

Bellerophon Therapeutics, Inc.
Form S-3
October 24, 2017
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As filed with the Securities and Exchange Commission on October 24, 2017

Registration No. 333-

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM S-3
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

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

Delaware 47-3116175
(State or other jurisdiction of (I.R.S. Employer
incorporation or organization) Identification Number)

184 Liberty Corner Road, Suite 302
Warren, New Jersey 07059
(908) 574-4770
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Fabian Tenenbaum
Chief Executive Officer
Bellerophon Therapeutics, Inc.
184 Liberty Corner Road, Suite 302
Warren, New Jersey 07059
(908) 574-4770
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copy to:
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Chrysler Center, 666 Third Avenue
New York, NY 10017
Tel: (212) 935-3000

Approximate date of proposed sale to the public: From time to time after the effective date of this Registration Statement.

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

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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, 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.

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 definition of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer Accelerated filer

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

Emerging growth company

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

CALCULATION OF REGISTRATION FEE

| Title of Each Class of Securities to be Registered | Amount to be Registered(1) | Proposed Maximum Offering Price Per Share(2) | Proposed Maximum Aggregate Offering Price(2) | Amount of Registration Fee |
|--|----------------------------|--|--|----------------------------|
| Common Stock, par value \$0.001 per share | 38,899,668 shares | \$ 1.54 | \$59,905,488.72 | \$ 7,458.23 |

This Registration Statement registers (i) 19,449,834 shares of common stock of the Registrant and (ii) 19,449,834 shares of common stock of the Registrant issuable upon the exercise of certain outstanding warrants issued by the Registrant. Pursuant to Rule 416(a) of the Securities Act of 1933, as amended, this Registration Statement shall

(1)

(2)

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Estimated in accordance with Rule 457(c) solely for purposes of calculating the registration fee on the basis of the average of the high and low prices of the Registrant's common stock as reported on The NASDAQ Global Market on October 18, 2017.

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 or until this

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Registration Statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

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The information in this prospectus is not complete and may be changed. A registration statement relating to these securities has been filed with the Securities and Exchange Commission. The selling stockholders may not sell these securities until the Securities and Exchange Commission declares the registration statement effective. This prospectus is not an offer to sell these securities and is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED OCTOBER 24, 2017
PROSPECTUS
38,899,668 Shares of
Common Stock

The selling stockholders of Bellerophon Therapeutics, Inc. (“Bellerophon,” “we,” “us” or the “Company”) listed beginning on page 6 of this prospectus may offer and resell under this prospectus (i) up to 19,449,834 shares of our common stock and (ii) up to 19,449,834 shares of our common stock issuable upon exercise of warrants acquired by certain of the selling stockholders under the Purchase Agreement (defined below) (the “Warrants”). The selling stockholders acquired the shares of common stock and the Warrants from us pursuant to a Securities Purchase Agreement (the “Purchase Agreement”), dated September 26, 2017, by and among the Company and the investors listed therein (the “Investors”). We are registering the resale of the shares of common stock covered by this prospectus as required by the Registration Rights Agreement we entered into with the Investors on September 26, 2017. The selling stockholders will receive all of the proceeds from any sales of the shares offered hereby. We will not receive any of the proceeds, but we will incur expenses in connection with the offering. To the extent the Warrants are exercised for cash, if at all, we will receive the exercise price of the Warrants.

The selling stockholders may sell these shares through public or private transactions at market prices prevailing at the time of sale or at negotiated prices. The timing and amount of any sale are within the sole discretion of the selling stockholders. Our registration of the shares of common stock covered by this prospectus does not mean that the selling stockholders will offer or sell any of the shares. For further information regarding the possible methods by which the shares may be distributed, see “Plan of Distribution” beginning on page 8 of this prospectus.

Our common stock is listed on The NASDAQ Global Market under the symbol “BLPH.” The last reported sale price of our common stock on October 18, 2017 was \$1.51 per share.

Investing in our common stock is highly speculative and involves a significant degree of risk. Please consider carefully the specific factors set forth under “Risk Factors” beginning on page 4 of this prospectus and in our filings with the Securities and Exchange Commission.

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

The date of this prospectus is _____, 2017

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we have filed with the Securities and Exchange Commission (the “SEC”) pursuant to which the selling stockholders named herein may, from time to time, offer and sell or otherwise dispose of the shares of our common stock covered by this prospectus. You should not assume that the information contained in this prospectus is accurate on any date subsequent to the date set forth on the front cover of this prospectus or that any information we have incorporated by reference is correct on any date subsequent to the date of the document incorporated by reference, even though this prospectus is delivered or shares of common stock are sold or otherwise disposed of on a later date. It is important for you to read and consider all information contained in this prospectus, including the documents incorporated by reference therein, in making your investment decision. You should also read and consider the information in the documents to which we have referred you under “Where You Can Find Additional Information” and “Information Incorporated by Reference” in this prospectus.

We have not authorized anyone to give any information or to make any representation to you other than those contained or incorporated by reference in this prospectus. You must not rely upon any information or representation not contained or incorporated by reference in this prospectus. This prospectus does not constitute an offer to sell or the solicitation of an offer to buy any of our shares of common stock other than the shares of our common stock covered hereby, nor does this prospectus constitute an offer to sell or the solicitation of an offer to buy any securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation in such jurisdiction. Persons who come into possession of this prospectus in jurisdictions outside the United States are required to inform themselves about, and to observe, any restrictions as to the offering and the distribution of this prospectus applicable to those jurisdictions.

Unless we have indicated otherwise, or the context otherwise requires, references in this prospectus to “Bellerophon,” the “Company,” “we,” “us” and “our” refer to Bellerophon Therapeutics, Inc.

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PROSPECTUS SUMMARY

This summary description about us and our business highlights selected information contained elsewhere in this prospectus or incorporated by reference into this prospectus. It does not contain all the information you should consider before investing in our securities. Important information is incorporated by reference into this prospectus. To understand this offering fully, you should read carefully the entire prospectus, including “Risk Factors” and “Cautionary Note Regarding Forward-Looking Statements,” together with the additional information described under “Information Incorporated by Reference.”

Overview

We are a clinical-stage therapeutics company focused on developing innovative products at the intersection of drugs and devices that address significant unmet medical needs in the treatment of cardiopulmonary diseases. Our focus is the continued development of our nitric oxide therapy for patients with pulmonary hypertension, or PH, using our proprietary delivery system, INOpulse, with pulmonary arterial hypertension, or PAH, representing the lead indication. Our INOpulse platform is based on our proprietary pulsatile nitric oxide delivery device.

In February 2016, we announced positive data from the final analysis of our Phase 2 long-term extension clinical trial of INOpulse for PAH, which was Part 2 of our Phase 2 clinical trial of INOpulse for PAH. The data indicates a sustainability of benefit to PAH patients who received INOpulse therapy at the 75 mcg/kg of ideal body weight/hour dose for an average of greater than 12 hours per day and were on long-term oxygen therapy, or LTOT. After reaching agreement with the U.S. Food and Drug Administration, or FDA, and the European Medicines Agency, or EMA, on our Phase 3 protocol, we are moving forward with Phase 3 development. In September 2015, the FDA issued a Special Protocol Assessment, or SPA, for our Phase 3 PAH program for INOpulse, which will include two confirmatory clinical trials. The first of the two Phase 3 trials, or INOvation-1, has been initiated. During January 2017, we received confirmation from the FDA of its acceptance of all of our proposed modifications to our Phase 3 program. Under the newly modified Phase 3 program, the ongoing INOvation-1 study, and a second confirmatory randomized withdrawal study with approximately 40 patients who will be crossing over from the INOvation-1 study, can serve as the two adequate and well-controlled studies to support a NDA filing for INOpulse in PAH subjects on LTOT. Both studies include an interim analysis approximately half-way through each study to assess for efficacy and futility. The interim analysis for the INOvation-1 study also includes a potential sample size reassessment.

We completed a randomized, placebo-controlled, double-blind, dose-confirmation Phase 2 clinical trial of INOpulse for PH-COPD in July 2014. We received results from this trial, and have initiated further Phase 2 testing to demonstrate the potential benefit on exercise capacity. In September 2015, an oral presentation of late-breaking data from a clinical trial sponsored by us was presented at the European Respiratory Society International Congress 2015 in Amsterdam. The data showed that INOpulse improved vasodilation in patients with PH-COPD. In July 2016, the results were published in the International Journal of COPD in an article titled "Pulmonary vascular effects of pulsed inhaled nitric oxide in COPD patients with pulmonary hypertension." During September 2017, we shared results of our Phase 2 PH-COPD study (n=10) designed to evaluate the acute effects of pulsed inhaled nitric oxide, or iNO, on vasodilation as well as the chronic effect on hemodynamics and exercise tolerance. The data results showed a statistically significant and clinically meaningful increases in six-minute walk distance, or 6MWD, and a statistically significant and clinically meaningful decrease in systolic pulmonary arterial pressure, or sPAP. The therapy was well tolerated with no related safety concerns.

We have begun our clinical program in interstitial lung disease, based on feedback from the medical community and the large unmet medical need. During May 2017, we announced completion of our Phase 2 study using INOpulse therapy to treat PH associated with idiopathic pulmonary fibrosis, or PH-IPF. The clinical data showed that INOpulse was associated with clinically meaningful improvements in hemodynamics and exercise capacity in difficult-to-treat PH-IPF patients. The PH-IPF study was a proof of concept study (n=4) designed to evaluate the ability of iNO to

provide selective vasodilation as well as to assess the potential for improvement in hemodynamics and exercise capacity in PH-IPF patients. The study met its primary endpoint showing an average of 15.3% increase in blood vessel volume ($p < 0.001$) during acute inhalation of iNO as well as showing a significant association between ventilation and vasodilation, demonstrating the ability of INOpulse to provide selective vasodilation to the better ventilated areas of the lung. The study showed consistent benefit in hemodynamics with a clinically meaningful average reduction of 14% in systolic pulmonary arterial pressure (sPAP) with acute exposure to iNO. The study also assessed the chronic effects of iNO on exercise capacity showing an average 75 meter improvement in 6MWD and consistent improvement of approximately 80 m% in composite endpoints of 6MWD and oxygen saturation with four weeks of treatment. The study assessed both the iNO 75 and iNO 30 dose, supporting iNO 30 as a potentially safe and effective dose. During August 2017, we announced FDA acceptance of our investigation new drug application for our Phase 2b study using INOpulse therapy in a broad population of patients with pulmonary fibrosis, or PF, both with and without PH.

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In addition, other opportunities for the application of our INOpulse platform include the following indications: chronic thromboembolic PH, or CTEPH, PH associated with sarcoidosis and PH associated with pulmonary edema from high altitude sickness.

We have devoted all of our resources to our therapeutic discovery and development efforts, including conducting clinical trials for our product candidates, protecting our intellectual property and the general and administrative support of these operations. We have devoted significant time and resources to developing and optimizing our drug delivery system, INOpulse, which operates through the administration of nitric oxide as brief, controlled pulses that are timed to occur at the beginning of a breath.

To date, we have generated no revenue from product sales. We expect that it will be several years before we commercialize a product candidate, if ever.

Risks Associated with Our Business

Our business and our ability to implement our business strategy are subject to numerous risks, as more fully described in the section entitled “Risk Factors” in our Annual Report on Form 10-K for the year ended December 31, 2016, incorporated herein by reference. You should read these risks before you invest in our securities. We may be unable, for many reasons, including those that are beyond our control, to implement our business strategy. In particular, risks associated with our business include:

• We have incurred significant losses since inception. We expect to incur losses over the next several years and may never achieve or maintain profitability.

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

• We will need substantial additional funding. If we are unable to raise capital when needed, we could be forced to delay, reduce or eliminate our product development programs or commercialization efforts. Moreover, if we are unable to obtain additional funds on a timely basis, there will be substantial doubt about our ability to continue as a going concern and increased risk of insolvency and loss of investment by our stockholders.

• We are dependent on the success of our INOpulse product candidates and our ability to develop, obtain marketing approval for and successfully commercialize these product candidates. If we are unable to develop, obtain marketing approval for or successfully commercialize our product candidates, either alone or through a collaboration, or experience significant delays in doing so, our business could be materially harmed.

• We rely on Ikaria, as our single source supplier, for our supply of nitric oxide for the clinical trials of INOpulse. Ikaria's inability to continue manufacturing adequate supplies of nitric oxide, or its refusal to supply us with commercial quantities of nitric oxide on commercially reasonable terms, or at all, could result in a disruption in the supply of, or impair our ability to market, INOpulse.

• Clinical trials involve a lengthy and expensive process with an uncertain outcome. We may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of our product candidates.

• Our product candidates currently in development are exclusively licensed from third parties, and we may enter into additional agreements to in-license technology from third parties. If current or future licensors terminate the applicable license, or fail to maintain or enforce the underlying patents, our competitive position and market share

will be harmed.

We may seek to enter into collaborations with third parties for the development and commercialization of our product candidates. If we fail to enter into such collaborations, or such collaborations are not successful, we may not be able to capitalize on the market potential of our product candidates.

If we are unable to obtain and maintain patent protection for our technology and products or if the scope of the patent protection obtained is not sufficiently broad, our competitors could develop and commercialize technology and products similar or identical to ours, and our ability to successfully commercialize our technology and products may be impaired.

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Our principal stockholders have substantial control over us, which could limit your ability to influence the outcome of key transactions, including any change of control.

Corporate Information

We were incorporated under the laws of the State of Delaware on October 17, 2013 under the name Ikaria Development LLC. We changed our name to Bellerophon Therapeutics LLC on January 27, 2014. On February 12, 2015, we converted from a Delaware limited liability company into a Delaware corporation and changed our name to Bellerophon Therapeutics, Inc. We currently have three wholly-owned subsidiaries: Bellerophon BCM LLC, a Delaware limited liability company; Bellerophon Pulse Technologies LLC, a Delaware limited liability company; and Bellerophon Services, Inc., a Delaware corporation. Our website address is www.bellerophon.com. The information contained on, or that can be accessed through, our website does not constitute part of this prospectus. We have included our website address in this prospectus solely as an inactive textual reference.

Our executive offices are located at 184 Liberty Corner Road, Suite 302, Warren, New Jersey 07059, and our telephone number is (908) 574-4770.

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THE OFFERING

Shares of
Common Stock
that May be
Offered by the
Selling
Stockholders

Up to 38,899,668 shares of common stock.

Use of Proceeds

We will not receive any proceeds from the sale of the common stock by the selling stockholders. However, if all of the Warrants were exercised for cash, we would receive gross proceeds of approximately \$24.2 million. We currently intend to use such proceeds, if any, for general corporate purposes, including manufacturing expenses, clinical trial expenses, research and development expenses and general and administrative expenses.

Offering Price

The selling stockholders may sell all or a portion of their shares through public or private transactions at prevailing market prices or at privately negotiated prices.

NASDAQ Global
Market Symbol

BLPH

Risk Factors

Investing in our common stock involves a high degree of risk. See “Risk Factors” beginning on page 4 of this prospectus, and any other risk factors described in the documents incorporated by reference herein, for a discussion of certain factors to consider carefully before deciding to invest in our common stock.

Throughout this prospectus, when we refer to the shares of our common stock being registered on behalf of the selling stockholders for offer and sale, we are referring to the shares of common stock sold to the selling stockholders, as well as the shares of common stock issuable upon exercise of the Warrants, each as described under “The Private Placement” and “Selling Stockholders.” When we refer to the selling stockholders in this prospectus, we are referring to the selling stockholders identified in this prospectus and, as applicable, their donees, pledgees, transferees or other successors-in-interest selling shares of common stock or interests in shares of common stock received after the date of this prospectus from a selling stockholder as a gift, pledge, partnership distribution or other transfer.

RISK FACTORS

Investing in our securities involves a high degree of risk. You should carefully consider and evaluate all of the information contained in this prospectus, the accompanying prospectus and in the documents we incorporate by reference into this prospectus and accompanying prospectus before you decide to purchase our securities. In particular, you should carefully consider and evaluate the risks and uncertainties described under the heading “Risk Factors” in our Annual Report on Form 10-K for the fiscal year ended December 31, 2016. Any of the risks and uncertainties set forth in that report, as updated by annual, quarterly and other reports and documents that we file with the SEC and incorporate by reference into this prospectus or any prospectus, could materially and adversely affect our business, results of operations and financial condition, which in turn could materially and adversely affect the value of any securities offered by this prospectus. As a result, you could lose all or part of your investment.

THE PRIVATE PLACEMENT

On September 26, 2017, we entered into the Purchase Agreement with Puissance Capital Management, L.P. ("Puissance"), Venrock Healthcare Capital Partners ("Venrock"), and certain other accredited investors (together with Puissance and Venrock, the "Investors"), pursuant to which we sold an aggregate of 19,449,834 units (the "Units") having an aggregate purchase price of \$23.4 million, each such Unit consisting of (i) one share (the "Shares") of our common stock and (ii) a Warrant to purchase one share of our common stock (the "Private Placement"). The purchase price per Unit was \$1.205. Subject to certain ownership limitations, the Warrants will be initially exercisable commencing six months from the issuance date at an exercise price equal to \$1.2420 per full share of Common Stock, subject to adjustments as provided under the terms of the Warrants. The Warrants will be exercisable for a period of 5 years from the initial exercise date.

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In connection with the Offering, we entered into a Registration Rights Agreement (the “Registration Rights Agreement”) with the Investors, pursuant to which we are obligated, among other things, to (i) file a registration statement with the U.S. Securities and Exchange Commission (the “SEC”) within 30 days following the closing of the Offering for purposes of registering the Shares and the shares of common stock issuable upon exercise of the Warrants for resale by the Investors, (ii) use its commercially reasonable efforts to have the registration statement declared effective as soon as practicable after filing, and in any event no later than 90 days after the closing of the Offering (or 120 days after the closing of the Offering if the registration statement is reviewed by the SEC), and (iii) maintain the registration until all registrable securities may be sold pursuant to Rule 144 under the Securities Act, without restriction as to volume. The Registration Rights Agreement contains customary terms and conditions for a transaction of this type, including certain customary cash penalties on the Registrant for its failure to satisfy specified filing and effectiveness time periods.

The foregoing descriptions of the Purchase Agreement, the Registration Rights Agreement and the form of Warrant are not complete and are subject to and qualified in their entirety by reference to the Purchase Agreement, the Registration Rights Agreement and the form of Warrant, respectively, copies of which are attached as Exhibits 10.1, 10.2 and 4.1 to the Current Report on Form 8-K dated September 27, 2017, respectively, and are incorporated herein by reference.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements that involve substantial risks and uncertainties. All statements, other than statements of historical facts, contained in this prospectus, including statements regarding our future results of operations and financial position, business strategy and plans and objectives of management for future operations, are forward-looking statements. The words “may,” “will,” “should,” “expects,” “plans,” “anticipates,” “could,” “intends,” “target,” “projects,” “contemplates,” “believes,” “estimates,” “predicts,” “potential” or “continue” or the negative of these terms or other similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words.

The forward-looking statements in this prospectus include, among other things, statements about:

the timing of the ongoing and expected clinical trials of our product candidates, including statements regarding the timing of completion or analysis of the trials and the respective periods during which the results of the trials will become available;

our ability to obtain adequate financing to meet our future operational and capital needs;

the timing of and our ability to obtain marketing approval of our product candidates, and the ability of our product candidates to meet existing or future regulatory standards;

our ability to comply with government laws and regulations;

our commercialization, marketing and manufacturing capabilities and strategy;

our estimates regarding the potential market opportunity for our product candidates;

the timing of or our ability to enter into partnerships to market and commercialize our product candidates;

the rate and degree of market acceptance of any product candidate for which we receive marketing approval;

our intellectual property position;

our estimates regarding expenses, future revenues, capital requirements and needs for additional funding and our ability to obtain additional funding;

the success of competing treatments;

our competitive position; and

our expectations regarding the time during which we will be an “emerging growth company” under the Jumpstart Our Business Startups Act of 2012.

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You should also consider carefully the statements set forth in the sections titled "Risk Factors" or elsewhere in this prospectus, in the accompanying prospectus and in the documents incorporated or deemed incorporated herein or therein by reference, which address various factors that could cause results or events to differ from those described in the forward-looking statements. All subsequent written and oral forward-looking statements attributable to us or to persons acting on our behalf are expressly qualified in their entirety by the applicable cautionary statements. We have no plans to update these forward-looking statements.

USE OF PROCEEDS

We will not receive any of the proceeds from the sale of the common stock by the selling stockholders named in this prospectus. The selling stockholders will receive all of the proceeds from this offering.

Pursuant to conditions set forth in the Warrants, the Warrants are exercisable under certain circumstances on a cashless basis, and should a selling stockholder elect to exercise on a cashless basis we will not receive any proceeds from the sale of common stock issued upon the cashless exercise of the Warrant. The holders of the Warrants are not obligated to exercise their Warrants, and we cannot predict whether holders of the Warrants will choose to exercise all or any of their Warrants or if they will do so for cash or on a cashless basis. However, if all of the Warrants were exercised for cash, we would receive gross proceeds of approximately \$24.2 million. We currently intend to use such proceeds, if any, for general corporate purposes, including manufacturing expenses, clinical trial expenses, research and development expenses and general and administrative expenses.

SELLING STOCKHOLDERS

This prospectus relates to the sale or other disposition of up to 38,899,668 shares of our common stock and shares of common stock issuable to the selling stockholders upon exercise of the Warrants by the selling stockholders named below, and their donees, pledgees, transferees or other successors-in-interest selling shares of common stock or interests in shares of common stock received after the date of this prospectus from a selling stockholder as a gift, pledge, partnership distribution or other transfer. The shares of common stock covered hereby were issued by us in the Private Placement. See "The Private Placement" beginning on page 4 of this prospectus.

The table below sets forth information as of October 18, 2017, to our knowledge, for the selling stockholders and other information regarding the beneficial ownership (as determined under Section 13(d) of the Exchange Act and the rules and regulations thereunder) of the shares of common stock held by the selling stockholders. The second column lists the number of shares of common stock and percentage beneficially owned by the selling stockholders as of October 18, 2017. The third column lists the maximum number of shares of common stock that may be sold or otherwise disposed of by the selling stockholders pursuant to the registration statement of which this prospectus forms a part. The selling stockholders may sell or otherwise dispose of some, all or none of their shares. Pursuant to Rules 13d-3 and 13d-5 of the Exchange Act, beneficial ownership includes any shares of our common stock as to which a stockholder has sole or shared voting power or investment power, and also any shares of our common stock which the stockholder has the right to acquire within 60 days of October 18, 2017. The percentage of beneficial ownership for the selling stockholders is based on 55,104,068 shares of our common stock outstanding as of October 18, 2017 and the number of shares of our common stock issuable upon exercise or conversion of convertible securities that are currently exercisable or convertible or are exercisable or convertible within 60 days of October 18, 2017 beneficially owned by the applicable selling stockholder. Except as described below, to our knowledge, none of the selling stockholders has been an officer or director of ours or of our affiliates within the past three years or has any material relationship with us or our affiliates within the past three years. Our knowledge is based on information provided by the selling stockholders in connection with the filing of this prospectus, as well as information obtained from relevant Schedule 13D and 13G filings.

The shares of common stock being covered hereby may be sold or otherwise disposed of from time to time during the period the registration statement of which this prospectus is a part remains effective, by or for the account of the selling stockholders. After the date of effectiveness of such registration statement, the selling stockholders may have sold or transferred, in transactions covered by this prospectus or in transactions exempt from the registration

requirements of the Securities Act, some or all of their common stock.

Information about the selling stockholders may change over time. Any changed information will be set forth in an amendment to the registration statement or supplement to this prospectus, to the extent required by law.

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| Selling Stockholder | Shares of Common Stock Beneficially Owned Before this Offering | | Number of Shares of Common Stock Being Offered | Shares of Common Stock To Be Beneficially Owned Upon Completion of this Offering | |
|--|--|---------------|---|--|--------|
| | Number | Percentage(1) | | Percentage | |
| New Mountain Entities (9) | 15,138,486 | (2) 27.5 % | 9,128,630 | 10,574,171 | 19.2 % |
| Puissance Capital Management (9) | 8,298,755 | (3) 15.1 % | 16,597,510 | — | — % |
| Linde (9) | 5,271,796 | (4) 9.6 % | 3,443,984 | 3,549,804 | 6.4 % |
| Venrock Healthcare Capital Partners | 4,149,378 | (5) 7.5 % | 8,298,756 | — | — % |
| Naseem Amin (10) | 1,964,598 | (6) 3.5 % | 912,864 | 1,508,166 | 2.7 % |
| Jonathan Peacock (11) | 1,650,487 | (7) 3.0 % | 497,924 | 1,401,525 | 2.5 % |
| Jens Luehring (10) | 83,991 | (8) * | 20,000 | 73,991 | * |

*Less than one percent

(1) Based on a denominator equal to the sum of (i) 55,104,068 shares of our common stock outstanding on October 18, 2017 and (ii) the number of shares of our common stock issuable upon exercise or conversion of convertible securities that are currently exercisable or convertible or are exercisable or convertible within 60 days of October 18, 2017 beneficially owned by the applicable selling stockholder.

(2) Consists of 1,080,819 shares held by Allegheny New Mountain Partners, L.P., 249,714 shares held by New Mountain Affiliated Investors II, L.P., 11,969,851 shares held by New Mountain Partners II (AIV-A), L.P. and 1,838,102 shares held by New Mountain Partners II (AIV-B), L.P.. The New Mountain Entities currently hold warrants to purchase 5,714,286 shares of common stock. The warrants may be exercised at any time on or after the issuance thereof and for a five-year period thereafter; provided, however, pursuant to their terms, the warrants are only exercisable to the extent that the holders thereof (together with the holders' affiliates, and any other persons acting as a group) would beneficially own no more than 4.99% of the outstanding shares of common stock after exercise. The shares of common stock that the New Mountain Entities have the right to acquire upon exercise of the warrants are not deemed to be currently beneficially owned because of the limitations of ownership as described above. The general partner of each of the New Mountain Entities is New Mountain Investments II, L.L.C. and the manager of each of the New Mountain Entities is New Mountain Capital L.L.C. Steven Klinsky is the managing member of New Mountain Investments II, L.L.C. Adam Weinstein, a member of our Board, is a member of New Mountain Investments II, L.L.C. New Mountain Investments II, L.L.C. has decision-making power over the disposition and voting of shares of portfolio investments of each of the New Mountain Entities. New Mountain Capital, L.L.C. also has voting power over the shares of portfolio investments of the New Mountain Entities in its role as the investment advisor. New Mountain Capital, L.L.C. is a wholly-owned subsidiary of New Mountain Capital Group, L.L.C. New Mountain Capital Group, L.L.C. is 100% owned by Steven Klinsky. Since New Mountain Investments II, L.L.C. has decision-making power over the New Mountain Entities, Mr. Klinsky may be deemed to beneficially own the shares that the New Mountain Entities hold of record or may be deemed to beneficially own. Mr. Klinsky, Mr. Weinstein, New Mountain Investments II, L.L.C. and New Mountain Capital, L.L.C. disclaim beneficial ownership over the shares held by the New Mountain Entities, except to the extent of their pecuniary interest therein. The address of the New Mountain Entities is c/o New Mountain Capital, L.L.C., 787 Seventh Avenue, 48th Floor, New York, New York 10019.

(3) Consists of 8,298,755 shares held by Puissance Cross-Border Opportunities III LLC. The general partner of Puissance Cross-Border Opportunities III LLC is Puissance Capital Fund (GP) LLC. Puissance Capital Management LP serves as the investment manager of Puissance Cross-Border Opportunities III LLC. Puissance Capital Management (GP) LLC serves as the general partner to Puissance Capital Management LP. Theodore Wang serves as the managing member of both Puissance Capital Management (GP) LLC and Puissance Capital Management LP. Mr. Wang may be deemed to beneficially own the shares that Puissance Capital Management hold of record or may be deemed to beneficially own. The address of Puissance Capital Management is 950 Third Avenue, 25th Floor, New York, NY 10022.

Consists of 5,271,796 shares held by Linde North America, Inc., an indirect wholly-owned subsidiary of Linde AG. Linde North America, Inc. currently hold a warrant to purchase 1,920,000 shares of common stock. The warrant may be exercised at any time on or after the issuance thereof and for a five-year period thereafter; provided, however, pursuant to its terms, the warrant is only exercisable to the extent that the holder thereof (together with the holder's affiliates, and any other persons acting as a group) would beneficially own no more than (4)4.99% of the outstanding shares of common stock after exercise. The shares of common stock that Linde North America, Inc. have the right to acquire upon exercise of the warrant are not deemed to be currently beneficially owned because of the limitations of ownership as described above. Jens Luehring, a member of our Board, is a director and chief financial officer of Linde North America, Inc. Mr. Luehring disclaims beneficial ownership of all shares held by Linde, except to the extent of his pecuniary interest therein, if any. The address of Linde North America, Inc. is 200 Somerset Corporate Bly, Suite 7000, Bridgewater, NJ 08807.

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(5) Consists of 2,952,442 shares held by Venrock Healthcare Capital Partners II, LP and 1,196,936 shares held by VHCP Co-Investment Holdings II, LLC. Venrock Healthcare Capital Partners II, LP and VHCP Co-Investment Holdings II, LLC are collectively, Venrock Healthcare Capital Partners with an address of 3340 Hillview Avenue, Palo Alto, CA 94304.

(6) Consists of (i) 1,230,314 shares of common stock held by the selling stockholder and (ii) 714,285 shares of common stock issuable upon exercise of warrants held by the selling stockholder and (iii) 19,999 shares of common stock issuable upon exercise of options held by the selling stockholder.

(7) Consists of (i) 815,351 shares of common stock held by the selling stockholder and (ii) 285,715 shares of common stock issuable upon exercise of warrants held by the selling stockholder and (iii) 549,421 shares of common stock issuable upon exercise of options held by the selling stockholder.

(8) Consists of (i) 80,658 shares of common stock held by the selling stockholder and (ii) 3,333 shares of common stock issuable upon exercise of options held by the selling stockholder.

(9) New Mountain, Puissance and Linde are affiliates of the Company.

(10) Naseem Amin, M.D. and Jens Luehring are independent directors of the Company.

(11) Jonathan Peacock is the Chairman of the Company's Board of Directors

PLAN OF DISTRIBUTION

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

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

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

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

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

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The aggregate proceeds to the selling stockholders from the sale of the common stock offered by them will be the purchase price of the common stock less discounts or commissions, if any. Each of the selling stockholders reserves the right to accept and, together with their agents from time to time, to reject, in whole or in part, any proposed purchase of common stock to be made directly or through agents. We will not receive any of the proceeds from this offering. Upon any exercise of the Warrants by payment of cash, however, we will receive the exercise price of the Warrants.

The selling stockholders also may resell all or a portion of the shares in open market transactions in reliance upon Rule 144 under the Securities Act, provided that they meet the criteria and conform to the requirements of that rule. The selling stockholders and any underwriters, broker-dealers or agents that participate in the sale of the common stock or interests therein may be “underwriters” within the meaning of Section 2(11) of the Securities Act. Any discounts, commissions, concessions or profit they earn on any resale of the shares may be underwriting discounts and commissions under the Securities Act. Selling stockholders who are “underwriters” within the meaning of Section 2(11) of the Securities Act will be subject to the prospectus delivery requirements of the Securities Act.

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

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

We have advised the selling stockholders that the anti-manipulation rules of Regulation M under the Exchange Act may apply to sales of shares in the market and to the activities of the selling stockholders and their affiliates. In addition, to the extent applicable we will make copies of this prospectus (as it may be supplemented or amended from time to time) available to the selling stockholders for the purpose of satisfying the prospectus delivery requirements of the Securities Act. The selling stockholders may indemnify any broker-dealer that participates in transactions involving the sale of the shares against certain liabilities, including liabilities arising under the Securities Act. We will pay all expenses of the registration of the shares of common stock pursuant to the Registration Rights Agreement, including, without limitation, SEC filing fees and expenses of compliance with state securities or “blue sky” laws; provided, however, that each selling stockholder will pay all underwriting discounts and selling commissions, if any and any related legal expenses incurred by it. We will indemnify the selling stockholders against certain liabilities, including some liabilities under the Securities Act, in accordance with the Registration Rights Agreement, or the selling stockholders will be entitled to contribution. We may be indemnified by the selling stockholders against civil liabilities, including liabilities under the Securities Act, that may arise from any written information furnished to us by the selling stockholders specifically for use in this prospectus, in accordance with the Registration Rights Agreement, or we may be entitled to contribution.

We have agreed with the selling stockholders to keep the registration statement of which this prospectus is a part effective until the earlier of (i) such time as all of the shares covered by this prospectus have been disposed of pursuant to and in accordance with the registration statement or (ii) the date on which all of the shares may be sold without restriction pursuant to Rule 144 of the Securities Act.

LEGAL MATTERS

The validity of the shares of common stock offered in this prospectus has been passed upon for us by Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., New York, New York.

EXPERTS

The consolidated financial statements of Bellerophon Therapeutics, Inc. (formerly Bellerophon Therapeutics LLC) and subsidiaries as of December 31, 2016 and 2015, and for each of the years in the three-year period ended December 31, 2016, have been incorporated by reference herein and in the registration statement in reliance upon the report of KPMG LLP,

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independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We are subject to the information requirements of the Exchange Act and we therefore file periodic reports, proxy statements and other information with the SEC relating to our business, financial statements and other matters. The reports, proxy statements and other information we file may be inspected and copied at prescribed rates at the SEC's Public Reference Room located at 100 F Street, N.E., Washington, D.C. 20549. You may obtain information on the operation of the SEC's Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC also maintains a website that contains reports, proxy and information statements and other information regarding issuers like us that file electronically with the SEC. The address of the SEC's website is <http://www.sec.gov>.

This prospectus constitutes part of a registration statement filed under the Securities Act with respect to the shares of common stock covered hereby. As permitted by the SEC's rules, this prospectus omits some of the information, exhibits and undertakings included in the registration statement. You may read and copy the information omitted from this prospectus but contained in the registration statement, as well as the periodic reports and other information we file with the SEC, at the public reference room and website of the SEC referred to above. You may also access our filings with the SEC on our website, which is located at <http://www.bellerophon.com/>. The information contained on our website is not part of this prospectus.

Statements contained in this prospectus as to the contents of any contract or other document are not necessarily complete, and in each instance we refer you to the copy of the contract or other document filed or incorporated by reference as an exhibit to the registration statement or as an exhibit to our Exchange Act filings, each such statement being qualified in all respects by such reference.

INFORMATION INCORPORATED BY REFERENCE

We are allowed to incorporate by reference information contained in documents that we file with the SEC. This means that we can disclose important information to you by referring you to those documents and that the information in this prospectus is not complete and you should read the information incorporated by reference for more detail. Information in this prospectus supersedes information incorporated by reference that we filed with the SEC prior to the date of this prospectus, while information that we file later with the SEC will automatically update and supersede the information in this prospectus.

We incorporate by reference the documents listed below and any future filings we will make with the SEC under Section 13(a), 13(c), 14 or 15 (d) of the Exchange Act (i) after the date of the initial filing of the registration statement of which this prospectus is a part and prior to effectiveness of such registration statement and (ii) from the date of this prospectus but prior to the termination of the offering of the securities covered by this prospectus (other than Current Reports or portions thereof furnished under Item 2.02 or 7.01 of Form 8-K):

• our annual report on Form 10-K for the year ended December 31, 2016, filed with the SEC on March 13, 2017 (as amended by Amendment No. 1 on Form 10-K/A filed on March 17, 2017);

• our Definitive Proxy Statement on Schedule 14A, filed with the SEC on March 20, 2017;

• our quarterly reports on Form 10-Q for the quarters ended March 31, 2017, and June 30, 2017, filed with the SEC on May 15, 2017 and August 7, 2017, respectively;

• our current reports on Form 8-K and 8-K/A filed with the SEC on January 6, 2017, March 16, 2017, May 2, 2017, May 5, 2017, May 12, 2017, September 14, 2017, September 15, 2017, and September 27, 2017 (excluding any information deemed furnished pursuant to Item 2.02 or Item 7.01 of any Current Report on Form 8-K); and

• the description of our common stock contained in our registration statement on Form 8-A, filed with the SEC on February 10, 2015, including all amendments and reports filed for the purpose of updating such description.

We will provide to each person, including any beneficial owner, to whom a prospectus is delivered, a copy of any or all of the information that is incorporated by reference in this prospectus but not delivered with this prospectus, including exhibits that are specifically incorporated by reference in such documents. You may request a copy of such documents, which will be

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provided to you at no cost, by writing or telephoning us at the following address or telephone number: Investor Relations, Bellerophon Therapeutics, Inc., 184 Liberty Corner Road, Suite 302, Warren, NJ 07059 or call (908) 574-4770.

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution.

The following table sets forth all costs and expenses payable by the Registrant, in connection with the sale of the securities being registered under this registration statement. All amounts shown are estimates except for the Securities and Exchange Commission, or SEC, registration fee.

| | Amount |
|------------------------------|-------------|
| SEC registration fee | \$7,458.23 |
| Legal fees and expenses | \$10,000.00 |
| Accounting fees and expenses | \$15,000.00 |
| Total | \$32,458.23 |

Item 15. Indemnification of Directors and Officers.

Section 102 of the Delaware General Corporation Law permits a corporation to eliminate the personal liability of its directors or its stockholders for monetary damages for a breach of fiduciary duty as a director, except where the director breached his or her duty of loyalty, failed to act in good faith, engaged in intentional misconduct or knowingly violated a law, authorized the payment of a dividend or approved a stock repurchase in violation of Delaware corporate law or obtained an improper personal benefit. Our certificate of incorporation provides that no director shall be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duty as a director, notwithstanding any provision of law imposing such liability, except to the extent that the Delaware General Corporation Law prohibits the elimination or limitation of liability of directors for breaches of fiduciary duty.

Section 145 of the Delaware General Corporation Law provides that a corporation has the power to indemnify a director, officer, employee, or agent of the corporation and certain other persons serving at the request of the corporation in related capacities against expenses (including attorneys' fees), judgments, fines and amounts paid in settlements actually and reasonably incurred by the person in connection with an action, suit or proceeding to which he or she is or is threatened to be made a party by reason of such position, if such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the corporation, and, in any criminal action or proceeding, had no reasonable cause to believe his or her conduct was unlawful, except that, in the case of actions brought by or in the right of the corporation, no indemnification shall be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery or other adjudicating court determines that, despite the adjudication of liability but in view of all of the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses which the Court of Chancery or such other court shall deem proper.

Our certificate of incorporation provides that we will indemnify each person who was or is a party or threatened to be made a party 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 us) by reason of the fact that he or she is or was, or has agreed to become, our director or officer, or is or was serving, or has agreed to serve, at our request as a director, officer, partner, employee or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise (all such persons being referred to as an "Indemnatee"), or by reason of any action

alleged to have been taken or omitted in such capacity, against all expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding and any appeal therefrom, if such Indemnitee acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interests, and, with respect to any criminal action or proceeding, he or she had no reasonable cause to believe his or her conduct was unlawful. Our certificate of incorporation also provides that we will indemnify any Indemnitee who was or is a party to an action or suit by or in the right of us to procure a judgment in our favor by reason of the fact that the Indemnitee is or was, or has agreed to become, our director or officer, or is or was serving, or has agreed to serve, at our request as a director, officer, partner, employee or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise, or by reason of any

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action alleged to have been taken or omitted in such capacity, against all expenses (including attorneys' fees) and, to the extent permitted by law, amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding, and any appeal therefrom, if the Indemnitee acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interests, except that no indemnification shall be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to us, unless a court determines that, despite such adjudication but in view of all of the circumstances, he or she is entitled to indemnification of such expenses. Notwithstanding the foregoing, to the extent that any Indemnitee has been successful, on the merits or otherwise, he or she will be indemnified by us against all expenses (including attorneys' fees) actually and reasonably incurred by him or her or on his or her behalf in connection therewith. If we do not assume the defense, expenses must be advanced to an Indemnitee under certain circumstances.

We have entered into indemnification agreements with our directors and executive officers. In general, these agreements provide that we will indemnify the director or executive officer to the fullest extent permitted by law for claims arising in his or her capacity as a director or officer of our company or in connection with their service at our request for another corporation or entity. The indemnification agreements also provide for procedures that will apply in the event that a director or executive officer makes a claim for indemnification and establish certain presumptions that are favorable to the director or executive officer.

We maintain a general liability insurance policy which covers certain liabilities of our directors and officers arising out of claims based on acts or omissions in their capacities as directors or officers.

Item 16. Exhibits and financial statement schedules.

(a) Exhibits.

See the Exhibit Index attached to this registration statement, which is incorporated by reference herein.

(b) Financial statement schedules.

No financial statement schedules are provided because the information called for is not required or is shown either in the financial statements or the notes thereto.

Item 17. Undertakings.

(a) The undersigned registrant hereby undertakes:

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;

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 SEC pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and

(ii)

(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) 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 SEC 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

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is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

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.

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.

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 SEC 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 and 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.

Each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A, shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness; 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 first use, 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 date of first use.

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SIGNATURES

Pursuant to the requirements of the Securities Act, the Registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Warren, New Jersey, on the 24th day of October, 2017.

BELLEROPHON
THERAPEUTICS, INC.

By: /s/ Fabian Tenenbaum
Fabian Tenenbaum
Chief Executive Officer

KNOW ALL BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Fabian Tenenbaum and Megan Schoeps, and each of them, as his or her true and lawful attorneys-in-fact and agents, each with the full power of substitution, for him or her and in his or her name, place or stead, in any and all capacities, to sign any and all amendments to this registration statement (including post-effective amendments), and to sign any registration statement for the same offering covered by this registration statement that is to be effective upon filing pursuant to Rule 462(b) promulgated under the Securities Act, and all post-effective amendments thereto, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or their substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

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| Signature | Title | Date |
|--|--|------------------|
| /s/ Fabian Tenenbaum Fabian Tenenbaum | Chief Executive Officer and Director (principal executive officer) | October 24, 2017 |
| /s/ Megan Schoeps Megan Schoeps | Controller (principal financial officer) | October 24, 2017 |
| /s/ Jonathan M. Peacock Jonathan M. Peacock | Chairman | October 24, 2017 |
| /s/ Naseem Amin Naseem Amin | Director | October 24, 2017 |
| /s/ Scott Bruder Scott Bruder | Director | October 24, 2017 |
| /s/ Mary Ann Cloyd Mary Ann Cloyd | Director | October 24, 2017 |
| /s/ Jens Luehring Jens Luehring | Director | October 24, 2017 |
| /s/ Andre V. Moura Andre V. Moura | Director | October 24, 2017 |
| /s/ Daniel Tassé Daniel Tassé | Director | October 24, 2017 |
| /s/ Adam Weinstein Adam Weinstein | Director | October 24, 2017 |

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EXHIBIT INDEX

| Exhibit Number | Description | Incorporated By Reference | Filing Date | SEC File/Reg. Number |
|-------------------|--|------------------------------|----------------|----------------------------|
| 2.1 | Plan of Conversion. | Form S-1/A (Exhibit 2.1) | 2/3/15 | 333-201474 |
| 2.2 | Agreement and Plan of Merger. | Form S-1/A (Exhibit 2.2) | 2/3/15 | 333-201474 |
| 4.1 | Form of Specimen Stock Certificate. | Form S-1/A (Exhibit 4.1) | 2/3/15 | 333-201474 |
| 4.2 | Form of Linde Stockholders Agreement. | Form S-1/A (Exhibit 4.2) | 2/3/15 | 333-201474 |
| 4.3 | Form of New Mountain stockholders agreement. | Form S-1/A (Exhibit 4.3) | 2/3/15 | 333-201474 |
| 4.4 | Securities Purchase Agreement, dated September 26, 2017, among the Registrant and the investors named therein | Form 8-K (Exhibit 10.1) | 9/27/17 | 001-36845 |
| 4.5 | Registration Rights Agreement, dated September 26, 2017, among the Registrant and the investors named therein | Form 8-K (Exhibit 10.2) | 9/27/17 | 001-36845 |
| 4.6 | Form of Warrant Agreement | Form 8-K (Exhibit 4.1) | 9/27/17 | 001-36845 |
| <u>5.1</u> | <u>Opinion of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C. with respect to the legality of the securities being registered.</u> | | | |
| <u>23.1</u> | <u>Consent of KPMG LLP.</u> | | | |
| <u>23.2</u> | <u>Consent of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C. (included in the opinion filed as Exhibit 5.1).</u> | | | |
| <u>24.1</u> | <u>Powers of Attorney (included on the signature page of the initial filing).</u> | | | |