

INOVIO PHARMACEUTICALS, INC.

Form 424B5

April 29, 2015

Table of Contents

Filed pursuant to Rule 424(b)(5)
Registration No. 333-197584

The information in this preliminary prospectus supplement is not complete and may be changed. This preliminary prospectus supplement and the accompanying prospectus are not an offer to sell these securities, nor are they soliciting offers to buy these securities in any jurisdiction where the offer or sale is not permitted.

Subject to completion, dated April 29, 2015

PROSPECTUS SUPPLEMENT

To Prospectus dated July 23, 2014

Shares

INOVIO PHARMACEUTICALS, INC.

Common Stock

\$ per share

We are offering shares of our common stock.

Our common stock is listed on the NASDAQ Global Select Market under the symbol INO. The last sale price of our common stock on April 28, 2015, as reported by the NASDAQ Global Select Market, was \$9.71 per share.

Investing in our securities involves a high degree of risk. See Risk Factors, beginning on page S-7 of this prospectus supplement, as well as in the documents incorporated or deemed to be incorporated by reference into this prospectus supplement and the accompanying prospectus, for a discussion of the factors you should carefully consider before deciding to purchase our securities.

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

	Per Share	Total
Public Offering Price	\$	\$
Underwriting Discounts and Commissions ⁽¹⁾	\$	\$
Proceeds to Us, Before Expenses	\$	\$

(1) See Underwriting for additional disclosure regarding underwriting discounts and commissions and expense reimbursement.

The underwriters expect to deliver the shares of common stock on or about May , 2015.

Piper Jaffray

The date of this prospectus supplement is April , 2015.

Stifel

Table of Contents

TABLE OF CONTENTS

PROSPECTUS SUPPLEMENT	
<u>ABOUT THIS PROSPECTUS SUPPLEMENT</u>	S-1
<u>PROSPECTUS SUPPLEMENT SUMMARY</u>	S-2
<u>THE OFFERING</u>	S-6
<u>RISK FACTORS</u>	S-7
<u>FORWARD-LOOKING STATEMENTS</u>	S-8
<u>USE OF PROCEEDS</u>	S-9
<u>CAPITALIZATION</u>	S-10
<u>DILUTION</u>	S-11
<u>UNDERWRITING</u>	S-12
<u>LEGAL MATTERS</u>	S-15
<u>EXPERTS</u>	S-15
<u>WHERE YOU CAN FIND MORE INFORMATION</u>	S-15
<u>INCORPORATION BY REFERENCE</u>	S-16
PROSPECTUS	
<u>RISK FACTORS</u>	3
<u>ABOUT THIS PROSPECTUS</u>	3
<u>WHERE YOU CAN FIND MORE INFORMATION</u>	3
<u>CAUTIONARY STATEMENT ON FORWARD-LOOKING INFORMATION</u>	4
<u>OUR COMPANY</u>	5
<u>STATEMENT OF COMPUTATION OF RATIOS</u>	6
<u>USE OF PROCEEDS</u>	6
<u>DESCRIPTION OF CAPITAL STOCK</u>	8
<u>DESCRIPTION OF DEBT SECURITIES</u>	11
<u>DESCRIPTION OF WARRANTS</u>	17
<u>DESCRIPTION OF UNITS</u>	19
<u>LEGAL OWNERSHIP OF SECURITIES</u>	20
<u>PLAN OF DISTRIBUTION</u>	23
<u>VALIDITY OF SECURITIES</u>	25
<u>EXPERTS</u>	25

Table of Contents

ABOUT THIS PROSPECTUS SUPPLEMENT

This document is in two parts. The first part is the prospectus supplement, including the documents incorporated or deemed to be incorporated herein by reference, which describes the specific terms of this offering. The second part, the accompanying prospectus, including the documents incorporated or deemed to be incorporated therein by reference, provides more general information about us and our securities. Generally, when we refer to this prospectus, we are referring to both parts of this document combined together with all documents incorporated or deemed incorporated by reference. Before you invest, you should carefully read this prospectus supplement, the accompanying prospectus, all information incorporated or deemed to be incorporated by reference herein and therein, and the additional information described under **Where You Can Find More Information** on page S-15 of this prospectus supplement. These documents contain information you should consider when making your investment decision. This prospectus supplement may add, update or change information contained in the accompanying prospectus. To the extent there is a conflict between the information contained in this prospectus supplement, on the one hand, and the information contained in the accompanying prospectus or any document incorporated or deemed to be incorporated by reference therein filed prior to the date of this prospectus supplement, on the other hand, you should rely on the information in this prospectus supplement. If any statement in one of these documents is inconsistent with a statement in another document having a later date for example, a document filed after the date of this prospectus supplement and deemed to be incorporated by reference in this prospectus supplement and the accompanying prospectus the statement in the document having the later date modifies or supersedes the earlier statement.

You should rely only on the information contained in or incorporated or deemed to be incorporated by reference in this prospectus supplement, the accompanying prospectus and in any free writing prospectuses we may provide to you in connection with this offering. We have not, and the underwriters have not, authorized any other person to provide you with any information that is different. If anyone provides you with different or inconsistent information, you should not rely on it. We are offering to sell, and seeking offers to buy, shares of our common stock only in jurisdictions where offers and sales are permitted. The distribution of this prospectus supplement and the offering of the common stock in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus supplement must inform themselves about, and observe any restrictions relating to, the offering of the common stock and the distribution of this prospectus supplement outside the United States. This prospectus supplement does 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 by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any filing that is incorporated or deemed to be incorporated by reference into this prospectus supplement or the accompanying prospectus 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.

Table of Contents

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 we incorporate by reference. This summary is not complete and does not contain all the information you should consider before investing in our common stock 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 beginning on page S-7 of this prospectus supplement and the financial statements and related notes and the other information that we incorporated by reference herein, including our Annual Report on Form 10-K and Quarterly Reports on Form 10-Q that we file from time to time.

Inovio Pharmaceuticals, Inc.

Overview

We are developing active DNA immunotherapies and vaccines focused on treating and preventing cancers and infectious diseases. Our DNA-based immunotherapies, in combination with our proprietary electroporation delivery devices, are intended to generate robust immune responses, in particular T cells, to fight such diseases. In 2014 we reported that in a large, controlled phase II clinical study we achieved clinically relevant efficacy against a targeted disease (HPV-associated cervical dysplasia) by generating antigen-specific T cells. Our novel SynCon[®] immunotherapy design has shown the ability to help break the immune system's tolerance of cancerous cells. Alternatively, our SynCon[®] product design is also intended to facilitate cross-strain protection against known as well as new unmatched strains of pathogens such as influenza. Given the recognized role of killer T cells in eliminating cancerous or infected cells from the body, our scientists believe that our active immunotherapies may play an important role in helping fight such diseases. Human data to date have shown a favorable safety profile of our DNA immunotherapies delivered using electroporation.

We have completed, current or planned clinical programs of our proprietary SynCon[®] immunotherapies for HPV-caused pre-cancers and cancers, prostate cancer, breast/lung/pancreatic cancer, hepatitis C virus (HCV), hepatitis B virus (HBV), HIV, influenza, and Ebola. Our partners and collaborators include F. Hoffmann-La Roche Ltd and Hoffmann-La Roche Inc. (Roche), University of Pennsylvania, Drexel University, National Microbiology Laboratory of the Public Health Agency of Canada, National Institute of Allergy and Infectious Diseases (NIAID), United States Military HIV Research Program (USMHRP), U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID), HIV Vaccines Trial Network (HVTN), Defense Advanced Research Projects Agency (DARPA) and MedImmune, LLC.

Industry Background

Apart from the benefits provided by sanitation and clean water, we believe that the idea of stimulating the immune system, to date via preventive vaccines, has saved more lives and prevented more human suffering than any other human invention. As recently as a century ago, infectious diseases were the main cause of death worldwide, even in the most developed countries. Today, there is a vast range of vaccines available to protect against more than two dozen infectious diseases, especially for children, completely or virtually eradicating diseases such as smallpox and polio.

Today the idea of stimulating the immune system to prevent or treat infections and cancers is an even more compelling concept, with significant time and capital being applied by the scientific community to advance promising

new approaches. While conventional vaccine technology long ago reached its technical boundaries, the emergence of new areas of scientific knowledge such as genomics and technologies like rapid sequencing have opened many doors to new ways to enable the development of new preventive vaccines for challenging

S-2

Table of Contents

infectious diseases and new treatments for diseases such as cancer, HIV, and hepatitis. Today the opportunity for immune stimulating technologies with the potential to fight cancers and chronic infectious diseases has never appeared more promising given notable technology advancements such as checkpoint inhibitors. Yet, while yielding promising results, in many respects the surface has barely been scratched. There remains a significant need and opportunity for further advancements.

Inovio's Solution

With our immunotherapy platform comprising our SynCon® products as well as our proprietary CELLECTRA® electroporation delivery technology, we have developed a rich pipeline of pre-clinical and clinical stage products that have generated, in vivo (in the body), best-in-class immune responses, in particular T cells, which are fundamental to eliminating cancerous or infected cells. They are showing their potential to be used against any targeted cancer or infectious disease. Our lead immunotherapy (for treating HPV-associated precancer) met its primary and secondary endpoints in a large, controlled phase II clinical study, achieving statistically significant and clinically relevant efficacy in association with robust T cell activation. This was accomplished without serious adverse events and the only statistically significant adverse event being injection site redness (our immunotherapies are non-live and non-replicating therefore they cannot cause the disease; they work most naturally with the immune system and within its controls to reduce or minimize the risk of unwanted inflammatory responses; no serious adverse events have been attributed to our immunotherapies in human studies to date). These results suggest significant market potential not only for the lead product but for the broad spectrum of products that may be created based on our technology platform.

The Next Generation of Cancer and Infectious Disease Treatment: Inovio's SynCon® Immunotherapies

Our immunotherapies are designed to prevent a disease (prophylactic) or treat an existing disease (therapeutic) by activating and magnifying an immune response to one or more disease-specific antigens (proteins associated with a cancer or infectious disease that the body will recognize as foreign or not normal). Without the quality control and manufacturing challenges and costs of specifically personalized medicines, we can direct the immune response directly in the patient's own body to fight specific organisms or cells. We do this simply by introducing the genetic code for the target antigen(s) into the tissues of the body that will serve as a temporary antigen production facility.

Our immunotherapies consist of one or more DNA plasmids (circular string of DNA as a backbone) encoding one or more selected antigen that are introduced into cells (directly in the body) of humans or animals. Our approach uniquely enables dramatic uptake of the DNA plasmids by the cells in a local tissue area. After the DNA code for the targeted antigen(s) is introduced to cells, the cells' natural machinery for making their own proteins useful to the body temporarily produces the selected antigen(s) encoded by the DNA sequences delivered to the cell. The antigenic protein manufactured through this process, is then presented to the immune system and triggers one or both of two arms of the immune system: the production of preventive antibodies, known as a humoral immune response, and/or the activation of therapeutic T-cells, known as a cellular or cell-mediated immune response. These responses are then ready to neutralize or eliminate infectious agents (e.g. viruses, bacteria, and other microorganisms) or abnormal cells (e.g. malignant tumor or infected cells).

Our SynCon® DNA immunotherapies are designed to generate specific antibody and T cell responses. First we identify one or more antigens that we believe are the best targets to help direct the immune system toward a particular cancer or infectious disease. We then apply our SynCon® design process, which employs the extensive data available from genomic databases. This SynCon® design uses the genetic make-up of the selected antigen(s) from multiple variants of a cancer or strains of a virus. We synthetically create a new genetic sequence of the antigen that represents a consensus of the slightly different DNA from multiple variants or strains of the targeted antigen. We can create a

differentiated SynCon variant to help the immune system better recognize a cancer self-antigen (a cell and antigen grown in the body). Alternatively, we have proof of principle in human studies that we

S-3

Table of Contents

can generate immune responses with SynCon immunotherapies not matched to different strains of an infectious disease, e.g. influenza, creating a proof-of-concept of the ability to move beyond today's one bug, one drug paradigm in which a vaccine must match the strain of the circulating virus in order to provide protection. These SynCon® constructs may provide a solution to the genetic shift and drift that is typical of many infectious diseases. These new synthetic consensus DNA sequences do not exist in nature and are patentable.

SynCon® immunotherapies are designed by taking the primary amino acid sequence from multiple strains or variants of a target disease antigen. We align the multiple amino acid sequences and at each position of the sequence choose the individual amino acid that is most immunologically dominant, conserved or important. In this process we create a new sequence that is a consensus of all the input sequences. This new synthetically engineered sequence is similar to the originating sequences but does not match any. It does not exist in nature and is therefore patentable.

The SynCon sequences are further optimized at the DNA level for codon usage, improved mRNA stability, and are provided with enhanced leader sequences for ribosome loading. The DNA inserts are therefore optimized at the genetic level to give them high expression capability particularly in human cells. We believe these design capabilities allow us to better target appropriate immune system mechanisms and produce a higher level of the coded antigen to enhance the overall ability of the immunotherapy to induce the desired immune response.

The SynCon sequence is then inserted into a circular DNA plasmid. The plasmids are manufactured in a bacterial fermentation process using proven scalable technology. These DNA-based immunotherapies can be stable under normal environmental conditions for extended periods of time.

Our immunotherapies are injected in a local area of selected tissue (muscle or skin) and then electroporated (see next section) to facilitate cellular uptake and gene expression. The resulting immune response to the produced antigens results in significant production of antibodies or T cells. Memory cells are created for durable effects and, in the case of therapeutic applications, T cells can be immediately trafficked to parts of the body where cells are displaying the target antigen.

Published human data from two different SynCon® DNA immunotherapies—one for treating HPV-caused pre-cancers and cancers as well as one for treating HIV infection—have generated best-in-class T cell responses in terms of magnitude, durability, and killing effect, providing evidence (demonstrated in three peer-reviewed clinical study publications) of their potential to provide preventive and therapeutic capabilities against cancers and infectious diseases. This compelling data is supported by the first clinically significant efficacy data generated in a large controlled phase II study by any DNA-based immunotherapy with Inovio's data reported in 2014.

Electroporation Delivery Technology

Despite how compelling the idea of delivering DNA encoding an antigen has been, delivering the DNA directly into a cell through the cell's protective membrane has been a significant challenge. Our immunotherapies are delivered into cells of the body into a small local area of tissue using our highly efficient, proprietary electroporation (EP) DNA delivery technology, which uses brief, locally applied electric fields to create temporary and reversible permeability, or pores, in the cell membrane. Using this method allows us to increase the cellular uptake of the DNA plasmids by a thousand-fold or more compared to just delivering the naked DNA alone. This extent of cellular uptake has proven to enable the best-in-class immune responses that we have reported, along with the efficacy results generated by these immune responses.

Alternative delivery approaches based on the use of viruses and lipids are complex and expensive and have in the past created concerns regarding safety and caused unwanted immune responses against the carriers themselves (believed to

compromise their ability to deliver their DNA payload and provide protection). We have published

S-4

Table of Contents

data showing the superior immune responses generated by our SynCon® immunotherapies delivered using our CELLECTRA® electroporation technology directly compared to a leading viral vector (Adenovirus type 5) based approach. We have not seen any published data indicating the capability of alternative technologies focused on using genetic code to generate preventive or therapeutic antigens to exceed Inovio's immune response data obtained to date, nor match the efficacy and immune responses data generated in our large controlled phase II study.

We believe electroporation provides a relatively straightforward, cost effective method for delivering DNA into cells with high efficiency, minimal complications, and importantly the ability to enable what we believe to be clinically relevant levels of gene expression, immune responses, and efficacy.

Corporate Information

Our executive offices are located at 660 W. Germantown Pike, Suite 100, Plymouth Meeting, Pennsylvania 19462, our telephone number is (267) 440-4200 and our Internet address is www.inovio.com. The information on our Internet website is not incorporated by reference in this prospectus and should not be considered to be part of this prospectus. Our website address is included in this prospectus as an inactive technical reference only. Unless the context otherwise requires, references in this prospectus to Inovio Pharmaceuticals, Inovio, we, us, and our refer to Inovio Pharmaceuticals, Inc.

Edgar Filing: INOVIO PHARMACEUTICALS, INC. - Form 424B5

8,456 shares of our common stock issuable upon conversion of outstanding preferred stock as of December 31, 2014, having a conversion price of \$27.20 per share.

Except as otherwise indicated, all information in this prospectus supplement assumes no exercise by the underwriters of their option to purchase up to additional shares of our common stock.

S-6

Table of Contents

RISK FACTORS

Investing in our securities involves a high degree of risk. You should carefully consider the risks described below, together with all of the other information included or incorporated by reference in this prospectus supplement, the accompanying prospectus and the documents we incorporate by reference, before making an investment decision. Our business, financial condition and results of operations could be materially and adversely affected by any of these risks or uncertainties. In that case, the market price of our common stock could decline, and you may lose all or part of your investment in our securities.

Risks Related to this Offering

Resales of our common stock in the public market during this offering by our stockholders may cause the market price of our common stock to fall.

The issuance of new shares of our common stock in this offering could result in resales of our common stock by our current stockholders concerned about the potential dilution of their holdings. In turn, these resales could have the effect of depressing the market price for our common stock. A substantial majority of the outstanding shares of our common stock are, and all of the shares sold in this offering upon issuance will be, freely tradable without restriction or further registration under the Securities Act of 1933, as amended, or the Securities Act.

As a new investor, you will incur substantial dilution as a result of this offering and future equity issuances, and as a result, our stock price could decline.

The offering price is substantially higher than the net tangible book value per share of our outstanding common stock. As a result, based on our capitalization as of December 31, 2014, investors purchasing common stock in this offering will incur immediate dilution of \$ per share of common stock purchased, based on the offering price of \$ per share. We are generally not restricted from issuing additional common stock, including any securities that are convertible into or exchangeable for, or that represent the right to receive, common stock. The market price of our common stock could decline as a result of sales of common stock or securities that are convertible into or exchangeable for, or that represent the right to receive, common stock after this offering or the perception that such sales could occur. See Dilution on page S-11 of this prospectus supplement for a more detailed discussion of the dilution you will incur in this offering.

We have broad discretion in how we use the net proceeds of this offering, and we may not use these proceeds effectively or in ways with which you agree.

Our management will have broad discretion as to the application of the net proceeds of this offering and could use them for purposes other than those contemplated at the time of this offering. Our stockholders may not agree with the manner in which our management chooses to allocate and spend the net proceeds. Moreover, our management may use the net proceeds for corporate purposes that may not increase the market price of our common stock.

Table of Contents

FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus and the information incorporated or deemed to be incorporated by reference herein or therein contain or incorporate by reference forward-looking statements within the meaning of Section 27A of the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. These statements relate to future events or our future financial performance. In some cases, you can identify forward-looking statements by terminology such as may, will, should, expect, plan, anticipate, estimate, predict, potential or continue, the negative of such terms or other comparable terminology. These statements are only predictions. Actual events or results may differ materially.

Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, levels of activity, performance or achievements. Moreover, neither we, nor any other person, assume responsibility for the accuracy and completeness of the forward-looking statements. We are under no obligation to update any of the forward-looking statements after the filing of this prospectus supplement to conform such statements to actual results or to changes in our expectations.

Such statements are based on currently available operating, financial and competitive information and are subject to various risks, uncertainties and assumptions that could cause actual results to differ materially from those anticipated or implied in our forward-looking statements due to a number of factors including, but not limited to, those set forth under the sections entitled Risk Factors in this prospectus supplement or the accompanying prospectus, in our most recent Annual Report on Form 10-K and in our Quarterly Reports on Form 10-Q, as well as any amendments or supplements thereto filed with the SEC. We qualify all of the information presented or incorporated by reference in this prospectus, and particularly our forward-looking statements, by these cautionary statements. In particular, you should note the following risk factors that could cause actual results to differ from those contained in the forward-looking statements include but are not limited to:

our history of losses;

our lack of products that have received regulatory approval;

uncertainties inherent in clinical trials and product development programs, including but not limited to the fact that pre-clinical and clinical results may not be indicative of results achievable in other trials or for other indications, that results from one study may not necessarily be reflected or supported by the results of other similar studies, that results from an animal study may not be indicative of results achievable in human studies, that clinical testing is expensive and can take many years to complete, that the outcome of any clinical trial is uncertain and failure can occur at any time during the clinical trial process, and that our electroporation technology and DNA vaccines may fail to show the desired safety and efficacy traits in clinical trials;

the availability of funding;

the ability to manufacture vaccine candidates;

our ability to establish or maintain collaborations, licensing or other arrangements;

the availability or potential availability of alternative therapies or treatments for the conditions we or our collaborators target, including alternatives that may be more efficacious or cost-effective than any therapy or treatment that we and our collaborators hope to develop;

whether our proprietary rights are enforceable or defensible or infringe or allegedly infringe on rights of others or can withstand claims of invalidity; and

the impact of government healthcare legislation and proposals.

You should not place undue reliance on any forward-looking statements, which we base on current expectations. Further, forward-looking statements speak only as of the date we make them, and we undertake no obligation to update publicly any of them in light of new information or future events.

S-8

Table of Contents

USE OF PROCEEDS

We estimate that the net proceeds to us of the sale of the common stock that we are offering will be approximately \$ million, based on the public offering price of \$ per share of common stock sold pursuant to this offering, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. See Underwriting for additional disclosure regarding underwriting discounts and commissions and expense reimbursement.

We intend to use the net proceeds received from the sale of our common stock for general corporate purposes, including clinical trial expenses, research and development expenses, general and administrative expenses, manufacturing expenses and potential acquisitions of companies and technologies that complement our business. There are no understandings, agreements or commitments with respect to any potential acquisitions. As of the date of this prospectus supplement, we cannot specify with certainty all of the particular uses of the proceeds from this offering. Accordingly, our management will retain broad discretion over the use of such proceeds. Pending the use of the net proceeds from this offering, we intend to invest the net proceeds in investment-grade, interest-bearing instruments.

Table of Contents**CAPITALIZATION**

The following table sets forth our cash and cash equivalents and capitalization as of December 31, 2014, as follows:

on an actual basis; and

on an as adjusted basis to reflect our issuance and sale in this offering of _____ shares of our common stock, at the public offering price of \$ _____ per share of our common stock after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

You should read this table together with the section of this prospectus supplement entitled "Use of Proceeds" and with the financial statements and related notes and the other information that we incorporated by reference into this prospectus supplement and the accompanying prospectus, including our Annual Report on Form 10-K and Quarterly Reports on Form 10-Q that we file from time to time.

	As of December 31, 2014	
	Actual	As Adjusted
Cash and cash equivalents and short-term investments	\$ 93,619,956	\$
Stockholders' Equity:		
Preferred stock, \$0.001 par value; 1,969,383 shares authorized, 1,968,950 issued and 23 outstanding:		
Series C Convertible Preferred stock; 1,091 shares designated, 1,091 shares issued and 23 shares outstanding, actual and as adjusted	0	
Common stock, \$0.001 par value; 600,000,000 shares authorized, 60,741,082 shares issued and outstanding, actual and as adjusted	60,741	
Additional paid-in capital	443,327,915	
Accumulated deficit	(331,910,290)	
Accumulated other comprehensive loss	(251,390)	
Total Inovio Pharmaceuticals, Inc. stockholders' equity	111,226,976	
Non-controlling interest	310,618	
Total capitalization	\$ 111,537,594	\$

The table above excludes the following as of December 31, 2014:

4,840,514 shares subject to outstanding options, having a weighted average exercise price of \$6.19 per share; and

Edgar Filing: INOVIO PHARMACEUTICALS, INC. - Form 424B5

1,012,060 shares of our common stock issuable upon exercise of outstanding warrants, having a weighted average exercise price of \$4.18 per share.

As of March 31, 2015, the total amount of our cash and cash equivalents and short-term investments was \$81,012,293.

S-10

Table of Contents**DILUTION**

Purchasers of the securities offered by this prospectus supplement and the accompanying prospectus will suffer immediate and substantial dilution in the net tangible book value per share of our common stock. Dilution in net tangible book value per share represents the difference between the amount per share paid by purchasers in this offering and the net tangible book value per share of our common stock immediately after this offering.

Our historical net tangible book value as of December 31, 2014 was approximately \$96.6 million, or \$1.59 per share of our outstanding common stock, based on 60,741,082 shares of common stock outstanding as of December 31, 2014.

Investors participating in this offering will incur immediate and significant dilution. After giving effect to the issuance and sale in this offering of _____ shares of our common stock at the public offering price of \$ _____ per share of our common stock and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us, our as adjusted net tangible book value as of December 31, 2014 would have been approximately \$ _____ million, or approximately \$ _____ per share of our common stock. This amount represents an immediate increase in net tangible book value of \$ _____ per share of our common stock to existing stockholders and an immediate dilution in net tangible book value of \$ _____ per share of our common stock to investors purchasing securities in this offering. The following table illustrates this dilution:

Assumed offering price per share		\$
Net tangible book value per share as of December 31, 2014		\$ 1.59
Increase per share attributable to this offering		\$
As adjusted net tangible book value per share as of December 31, 2014, after giving effect to this offering		\$
Dilution per share to new investors participating in this offering		\$

If the underwriters exercise their option to purchase additional shares or if any shares of our common stock are issued upon exercise of outstanding options or warrants, you will experience further dilution.

Table of Contents**UNDERWRITING**

We are offering the shares of common stock described in this prospectus supplement through Piper Jaffray & Co. and Stifel, Nicolaus & Company, Incorporated as the joint book-running managers of this offering. Subject to the terms and conditions of the underwriting agreement, we have agreed to sell to the underwriters, and the underwriters have agreed to purchase from us, the number of shares of common stock shown opposite each underwriter's name below.

Underwriters	Number of Shares
Piper Jaffray & Co.	
Stifel, Nicolaus & Company, Incorporated	
Total	

The underwriters are committed to purchase all the shares of common stock offered by us if they purchase any shares, other than those shares covered by the option to purchase additional shares of our common stock described below.

The underwriters have advised us that they propose to offer the shares of common stock directly to the public at the public offering prices set forth on the cover page of this prospectus supplement and to certain dealers at the same prices less a concession not in excess of \$ _____ per share of common stock. After the offering, these figures may be changed by the underwriters.

The underwriters have advised us that they currently intend to make a market in the common stock. However, the underwriters are not obligated to do so and may discontinue market-making activities at any time without notice. No assurance can be given as to the liquidity of the trading market for the common stock.

We have granted to the underwriters an option to purchase up to an additional _____ shares of common stock from us at the same price to the public as set forth on the cover page of this prospectus supplement. The underwriters may exercise this option any time during the 30-day period after the date of this prospectus supplement.

The underwriting fee per share of common stock is equal to the public offering price per share of common stock, less the amount paid by the underwriters to us per share of common stock. The following table shows the per share underwriting discounts and commissions and the total underwriting discounts and commissions to be paid to the underwriters in connection with this offering.

	Per Share	Total Without Exercise of Option	Total With Exercise of Option
Public offering price	\$	\$	\$
Underwriting discounts and commissions paid by us	\$	\$	\$
Proceeds to us, before expenses	\$	\$	\$

We estimate that the total fees and expenses payable by us, excluding underwriting discounts and commissions, will be approximately \$ _____. Pursuant to the terms of the underwriting agreement, we have also agreed to reimburse the

underwriters for expenses, including reasonable fees and disbursements of counsel, relating to this offering of up to \$100,000, which amount is included in the above total and shall not be increased without our prior written consent.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act, or to contribute to payments that the underwriters may be required to make in respect of those liabilities.

S-12

Table of Contents

We and each of our directors and executive officers are subject to lock-up agreements that prohibit us and them from offering for sale, pledging, selling, contracting to sell, selling any option or contract to purchase, purchasing any option or contract to sell, granting any option, right or warrant to purchase, lend, or otherwise transferring or disposing of, directly or indirectly, any shares of our common stock or any securities convertible into or exercisable or exchangeable for shares of our common stock, from entering into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of the common stock, or making any demand for, or exercising any right with respect to, the registration of any shares of our common stock or any security convertible into or exercisable or exchangeable for common stock, or making any public announcement of the intention to do any of the foregoing, for a period of at least 90 days following the date of the underwriting agreement without the prior written consent of the underwriters. The lock-up agreements do not prohibit our directors and executive officers from transferring shares of our common stock for bona fide estate or tax planning purposes, subject to certain requirements, including that the transferee be subject to the same lock-up terms, participating in any exchange of underwater options with us, acquiring or exercising stock options issued pursuant to our existing stock option plans, or entering into plans that satisfy the requirements of Rule 10b5-1 under the Exchange Act, provided that no sales are made under such plans during the lock-up period.

The lock-up agreements do not prohibit us from issuing shares upon the exercise or conversion of securities outstanding on the date of this prospectus supplement. The lock-up provisions do not prevent us from selling shares to the underwriters pursuant to the underwriting agreement, or prevent us from granting options to acquire securities under our existing stock option plans or issuing shares upon the exercise or conversion of securities outstanding on the date of this prospectus supplement.

The 90-day lock-up period in all of the lock-up agreements is subject to extension if (i) during the last 17 days of the lock-up period we issue an earnings release or material news or a material event relating to us occurs or (ii) prior to the expiration of the lock-up period, we announce that we will release earnings results during the 16-day period beginning on the last day of the lock-up period, in which case the restrictions imposed in these lock-up agreements shall continue to apply until the expiration of the 18-day period beginning on the issuance of the earnings release or the occurrence of the material news or material event, if, within three days of that issuance or occurrence, either underwriter publishes or otherwise distributes a research report or makes a public appearance concerning us, unless the underwriters waive the extension in writing and except to extent that our securities are actively traded securities within the meaning of Rule 101(c)(1) of Regulation M of the Exchange Act, and we otherwise satisfy the requirements set forth in Rule 139 of the Securities Act that would permit the underwriters to publish issuer-specific research reports pursuant to Rule 139 of the Securities Act.

Our shares are quoted on the NASDAQ Global Select Market under the symbol **INO**.

To facilitate the offering, the underwriters may engage in transactions that stabilize, maintain or otherwise affect the price of our common stock during and after the offering. Specifically, the underwriters may over-allot or otherwise create a short position in the common stock for its own account by selling more shares of common stock than we have sold to it. Short sales involve the sale by the underwriters of a greater number of shares than they are required to purchase in the offering. The underwriters may close out any short position by either exercising its option to purchase additional shares or purchasing shares in the open market.

The underwriters may also engage in passive market making transactions in our common stock. Passive market making consists of displaying bids on the NASDAQ Global Select Market limited by the prices of independent market makers and effecting purchases limited by those prices in response to order flow. Rule 103 of Regulation M promulgated by the Securities and Exchange Commission limits the amount of net purchases that each passive market maker may make and the displayed size of each bid. Passive market making may stabilize the market price of our

common stock at a level above that which might otherwise prevail in the open market and, if commenced, may be discontinued at any time.

This prospectus supplement in electronic format may be made available on websites maintained by the underwriters, and the underwriters may distribute the prospectus supplement electronically.

S-13

Table of Contents

From time to time in the ordinary course of their respective businesses, the underwriters and certain of its affiliates may in the future engage in commercial banking or investment banking transactions with us and our affiliates.

S-14

Table of Contents

LEGAL MATTERS

The validity of the securities offered hereby will be passed upon for us by Duane Morris LLP, Philadelphia, Pennsylvania. The underwriters are being represented in connection with this offering by Dechert LLP, New York, New York.

EXPERTS

Ernst & Young LLP, an independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2014, and the effectiveness of our internal control over financial reporting as of December 31, 2014, as set forth in their reports, which are incorporated by reference in this prospectus supplement and the accompanying prospectus and elsewhere in the registration statement. Our financial statements are incorporated by reference in reliance on Ernst & Young LLP's report given on their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the Securities and Exchange Commission. Our Securities and Exchange Commission filings are available to the public over the Internet at the Securities and Exchange Commission's website at www.sec.gov. Copies of certain information filed by us with the Securities and Exchange Commission are also available on our website at www.inovio.com. Our website is not a part of this prospectus supplement and is not incorporated by reference into this prospectus supplement. You may also read and copy any document we file at the Securities and Exchange Commission's Public Reference Room, 100 F Street, N.E., Washington, D.C. 20549. Please call the Securities and Exchange Commission at 1-800-SEC-0330 for further information on the operation of the Public Reference Room.

This prospectus supplement and the accompanying prospectus omit some information contained in our registration statement in accordance with SEC rules and regulations. You should review the information contained in and exhibits filed to the registration statement for further information on us and the securities we are offering. Statements in this prospectus supplement and the accompanying prospectus concerning any document we filed as an exhibit to the registration statement or that we otherwise filed with the Securities and Exchange Commission are not intended to be comprehensive and are qualified by reference to those filings. You should review the complete document to evaluate these statements.

Table of Contents

INCORPORATION BY REFERENCE

The Securities and Exchange Commission allows us to incorporate by reference into this prospectus supplement much of the information we file with the Securities and Exchange Commission, which means that we can disclose important information to you by referring you to those publicly available documents. The information that we incorporate by reference into this prospectus supplement is considered to be part of this prospectus supplement. Because we are incorporating by reference future filings with the Securities and Exchange Commission, this prospectus supplement is continually updated and those future filings may modify or supersede some of the information included or incorporated in this prospectus supplement. This means that you must look at all of the Securities and Exchange Commission filings that we incorporate by reference to determine if any of the statements in this prospectus supplement or in any document previously incorporated by reference have been modified or superseded. This prospectus supplement incorporates by reference the documents listed below (File No. 001-14888) and any future filings we make with the Securities and Exchange Commission under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act (in each case, other than those documents or the portions of those documents not deemed to be filed) until the offering of the securities under the registration statement of which this prospectus supplement forms a part is terminated or completed:

Annual Report on Form 10-K for the fiscal year ended December 31, 2014;

Definitive Proxy Statement on Schedule 14A filed March 20, 2015;

Current Report on Form 8-K filed March 10, 2015; and

The description of our common stock contained in our registration statement filed pursuant to Section 12 of the Securities Exchange Act, as modified by our reports we file under the Exchange Act.

You may request a copy of these filings, at no cost, by writing or telephoning us at the following address or phone number:

Inovio Pharmaceuticals, Inc.

10480 Wateridge Circle

San Diego, California 92121

Attn: Investor Relations

Phone: (858) 410-3140

Table of Contents

INOVIO PHARMACEUTICALS, INC.

\$175,000,000

Common Stock

Preferred Stock

Debt Securities

Warrants

Units

From time to time, we may offer up to \$175,000,000 of any combination of the securities described in this prospectus, either individually or in units. We may also offer common stock or preferred stock upon conversion of debt securities, common stock upon conversion of preferred stock, or common stock, preferred stock or debt securities upon the exercise of warrants. We will provide the specific terms of these offerings and securities in one or more supplements to this prospectus. We may also authorize the provision to you of one or more free writing prospectuses in connection with these offerings. The prospectus supplement and any related free writing prospectus may also add, update or change information we include in this prospectus. You should carefully read this prospectus, the applicable prospectus supplement and any related free writing prospectus, as well as any documents we incorporate by reference, before buying any of the securities being offered.

Our common stock is traded on the NYSE MKT under the symbol **INO**. On July 21 2014, the last reported sale price of our common stock on the NYSE MKT was \$11.01. The applicable prospectus supplement will contain information, where applicable, as to any other listing, if any, on the NYSE MKT or any securities market or other exchange of the securities covered by the applicable prospectus supplement.

On July 21, 2014, the aggregate market value of our outstanding common stock our non-affiliates held was approximately \$626.0 million.

We may sell the securities directly to investors, through agents designated from time to time or to or through underwriters or dealers, on a continuous or delayed basis. For additional information on the methods of sale, you should refer to the section entitled **Plan of Distribution** in this prospectus. If any agents or underwriters are involved in the sale of any securities with respect to which this prospectus is being delivered, we will set forth in a prospectus supplement the names of such agents or underwriters and any applicable fees, commissions, discounts and over-allotment options. We will also set forth in a prospectus supplement the price to the public of such securities and the net proceeds that we expect to receive from such sale.

Investing in our securities involves a high degree of risk. You should review carefully the risks and uncertainties described under the heading **Risk Factors contained in the applicable prospectus supplement and any related free writing prospectus, and under similar headings in the other documents that we incorporate by reference into this prospectus.**

This prospectus may not be used to consummate a sale of any securities unless accompanied by a prospectus supplement.

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

This prospectus is dated July 23, 2014.

Table of Contents

You should rely only on the information contained in this prospectus, any applicable prospectus supplement and any related free writing prospectus, including the information we incorporate by reference as described under Where You Can Find More Information. We have not authorized anyone to provide you with different information. If you receive any other information, you should not rely on it. No dealer, salesperson or other person is authorized to give any information or to represent anything not contained in this prospectus, any applicable prospectus supplement or any related free writing prospectus that we may authorize to be provided to you. You must not rely on any unauthorized information or representation. This prospectus is an offer to sell only the securities offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. You should assume that the information in this prospectus, any applicable prospectus supplement or any related free writing prospectus is accurate only as of the date on the front of the document and that any information we have incorporated by reference is accurate only as of the date of the document incorporated by reference, regardless of the time of delivery of this prospectus, any applicable prospectus supplement or any related free writing prospectus, or any sale of a security.

TABLE OF CONTENTS

Item	Page Number
<u>Risk Factors</u>	3
<u>About This Prospectus</u>	3
<u>Where You Can Find More Information</u>	3
<u>Cautionary Statement on Forward-Looking Information</u>	4
<u>Our Company</u>	5
<u>Statement of Computation of Ratios</u>	6
<u>Use of Proceeds</u>	6
<u>Description of Capital Stock</u>	8
<u>Description of Debt Securities</u>	11
<u>Description of Warrants</u>	17
<u>Description of Units</u>	19
<u>Legal Ownership of Securities</u>	20
<u>Plan of Distribution</u>	23
<u>Validity of Securities</u>	25
<u>Experts</u>	25

Table of Contents

RISK FACTORS

Investing in our securities involves a high degree of risk. You should carefully consider the specific risks and uncertainties we describe under the caption "Risk Factors" or similar heading in our periodic reports referred to in "Where You Can Find More Information" below and, if included in an applicable prospectus supplement or free writing prospectus under the caption "Risk Factors" or similar heading in the applicable prospectus supplement. Additional risks not presently known to us or that we currently believe are immaterial may also significantly impair our business operations.

ABOUT THIS PROSPECTUS

All references in this prospectus to "Inovio," "Company," "we," "our" and "us" refer to Inovio Pharmaceuticals, Inc. and its consolidated subsidiaries unless the context otherwise requires.

This prospectus is part of a registration statement on Form S-3 that we have filed with the Securities and Exchange Commission, or "SEC," using a "shelf" registration process. Under this shelf registration process, we and certain holders of our securities may sell the securities described in this prospectus in one or more offerings, up to the total dollar amount of \$175,000,000. This prospectus provides you with a general description of the securities we may offer. Each time we or holders of our securities offer to sell securities under this shelf registration statement, we will provide a prospectus supplement that will contain more specific information about the terms of the offering and those securities. We may also authorize one or more free writing prospectuses to be provided to you that may contain material information relating to these offerings. The prospectus supplement and any related free writing prospectus that we may authorize to be provided to you may also modify, add to or supersede the information contained in this prospectus or in the documents we have incorporated by reference into this prospectus. You should read this prospectus together with the documents incorporated by reference, the applicable prospectus supplement and any related free writing prospectus, with the additional information referred to below under "Where You Can Find More Information," before buying any of the securities being offered.

We have filed a registration statement on Form S-3 with the SEC relating to the securities covered by this prospectus. This prospectus is a part of the registration statement and does not contain all of the information in the registration statement. Whenever we refer in this prospectus, including other documents we incorporate by reference, to a Company contract or other document, please be aware that the reference is only a summary and that you should refer to the exhibits that are a part of the registration statement for a copy of the applicable contract or other document. We qualify all of the summaries in their entirety by the actual documents. Copies of some of the documents referred to herein have been filed, will be filed or will be incorporated by reference as exhibits to the registration statement of which this prospectus is a part, and you may obtain copies of those documents as described below under the heading "Where You Can Find Additional Information."

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy any documents we file with the SEC at the SEC's public reference room at 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the public reference room. Our filings with the SEC are also available to the public through the SEC's Internet site at <http://www.sec.gov>.

The SEC's rules allow us to incorporate by reference information into this prospectus. Therefore, we can disclose important information to you by referring you to any of the SEC filings we reference in the list below. Any information we refer to in this way in this prospectus or the applicable prospectus supplement is considered

Table of Contents

part of this prospectus or the applicable prospectus supplement. Any reports we file with the SEC after the date of this prospectus and before the date that the offering of securities by means of this prospectus terminates will automatically update and, where applicable, supersede any information contained or incorporated by reference in this prospectus or the applicable prospectus supplement.

We incorporate by reference into this prospectus the following documents or information we file with the SEC, other than, in each case, documents or information deemed to have been furnished and not filed in accordance with SEC rules. The SEC file number for these documents is 001-14888.

Our annual report on Form 10-K for the year ended December 31, 2013 we filed with the SEC on March 17, 2014;

Our quarterly report on Form 10-Q for the quarter ended March 31, 2014 we filed with the SEC on May 12, 2014;

Our current reports on Form 8-K we filed on February 26, 2014, February 27, 2014, March 4, 2014, March 10, 2014, March 17, 2014, May 22, 2014, May 30, 2014, June 6, 2014 and July 23, 2014, other than current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits we file on such form that relate to such items;

The description of our common stock contained in our registration statement filed pursuant to Section 12 of the Securities Exchange Act of 1934, or the Exchange Act, as modified by our reports we file under the Exchange Act; and

All documents we file under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act on or after the date of this prospectus and before the termination of the offering of securities under this prospectus, other than current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits we file on such form that relate to such items.

Any statement contained in a document incorporated by reference in this prospectus will be deemed to be modified or superseded for purposes of this prospectus to the extent that any statement contained in this prospectus or in any subsequently filed document, which also is or is deemed to be incorporated by reference in this prospectus or any prospectus supplement, modifies or supersedes this statement. Any statement modified or superseded in this way will not be deemed, except as so modified or superseded, to constitute a part of this prospectus or any prospectus supplement. The information incorporated by reference contains information about us and our financial condition and performance and is an important part of this prospectus.

We will provide without charge to each person, including any beneficial owner, to whom this prospectus is delivered, upon his or her written or oral request, a copy of any or all documents referred to above that have been or may be incorporated by reference into this prospectus, excluding exhibits to those documents unless they are specifically incorporated by reference into those documents. You can request those documents from Inovio Pharmaceuticals, Inc., Attention: Investor Relations, 10480 Wateridge Circle, San Diego, California, 92121-5773, telephone (858) 597-6006.

CAUTIONARY STATEMENT ON FORWARD-LOOKING INFORMATION

This prospectus, including documents we incorporate by reference, any applicable prospectus supplement and any related free writing prospectus, contains forward-looking statements, as defined in Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. These statements relate to future events or our future financial performance. In some cases, you can identify forward-looking statements by terminology such as may, will, should, expect, plan, anticipate, believe, estimate, predict, potential or continue, the negative of such comparable terminology. These statements are only predictions. Actual events or results may differ materially.

Table of Contents

Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, levels of activity, performance or achievements. Moreover, neither we, nor any other person, assume responsibility for the accuracy and completeness of the forward-looking statements. We are under no obligation to update any of the forward-looking statements after the date of this prospectus and any applicable prospectus supplement to conform such statements to actual results or to changes in our expectations.

Readers are also urged to carefully review and consider the various disclosures made by us that attempt to advise interested parties of the factors that affect our business, including without limitation the disclosures made in our quarterly report on Form 10-Q for the quarter ended March 31, 2014 under the caption Risk Factors.

Risk factors that could cause actual results to differ from those contained in the forward-looking statements include but are not limited to: our history of losses; our lack of products that have received regulatory approval; uncertainties inherent in clinical trials and product development programs, including but not limited to the fact that pre-clinical and clinical results may not be indicative of results achievable in other trials or for other indications, that results from one study may not necessarily be reflected or supported by the results of other similar studies, that results from an animal study may not be indicative of results achievable in human studies, that clinical testing is expensive and can take many years to complete, that the outcome of any clinical trial is uncertain and failure can occur at any time during the clinical trial process, and that our electroporation technology and DNA vaccines may fail to show the desired safety and efficacy traits in clinical trials; the availability of funding; the ability to manufacture vaccine candidates; the availability or potential availability of alternative therapies or treatments for the conditions targeted by us or our collaborators, including alternatives that may be more efficacious or cost-effective than any therapy or treatment that we and our collaborators hope to develop; whether our proprietary rights are enforceable or defensible or infringe or allegedly infringe on rights of others or can withstand claims of invalidity; and the impact of government healthcare proposals.

OUR COMPANY

We are engaged in the discovery, development, and delivery of a new generation of vaccines and immune therapies, called synthetic vaccines, focused on cancers and infectious diseases. Our DNA-based immune therapies, in combination with our proprietary electroporation delivery, are generating best-in-class immune responses, with therapeutic T-cell responses exceeding other technologies in terms of magnitude, breadth, and response rate. Our DNA-based SynCon[®] technology is also designed to provide universal protection against known as well as new unmatched strains of pathogens such as influenza. Human data to date have shown a favorable safety profile. Our clinical programs include HPV/cervical cancer (therapeutic), avian influenza (preventive), prostate cancer (therapeutic), leukemia (therapeutic), HCV, HBV and HIV vaccines. We are advancing preclinical research for a universal seasonal/pandemic influenza vaccine as well as other products. Our partners and collaborators include Roche, University of Pennsylvania, Drexel University, National Microbiology Laboratory of the Public Health Agency of Canada, Program for Appropriate Technology in Health/Malaria Vaccine Initiative, National Institute of Allergy and Infectious Diseases, United States Military HIV Research Program, U.S. Army Medical Research Institute of Infectious Diseases, HIV Vaccines Trial Network and Department of Homeland Security.

All of our potential human products are in research and development phases. We have not generated any revenues from the sale of any such products, and we do not expect to generate any such revenues for at least the next several years. We earn revenue from license fees and milestone revenue, collaborative research and development agreements, grants and government contracts. Our product candidates will require significant additional research and development efforts, including extensive preclinical and clinical testing. All product candidates that we advance to clinical testing will require regulatory approval prior to commercial use, and will require significant costs for commercialization. We may not be successful in our research and development efforts, and we may never generate sufficient product revenue

to be profitable.

Table of Contents

Our executive offices are located at 660 West Germantown Pike, Suite 110, Plymouth Meeting, Pennsylvania 19462, and our telephone number is (877) 446-6846. We maintain an Internet website at www.inovio.com. Information contained in or accessible through our website does not constitute part of this prospectus.

STATEMENT OF COMPUTATION OF RATIOS

The following table sets forth our ratio of earnings to fixed charges and to combined fixed charges and preferred stock dividends for the years ended December 31, 2009, 2010, 2011, 2012, 2013 and the three months ended March 31, 2014⁽¹⁾.

	Years Ended December 31,					Three Months Ended March 31,
	2009	2010	2011	2012	2013	2014
Ratio of earnings to fixed charges ⁽²⁾						

Ratio of earnings to Combined Fixed Charges and Preferred Stock dividends ⁽³⁾

- (1) We reported a loss from continuing operations for the years ended December 31, 2009, 2010, 2011, 2012, 2013 and the three months ended March 31, 2014 and would have needed to generate additional income of \$24,458,924, \$17,638,746, \$15,304,095, \$19,712,980, \$66,083,532 and \$10,830,868, respectively, to cover our fixed charges of \$408,647, \$261,425, \$141,900, \$146,520, \$313,500 and \$90,090, respectively.
- (2) For purposes of computing the ratio of earnings to fixed charges, earnings consist of net loss plus fixed charges. Fixed charges consist of interest expense and an estimate of the interest within rental expense.
- (3) For purposes of computing the ratio of earnings to combined fixed charges and preferred stock dividends, earnings consist of net loss plus fixed charges. Combined fixed charges and preferred stock dividends consist of interest expense, an estimate of interest within rental expense and preferred stock dividends.

USE OF PROCEEDS

Except as described in any prospectus supplement or in any related free writing prospectus that we may authorize to be provided to you, we currently intend to use the net proceeds from the sale of the securities offered hereby for general corporate purposes, research and development and clinical trial costs, including the costs associated with preparing for and conducting current and potential Phase 1, Phase 2 and Phase 3 clinical trials. We may also use a portion of the net proceeds to acquire or invest in businesses, products and technologies that are complementary to our own. Pending these uses, we expect to invest the net proceeds in short-term, investment-grade securities.

Table of Contents**SELECTED FINANCIAL DATA**

The following table sets forth our historical selected financial information. The share and per share information in the following table reflects the 4:1 reverse split of each share of our outstanding common stock effected on June 5, 2014.

	Year Ended December 31, 2013	Year Ended December 31, 2012	Year Ended December 31, 2011	Year Ended December 31, 2010	Year Ended December 31, 2009	Three Months Ended March 31, 2014	2013
<i>Operations Data:</i>							
Revenue under collaborative research and development arrangements, including from affiliated entity contracts and miscellaneous revenue	\$ 9,664,547	\$ 660,003	\$ 567,856	\$ 527,222	\$ 5,055,305	\$ 1,552,691	\$ 120,500
Total revenues	13,467,346	4,118,652	9,795,257	6,144,705	9,120,111	2,357,643	1,455,222
Loss from operations	(19,544,332)	(23,493,532)	(21,638,540)	(19,220,162)	(13,957,755)	(10,000,055)	(6,634,040)
Interest and other income, net	132,214	166,113	34,285	147,406	30,329	52,076	39,460
Change in fair value of common stock warrants	(45,632,669)	1,982,620	8,690,658	2,403,924	(1,286,884)	(505,926)	(1,427,610)
(Loss) Gain on investment in affiliated entity	(1,038,745)	1,631,819	(2,390,498)	(969,914)	(9,244,614)	(376,963)	(836,080)
Net loss	(66,083,532)	(19,712,980)	(15,304,095)	(17,638,746)	(24,458,924)	(10,830,868)	(8,858,280)
Net loss attributable to non-controlling interest	55,084	44,025	51,150	24,950	47,439	9,408	14,160
Net loss attributable to Inovio Pharmaceuticals, Inc.	\$ (66,028,448)	\$ (19,668,955)	\$ (15,252,945)	\$ (17,613,796)	\$ (24,411,485)	\$ (10,821,460)	\$ (8,844,120)

*Per common
share basic and
diluted:*

Edgar Filing: INOVIO PHARMACEUTICALS, INC. - Form 424B5

Net loss ⁽¹⁾	\$	(1.43)	\$	(0.58)	\$	(0.48)	\$	(0.68)	\$	(1.31)	\$	(0.20)	\$	(0.23)
Net loss attributable to common stockholders ⁽¹⁾	\$	(1.43)	\$	(0.58)	\$	(0.48)	\$	(0.68)	\$	(1.31)	\$	(0.20)	\$	(0.23)
Weighted average number of common shares outstanding basic and diluted ⁽¹⁾		46,087,773		34,127,312		31,559,834		25,800,470		18,678,535		55,159,001		39,038,888
Balance Sheet Data:														
Cash and cash equivalents	\$	33,719,796	\$	5,646,021	\$	17,350,116	\$	19,998,489	\$	30,296,215	\$	98,770,907	\$	20,086,796
Short-term investments		18,905,608		8,034,001		12,863,420		1,849,271		10,397,530		18,011,492		7,978,344
Total assets		88,287,207		45,138,754		61,106,561		56,067,391		80,628,917		151,657,645		58,201,444
Current liabilities		28,966,456		8,376,577		11,043,021		6,436,708		19,350,038		15,641,074		15,978,200
Cumulated deficit		(295,788,577)		(229,760,129)		(210,091,174)		(194,838,229)		(177,224,433)		(306,610,037)		(238,604,244)
Total stockholders' equity		52,902,683		34,857,405		47,861,662		47,100,911		61,184,947		129,179,907		40,420,590

(1) These amounts were revised to retroactively reflect effects of the June 5, 2014, 4 for 1 reverse stock split.

Table of Contents

DESCRIPTION OF CAPITAL STOCK

This prospectus contains summary descriptions of the common stock, preferred stock, warrants, debt securities and units that we may offer and sell from time to time. When we offer one or more of these securities in the future, a prospectus supplement will explain the particular terms of the securities and the extent to which these general provisions may apply. These summary descriptions and any summary descriptions in the applicable prospectus supplement do not purport to be complete descriptions of the terms and conditions of each security and are qualified in their entirety by reference to our certificate of incorporation and by-laws, each as amended to date, the Delaware General Corporation Law, or DGCL, and any other documents referenced in such summary

descriptions and from which such summary descriptions are derived. If any particular terms of a security described in the applicable prospectus supplement differ from any of the terms described in this prospectus, then the terms described in this prospectus will be deemed superseded by the terms set forth in that prospectus supplement.

We may issue securities in book-entry form through one or more depositories, such as The Depository Trust Company, named in the applicable prospectus supplement. Each sale of a security in book-entry form will settle in immediately available funds through the applicable depository, unless otherwise stated. We will issue the securities only in registered form, without coupons, although we may issue the securities in bearer form if so specified in the applicable prospectus supplement. If any securities are to be listed or quoted on a securities exchange or quotation system, the applicable prospectus supplement will so indicate.

Capital Stock

Our authorized capital stock consists of 600,000,000 shares of common stock, \$0.001 par value per share, and 10,000,000 shares of preferred stock, \$0.001 par value per share. As of July 21, 2014, there were:

60,317,679 shares of common stock outstanding; and

23 shares of Series C Cumulative Convertible Preferred Stock outstanding.

On June 5, 2014, we effected a reverse stock split of our common stock, whereby each four outstanding shares of our common stock were combined into one share of our common stock. All share numbers and prices per share in this prospectus reflect the consummation of such reverse stock split.

Common Stock

The holders of our common stock are entitled to one vote for each share held of record on all matters submitted to a vote of stockholders and do not have any cumulative voting rights. Any election at a meeting of stockholders is determined by a plurality of the votes cast by the stockholders entitled to vote at the election, and all other matters are generally determined by a majority of the votes cast on the matter. 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 funds legally available. In the event of we liquidate, dissolve or wind up, after payment of all of our debts and liabilities, and subject to the preferential rights, if any, of any outstanding preferred stock, the holders of our common stock are entitled to share ratably in all assets. Our common stock has no preemptive or conversion rights or other subscription rights, and there are no redemptive or sinking funds provisions applicable to the our common stock. We have received full payment for all outstanding shares of our common stock and cannot require our stockholders to make further payments on the

stock.

Preferred Stock

Pursuant to our certificate of incorporation, our board of directors has the authority, without further action by the stockholders (unless such stockholder action is required by applicable law or NYSE MKT rules), to designate and issue up to 10,000,000 shares of preferred stock in one or more series, to establish from time to time the number

Table of Contents

of shares to be included in each such series, to fix the designations, powers, preferences and rights of the shares of each wholly unissued series, and any qualifications, limitations or restrictions thereon, and to increase or decrease the number of shares of any such series, but not below the number of shares of such series then outstanding.

We will fix the designations, powers, preferences and rights of the preferred stock of each series, as well as the qualifications, limitations or restrictions thereon, 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 SEC, the form of any certificate of designation that describes the terms of the series of preferred stock we are offering before the issuance of that series of preferred stock. This description will include:

the title and stated value;

the number of shares we are offering;

the liquidation preference per share;

the purchase price;

the dividend rate, period and payment date and method of calculation for dividends;

whether dividends will be cumulative or non-cumulative and, if cumulative, the date from which dividends will accumulate;

the procedures for any auction and remarketing, if any;

the provisions for a sinking fund, if any;

the provisions for redemption or repurchase, if applicable, and any restrictions on our ability to exercise those redemption and repurchase rights;

any listing of the preferred stock on any securities exchange or market;

whether the preferred stock will be convertible into our common stock, and, if applicable, the conversion price, or how it will be calculated, and the conversion period;

whether the preferred stock will be exchangeable into debt securities, and, if applicable, the exchange price, or how it will be calculated, and the exchange period;

voting rights, if any, of the preferred stock;

preemptive rights, if any;

restrictions on transfer, sale or other assignment, if any;

whether interests in the preferred stock will be represented by depositary shares;

a discussion of any material United States federal income tax considerations applicable to the preferred stock;

the relative ranking and preferences of the preferred stock as to dividend rights and rights if we liquidate, dissolve or wind up our affairs;

any limitations on the issuance of any class or series of preferred stock ranking senior to or on a parity with the series of preferred stock as to dividend rights and rights if we liquidate, dissolve or wind up our affairs; and

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

Our board of directors may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of our common stock. Preferred stock could be issued quickly with terms designed to delay or prevent a change in control of our company or make removal of management more difficult. Additionally, the issuance of preferred stock may have the effect of decreasing the market price of our common stock.

Table of Contents

Stock Options, Warrants and Convertible Preferred Stock

As of July 21, 2014, we have reserved 7,368,144 shares of common stock for issuance under our equity compensation plans, upon exercise of outstanding stock options, warrants or upon conversion of outstanding convertible preferred stock. Of this number, we have reserved 4,943,567 shares for issuance upon exercise of outstanding options that we previously granted under our stock option plans, 972,779 shares for issuance upon exercise of options that we may grant in the future under our stock option plans, 1,443,342 shares for issuance upon exercise of outstanding warrants and 8,456 shares for issuance upon conversion of outstanding shares of preferred stock.

Delaware Anti-Takeover Law and Certain Charter Provisions

Delaware Section 203. We are subject to the provisions of Section 203 of the Delaware General Corporation Law. In general, the statute prohibits a publicly held Delaware corporation from engaging in a business combination with an interested stockholder for a period of three years following the date that the stockholder became an interested stockholder unless:

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

upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, 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, those shares owned by persons who are directors and also officers, and 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 such date, the board of directors approves the business combination and stockholders authorize the business combination at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least two-thirds of the outstanding voting stock that the interested stockholder does not own.

A business combination includes a merger, asset or stock sale or other transaction resulting in financial benefit to the stockholder. An interested stockholder is a person who, together with affiliates and associates, owns, or within three years prior, did own, 15% or more of a corporation's outstanding voting stock.

Charter Provisions. Our amended and restated certificate of incorporation includes the following provisions, among others:

the authority of our board of directors to issue shares of undesignated preferred stock and to determine the rights, preferences and privileges of these shares, without stockholder approval;

all stockholder actions must be effected at a duly called meeting of stockholders and not by written consent;
and

the elimination of cumulative voting.

Indemnification. Our certificate of incorporation and our bylaws provide that we will indemnify officers and directors against losses as they incur in investigations and legal proceedings resulting from their services to us, which may include service in connection with takeover.

These provisions may have the effect of deterring hostile takeovers or delaying changes in our control or management. We intend these provisions to enhance the likelihood of continued stability in the composition of our board of directors and in the policies they implement, and to discourage certain types of transactions that may involve an actual or threatened change of our control. We designed these provisions to reduce our vulnerability to an unsolicited acquisition proposal. We also intend for the provisions to discourage certain tactics that may be

Table of Contents

used in proxy fights. However, such provisions could have the effect of discouraging others from making tender offers for our shares and, as a consequence, they also may inhibit fluctuations in the market price of our shares that could result from actual or rumored takeover attempts. Such provisions may also have the effect of preventing changes in our management.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Computershare. Its address is 3rd Floor 510 Burrard St., Vancouver, BC V6C 3B9, and its telephone number is (604) 661-0258. The transfer agent for any series of preferred stock that we may offer under this prospectus will be named and described in the prospectus supplement for that series.

DESCRIPTION OF DEBT SECURITIES

We may issue debt securities, in one or more series, as either senior or subordinated debt or as senior or subordinated convertible debt. While the terms we have summarized below will apply generally to any debt securities that we may offer under this prospectus, we will describe the particular terms of any debt securities that we may offer in more detail in the applicable prospectus supplement. The terms of any debt securities offered under a prospectus supplement may differ from the terms described below. Unless the context requires otherwise, whenever we refer to the indentures, we also are referring to any supplemental indentures that specify the terms of a particular series of debt securities.

We will issue the senior debt securities under the senior indenture that we will enter into with the trustee named in the senior indenture. We will issue the subordinated debt securities under the subordinated indenture that we will enter into with the trustee named in the subordinated indenture. The indentures will be qualified under the Trust Indenture Act of 1939. We use the term *debenture trustee* to refer to either the trustee under the senior indenture or the trustee under the subordinated indenture, as applicable. We have filed forms of indentures to the registration statement of which this prospectus is a part, and supplemental indentures and forms of debt securities containing the terms of the debt securities being offered will be filed as exhibits to the registration statement of which this prospectus is a part or will be incorporated by reference from reports that we file with the SEC.

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

General

We will describe in the applicable prospectus supplement the terms of the series of debt securities being offered, including:

the title;

the principal amount being offered, and if a series, the total amount authorized and the total amount outstanding;

any limit on the amount that may be issued;

whether or not we will issue the series of debt securities in global form, the terms and who the depositary will be;

Table of Contents

the maturity date;

whether and under what circumstances, if any, we will pay additional amounts on any debt securities held by a person who is not a United States person for tax purposes, and whether we can redeem the debt securities if we have to pay such additional amounts;

the annual interest rate, which may be fixed or variable, or the method for determining the rate and the date interest will begin to accrue, the dates interest will be payable and the regular record dates for interest payment dates or the method for determining such dates;

whether or not the debt securities will be secured or unsecured, and the terms of any secured debt;

the terms of the subordination of any series of subordinated debt;

the place where payments will be payable;

restrictions on transfer, sale or other assignment, if any;

our right, if any, to defer payment of interest and the maximum length of any such deferral period;

the date, if any, after which, and the price at which, we may, at our option, redeem the series of debt securities pursuant to any optional or provisional redemption provisions and the terms of those redemption provisions;

the date, if any, on which, and the price at which we are obligated, pursuant to any mandatory sinking fund or analogous fund provisions or otherwise, to redeem, or at the holder's option to purchase, the series of debt securities and the currency or currency unit in which the debt securities are payable;

whether the indenture will restrict our ability and/or the ability of our subsidiaries to:

incur additional indebtedness;

issue additional securities;

create liens;

pay dividends and make distributions in respect of our capital stock and the capital stock of our subsidiaries;

redeem capital stock;

place restrictions on our subsidiaries' ability to pay dividends, make distributions or transfer assets;

make investments or other restricted payments;

sell or otherwise dispose of assets;

enter into sale-leaseback transactions;

engage in transactions with stockholders and affiliates;

issue or sell stock of our subsidiaries; or

effect a consolidation or merger;

whether the indenture will require us to maintain any interest coverage, fixed charge, cash flow-based, asset-based or other financial ratios;

a discussion of any material United States federal income tax considerations applicable to the debt securities;

information describing any book-entry features;

provisions for a sinking fund purchase or other analogous fund, if any;

Table of Contents

the applicability of the provisions in the indenture on discharge;

whether the debt securities are to be offered at a price such that they will be deemed to be offered at an original issue discount as defined in paragraph (a) of Section 1273 of the Internal Revenue Code;

the denominations in which we will issue the series of debt securities, if other than denominations of \$1,000 and any integral multiple thereof;

the currency of payment of debt securities if other than U.S. dollars and the manner of determining the equivalent amount in U.S. dollars; and

any other specific terms, preferences, rights or limitations of, or restrictions on, the debt securities, including any additional events of default or covenants provided with respect to the debt securities, and any terms that may be required by us or advisable under applicable laws or regulations.

Conversion or Exchange Rights

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

Consolidation, Merger or Sale

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

Events of Default Under the Indenture

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

if we fail to pay interest when due and payable and our failure continues for 90 days and the time for payment has not been extended or deferred;

if we fail to pay the principal, premium or sinking fund payment, if any, when due and payable and the time for payment has not been extended or delayed;

if we fail to observe or perform any other covenant contained in the debt securities or the indentures, other than a covenant specifically relating to another series of debt securities, and our failure continues for 90 days after we receive notice from the debenture trustee or holders of at least 25% in aggregate principal amount of the outstanding debt securities of the applicable series; and

if specified events of bankruptcy, insolvency or reorganization occur.

If an event of default with respect to debt securities of any series occurs and is continuing, other than an event of default specified in the last bullet point above, the debenture trustee or the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series, by notice to us in writing, and to the

Table of Contents

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

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

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

the direction so given by the holder is not in conflict with any law or the applicable indenture; and

subject to its duties under the Trust Indenture Act of 1939, the debenture trustee need not take any action that might involve it in personal liability or might be unduly prejudicial to the holders not involved in the proceeding.

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

the holder has given written notice to the debenture trustee of a continuing event of default with respect to that series;

the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series have made written request, and such holders have offered reasonable indemnity to the debenture trustee to institute the proceeding as trustee; and

the debenture trustee does not institute the proceeding, and does not receive from the holders of a majority in aggregate principal amount of the outstanding debt securities of that series other conflicting directions within 90 days after the notice, request and offer.

These limitations do not apply to a suit instituted by a holder of debt securities if we default in the payment of the principal, premium, if any, or interest on, the debt securities.

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

Modification of Indenture; Waiver

We and the debenture trustee may change an indenture without the consent of any holders with respect to specific matters:

to fix any ambiguity, defect or inconsistency in the indenture;

to comply with the provisions described above under Description of Debt Securities Consolidation, Merger or Sale;

Table of Contents

to comply with any requirements of the SEC in connection with the qualification of any indenture under the Trust Indenture Act of 1939;

to add to, delete from or revise the conditions, limitations, and restrictions on the authorized amount, terms, or purposes of issue, authentication and delivery of debt securities, as set forth in the indenture;

to provide for the issuance of and establish the form and terms and conditions of the debt securities of any series as provided under Description of Debt Securities General to establish the form of any certifications required to be furnished pursuant to the terms of the indenture or any series of debt securities, or to add to the rights of the holders of any series of debt securities;

to evidence and provide for the acceptance of appointment hereunder by a successor trustee;

to provide for uncertificated debt securities in addition to or in place of certificated debt securities and to make all appropriate changes for such purpose;

to add to our covenants such new covenants, restrictions, conditions or provisions for the protection of the holders, and to make the occurrence, or the occurrence and the continuance, of a default in any such additional covenants, restrictions, conditions or provisions an event of default; or

to change anything that does not materially adversely affect the interests of any holder of debt securities of any series.

In addition, under the indentures, the rights of holders of a series of debt securities may be changed by us and the debenture trustee with the written consent of the holders of at least a majority in aggregate principal amount of the outstanding debt securities of each series that is affected. However, unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities, we and the debenture trustee may make the following changes only with the consent of each holder of any outstanding debt securities affected:

extending the fixed maturity of the series of debt securities;

reducing the principal amount, reducing the rate of or extending the time of payment of interest, or reducing any premium payable upon the redemption of any debt securities; or

reducing the percentage of debt securities, the holders of which are required to consent to any amendment, supplement, modification or waiver.

Discharge

Each indenture provides that we can elect to be discharged from our obligations with respect to one or more series of debt securities, except for specified obligations, including obligations to:

register the transfer or exchange of debt securities of the series;

replace stolen, lost or mutilated debt securities of the series;

maintain paying agencies;

hold monies for payment in trust;

recover excess money held by the debenture trustee;

compensate and indemnify the debenture trustee; and

appoint any successor trustee.

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

Table of Contents

Form, Exchange and Transfer

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

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

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

We will name in the applicable prospectus supplement the security registrar, and any transfer agent in addition to the security registrar, that we initially designate for any debt securities. We may at any time designate additional transfer agents or rescind the designation of any transfer agent or approve a change in the office through which any transfer agent acts, except that we will be required to maintain a transfer agent in each place of payment for the debt securities of each series.

If we elect to redeem the debt securities of any series, we will not be required to:

issue, register the transfer of, or exchange any debt securities of that series during a period beginning at the opening of business 15 days before the day of mailing of a notice of redemption of any debt securities that may be selected for redemption and ending at the close of business on the day of the mailing; or

register the transfer of or exchange any debt securities so selected for redemption, in whole or in part, except the unredeemed portion of any debt securities we are redeeming in part.

Information Concerning the Debenture Trustee

The debenture trustee, other than during the occurrence and continuance of an event of default under an indenture, undertakes to perform only those duties as are specifically set forth in the applicable indenture. Upon an event of default under an indenture, the debenture trustee must use the same degree of care as a prudent person would exercise or use in the conduct of his or her own affairs. Subject to this provision, the debenture trustee is under no obligation to exercise any of the powers given it by the indentures at the request of any holder of debt securities unless it is offered reasonable security and indemnity against the costs, expenses and liabilities that it might incur.

Payment and Paying Agents

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

Table of Contents

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

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

Governing Law

The indentures and the debt securities will be governed by and construed in accordance with the laws of the State of New York, except to the extent that the Trust Indenture Act of 1939 is applicable.

Subordination of Subordinated Debt Securities

The subordinated debt securities will be unsecured and will be subordinate and junior in priority of payment to certain of our other indebtedness to the extent described in a prospectus supplement. The subordinated indenture does not limit the amount of subordinated debt securities that we may issue, nor does it limit us from issuing any other secured or unsecured debt.

DESCRIPTION OF WARRANTS

We may issue warrants for the purchase of common stock, preferred stock and/or debt securities in one or more series. We may issue warrants independently or together with common stock, preferred stock and/or debt securities, and the warrants may be attached to or separate from these securities. While the terms summarized below will apply generally to any warrants that we may offer, we will describe the particular terms of any series of warrants in more detail in the applicable prospectus supplement. The terms of any warrants offered under a prospectus supplement may differ from the terms described below.

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 with the SEC, the form of warrant agreement, including a form of warrant certificate, that describes the terms of the particular series of warrants we are offering before the issuance of the related series of warrants. The following summaries of material provisions of the warrants and the warrant agreements are subject to, and qualified in their entirety by reference to, all the provisions of the warrant agreement and warrant certificate applicable to the particular series of warrants that we may offer under this prospectus. We urge you to read the applicable prospectus supplements related to the particular series of warrants that we may offer under this prospectus, as well as any related free writing prospectuses, and the complete warrant agreements and warrant certificates that contain the terms of the warrants.

General

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

the offering price and aggregate number of warrants offered;

the currency for which the warrants may be purchased;

Table of Contents

if applicable, the designation and terms of the securities with which the warrants are issued and the number of warrants issued with each such security or each principal amount of such security;

if applicable, the date on and after which the warrants and the related securities will be separately transferable;

in the case of warrants to purchase debt securities, the principal amount of debt securities purchasable upon exercise of one warrant and the price at, and currency in which, this principal amount of debt securities may be purchased upon such exercise;

in the case of warrants to purchase common stock or preferred stock, the number of shares of common stock or preferred stock, as the case may be, purchasable upon the exercise of one warrant and the price at which these shares may be purchased upon such exercise;

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

the terms of any rights to redeem or call the warrants;

any provisions for changes to or adjustments in the exercise price or number of securities issuable upon exercise of the warrants;

the dates on which the right to exercise the warrants will commence and expire;

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

a discussion of any material or special United States federal income tax consequences of holding or exercising the warrants;

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

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

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 debt securities, the right to receive payments of principal of, or premium, if any, or interest on, the debt securities purchasable upon exercise or to enforce covenants in the applicable indenture; or

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. Holders of the warrants may exercise the warrants at any time up to the specified time 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 amount to the warrant agent in immediately available funds, as 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

Table of Contents

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. If we so indicate in the applicable prospectus supplement, holders of the warrants may surrender securities as all or part of the exercise price for warrants.

Governing Law

Unless we provide otherwise in the applicable prospectus supplement, the warrants and warrant agreements will be governed by and construed in accordance with the laws of the State of New York.

Enforceability of Rights by Holders of Warrants

Each 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 its right to exercise, and receive the securities purchasable upon exercise of, its warrants.

DESCRIPTION OF UNITS

We may issue, in one more series, units consisting of common stock, preferred stock, debt securities and/or warrants for the purchase of common stock, preferred stock and/or debt securities in any combination. While the terms we have summarized below will apply generally to any units that we may offer under this prospectus, we will describe the particular terms of any series of units in more detail in the applicable prospectus supplement. The terms of any units offered under a prospectus supplement may differ from the terms described below.

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 with the SEC, the form of unit agreement that describes the terms of the series of units we are offering, and any supplemental agreements, before the issuance of the related series of units. The following summaries of material terms and provisions of the units are subject to, and qualified in their entirety by reference to, all the provisions of the unit agreement and any supplemental agreements applicable to a particular series of units. We urge you to read the applicable prospectus supplements related to the particular series of units that we may offer under this prospectus, as well as any related free writing prospectuses and the complete unit agreement and any supplemental agreements that contain the terms of the units.

General

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

We will describe in the applicable prospectus supplement the terms of the series of units being offered, including:

the designation and terms of the units and of the securities comprising the units, including whether and under what circumstances those securities may be held or transferred separately;

any provisions of the governing unit agreement that differ from those described below; and

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

Table of Contents

The provisions described in this section, as well as those described under [Description of Capital Stock](#), [Description of Debt Securities](#) and [Description of Warrants](#) will apply to each unit and to any common stock, preferred stock, debt security or warrant included in each unit, respectively.

Issuance in Series

We may issue units in such amounts and in such numerous distinct series as we determine.

Enforceability of Rights by Holders of Units

Each unit agent will act solely as our agent under the applicable unit agreement and will not assume any obligation or relationship of agency or trust with any holder of any unit. A single bank or trust company may act as unit agent for more than one series of units. A unit agent will have no duty or responsibility in case of any default by us under the applicable unit agreement or unit, including any duty or responsibility to initiate any proceedings at law or otherwise, or to make any demand upon us. Any holder of a unit may, without the consent of the related unit agent or the holder of any other unit, enforce by appropriate legal action its rights as holder under any security included in the unit.

We, and any unit agent and any of their agents, may treat the registered holder of any unit certificate as an absolute owner of the units evidenced by that certificate for any purpose and as the person entitled to exercise the rights attaching to the units so requested, despite any notice to the contrary. See [Legal Ownership of Securities](#) below.

LEGAL OWNERSHIP OF SECURITIES

We can issue securities in registered form or in the form of one or more global securities. We describe global securities in greater detail below. We refer to those persons who have securities registered in their own names on the books that we or any applicable trustee, depositary or warrant agent maintain for this purpose as the [holders](#) of those securities. These persons are the legal holders of the securities. We refer to those persons who, indirectly through others, own beneficial interests in securities that are not registered in their own names, as [indirect holders](#) of those securities. As we discuss below, indirect holders are not legal holders, and investors in securities issued in book-entry form or in street name will be indirect holders.

Book-Entry Holders

We may issue securities in book-entry form only, as we will specify in the applicable prospectus supplement. This means securities may be represented by one or more global securities registered in the name of a financial institution that holds them as depositary on behalf of other financial institutions that participate in the depositary's book-entry system. These participating institutions, which are referred to as participants, in turn, hold beneficial interests in the securities on behalf of themselves or their customers.

Only the person in whose name a security is registered is recognized as the holder of that security. Securities issued in global form will be registered in the name of the depositary or its participants. Consequently, for securities issued in global form, we will recognize only the depositary as the holder of the securities, and we will make all payments on the securities to the depositary. The depositary passes along the payments it receives to its participants, which in turn pass the payments along to their customers who are the beneficial owners. The depositary and its participants do so under agreements they have made with one another or with their customers; they are not obligated to do so under the terms of the securities.

As a result, investors in a book-entry security will not own securities directly. Instead, they will own beneficial interests in a global security, through a bank, broker or other financial institution that participates in the depositary's book-entry system or holds an interest through a participant. As long as the securities are issued in global form, investors will be indirect holders, and not holders, of the securities.

Table of Contents

Street Name Holders

We may terminate a global security or issue securities in non-global form. In these cases, investors may choose to hold their securities in their own names or in street name. Securities held by an investor in street name would be registered in the name of a bank, broker or other financial institution that the investor chooses, and the investor would hold only a beneficial interest in those securities through an account he or she maintains at that institution.

For securities held in street name, we will recognize only the intermediary banks, brokers and other financial institutions in whose names the securities are registered as the holders of those securities, and we will make all payments on those securities to them. These institutions pass along the payments they receive to their customers who are the beneficial owners, but only because they agree to do so in their customer agreements or because they are legally required to do so. Investors who hold securities in street name will be indirect holders, not holders, of those securities.

Legal Holders

Our obligations, as well as the obligations of any applicable trustee and of any third parties employed by us or a trustee, run only to the legal holders of the securities. We do not have obligations to investors who hold beneficial interests in global securities, in street name or by any other indirect means. This will be the case whether an investor chooses to be an indirect holder of a security or has no choice because we are issuing the securities only in global form.

For example, once we make a payment or give a notice to the holder, we have no further responsibility for the payment or notice even if that holder is required, under agreements with depositary participants or customers or by law, to pass it along to the indirect holders but does not do so. Similarly, we may want to obtain the approval of the holders to amend an indenture, to relieve us of the consequences of a default or of our obligation to comply with a particular provision of the indenture or for other purposes. In such an event, we would seek approval only from the holders, and not the indirect holders, of the securities. Whether and how the holders contact the indirect holders is up to the holders.

Special Considerations For Indirect Holders

If you hold securities through a bank, broker or other financial institution, either in book-entry form or in street name, you should check with your own institution to find out:

how it handles securities payments and notices;

whether it imposes fees or charges;

how it would handle a request for the holders' consent, if ever required;

whether and how you can instruct it to send you securities registered in your own name so you can be a holder, if that is permitted in the future;

how it would exercise rights under the securities if there were a default or other event triggering the need for holders to act to protect their interests; and

if the securities are in book-entry form, how the depositary's rules and procedures will affect these matters.

Global Securities

A global security is a security that represents one or any other number of individual securities held by a depositary. Generally, all securities represented by the same global securities will have the same terms.

Table of Contents

Each security issued in book-entry form will be represented by a global security that we deposit with and register in the name of a financial institution or its nominee that we select. The financial institution that we select for this purpose is called the depository. Unless we specify otherwise in the applicable prospectus supplement, The Depository Trust Company, New York, New York, known as DTC, will be the depository for all securities issued in book-entry form.

A global security may not be transferred to or registered in the name of anyone other than the depository, its nominee or a successor depository, unless special termination situations arise. We describe those situations below under **Special Situations When a Global Security Will Be Terminated**. As a result of these arrangements, the depository, or its nominee, will be the sole registered owner and holder of all securities represented by a global security, and investors will be permitted to own only beneficial interests in a global security. Beneficial interests must be held by means of an account with a broker, bank or other financial institution that in turn has an account with the depository or with another institution that does. Thus, an investor whose security is represented by a global security will not be a holder of the security, but only an indirect holder of a beneficial interest in the global security.

If the prospectus supplement for a particular security indicates that the security will be issued in global form only, then the security will be represented by a global security at all times unless and until the global security is terminated. If termination occurs, we may issue the securities through another book-entry clearing system or decide that the securities may no longer be held through any book-entry clearing system.

Special Considerations For Global Securities

The rights of an indirect holder relating to a global security will be governed by the account rules of the investor's financial institution and of the depository, as well as general laws relating to securities transfers. We do not recognize an indirect holder as a holder of securities and instead deal only with the depository that holds the global security.

If securities are issued only in the form of a global security, an investor should be aware of the following:

an investor cannot cause the securities to be registered in his or her name, and cannot obtain non-global certificates for his or her interest in the securities, except in the special situations we describe below;

an investor will be an indirect holder and must look to his or her own bank or broker for payments on the securities and protection of his or her legal rights relating to the securities, as we describe above;

an investor may not be able to sell interests in the securities to some insurance companies and to other institutions that are required by law to own their securities in non-book-entry form;

an investor may not be able to pledge his or her interest in a global security in circumstances where certificates representing the securities must be delivered to the lender or other beneficiary of the pledge in order for the pledge to be effective;

the depository's policies, which may change from time to time, will govern payments, transfers, exchanges and other matters relating to an investor's interest in a global security;

we and any applicable trustee have no responsibility for any aspect of the depositary's actions or for its records of ownership interests in a global security, nor do we or any applicable trustee supervise the depositary in any way;

the depositary may, and we understand that DTC will, require that those who purchase and sell interests in a global security within its book-entry system use immediately available funds, and your broker or bank may require you to do so as well; and

financial institutions that participate in the depositary's book-entry system, and through which an investor holds its interest in a global security, may also have their own policies affecting payments, notices and other matters relating to the securities.

Table of Contents

There may be more than one financial intermediary in the chain of ownership for an investor. We do not monitor and are not responsible for the actions of any of those intermediaries.

Special Situations When a Global Security Will Be Terminated

In a few special situations described below, the global security will terminate and interests in it will be exchanged for physical certificates representing those interests. After that exchange, the choice of whether to hold securities directly or in street name will be up to the investor. Investors must consult their own banks or brokers to find out how to have their interests in securities transferred to their own name, so that they will be direct holders. We have described the rights of holders and street name investors above.

Unless we provide otherwise in the applicable prospectus supplement, the global security will terminate when the following special situations occur:

if the depository notifies us that it is unwilling, unable or no longer qualified to continue as depository for that global security and we do not appoint another institution to act as depository within 90 days;

if we notify any applicable trustee that we wish to terminate that global security; or

if an event of default has occurred with regard to securities represented by that global security and has not been cured or waived.

The prospectus supplement may also list additional situations for terminating a global security that would apply only to the particular series of securities covered by the applicable prospectus supplement. When a global security terminates, the depository, and not we or any applicable trustee, is responsible for deciding the names of the institutions that will be the initial direct holders.

PLAN OF DISTRIBUTION

We may sell the securities from time to time pursuant to underwritten public offerings, negotiated transactions, block trades or a combination of these methods. We may sell the securities to or through underwriters or dealers, through agents, or directly to one or more purchasers. We may distribute securities from time to time in one or more transactions:

at a fixed price or prices, which may be changed;

at market prices prevailing at the time of sale;

at prices related to such prevailing market prices; or

at negotiated prices.

A prospectus supplement or supplements will describe the terms of the offering of the securities, including:

the name or names of the underwriters, if any;

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

any over-allotment options under which underwriters may purchase additional securities from us;

any agency fees or underwriting discounts and other items constituting agents or underwriters compensation;

any public offering price;

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

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

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

Table of Contents

If underwriters are used in the sale, they will acquire the securities for their own account and may resell the securities from time to time in one or more transactions at a fixed public offering price or at varying prices determined at the time of sale. The obligations of the underwriters to purchase the securities will be subject to the conditions set forth in the applicable underwriting agreement. We may offer the securities to the public through underwriting syndicates represented by managing underwriters or by underwriters without a syndicate. Subject to certain conditions, the underwriters will be obligated to purchase all of the securities offered by the prospectus supplement, other than securities covered by any over-allotment option. Any public offering price and any discounts or concessions allowed or reallocated or paid to dealers may change from time to time. We may use underwriters with whom we have a material relationship. We will describe in the prospectus supplement, naming the underwriter, the nature of any such relationship.

We may sell 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, our agent will act on a best-efforts basis for the period of its appointment.

We may authorize agents or underwriters to solicit offers by certain types of 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.

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

All securities we may offer, other than common stock, will be new issues of securities with no established trading market. Any underwriter may make a market in these securities, but will not be obligated to do so and may discontinue any market making at any time without notice. We cannot guarantee the liquidity of the trading markets for any securities.

Any underwriter may engage in over-allotment, stabilizing transactions, short-covering transactions and penalty bids in accordance with Regulation M under the Exchange Act. Over-allotment involves sales in excess of the offering size, which create a short position. Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum price. Syndicate-covering or other short-covering transactions involve purchases of the securities, either through exercise of the over-allotment option or in the open market after the distribution is completed, to cover short positions. Penalty bids permit the underwriters to reclaim a selling concession from a dealer when the securities originally sold by the dealer are purchased in a stabilizing or covering transaction to cover short positions. Those activities may cause the price of the securities to be higher than it would otherwise be. If commenced, the underwriters may discontinue any of the activities at any time.

Any underwriters that are qualified market makers on the NYSE MKT may engage in passive market making transactions in the common stock on the NYSE MKT in accordance with Regulation M under the Exchange Act, during the business day prior to the pricing of the offering, before the commencement of offers or sales of the common stock. Passive market makers must comply with applicable volume and price limitations and must be identified as passive market makers. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for such security; if all independent bids are lowered below the passive market maker's bid, however, the passive market maker's bid must then be lowered when certain 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.

Table of Contents

In compliance with guidelines of the Financial Industry Regulatory Authority, or FINRA, the maximum consideration or discount to be received by any FINRA member or independent broker dealer may not exceed 8% of the aggregate amount of the securities offered pursuant to this prospectus and any applicable prospectus supplement.

VALIDITY OF SECURITIES

Unless otherwise indicated in the applicable prospectus supplement, Duane Morris LLP, Philadelphia, Pennsylvania, will pass upon the validity of the securities offered by this prospectus.

EXPERTS

The consolidated financial statements of Inovio Pharmaceuticals, Inc. appearing in Inovio Pharmaceuticals, Inc.'s Annual Report (Form 10-K) for the year ended December 31, 2013, and the effectiveness of Inovio Pharmaceuticals, Inc.'s internal control over financial reporting as of December 31, 2013 have been audited by Ernst & Young LLP, independent registered public accounting firm, as set forth in their reports thereon, included therein, and incorporated herein by reference. Such consolidated financial statements are incorporated herein by reference in reliance upon such reports given on the authority of such firm as experts in accounting and auditing.

Table of Contents

Shares

INOVIO PHARMACEUTICALS, INC.

Common Stock

PROSPECTUS SUPPLEMENT

Piper Jaffray

Stifel

, 2015