

Pulmatrix, Inc.
Form 424B5
January 31, 2019
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Filed Pursuant to Rule 424(b)(5)
Registration No. 333-212546

PROSPECTUS SUPPLEMENT

(To the Prospectus Dated August 3, 2016)

5,323,530 Shares

PULMATRIX, INC.

Common Stock

We are offering 5,323,530 shares of our common stock, \$0.0001 par value per share. Our common stock is listed on the NASDAQ Capital Market under the symbol PULM. On January 29, 2019, the last reported sale price of our common stock was \$0.1839 per share.

Investing in our common stock involves a high degree of risk. See Risk Factors beginning on page S-10 of this prospectus supplement and page 6 of the accompanying prospectus.

We are an emerging growth company as that term is used in the Jumpstart Our Business Startups Act of 2012 (the JOBS Act) and, as such, have elected to comply with certain reduced public company reporting requirements for this prospectus supplement, the accompanying prospectus and our filings with the Securities and Exchange Commission.

	Per Share	Total
Public offering price	\$ 0.1700	\$ 905,000.10
Underwriting discounts and commissions (1)	\$ 0.0119	\$ 63,350.01
Proceeds, before expenses, to us	\$ 0.1581	\$ 841,650.09

- (1) In addition, we have agreed to reimburse the underwriter for certain offering-related expenses, including a management fee of 1% of the gross proceeds raised in this offering, and to issue the underwriter or its designees warrants to purchase a number of shares of common stock equal to 6.5% of the shares of common stock sold in this offering. See Underwriting beginning on page S-39 for more information.

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

This offering is being underwritten on a firm commitment basis.

As of January 30, 2019, the aggregate market value of our common stock held by non-affiliates, or our public float, was \$17,380,209 based on a total number of 53,802,221 shares of common stock outstanding, of which 45,166,864 shares of common stock were held by non-affiliates, and a price of \$0.3848 per share, the closing price of our common stock on December 3, 2018. Pursuant to General Instruction I.B.6. of Form S-3, in no event will we sell the securities covered hereby in a public primary offering with a value exceeding more than one-third of the aggregate market value of our common stock in any 12-month period so long as the aggregate market value of our outstanding common stock held by non-affiliates remains below \$75 million. Following the sale of shares in this offering, we will have sold securities with an aggregate market value of \$5,793,138.22 pursuant to General Instruction I.B.6. of Form S-3 during the 12 month calendar period that ends on and includes the date hereof.

The underwriter expects to deliver the shares of common stock on or about February 4, 2019.

H.C. Wainwright & Co.

The date of this prospectus supplement is January 30, 2019.

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ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus are part of a registration statement that we filed with the U.S. Securities and Exchange Commission utilizing a shelf registration process. This document is in two parts. The first part is this prospectus supplement, which describes the specific terms of this offering and also adds to and updates information contained in the accompanying prospectus and the documents incorporated by reference herein. The second part, the accompanying prospectus, provides more general information. Generally, when we refer to this prospectus, we are referring to both parts of this document combined. To the extent there is a conflict between the information contained in this prospectus supplement and the information contained in the accompanying prospectus or any document incorporated by reference therein filed prior to the date of this prospectus supplement, you should rely on the information in this prospectus supplement; provided that 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 in the accompanying prospectus the statement in the document having the later date modifies or supersedes the earlier statement.

We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference herein were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were accurate only as of the date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

You should rely only on the information contained in this prospectus supplement or the accompanying prospectus, or incorporated by reference herein. We have not authorized, and the underwriter has not authorized, anyone to provide you with information that is different. The information contained in this prospectus supplement or the accompanying prospectus, or incorporated by reference herein or therein is accurate only as of the respective dates thereof, regardless of the time of delivery of this prospectus supplement and the accompanying prospectus or of any sale of our common stock. It is important for you to read and consider all information contained in this prospectus supplement and the accompanying prospectus, including the documents incorporated by reference herein and therein, in making your investment decision. You should also read and consider the information in the documents to which we have referred you in the sections entitled Where you can find more information; Information incorporated by reference in this prospectus supplement and in the accompanying prospectus, respectively.

We are offering to sell, and seeking offers to buy, the securities offered by this prospectus supplement only in jurisdictions where offers and sales are permitted. The distribution of this prospectus supplement and the accompanying prospectus and the offering of the securities offered by this prospectus supplement in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus supplement and the accompanying prospectus must inform themselves about, and observe any restrictions relating to, the offering of the common stock and the distribution of this prospectus supplement and the accompanying prospectus outside the United States. This prospectus supplement and the accompanying prospectus do not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus supplement and the accompanying prospectus by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

In this prospectus supplement, unless the context otherwise indicates, the terms Pulmatrix, the Company, we, our and us or similar terms refer to Pulmatrix, Inc.

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iSPERSE is one of our trademarks used in this prospectus. All other trademarks, trade names and service marks appearing in this prospectus or the documents incorporated by reference herein are the property of their respective owners. Use or display by us of other parties' trademarks, trade dress or products is not intended to and does not imply a relationship with, or endorsements or sponsorship of, us by the trademark or trade dress owner. Solely for convenience, trademarks and tradenames referred to in this prospectus appear without the ® and ™ symbols, but those references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or that the applicable owner will not assert its rights, to these trademarks and trade names.

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PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights selected information about us, this offering and information appearing elsewhere in this prospectus supplement, in the accompanying prospectus and in the documents incorporated by reference herein and therein. This summary is not complete and does not contain all the information you should consider before investing in our securities pursuant to this prospectus supplement and the accompanying prospectus. Before making an investment decision, to fully understand this offering and its consequences to you, you should carefully read this entire prospectus supplement and the accompanying prospectus, including Risk Factors, the financial statements, and related notes, and the other information incorporated by reference herein and therein. As used in this prospectus, unless the context otherwise indicates, the terms we, our, us, or the Company refer to Pulmatrix, Inc., a Delaware corporation, and its subsidiaries taken as a whole.

Overview

We are a clinical stage biotechnology company focused on the discovery and development of novel inhaled therapeutic products intended to prevent and treat respiratory diseases and infections with significant unmet medical needs.

We design and develop inhaled therapeutic products based on our proprietary dry powder delivery technology, iSPERSE (inhaled Small Particles Easily Respirable and Emitted), which enables delivery of small or large molecule drugs to the lungs by inhalation for local or systemic applications. The iSPERSE powders are engineered to be small, dense particles with highly efficient dispersibility and delivery to airways. iSPERSE powders can be used with an array of dry powder inhaler technologies and can be formulated with a broad range of drug substances including small molecules and biologics. We believe the iSPERSE dry powder technology offers enhanced drug loading and delivery efficiency that outperforms traditional lactose-blend inhaled dry powder therapies. We believe the advantages of using the iSPERSE technology include reduced total inhaled powder mass, enhanced dosing efficiency, reduced cost of goods and improved safety and tolerability profiles. We are developing iSPERSE-based therapeutic candidates targeted at the prevention and treatment of a range of respiratory diseases, including allergic bronchopulmonary aspergillosis (ABPA) in asthmatics and in patients with cystic fibrosis (CF), chronic obstructive pulmonary disease (COPD) and idiopathic pulmonary fibrosis (IPF).

iSPERSE Technology

We use simple, safe excipients, including proprietary cationic salt formulations, to create a robust and flexible dry powder platform technology that can accommodate a wide range of drug loads in highly dispersible particles. Our initial delivery platform emerged from development of iCALM (inhaled Cationic Airway Lining Modulators), a non-steroidal anti-inflammatory therapy. The high degree of aerosol efficiency and the density profile of our dry powder iCALM formulations provided the foundation for our development of iSPERSE in 2012, using other monovalent and divalent salts.

iSPERSE particles are engineered with a small, dense and dispersible profile to exceed the performance of traditional dry powder particles as the iSPERSE particles have the dispersibility advantages of porous engineered particles. We believe this results in superior drug delivery compared to traditional oral and injectable forms of treatment for certain respiratory diseases. Unlike lactose-blended carrier formulations or low-density particles which disperse poorly, we believe that the iSPERSE technology platform offers several potential benefits, achieved through the following technological innovations:

Flexible drug loading for delivery of a single microgram to tens of milligrams per dose. iSPERSE particles can be engineered to include significantly less than one percent (1%) to greater than eighty percent (80%) active pharmaceutical ingredients (APIs), which allows flexibility for dosing low potency and high drug load therapeutics.

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Reproducible and one-step manufacturing. iSPERSE powders are manufactured by a simple and reproducible one-step spray drying process with high and consistent yields. Formulations can be created independent of API physical chemistry in either crystalline or amorphous excipient matrices, as opposed to conventional dry power technologies that require the API to be in crystalline form and suitable for micronization.

Superior flow rate independent lung delivery without carriers. The iSPERSE technology enables pulmonary delivery independent of lactose or other carriers, which results in significantly greater lung dose at a matched nominal dose of conventional lactose-based formulations. iSPERSE formulations are dispersible across a range of flow rates with consistent emitted dose and particle size. Performance across flow rates provides reliable dose delivery across patient populations and reduces patient-to-patient variability.

Delivery of macromolecules and biologics. iSPERSE powders can be used with an array of dry powder inhaler technologies and can be formulated with a broad range of therapeutic compounds ranging from small molecules to proteins for both local and systemic drug delivery applications.

Homogenous combinations of multiple drugs. iSPERSE creates homogenous particles including excipients and API, which allow for the consistent delivery of multiple APIs in a product. We have successfully formulated iSPERSE-based products with dual and triple API combinations.

Strong safety profile. Current iSPERSE products and planned clinical stage products to be formulated in iSPERSE are supported by robust preclinical safety profiles. iSPERSE excipients include those with inhalation precedent and those that are generally regarded as safe by other routes of administration.

Our Therapeutic Candidates

Pulmazole (formerly PUR1900)

We are developing iSPERSE-based inhaled formulations of anti-fungal drugs for the prevention and treatment of fungal infections and allergic/hypersensitivity reactions to fungus in patients with severe lung disease, including those with asthma and CF.

Pulmazole is our inhaled formulation of itraconazole, an anti-fungal drug commercially available as an oral drug that we are developing to treat and prevent pulmonary fungal infections. Development of Pulmazole is focused on treatment of *Aspergillus* spp. colonization and infection in patients with asthma and CF. In preclinical models, through the direct delivery of itraconazole to the lungs, Pulmazole achieves high local drug concentrations and has the potential to overcome several limitations of traditional oral anti-fungal therapies including poor oral bioavailability and lung penetration, drug-drug interactions and gastrointestinal and cardiac side effects. Pulmazole is our lead iSPERSE anti-infective development program.

On November 21, 2018, we announced the results of the completed Phase 1/1b first-in-human study of Pulmazole for the treatment of ABPA in patients with asthma. Pulmazole appeared to be safe and well tolerated in normal healthy subjects in Parts 1 and 2 of the study at doses up to 35 mg, the maximal dose tested, over 14 days of administration. Single doses of Pulmazole 20 mg and oral Sporanox 200 mg appeared to be safe and well tolerated in asthmatic subjects. The most common adverse event (AE) reported was mild cough during dosing, which resolved

spontaneously in seconds to minutes. No subject experienced an AE leading to withdrawal.

Sustained low-level systemic exposure after single and multiple doses over 24 hours post-dose is indicative of high and sustained lung exposure and supports once daily dosing. Very low systemic exposure for itraconazole was observed across all doses, with 106- to 400-fold lower itraconazole exposure after 14 days of 10 to 35 mg Pulmazole compared to expected values following administration of oral Sporanox®200 mg twice daily. In asthmatics, adjusted geometric mean AUC_{0-t} was 66-fold lower after a single 20 mg inhaled Pulmazole dose

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compared to a single 200 mg oral Sporanox[®] dose. Geometric mean sputum itraconazole C_{max} was ~70-fold higher following 20 mg inhaled Pulmazole versus 200 mg oral Sporanox[®] (4530 ng/mL compared to 65.4 ng/mL). We intend to initiate a Phase 2 trial in asthmatic patients with ABPA in the first-half of 2019.

PUR1800

On June 9, 2017, we entered into an exclusive, worldwide license agreement (the License Agreement) with RespiVert Ltd. (RespiVert), a wholly owned subsidiary of Janssen Biotech, Inc. (Janssen), for access to a portfolio of novel drug candidates in a class called kinase inhibitors. The first of which, PUR1800 (previously RV1162), we intend to develop for the treatment of acute exacerbations in patients with COPD (AECOPD). COPD is a progressive respiratory illness marked by inflammation and destruction of airways and lungs, typically brought about by longstanding smoking. COPD exacerbations (worsening of respiratory symptoms) are a major contributor to health care costs as well disease progression that can lead to serious consequences such as hospitalization and death. There are currently no therapies approved in the U.S. or the European Union (EU) to specifically treat AECOPD. COPD patients are commonly treated with corticosteroids to control inflammation; however, AECOPDs still occur frequently.

Studies conducted by RespiVert/Janssen for the small molecule formulated in PUR1800 (previously RV1162) demonstrated that the molecule has been well tolerated for up to 14 days of dosing in patients with COPD. Analysis of sputum collected from COPD patients treated with RV1162 showed reduced levels of p38 phosphorylation in sputum cells and decreases in the number of neutrophils recovered in sputum after 12 days of dosing suggesting the onset of anti-inflammatory benefit after a short dosing regimen. We intend to bridge the Phase 1/1b clinical study conducted by Janssen (Janssen Study EST001, ClinicalTrials.gov NCT01970618) with our own Phase 2a study of an iSPERSE formulation, PUR1800, in stable moderate-severe COPD patients.

PUR0200

PUR0200 is a once-daily reformulation of an existing long-acting antimuscarinic agent (LAMA) which blocks the effects of acetylcholine on muscarinic receptors to reverse airway obstruction in COPD patients and is delivered by inhalation using the iSPERSE dry powder delivery platform.

PUR0200 is manufactured without lactose blending using the iSPERSE dry powder delivery platform. We expect that PUR0200 will deliver comparable pharmacokinetic and pharmacodynamic profiles to the reference product at significantly lower exposure doses to patients. Other potential advantages of PUR0200 include improved patient use profile and reduced cost of goods due to reduced nominal dose of the API and the availability of the abbreviated regulatory pathway (bioequivalence) in Europe and the 505(b)(2) regulatory pathway in the United States.

In December 2013, we completed a two-part Phase 1b placebo-controlled, randomized clinical trial in the United Kingdom involving moderate to severe COPD patients to assess the safety and tolerability of PUR0200 along with the pharmacodynamics and pharmacokinetics in a single dose, dose escalation trial. The goal of Part 1 was to evaluate safety and tolerability of PUR0200. Part 2 of the study tested the pharmacokinetics and pharmacodynamics of PUR0200 after single doses compared to the reference product. A second clinical trial was completed in Europe in 2016 to further study the pharmacokinetic profile of PUR0200 compared to the reference product. Based on the PK profile, two PUR0200 formulations have been identified as bioequivalent drug product candidates.

PUR5700

We received access to PUR5700, a second novel drug candidate through the License Agreement with RespiVert. The preclinical studies undertaken by RespiVert for PUR5700 demonstrated activity relevant to IPF, COPD, and

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asthma. Robust pre-clinical datasets demonstrated anti-inflammatory effects in steroid resistant inflammation models and pathogen induced inflammation models. A 28-day GLP (good laboratory practice) nonclinical safety program was completed in rats and dogs with established safety margins to support clinical dosing.

IPF is a progressive and generally fatal disease characterized by scarring of the lungs over time that thickens the tissue lining of the lungs, causing an irreversible loss of the tissue's ability to expand to transport oxygen. The cause of IPF is currently unknown.

Intellectual Property

The status of our patent portfolio changes frequently in the ordinary course of patent prosecution. As of December 31, 2018, our patent portfolio related to iSPERSE included approximately 92 granted and allowed patents, 12 of which are granted or allowed US patents, with expiration dates from 2024 to 2034, and approximately 75 additional pending patent applications in the US and other jurisdictions. Our in-licensed portfolio related to kinase inhibitors included approximately 225 granted and allowed patents, 26 of which are granted or allowed US patents, with expiration dates from 2029 to 2035, and approximately 52 additional pending patent applications in the US and other jurisdictions.

Our Business Strategy

Our goal is to utilize our proprietary iSPERSE technology to develop breakthrough therapeutic products that are safe, convenient and more efficient than the existing therapeutic products for the treatment of respiratory diseases. The core components of our strategy are as follows:

Focus on development of inhaled anti-fungal therapies to prevent and treat pulmonary infections and allergic/hypersensitivity responses to fungus in asthma and CF patients and other rare/orphan indications. We intend to direct resources to advance the research and development of Pulmazole for ABPA in asthmatics and CF patients. We announced the results of the completed Phase 1/1b first-in-human study of Pulmazole for the treatment of ABPA in patients with asthma in November 2018 and intend to initiate a Phase 2 trial in asthmatic patients with ABPA in the first-half of 2019.

Focus on development of an inhaled kinase inhibitor to treat acute exacerbations in COPD patients. We intend to direct resources to advance the research and development of PUR1800, an inhaled kinase inhibitor for the treatment of acute exacerbations in COPD patients. We expect to advance our lead iSPERSE formulation to preclinical safety studies in 2018 and continue to advance our formulation and process development efforts to support clinical testing in stable moderate-severe COPD patients.

Capitalize on our proprietary iSPERSE technology and our expertise in inhaled therapeutics and particle engineering to identify new product candidates for prevention and treatment of respiratory diseases with significant unmet medical needs. To add additional inhaled therapeutics to our discovery pipeline and facilitate additional discovery collaborations, we are leveraging our iSPERSE technology and our management's expertise in inhaled therapeutics and particle engineering to identify potential product candidates that are potentially safer and more effective than the current standard of care for prevention and treatment of respiratory diseases with significant unmet medical needs.

Invest in protecting and expanding our intellectual property portfolio and file for additional patents to strengthen our intellectual property rights. We intend to continue to aggressively pursue patents claims covering aspects of iSPERSE technology, expand our patent portfolio, and actively pursue any infringement covered by any of Pulmatrix's patents. We believe that our patents and patent applications, once allowed, are important for maintaining the competitive differentiation of our products and maximizing our return on research and development investments, as well as providing for the expansion of intellectual property protection for partner molecules in development partnerships.

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Risks Associated with Our Business and this Offering

Our business is subject to numerous risks and uncertainties, including those highlighted in the section entitled "Risk Factors" immediately following this prospectus supplement summary. These risks include, but are not limited to, the following:

We have had a history of recurring losses and negative cash flows from operating activities, and currently have significant future commitments, and we face many uncertainties regarding the adequacy of our liquidity to pursue or complete our business objectives;

We may not be able to maintain the listing of our common stock on the Nasdaq Capital Market;

We may be unable to successfully carry out our research, development and commercialization plans;

We may be unable to manufacture our product candidates on a commercial scale on our own or in collaborations with third parties;

We may be unable to complete preclinical testing and clinical trials as anticipated;

We may be unable to adequately protect and enforce rights to our intellectual property;

We may have difficulties in obtaining financing on commercially reasonable terms, or at all;

We face intense competition in our industry, with competitors having substantially greater financial, technological, research and development, regulatory and clinical, manufacturing, marketing and sales, distribution and personnel resources than we do;

We may face new competitors and products and potential technological obsolescence of our products;

We may lose of one or more of our key executives or scientists; and

We may be unable to secure regulatory approval to market our product candidates.

Implications of Being an Emerging Growth Company

As a company with less than \$1.07 billion in revenue during our last fiscal year, we qualify as an emerging growth company as defined in the Jumpstart Our Business Startups Act (the "JOBS Act") enacted in April 2012. An emerging

growth company may take advantage of exemptions from some of the reporting requirements that are otherwise applicable to public companies. These exceptions include:

being permitted to present only two years of audited financial statements and only two years of related Management's Discussion and Analysis of Financial Condition and Results of Operations in this prospectus;

not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, as amended (the "Sarbanes-Oxley Act");

reduced disclosure obligations regarding executive compensation in our periodic reports, proxy statements and registration statements; and

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

We may take advantage of these provisions until the last day of our fiscal year following the fifth anniversary of the closing of our initial public offering in March 2014. However, if certain events occur prior to the end of such five-year period, including if we become a large accelerated filer, our annual gross revenue exceeds \$1.07 billion or we issue more than \$1.0 billion of non-convertible debt in any three-year period, we will cease to be an emerging growth company prior to the end of such five-year period.

We have elected to take advantage of certain of the reduced disclosure obligations in this prospectus and may elect to take advantage of other reduced reporting requirements in future filings. As a result, the information that

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we provide to our stockholders may be different than you might receive from other public reporting companies in which you hold equity interests.

In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. We have elected to avail ourselves of this exemption.

Recent Developments

At the 2018 Annual Meeting of Stockholders of the Company held on June 5, 2018, our stockholders authorized our board of directors, in its discretion but prior to the annual meeting of our stockholders in 2019, to amend our Amended and Restated Certificate of Incorporation (the "Certificate of Incorporation") to effect a reverse stock split of the our common stock at a ratio in the range of 1-for-4 to 1-for-10, such ratio to be determined by our board of directors and included in a public announcement, subject to the authority of the board of directors to abandon such reverse stock split in its discretion. As of the date of this prospectus supplement, our board of directors has not determined a reverse stock split ratio or whether to effect a reverse stock split. Although we expect that a reverse stock split will initially result in an increase in the market price of our common stock, it may not result in a permanent increase in the market price of our common stock, which is dependent on many factors, including general economic, market and industry conditions and other factors detailed from time to time in the reports we file with the Securities and Exchange Commission.

As previously reported, on May 8, 2018, we received a letter from the Listing Qualifications Department of the Nasdaq Stock Market ("Nasdaq") indicating that, based upon the closing bid price of our common stock for the last 30 consecutive business days, we did not meet the minimum bid price of \$1.00 per share required for continued listing on The Nasdaq Global Market pursuant to Nasdaq Listing Rule 5450(a)(1). In accordance with Nasdaq Listing Rule 5810(c)(3)(A), we were provided an initial period of 180 calendar days, or until November 5, 2018, to regain compliance. On November 6, 2018, we received approval from Nasdaq to transfer the listing of our common stock from the Nasdaq Global Market to the Nasdaq Capital Market, effective at the opening of business on November 7, 2018. Following the transfer of its listing, we had been granted an additional 180-day grace period to regain compliance with the Nasdaq's \$1.00 minimum bid price requirement. To regain compliance and qualify for continued listing on the Nasdaq Capital Market, the minimum bid price per share of our common stock must be at least \$1.00 for at least ten consecutive business days during the additional 180-day grace period, which will end on May 6, 2019. We have not regained compliance as of the date of this prospectus supplement, and if we fail to regain compliance during this grace period, our common stock will be subject to delisting by Nasdaq, which could seriously decrease or eliminate the value of an investment in our common stock and other securities linked to our common stock.

On December 3, 2018, we closed a (i) registered direct offering of an aggregate of 2,400,000 shares of our common stock at an offering price of \$0.32 per share and pre-funded warrants to purchase 6,975,000 shares of common stock at an offering price of \$0.31 per pre-funded warrant, pursuant to a Securities Purchase Agreement, dated November 29, 2018, with an institutional investor, and (ii) a concurrent private placement of common warrants to purchase an aggregate of 9,375,000 shares of common stock at an exercise price of \$0.39 per share issued to the same institutional investor (the "December 2018 Financing"). We received gross proceeds of approximately \$2.93 million from the December 2018 Financing before deduction of offering expenses. The common warrants are initially exercisable six months following issuance and terminate five and one-half years following issuance. We are required to file a registration statement on Form S-1 within 120 calendar days of the issuance of the common warrants to provide for the resale of the shares of common stock issuable upon the exercise of the common warrants sold in the private placement.

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On January 28, 2019, we announced the pricing of an underwritten public offering of 1,561,177 shares of our common stock at a public offering price of \$0.17 per share (the January Offering). We expect to receive aggregate gross proceeds of approximately \$265,400 from the January Offering before deducting underwriting

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discounts and commissions and offering expenses. The January Offering is expected to close on January 31, 2019.

Corporate Information

We were incorporated in 2013 as a Nevada corporation and converted to a Delaware corporation in September 2013. On June 15, 2015, we completed a merger with Pulmatrix Operating Company, changed our name to Pulmatrix, Inc. and relocated our corporate headquarters to Lexington, Massachusetts. Our principal executive offices are located at 99 Hayden Avenue, Suite 390, Lexington, MA 02421 and our telephone number is (781) 357-2333. Our website is www.pulmatrix.com. Information contained on our website or that can be accessed through our website will not be deemed to be incorporated by reference in, and are not considered part of, this prospectus supplement.

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THE OFFERING

Common stock offered by us 5,323,530 shares

Common stock to be outstanding immediately after the offering (1) 59,125,751 shares

Use of proceeds We expect to receive net proceeds from this offering of approximately \$701,000 after deducting the estimated underwriting discounts and commissions and the estimated offering expenses payable by us.

We intend to use the net proceeds from this offering for working capital and general corporate purposes. See Use of Proceeds.

Dividend Policy We have never paid cash dividends on our common stock. We currently anticipate that we will retain future earnings for the development, operation and expansion of our business and do not anticipate declaring or paying any cash dividends for the foreseeable future. See Dividend Policy.

Risk factors Investing in our securities involves a high degree of risk. You should read the Risk Factors section beginning on page S-10 of this prospectus supplement and page 6 of the accompanying prospectus and in the documents incorporated by reference in this prospectus supplement for a discussion of factors to consider before deciding to invest in our common stock.

NASDAQ Capital Market symbol PULM

(1) The number of shares of common stock to be outstanding immediately after this offering is based on 53,802,221 shares of our common stock outstanding as of January 30, 2019, and excludes:

3,284,440 shares of common stock issuable upon the exercise of warrants outstanding as of January 30, 2019 at a weighted average exercise price of \$7.79 per share;

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9,702,348 shares of common stock issuable upon the exercise of options outstanding as of January 30, 2019 at a weighted average exercise price of \$2.39 per share pursuant to the Pulmatrix, Inc. 2013 Employee, Director and Consultant Equity Incentive Plan (the Incentive Plan), Pulmatrix Operating s 2013 Employee, Director and Consultant Equity Incentive Plan (the Original 2013 Plan) and Pulmatrix Operating s 2003 Employee, Director, and Consultant Stock Plan (the 2003 Plan);

5,211,645 shares of common stock available for future issuance under the Incentive Plan as of January 30, 2019;

24,650,000 shares of common stock issuable upon the exercise of Series B warrants at an exercise price of \$0.75 per share;

9,375,000 shares of common stock issuable upon the exercise of warrants at an exercise price of \$0.39 per share;

1,561,177 shares of common stock expected to be issued in the January Offering on January 31, 2019;

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101,477 shares of common stock issuable up on exercise of the underwriter's warrants with an exercise price of \$0.2125 to be issued to the underwriter to the January Offering on January 31, 2019;

2,500,000 shares of common stock issuable upon the exercise of pre-funded warrants at an exercise price of \$0.01 per share; and

346,030 shares of common stock issuable upon exercise of the underwriter's warrants with an exercise price of \$0.2125 to be issued to the underwriter in connection with this offering.

Unless otherwise indicated, all information contained in this prospectus assumes no exercise of the underwriter's warrants to be issued to the underwriter in connection with this offering.

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RISK FACTORS

*An investment in our securities involves a high degree of risk. Before deciding whether to invest in our securities, you should consider carefully the risks described below, together with other information in this prospectus supplement, the accompanying prospectus, the information and documents incorporated by reference. You should also consider the risks, uncertainties and assumptions discussed under the heading **Risk Factors** included in our most recent annual report on Form 10-K and the subsequent quarterly reports on Form 10-Q and other reports that we file with the SEC which are on file with the SEC and are incorporated herein by reference, and which may be amended, supplemented or superseded from time to time by other reports we file with the SEC in the future. 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. The risks and uncertainties described below are not the only ones facing us. Additional risks and uncertainties not presently known to us, or that we currently see as immaterial, may also harm our business. Please also read carefully the section below entitled **Special Note Regarding Forward-Looking Statements**.*

Risks Related to Our Business

We have a history of net losses and may experience future losses.

We have yet to establish any history of profitable operations. We reported a net loss of \$16.2 million for the nine months ended September 30, 2018 and \$18.0 million for the fiscal year ended December 31, 2017. As of September 30, 2018, we had an accumulated deficit of \$190.2 million. We expect to incur additional operating losses for the foreseeable future. There can be no assurance that we will be able to achieve sufficient revenues throughout the year or be profitable in the future.

We will need to raise additional capital to meet our business requirements in the future and such capital raising may be costly or difficult to obtain and could dilute our stockholders' ownership interests.

Our current capital will only be sufficient to enable us to continue operations for a short period of time. In order to fully realize all of our business objectives, absent any non-dilutive funding from a strategic partner or some other strategic transactions, we will need to raise additional capital within six months from the date hereof, which additional capital may not be available on reasonable terms or at all. For instance, we will need to raise additional funds to accomplish the following:

advancing the research and development of Pulmazole and PUR1800;

investing in protecting and expanding our intellectual property portfolio, including filing for additional patents to strengthen our intellectual property rights

hiring and retaining qualified management and key employees;

responding to competitive pressures; and

maintaining compliance with applicable laws.

Any additional capital raised through the sale of equity or equity backed securities will dilute our stockholders ownership percentages and could also result in a decrease in the market value of our equity securities.

The terms of any securities issued by us in future financing transactions may be more favorable to new investors, and may include preferences, superior voting rights and the issuance of warrants or other derivative securities, which may have a further dilutive effect on the holders of any of our securities then outstanding.

Furthermore, any additional capital financing that we may need in the future may not be available on terms favorable to us, or at all. If we are unable to obtain such additional financing on a timely basis, we may have to

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curtail our development activities and growth plans and/or be forced to sell assets, perhaps on unfavorable terms, which would have a material adverse effect on our business, financial condition and results of operations, and ultimately could be forced to discontinue our operations and liquidate, in which event it is unlikely that stockholders would receive any distribution on their shares. Further, we may not be able to continue operating if we do not generate sufficient revenues from operations needed to stay in business.

In addition, we may incur substantial costs in pursuing future capital financing, including investment banking fees, legal fees, accounting fees, securities law compliance fees, printing and distribution expenses and other costs. We may also be required to recognize non-cash expenses in connection with certain securities we issue, such as convertible notes and warrants, which may adversely impact our financial condition and cause further dilution to our stockholders.

The report of our independent registered public accounting firm contains an explanatory paragraph as to our ability to continue as a going concern, which could prevent us from obtaining new financing on reasonable terms, or at all.

Because we have had recurring losses and negative cash flows from operating activities, substantial doubt exists regarding our ability to continue as a going concern at the same level at which we are currently performing.

Accordingly, the report of Marcum LLP, our independent registered public accounting firm, with respect to our financial statements for the year ended December 31, 2017, includes an explanatory paragraph as to our potential inability to continue as a going concern. The doubts regarding our ability to continue as a going concern may adversely affect our ability to obtain new financing on reasonable terms, or at all.

We are a clinical development stage biotechnology company and have never been profitable. We expect to incur additional losses in the future and may never be profitable.

We are a clinical development stage biotechnology company. We have not commercialized any product candidates or recognized any revenues from product sales. All of our product candidates are still in the preclinical or clinical development stage, and none have been approved for marketing or are currently being marketed or commercialized. Our product candidates will require significant additional development, clinical studies, regulatory clearances and additional investments of time and capital before they can be commercialized. We cannot be certain when or if any of our product candidates will obtain the required regulatory approval.

We have never been profitable or generated positive cash flow from operations. We have incurred net losses each year since our inception. Our losses are principally a result of research and development and general administrative expenses in support of our operations. We may incur significant additional losses as we continue to focus our resources on prioritizing, selecting and advancing our product candidates. Our ability to generate revenue and achieve profitability depends mainly upon our ability, alone or with others, to successfully develop our product candidates, obtain the required regulatory approvals in various territories and commercialize our product candidates. We may be unable to achieve any or all of these goals with regard to our product candidates. As a result, we may never be profitable or achieve significant and/or sustained revenues.

All of our product candidates are still under development, and there can be no assurance of successful commercialization of any of our products.

All of our research and development programs are in developmental stages. One or more of our product candidates may fail to meet safety and efficacy standards in human testing, even if those product candidates are found to be effective in animal studies. To develop and commercialize inhaled therapeutic treatment for chronic obstructive

pulmonary disease and cystic fibrosis and other iSPERSE-based product candidates, we must provide the Food and Drug Administration (the FDA) and foreign regulatory authorities with human clinical and non-clinical animal data that demonstrate adequate safety and effectiveness. To generate these data, we will have

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to subject our product candidates to significant additional research and development efforts, including extensive non-clinical studies and clinical testing. Our approach to drug discovery may not be effective or may not result in the development of any drug. Currently, our development efforts are primarily focused on our lead anti-fungal product candidate, Pulmazole (formerly PUR1900), and PUR1800, our lead anti-inflammatory candidate for COPD. Even if Pulmazole, PUR1800 or our other product candidates are successful when tested in animals, such success would not be a guarantee of the safety or effectiveness of such product candidates in humans. It can take several years for a product to be approved and we may not be successful in bringing any therapeutic candidates to the market. A new drug may appear promising at an early stage of development or after clinical trials and never reach the market, or it may reach the market and not sell, for a variety of reasons. For example, the drug may:

be shown to be ineffective or to cause harmful side effects during preclinical testing or clinical trials;

fail to receive regulatory approval on a timely basis or at all;

be difficult to manufacture on a large scale;

not be economically viable;

not be prescribed by doctors or accepted by patients;

fail to receive a sufficient level of reimbursement from government, insurers or other third-party payors; or

infringe on intellectual property rights of any other party.

If our delivery platform technologies or product development efforts fail to generate product candidates that lead to the successful development and commercialization of products, our business and financial condition will be materially adversely affected.

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

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

obtain regulatory approval to commence a clinical trial;

secure or retain sufficient capital to finance the work;

reach agreement on acceptable terms with prospective CROs and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and trial sites;

obtain institutional review board, or IRB, approval at each site;

recruit, enroll and retain patients through the completion of clinical trials;

maintain clinical sites in compliance with trial protocols and regulatory requirements through the completion of clinical trials;

address any patient safety concerns that arise during the course of the trial;

initiate or add a sufficient number of clinical trial sites; or

manufacture sufficient quantities of our product candidate for use in clinical trials.

We could encounter delays if a clinical trial is suspended or terminated by us, by the relevant IRBs at the sites at which such trials are being conducted, by the Data Safety Monitoring Board, or DSMB, for such trial or by the FDA or other regulatory authorities. Such authorities may impose such a suspension or termination due to a number of factors, including failure to conduct the clinical trial in accordance with regulatory requirements or

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our clinical protocols, inspection of the clinical trial operations or trial site by the FDA or other regulatory authorities resulting in the imposition of a clinical hold, unforeseen safety issues or adverse side effects, changes in laws or regulations, or lack of adequate funding to continue the clinical trial. Any delays in completing our clinical trials will increase our costs, slow down our product candidate development and approval process and jeopardize our ability to commence product sales and generate revenues. Any of these occurrences may harm our business, financial condition and prospects significantly.

Drug development is a long, expensive and inherently uncertain process with a high risk of failure at every stage of development, and results of earlier studies and trials may not be predictive of future trial results.

We have a number of proprietary drug candidates in research and development ranging from the early discovery research phase through preclinical testing and clinical trials. Preclinical testing and clinical trials are long, expensive and highly uncertain processes. It will take us several years to complete clinical trials and we may not have the resources to complete the development and commercialization of any of our proposed drug candidates. The start or end of a clinical trial is often delayed or halted due to changing regulatory requirements, manufacturing challenges, required clinical trial administrative actions, slower than anticipated patient enrollment, changing standards of care, availability or prevalence of use of a competitor drug or required prior therapy, clinical outcomes, or financial constraints of us and our partners.

Drug development is a highly uncertain scientific and medical endeavor, and failure can unexpectedly occur at any stage of preclinical and clinical development. Typically, there is a high rate of attrition for drug candidates in preclinical and clinical trials due to scientific feasibility, safety, efficacy, changing standards of medical care and other variables. The risk of failure is heightened for our drug candidates that are based on new technologies, such as the application of our dry powder delivery platform, iSPERSE, including Pulmazole, PUR1800 and other iSPERSE-based drug candidates currently in discovery research or preclinical development. The failure of one or more of our iSPERSE-based drug candidates could have a material adverse effect on our business, financial condition and results of operations.

In addition, the results of preclinical studies and clinical trials of previously published iSPERSE-based products may not necessarily be indicative of the results of our future clinical trials. The design of our clinical trials is based on many assumptions about the expected effects of inhaled drugs used historically in the industry and if those assumptions are incorrect, the trials may not produce statistically significant results. Preliminary results may not be confirmed upon full analysis of the detailed results of an early clinical trial. Product candidates in later stages of clinical trials may fail to show safety and efficacy sufficient to support intended use claims despite having progressed through initial clinical trials. The data collected from clinical trials of our product candidates may not be sufficient to obtain regulatory approval in the United States or elsewhere. Because of the uncertainties associated with drug development and regulatory approval, we cannot determine if, or when, we may have an approved product for commercialization or whether we will ever achieve sales of or profits on our product candidates or those we may pursue in the future.

We may not be able to attract, retain, or manage highly qualified personnel, which could adversely impact our business.

Our future success and ability to compete in the biotechnology industry is substantially dependent on our ability to identify, attract, and retain highly qualified key managerial, scientific, medical, and operations personnel. The market for key employees in the pharmaceutical and biotechnology industries is competitive. The loss of the services of any of our principal members of management or key employees without an adequate replacement or our inability to hire new employees as needed could delay our product development efforts, harm our ability to sell our products or

otherwise negatively impact our business.

The scientific, research and development personnel upon whom we rely to operate our business have expertise in certain aspects of drug development and clinical development, and it may be difficult to retain or replace these

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individuals. We conduct our operations at our facilities in Lexington, Massachusetts, within the greater Boston area, and this region is headquarters to many other biotechnology, pharmaceutical, and medical technology companies, as well as many academic and research institutions, and, therefore, we face increased competition for technical and managerial personnel in this region.

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

Despite our efforts to retain valuable employees, members of our management and scientific and development teams may terminate their employment with us at any time. Although we have written employment offer letter agreements with our executive officers, these employment agreements provide for at-will employment, which means that our executive officers can leave their employment at any time, for any reason, with 30 days' notice. The loss of the services of any of our executive officers or our other key employees and our inability to find suitable replacements could potentially harm our business, financial condition and prospects. We do not maintain key man insurance policies on the lives of these individuals or the lives of any of our other employees.

We face substantial competition in the development of our product candidates and may not be able to compete successfully, and our product candidates may be rendered obsolete by rapid technological change.

The pharmaceutical and biotechnology industry is highly competitive, and we face significant competition from many pharmaceutical, biopharmaceutical and biotechnology companies that are researching and marketing products designed to address the indications for which we are currently developing therapeutic candidates or for which we may develop product candidates in the future.

Many of our existing or potential competitors have, or have access to, substantially greater financial, research and development, production, and sales and marketing resources than we do and have a greater depth and number of experienced managers. As a result, our competitors may be better equipped than us to develop, manufacture, market and sell competing products. In addition, gaining favorable reimbursement is critical to the success of our product candidates. We are aware of many established pharmaceutical companies in the United States and other parts of the world that have or are developing technologies for inhaled drug delivery for the prevention and treatment of respiratory diseases, including GlaxoSmithKline, Mereo BioPharma, and Pulmocide, which we consider our potential competitors in this regard. If we are unable to compete successfully with these and other potential future competitors, we may be unable to grow or generate revenue.

The rapid rate of scientific discoveries and technological changes could result in one or more of our product candidates becoming obsolete or noncompetitive. Our competitors may develop or introduce new products that render our iSPERSE delivery technology and other product candidates less competitive, uneconomical or obsolete. Some of these technologies may have an entirely different approach or means of accomplishing similar therapeutic effects compared to our drug candidates. Our future success will depend not only on our ability to develop our product candidates but to improve them and keep pace with emerging industry developments. We cannot assure you that we will be able to do so.

We also expect to face increasing competition from universities and other non-profit research organizations. These institutions carry out a significant amount of research and development in the areas of respiratory diseases. These institutions are becoming increasingly aware of the commercial value of their findings and are more active in seeking patent and other proprietary rights as well as licensing revenues.

The potential acceptance of therapeutics that are alternatives to ours may limit market acceptance of our product candidates, even if commercialized. Respiratory diseases, including our targeted diseases and conditions, can

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also be treated by other medication or drug delivery technologies. These treatments may be widely accepted in medical communities and have a longer history of use. The established use of these competitive drugs may limit the potential for our product candidates to receive widespread acceptance if commercialized.

If the third parties on which we rely to conduct our clinical trials and to assist us with pre-clinical development do not perform as contractually required or expected, we may not be able to obtain regulatory clearance or approval for, or to commercialize, our products.

We do not have the ability to independently conduct our pre-clinical and clinical trials for our products and we must rely on third parties, such as contract research organizations, medical institutions, clinical investigators and contract laboratories to conduct such trials. If these third parties do not successfully carry out their contractual duties or regulatory obligations or meet expected deadlines, if these third parties need to be replaced, or if the quality or accuracy of the data they obtain is compromised due to the failure to adhere to our clinical protocols or regulatory requirements or for other reasons, our pre-clinical development activities or clinical trials may be extended, delayed, suspended or terminated, and we may not be able to obtain regulatory approval for, or successfully commercialize, our products on a timely basis, if at all, and our business, operating results and prospects may be adversely affected. Furthermore, our third-party clinical trial investigators may be delayed in conducting our clinical trials for reasons outside of our control.

Even if we are able to commercialize any product candidates, the products may be subject to unfavorable pricing regulations, third-party coverage or reimbursement practices or healthcare reform initiatives, which could harm our business.

The regulations that govern marketing approvals, pricing, coverage and reimbursement for new drug products vary widely, and current and future legislation may significantly change the approval requirements in ways that could involve additional costs and cause delays in obtaining approvals. We might encounter a point in the future when we may be subject to price regulations that delay our commercial launch of the product, possibly for lengthy time periods, and negatively impact the revenues we are able to generate from the sale of the product. Adverse pricing limitations may hinder our ability to recoup our investment in one or more product candidates, even if our product candidates obtain marketing approval.

Our ability to commercialize any product candidates successfully also will depend in part on the extent to which coverage and adequate reimbursement for these products and related treatments will be available from government and other third party payors. Government authorities and third-party payors, such as private health insurers and health maintenance organizations, decide which medications they will pay for and establish reimbursement levels. A primary trend in the U.S. healthcare industry and elsewhere is cost containment. Government authorities and third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications. Increasingly, third-party payors are requiring that drug companies provide them with predetermined discounts from list prices and are challenging the prices charged for medical products. Coverage and reimbursement may not be available for any product that we commercialize and, even if these are available, the level of reimbursement may not be satisfactory. Reimbursement may affect the demand for, or the price of, any product candidate for which we obtain marketing approval. Obtaining and maintaining adequate reimbursement for our products may be difficult. We may be required to conduct expensive pharmacoeconomic studies to justify coverage and reimbursement or the level of reimbursement relative to other therapies. If coverage and adequate reimbursement are not available or reimbursement is available only to limited levels, we may not be able to successfully commercialize any product candidate for which we obtain marketing approval.

There may be significant delays in obtaining coverage and reimbursement for newly approved drugs, and coverage may be more limited than the purposes for which the drug is approved by the FDA or similar regulatory authorities. Moreover, eligibility for coverage and reimbursement does not imply that a drug will be paid for in all cases or at a rate that covers our costs, including research, development, manufacture, sale and distribution

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expenses. Interim reimbursement levels for new drugs, if applicable, may also not be sufficient to cover our costs and may not be made permanent. Reimbursement rates may vary according to the use of the drug and the clinical setting in which it is used, may be based on reimbursement levels already set for lower cost drugs and may be incorporated into existing payments for other services. Net prices for drugs may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors and by any future changes of laws. Third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own reimbursement policies. Our inability to promptly obtain coverage and adequate reimbursement rates from both government-funded and private payors for any approved products that we develop could have a material adverse effect on our operating results, our ability to raise capital needed to commercialize products and our overall financial condition.

There can be no assurance that our product candidates, even if they are approved for sale in the United States, will be considered medically reasonable and necessary for a specific indication or cost-effective by third-party payors, or that coverage and an adequate level of reimbursement will be available or that third-party payors' reimbursement policies will not adversely affect our ability to sell our product candidates profitably.

We rely on third party contract vendors to manufacture and supply us with high quality active pharmaceutical ingredients and manufacture our therapeutic candidates in the quantities we require on a timely basis.

We currently do not manufacture any active pharmaceutical ingredients (APIs). Instead, we rely on third-party vendors for the manufacture and supply of our APIs that are used to formulate our therapeutic candidates. We also do not currently own or operate manufacturing facilities and therefore rely, and expect to continue to rely, on third parties to manufacture clinical and commercial quantities of our therapeutic candidates and for quality assurance related to regulatory compliance. If these suppliers or manufacturers are incapable or unwilling to meet our current or future needs at our standards or on acceptable terms, if at all, we may be unable to locate alternative suppliers or manufacturers on acceptable terms, if at all, or produce necessary materials or components on our own.

While there may be several alternative suppliers of API in the market, changing API suppliers or finding and qualifying new API suppliers can be costly and can take a significant amount of time. Many APIs require significant lead time to manufacture. There can also be challenges in maintaining similar quality or technical standards from one manufacturing batch to the next. We place purchase orders with a single supplier to supply the API, and we could experience a delay in conducting clinical trials or obtaining regulatory approval for Pulmazole, PUR1800 or our other drug candidates and incur additional costs if we changed from this supplier for any reason. Similarly, replacing our manufacturers could cause us to incur added costs and experience delays in identifying, engaging, qualifying and training any such replacements.

If we are not able to find stable, affordable, high quality, or reliable supplies of the APIs, or if we are unable to maintain our existing or future third party manufacturing arrangements, we may not be able to produce enough supply of our therapeutic candidates or commercialize any therapeutic candidates on a timely and competitive basis, which could adversely affect our business, financial condition or results of operations.

In addition, some of our therapeutic candidates are administered via devices that we purchase from one or more third-party manufacturers. The devices that are currently used in our clinical trials have been cleared for commercialization in the U.S. through the FDA's 510(k) process. While we have no reason to believe that there are any manufacturing defects or other compliance concerns that could result in a recall or other adverse action against the third-party manufacturer of such devices, we cannot guarantee that issues will not arise in the future. We are uncertain as to how a recall (or other similar action) of the devices used in our clinical trials would impact the validity or acceptance of the results achieved in such trials.

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We may be required to take write-downs or write-offs, restructuring and impairment or other charges that could have a significant negative effect on our financial condition, results of operations and stock price, which could cause our investors to lose some or all of their investment.

During 2016, a full write-off was made of in-process research and development, \$4.5 million net of tax provision, acquired from the merger with Pulmatrix Operating Company. During 2016, we also concluded that the carrying amount of the goodwill exceeded its fair value and recorded a resulting impairment charge of \$5.0 million. We may be forced to take a further write down of the remaining goodwill which would result in losses. Even if due diligence successfully identified certain risks, unexpected risks may arise and previously known risks may materialize in a manner not consistent with our preliminary risk analysis. Even though these charges may be non-cash items and not have an immediate impact on liquidity, the fact that we report charges of this nature could contribute to negative market perceptions about our securities. In addition, charges of this nature may make future financing difficult to obtain on favorable terms or at all.

We may not be successful in negotiating for an appropriate price in a future sale or assignment of our rights related to our current drug candidates.

We may seek to sell or assign our rights related to our current drug candidates. If completed, any such sale or assignment may be at a substantial discount, the consideration received may not accurately represent the value of the assets sold or assigned and our stockholders may not be entitled to participate in the future prospects of such drug candidates.

We may not receive royalty or milestone revenue under our collaboration and license agreements for several years, or at all.

Certain of our collaboration and license agreements provide for payments on achievement of development or commercialization milestones and for royalties on product sales. However, because none of our drug candidates has been approved for commercial sale, many of our drug candidates are at early stages of development and drug development entails a high risk of failure, we may never realize much of the milestone revenue provided for in our collaboration and license agreements and we do not expect to receive any royalty revenue for several years, if at all. Similarly, drugs we select to commercialize ourselves or partner for later stage co-development and commercialization may not generate revenue for several years, or at all.

Our failure to successfully acquire, develop and market additional drug candidates or approved drug products could impair our ability to grow.

As part of our growth strategy, we may evaluate, acquire, license, develop and/or market additional product candidates and technologies. However, our internal research capabilities are limited, and we may be dependent upon pharmaceutical and biotechnology companies, academic scientists and other researchers to sell or license products or technology to us. The success of this strategy depends partly upon our ability to identify, select and acquire promising pharmaceutical product candidates and products. The process of proposing, negotiating and implementing a license or acquisition of a product candidate or approved product is lengthy and complex. Other companies, including some with substantially greater financial, marketing and sales resources, may compete with us for the license or acquisition of product candidates and approved products. We have limited resources to identify and execute the acquisition or in-licensing of third party products, businesses and technologies and integrate them into our current infrastructure. Moreover, we may devote resources to potential acquisitions or in-licensing opportunities that are never completed, or we may fail to realize the anticipated benefits of such efforts. We may not be able to acquire the rights to additional product candidates on terms that we find acceptable, or at all.

Any product candidate that we acquire may require additional development efforts prior to commercial sale, including extensive clinical testing and approval by the FDA and applicable foreign regulatory authorities. All

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product candidates are prone to risks of failure typical of pharmaceutical product development, including the possibility that a product candidate will not be shown to be sufficiently safe and effective for approval by regulatory authorities. In addition, we cannot provide assurance that any products that we develop or approved products that we acquire will be manufactured profitably or achieve market acceptance.

Our business strategy may include entry into additional collaborative or license agreements. We may not be able to enter into collaborative or license agreements or may not be able to negotiate commercially acceptable terms for these agreements.

Our current business strategy may include the entry into additional collaborative or license agreements for the development and commercialization of our product candidates and technologies. The negotiation and consummation of these types of agreements typically involve simultaneous discussions with multiple potential collaborators or licensees and require significant time and resources. In addition, in attracting the attention of pharmaceutical and biotechnology company collaborators or licensees, we compete with numerous other third parties with product opportunities as well as the collaborators or licensees own internal product opportunities. We may not be able to consummate collaborative or license agreements, or we may not be able to negotiate commercially acceptable terms for these agreements.

If we do enter into such arrangements, we could be dependent upon the subsequent success of these other parties in performing their respective responsibilities and the cooperation of our partners. Our collaborators may not cooperate with us or perform their obligations under our agreements with them. We cannot control the amount and timing of our collaborators resources that will be devoted to researching our product candidates pursuant to our collaborative agreements with them. Our collaborators may choose to pursue existing or alternative technologies in preference to those being developed in collaboration with us.

If we do not consummate collaborative or license agreements, we may use our financial resources more rapidly on our product development efforts, continue to defer certain development activities or forego the exploitation of certain geographic territories, any of which could have a material adverse effect on our business prospects.

Further, we may not be successful in overseeing any such collaborative arrangements. If we fail to establish and maintain necessary collaborative or license relationships, our business prospects could suffer.

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

We employ individuals and contract with independent consultants and agencies that may have previously worked at or conducted business with third parties; and, we may be subject to claims that we or our employees, consultants or agencies have inadvertently or otherwise used or disclosed confidential information of our employees former employers or other third parties. We may also be subject to claims that our employees former employers or other third parties have an ownership interest in our patents. Litigation may be necessary to defend against these claims. There is no guarantee of success in defending these claims, and if we are successful, litigation could result in substantial cost and be a distraction to our management and other employees.

Market and economic conditions may negatively impact our business, financial condition and share price.

Concerns over inflation, low energy prices, geopolitical issues, the U.S. financial markets and a declining real estate market, unstable global credit markets and financial conditions, and volatile oil prices have led to periods of significant economic instability, diminished liquidity and credit availability, declines in consumer confidence and

discretionary spending, diminished expectations for the global economy and expectations of slower global economic growth going forward, increased unemployment rates, and increased credit defaults in recent years.

Our general business strategy may be adversely affected by any such economic downturns, volatile business environments and continued unstable or unpredictable economic and market conditions. If these conditions

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continue to deteriorate or do not improve, it may make any necessary debt or equity financing more difficult to complete, more costly, and more dilutive. In addition, there is a risk that one or more of our current and future service providers, manufacturers, suppliers, hospitals and other medical facilities, our third party payors, and other partners could be negatively affected by difficult economic times, which could adversely affect our ability to attain our operating goals on schedule and on budget or meet our business and financial objectives.

If we fail to maintain proper and effective internal controls, our ability to produce accurate and timely financial statements could be impaired, which could harm our operating results, our ability to operate our business and investors views of us.

Ensuring that we have adequate internal financial and accounting controls and procedures in place so that we can produce accurate financial statements on a timely basis is a costly and time-consuming effort that will need to be evaluated frequently. Section 404 of the Sarbanes-Oxley Act requires public companies to conduct an annual review and evaluation of their internal controls. Our failure to maintain the effectiveness of our internal controls in accordance with the requirements of the Sarbanes-Oxley Act could have a material adverse effect on our business. We could lose investor confidence in the accuracy and completeness of our financial reports, which could have an adverse effect on the price of our common stock.

Risks Related to Regulatory Matters

Our product candidates must undergo rigorous nonclinical and clinical testing, and we must obtain regulatory approvals, which could be costly and time-consuming and subject us to unanticipated delays or prevent us from marketing any products. We cannot be certain that any of our current and future product candidates will receive regulatory approval, and without regulatory approval we will not be able to market our product candidates.

Our ability to generate revenue related to product sales, if ever, will depend on the successful development and regulatory approval of our product candidates. We currently have no products approved for sale, and we cannot guarantee that we will ever have marketable products. The development of a product candidate and issues relating to its approval and marketing are subject to extensive regulation, including regulation for safety, efficacy and quality, by the FDA in the United States and comparable regulatory authorities in other countries, with regulations differing from country to country. The FDA regulations and the regulations of comparable foreign regulatory authorities are wide-ranging and govern, among other things:

product design, development, manufacture and testing;

product labeling;

product storage and shipping;

pre-market clearance or approval;

advertising and promotion; and

product sales and distribution.

Clinical testing can be costly and take many years, and the outcome is uncertain and susceptible to varying interpretations. We cannot predict whether our current or future trials and studies will adequately demonstrate the safety and efficacy of any of our product candidates or whether regulators will agree with our conclusions regarding the preclinical studies and clinical trials we have conducted to date, including the clinical trials for Pulmazole. The clinical trials of our product candidates may not be completed on schedule, the FDA or foreign regulatory agencies may order us to stop or modify our research, or these agencies may not ultimately approve any of our product candidates for commercial sale. The data collected from our clinical trials may not be sufficient to support regulatory approval of our various product candidates. Even if we believe the data collected from our clinical trials are sufficient, the FDA has substantial discretion in the approval process and may disagree with our interpretation of the data.

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We are not permitted to market our product candidates in the United States until we receive approval of a new drug application (NDA) from the FDA. Obtaining approval of a NDA is a lengthy, expensive and uncertain process, and we may not be successful in obtaining approval. The FDA review processes can take years to complete and approval is never guaranteed. We cannot be certain that any of our submissions will be accepted for filing and review by the FDA.

The requirements governing the conduct of clinical trials and manufacturing and marketing of our product candidates outside the United States vary widely from country to country. Foreign approvals may take longer to obtain than FDA approvals and can require, among other things, additional testing and different clinical trial designs. Foreign regulatory approval processes include essentially all of the risks associated with the FDA approval processes. Some of those agencies also must approve prices of the products. Approval of a product by the FDA does not ensure approval of the same product by the health authorities of other countries, or vice versa.

In addition, changes in regulatory policy in the United States or in foreign countries for product approval during the period of product development and regulatory agency review of each submitted new application may cause delays or rejections.

If we are unable to obtain approval from the FDA or other regulatory agencies for our product candidates, or if, subsequent to approval, we are unable to successfully market and commercialize our product candidates, we will not be able to generate sufficient revenue to become profitable.

We have limited experience in filing and pursuing applications necessary to gain regulatory approvals, which may impede our ability to obtain timely approvals from the FDA or foreign regulatory agencies, if at all.

As a company, we have no experience in late-stage regulatory filings, such as preparing and submitting NDAs, which may place us at risk of delays, overspending and human resources inefficiencies. Any delay in obtaining, or inability to obtain, regulatory approval could harm our business.

Any failure by us to comply with existing regulations could harm our reputation and operating results.

We will be subject to extensive regulation by U.S. federal and state and foreign governments in each of the markets where we intend to sell our product candidates if and after we are approved. If we fail to comply with applicable regulations, including the FDA's pre-or post-approval current Good Manufacturing Practices requirements, then the FDA or other foreign regulatory authorities could sanction us. Even if a drug is FDA-approved, regulatory authorities may impose significant restrictions on a product's indicated uses or marketing or impose ongoing requirements for potentially costly post-marketing studies.

If a regulatory agency discovers previously unknown problems with a product, such as adverse events of unanticipated severity or frequency, or problems with the facility where the product is manufactured, or disagrees with the promotion, marketing or labeling of the product, the regulatory agency may impose restrictions on that product or us, including requiring withdrawal of the product from the market. If we fail to comply with applicable regulatory requirements, a regulatory agency or enforcement authority may:

issue warning letters;

impose civil or criminal penalties;

suspend regulatory approval;

suspend any of our ongoing clinical trials;

refuse to approve pending applications or supplements to approved applications submitted by us;

impose restrictions on our operations, including closing our contract manufacturers facilities; or

seize or detain products or require a product recall.

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Any government investigation of alleged violations of law could require us to expend significant time and resources in response, and could generate negative publicity. Any failure to comply with ongoing regulatory requirements may significantly and adversely affect our ability to commercialize and generate revenue from our product candidates. If regulatory sanctions are applied or if regulatory approval is withdrawn, our value and operating results will be adversely affected. Additionally, if we are unable to generate revenue from sales of our product candidates, our potential for achieving profitability will be diminished and the capital necessary to fund our operations will be increased.

Any action against us for violation of these laws, even if we successfully defend against it, could cause us to incur significant legal expenses, divert management's attention from the operation of our business and damage our reputation. We expend significant resources on compliance efforts and such expenses are unpredictable and might adversely affect our results. Changing laws, regulations and standards might also create uncertainty, higher expenses and increase insurance costs.

Any product candidate we advance into clinical trials may cause unacceptable adverse events or have other properties that may delay or prevent their regulatory approval or commercialization or limit their commercial potential.

Unacceptable adverse events caused by any of our product candidates in clinical trials could cause us or regulatory authorities to interrupt, delay or halt clinical trials and could result in the denial of regulatory approval by the FDA or other regulatory authorities for any or all targeted indications and markets. This, in turn, could prevent us from commercializing the affected product candidate and generating revenues from its sale. We have not yet completed testing of any of our product candidates for the treatment of the indications for which we intend to seek product approval in humans, and we currently do not know the extent of adverse events, if any, that will be observed in patients who receive any of our product candidates. If any of our product candidates cause unacceptable adverse events in clinical trials, we may not be able to obtain regulatory approval or commercialize such product or, if such product candidate is approved for marketing, future adverse events could cause us to withdraw such product from the market.

We and our third-party manufacturers are, and will be, subject to regulations of the FDA and other foreign regulatory authorities.

We and our contract manufacturers, including third-party device manufacturers from whom we purchase devices used for administration of our therapeutic candidates, are, and will be, required to adhere to laws, regulations and guidelines of the FDA or other foreign regulatory authorities setting forth current good manufacturing practices. These laws, regulations and guidelines cover all aspects of the manufacturing, testing, quality control and recordkeeping relating to our therapeutic candidates. We and our third-party manufacturers may not be able to comply with applicable laws, regulations and guidelines. We and our contract manufacturers are and will be subject to unannounced inspections by the FDA, state regulators and similar foreign regulatory authorities outside the United States. Our failure, or the failure of our third party manufacturers, to comply with applicable laws, regulations and guidelines could result in the imposition of sanctions on us, including fines, injunctions, civil penalties, failure of regulatory authorities to grant marketing approval of our therapeutic candidates, delays, suspension or withdrawal of approvals, license revocation, seizures or recalls of our therapeutic candidates, operating restrictions and criminal prosecutions, any of which could significantly and adversely affect regulatory approval and supplies of our therapeutic candidates, and materially and adversely affect our business, financial condition and results of operations.

Even if we obtain regulatory approvals, our therapeutic candidates will be subject to ongoing regulatory review. If we fail to comply with continuing U.S. and applicable foreign laws, regulations and guidelines, we could lose those

approvals, and our business would be seriously harmed.

Even if our therapeutic candidates receive regulatory approval, we or our commercialization partners, as applicable, will be subject to ongoing reporting obligations, including pharmacovigilance, and the therapeutic

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candidates and the manufacturing operations will be subject to continuing regulatory review, including inspections by the FDA or other foreign regulatory authorities. The results of this ongoing review may result in the withdrawal of a therapeutic candidate from the market, the interruption of the manufacturing operations and/ or the imposition of labeling and/or marketing limitations. Since many more patients are exposed to drugs following their marketing approval, serious but infrequent adverse reactions that were not observed in clinical trials may be observed during the commercial marketing of the therapeutic candidate. In addition, the manufacturer and the manufacturing facilities that we or our commercialization partners use to produce any therapeutic candidate will be subject to periodic review and inspection by the FDA and other foreign regulatory authorities. Later discovery of previously unknown problems with any therapeutic candidate, manufacturer or manufacturing process, or failure to comply with rules and regulatory requirements, may result in actions, including but not limited to the following:

restrictions on such therapeutic candidate, manufacturer or manufacturing process;

warning letters from the FDA or other foreign regulatory authorities;

withdrawal of the therapeutic candidate from the market;

suspension or withdrawal of regulatory approvals;

refusal to approve pending applications or supplements to approved applications submitted by us or our commercial partners;

voluntary or mandatory recall;

finest;

refusal to permit the import or export of our therapeutic candidates;

product seizure or detentions;

injunctions or the imposition of civil or criminal penalties; or

adverse publicity.

If we or our commercialization partners, suppliers, third party contractors or clinical investigators are slow to adapt, or are unable to adapt, to changes in existing regulatory requirements or the adoption of new regulatory requirements or policies, we or our commercialization partners may lose marketing approval for any of our therapeutic candidates if

any of our therapeutic candidates are approved, resulting in decreased or lost revenue from milestones, product sales or royalties.

Our employees may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements and insider trading.

We are exposed to the risk of employee fraud or other misconduct. Misconduct by employees could include intentional failures to comply with any regulations applicable to us, to provide accurate information to regulatory authorities, to comply with manufacturing standards we may have established, to comply with federal and state healthcare fraud and abuse laws and regulations, or to report financial information or data accurately or disclose unauthorized activities to us. In particular, sales, marketing and business arrangements in the healthcare industry are subject to extensive laws and regulations intended to prevent fraud, misconduct, kickbacks, self-dealing and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs and other business arrangements.

Employee misconduct could also involve the improper use of information obtained in the course of clinical trials, which could result in regulatory sanctions and serious harm to our reputation. We have adopted a Code of Business Conduct, but it is not always possible to identify and deter employee misconduct, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risk.

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We may be subject, directly or indirectly, to federal and state anti-kickback, false claims laws, transparency and reporting laws, and other fraud and abuse laws or similar healthcare regulations, which could expose us to significant liability, including but not limited to criminal sanctions, civil penalties, contractual damages, reputational harm and diminished profits and future earnings.

If we obtain FDA approval for any of our product candidates and begin commercializing those drugs in the United States, our operations may be subject to various federal and state fraud and abuse laws, including, without limitation, the federal Anti-Kickback Statute, the federal False Claims Act, and physician payment sunshine laws and regulations. These laws may impact, among other things, our potential sales, marketing and education programs as well as our arrangements with physicians, healthcare providers, patients, and others who may recommend, prescribe, purchase, or use our future products. The laws that may affect our ability to operate include:

The federal Anti-Kickback Statute, which makes it illegal for any person, including a prescription drug manufacturer (or a party acting on our behalf), to knowingly and willfully solicit, receive, offer or pay any remuneration in exchange for or to induce the referral of an individual for, or the purchase, order or recommendation of, any good or service, including the purchase, order or prescription of a particular drug for which payment may be made under a federal health care program, such as Medicare or Medicaid.

The federal False Claims Act, which prohibits anyone from knowingly and willfully presenting or causing to be presented for payment to the federal government, claims for reimbursed drugs or services that are false or fraudulent, claims for items or services that were not provided as claimed, or claims for medically unnecessary items or services. Cases have been brought under false claims laws alleging that off-label promotion of pharmaceutical products or the provision of kickbacks has resulted in the submission of false claims to governmental health care programs.

The Health Insurance Portability and Accountability Act of 1996 (HIPAA), which prohibits knowingly and willfully executing a scheme to defraud any health care benefit program, including private payers, or knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for health care benefits, items or services.

The federal transparency requirements under the Affordable Care Act, including the provision commonly referred to as the Physician Payments Sunshine Act, which requires manufacturers of drugs, biologics, devices and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program to report annually to the U.S. Department of Health and Human Services information related to payments or other transfers of value made to physicians and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members.

The federal Civil Monetary Penalties Law, which prohibits, among other things, the offering or transfer of remuneration to a Medicare or state healthcare program beneficiary if the person knows or should know it is likely to influence the beneficiary's selection of a particular provider, practitioner, or supplier of services reimbursable by Medicare or a state healthcare program, unless an exception applies.

State law equivalents of each of these statutes, as well other fraud and abuse laws and regulations, which may include prohibitions on self-referral and kickbacks, fee-splitting restrictions, prohibitions on the provision of products at no or discounted cost to induce physician or patient adoption, and false claims acts, transparency, reporting, and disclosure requirements, which may extend to services reimbursable by any third-party payer, including private insurers.

These laws are broadly written, and it is often difficult to determine precisely how the law will be applied in specific circumstances. Accordingly, it is possible that our practices may be challenged under these laws and

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there are no guarantees that the federal or state governments will find that these arrangements are designed properly or that they do not trigger liability under federal and state laws. Violations of fraud and abuse laws may be punishable by criminal and/or civil sanctions, including fines, penalties and/or exclusion or suspension from federal and state health care programs such as Medicare and Medicaid and debarment from contracting with the U.S. government and recoupment, as well as result in reputational harm. In addition, private individuals have the ability to bring actions on behalf of the government under the federal False Claims Act as well as under the false claims laws of several states.

The scope and enforcement of these laws are uncertain and subject to change in the current environment of healthcare reform. We cannot predict the impact on our business, financial condition nor results of operations of any changes in these laws. Any state or federal regulatory review of us, regardless of the outcome, would be costly and time-consuming. Law enforcement authorities are increasingly focused on enforcing these laws, and if we are challenged under one of these laws, we could be required to pay a fine and/or penalty and could be suspended or excluded from participation in federal or state health care programs, and our business, results of operations and financial condition may be adversely affected.

Risks Related to Our Financial Position and Need for Additional Capital

We will be required to raise additional capital to fund our operations, and we may not be able to continue as a going concern if we are unable to do so.

Pharmaceutical product development, which includes research and development, pre-clinical and clinical studies and human clinical trials, is a time-consuming and expensive process that takes years to complete. We anticipate that our expenses will increase substantially as we advance Pulmazole into Phase 2 trials and pursue development of PUR1800 or other iSPERSE-based product candidates and/or pursue development of iSPERSE-based pharmaceuticals in additional indications. Even with the net proceeds of approximately \$152,000 that we expect to receive in connection with the closing of the January Offering on January 31, 2019, based upon our current expectations and assuming receipt of net proceeds of approximately \$701,000 from this offering, we believe that our capital resources will enable us to continue planned operations to the end of March 2019. We cannot assure you, however, that our plans will not change or that changed circumstances will not result in the depletion of our capital resources more rapidly than we currently anticipate. We will need to raise additional funds, whether through the sale of equity or debt securities, the entry into strategic business collaborations, the establishment of other funding facilities, licensing arrangements, or asset sales or other means, in order to continue our research and development and clinical trial programs for our iSPERSE-based product candidates and to support our other ongoing activities. However, it may be difficult for us to raise additional funds through these planned measures if we are able to at all. Since inception, we have incurred losses each year and have an accumulated deficit of \$190.2 million as of September 30, 2018, which may raise concerns about our solvency and affect our ability to raise additional capital.

The amount of additional funds we need will depend on a number of factors, including:

rate of progress and costs of our clinical trials and research and development activities, including costs of procuring clinical materials and operating our manufacturing facilities;

our success in establishing strategic business collaborations or other sales or licensing of assets, and the timing and amount of any payments we might receive from any such transactions we are able to establish;

actions taken by the FDA and other regulatory authorities affecting our products and competitive products;

our degree of success in commercializing any of our product candidates;

the emergence of competing technologies and products and other adverse market developments;

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the costs of preparing, filing, prosecuting, maintaining and enforcing patent claims and other intellectual property rights or defending against claims of infringement by others;

the level of our legal expenses; and

the costs of discontinuing projects and technologies.

We have raised capital in the past primarily through debt and private placements of stock. We may in the future pursue the sale of additional equity and/or debt securities, or the establishment of other funding facilities including asset based borrowings. There can be no assurances, however, that we will be able to raise additional capital through such an offering on acceptable terms, or at all. Issuances of additional debt or equity securities could impact the rights of the holders of our common stock and may dilute their ownership percentage. Moreover, the establishment of other funding facilities may impose restrictions on our operations. These restrictions could include limitations on additional borrowing and specific restrictions on the use of our assets, as well as prohibitions on our ability to create liens, pay dividends, redeem our stock or make investments. We also may seek to raise additional capital by pursuing opportunities for the licensing or sale of certain intellectual property and other assets. We cannot offer assurances, however, that any strategic collaborations, sales of securities or sales or licenses of assets will be available to us on a timely basis or on acceptable terms, if at all.

In the event that sufficient additional funds are not obtained through strategic collaboration opportunities, sales of securities, funding facilities, licensing arrangements and/or asset sales on a timely basis, we will be required to reduce expenses through the delay, reduction or curtailment of our projects, including Pulmazole or PUR1800 development activities, or reduction of costs for facilities and administration. Moreover, if we do not obtain such additional funds, there will be continued doubt about our ability to continue as a going concern and increased risk of insolvency and loss of investment to the holders of our securities. If we are or become insolvent, investors in our stock may lose the entire value of their investment.

Our long-term capital requirements are subject to numerous risks.

Our long-term capital requirements are expected to depend on many potential factors, including, among others:

the number of product candidates in development;

the regulatory clarity and path of each of our product candidates;

the progress, success and cost of our clinical trials and research and development programs, including manufacturing;

the costs, timing and outcome of regulatory review and obtaining regulatory clarity and approval of our product candidates and addressing regulatory and other issues that may arise post-approval;

the costs of enforcing our issued patents and defending intellectual property-related claims;

the costs of manufacturing, developing sales, marketing and distribution channels;

our ability to successfully commercialize our product candidates, including securing commercialization agreements with third parties and favorable pricing and market share; and

our consumption of available resources more rapidly than currently anticipated, resulting in the need for additional funding sooner than anticipated.

Risks Related to Our Intellectual Property

We may be unable to adequately protect or enforce our rights to intellectual property, causing us to lose valuable rights. Loss of patent rights may lead us to lose market share and anticipated profits.

Our success, competitive position and future revenues depend, in part, on our ability to obtain patent protection for our products, methods, processes and other technologies, to preserve our trade secrets, to prevent third parties

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from infringing on our proprietary rights and to operate without infringing the proprietary rights of third parties. Despite our efforts to protect our proprietary technologies and processes, it is possible that competitors or other unauthorized third parties may obtain, copy, use or disclose proprietary technologies and processes.

We try to protect our proprietary position by, among other things, filing U.S., European and other patent applications related to our product candidates, methods, processes and other technologies, to prevent third parties from infringing on our proprietary rights and to operate without infringing the proprietary rights of third parties.

Because the patent position of pharmaceutical companies involves complex legal and factual questions, we cannot predict the validity and enforceability of patents with certainty. Our issued patents may not provide us with any competitive advantages, or may be held invalid or unenforceable as a result of legal challenges by third parties or could be circumvented. Our competitors may also independently develop inhaled drug delivery technologies or products similar to iSPERSE and iSPERSE-based product candidates or design around or otherwise circumvent patents issued to us. Thus, any patents that we own may not provide any protection against competitors. Our pending patent applications, those we may file in the future or those we may license from third parties may not result in patents being issued. Even if these patents are issued, they may not provide us with proprietary protection or competitive advantages. The degree of future protection to be afforded by our proprietary rights is uncertain because legal means afford only limited protection and may not adequately protect our rights or permit us to gain or keep our competitive advantage.

Patent rights are territorial, and accordingly, the patent protection we do have will only extend to those countries in which we have issued patents. Even so, the laws of certain countries do not protect our intellectual property rights to the same extent as do the laws of the United States and the European Union. Competitors may successfully challenge our patents, produce similar drugs or products that do not infringe our patents, or produce drugs in countries where we have not applied for patent protection or that do not respect our patents.

Furthermore, it is not possible to know the scope of claims that will be allowed in published applications and it is also not possible to know which claims of granted patents, if any, will be deemed enforceable in a court of law.

After the completion of prosecution and granting of our patents, third parties may still manufacture and/or market therapeutic candidates in infringement of our patent protected rights. Such manufacture and/or market of our product candidates in infringement of our patent protected rights is likely to cause us damage and lead to a reduction in the prices of our product candidates, thereby reducing our anticipated profits.

In addition, due to the extensive time needed to develop, test and obtain regulatory approval for our therapeutic candidates, any patents that protect our product candidate may expire early during commercialization. This may reduce or eliminate any market advantages that such patents may give us. Following patent expiration, we may face increased competition through the entry of generic products into the market and a subsequent decline in market share and profits.

In addition, in some cases we may rely on our licensors to conduct patent prosecution, patent maintenance or patent defense on our behalf. Therefore, our ability to ensure that these patents are properly prosecuted, maintained, or defended may be limited, which may adversely affect our rights in our therapeutic products. Any failure by our licensors or development partners to properly conduct patent prosecution, patent maintenance or patent defense could harm our ability to obtain approval or to commercialize our products, thereby reducing our anticipated profits.

If we are unable to protect the confidentiality of our trade secrets or know-how, such proprietary information may be used by others to compete against us.

In addition to filing patents, we generally try to protect our trade secrets, know-how and technology by entering into confidentiality or non-disclosure agreements with parties that have access to us, such as our development

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and/or commercialization partners, employees, contractors and consultants. We also enter into agreements that purport to require the disclosure and assignment to us of the rights to the ideas, developments, discoveries and inventions of our employees, advisors, research collaborators, contractors and consultants while employed or engaged by us. However, these agreements can be difficult and costly to enforce or may not provide adequate remedies. Any of these parties may breach the confidentiality agreements and willfully or unintentionally disclose our confidential information, or our competitors might learn of the information in some other way. The disclosure to, or independent development by, a competitor of any trade secret, know-how or other technology not protected by a patent could materially adversely affect any competitive advantage we may have over any such competitor.

To the extent that any of our employees, advisors, research collaborators, contractors or consultants independently develop, or use independently developed, intellectual property in connection with any of our products, disputes may arise as to the proprietary rights to this type of information. If a dispute arises with respect to any proprietary right, enforcement of our rights can be costly and unpredictable and a court may determine that the right belongs to a third party.

Legal proceedings or third-party claims of intellectual property infringement and other challenges may require us to spend substantial time and money and could prevent us from developing or commercializing our product candidates.

The development, manufacture, use, offer for sale, sale or importation of our product candidates may infringe on the claims of third-party patents or other intellectual property rights. The nature of claims contained in unpublished patent filings around the world is unknown to us, and it is not possible to know which countries patent holders may choose for the extension of their filings under the Patent Cooperation Treaty or other mechanisms. We may also be subject to claims based on the actions of employees and consultants with respect to the usage or disclosure of intellectual property learned at other employers. The cost to us of any intellectual property litigation or other infringement proceeding, even if resolved in our favor, could be substantial. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively because of their substantially greater financial resources. Uncertainties resulting from the initiation and continuation or defense of intellectual property litigation or other proceedings could have a material adverse effect on our ability to compete in the marketplace. Intellectual property litigation and other proceedings may also absorb significant management time. Consequently, we are unable to guarantee that we will be able to manufacture, use, offer for sale, sell or import our therapeutic candidates in the event of an infringement action.

In the event of patent infringement claims, or to avoid potential claims, we may choose or be required to seek a license from a third party and would most likely be required to pay license fees or royalties or both. These licenses may not be available on acceptable terms, or at all. Even if we were able to obtain a license, the rights may be non-exclusive, which could potentially limit our competitive advantage. Ultimately, we could be prevented from commercializing a product candidate or be forced to cease some aspect of our business operations if, as a result of actual or threatened patent infringement or other claims, we are unable to enter into licenses on acceptable terms. This inability to enter into licenses could harm our business significantly.

We cannot predict the future commercial use of our patents, and because we maintain numerous patents in our portfolio, we may spend considerable time and effort maintaining and protecting intellectual property rights of patents that may not contribute to our success and future revenues.

Our patent portfolio contains numerous granted and allowed patents, as well as pending patent applications in the United States and other jurisdictions, and it is difficult and costly to protect our intellectual property rights due to the complex nature of patent position of pharmaceutical companies. See *We may be unable to adequately protect or*

enforce our rights to intellectual property, causing us to lose valuable rights. Loss of patent rights may lead us to lose market share and anticipated profits. Despite the cost and the effort we spend in maintaining and protecting intellectual property rights of our patents, we cannot predict the future commercial use of our patents

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or patents which may eventually be issued from existing patent applications for any of our technologies. There is no guarantee that any of our patents or patents which may eventually be issued from existing patent applications for any of our technologies will generate any future revenues or contribute to our success.

We may be subject to other patent-related litigation or proceedings that could be costly to defend and uncertain in their outcome.

In addition to infringement claims against us, we may in the future become a party to other patent litigation or proceedings before regulatory agencies, including interference, re-examination Inter Partes review, or post grant review proceedings filed with the U.S. Patent and Trademark Office or opposition proceedings in other foreign patent offices regarding intellectual property rights with respect to our therapeutic candidates, as well as other disputes regarding intellectual property rights with development and/or commercialization partners, or others with whom we have contractual or other business relationships. Post-issuance oppositions are not uncommon and we or our development and/or commercialization partners will be required to defend these opposition procedures as a matter of course. Opposition procedures may be costly, and there is a risk that we may not prevail, which could harm our business significantly.

Risks Related to This Offering and Our Common Stock

The price of our common stock is subject to fluctuation and has been and may continue to be volatile.

The stock market in general, and Nasdaq in particular, as well as biotechnology companies, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of small companies. The market price of our common stock may fluctuate as a result of, among other factors:

the announcement of new products, new developments, services or technological innovations by us or our competitors;

actual or anticipated quarterly increases or decreases in revenue, gross margin or earnings, and changes in our business, operations or prospects;

announcements relating to strategic relationships, mergers, acquisitions, partnerships, collaborations, joint ventures, capital commitments, or other events by us or our competitors;

conditions or trends in the biotechnology and pharmaceutical industries;

changes in the economic performance or market valuations of other biotechnology and pharmaceutical companies;

general market conditions or domestic or international macroeconomic and geopolitical factors unrelated to our performance or financial condition;

purchase or sale of our common stock by stockholders, including executives and directors;

volatility and limitations in trading volumes of our common stock;

our ability to obtain financings to conduct and complete research and development activities including, but not limited to, our human clinical trials, and other business activities;

any delays or adverse developments or perceived adverse developments with respect to the FDA's review of our planned pre-clinical and clinical trials;

ability to secure resources and the necessary personnel to conduct clinical trials on our desired schedule;

failures to meet external expectations or management guidance;

changes in our capital structure or dividend policy, future issuances of securities, sales or distributions of large blocks of our common stock by stockholders;

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our cash position;

announcements and events surrounding financing efforts, including debt and equity securities;

our inability to enter into new markets or develop new products;

reputational issues;

analyst research reports, recommendations and changes in recommendations, price targets, and withdrawals of coverage;

departures and additions of key personnel;

disputes and litigation related to intellectual property rights, proprietary rights, and contractual obligations;

changes in applicable laws, rules, regulations, or accounting practices and other dynamics; and

other events or factors, many of which may be out of our control.

In addition, if the market for stocks in our industry or industries related to our industry, or the stock market in general, experiences a loss of investor confidence, the trading price of our common stock could fluctuate or decline for reasons unrelated to our business, financial condition and results of operations. If any of the foregoing occurs, it could cause our stock price to fall and may expose us to lawsuits that, even if unsuccessful, could be costly to defend and a distraction to management.

You may experience immediate and substantial dilution.

Because the price per share of common stock being offered in this offering may be substantially higher than the net tangible book value per share of our common stock, you may experience substantial dilution to the extent of the difference between the effective offering price per share of common stock you pay in this offering and the net tangible book value per share of our common stock immediately after this offering. Our net tangible book value as of September 30, 2018, was approximately \$1.7 million, or \$0.04 per share of common stock. Net tangible book value per share is equal to our total tangible assets minus total liabilities, all divided by the number of shares of common stock outstanding. See the section entitled *Dilution* on page S-37 below for a more detailed illustration of the dilution you may incur if you participate in this offering.

We may not be able to maintain the listing of our common stock on the Nasdaq Capital Market, which could adversely affect our liquidity and the trading volume and market price of our common stock and decrease or eliminate your investment.

On May 8, 2018, we received a notification letter from Nasdaq indicating that we did not meet the minimum bid price requirement set forth in Nasdaq Listing Rule 5450(a)(1) for continued listing on the Nasdaq Global Market. On November 6, 2018, we received approval from Nasdaq to transfer the listing of our common stock from the Nasdaq Global Market to the Nasdaq Capital Market. This transfer was effective at the opening of business on November 7, 2018.

Following the transfer of our listing to the Nasdaq Capital Market, we were granted an additional 180-day grace period to regain compliance with the Nasdaq's \$1.00 minimum bid price requirement. To regain compliance and qualify for continued listing on the Nasdaq Capital Market, the minimum bid price per share of our common stock must be at least \$1.00 for at least ten consecutive business days during the additional 180-day grace period, which will end on May 6, 2019.

On June 5, 2018, our stockholders authorized our board of directors, in its discretion but prior to the annual meeting of our stockholders in 2019, to amend our Amended and Restated Certificate of Incorporation (the "Certificate of Incorporation") to effect a reverse stock split of the our common stock at a ratio in the range of

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1-for-4 to 1-for-10, such ratio to be determined by our board of directors and included in a public announcement, with the primary intent of increasing the price of our common stock in order to meet the price criteria for continued listing on Nasdaq. As of the date of this prospectus, our board of directors has not determined a reverse stock split ratio or whether to effect a reverse stock split. Although we expect that a reverse stock split will initially result in an increase in the market price of our common stock, there can be no assurance that the market price per new share of our common stock after the reverse stock split will remain unchanged or increase in proportion to the reduction in the number of old shares of our common stock outstanding before the reverse stock split, and it may not result in a permanent increase in the market price of our common stock, which is dependent on many factors, including general economic, market and industry conditions and other factors detailed from time to time in the reports we file with the Securities and Exchange Commission.

If we do not regain compliance by May 6, 2019, Nasdaq will notify us that our common stock is subject to delisting. We would then be permitted to appeal any delisting determination to a Nasdaq Hearings Panel. Our common stock would remain listed on the Nasdaq Capital Market pending the panel's decision after the hearing. If we do not appeal the delisting determination or do not succeed in such an appeal, we may list our common stock on an over-the-counter exchange. Any such delisting determination could seriously decrease or eliminate the value of an investment in our common stock and other securities linked to our common stock. While a listing on an over-the-counter exchange could maintain some degree of a market in our common stock, we could face substantial material adverse consequences, including, but not limited to, the following: limited availability for market quotations for our common stock; reduced liquidity with respect to and decreased trading prices of our common stock; a determination that shares of our common stock are penny stock under SEC rules, subjecting brokers trading our common stock to more stringent rules on disclosure and the class of investors to which the broker may sell the common stock; limited news and analyst coverage for our Company, in part due to the penny stock rules; decreased ability to issue additional securities or obtain additional financing in the future; and potential breaches under or terminations of our agreements with current or prospective large stockholders, strategic investors and banks. The perception among investors that we are at heightened risk of delisting could also negatively affect the market price of our securities and trading volume of our common stock.

Our management team may invest or spend the proceeds raised in this offering in ways with which you may not agree or which may not yield a significant return.

Our management will have broad discretion over the use of proceeds from this offering. We intend to use the net proceeds from this offering for working capital and general corporate purposes. However, our management will have broad discretion in the application of the net proceeds from this offering and could spend the proceeds in ways that do not improve our results of operations or enhance the value of our common stock. The failure by management to apply these funds effectively could result in financial losses that could have a material adverse effect on our business, cause the price of our common stock to decline, and delay the development of our product candidates.

Financial reporting obligations of being a public company in the United States are expensive and time-consuming, and our management may be required to devote substantial time to compliance matters.

As a publicly traded company, we incur significant additional legal, accounting and other expenses that we did not incur as a privately held company. The obligations of being a public reporting company require significant expenditures, including costs resulting from public company reporting obligations under the Securities Exchange Act of 1934, as amended (the Exchange Act), and the rules and regulations regarding corporate governance practices, including those under the Sarbanes-Oxley Act, the Dodd-Frank Wall Street Reform and Consumer Protection Act, and the listing requirements of the Nasdaq Capital Market. These rules require the establishment and maintenance of effective disclosure and financial controls and procedures, internal control over financial reporting and corporate

governance practices, among many other complex rules that are often difficult and time consuming to implement, monitor and maintain compliance with. Moreover, despite recent reforms made possible by the JOBS Act, the reporting requirements, rules, and regulations will make some activities more

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time-consuming and costly, particularly after we are no longer an emerging growth company. In addition, these rules and regulations make it more difficult and more expensive for us to obtain director and officer liability insurance. Compliance with such requirements also places demands on management's time and attention.

In the foreseeable future, we do not intend to pay cash dividends on shares of our common stock so any investor gains will be limited to the value of our shares.

We currently anticipate that we will retain future earnings for the development, operation and expansion of our business and do not anticipate declaring or paying any cash dividends for the foreseeable future. Any gains to stockholders will therefore be limited to the increase, if any, in our share price.

We are an emerging growth company and our election to delay adoption of new or revised accounting standards applicable to public companies may result in our financial statements not being comparable to those of other public companies. As a result of this and other reduced disclosure requirements applicable to emerging growth companies, our securities may be less attractive to investors.

We are an emerging growth company, as defined in the JOBS Act, and we intend to take advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies including, but not limited to, not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. In addition, Section 107 of the JOBS Act also provides that an emerging growth company can take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act of 1933, as amended (the Securities Act), for complying with new or revised accounting standards.

In other words, an emerging growth company can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We are electing to delay such adoption of new or revised accounting standards, and as a result, we may not comply with new or revised accounting standards on the relevant dates on which adoption of such standards is required for non-emerging growth companies. As a result of such election, our financial statements may not be comparable to the financial statements of other public companies. We cannot predict whether investors will find our securities less attractive because it will rely on these exemptions. If some investors find our Common Stock less attractive as a result, there may be a less active trading market for our Common Stock and our stock price may be more volatile. We may take advantage of these reporting exemptions until we are no longer an emerging growth company. We could remain an emerging growth company until the earliest to occur of earliest of (i) the last day of the fiscal year in which we have total annual gross revenues of \$1.07 billion or more; (ii) December 31, 2019; (iii) the date on which we have issued more than \$1 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 SEC.

We may be at risk of securities class action litigation.

We may be at risk of securities class action litigation. This risk is especially relevant due to our dependence on positive clinical trial outcomes and regulatory approvals. In the past, biotechnology and pharmaceutical companies have experienced significant stock price volatility, particularly when associated with binary events such as clinical trials and product approvals. If we face such litigation, it could result in substantial costs and a diversion of management's attention and resources, which could harm our business and result in a decline in the market price of our common stock.

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We will need to issue additional equity securities in the future, which may result in dilution to existing investors and investors purchasing securities in this offering.

We will need to seek additional capital necessary to fund our operations through public or private equity offerings, debt financings, and collaborative and licensing arrangements. To the extent we raise additional capital by issuing equity securities, including in a debt financing where we issue convertible notes or notes with warrants and any shares of our common stock to be issued in a private placement, our stockholders may experience substantial dilution. We may, from time to time, sell additional equity securities in one or more transactions at prices and in a manner we determine. We cannot assure you that we will be able to sell shares of our common stock or other equity securities, including any common units, pre-funded units, common warrants, or pre-funded warrants, in any other offering at a price per share or unit that is equal to or greater than the price per unit paid by investors in this offering. The price per share at which we sell additional shares of our common stock or other securities convertible into or exchangeable for our common stock in future transactions may be higher or lower than the price per unit in this offering. If we sell additional equity securities, existing stockholders may be materially diluted. In addition, new investors could gain rights superior to existing stockholders, such as liquidation and other preferences. In addition, the exercise or conversion of outstanding options or warrants to purchase shares of capital stock may result in dilution to our stockholders upon any such exercise or conversion.

In addition, as of January 30, 2019, 5,211,645 shares remained available to be awarded under our Incentive Plan. Further, an aggregate of 9,702,348 shares of our common stock could be delivered upon the exercise or conversion of outstanding stock options or restricted stock units under the Incentive Plan and other equity incentive plans we previously assumed. We may also issue additional options, warrants and other types of equity in the future as part of stock-based compensation, capital raising transactions, technology licenses, financings, strategic licenses or other strategic transactions. To the extent these options are exercised, existing stockholders would experience additional ownership dilution. In addition, the number of shares available for future grant under our equity compensation plans may be increased in the future, as our equity compensation plan contains an evergreen provision, pursuant to which additional shares may be authorized for issuance under the plan each year.

Anti-takeover provisions under Delaware corporate law may make it difficult for our stockholders to replace or remove our board of directors and could deter or delay third parties from acquiring us, which may be beneficial to our stockholders.

We are subject to the anti-takeover provisions of Delaware law, including Section 203 of the General Corporation Law of Delaware (the "DGCL"). Under these provisions, if anyone becomes an interested stockholder, we may not enter into a business combination with that person for three (3) years without special approval, which could discourage a third party from making a takeover offer and could delay or prevent a change of control. For purposes of Section 203 of the DGCL, interested stockholder means, generally, someone owning fifteen percent (15%) or more of our outstanding voting stock or an affiliate that owned fifteen percent (15%) or more of our outstanding voting stock during the past three (3) years, subject to certain exceptions as described in Section 203 of the DGCL.

Protective provisions in our charter and bylaws could prevent a takeover which could harm our stockholders.

Our certificate of incorporation and bylaws contain a number of provisions that could impede a takeover or prevent us from being acquired, including, but not limited to, a classified board of directors and limitations on the ability of our stockholders to remove a director from office without cause. Each of these charter and bylaw provisions give our board of directors the ability to render more difficult or costly the completion of a takeover transaction that our stockholders might view as being in their best interests.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement and the accompanying prospectus and the information incorporated by reference in this prospectus supplement and the accompanying prospectus contain forward-looking statements, which include information relating to future events, future financial performance, strategies, expectations, competitive environment and regulation. Words such as may, should, could, would, predicts, potential, continue, expects, anticipates, intends, plans, believes, estimates, and similar expressions, as well as statements in future tense, identify forward-looking statements. Forward-looking statements should not be read as a guarantee of future performance or results and will probably not be accurate indications of when such performance or results will be achieved. Forward-looking statements are based on information we have when those statements are made or our management's good faith belief as of that time with respect to future events, and are subject to risks and uncertainties that could cause actual performance or results to differ materially from those expressed in or suggested by the forward-looking statements. Important factors that could cause such differences include, but are not limited to:

our history of recurring losses and negative cash flows from operating activities, significant future commitments and the uncertainty regarding the adequacy of our liquidity to pursue or complete our business objectives;

our inability to carry out research, development and commercialization plans;

our inability to manufacture our product candidates on a commercial scale on our own or in collaborations with third parties;

our inability to complete preclinical testing and clinical trials as anticipated and unanticipated delays in such trials;

our ability to adequately protect and enforce rights to intellectual property;

difficulties in obtaining financing on commercially reasonable terms, or at all;

intense competition in our industry, with competitors having substantially greater financial, technological, research and development, regulatory and clinical, manufacturing, marketing and sales, distribution and personnel resources than we do;

entry of new competitors and products and potential technological obsolescence of our products;

adverse market and economic conditions;

our ability to maintain the listing of our common stock on the Nasdaq Capital Market;

loss of one or more key executives or scientists; and

difficulties in securing regulatory approval to market our product candidates.

You should review carefully the section entitled "Risk Factors" beginning on page S-10 of this prospectus supplement for a discussion of these and other risks that relate to our business and investing in our securities. The forward-looking statements contained or incorporated by reference in this prospectus supplement are expressly qualified in their entirety by this cautionary statement. Except as required by applicable law, we do not undertake any obligation to publicly update any forward-looking statement contained in this prospectus supplement, the accompanying prospectus or the documents incorporated by reference herein to reflect events or circumstances after the date on which any such statement is made or to reflect the occurrence of unanticipated events. For all forward-looking statements, we claim the protection of the safe harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995.

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INFORMATION REGARDING THE MARKET FOR OUR COMMON STOCK

Our common stock trades on the NASDAQ Capital Market under the symbol PULM. The last reported sale price for our common stock on January 29, 2019, was \$0.1839 per share. As of January 29, 2019, we had approximately 191 holders of record of our common stock. The number of record holders was determined from the records of our transfer agent and does not include beneficial owners of common stock whose shares are held in the names of various security brokers, dealers, and registered clearing agencies.

DIVIDEND POLICY

We have not declared or paid any cash or other dividends on our capital stock, and we do not expect to declare or pay any cash or other dividends in the foreseeable future. We expect to retain our future earnings, if any, for use in the operation and expansion of our business. Subject to the foregoing, the payment of cash dividends in the future, if any, will be at the discretion of our board of directors and will depend upon such factors as earnings levels, contractual restrictions, capital requirements, our overall financial condition and any other factors deemed relevant by our board of directors.

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USE OF PROCEEDS

We expect to receive net proceeds from this offering of approximately \$701,000 after deducting the estimated underwriting discounts and commissions and the estimated offering expenses payable by us.

We intend to use the net proceeds from this offering for working capital and general corporate purposes.

Except as noted above, we have not determined the amounts we plan to spend on any of the areas listed above or the timing of these expenditures. As a result, our management will have broad discretion to allocate the net proceeds from this offering. Pending application of the net proceeds as described above, we intend to invest the net proceeds to us from this offering in a variety of capital preservation investments, including short-term, investment-grade and interest-bearing instruments.

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If you invest in our common stock, your interest will be diluted immediately to the extent of the difference between the offering price per share you will pay in this offering and the as adjusted net tangible book value per share of our common stock after this offering.

Our net tangible book value as of September 30, 2018 was approximately \$1.7 million, or \$0.04 per share of common stock. Net tangible book value per share is determined by dividing our total tangible assets, less total liabilities, by the number of shares of our common stock outstanding as of September 30, 2018. Dilution with respect to net tangible book value per share represents the difference between the amount per share paid by purchasers of shares of common stock in this offering and the net tangible book value per share of our common stock immediately after this offering.

After giving effect to our issuance and sale of 5,323,530 shares of common stock in this offering at the offering price of \$0.17 per share, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us, the as adjusted net tangible book value as of September 30, 2018 would have been approximately \$2.4 million, or \$0.05 per share. This represents an immediate increase in as adjusted net tangible book value to existing stockholders of \$0.01 per share and an immediate dilution to new investors purchasing securities in this offering of \$0.12 per share.

The following table illustrates this per share dilution.

Public offering price per common unit	\$ 0.17
Net tangible book value per share as of September 30, 2018	\$ 0.04
Increase in net tangible book value per share attributable to this offering	\$ 0.01
As adjusted net tangible book value per share as of September 30, 2018, after giving effect to this offering	\$ 0.05
Dilution per share to new investors purchasing our common stock in this offering	\$ 0.12

The above discussion and table are based on 46,927,221 shares outstanding as of September 30, 2018 and excludes as of that date:

3,284,440 shares of common stock issuable upon the exercise of warrants outstanding as of September 30, 2018 at a weighted average exercise price of \$7.79 per share;

10,413,544 shares of common stock issuable upon the exercise of options outstanding as of September 30, 2018 at a weighted average exercise price of \$2.32 per share pursuant to the Incentive Plan, the Original 2013 Plan and the 2003 Plan;

2,034,088 shares of common stock available for future issuance under the Incentive Plan as of September 30, 2018;

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24,650,000 shares of common stock issuable upon the exercise of Series A warrants at an exercise price of \$0.65 per share, which expired on October 3, 2018;

24,650,000 shares of common stock issuable upon the exercise of Series B warrants at an exercise price of \$0.75 per share;

6,875,000 shares of common stock issued since September 30, 2018, consisting of shares sold under the Company's Registration Statement on Form S-3 (File No. 333-212546) and shares of common stock issued after September 30, 2018 upon the exercise of pre-funded warrants at an exercise price of \$0.01 sold under the Company's Registration Statement on Form S-3 (File No. 333-212546);

1,561,177 shares of common stock expected to be issued in connection with the closing of the January Offering on January 31, 2019;

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101,477 shares of common stock issuable up on exercise of the underwriter's warrants with an exercise price of \$0.2125 to be issued to the underwriter to the January Offering on January 31, 2019;

9,375,000 shares of common stock issuable upon the exercise of warrants at an exercise price of \$0.39 per share;

2,500,000 shares of common stock issuable upon the exercise of pre-funded warrants at an exercise price of \$0.01 per share; and

346,030 shares of common stock issuable upon exercise of the underwriter's warrants with an exercise price of \$0.2125 to be issued to the underwriter in connection with this offering.

To the extent that outstanding exercisable options or warrants are exercised, you may 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 we raise additional capital by issuing equity or convertible debt securities, your ownership will be further diluted.

Table of Contents**UNDERWRITING**

We have entered into an underwriting agreement with H.C. Wainwright & Co., LLC, as underwriter dated January 30, 2019, with respect to the common stock being offered hereby. Subject to the terms and conditions of the underwriting agreement, the underwriter has agreed to purchase from us the number of shares of our common stock set forth opposite its name below.

Underwriter	Number of Shares
H.C. Wainwright & Co., LLC	5,323,530
Total	5,323,530

The underwriting agreement provides that the obligations of the underwriter are subject to certain conditions precedent and that the underwriter has agreed to purchase all of the shares sold under the underwriting agreement if any of these shares are purchased.

The underwriter is offering the shares, subject to prior sale, when, as and if issued to and accepted by it, subject to approval of legal matters by its counsel and other conditions specified in the underwriting agreement. The underwriter reserves the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

Underwriting Discounts and Commissions. The following table shows the public offering price, underwriting discounts and commissions and proceeds, before expenses to us.

We estimate that the total expenses of the offering, excluding underwriting discounts and commissions, will be approximately \$141,000 and is payable by us. Subject to compliance with FINRA Rule 5110(f), we have agreed to pay the underwriter \$15,000 for its non-accountable expenses, reimburse the expenses of the underwriter, including its legal fees, up to \$40,000 in connection with this offering, and \$10,000 for the clearing expenses of the underwriter in connection with this offering. We have also agreed to pay the underwriter a management fee equal to 1% of the aggregate gross proceeds in this offering.

	Per Share	Total
Public offering price	\$ 0.1700	\$ 905,000.10
Underwriting discounts and commissions	\$ 0.0119	\$ 63,350.01
Proceeds, before expenses	\$ 0.1581	\$ 841,650.09

The underwriter proposes to offer the shares of common stock to the public at the public offering price set forth on the cover of this prospectus. The underwriter may offer the shares of common stock to securities dealers at the public offering price less a concession not in excess of \$0.00765 per share. If all of the shares are not sold at the public offering price, the underwriter may change the offering price and other selling terms.

In addition, we have agreed to issue to the underwriter warrants to purchase up to 346,030 shares of common stock (representing 6.5% of the aggregate number of shares of common stock sold in this offering), at an exercise price of \$0.2125 per share (representing 125% of the public offering price for a share of common stock to be sold in this offering). The underwriter warrants will be exercisable immediately and for five years from the date of the underwriting agreement. Pursuant to FINRA Rule 5110(g), the underwriter warrants and any shares issued upon

exercise of the underwriter warrants shall not be sold, transferred, assigned, pledged, or hypothecated, or be the subject of any hedging, short sale, derivative, put or call transaction that would result in the effective economic disposition of the securities by any person for a period of 180 days immediately following the date of effectiveness or commencement of sales of this offering, except the transfer of any security: (i) by operation of law or by reason of our reorganization; (ii) to any FINRA member firm participating in the offering and the officers or partners thereof, if all securities so transferred remain subject to the lock-up restriction set forth above for the remainder of the time period; (iii) if the aggregate amount of our securities held by the

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underwriter or related persons do not exceed 1% of the securities being offered; (iv) that is beneficially owned on a pro-rata basis by all equity owners of an investment fund, provided that no participating member manages or otherwise directs investments by the fund and the participating members in the aggregate do not own more than 10% of the equity in the fund; or (v) the exercise or conversion of any security, if all securities remain subject to the lock-up restriction set forth above for the remainder of the time period.

Right of First Refusal. We have also granted the underwriter a twelve-month right of first refusal to act as sole book-running manager, sole underwriter or sole placement agent for each and every future public or private equity offering by us or any of our successors or subsidiaries, under certain circumstances.

Discretionary Accounts. The underwriter does not intend to confirm sales of the shares to any accounts over which it has discretionary authority.

Passive Market Making. In connection with this offering, the underwriter also may engage in passive market making transactions in our common stock in accordance with Regulation M during a period before the commencement of offers or sales of shares of our common stock in this offering and extending through the completion of the distribution. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for that security. However, if all independent bids are lowered below the passive market maker's bid that bid must then be lowered when specific purchase limits are exceeded. Passive market making may stabilize the market price of the securities at a level above that which might otherwise prevail in the open market and, if commenced, may be discontinued at any time.

Lock-Up Agreements. We have agreed not to issue, enter into any agreement to issue or announce the issuance or proposed issuance of any shares of common stock or any securities convertible into or exercisable or exchangeable for our common stock for a period of 30 days following the closing of this offering, and not effect or enter into an agreement to effect any variable rate transaction for a period of one year after the closing of this offering, without the prior written consent of H.C. Wainwright & Co., LLC. This consent may be given at any time without public notice.

We have not authorized and do not authorize the making of any offer of securities through any financial intermediary on our behalf, other than offers made by the underwriter and its respective affiliates, with a view to the final placement of the securities as contemplated in this prospectus supplement. Accordingly, no purchaser of the shares, other than the underwriter, is authorized to make any further offer of shares on our behalf or on behalf of the underwriter.

Electronic Offer, Sale and Distribution of Shares. A prospectus in electronic format may be made available on the websites maintained by the underwriter or selling group members, if any, participating in this offering and the underwriter participating in this offering may distribute prospectuses electronically. Other than the prospectus in electronic format, the information on these websites is not part of this prospectus or the registration statement of which this prospectus forms a part, has not been approved or endorsed by us or any underwriter in its capacity as underwriter, and should not be relied upon by investors.

Other Relationships. The underwriter and its respective affiliates have engaged in, and may in the future engage in, investment banking and other commercial dealings in the ordinary course of business with us or our affiliates. The underwriter has received, or may in the future receive, customary fees and commissions for these transactions.

Indemnification. We have agreed to indemnify the underwriter against specified liabilities, including liabilities under the Securities Act of 1933, as amended (the Securities Act), and to contribute to payments the underwriter may be required to make in respect thereof.

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NASDAQ Capital Market Listing. Our common stock is listed on the Nasdaq Capital Market under the symbol PULM.

Offers outside the United States. Other than in the United States, no action has been taken by us or the underwriter that would permit a public offering of the shares offered by this prospectus in any jurisdiction where action for that purpose is required. The shares offered by this prospectus may not be offered or sold, directly or indirectly, nor may this prospectus or any other offering material or advertisements in connection with the offer and sale of any such shares be distributed or published in any jurisdiction, except under circumstances that will result in compliance with the applicable rules and regulations of that jurisdiction. Persons into whose possession this prospectus comes are advised to inform themselves about and to observe any restrictions relating to the offering and the distribution of this prospectus. This prospectus does not constitute an offer to sell or a solicitation of an offer to buy any shares offered by this prospectus in any jurisdiction in which such an offer or a solicitation is unlawful.

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LEGAL MATTERS

The validity of the shares of common stock offered by this prospectus supplement has been passed upon for us by Haynes and Boone, LLP, New York, New York. Ellenoff Grossman & Schole LLP, New York, New York, is acting as counsel for the underwriter in connection with the shares of common stock offered hereby.

EXPERTS

The consolidated financial statements of Pulmatrix, Inc. as of December 31, 2017 and 2016, and for each of the two years in the period ended December 31, 2017, incorporated in this prospectus supplement by reference to the Annual Report on Form 10-K for the year ended December 31, 2017, have been so incorporated in reliance on the report of Marcum LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION;

INFORMATION INCORPORATED BY REFERENCE

Available Information

We have filed with the SEC a registration statement on Form S-3 under the Securities Act, of which this prospectus supplement forms a part. The rules and regulations of the SEC allow us to omit from this prospectus supplement and the accompanying prospectus certain information included in the registration statement. For further information about us and the securities we are offering under this prospectus supplement, you should refer to the registration statement and the exhibits and schedules filed with the registration statement. With respect to the statements contained in this prospectus supplement and the accompanying prospectus regarding the contents of any agreement or any other document, in each instance, the statement is qualified in all respects by the complete text of the agreement or document, a copy of which has been filed as an exhibit to the registration statement.

We file reports, proxy statements and other information with the SEC. The SEC maintains a website that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC. The address of the SEC's website is www.sec.gov.

We make available free of charge on or through our website at www.pulmatrix.com, our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, as soon as reasonably practicable after we electronically file such material with or otherwise furnish it to the Securities and Exchange Commission. The information on, or accessible through, our website is not part of, and is not incorporated into, this prospectus supplement or the accompanying prospectus and should not be considered part of this prospectus supplement or the accompanying prospectus.

Incorporation by Reference

The SEC's rules allow us to incorporate by reference information into this prospectus supplement, which means that we can disclose important information to you by referring you to another document filed separately with the SEC. The information incorporated by reference is deemed to be part of this prospectus supplement and the accompanying prospectus, and subsequent information that we file with the SEC will automatically update and supersede that information. Any statement contained in a previously filed document incorporated by reference will be deemed to be

modified or superseded for purposes of this prospectus supplement and accompanying prospectus to the extent that a statement contained in this prospectus supplement or the accompanying prospectus modifies or replaces that statement.

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We incorporate by reference our documents listed below and any future filings made by us with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act in this prospectus supplement, between the date of this prospectus supplement and the termination of the offering of the securities described in this prospectus supplement. We are not, however, incorporating by reference any documents or portions thereof, whether specifically listed below or filed in the future, that are not deemed filed with the SEC, including our Compensation Committee report and performance graph or any information furnished pursuant to Items 2.02 or 7.01 of Form 8-K or related exhibits furnished pursuant to Item 9.01 of Form 8-K.

This prospectus supplement and the accompanying prospectus incorporate by reference the documents set forth below that have previously been filed with the SEC:

our Annual Report on Form 10-K for the year ended December 31, 2017, filed with the SEC on March 13, 2018;

our Quarterly Reports on Form 10-Q for the quarter ended March 31, 2018, June 30, 2018, and September 30, 2018, filed with the SEC on May 11, 2018, August 3, 2018, and November 14, 2018, respectively;

our Current Reports on Form 8-K filed with the SEC on March 29, 2018, April 4, 2018, May 8, 2018, May 25, 2018, June 7, 2018, November 7, 2018; December 3, 2018, and January 30, 2019;

our Definitive Proxy Statement on Schedule 14A, filed with the SEC on April 26, 2018; and

the description of our common stock contained in our Registration Statement on Form S-4 (File No. 333-203417) filed with the SEC on April 15, 2015, as amended by Pre-Effective Amendment No. 1 to Registration Statement on Form S-4 filed on May 1, 2015 and Post-Effective Amendment No. 1 on Form S-3 to Registration Statement on Form S-4 filed on September 18, 2015, including any amendments or reports filed for the purpose of updating such description.

All reports and other documents we subsequently file pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the termination of this offering, including, but excluding any information furnished to, rather than filed with, the SEC, will also be incorporated by reference into this prospectus supplement and the accompanying prospectus and deemed to be part of this prospectus supplement and the accompanying prospectus from the date of the filing of such reports and documents.

You should rely only on the information incorporated by reference or provided in this prospectus. We have not authorized anyone else to provide you with different information. You should not assume that the information in this prospectus supplement is accurate as of any date other than the date of this prospectus supplement or the date of the documents incorporated by reference in this prospectus supplement.

You may request a free copy of any of the documents incorporated by reference in this prospectus supplement and the accompanying prospectus (other than exhibits, unless they are specifically incorporated by reference in the documents) by writing or telephoning us at the following address:

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Pulmatrix, Inc.

Attn: Secretary

99 Hayden Avenue, Suite 390

Lexington, MA 02421

(781) 357-2333

You may also access the documents incorporated by reference in this prospectus through our website at www.pulmatrix.com. Except for the specific incorporated documents listed above, no information available on or through our website shall be deemed to be incorporated in this prospectus or the registration statement of which it forms a part.

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PROSPECTUS

Pulmatrix, Inc.

\$30,000,000

Common Stock

Preferred Stock

Warrants

Units

We may offer and sell from time to time, in one or more series or issuances and on terms that we will determine at the time of the offering, any combination of the securities described in this prospectus, up to an aggregate amount of \$30,000,000.

We will provide specific terms of any offering in a supplement to this prospectus. Any prospectus supplement may also add, update, or change information contained in this prospectus. You should carefully read this prospectus and the applicable prospectus supplement as well as the documents incorporated or deemed to be incorporated by reference in this prospectus before you purchase any of the securities offered hereby.

These securities may be offered and sold in the same offering or in separate offerings; to or through underwriters, dealers, and agents; or directly to purchasers. The names of any underwriters, dealers, or agents involved in the sale of our securities, their compensation and any over-allotment options held by them will be described in the applicable prospectus supplement. See Plan of Distribution.

Our common stock is listed on the Nasdaq Global Market under the symbol PULM. On July 14, 2016, the last reported sale price of our common stock was \$2.18 per share. We recommend that you obtain current market quotations for our common stock prior to making an investment decision. We will provide information in any applicable prospectus supplement regarding any listing of securities other than shares of our common stock on any securities exchange.

As of July 14, 2016, the aggregate market value of our outstanding common stock held by non-affiliates, or the public float, was approximately \$15,152,443, which was calculated based on 6,950,662 shares of our outstanding common stock held by non-affiliates and a price of \$2.18 per share, the last reported sale price for our common stock on July 14, 2016. We have not offered any securities pursuant to General Instruction I.B.6 of Form S-3 during the 12 calendar months prior to and including the date of this prospectus.

You should carefully read this prospectus, any prospectus supplement relating to any specific offering of securities, and all information incorporated by reference herein and therein.

Investing in our securities involves a high degree of risk. These risks are discussed in this prospectus under Risk Factors beginning on page 6 and in the documents 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 passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus is August 3, 2016

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission using a shelf registration process. Under this shelf process, we may, from time to time, sell any combination of the securities described in this prospectus in one or more offerings up to a total amount of \$30,000,000.

This prospectus provides you with a general description of the securities we may offer. Each time we sell securities, we will provide a prospectus supplement that will contain specific information about the terms of that offering. The prospectus supplement may also add to, update or change information contained in the prospectus and, accordingly, to the extent inconsistent, information in this prospectus is superseded by the information in the prospectus supplement.

The prospectus supplement to be attached to the front of this prospectus may describe, as applicable: the terms of the securities offered; the public offering price; the price paid for the securities; net proceeds; and the other specific terms related to the offering of the securities.

You should only rely on the information contained or incorporated by reference in this prospectus and any prospectus supplement or issuer free writing prospectus relating to a particular offering. No person has been authorized to give any information or make any representations in connection with this offering other than those contained or incorporated by reference in this prospectus, any accompanying prospectus supplement and any related issuer free writing prospectus in connection with the offering described herein and therein, and, if given or made, such information or representations must not be relied upon as having been authorized by us. Neither this prospectus nor any prospectus supplement nor any related issuer free writing prospectus shall constitute an offer to sell or a solicitation of an offer to buy offered securities in any jurisdiction in which it is unlawful for such person to make such an offering or solicitation. This prospectus does not contain all of the information included in the registration statement. For a more complete understanding of the offering of the securities, you should refer to the registration statement, including its exhibits.

You should read the entire prospectus and any prospectus supplement and any related issuer free writing prospectus, as well as the documents incorporated by reference into this prospectus or any prospectus supplement or any related issuer free writing prospectus, before making an investment decision. Neither the delivery of this prospectus or any prospectus supplement or any issuer free writing prospectus nor any sale made hereunder shall under any circumstances imply that the information contained or incorporated by reference herein or in any prospectus supplement or issuer free writing prospectus is correct as of any date subsequent to the date hereof or of such prospectus supplement or issuer free writing prospectus, as applicable. You should assume that the information appearing in this prospectus, any prospectus supplement or any document incorporated by reference is accurate only as of the date of the applicable documents, regardless of the time of delivery of this prospectus or any sale of securities. Our business, financial condition, results of operations and prospects may have changed since that date.

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PROSPECTUS SUMMARY

This summary provides an overview of selected information contained elsewhere or incorporated by reference in this prospectus and does not contain all of the information you should consider before investing in our securities. You should carefully read the prospectus, the information incorporated by reference and the registration statement of which this prospectus is a part in their entirety before investing in our securities, including the information discussed under Risk Factors in this prospectus and the documents incorporated by reference and our financial statements and notes thereto that are incorporated by reference in this prospectus. As used in this prospectus, unless the context otherwise indicates, the terms we, our, us, or the Company refer to Pulmatrix, Inc., a Delaware corporation, and its subsidiaries taken as a whole.

The Company

We are a clinical stage biotechnology company focused on the discovery and development of novel inhaled therapeutic products intended to prevent and treat respiratory diseases and infections with significant unmet medical needs.

We design and develop inhaled therapeutic products based on our proprietary dry powder delivery technology, iSPERSE (inhaled Small Particles Easily Respirable and Emitted), which enables delivery of small or large molecule drugs to the lungs by inhalation for local or systemic applications. The iSPERSE powders are engineered to be small, dense particles with highly efficient dispersibility and delivery to airways. iSPERSE powders can be used with an array of dry powder inhaler technologies and can be formulated with a broad range of drug substances including small molecules and biologics. The iSPERSE dry powder technology offers enhanced drug loading and delivery efficiency that we believe offers the potential to outperform traditional lactose-blend inhaled dry powder therapies. Advantages of using the iSPERSE technology include reduced total inhaled powder mass, enhanced dosing efficiency, reduced cost of goods and improved safety and tolerability profiles. We are developing iSPERSE-based therapeutic candidates targeted at the prevention and treatment of a range of respiratory diseases, including cystic fibrosis, idiopathic pulmonary fibrosis and chronic obstructive pulmonary disease.

Corporate and Other Information

On June 15, 2015, pursuant to the Merger Agreement by and among our Company (previously known as Ruthigen, Inc., or Ruthigen), Ruthigen Merger Corp., a Delaware corporation and a wholly owned subsidiary of the Company (Merger Sub), and Pulmatrix Operating Company, a Delaware corporation (previously known as Pulmatrix Inc.) (Pulmatrix Operating), Merger Sub was merged with and into Pulmatrix Operating, with Pulmatrix Operating continuing after the merger as the surviving entity and our wholly owned subsidiary (the Merger). Ruthigen was incorporated in 2013 as a Nevada corporation and converted to a Delaware corporation in September 2013. Ruthigen operated as a wholly owned subsidiary of Oculus Innovative Sciences, Inc. (Oculus) until the completion of Ruthigen s initial public offering in March 2014. In connection with the Merger, we changed our name to Pulmatrix, Inc. and relocated our corporate headquarters to Lexington, Massachusetts. Our principal executive offices are located at 99 Hayden Avenue, Suite 390, Lexington, MA, 02421. Our telephone number is (781) 357-2333. Our website address is www.pulmatrix.com. Information on or accessed through our website is not incorporated into this prospectus and is not a part of this prospectus.

The Securities We May Offer

We may offer up to \$30,000,000 of common stock, preferred stock, warrants and/or units in one or more offerings and in any combination. This prospectus provides you with a general description of the securities we may offer. A

prospectus supplement, which we will provide each time we offer securities, will describe the specific amounts, prices and terms of these securities.

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Common Stock

We may issue shares of our common stock from time to time. The holders of our common stock are entitled to one vote per share. Our certificate of incorporation does not provide for cumulative voting. Our directors are divided into three classes. At each annual meeting of stockholders, directors elected to succeed those directors whose terms expire are elected for a term of office to expire at the third succeeding annual meeting of stockholders after their election. The holders of our common stock are entitled to receive ratably such dividends, if any, as may be declared by our board of directors out of legally available funds; however, the current policy of our board of directors is to retain earnings, if any, for operations and growth. In addition, pursuant to the Loan and Security Agreement, dated June 11, 2015, governing our term loan from Hercules Technology Growth Capital, Inc., we are prohibited from declaring or paying cash dividends or making any distributions on any class of our stock or equity interests. Upon liquidation, dissolution or winding-up, the holders of our common stock are entitled to share ratably in all assets that are legally available for distribution. The holders of our common stock have no preemptive, subscription, redemption or conversion rights. The rights, preferences and privileges of holders of our common stock are subject to, and may be adversely affected by, the rights of the holders of any series of preferred stock, which may be designated solely by action of our board of directors and issued in the future.

Preferred Stock

We may issue shares of our preferred stock from time to time, in one or more series. Our board of directors will determine the rights, preferences, privileges and restrictions of the preferred stock, including dividend rights, conversion rights, voting rights, terms of redemption, liquidation preferences, sinking fund terms and the number of shares constituting any series or the designation of such series, without any further vote or action by stockholders. Convertible preferred stock will be convertible into our common stock or exchangeable for our other securities. Conversion may be mandatory or at your option or both and would be at prescribed conversion rates.

If we sell any series of preferred stock under this prospectus and applicable prospectus supplements, we will fix the rights, preferences, privileges and restrictions of the preferred stock of such series in the certificate of designation relating to that series. We will file as an exhibit to the registration statement of which this prospectus is a part, or will incorporate by reference from reports that we file with the Securities and Exchange Commission, the form of any certificate of designation that describes the terms of the series of preferred stock we are offering before the issuance of the related series of preferred stock. We urge you to read the applicable prospectus supplement related to the series of preferred stock being offered, as well as the complete certificate of designation that contains the terms of the applicable series of preferred stock.

Warrants

We may issue warrants for the purchase of common stock or preferred stock in one or more series. We may issue warrants independently or together with common stock or preferred stock, 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 agreement. We may enter into warrant agreements with a bank or trust company that we select to be our 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.

In this prospectus, we have summarized certain general features of the warrants. We urge you, however, to read the applicable prospectus supplement related to the particular series of warrants being offered, as well as the warrant agreements and warrant certificates that contain the terms of the warrants. We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from reports that we file

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with the Securities and Exchange Commission, the form of warrant agreement or warrant certificate containing the terms of the warrants we are offering before the issuance of the warrants.

Units

We may issue units consisting of common stock, preferred stock and/or warrants for the purchase of common stock or preferred stock in one or more series. In this prospectus, we have summarized certain general features of the units. We urge you, however, to read the applicable prospectus supplement related to the series of units being offered, as well as the unit agreements that contain the terms of the units. We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference reports that we file with the Securities and Exchange Commission, the form of unit agreement and any supplemental agreements that describe the terms of the series of units we are offering before the issuance of the related series of units.

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RISK FACTORS

An investment in our securities involves a high degree of risk. The prospectus supplement applicable to each offering of our securities will contain a discussion of the risks applicable to an investment in our securities. Before deciding whether to invest in our securities, you should carefully consider the specific factors discussed under the heading "Risk Factors" in the applicable prospectus supplement, together with all of the other information contained or incorporated by reference in the prospectus supplement or appearing or incorporated by reference in this prospectus. You should also consider the risks, uncertainties and assumptions discussed under Item 1A, "Risk Factors," in our Annual Report on Form 10-K for the fiscal year ended December 31, 2015, which is incorporated herein by reference, 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 and any prospectus supplement related to a particular offering. The risks and uncertainties we have described are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect our operations. 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, business prospects, financial condition or results of operations 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 read carefully the section below entitled "Special Note Regarding Forward-Looking Statements."

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, each prospectus supplement and the information incorporated by reference in this prospectus and each prospectus supplement contain forward-looking statements, which include information relating to future events, future financial performance, strategies, expectations, competitive environment and regulation. Words such as may, should, could, would, predicts, potential, continue, expects, anticipates, future, intends, plans, similar expressions, as well as statements in future tense, identify forward-looking statements. Forward-looking statements should not be read as a guarantee of future performance or results and will probably not be accurate indications of when such performance or results will be achieved. Forward-looking statements are based on information we have when those statements are made or our management's good faith belief as of that time with respect to future events, and are subject to risks and uncertainties that could cause actual performance or results to differ materially from those expressed in or suggested by the forward-looking statements. Important factors that could cause such differences include, but are not limited to:

our history of recurring losses and negative cash flows from operating activities, significant future commitments and the uncertainty regarding the adequacy of our liquidity to pursue or complete our business objectives;

our inability to carry out research, development and commercialization plans;

our inability to manufacture our product candidates on a commercial scale on our own or in collaborations with third parties;

our inability to complete preclinical testing and clinical trials as anticipated;

our ability to adequately protect and enforce rights to intellectual property;

difficulties in obtaining financing on commercially reasonable terms, or at all;

intense competition in our industry, with competitors having substantially greater financial, technological, research and development, regulatory and clinical, manufacturing, marketing and sales, distribution and personnel resources than we do;

entry of new competitors and products and potential technological obsolescence of our products;

adverse market and economic conditions;

loss of one or more key executives or scientists; and

difficulties in securing regulatory approval to market our product candidates.

You should review carefully the section entitled "Risk Factors" beginning on page 5 of this prospectus for a discussion of these and other risks that relate to our business and investing in our securities. The forward-looking statements contained or incorporated by reference in this prospectus or any prospectus supplement are expressly qualified in their entirety by this cautionary statement. We do not undertake any obligation to publicly update any forward-looking statement to reflect events or circumstances after the date on which any such statement is made or to reflect the occurrence of unanticipated events.

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USE OF PROCEEDS

Unless we specify another use in the applicable prospectus supplement, we will use the net proceeds from the sale of the securities offered by us for general corporate purposes, which may include, among other things, debt repayment, working capital and/or capital expenditures.

We may also use such proceeds to fund acquisitions of product candidates or technologies that complement our current business. We may set forth additional information on the use of net proceeds from the sale of the securities we offer under this prospectus in a prospectus supplement related to a specific offering.

Investors are cautioned, however, that expenditures may vary substantially from these uses. Investors will be relying on the judgment of our management, who will have broad discretion regarding the application of the proceeds of this offering. The amounts and timing of our actual expenditures will depend upon numerous factors, including the amount of cash generated by our operations, the amount of competition and other operational factors. We may find it necessary or advisable to use portions of the proceeds from this offering for other purposes.

From time to time, we evaluate these and other factors and we anticipate continuing to make such evaluations to determine if the existing allocation of resources, including the proceeds of this offering, is being optimized. Circumstances that may give rise to a change in the use of proceeds include:

a change in development plan or strategy;

delays or difficulties with our clinical trials;

negative results from our clinical trials;

difficulty obtaining regulatory approval;

failure to achieve sales as anticipated;

the addition of new product candidates or technologies;

our ability to negotiate definitive agreement with acquisition candidates;

the availability and terms of debt financing to fund a portion of the purchase price(s) for potential acquisitions; and

the availability of other sources of cash including cash flow from operations and new bank debt financing arrangements, if any.

Pending other uses, we intend to invest the proceeds to us in investment-grade, interest-bearing securities such as money market funds, certificates of deposit, or direct or guaranteed obligations of the U.S. government, or hold as cash. We cannot predict whether the proceeds invested will yield a favorable, or any, return.

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DESCRIPTION OF CAPITAL STOCK

The following description of common stock and preferred stock summarizes the material terms and provisions of the common stock and preferred stock that we may offer under this prospectus, but is not complete. For the complete terms of our common stock and preferred stock, please refer to our amended and restated certificate of incorporation, as amended, any certificates of designation for our preferred stock, and our restated bylaws, as amended, as may be amended from time to time. While the terms we have summarized below will apply generally to any future common stock or preferred stock that we may offer, we will describe the specific terms of any series of preferred stock in more detail in the applicable prospectus supplement. If we so indicate in a prospectus supplement, the terms of any preferred stock we offer under that prospectus supplement may differ from the terms we describe below.

We have authorized 100,500,000 shares of capital stock, par value \$0.0001 per share, of which 100,000,000 are shares of common stock and 500,000 are shares of blank check preferred stock. As of July 14, 2016, there were 14,651,909 shares of common stock issued and outstanding (excluding 198,617 shares of common stock deliverable on a delayed basis pursuant to restricted stock units that have vested) and no shares of preferred stock issued and outstanding. The authorized and unissued shares of common stock and the authorized and undesignated shares of preferred stock are available for issuance without further action by our stockholders, unless such action is required by applicable law or the rules of any stock exchange on which our securities may be listed. Unless approval of our stockholders is so required, our board of directors does not intend to seek stockholder approval for the issuance and sale of our common stock or preferred stock.

Common Stock

The holders of our common stock are entitled to one vote per share. Our certificate of incorporation does not provide for cumulative voting. Our directors are divided into three classes. At each annual meeting of stockholders, directors elected to succeed those directors whose terms expire are elected for a term of office to expire at the third succeeding annual meeting of stockholders after their election. The holders of our common stock are entitled to receive ratably such dividends, if any, as may be declared by our board of directors out of legally available funds; however, the current policy of our board of directors is to retain earnings, if any, for operations and growth. Upon liquidation, dissolution or winding-up, the holders of our common stock are entitled to share ratably in all assets that are legally available for distribution. The holders of our common stock have no preemptive, subscription, redemption or conversion rights. The rights, preferences and privileges of holders of our common stock are subject to, and may be adversely affected by, the rights of the holders of any series of preferred stock, which may be designated solely by action of our board of directors and issued in the future.

The transfer agent and registrar for our common stock is Vstock Transfer, LLC. The transfer agent's address is 18 Lafayette Place, Woodmere, NY 11598. Our common stock is listed on the Nasdaq Global Market under the symbol PULM.

Preferred Stock

The board of directors is authorized, subject to any limitations prescribed by law, without further vote or action by the stockholders, to issue from time to time shares of preferred stock in one or more series. Each such series of preferred stock shall have such number of shares, designations, preferences, voting powers, qualifications, and special or relative rights or privileges as shall be determined by the board of directors, which may include, among others, dividend rights, voting rights, liquidation preferences, conversion rights and preemptive rights. Issuance of preferred stock by our board of directors may result in such shares having dividend and/or liquidation preferences senior to the rights of the holders of our common stock and could dilute the voting rights of the holders of our common stock.

Prior to the issuance of shares of each series of preferred stock, the board of directors is required by the Delaware General Corporation Law and our certificate of incorporation to adopt resolutions and file a certificate

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of designation with the Secretary of State of the State of Delaware. The certificate of designation fixes for each class or series the designations, powers, preferences, rights, qualifications, limitations and restrictions, including, but not limited to, some or all of the following:

the number of shares constituting that series and the distinctive designation of that series, which number may be increased or decreased (but not below the number of shares then outstanding) from time to time by action of the board of directors;

the dividend rate and the manner and frequency of payment of dividends on the shares of that series, whether dividends will be cumulative, and, if so, from which date;

whether that series will have voting rights, in addition to any voting rights provided by law, and, if so, the terms of such voting rights;

whether that series will have conversion privileges, and, if so, the terms and conditions of such conversion, including provision for adjustment of the conversion rate in such events as the board of directors may determine;

whether or not the shares of that series will be redeemable, and, if so, the terms and conditions of such redemption;

whether that series will have a sinking fund for the redemption or purchase of shares of that series, and, if so, the terms and amount of such sinking fund;

whether or not the shares of the series will have priority over or be on a parity with or be junior to the shares of any other series or class in any respect;

the rights of the shares of that series in the event of voluntary or involuntary liquidation, dissolution or winding up of the corporation, and the relative rights or priority, if any, of payment of shares of that series; and

any other relative rights, preferences and limitations of that series.

Once designated by our board of directors, each series of preferred stock may have specific financial and other terms that will be described in a prospectus supplement. The description of the preferred stock that is set forth in any prospectus supplement is not complete without reference to the documents that govern the preferred stock. These include our certificate of incorporation and any certificates of designation that our board of directors may adopt.

All shares of preferred stock offered hereby will, when issued, be fully paid and nonassessable, including shares of preferred stock issued upon the exercise of preferred stock warrants or subscription rights, if any.

Although our board of directors has no intention at the present time of doing so, it could authorize the issuance of a series of preferred stock that could, depending on the terms of such series, impede the completion of a merger, tender offer or other takeover attempt.

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

Delaware Anti-Takeover Law

We are subject to Section 203 of the Delaware General Corporation Law. Section 203 generally prohibits a public Delaware corporation from engaging in a business combination with an interested stockholder for a period of three years after the date of the transaction in which the person became an interested stockholder, unless:

prior to the date of the transaction, the board of directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;

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the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the number of shares outstanding (i) shares owned by persons who are directors and also officers and (ii) shares owned by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or

on or subsequent to the date of the transaction, the business combination is approved by the board and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66 2/3% of the outstanding voting stock which is not owned by the interested stockholder.

Section 203 defines a business combination to include:

any merger or consolidation involving the corporation and the interested stockholder;

any sale, transfer, pledge or other disposition involving the interested stockholder of 10% or more of the assets of the corporation;

subject to exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder; or

the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

In general, Section 203 defines an interested stockholder as any entity or person beneficially owning 15% or more of the outstanding voting stock of the corporation and any entity or person affiliated with, or controlling, or controlled by, the entity or person. The term *owner* is broadly defined to include any person that, individually, with or through that person's affiliates or associates, among other things, beneficially owns the stock, or has the right to acquire the stock, whether or not the right is immediately exercisable, under any agreement or understanding or upon the exercise of warrants or options or otherwise or has the right to vote the stock under any agreement or understanding, or has an agreement or understanding with the beneficial owner of the stock for the purpose of acquiring, holding, voting or disposing of the stock.

The restrictions in Section 203 do not apply to corporations that have elected, in the manner provided in Section 203, not to be subject to Section 203 of the Delaware General Corporation Law or, with certain exceptions, which do not have a class of voting stock that is listed on a national securities exchange or held of record by more than 2,000 stockholders. Our certificate of incorporation and bylaws do not opt out of Section 203.

Section 203 could delay or prohibit mergers or other takeover or change in control attempts with respect to us and, accordingly, may discourage attempts to acquire us even though such a transaction may offer our stockholders the opportunity to sell their stock at a price above the prevailing market price.

Certificate of Incorporation and Bylaws

Provisions of our certificate of incorporation and bylaws may delay or discourage transactions involving an actual or potential change in our control or change in our management, including transactions in which stockholders might otherwise receive a premium for their shares, or transactions that our stockholders might otherwise deem to be in their best interests. Therefore, these provisions could adversely affect the price of our common stock. Among other things, our certificate of incorporation and bylaws:

permit our board of directors to issue up to 500,000 shares of preferred stock, without further action by the stockholders, with any rights, preferences and privileges as they may designate, including the right to approve an acquisition or other change in control;

provide that the authorized number of directors may be changed only by a resolution adopted by a majority of the whole board of directors;

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provide that all vacancies, including newly created directorships, may, except as otherwise required by law, be filled by a majority vote of the directors then in office, even if less than a quorum;

divide our board of directors into three classes, with each class serving staggered three-year terms;

do not provide for cumulative voting rights (therefore allowing the holders of a majority of the shares of common stock entitled to vote at any election of directors to elect all of the directors standing for election, if they should so choose); and

provide that special meetings of our stockholders may be called only by a resolution adopted by a majority of the whole board of directors.

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DESCRIPTION OF WARRANTS

As of July 14, 2016, there were 3,190,030 shares of common stock that may be issued upon exercise of outstanding warrants.

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

We will evidence each series of warrants by warrant certificates that we may issue under a separate agreement. We may enter into a warrant agreement with a warrant agent. Each warrant agent may be a bank or transfer agent that we select which has its principal office in the United States. We may also choose to act as our own warrant agent. We will indicate the name and address of any such 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;

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 common stock or preferred stock, the number or amount 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 and currency in which these shares may be purchased upon such exercise;

the manner of exercise of the warrants, including any cashless exercise rights;

the warrant agreement under which the warrants will be issued;

the effect of any merger, consolidation, sale or other disposition of our business on the warrant agreement and the warrants;

anti-dilution provisions of the warrants, if any;

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 dates on which the right to exercise the warrants will commence and expire or, if the warrants are not continuously exercisable during that period, the specific date or dates on which the warrants will be exercisable;

the manner in which the warrant agreement and warrants may be modified;

the identities of the warrant agent and any calculation or other agent for the warrants;

federal income tax consequences of holding or exercising the warrants;

the terms of the securities issuable upon exercise of the warrants;

any securities exchange or quotation system on which the warrants or any securities deliverable upon exercise of the warrants may be listed or quoted; and

any other specific terms, preferences, rights or limitations of or restrictions on the warrants.

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Before exercising their warrants, holders of warrants will not have any of the rights of holders of the securities purchasable upon such exercise, including, in the case of warrants to purchase common stock or preferred stock, the right to receive dividends, if any, or, payments upon our liquidation, dissolution or winding up or to exercise voting rights, if any.

Exercise of Warrants

Each warrant will entitle the holder to purchase the securities that we specify in the applicable prospectus supplement at the exercise price that we describe in the applicable prospectus supplement. Unless we otherwise specify in the applicable prospectus supplement, holders of the warrants may exercise the warrants at any time up to 5:00 P.M. eastern time, the close of business, on the expiration date that we set forth in the applicable prospectus supplement. After the close of business on the expiration date, unexercised warrants will become void.

Holders of the warrants may exercise the warrants by delivering the warrant certificate representing the warrants to be exercised together with specified information, and paying the required exercise price by the methods provided in the applicable prospectus supplement. We will set forth on the reverse side of the warrant certificate, and in the applicable prospectus supplement, the information that the holder of the warrant will be required to deliver to the warrant agent.

Upon receipt of the required payment and the warrant certificate properly completed and duly executed at the corporate trust office of the warrant agent or any other office indicated in the applicable prospectus supplement, we will issue and deliver the securities purchasable upon such exercise. If fewer than all of the warrants represented by the warrant certificate are exercised, then we will issue a new warrant certificate for the remaining amount of warrants.

Enforceability of Rights By Holders of Warrants

Any warrant agent will act solely as our agent under the applicable warrant agreement and will not assume any obligation or relationship of agency or trust with any holder of any warrant. A single bank or trust company may act as warrant agent for more than one issue of warrants. A warrant agent will have no duty or responsibility in case of any default by us under the applicable warrant agreement or warrant, including any duty or responsibility to initiate any proceedings at law or otherwise, or to make any demand upon us. Any holder of a warrant may, without the consent of the related warrant agent or the holder of any other warrant, enforce by appropriate legal action the holder's right to exercise, and receive the securities purchasable upon exercise of, its warrants in accordance with their terms.

Warrant Agreement Will Not Be Qualified Under Trust Indenture Act

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

Governing Law

Each warrant agreement and any warrants issued under the warrant agreements will be governed by New York law.

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DESCRIPTION OF UNITS

We may issue units comprised of one or more of the other securities described in this prospectus or any prospectus supplement in any combination. Each unit will be issued so that the holder of the unit is also the holder, with the rights and obligations of a holder, of each security included in the unit. 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 times before a specified date or upon the occurrence of a specified event or occurrence.

The applicable prospectus supplement will describe:

the designation and the 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 unit agreement under which the units will be issued;

any provisions for the issuance, payment, settlement, transfer or exchange of the units or of the securities comprising the units; and

whether the units will be issued in fully registered or global form.

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PLAN OF DISTRIBUTION

We may sell the securities being offered pursuant to this prospectus to or through underwriters, through dealers, through agents, or directly to one or more purchasers or through a combination of these methods. The applicable prospectus supplement will describe the terms of the offering of the securities, including:

the name or names of any underwriters, if any, and if required, any dealers or agents;

the purchase price of the securities and the proceeds we will receive from the sale;

any underwriting discounts and other items constituting underwriters' compensation;

any discounts or concessions allowed or reallocated or paid to dealers; and

any securities exchange or market on which the securities may be listed or traded.

We may distribute the securities from time to time in one or more transactions at:

a fixed price or prices, which may be changed;

market prices prevailing at the time of sale, directly by us or through a designated agent;

prices related to such prevailing market prices; or

negotiated prices.

Only underwriters named in the prospectus supplement are underwriters of the securities offered by the prospectus supplement.

If underwriters are used in an offering, we will execute an underwriting agreement with such underwriters and will specify the name of each underwriter and the terms of the transaction (including any underwriting discounts and other terms constituting compensation of the underwriters and any dealers) in a prospectus supplement. The securities may be offered to the public either through underwriting syndicates represented by managing underwriters or directly by one or more investment banking firms or others, as designated. If an underwriting syndicate is used, the managing underwriter(s) will be specified on the cover of the prospectus supplement. If underwriters are used in the sale, the offered securities will be acquired by the underwriters for their own accounts and may be resold from time to time in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. Any public offering price and any discounts or concessions allowed or reallocated or paid to dealers may be changed from time to time. Unless otherwise set forth in the prospectus supplement, the

obligations of the underwriters to purchase the offered securities will be subject to conditions precedent, and the underwriters will be obligated to purchase all of the offered securities, if any are purchased.

We may grant to the underwriters options to purchase additional securities to cover over-allotments, if any, at the public offering price, with additional underwriting commissions or discounts, as may be set forth in a related prospectus supplement. The terms of any over-allotment option will be set forth in the prospectus supplement for those securities.

If we use a dealer in the sale of the securities being offered pursuant to this prospectus or any prospectus supplement, we will sell the securities to the dealer, as principal. The dealer may then resell the securities to the public at varying prices to be determined by the dealer at the time of resale. The names of the dealers and the terms of the transaction will be specified in a prospectus supplement.

We may sell the securities directly or through agents we designate from time to time. We will name any agent involved in the offering and sale of securities and we will describe any commissions we will pay the agent in the prospectus supplement. Unless the prospectus supplement states otherwise, any agent will act on a best-efforts basis for the period of its appointment.

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We may authorize agents or underwriters to solicit offers by institutional investors to purchase securities from us at the public offering price set forth in the prospectus supplement pursuant to delayed delivery contracts providing for payment and delivery on a specified date in the future. We will describe the conditions to these contracts and the commissions we must pay for solicitation of these contracts in the prospectus supplement.

In connection with the sale of the securities, underwriters, dealers or agents may receive compensation from us or from purchasers of the securities for whom they act as agents, in the form of discounts, concessions or commissions. Underwriters may sell the securities to or through dealers, and those dealers may receive compensation in the form of discounts, concessions or commissions from the underwriters or commissions from the purchasers for whom they may act as agents. Underwriters, dealers and agents that participate in the distribution of the securities, and any institutional investors or others that purchase securities directly for the purpose of resale or distribution, may be deemed to be underwriters, and any discounts or commissions received by them from us and any profit on the resale of the common stock by them may be deemed to be underwriting discounts and commissions under the Securities Act of 1933, as amended.

We may provide agents, underwriters and other purchasers with indemnification against particular civil liabilities, including liabilities under the Securities Act of 1933, as amended, or contribution with respect to payments that the agents, underwriters or other purchasers may make with respect to such liabilities. Agents and underwriters may engage in transactions with, or perform services for, us in the ordinary course of business.

To facilitate the public offering of a series of securities, persons participating in the offering may engage in transactions that stabilize, maintain, or otherwise affect the market price of the securities. This may include over-allotments or short sales of the securities, which involves the sale by persons participating in the offering of more securities than have been sold to them by us. In addition, those persons may stabilize or maintain the price of the securities by bidding for or purchasing securities in the open market or by imposing penalty bids, whereby selling concessions allowed to underwriters or dealers participating in any such offering may be reclaimed if securities sold by them are repurchased in connection with stabilization transactions. The effect of these transactions may be to stabilize or maintain the market price of the securities at a level above that which might otherwise prevail in the open market. Such transactions, if commenced, may be discontinued at any time. We make no representation or prediction as to the direction or magnitude of any effect that the transactions described above, if implemented, may have on the price of our securities.

Unless otherwise specified in the applicable prospectus supplement, any common stock sold pursuant to a prospectus supplement will be eligible for listing on the Nasdaq Global Market, subject to official notice of issuance. Any underwriters to whom securities are sold by us for public offering and sale may make a market in the securities, but such underwriters will not be obligated to do so and may discontinue any market making at any time without notice.

In order to comply with the securities laws of some states, if applicable, the securities offered pursuant to this prospectus will be sold in those states only through registered or licensed brokers or dealers. In addition, in some states securities may not be sold unless they have been registered or qualified for sale in the applicable state or an exemption from the registration or qualification requirement is available and complied with.

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LEGAL MATTERS

The validity of the securities offered by this prospectus will be passed upon by Haynes and Boone, LLP, New York, New York.

EXPERTS

The financial statements incorporated in this prospectus by reference to the Annual Report on Form 10-K for the fiscal year ended December 31, 2015 have been so incorporated in reliance on the report of Marcum LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We are subject to the informational requirements of the Securities Exchange Act of 1934, as amended, and in accordance therewith file annual, quarterly and current reports, proxy statements and other information with the Securities and Exchange Commission. Such reports, proxy statements and other information can be read and copied at the Securities and Exchange Commission's public reference facilities at 100 F Street, N.E., Washington, D.C. 20549, at prescribed rates. Please call the Securities and Exchange Commission at 1-800-SEC-0330 for further information on the operation of the public reference facilities. In addition, the Securities and Exchange Commission maintains a website that contains reports, proxy and information statements and other information regarding registrants that file electronically with the Securities and Exchange Commission. The address of the Securities and Exchange Commission's website is www.sec.gov.

We make available free of charge on or through our website at www.pulmatrix.com, our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, as soon as reasonably practicable after we electronically file such material with or otherwise furnish it to the Securities and Exchange Commission.

We have filed with the Securities and Exchange Commission a registration statement under the Securities Act of 1933, as amended, relating to the offering of these securities. The registration statement, including the attached exhibits, contains additional relevant information about us and the securities. This prospectus does not contain all of the information set forth in the registration statement. You can obtain a copy of the registration statement, at prescribed rates, from the Securities and Exchange Commission at the address listed above, or for free at www.sec.gov. The registration statement and the documents referred to below under "Incorporation of Certain Information By Reference" are also available on our website, www.pulmatrix.com.

We have not incorporated by reference into this prospectus the information on our website, and you should not consider it to be a part of this prospectus.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The Securities and Exchange Commission allows us to incorporate by reference the information we have filed with it, which means that we can disclose important information to you by referring you to those documents. The information we incorporate by reference is an important part of this prospectus, and later information that we file with the Securities and Exchange Commission will automatically update and supersede this information. We incorporate by reference the documents listed below and any future documents (excluding information furnished pursuant to Items 2.02 and 7.01 of Form 8-K) we file with the Securities and Exchange

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Commission pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, subsequent to the date of this prospectus and prior to the termination of the offering:

Our Annual Report on Form 10-K for the fiscal year ended December 31, 2015, filed with the Securities and Exchange Commission on March 10, 2016;

Our Definitive Proxy Statement on Schedule 14A filed with the Securities and Exchange Commission on April 14, 2016;

Our Quarterly Report on Form 10-Q for the three months ended March 31, 2016, filed with the Securities and Exchange Commission on May 5, 2016;

Our Current Report on Form 8-K, filed with the Securities and Exchange Commission on January 11, 2016;

Our Current Report on Form 8-K, filed with the Securities and Exchange Commission on March 9, 2016;

Our Current Report on Form 8-K, filed with the Securities and Exchange Commission on March 10, 2016;

Our Current Report on Form 8-K, filed with the Securities and Exchange Commission on May 5, 2016;

Our Current Report on Form 8-K, filed with the Securities and Exchange Commission on May 25, 2016;

Our Current Report on Form 8-K, filed with the Securities and Exchange Commission on June 2, 2016;

Our Current Report on Form 8-K, filed with the Securities and Exchange Commission on June 17, 2016; and

The description of our common stock, which is contained in our registration statement on Form 8-A, filed with the Securities and Exchange Commission on November 11, 2013, and any amendment or reports filed for the purpose of updating such description.

All filings filed by us pursuant to the Securities Exchange Act of 1934, as amended, after the date of the initial filing of this registration statement and prior to the effectiveness of such registration statement (excluding information furnished pursuant to Items 2.02 and 7.01 of Form 8-K) shall also be deemed to be incorporated by reference into the prospectus.

You should rely only on the information incorporated by reference or provided in this prospectus. We have not authorized anyone else to provide you with different information. You should not assume that the information in this

prospectus is accurate as of any date other than the date of this prospectus or the date of the documents incorporated by reference in this prospectus.

We will provide without charge to each person to whom a copy of this prospectus is delivered, upon written or oral request, a copy of any or all of the information that has been incorporated by reference in this prospectus but not delivered with this prospectus (other than an exhibit to these filings, unless we have specifically incorporated that exhibit by reference in this prospectus). Any such request should be addressed to us at:

Pulmatrix, Inc.

Attn: Secretary

99 Hayden Avenue, Suite 390

Lexington, MA 02421

(781) 357-2333

You may also access the documents incorporated by reference in this prospectus through our website at www.pulmatrix.com. Except for the specific incorporated documents listed above, no information available on or through our website shall be deemed to be incorporated in this prospectus or the registration statement of which it forms a part.

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5,323,530 Shares

Pulmatrix, Inc.

Common Stock

H.C. Wainwright & Co.

January 30, 2019.