliates in the ordinary course of business.

In order to facilitate the offering of the securities, any underwriters may engage in transactions that stabilize, maintain or otherwise affect the price of the securities or any other securities the prices of which may be used to determine payments on such securities. Specifically, any underwriters may over allot in connection with the offering, creating a short position for their own accounts. In addition, to cover overallocments or to stabilize the price of the securities or of any such other securities, the underwriters may bid for, and purchase, the securities or any such other securities in the open market. Finally, in any offering of the securities through a syndicate of underwriters, the underwriting syndicate may reclaim selling concessions allowed to an underwriter or a dealer for distributing the securities in the offering if the syndicate repurchases previously distributed securities in transactions to cover syndicate short positions, in stabilization transactions or otherwise. Any of these activities may stabilize or maintain the market price of the securities above independent market levels. Any such underwriters are not required to engage in these activities and may end any of these activities at any time.

We may engage in at the market offerings into an existing trading market in accordance with Rule 415(a)(4) under the Securities Act. In addition, we may enter into derivative transactions with third parties, or sell securities not covered by this prospectus to third parties in privately negotiated transactions. If the applicable prospectus supplement so indicates, in connection with those derivatives, the third parties may sell securities covered by this prospectus and the applicable prospectus supplement, including in short sale transactions. If so, the third party may use securities pledged by us or borrowed from us or others to settle those sales or to close out any related open borrowings of stock, and may use securities received from us in settlement of those derivatives to close out any related open borrowings of stock. The third party in such sale transactions will be an underwriter and, if not identified in this prospectus, will be named in the applicable prospectus supplement (or a post-effective amendment). In addition, we may otherwise loan or pledge securities to a financial institution or other third party that in turn may sell the securities short using this prospectus and an applicable prospectus supplement. Such financial institution or other third party may transfer its economic short position to investors in our securities or in connection with a concurrent offering of other securities.

Under Rule 15c6-1 of the Exchange Act, trades in the secondary market generally are required to settle in two business days, unless the parties to any such trade expressly agree otherwise. The applicable prospectus supplement may provide that the original issue date for your securities may be more than two scheduled business days after the trade date for your securities. Accordingly, in such a case, if you wish to trade securities on any date prior to the second business day before the original issue date for your securities, you will be required, by virtue of the fact that your securities initially are expected to settle in more than two scheduled business days after the trade date for your securities, to make alternative settlement arrangements to prevent a failed settlement.

The securities may be new issues of securities and may have no established trading market. The securities may or may not be listed on a national securities exchange. We can make no assurance as to the liquidity of or the existence of trading markets for any of the securities.

The specific terms of any lock-up provisions in respect of any given offering will be described in the applicable prospectus supplement.

The underwriters, dealers and agents may engage in transactions with us, or perform services for us, in the ordinary course of business for which they receive compensation.

The anticipated date of delivery of offered securities will be set forth in the applicable prospectus supplement relating to each offer.

EXPERTS

The consolidated financial statements incorporated in this Prospectus by reference from Aerpio Pharmaceuticals, Inc.'s Annual Report on Form 10-K have been audited by Ernst & Young LLP, an independent registered public accounting firm, as stated in their report, which is incorporated herein by reference. Such financial statements have been so incorporated in reliance upon the report of such firm given upon their authority as experts in accounting and auditing.

LWBJ, LLP, independent registered accounting firm, has audited the financial statements of Zeta Acquisition Corp. II at December 31, 2015 and 2016, and for the years then ended, as set forth in their report dated March 7, 2017, included in the Aerpio Pharmaceuticals, Inc. Registration Statement (Form S-1 No. 333-217320) and incorporated by reference herein. The financial statements of Zeta Acquisition Corp. II are incorporated by reference in reliance on LWBJ, LLP's report, given on their authority as experts in accounting and auditing.

LEGAL MATTERS

Certain legal matters in connection with this offering will be passed upon for us by Goodwin Procter LLP, Boston, Massachusetts. Any underwriters will also be advised about the validity of the securities and other legal matters by their own counsel, which will be named in the prospectus supplement.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus is part of a registration statement that we have filed with the SEC. Certain information in the registration statement has been omitted from this prospectus in accordance with the rules of the SEC. For further information, we refer you to the registration statement and the exhibits and schedules filed as a part of the registration statement. Statements contained in this prospectus or incorporated by reference concerning the contents of any contract or any other document are not necessarily complete. If a contract or document has been filed or incorporated by reference as an exhibit to the registration statement, we refer you to the copy of the contract or document that has been filed. Each statement in this prospectus or incorporated by reference relating to a contract or document filed as an exhibit is qualified in all respects by the filed exhibit. The reports and other information we file with the SEC can be read and copied at the SEC's Public Reference Room at 100F Street, NE, Washington D.C. 20549. Copies of these materials can be obtained at prescribed rates from the Public Reference Section of the SEC at the principal offices of the SEC, 100 F Street, NE, Washington D.C. 20549. You may obtain information regarding the operation of the public reference room by calling 1(800) SEC-0330. The SEC also maintains a web site (<http://www.sec.gov>) that contains reports, proxy and information statements and other information regarding issuers like us that file electronically with the SEC.

We are subject to the reporting and information requirements of the Exchange Act and, as a result, we file periodic reports, proxy statements and other information with the SEC. These periodic reports, proxy statements and other information will be available for inspection and copying at the SEC's public reference room and the web site of the SEC referred to above.

INCORPORATION BY REFERENCE

The SEC allows us to incorporate by reference the information and reports we file with it, which means that we can disclose important information to you by referring you to these documents. The information incorporated by reference is an important part of this prospectus, and information that we file later with the SEC will automatically update and supersede the information already incorporated by reference. We are incorporating by reference the documents listed below, which we have already filed with the SEC, and any future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, including all filings made after the date of the filing of this registration statement and prior to the effectiveness of this registration statement, except as to any portion of any future report or document that is not deemed filed under such provisions, after the date of this prospectus and prior to the termination of this offering:

- Annual Report on Form 10-K for the year ended December 31, 2017, as amended;
- Current Report on Form 8-K filed with the SEC on April 2, 2018; and
- Registration Statement on Form S-1 filed with the SEC on April 14, 2017, and declared effective on June 23, 2017.

We will furnish without charge to you, on written or oral request, a copy of any or all of the documents incorporated by reference in this prospectus, including exhibits to these documents. You should direct any requests for documents to Investor Relations, Aerpio Pharmaceuticals, Inc., 9987 Carver Road, Cincinnati, OH 45242; telephone: (513) 985-1920.

You also may access these filings on our website at www.aerpio.com. We do not incorporate the information on our website into this prospectus or any supplement to this prospectus and you should not consider any information on, or that can be accessed through, our website as part of this prospectus or any supplement to this prospectus (other than those filings with the SEC that we specifically incorporate by reference into this prospectus or any supplement to this prospectus).

Any statement contained in a document incorporated or deemed to be incorporated by reference in this prospectus will be deemed modified, superseded or replaced for purposes of this prospectus to the extent that a statement contained in this prospectus modifies, supersedes or replaces such statement.

\$150,000,000



**Common Stock
Preferred Stock
Debt Securities
Warrants
Units**

PROSPECTUS

, 2018

We have not authorized any dealer, salesperson or other person to give any information or represent anything not contained in this prospectus. You must not rely on any unauthorized information. If anyone provides you with different or inconsistent information, you should not rely on it. This prospectus does not offer to sell any securities in any jurisdiction where it is unlawful. Neither the delivery of this prospectus, nor any sale made hereunder, shall create any implication that the information in this prospectus is correct after the date hereof.

The information contained in this prospectus supplement is not complete and may be changed. These securities may not be sold until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus supplement is not an offer to sell these securities and is not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

Subject to Completion, dated _____, 2018

PROSPECTUS SUPPLEMENT



Up to \$75,000,000

Common Stock

We have entered into a Controlled Equity OfferingSM Sales Agreement, or the sales agreement, with Cantor Fitzgerald & Co., or Cantor, pursuant to which we may offer and sell our common stock from time to time through Cantor, acting as agent, having an aggregate offering price of up to \$75,000,000.

Sales of our common stock, if any, under this prospectus supplement may be made in sales deemed to be “at the market offerings” as defined in Rule 415 (a)(4) promulgated under the Securities Act of 1933, as amended. Cantor will act as sales agent on a best efforts basis and use commercially reasonable efforts to sell on our behalf all of the common stock requested to be sold by us, consistent with its normal trading and sales practices, on mutually agreed terms between Cantor and us. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

Cantor will be entitled to compensation under the terms of the sales agreement at a commission rate of up to 3.0% of the gross sales price per share sold. In connection with the sale of common stock on our behalf, Cantor will be deemed to be an “underwriter” within the meaning of the Securities Act, and the compensation of Cantor will be deemed to be underwriting commissions or discounts.

Our common stock is listed on the OTC Markets—OTCQB Tier under the symbol “ARPO.” On March 22, 2018, the last reported sale price of our common stock on the OTCQB was \$5.00 per share.

Investing in our common stock involves risks. Before making an investment decision, you should review carefully the risks and uncertainties described under the heading “[Risk Factors](#)” beginning on page S-7 and under similar headings in the other documents that are incorporated by reference herein.

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



The date of this prospectus supplement is _____, 2018.

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ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement relates to the offering of our common stock. Before buying any of the common stock that we are offering, we urge you to carefully read this prospectus supplement, together with the information incorporated by reference as described under the headings “Where You Can Find More Information” and “Documents Incorporated by Reference” in this prospectus supplement. These documents contain important information that you should consider when making your investment decision.

This prospectus supplement describes the specific terms of the common stock we are offering and also adds to, and updates information contained in the documents incorporated by reference into this prospectus supplement. To the extent there is a conflict between the information contained in this prospectus supplement, on the one hand, and the information contained in any document incorporated by reference into this prospectus supplement that was filed with the Securities and Exchange Commission, or SEC, before the date of this prospectus supplement, on the other hand, you should rely on the information in this prospectus supplement. If any statement in one of these documents is inconsistent with a statement in another document having a later date—for example, a document incorporated by reference into this prospectus supplement—the statement in the document having the later date modifies or supersedes the earlier statement.

You should rely only on the information contained in, or incorporated by reference into, this prospectus supplement and in any free writing prospectus that we may authorize for use in connection with this offering. We have not, and Cantor has not, authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We are not, and Cantor is not, making an offer to sell or soliciting an offer to buy our common stock in any jurisdiction in which an offer or solicitation is not authorized or in which the person making that offer or solicitation is not qualified to do so or to anyone to whom it is unlawful to make an offer or solicitation. You should assume that the information appearing in this prospectus supplement, the documents incorporated by reference into this prospectus supplement, and in any free writing prospectus that we may authorize for use in connection with this offering, is accurate only as of the date of those respective documents. Our business, financial condition, results of operations and prospects may have changed since those dates. You should read this prospectus supplement, the documents incorporated by reference into this prospectus supplement, and any free writing prospectus that we may authorize for use in connection with this offering, in their entirety before making an investment decision. You should also read and consider the information in the documents to which we have referred you in the sections of this prospectus supplement entitled “Where You Can Find More Information” and “Documents Incorporated by Reference.”

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement and any applicable prospectus supplement or free writing prospectus, including the documents that we incorporate by reference, contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. These forward-looking statements may be identified by forward-looking words such as “may,” “could,” “should,” “would,” “will,” “plans,” “intend,” “expect,” “anticipate,” “predicts,” “potential,” “believe,” “continue” or similar words, although not all forward-looking statements contain these identifying words. Any forward-looking statements are qualified in their entirety by reference to the factors discussed throughout this prospectus, and in particular those factors referenced in the section “Risk Factors.”

Our actual results may differ materially from such forward-looking statements as a result of numerous factors, some of which we may not be able to predict and may not be within our control. Factors that could cause such differences include, but are not limited to, the accuracy of our estimates regarding expense, future revenues, uses of cash, capital requirements and the need for additional financing; our ability to continue as a going concern; the initiation, cost, timing, progress and results of our development activities, preclinical studies and clinical trials; the timing of and our ability to obtain and maintain regulatory approval of our existing product candidates, any product candidates that we may develop, and any related restrictions, limitations, and/or warnings in the label of any approved product candidates; our plans to research, develop and commercialize our current and future product candidates; our ability to attract collaborators with development, regulatory and commercialization expertise; our ability to obtain and maintain intellectual property protection for our product candidates; our ability to successfully commercialize our product candidates; the size and growth of the markets for our product candidates and our ability to serve those markets; the success of competing drugs that are or become available; our ability to obtain additional financing; our ability to attract and retain key personnel, as well as those risks discussed elsewhere in this prospectus supplement, including under the heading “Risk Factors.”

These forward-looking statements are neither promises nor guarantees of future performance due to a variety of risks and uncertainties and other factors more fully discussed in the “Risk Factors” section in this prospectus supplement and the risk factors and cautionary statements described in other documents that we file from time to time with the SEC, specifically under “Item 1A. Risk Factors” and elsewhere in our most recent Annual Report on Form 10-K for the period ended December 31, 2017, as amended, Quarterly Reports on Form 10-Q and our Current Reports on Form 8-K.

Given these uncertainties, readers should not place undue reliance on our forward-looking statements. These forward-looking statements speak only as of the date on which the statements were made and are not guarantees of future performance. Except as may be required by applicable law, we do not undertake to update any forward-looking statements after the date of this prospectus supplement or the respective dates of documents incorporated by reference herein or therein that include forward-looking statements. Before deciding to purchase our securities, you should carefully consider the risk factors included or incorporated herein by reference, in addition to the other information set forth in this prospectus supplement, any accompanying prospectus supplement, any free writing prospectus and in the documents incorporated by reference.

OUR COMPANY

This business overview highlights information contained in certain documents incorporated by reference into this prospectus supplement. This business overview does not contain all of the information that you should consider before investing in our common stock. You should read the entire prospectus carefully, including the “Risk Factors” section and the financial statements and the notes to those statements incorporated herein by reference, before making an investment decision.

References in this prospectus supplement to the terms “Aerpio Pharmaceuticals,” “company,” “we,” “our” or “us” or other similar terms means Aerpio Pharmaceuticals, Inc.

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 Tie2 pathway, is being developed for the treatment of diabetic retinopathy, or DR, a disease characterized by progressive compromise of blood vessels in the back of the eye. The Tie2 receptor is expressed almost exclusively in endothelial cells (cells that make up blood vessels) and is essential for regulating vascular stability and preventing blood vessel compromise associated with diabetes. We have completed a Phase 2a trial of AKB-9778 in 144 patients with diabetic eye disease. Based on the results from this trial, we believe AKB-9778 has the potential to stop, slow down or reverse the damage to blood vessels caused by diabetes. In contrast to marketed treatments for DR that are administered by a physician via intraocular injection, we intend to deliver AKB-9778 systemically by self-administered subcutaneous injection, similar to insulin. We believe that this delivery method provides an opportunity to treat diabetic eye disease at an earlier stage and reduces the likelihood of developing vision-threatening complications. In June 2017, we initiated a 48-week, double-masked, Phase 2b clinical trial, which we refer to as TIME-2b, in patients with DR who have not developed more serious complications such as diabetic macular edema, or DME or proliferative diabetic retinopathy, or PDR. We expect to report top line results of this trial in the second quarter of 2019.

According to the World Health Organization’s Global Report of Diabetes, there are an estimated 422 million individuals living with diabetes worldwide. An estimated 34.6% of these individuals, or 146 million people, have DR, 6.81%, or 28 million, have DME and 6.96%, or 29.7 million, have PDR. The underlying problem in diabetic complications is damage to the blood vessels, commonly referred to as diabetic vasculopathy, which is caused by chronic hyperglycemia. This damage causes blood vessels to leak fluid and proteins into the surrounding tissue, leading to complications. In the eyes, this damage leads to DR which can progress to DME and/or PDR. 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, dialysis patients cost an average of \$89,000 per year and the cost for the first year of DME therapy with Eylea® is \$14,400 per eye based on published Medicare allowable charges per dose and the frequency of dosing as approved by the Food and Drug Administration, or FDA. If approved, we believe that systemic treatment with AKB-9778 could have the potential to change the treatment paradigm for diabetics in the future and potentially address a major societal problem by lowering the cost of care associated generally with diabetes.

Diabetic eye disease is one of the most common and debilitating complications of diabetes. Over time, diabetes damages blood vessels in the back of the eye. When this happens, a patient is said to have DR. Eventually, 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 DME. The more progressive stages of DR, referred to as PDR, are characterized by the growth of abnormal new blood vessels. These new blood vessels can bleed into the eye and if left untreated

can result in decreased visual acuity and eventual blindness. The likelihood of a person developing these sight-threatening complications increases as DR progresses.

According to the 2017 revenue reports for Regeneron and Roche, sales of the two leading approved therapies for DME, Eylea (aflibercept), which is marketed by Regeneron and Lucentis (ranibizumab), which is marketed by Genentech and Novartis, were estimated to be over \$5.6 billion worldwide in 2017. Given that the number of patients with DR is roughly five times 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 or PDR, without requiring repeated injections into the eye, could have substantial clinical and commercial value.

AKB-9778 is a small molecule activator of the Tie2 pathway that we believe helps to stabilize blood vessel walls and prevent vascular compromise in the eye, and based on pre-clinical models, potentially elsewhere in the body. Such vascular compromise in the eye may eventually lead to DME or PDR and, in many cases, to loss of vision or even blindness. We believe AKB-9778's mechanism of action reduces vascular damage and restores vascular integrity. In contrast to current therapies for diabetic eye disease, which are all administered by a physician via repeated injections into the eye, AKB-9778 is being developed as a self-administered subcutaneous injection that allows for treatment of both eyes.

In addition to DR, the Tie2 pathway is also implicated in other diabetic complications. We believe systemic treatment with AKB-9778 may address diabetic nephropathy and peripheral vascular disease. 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.

The TIME-2b study is a double-masked, placebo-controlled multi-center trial that is currently ongoing and is now fully enrolled with 167 patients randomized evenly to receive either AKB-9778 15 mg subcutaneously once daily, AKB-9778 15 mg subcutaneously twice daily or placebo for a 48-week treatment period. The primary endpoint of the TIME-2b study is the percentage of patients who improve by 2 or more steps in DR Severity Score, or DRSS, in the study eye.

There is emerging scientific literature that supports the role of Tie 2 in the maintenance of conventional outflow, or CO, pathway in the front of the eye. Existing preclinical and clinical evidence suggest the potential of AKB-9778 for reducing intraocular pressure in primary open angle glaucoma, or POAG, and ocular hypertension. We plan to initiate a Phase 1b clinical trial in the first quarter of 2019 to evaluate AKB-9778 for POAG and, if we observe positive results, we expect to initiate a Phase 2 program for this indication.

We are also developing AKB-4924, 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 involved in mucosal wound healing and the reduction of inflammation in the gastrointestinal tract. We have completed a single ascending dose clinical trial in healthy volunteers for AKB-4924 and plan to initiate a multiple ascending dose, or MAD study in the second quarter of 2018. If we successfully complete the MAD study, we expect to initiate a Phase 1b clinical study of AKB-4924 in patients with ulcerative colitis in the second half of 2018.

ARP-1536, our humanized monoclonal antibody directed at the same target as AKB-9778, is in preclinical development. We are evaluating development options for ARP-1536, including once-monthly subcutaneous injection for the treatment of diabetic vascular complications and once-monthly intravitreal injection for the treatment of advanced diabetic eye disease such as DME or PDR.

Company 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

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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. On March 15, 2017, we changed our name to Aerpio Pharmaceuticals, Inc. by filing a Certificate of Amendment to our Certificate of Incorporation.

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 us	Common stock having an aggregate offering price of up to \$75,000,000.
Common stock to be outstanding after this offering	42,070,038 common stock
Plan of Distribution	“At the market offering” that may be made from time to time through our agent, Cantor. See “Plan of Distribution.”
Use of Proceeds	We intend to use the net proceeds from this offering, if any, for general corporate purposes, which may include, but are not limited to, working capital, strategic acquisitions and other potential business development activities, ongoing research and development activities and capital expenditures. See “Use of Proceeds”.
Risk Factors	Investing in our common stock involves a high degree of risk. Please read the information contained in and incorporated by reference under the heading “Risk Factors” in this prospectus supplement and under similar headings in the other documents that are filed after the date hereof and incorporated by reference into this prospectus supplement, together with the other information included in or incorporated by reference into this prospectus supplement, before deciding whether to invest in our common stock.
OTCQB symbol	ARPO

The number of common stock to be outstanding after this offering and, unless otherwise indicated, the information in this prospectus supplement are based on 27,070,038 shares of common stock outstanding as of December 31, 2017 and assumes the sale and issuance of \$75,000,000 of common stock at \$5.00 per share, the last reported sale price of our common stock on the OTCQB on March 22, 2018, and excludes 4,571,370 shares of common stock held by us for issuance under our equity incentive plans as of December 31, 2017, of which there were outstanding options to purchase 1,179,410 shares of common stock at a weighted average exercise price of \$2.61 per share, and excludes an additional 733,570 shares of common stock outside of our equity incentive plans issuable upon the exercise of options at a weighted average exercise price of \$5.50 per share.

RISK FACTORS

Investing in our common stock involves a high degree of risk. Before deciding whether to invest in our common stock, you should consider carefully the risks and uncertainties described below and incorporated herein by reference, including (i) our annual report on Form 10-K for the fiscal year ended December 31, 2017, as amended, which is incorporated by reference into this prospectus supplement and (ii) other documents we file with the SEC that are deemed incorporated by reference into this prospectus supplement, as updated or superseded by the risks and uncertainties described under similar headings in the other documents that are filed after the date hereof and incorporated by reference into this prospectus supplement, together with the other information in this prospectus supplement, the documents incorporated by reference and any free writing prospectus that we may authorize for use in connection with this offering. The risks described in these documents are not the only ones we face, but those that we consider to be material. There may be other unknown or unpredictable economic, business, competitive, regulatory or other factors that could have material adverse effects on our future results. Past financial performance may not be a reliable indicator of future performance, and historical trends should not be used to anticipate results or trends in future periods. If any of these risks actually occurs, our business, financial condition, results of operations or cash flow could be seriously harmed. This could cause the trading price of our common stock to decline, resulting in a loss of all or part of your investment. Please also carefully read the section below entitled "Cautionary Note Regarding Forward-Looking Statements."

Risks Related to this Offering

Management will have broad discretion as to the use of the proceeds from this offering, and may not use the proceeds effectively.

Because we have not designated the amount of net proceeds from this offering to be used for any particular purpose, our management will have broad discretion as to the application of the net proceeds from this offering and could use them for purposes other than those contemplated at the time of the offering. Accordingly, you will be relying on the judgment of our management with regard to the use of any proceeds from the sale of common stock in this offering, and you will not have the opportunity, as part of your investment decision, to assess whether the proceeds are being used appropriately. Our management may use the net proceeds for corporate purposes that may not improve our financial condition or market value.

You may experience immediate and substantial dilution.

The offering price per share in this offering may exceed the net tangible book value per share of our common stock outstanding prior to this offering. Assuming that an aggregate of 15,000,000 of our common stock are sold at a price of \$5.00 per share pursuant to this prospectus supplement, which was the last reported sale price of our common stock on the OTCQB on March 22, 2018, for aggregate gross proceeds of \$75,000,000, after deducting commissions and estimated aggregate offering expenses payable by us, you would experience immediate dilution of \$2.85 per share, representing the difference between our as adjusted net tangible book value per share as of December 31, 2017, after giving effect to this offering and the assumed offering price. The exercise of outstanding share options may result in further dilution of your investment. See the section entitled "Dilution" below for a more detailed illustration of the dilution you would incur if you participate in this offering.

You may experience future dilution as a result of future equity offerings.

In order to raise additional capital, we may in the future offer additional common stock or other securities convertible into or exchangeable for our common stock at prices that may not be the same as the price per share in this offering. We may sell shares or other securities in any other offering at a price per share that is less than the price per share paid by investors in this offering, and investors purchasing shares or other securities in the future could have rights superior to existing shareholders. The price per share at which we sell additional shares of our common stock, or securities convertible or exchangeable into common stock, in future transactions may be higher or lower than the price per share paid by investors in this offering.

USE OF PROCEEDS

We intend to use the net proceeds from this offering, if any, for general corporate purposes, which may include, but are not limited to, working capital, strategic acquisitions and other potential business development activities, ongoing research and development activities and capital expenditures. As of the date of this prospectus supplement, we cannot specify with certainty all of the particular uses for the net proceeds to us from this offering. Accordingly, our management will have broad discretion in the timing and application of these proceeds. Pending application of the net proceeds as described above, we intend to temporarily invest the proceeds in short-term, interest-bearing instruments.

DILUTION

If you invest in this offering, your ownership interest will be diluted to the extent of the difference between the public offering price per share and the as adjusted net tangible book value per share after giving effect to this offering. We calculate net tangible book value per share by dividing the net tangible book value, which is tangible assets less total liabilities, by the number of our outstanding common stock. Dilution represents the difference between the portion of the amount per share paid by purchasers of shares in this offering and the as adjusted net tangible book value per share of our common stock immediately after giving effect to this offering. Our net tangible book value as of December 31, 2017, was \$17.4 million, or \$0.64 per share.

After giving effect to the sale of our common stock pursuant to this prospectus supplement in the aggregate amount of \$75,000,000 at an assumed offering price of \$5.00 per share, the last reported sale price of our common stock on the OTCQB on March 22, 2018, and after deducting commissions and estimated aggregate offering expenses payable by us, our net tangible book value as of December 31, 2017 would have been \$90.4 million, or \$2.15 per common stock. This represents an immediate increase in the net tangible book value of \$1.51 per share to our existing shareholders and an immediate dilution in net tangible book value of \$2.85 per share to new investors. The following table illustrates this per share dilution:

Assumed offering price per share	\$5.00
Net tangible book value per share as of December 31, 2017	0.64
Increase per share attributable to new investors	1.51
As adjusted net tangible book value per share as of December 31, 2017, after giving effect to this offering	2.15
Dilution per share to new investors purchasing shares in this offering	2.85

The table above assumes for illustrative purposes that an aggregate of 15,000,000 of our common stock are sold pursuant to this prospectus supplement at a price of \$5.00 per share, the last reported sale price of our common stock on the OTCQB on March 22, 2018, for aggregate gross proceeds of \$75,000,000. The shares are being sold from time to time at various prices pursuant to the sales agreement with Cantor. An increase of \$1.00 per share in the price at which the shares are sold from the assumed offering price of \$5.00 per share shown in the table above, assuming all of our common stock in the aggregate amount of \$75,000,000 is sold at that price, would increase our adjusted net tangible book value per share after the offering to \$2.28 per share and would increase the dilution in net tangible book value per share to new investors in this offering to \$3.72 per share, after deducting commissions and estimated aggregate offering expenses payable by us. A decrease of \$1.00 per share in the price at which the shares are sold from the assumed offering price of \$5.00 per share shown in the table above, assuming all of our common stock in the aggregate amount of \$75,000,000 is sold at that price, would decrease our adjusted net tangible book value per share after the offering to \$1.97 per share and would decrease the dilution in net tangible book value per share to new investors in this offering to \$2.03 per share, after deducting commissions and estimated aggregate offering expenses payable by us. This information is supplied for illustrative purposes only.

The above discussion and table are based on 27,070,038 shares of common stock issued and outstanding as of December 31, 2017, and excludes 4,571,370 shares of common stock held by us for issuance under our equity incentive plans as of December 31, 2017, of which there were outstanding options to purchase 1,179,410 shares of common stock at a weighted average exercise price of \$2.61 per share, and excludes an additional 733,570 shares of common stock outside of our equity incentive plans issuable upon the exercise of options at a weighted average exercise price of \$5.50 per share.

To the extent that options outstanding as of December 31, 2017, have been or are exercised, or other shares are issued, investors purchasing shares in this offering could experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations, even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our shareholders.

PLAN OF DISTRIBUTION

In accordance with the terms of our Controlled Equity OfferingSM Sales Agreement, or the sales agreement, with Cantor Fitzgerald & Co., or Cantor, we may offer and sell our common stock from time to time through Cantor, acting as agent, having an aggregate offering price of up to \$75,000,000. This summary of the material provisions of the sales agreement does not purport to be a complete statement of its terms and conditions. A copy of our Controlled Equity OfferingSM Sales Agreement that we entered into with Cantor is filed with the SEC as an exhibit to the registration statement of which this prospectus supplement is a part.

Cantor may sell the shares of common stock by any method that is deemed to be an “at the market offering” as defined in Rule 415(a)(4) promulgated under the Securities Act of 1933, as amended. Subject to the terms of the placement notice, Cantor may also sell the shares of common stock by any other method permitted by law, including in privately negotiated transactions.

Each time we wish to issue and sell shares of common stock under the sales agreement, we will notify Cantor of the number of shares to be issued, the dates on which such sales are anticipated to be made and any minimum price below which sales may not be made. Once we have so instructed Cantor, unless it declines to accept the terms of this notice, Cantor has agreed to use its commercially reasonable efforts consistent with its normal trading and sales practices to sell such shares up to the amount specified on such terms. The obligations of Cantor under the sales agreement to sell our common stock are subject to a number of conditions that we must meet. We or Cantor may suspend the offering of our common stock upon notice and, subject to other conditions, our prior approval.

The settlement between us and Cantor is generally anticipated to occur on the second trading day following the date on which the sale was made, or on some other date that is agreed upon by us and Cantor in connection with a particular transaction, in return for payment of the net proceeds to us. Sales of our shares of common stock as contemplated in this prospectus supplement will be settled through the facilities of The Depository Trust Company or by such other means as we and Cantor may agree upon. There is no arrangement for funds to be received in an escrow, trust or similar arrangement.

Pursuant to the sales agreement, Cantor will be entitled to a commission up to an aggregate of 3.0% of the gross proceeds we receive from the sales of our shares of common stock. Because there is no minimum offering amount required as a condition to close this offering, the actual total public offering amount, commissions and proceeds to us, if any, are not determinable at this time. In connection with the sale of the shares of common stock on our behalf, Cantor will be deemed to be an “underwriter” within the meaning of the Securities Act and the compensation of each sales agent will be deemed to be underwriting commissions or discounts. We have agreed to provide indemnification and contribution to Cantor with respect to certain civil liabilities, including liabilities under the Securities Act. We have also agreed to reimburse Cantor for certain specified expenses, including the fees and disbursements of its legal counsel in an amount not to exceed \$50,000. We estimate that the total expenses for the offering, excluding compensation payable to the Cantor under the terms of the sales agreement, will be approximately \$200,000.

The offering of common stock pursuant to the sales agreement and this prospectus supplement will terminate upon the termination of the sales agreement as permitted therein. We and Cantor may each terminate the sales agreement at any time upon 10 days’ prior notice.

Cantor and its affiliates have in the past and may in the future provide various investment banking, commercial banking and other financial services for us and our affiliates, for which services they have or may in the future receive customary fees. To the extent required by Regulation M under the Exchange Act, Cantor will not engage in any market making activities involving our common stock while the offering is ongoing under this prospectus supplement.

This prospectus supplement in electronic format may be made available on a website maintained by Cantor and Cantor may distribute this prospectus supplement and the accompanying base prospectus electronically.

LEGAL MATTERS

The validity of the common stock being offered hereby will be passed upon by Goodwin Procter LLP, Boston, Massachusetts. Cantor Fitzgerald & Co. is being represented in connection with this offering by Cooley LLP, New York, New York.

EXPERTS

The consolidated financial statements incorporated in this Prospectus Supplement by reference from Aerpio Pharmaceuticals, Inc.'s Annual Report on Form 10-K have been audited by Ernst & Young LLP, an independent registered public accounting firm, as stated in their report, which is incorporated herein by reference. Such financial statements have been so incorporated in reliance upon the report of such firm given upon their authority as experts in accounting and auditing

DOCUMENTS INCORPORATED BY REFERENCE

The SEC allows us to incorporate by reference the information we file with the SEC, by referring you to other documents filed separately with the SEC. The information incorporated by reference is considered to be part of this prospectus supplement. Any information that we file later with the SEC and that is deemed incorporated by reference will automatically update and supersede the information in this prospectus supplement. In all such cases, you should rely on the later information over different information included in this prospectus supplement or in any incorporated document. You should not assume that information in any document incorporated by reference into this prospectus supplement or any accompanying prospectus supplement is current as of any date other than the date of that document. This prospectus supplement will be deemed to incorporate by reference the following documents, except that we do not incorporate any document or portion of a document that was furnished and deemed by the rules of the SEC not to have been filed:

- Annual Report on Form 10-K for the year ended December 31, 2017, as amended;
- Current Report on Form 8-K filed with the SEC on April 2, 2018; and
- Registration Statement on Form S-1 filed with the SEC on April 14, 2017, and declared effective on June 23, 2017.

We will also incorporate by reference any future filings made with the SEC under the Exchange Act after (i) the date of the initial registration statement and prior to the effectiveness of the registration statement and (ii) the date of this prospectus supplement and before the completion of the offering of the securities under the registration statement. In addition, we will incorporate by reference certain future materials furnished to the SEC on Form 8-K after the date of the initial registration statement, but only to the extent specifically indicated in those submissions or in a future prospectus supplement. Each subsequently filed Annual Report should be deemed to supersede entirely each earlier filed Annual Report and Reports on Form 8-K containing our quarterly earnings releases and, unless explicitly stated otherwise, such earlier reports should not be deemed to be part of this prospectus supplement or any accompanying prospectus supplement and you should not rely upon statements made in those earlier periodic reports.

We will furnish without charge to you, on written or oral request, a copy of any or all of the documents incorporated by reference in this prospectus supplement, including exhibits to these documents. You should direct any requests for documents to Investor Relations, Aerpio Pharmaceuticals, Inc., 9987 Carver Road, Cincinnati, OH 45242; telephone: (513) 985-1920.

WHERE YOU CAN FIND MORE INFORMATION

We file reports, proxy statements and other information with the SEC. You may read and copy the reports, proxy statements and other information that we file with the SEC at the SEC's Public Reference Room at 100F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for information about the operation of its Public Reference Room and for its prescribed rates to obtain copies of such material. The SEC also maintains an Internet site that contains reports, proxy and information statements and other information regarding registrants, like us, that file electronically with the SEC. The address of the SEC's Internet site is www.sec.gov. Our Internet site is www.aerpio.com. Information contained on our Internet site is not a part of this prospectus supplement.

This prospectus supplement is part of a registration statement that we have filed with the SEC. To see more detail, you should read the registration statement and the exhibits and schedules filed with, or incorporated by reference into, our registration statement.

This registration statement, including the exhibits contained or incorporated by reference therein, can be read at the SEC web site or at the SEC office referred to above. Any statement made or incorporated by reference in this prospectus supplement concerning the contents of any contract, agreement or other document is only a summary of the actual contract, agreement or other document. If we have filed or incorporated by reference any contract, agreement or other document as an exhibit to the registration statement, you should read the exhibit for a more complete understanding of the document or matter involved. Each statement regarding a contract, agreement or other document is qualified in its entirety by reference to the actual document.



Up to \$75,000,000

Common Stock

PROSPECTUS SUPPLEMENT



, 2018

PART II**INFORMATION NOT REQUIRED IN PROSPECTUS**
Part II—INFORMATION NOT REQUIRED IN PROSPECTUS**Item 14. Other Expenses of Issuance and Distribution**

The expenses payable by us in connection with the issuance and distribution of the securities being registered (other than underwriting discounts and commissions, if any) are set forth below. Each item listed is estimated, except for the SEC registration fee and the FINRA filing fee.

Securities and Exchange Commission registration fee	\$18,675
FINRA filing fee	\$23,000
Legal fees and expenses	*
Accounting fees and expenses	*
Printing fees and expenses	*
Transfer agent and trustee fees	*
Miscellaneous	*
Total	\$ *

* Estimated expenses not presently known. Each prospectus supplement will reflect estimated expenses based on the amount of the related offering.

Item 15. Indemnification of Directors and Officers

We are incorporated under the laws of the State of Delaware. Section 145 of the Delaware General Corporation Law provides that a Delaware corporation may indemnify any persons who were, are, or are threatened to be made, parties to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of such corporation), by reason of the fact that such person is or was an officer, director, employee or agent of such corporation, or is or was serving at the request of such corporation as an officer, director, employee or agent of another corporation or enterprise. The indemnity may include expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding, provided that such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the corporation's best interests and, with respect to any criminal action or proceeding, had no reasonable cause to believe that his or her conduct was illegal. A Delaware corporation may indemnify any persons who were, are, or are threatened to be made, a party to any threatened, pending or completed action or suit by or in the right of the corporation by reason of the fact that such person is or was a director, officer, employee or agent of such corporation, or is or was serving at the request of such corporation as a director, officer, employee or agent of another corporation or enterprise. The indemnity may include expenses (including attorneys' fees) actually and reasonably incurred by such person in connection with the defense or settlement of such action or suit provided such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the corporation's best interests except that no indemnification is permitted without judicial approval if the officer or director is adjudged to be liable to the corporation. Where an officer or director is successful on the merits or otherwise in the defense of any action referred to above, the corporation must indemnify him or her against the expenses (including attorneys' fees) actually and reasonably incurred.

Our amended and restated certificate of incorporation and amended and restated bylaws provide for the indemnification of its directors and officers to the fullest extent permitted under the Delaware General Corporation Law.

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Section 102(b)(7) of the Delaware General Corporation Law permits a corporation to provide in its certificate of incorporation that a director of the corporation shall not be personally liable to the corporation or its stockholders for monetary damages for breach of fiduciary duties as a director, except for liability for any:

- transaction from which the director derives an improper personal benefit;
- act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- unlawful payment of dividends or redemption of shares; or
- breach of a director's duty of loyalty to the corporation or its stockholders.

Our amended and restated certificate of incorporation includes such a provision. Expenses incurred by any officer or director in defending any such action, suit or proceeding in advance of its final disposition shall be paid by us upon delivery to us of an undertaking, by or on behalf of such director or officer, to repay all amounts so advanced if it shall ultimately be determined that such director or officer is not entitled to be indemnified by us.

Section 174 of the Delaware General Corporation Law provides, among other things, that a director who willfully or negligently approves of an unlawful payment of dividends or an unlawful stock purchase or redemption may be held liable for such actions. A director who was either absent when the unlawful actions were approved, or dissented at the time, may avoid liability by causing his or her dissent to such actions to be entered in the books containing minutes of the meetings of the board of directors at the time such action occurred or immediately after such absent director receives notice of the unlawful acts.

As permitted by the Delaware General Corporation Law, we have entered into indemnity agreements with each of our directors and executive officers, that require us to indemnify such persons against any and all costs and expenses (including attorneys', witness or other professional fees) actually and reasonably incurred by such person in connection with any action, suit or proceeding (including derivative actions), whether actual or threatened, to which any such person may be made a party by reason of the fact that such person is or was a director or officer or is or was acting or serving as an officer, director, employee or agent of us or any of our affiliated enterprises, provided that such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to our best interests and, with respect to any criminal proceeding, had no reasonable cause to believe his or her conduct was unlawful. The indemnification agreements also set forth certain procedures that will apply in the event of a claim for indemnification thereunder.

At present, there is no pending litigation or proceeding involving any of our directors or executive officers as to which indemnification is required or permitted, and we are not aware of any threatened litigation or proceeding that may result in a claim for indemnification.

We have an insurance policy in place that covers our officers and directors with respect to certain liabilities, including liabilities arising under the Securities Act of 1933, as amended, or the Securities Act, or otherwise.

Reference is made to the following documents listed as exhibits to this registration statement regarding relevant indemnification provisions described above and elsewhere herein:

Exhibit Document	Number
Amended and Restated Certificate of Incorporation.	3.2
Amended and Restated Bylaws.	3.3
Form of Indemnification Agreement.	10.4

Item 16. Exhibits

A list of exhibits filed with this registration statement on Form S-3 is set forth on the Exhibit Index and is incorporated herein by reference.

Item 17. Undertakings

The undersigned registrant hereby undertakes:

(a)(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Securities and Exchange Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement; provided, however, that paragraphs (a)(1)(i), (a)(1)(ii) and (a)(1)(iii) of this section do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Securities and Exchange Commission by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement;

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof;

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering;

(4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:

(i) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and (ii) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof; provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date;

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(5) That, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities, the undersigned registrant undertakes that in a primary offering of securities of the undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

- (i) Any preliminary prospectus or prospectus of the undersigned registrant relating to the offering required to be filed pursuant to Rule 424;
- (ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned registrant or used or referred to by the undersigned registrant;
- (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and (iv) Any other communication that is an offer in the offering made by the undersigned registrant to the purchaser;

(6) That, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof;

(7) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act of 1933 and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act of 1933 and will be governed by the final adjudication of such issue;

(8) To file an application for the purpose of determining the eligibility of the trustee to act under subsection (a) of Section 310 of the Trust Indenture Act of 1939 in accordance with the rules and regulations prescribed by the Securities and Exchange Commission under Section 305(b) (2) of the Trust Indenture Act of 1939.

EXHIBIT INDEX

<u>Exhibit No.</u>	<u>Description</u>
1.1*	Form of Underwriting Agreement
1.2+	Controlled Equity OfferingSM Sales Agreement, dated February 21, 2018, by and between Aerpio Pharmaceuticals, Inc. and Cantor Fitzgerald & Co.
3.1	Amended and Restated Certificate of Incorporation of the Registrant (incorporated by reference to Exhibit 3.2 to the Registrant's Form 8-K filed with the Securities and Exchange Commission on March 17, 2017, File No. 000-53057)
3.2	Amended and Restated By-laws of the Registrant, as currently in effect (incorporated by reference to Exhibit 3.3 to the Registrant's Form 8-K filed with the Securities and Exchange Commission on March 17, 2017, File No. 000-53057)
4.1	Specimen Stock Certificate evidencing shares of common stock (incorporated by reference to Exhibit 4.2 to the Registrant's Registration Statement on Form S-1 (File No. 333-217320) filed April 14, 2017)
4.2	Registration Rights Agreement by and among Registrant, the Purchasers named therein, the Brokers named therein and the other individuals named therein, dated March 15, 2017 (incorporated by reference to Exhibit 10.5 to the Registrant's Form 8-K filed with the Securities and Exchange Commission on March 17, 2017, File No. 000-53057)
4.3	Registration Rights Agreement by and among Registrant and the Investors named therein, dated March 15, 2017 (incorporated by reference to Exhibit 10.9 to the Registrant's Form 8-K filed with the Securities and Exchange Commission on March 17, 2017, File No. 000-53057)
4.4	Form of Warrant Agreements (incorporated by reference to Exhibit 4.1 to the Registrant's Form 8-K filed with the Securities and Exchange Commission March 17, 2017, File No. 000- 53057)
4.5+	Form of indenture for subordinated debt securities and the related form of subordinated debt security
4.6+	Form of indenture for senior debt securities and the related form of senior debt security
4.7*	Form of Preferred Stock Certificate
4.8*	Form of Warrant Agreement
4.9*	Form of Unit Agreement
5.1+	Opinion of Goodwin Procter LLP (relating to the base prospectus)
5.2+	Opinion of Goodwin Procter LLP (relating to the prospectus supplement)
12.1+	Computation of Ratio of Earnings to Fixed Charges
23.1	Consent of Ernst & Young LLP
23.3	Consent of Goodwin Procter LLP (included in Exhibits 5.1 and 5.2 hereto)
24.1+	Power of Attorney (included on the signature pages to this registration statement)
25.1**	Form T-1 Statement of Eligibility of Trustee for Senior Indenture under the Trust Indenture Act of 1939
25.2**	Form T-1 Statement of Eligibility of Trustee for Subordinated Indenture under the Trust Indenture Act of 1939

* To be filed by amendment or by a Current Report on Form 8-K.

** To be filed pursuant to Section 305(b)(2) of the Trust Indenture Act of 1939.

+ Previously filed.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Cincinnati, State of Ohio, on the 6th day of April, 2018.

AERPIO PHARMACEUTICALS, INC.

By: /s/ Stephen Hoffman, M.D., Ph.D.

Stephen Hoffman, M.D., Ph.D.

Chief Executive Officer and Principal

Executive Officer

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Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement and Power of Attorney has been signed by the following person in the capacities and on the date indicated.

<u>Name</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Stephen Hoffman, M.D., Ph.D.</u> Stephen Hoffman, M.D., Ph.D.	Director, Chief Executive Officer and Principal Executive Officer	April 6, 2018
<u>/s/ Michael Rogers</u> Michael Rogers	Chief Financial Officer and Principal Financial and Accounting Officer	April 6, 2018
<u>*</u> Joseph Gardner	Director, President and Founder	April 6, 2018
<u>*</u> Muneer A. Satter	Director	April 6, 2018
<u>*</u> Chau Khuong	Director	April 6, 2018
<u>*</u> Steven Prelack	Director	April 6, 2018
<u>*</u> Caley Castelein	Director	April 6, 2018
<u>*</u> Anupam Dalal	Director	April 6, 2018
<u>*</u> Pravin Dugel	Director	April 6, 2018

*By: /s/Michael Rogers
Michael Rogers, Attorney-in-Fact

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the reference to our firm under the caption “Experts” in this Registration Statement (Form S-3 No. 333-223113) and related Prospectus of Aerpio Pharmaceuticals, Inc. for the registration of common stock, preferred stock, debt securities, warrants, and/or units and to the incorporation by reference therein of our report dated March 15, 2018, with respect to the consolidated financial statements of Aerpio Pharmaceuticals, Inc., included in its Amendment No. 1 to the Annual Report (Form 10-K/A) for the year ended December 31, 2017, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

Cincinnati, Ohio
April 6, 2018