

Anthera Pharmaceuticals Inc
Form 424B5
March 20, 2015
Table of Contents

Filed Pursuant to Rule 424(b)(5)
Registration No. 333-187780

PROSPECTUS SUPPLEMENT

(To Prospectus dated April 18, 2013)

5,555,556 Shares

Common Stock

We are offering 5,555,556 shares of our common stock. Our common stock is quoted on The NASDAQ Global Market under the symbol ANTH. On March 18, 2015, the last reported sale price of our common stock on The NASDAQ Global Market was \$4.37 per share.

Investing in our common stock involves a high degree of risk. Please read Risk Factors beginning on page S-8 of this prospectus supplement and in the documents incorporated by reference into this prospectus supplement.

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 are truthful or complete. Any representation to the contrary is a criminal offense.

	PER SHARE	TOTAL
Public Offering Price	\$ 4.50	\$ 25,000,002
Underwriting Discounts and Commissions	\$ 0.27	\$ 1,500,000
Proceeds to Anthera Before Expenses	\$ 4.23	\$ 23,500,002

Delivery of the shares of common stock is expected to be made on or about March 23, 2015. We have granted the underwriter an option for a period of 30 days to purchase up to an additional 833,333 shares of our common stock solely to cover over-allotments, if any. If the underwriter exercises the option in full, the total underwriting discounts and commissions payable by us will be \$1,725,000 and the total proceeds to us, before expenses, will be \$27,025,000.

Edgar Filing: Anthera Pharmaceuticals Inc - Form 424B5

Piper Jaffray

Prospectus supplement dated March 18, 2015

Table of Contents

Table of Contents

PROSPECTUS SUPPLEMENT

	Page
<u>About this Prospectus Supplement</u>	S-1
<u>Cautionary Statement About Forward-Looking Information</u>	S-1
<u>Prospectus Supplement Summary</u>	S-3
<u>Risk Factors</u>	S-8
<u>Use of Proceeds</u>	S-9
<u>Dilution</u>	S-10
<u>Certain U.S. Federal Income Tax Considerations for Non-U.S. Holders of Common Stock</u>	S-11
<u>Underwriting</u>	S-14
<u>Legal Matters</u>	S-18
<u>Experts</u>	S-18
<u>Incorporation of Certain Information by Reference</u>	S-18

PROSPECTUS

<u>Prospectus Summary</u>	1
<u>Risk Factors</u>	4
<u>Special Note Regarding Forward-Looking Statements</u>	4
<u>Description Of Securities</u>	5
<u>Use Of Proceeds</u>	21
<u>Ratio Of Earnings To Fixed Charges</u>	22
<u>Plan Of Distribution</u>	22
<u>Legal Matters</u>	24
<u>Experts</u>	24
<u>Incorporation Of Certain Information By Reference</u>	24
<u>Where You Can Find More Information</u>	25

We have not, and the underwriter has not, authorized anyone to provide you with different information than that contained or incorporated by reference in this prospectus supplement, the accompanying prospectus or in any free writing prospectus that we have authorized for use in connection with this offering. If anyone provides you with different or inconsistent information, you should not rely on it. We are not, and the underwriter is not, making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information in this prospectus supplement, the offer or sale is not permitted. You should assume that the information in this prospectus supplement, the accompanying prospectus, the documents incorporated by reference in this prospectus supplement and the accompanying prospectus, and in any free writing prospectus that we have authorized for use in connection with this offering, is accurate only as of the date of those respective documents. Our business, financial condition, results of operations and prospects may have changed since those dates. You should read this prospectus supplement, the accompanying prospectus, the documents incorporated by reference in this prospectus supplement and the accompanying prospectus, and any free writing prospectus that we have authorized for use in connection with this offering, in their entirety before making an investment decision. You should also read and consider the information in the documents to which we have referred you in the Section of this prospectus supplement entitled **Incorporation**

of Certain Information by Reference.

S-i

Table of Contents

ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus form part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission, or SEC, using a shelf registration process. This document contains two parts. The first part consists of this prospectus supplement, which provides you with specific information about this offering. The second part, the accompanying prospectus, provides more general information, some of which may not apply to this offering. Generally, when we refer only to the prospectus, we are referring to both parts combined. This prospectus supplement may add, update or change information contained in the accompanying prospectus. To the extent that any statement we make in this prospectus supplement is inconsistent with statements made in the accompanying prospectus or any documents incorporated by reference herein or therein, the statements made in this prospectus supplement will be deemed to modify or supersede those made in the accompanying prospectus and such documents incorporated by reference herein and therein.

Unless the context otherwise requires, we use the terms Anthera Pharmaceuticals, Anthera, we, us, the Company, our in this prospectus supplement to refer to Anthera Pharmaceuticals, Inc. and its subsidiaries.

All references in this prospectus supplement to our consolidated financial statements include, unless the context indicates otherwise, the related notes.

The industry and market data and other statistical information contained in the documents we incorporate by reference are based on management's own estimates, independent publications, government publications, reports by market research firms or other published independent sources, and, in each case, are believed by management to be reasonable estimates. Although we believe these sources are reliable, we have not independently verified the information.

CAUTIONARY STATEMENT ABOUT FORWARD-LOOKING INFORMATION

This prospectus and the documents incorporated by reference into it contain forward-looking statements. Forward-looking statements relate to future events or our future financial performance. We generally identify forward-looking statements by terminology such as may, will, would, should, expects, plans, anticipates, intends, target, projects, contemplates, believes, estimates, predicts, assume, intend, potential, could, or similar words or the negative of these terms. These statements are only predictions. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our business, financial condition and results of operations. The outcome of the events described in these forward-looking statements is subject to risks, uncertainties and other factors described in Risk Factors and in our periodic filings with the SEC, incorporated by reference or included in this prospectus supplement or the accompanying prospectus. Accordingly, you should not place undue reliance upon these forward-looking statements. We cannot assure you that the events and circumstances reflected in the forward-looking statements will be achieved or occur. Also, the timing of events and circumstances and actual results could differ materially from those projected in the forward-looking statements. Forward-looking statements contained in this prospectus include, but are not limited to, statements about:

our expectations related to the use of proceeds, if any, from this offering;

Edgar Filing: Anthera Pharmaceuticals Inc - Form 424B5

the progress of, timing of and amount of expenses associated with our research, development and commercialization activities;

the timing, conduct and success of our clinical studies for our product candidates;

our ability to obtain U.S. and foreign regulatory approval for our product candidates and the ability of our product candidates to meet existing or future regulatory standards;

S-1

Table of Contents

our expectations regarding federal, state and foreign regulatory requirements;

the therapeutic benefits and effectiveness of our product candidates;

the accuracy of our estimates of the size and characteristics of the markets that may be addressed by our product candidates;

our ability to manufacture sufficient amounts of our product candidates for clinical studies and products for commercialization activities;

our intention to seek to establish strategic collaborations or partnerships for the development or sale of our product candidates;

our expectations as to future financial performance, expense levels and liquidity sources;

the timing of commercializing our product candidates;

our ability to compete with other companies that are or may be developing or selling products that are competitive with our product candidates;

anticipated trends and challenges in our potential markets;

our ability to attract and retain key personnel; and

other factors discussed elsewhere in this prospectus or any prospectus supplement.

The forward-looking statements made or incorporated by reference in this prospectus relate only to events as of the date on which the statements are made. We have included important factors in the cautionary statements included in this prospectus and incorporated herein by reference, including under the caption entitled **Risk Factors** that we believe could cause actual results or events to differ materially from the forward-looking statements that we make. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures or investments we may make. Except as required by law, we do not assume any intent to update any forward-looking statements after the date on which the statement is made, whether as a result of new information, future events or circumstances or otherwise.

Table of Contents

PROSPECTUS SUPPLEMENT SUMMARY

*The following summary of our business highlights some of the information contained elsewhere in or incorporated by reference into this prospectus supplement. Because this is only a summary, however, it does not contain all of the information that may be important to you. You should carefully read this prospectus supplement and the accompanying prospectus, including the documents incorporated by reference, which are described under *Incorporation of Certain Information by Reference* in this prospectus supplement. You should also carefully consider the matters discussed in the Section in this prospectus supplement entitled *Risk Factors* and in the accompanying prospectus and in other periodic reports incorporated herein by reference.*

Our Company

We are a biopharmaceutical company focused on advancing the development and commercialization of innovative medicines that benefit patients with unmet medical needs. Our first Phase 3 product candidate, blisibimod, licensed from Amgen, Inc. in December 2007, targets B-cell activating factor, or BAFF, which has been shown to be elevated in a variety of B-cell mediated autoimmune diseases, including systemic lupus erythematosus (SLE), or lupus, Immunoglobulin A nephropathy, or IgA nephropathy, lupus nephritis, and others. Our second Phase 3 product candidate, liprotamase, licensed from Eli Lilly & Co (Eli Lilly) in July 2014, is a novel non-porcine investigational Pancreatic Enzyme Replacement Therapy (PERT) intended for the treatment of patients with Exocrine Pancreatic Insufficiency (EPI), often seen in patients with cystic fibrosis and other conditions.

Summary of Product Development Programs

Blisibimod: a Potent Inhibitor of B-Cell Activating Factor

Blisibimod is a peptibody antagonist of the BAFF cytokine which we are developing as a subcutaneous administered treatment for systemic lupus erythematosus, or lupus and IgA nephropathy, or IgAN. BAFF, also known as BlyS, is a tumor necrosis family member and is critical to the development, maintenance and survival of B-cells. Although the cause of lupus is still not completely understood, B-cell activation and autoantibody production are known to be central to the process. Evidence has emerged that overexpression of BAFF plays an important role in this disease process. In preclinical studies, transgenic mice created to over-express BAFF begin to exhibit symptoms similar to lupus. In preclinical studies in mice that develop lupus-like disease, BAFF is known to be elevated, and treatment with blisibimod improves outcomes and survival. Similarly, there is increasing evidence of an association between B-cell activating factor (BAFF) and IgA nephropathy. In preclinical studies, mice that overexpress BAFF develop an IgA-associated nephropathy with renal manifestations similar to that of human IgA nephropathy. Patients with lupus or IgA nephropathy have elevated serum levels of BAFF.

Our Phase 3 Development of Blisibimod in Lupus

In the third quarter of 2012 at an End of Phase 2 meeting with the U.S. FDA, we presented the results of the PEARL-SC clinical study and our plans for Phase 3 registration studies in patients with active lupus. As a result of this meeting we initiated patient enrollment in the initial Phase 3 CHABLIS-SC1 study in March 2013.

CHABLIS-SC1 is a multicenter, randomized, double-blind, placebo-controlled study designed to evaluate the efficacy, safety, tolerability and immunogenicity of blisibimod in patients with seropositive, clinically-active lupus (SELENA-SLEDAI > 10) who require corticosteroid therapy in addition to standard-of-care for treatment of their disease. The study plans to randomize up to 400 patients to receive either 200mg of blisibimod or placebo in addition to their standard-of-care medication for 52 weeks. We expect to complete enrollment in mid-

S-3

Table of Contents

2015 and receive topline data after the last enrolled patient completes 52 weeks of treatment in mid-2016. The primary endpoint of the CHABLIS-SC1 will be clinical improvement in the SRI-6 response at 52 weeks. Key secondary outcomes from the study, including SRI-8, reduction in the number of lupus flares and steroid use, are intended to further differentiate blisibimod from currently available therapies. To date, enrolled patient demographics and disease characteristics for the CHABLIS-SC1 study are consistent with our goal to enroll patients with higher levels of lupus activity and positive biomarkers despite the stable use of corticosteroids. These characteristics were associated with improved outcomes in both our previous Phase 2 clinical study as well as in two large Phase 3 studies conducted with another BAFF-inhibitor, tabalumab.

An independent Data Safety Monitoring Board (DSMB) meets regularly over the course of the study to assess patient safety. During these regular meeting, the DSMB reviews un-blinded safety data which include adverse events, suspected unexpected serious adverse reactions or SUSARs, deaths, laboratory data, and withdrawals data and compares trends between treatments. After the most recent scheduled meeting in October 2014, the DSMB recommended continuing the CHABLIS-SC1 and BRIGHT-SC clinical studies.

In February 2015, an interim analysis of CHABLIS-SC1 was conducted by an independent un-blinded statistician, who evaluated at a pre-specified point of time, the proportion of the responders to the systemic lupus erythematosus SRI-6 responder index, and recommended the study to continue to completion as planned. This futility analysis was not intended to provide any rules for stopping for overwhelming efficacy, for a change in study sample size, or for an alteration of the study design. Rather, the analysis suggests that the observed data conforms with the assumptions upon which the trial was designed. The systemic lupus erythematosus response index is a recognized endpoint by the FDA for previously approved therapeutics. Prior to the interim analysis and in response to input from our Scientific Advisory Board who evaluated the published clinical data from other recent lupus studies with BAFF inhibitors, we modified the primary endpoint of CHABLIS-SC1 from a comparison of the proportion of responders to the SRI-8 responder index to a comparison of the proportion of responders to the SRI-6 responder index (previously a secondary endpoint of the study). The available data suggests an improved consistency of the SRI-6 endpoint across multiple trials. Response rates to the SRI-8 responder index will remain a key secondary endpoint of the study. In addition to serving as a registration study for a potential lupus indication, observations in this study are intended to be included in marketing applications for blisibimod in IgA nephropathy and other indications.

Our Phase 2/3 Development of Blisibimod for in IgA Nephropathy

The BRIGHT-SC study is a Phase 2/3 multicenter, randomized, double-blind, placebo-controlled study to evaluate the efficacy, safety, tolerability and immunogenicity of blisibimod in IgA nephropathy. We intend to enroll up to 200 patients with biopsy-proven IgA nephropathy who have proteinuria greater than one gram per 24 hours (1g/24hr) and are receiving standard of care medication including angiotensin converting enzyme inhibitors and angiotensin receptor blockers. We initiated our BRIGHT-SC1 study in the second quarter of 2013. Patients enrolled in the BRIGHT-SC study receive 300mg weekly blisibimod or placebo subcutaneously during the first 8 weeks of therapy, the induction phase, followed by 24 weeks of 200mg weekly blisibimod or placebo, the maintenance phase. The BRIGHT-SC clinical study is currently recruiting patients primarily in Southeast Asia. We intend to expand the study in the EU, North America and Latin America in 2015 with the goal to complete enrollment by the first half of 2016. We plan to conduct an interim futility analysis in the first quarter of 2015 to determine the effect of blisibimod on proteinuria and other relevant renal biomarkers such as IgA and IgG levels in blood when at least 20 patients have completed eight weeks of treatment.

In September 2013, we met with the FDA who agreed to consider accepting proteinuria as an endpoint for Subpart E approval for blisibimod in IgA nephropathy. In April 2014, we met with the Japan Pharmaceuticals and Medical Devices Agency (PMDA) to discuss our registration program for blisibimod in IgA nephropathy. In this meeting we

gained the PMDA's agreement on the acceptability of proteinuria as the primary efficacy endpoint to support marketing approval in Japan and have amended the BRIGHT-SC study to include the

S-4

Table of Contents

specific data requirements of the PMDA. In December 2014 we met with the European Medicines Agency (EMA) as part of the scientific advice process for blisibimod. We reached an agreement with the EMA on the acceptability of proteinuria as the primary efficacy variable as well as the requirement for a single study to support a Conditional Marketing Authorization Application (CMAA) provided that confirmatory evidence from a second study, would be available post approval. The EMA also recommended the protocol to provide information on the required duration of treatment, duration of response and need for re-treatment. The BRIGHT SC protocol will be amended to reflect these recommendations from the EMA, along with other recommendations from the FDA and PMDA.

In March 2015, an interim futility analysis of BRIGHT-SC study was conducted by an independent un-blinded statistician, who evaluated several important biomarkers of renal disease in patients who had completed at least 8 weeks of treatment and recommended the study to continue to completion as planned.

Partnership

In December 2014, we entered in an exclusive license agreement with Zenyaku Kogyo Co., Ltd (Zenyaku) for the development and commercialization of blisibimod in Japan and potentially other countries throughout Asia. We retain full development and commercialization rights of blisibimod for all other global territories including North America and the European Union and we are actively pursuing various partnerships with major pharmaceutical and biotech companies to develop and commercialize blisibimod in these territories.

Liprotamase: a Novel Pancreatic Enzyme Replacement Therapy (PERT)

Pancreatic enzyme replacement therapy is currently the mainstay of treatment for nutrient malabsorption in patients with digestive enzyme deficiencies known as exocrine pancreatic insufficiency, or EPI. EPI occurs when diseases such as cystic fibrosis, or CF, and chronic pancreatitis impede or destroy the exocrine function of the pancreas. Orally delivered porcine PERTs have been available for many years for the treatment of EPI. Unmet medical needs for the treatment of EPI remain. For example, as the porcine-derived proteins contained in the PERTs pass through the low pH environment of the stomach, enzyme activity rapidly diminishes and, as a consequence, large doses of porcine enzymes are often required. Since protease and lipase can become irreversibly inactivated in an acid environment, most products are provided as enteric-coated microbeads. Patient-to-patient variability in acidification of the intestine makes dissolution variable. Poor stability and variability in terms of potency and pharmaceutical properties have also been identified as important factors contributing to a poor response of some patients to PERTs.

Liprotamase is a novel PERT intended for the treatment of EPI. The exocrine pancreas is responsible for synthesis and secretion of digestive enzymes, including lipase, protease, and amylase. EPI occurs when diseases such as cystic fibrosis (CF) and chronic pancreatitis (CP) impede or destroy the exocrine function of the pancreas. A reduction in, or absence of the normally secreted pancreatic digestive enzymes, causes lipids, proteins, and carbohydrates to enter the distal gastrointestinal (GI) tract in unabsorbable forms, leading to GI pain and distention, maldigestion, and steatorrhea. Without appropriate therapy, patients with EPI may experience malnutrition, poor growth or weight loss, reduced quality of life, and, in severe cases, increased morbidity and early death.

We believe liprotamase is potentially the first soluble, stable and non-porcine derived enzyme product to offer a novel solution to patients who are unable to maintain appropriate nutritional health with existing enzyme therapies. Liprotamase s chemical characteristics, unlike currently available PERTs, make it ideal for powder formulation as either a capsule or sachet product, which can be conveniently co-administered with a small volume of water.

S-5

Table of Contents

Our Phase 3 Development of Liprotamase in Exocrine Pancreatic Insufficiency

Upon completion of the development and manufacture of liprotamase in sachet formulation, we plan to initiate the SOLUTION study in the second half of 2015. SOLUTION is a Phase 3, randomized, open-label, assessor-blind, non-inferiority, active-comparator study evaluating the efficacy and safety of liprotamase in patients with cystic fibrosis-related exocrine pancreatic insufficiency. This pivotal study is intended to evaluate the non-inferiority of liprotamase compared with other commercially available PERT in a population enriched for PERT responders. We believe the SOLUTION study may offer a number of potential opportunities for differentiation versus the currently marketed PERTs, including:

solubility and reduced pill burden: liprotamase is a powder which can be easily be dissolved into water, or swallowed as capsules;

patient convenience: a sachet formulation of liprotamase, as a water soluble product, may offer convenience and advantages to patients currently using pills; for example, patients unwilling or unable to swallow large quantities of capsules at every snack or meal would likely prefer a sachet formulation that reduces pill burden, this is especially true with young children who find large capsules intolerable;

potential to provide an option to patients and caregivers a non-porcine, non-enterically coated biotechnology-derived PERT; and

lower pill burden given a larger concentration of lipase per capsule: adult patients who may prefer liprotamase capsules will be able to take less capsules and smaller capsules in order to attain the same enzyme dosage. The size of the capsule can be smaller than comparable porcine-PERTs since a relatively high dose (lipase units) of non-enterically-coated liprotamase enzymes can be packed into small capsules compared to the large capsules necessary for the crude porcine pancreas enterically-coated extract.

Corporate Information

We were incorporated in Delaware on September 9, 2004 as Anthera Pharmaceuticals, Inc. Our corporate headquarters are located at 25801 Industrial Boulevard, Suite B, Hayward, California 94545 and our telephone number is (510) 856-5600. Our website address is www.anthera.com. Information contained on or accessible through our website is not a part of, and is not incorporated into, this prospectus supplement or the accompanying prospectus and should not be considered part of this prospectus supplement or the accompanying prospectus.

We use various trademarks, service marks and trade names in our business, including without limitation Anthera Pharmaceuticals and Anthera. This prospectus supplement also contains trademarks, service marks and trade names of other businesses that are the property of their respective holders.

Table of Contents

THE OFFERING

Common stock offered by us	5,555,556 shares
Common stock to be outstanding immediately after this offering	28,560,765 shares
Use of proceeds	We intend to use the net proceeds from this offering for clinical research and development and general corporate purposes. See Use of Proceeds.
Risk factors	This investment involves a high degree of risk. See the information contained in or incorporated by reference under Risk Factors beginning on page S-8 of this prospectus supplement and in the documents incorporated by reference into this prospectus supplement.
NASDAQ Global Market listing	Our common stock is listed on The NASDAQ Global Market under the symbol ANTH.

The number of shares of common stock to be outstanding immediately after this offering is based on 23,005,209 shares outstanding on December 31, 2014 and excludes as of that date:

options representing the right to purchase a total of 3,021,969 shares of common stock at a weighted-average exercise price of \$3.67 per share;

restricted stock units representing a total of 937 shares of common stock issuable upon vesting;

warrants representing the right to purchase a total of 556,838 shares of common stock at a weighted-average exercise price of \$24.99 per share;

2,795,895 shares of common stock issued to Zenyaku Kogyo, Co. Ltd. (Zenyaku) pursuant to the Company's collaboration agreement with Zenyaku on January 26, 2015;

420,751 shares of common stock issued to Amgen Inc. (Amgen) pursuant to an amendment to a license agreement with Amgen on January 27, 2015; and

Edgar Filing: Anthera Pharmaceuticals Inc - Form 424B5

3,116,568 shares of common stock issued pursuant to an at-the-market equity offering subsequent to December 31, 2014 and through March 16, 2015.

If the underwriter's option to purchase additional shares is exercised in full, we will issue and sell an additional 833,333 shares of our common stock and will have 29,394,098 shares outstanding after the offering.

Except as otherwise noted, all information in this prospectus supplement assumes no exercise of the underwriter's option to purchase additional shares.

S-7

Table of Contents

RISK FACTORS

An investment in our common stock involves a high degree of risk. Before deciding whether to invest in our common stock, you should carefully consider the risks discussed under the Section captioned "Risk Factors" contained in our Annual Report on Form 10-K for the year ended December 31, 2014, which is incorporated by reference in this prospectus supplement and the accompanying prospectus in their entirety, together with other information in this prospectus supplement, the accompanying prospectus, the information and documents incorporated by reference herein and therein, and in any free writing prospectus that we have authorized for use in connection with this offering. If any of these risks actually occurs, our business, financial condition, results of operations or cash flow could be seriously harmed. This could cause the trading price of our common stock to decline, resulting in a loss of all or part of your investment.

Risks Relating to this Offering

You will experience immediate and substantial dilution in the book value per share of the common stock you purchase.

The public offering price of our common stock being offered is substantially higher than the net tangible book value per share of our common stock outstanding prior to this offering. Therefore, if you purchase our common stock in this offering, you will incur an immediate substantial dilution of \$3.76 in net tangible book value per share from the price you paid. For a further description of the dilution that you will experience immediately after this offering, see the section titled "Dilution."

We have broad discretion to determine how to use the proceeds raised in this offering, and we may not use the proceeds effectively.

Our management will have broad discretion over the use of proceeds from this offering, and we could spend the proceeds from this offering in ways with which you may not agree or that do not yield a favorable return. We intend to use the net proceeds from this offering for general corporate purposes. We may also use a portion of the net proceeds to acquire or invest in complementary businesses, products and technologies, although we have no current plans, commitments or agreements with respect to any such acquisitions or investments, and we have not allocated the net proceeds from this offering for any specific purposes. If we do not invest or apply the proceeds of this offering in ways that improve our operating results, we may fail to achieve expected financial results, which could cause our stock price to decline.

Table of Contents

USE OF PROCEEDS

We estimate that the net proceeds of the sale of 5,555,556 shares of common stock that we are offering will be approximately \$23.3 million, or approximately \$26.8 million if the underwriter exercises its option to purchase additional shares in full, based on the public offering price of \$4.50 per share and after deducting estimated underwriting discounts and commissions and estimated offering expenses that we must pay.

We intend to use the net proceeds from this offering for clinical research and development and general corporate purposes. 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, we will retain broad discretion over the use of such proceeds

Pending use of the proceeds as described above or otherwise, we intend to invest the net proceeds in short-term interest-bearing, investment-grade securities.

S-9

Table of Contents**DILUTION**

Our net tangible book value as of December 31, 2014 was approximately \$(2.3) million, or \$(0.10) per share. Net tangible book value per share is determined by dividing our total tangible assets, less total liabilities, by the number of shares of our common stock outstanding as of December 31, 2014. Dilution in net tangible book value per share represents the difference between the amount per share paid by purchasers of shares of common stock in this offering and the net tangible book value per share of our common stock immediately after this offering.

After giving effect to the sale of 5,555,556 shares of our common stock in this offering at the public offering price of \$4.50 per share and after deducting estimated underwriting discounts and commissions and estimated offering expenses we must pay, our as adjusted net tangible book value as of December 31, 2014 would have been approximately \$21 million, or \$0.74 per share. This represents an immediate increase in net tangible book value of \$0.84 per share to existing stockholders and immediate dilution in net tangible book value of \$3.76 per share to new investors purchasing our common stock in this offering. The following table illustrates this dilution on a per share basis:

Public offering price per share	\$ 4.50
Net tangible book value per share as of December 31, 2014	\$ (0.10)
Increase per share attributable to new investors	\$ 0.84
As adjusted net tangible book value per share after this offering	\$ 0.74
Dilution per share to new investors	\$ 3.76

If the underwriter exercises its option to purchase 833,333 additional shares of common stock at the public offering price of \$4.50 per share, the as adjusted net tangible book value after this offering would be \$0.84 per share, representing an increase in net tangible book value of \$0.94 per share to existing stockholders and immediate dilution in net tangible book value of \$3.66 per share to new investors purchasing our common stock in this offering.

The number of shares of common stock to be outstanding after this offering is based on 23,005,209 shares outstanding on December 31, 2014 and excludes as of that date:

options representing the right to purchase a total of 3,021,969 shares of common stock at a weighted-average exercise price of \$3.67 per share;

restricted stock units representing a total of 937 shares of common stock issuable upon vesting;

warrants representing the right to purchase a total of 556,838 shares of common stock at a weighted-average exercise price of \$24.99 per share;

2,795,895 shares of common stock issued to Zenyaku Kogyo, Co. Ltd. (Zenyaku) pursuant to the Company's collaboration agreement with Zenyaku on January 26, 2015;

Edgar Filing: Anthera Pharmaceuticals Inc - Form 424B5

420,751 shares of common stock issued to Amgen Inc. (Amgen) pursuant to an amendment to a license agreement with Amgen on January 27, 2015; and

3,116,568 shares of common stock issued pursuant to an at-the-market equity offering subsequent to December 31, 2014 and through March 16, 2015.

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

S-10

Table of Contents

CERTAIN U.S. FEDERAL INCOME TAX CONSIDERATIONS FOR NON-U.S. HOLDERS OF COMMON STOCK

The following is a discussion of certain U.S. federal income tax considerations to non-U.S. holders with respect to their ownership and disposition of our common stock issued pursuant to this offering. In general, a non-U.S. holder is any beneficial owner of our common stock that is a non-resident alien individual or foreign corporation for U.S. federal income tax purposes.

Generally, an individual may be treated as a resident of the United States (and not as a non-resident alien) in any calendar year for U.S. federal income tax purposes by, among other ways, being present in the United States for at least 31 days in that calendar year and for an aggregate of at least 183 days during a three-year period ending in the current calendar year. For purposes of this calculation, such individual would count all of the days in which the individual was present in the current year, one-third of the days present in the immediately preceding year, and one-sixth of the days present in the second preceding year. Residents are taxed for U.S. federal income tax purposes as if they were citizens of the United States.

This discussion is based on current provisions of the Internal Revenue Code, U.S. Treasury Regulations promulgated under the Internal Revenue Code, judicial opinions, published positions of the Internal Revenue Service, or IRS, and all other applicable authorities, all of which are subject to change, possibly with retroactive effect. No ruling has been or will be sought from the IRS with respect to the matters discussed below, and there can be no assurance that the IRS will not take a contrary position or that any such contrary position would not be sustained by a court. This discussion assumes that the non-U.S. holder will hold our common stock as a capital asset (generally property held for investment).

This discussion does not address all aspects of U.S. federal income taxation or any aspects of alternative minimum, estate, state, local, or non-U.S. taxation. It also does not consider any specific facts or circumstances that may apply to particular non-U.S. holders that may be subject to special treatment under the U.S. federal income tax laws, including, but not limited to:

insurance companies;

tax-exempt organizations;

financial institutions;

regulated investment companies;

tax-qualified retirement plans;

brokers or dealers in securities;

investors that hold our common stock as part of a straddle, hedge, conversion transaction, synthetic security or other integrated investment;

controlled foreign corporations;

passive foreign investment companies; and

U.S. expatriates.

If a partnership or any other entity or arrangement taxed as a partnership for U.S. federal income tax purposes is a beneficial owner of our common stock, the treatment of a partner in the partnership will generally depend upon the status of the equity owner of such partnership and the activities of the partnership. Accordingly, partnerships (and entities and arrangements taxed as partnerships) that hold our common stock and owners in such partnerships (or other entities or arrangements taxed as partnerships) are urged to consult their tax advisors regarding the specific U.S. federal income tax consequences to them of acquiring, owning or disposing of our common stock.

S-11

Table of Contents

PROSPECTIVE INVESTORS ARE URGED TO CONSULT THEIR TAX ADVISORS REGARDING THE PARTICULAR U.S. FEDERAL INCOME TAX CONSEQUENCES TO THEM OF ACQUIRING, OWNING AND DISPOSING OF SHARES OF OUR COMMON STOCK, AS WELL AS THE U.S. FEDERAL, STATE, LOCAL AND NON-U.S. INCOME AND OTHER TAX CONSIDERATIONS OF ACQUIRING, OWNING AND DISPOSING OF SHARES OF COMMON STOCK.

Dividends

We do not anticipate declaring or paying any cash dividends on our common stock in the foreseeable future. However, if we do make distributions on our common stock, those payments will constitute dividends for U.S. tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. To the extent those distributions exceed our current and accumulated earnings and profits, they will constitute a return of capital and will first reduce the recipient's adjusted tax basis in our common stock, but not below zero, and then will be treated as gain from the sale of stock as described below under the heading **Gain on Sale or Other Disposition of Common Stock**.

Dividends paid to a non-U.S. holder will be subject to U.S. federal withholding tax at a rate equal to 30 percent of the gross amount of the dividend, or a lower rate prescribed by an applicable income tax treaty, unless the dividends are effectively connected with a trade or business carried on by the non-U.S. holder within the United States (and, if required by an applicable income tax treaty, are attributable to a U.S. permanent establishment maintained by the non-U.S. holder). Under applicable Treasury Regulations, a non-U.S. holder will be required to satisfy certain certification requirements, generally on IRS Form W-8BEN (or applicable successor form), directly or through an intermediary, in order to claim a reduced rate of withholding under an applicable income tax treaty. If tax is withheld in an amount in excess of the amount prescribed by an applicable income tax treaty, a refund of the excess amount may be obtained by the non-U.S. holder by timely filing an appropriate claim for refund with the IRS.

Dividends that are effectively connected with such a U.S. trade or business (and, if required by an applicable income tax treaty, are attributable to a U.S. permanent establishment maintained by the recipient) will not be subject to U.S. withholding tax if the non-U.S. holder files the required forms, generally an IRS Form W-8ECI (or applicable successor form), with the payor of the dividend, but instead will be subject to U.S. federal income tax on a net income basis in the same manner as if the non-U.S. holder were a resident of the United States. A foreign corporation that receives dividends constituting effectively connected income may, under certain circumstances, be subject to an additional branch profits tax at a rate of 30 percent, or a lower rate prescribed by an applicable income tax treaty, with respect to such effectively connected income.

Gain on Sale or Other Disposition of Common Stock

A non-U.S. holder will not be subject to U.S. federal income tax on any gain realized upon the sale or other taxable disposition of the non-U.S. holder's shares of common stock unless:

the gain is effectively connected with a trade or business carried on by the non-U.S. holder within the United States (and, if required by an applicable tax treaty, is attributable to a U.S. permanent establishment or a fixed base maintained by the non-U.S. holder), in which case the non-U.S. holder generally will be required to pay tax on the net gain derived from the sale under regular graduated U.S. federal income tax rates and, if the non-U.S. holder is a corporation, the branch profits tax may apply, at a 30 percent rate or such lower rate as may be specified by an applicable income tax treaty;

the non-U.S. holder is a nonresident alien individual who is present in the United States for 183 days or more in the taxable year of disposition (and is not otherwise treated as a U.S. resident alien for U.S. federal income tax purposes) and certain other conditions are met, in which case the non-U.S. holder will be required to pay a flat 30 percent tax (or such lower rate as may be specified by an applicable income tax treaty between the United States and such non-U.S. holder's country of residence) on the net gain

S-12

Table of Contents

derived from the disposition, which tax may be offset by U.S. source capital losses, if any, provided that the non-U.S. holder has timely filed U.S. federal income tax returns with respect to such losses; or

our common stock constitutes a U.S. real property interest by reason of our status as a United States real property holding corporation, or USRPHC, for U.S. federal income tax purposes at any time within the shorter of the five-year period preceding the disposition or the non-U.S. holder's holding period for our common stock.

We believe that we are not currently and will not become a USRPHC. However, because the determination of whether we are a USRPHC depends on the fair market value of our U.S. real property relative to the fair market value of our other business assets, there can be no assurance that we will not become a USRPHC in the future. Even if we become a USRPHC, however, as long as our common stock is regularly traded on an established securities market, such common stock will be treated as U.S. real property interests only if the non-U.S. holder actually or constructively held more than five percent of our common stock at any time during the shorter of the five-year period preceding the disposition or the non-U.S. holder's holding period for our common stock.

Information Reporting and Backup Withholding

We must report annually to the IRS and to each non-U.S. holder the amount of dividends on our common stock, the name and address of the recipient and the amount, if any, of tax withheld. These information reporting requirements apply even if withholding was not required because the dividends were effectively connected dividends or withholding was reduced by an applicable income tax treaty. Under tax treaties or other agreements, the IRS may make its reports available to tax authorities in the country in which the non-U.S. holder resides or is established.

Dividend payments made to a non-U.S. holder that is not an exempt recipient generally will be subject to backup withholding at the then applicable rate (currently 28 percent) unless the non-U.S. holder certifies as to its foreign status, which certification may be made by providing the Company with an IRS Form W-8BEN or IRS Form W-8ECI, as applicable, and certain other requirements are met. Notwithstanding the foregoing, backup withholding may apply if either we or our paying agent has actual knowledge, or reason to know, that the holder is a U.S. person that is not an exempt recipient.

Backup withholding is not an additional tax. Rather, the amount of tax withheld is applied to the U.S. federal income tax liability of persons subject to backup withholding. If backup withholding results in an overpayment of U.S. federal income taxes, a refund may be obtained, provided the required documents are timely filed with the IRS.

Legislation Relating to Foreign Accounts

The Internal Revenue Code generally will impose a U.S. federal withholding tax of 30 percent on dividends and the gross proceeds of a disposition of our common stock paid to a foreign financial institution (as specifically defined for this purpose) unless such institution enters into an agreement with the U.S. government to, among other things, withhold on certain payments and to collect and provide to the U.S. tax authorities substantial information regarding U.S. account holders of such institution (which includes certain equity and debt holders of such institution, as well as certain account holders that are foreign entities with U.S. owners). The legislation also will generally impose a U.S. federal withholding tax of 30 percent on dividends and the gross proceeds of a disposition of our common stock to a non-financial foreign entity unless such entity provides the withholding agent with either a certification that it does not have any substantial direct or indirect U.S. owners or provides information regarding direct and indirect U.S. owners of the entity. Under certain transition rules, any obligation under this legislation to withhold with respect to dividends on our common stock will not begin until January 1, 2014 and with respect to gross proceeds of a sale or other

disposition of our common stock will not begin until January 1, 2017. Under certain circumstances, a non-U.S. holder might be eligible for refunds or credits of such taxes. Holders are encouraged to consult with their own tax advisors regarding the possible implications of the legislation on their investment in our common stock.

S-13

Table of Contents**UNDERWRITING**

Subject to the terms and conditions stated in the underwriting agreement dated the date of this prospectus supplement, the underwriter agreed to purchase, and we have agreed to sell to the underwriter, the number of shares set forth opposite the underwriter's name.

Underwriter	Number of Shares
Piper Jaffray & Co.	5,555,556
Total	

The underwriting agreement provides that the obligations of the underwriter to purchase the shares included in this offering are subject to approval of legal matters by counsel and to other conditions. The underwriter is obligated to purchase all the shares (other than those covered by the over-allotment option described below) if it purchases any of the shares.

Shares sold by the underwriter to the public will initially be offered at the initial public offering price set forth on the cover of this prospectus supplement. If all the shares are not sold at the initial offering price, the underwriter may change the offering price and the other selling terms.

If the underwriter sells more shares than the total number set forth in the table above, we have granted to the underwriter an option, exercisable for 30 days from the date of this prospectus supplement, to purchase up to 833,333 additional shares at the public offering price less the underwriting discount. The underwriter may exercise the option solely for the purpose of covering over-allotments, if any, in connection with this offering. Any shares issued or sold under the option will be issued and sold on the same terms and conditions as the other shares that are the subject of this offering.

We and our officers and directors have agreed that, for a period of 90 days from the date of this prospectus supplement, we and they will not, without the prior written consent of Piper Jaffray & Co., offer, sell, contract to sell or otherwise dispose of, or enter into any transaction that is designed to, or could be expected to, result in the disposition of any shares of our common stock or other securities convertible into or exchangeable or exercisable for shares of our common stock or derivatives of our common stock owned by these persons prior to this offering or common stock issuable upon exercise of options or warrants held by these persons. Transfers can be made by our officers and directors during the lock-up period in the case of (a) shares of common stock acquired in open market transactions after the completion of this offering, (b) gifts or for estate planning purposes and distributions to partners, members or stockholders of the transferor where the transferee signs a lock-up agreement, and (c) shares of common stock (i) as forfeitures of common stock to satisfy tax withholding obligations of the stockholder in connection with the vesting or exercise of equity awards by the stockholder pursuant to our 2005 Equity Incentive Plan, or 2005 Equity Plan, and 2010 Stock Option and Incentive Plan, or 2010 Equity Plan, or pursuant to a net exercise or cashless exercise by the stockholder of outstanding equity awards pursuant to our 2005 Equity Plan and 2010 Equity Plan, or (ii) pursuant to the conversion or sale of, or an offer to purchase, all or substantially all of our outstanding common stock, whether pursuant to a merger, tender offer or otherwise; provided that in the case of a transfer in clause (c)(i) above, no filing under Section 16(a) of the Exchange Act shall be required or shall be voluntarily made in connection with such transactions. The Piper Jaffray & Co. may release any of the securities subject to these lock-up agreements in its sole discretion at any time without notice. Notwithstanding the foregoing, if (i) during the last 17 days of the 90-day restricted period, we issue an earnings release or material news or a material event relating to our company occurs; or (ii) prior to the expiration of the 90-day restricted period, we announce that we will release earnings results during the 16-day period beginning on the last day of the 90-day restricted period, the restrictions described above

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.

S-14

Table of Contents

The shares are listed on the NASDAQ Global Market under the symbol ANTH .

The following table shows the underwriting discounts and commissions that we are to pay to the underwriter in connection with this offering. These amounts are shown assuming both no exercise and full exercise of the underwriter's over-allotment option.

	Paid by	
	Anthera Pharmaceuticals, Inc.	
	No Exercise	Full Exercise
Per Share	\$ 0.27	\$ 0.27
Total	\$ 1,500,000	\$ 1,725,000

We estimate that our portion of the total expenses of this offering will be \$196,000.

In connection with the offering, the underwriter may purchase and sell shares in the open market. Purchases and sales in the open market may include short sales, purchases to cover short positions, which may include purchases pursuant to the over-allotment option, and stabilizing purchases.

Short sales involve secondary market sales by the underwriter of a greater number of shares than it is required to purchase in the offering.

Covered short sales are sales of shares in an amount up to the number of shares represented by the underwriter's over-allotment option.

Naked short sales are sales of shares in an amount in excess of the number of shares represented by the underwriter's over-allotment option.

Covering transactions involve purchases of shares either pursuant to the over-allotment option or in the open market after the distribution has been completed in order to cover short positions.

To close a naked short position, the underwriter must purchase shares in the open market after the distribution has been completed. A naked short position is more likely to be created if the underwriter is concerned that there may be downward pressure on the price of the shares in the open market after pricing that could adversely affect investors who purchase in the offering.

To close a covered short position, the underwriter must purchase shares in the open market after the distribution has been completed or must exercise the over-allotment option. In determining the source of shares to close the covered short position, the underwriter will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which it may purchase shares through the over-allotment option.

Stabilizing transactions involve bids to purchase shares so long as the stabilizing bids do not exceed a specified maximum.

Purchases to cover short positions and stabilizing purchases, as well as other purchases by the underwriter for its own account, may have the effect of preventing or retarding a decline in the market price of the shares. They may also cause the price of the shares to be higher than the price that would otherwise exist in the open market in the absence of these transactions. The underwriter may conduct these transactions on the NASDAQ Global Market, in the over-the-counter market or otherwise. If the underwriter commences any of these transactions, it may discontinue them at any time.

In addition, in connection with this offering, the underwriter may engage in passive market making transactions in the shares on the NASDAQ Global Market, prior to the pricing and completion of the offering. Passive market making consists of displaying bids on the NASDAQ Global Market no higher than the bid prices of independent market makers and making purchases at prices no higher than those independent bids and effected in response to order flow. Net purchases by a passive market maker on each day are limited to a specified percentage of the

S-15

Table of Contents

passive market maker's average daily trading volume in the shares during a specified period and must be discontinued when that limit is reached. Passive market making may cause the price of the shares to be higher than the price that otherwise would exist in the open market in the absence of those transactions. If the underwriter commences passive market making transactions, it may discontinue them at any time.

The underwriter may, from time to time, engage in transactions with and perform services for us in the ordinary course of its business, for which it may receive customary fees and reimbursement of expenses.

We have agreed to indemnify the underwriter against certain liabilities, including liabilities under the Securities Act, or to contribute to payments the underwriter may be required to make because of any of those liabilities.

Notice to Prospective Investors in the European Economic Area

In relation to each member state of the European Economic Area that has implemented the Prospectus Directive (each, a Relevant Member State), each underwriter has represented and agreed that with effect from and including the date on which the Prospectus Directive is implemented in that Relevant Member State (the Relevant Implementation Date) it has not made an offer of shares to the public in that Relevant Member State prior to the publication of a prospectus in relation to the shares which has been approved by the competent authority in that Relevant Member State or, where appropriate, approved in another Relevant Member State and notified to the competent authority in that Relevant Member State, all in accordance with the Prospectus Directive, except that it may, with effect from and including the Relevant Implementation Date, make an offer of shares to the public in that Relevant Member State at any time:

to any legal entity that is authorized or regulated to operate in the financial markets or, if not so authorized or regulated, whose corporate purpose is solely to invest in securities;

to any legal entity that has two or more of (1) an average of at least 250 employees during the last financial year; (2) a total balance sheet of more than 43,000,000 and (3) an annual net turnover of more than 50,000,000, as shown in its last annual or consolidated accounts;

to fewer than 100 natural or legal persons (other than qualified investors as defined below) subject to obtaining the prior consent of the representatives for any such offer; or

in any other circumstances that do not require the publication by us of a prospectus pursuant to Article 3 of the Prospectus Directive.

For purposes of this provision, the expression an offer to the public in relation to any shares in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the shares to be offered so as to enable an investor to decide to purchase or subscribe the shares, as the same may be varied in that Relevant Member State by any measure implementing the Prospectus Directive in that Relevant Member State, and the expression Prospectus Directive means Directive 2003/71/EC and includes any relevant implementing measure in each Relevant Member State.

Notice to Prospective Investors in the United Kingdom

Each underwriter has represented and agreed that:

(a) it has only communicated or caused to be communicated and will only communicate or cause to be communicated an invitation or inducement to engage in investment activity (within the meaning of Section 21 of the FSMA) received by it in connection with the issue or sale of the shares in circumstances in which Section 21(1) of the FSMA would not, if we were not an authorized person, apply to us; and

(b) it has complied and will comply with all applicable provisions of the FSMA with respect to anything done by it in relation to the shares in, from or otherwise involving the United Kingdom.

S-16

Table of Contents

Notice to Prospective Investors in Switzerland

The shares of our common stock may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange, or SIX, or on any other stock exchange or regulated trading facility in Switzerland. This document has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this document nor any other offering or marketing material relating to the shares of our common stock or the offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this document nor any other offering or marketing material relating to the offering, the Issuer, the shares of our common stock have been or will be filed with or approved by any Swiss regulatory authority. In particular, this document will not be filed with, and the offer of shares of our common stock will not be supervised by, the Swiss Financial Market Supervisory Authority FINMA and the offer of shares of our common stock has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes, or CISA. The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of shares of our common stock.

S-17

Table of Contents

LEGAL MATTERS

The validity of the shares of common stock offered hereby will be passed upon for us by Goodwin Procter LLP, San Francisco, California. Certain legal matters relating to this offering will be passed upon for the underwriter by Cooley LLP, San Francisco, California.

EXPERTS

The financial statements as of December 31, 2014 and 2013 and for each of the two years in the period ended December 31, 2014 and management's assessment of the effectiveness of internal control over financial reporting as of December 31, 2014 incorporated by reference in this Prospectus have been so incorporated in reliance on the reports of BDO USA, LLP, an independent registered public accounting firm, incorporated herein by reference, given on the authority of said firm as experts in auditing and accounting.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference into this prospectus supplement the information contained in other documents we file with the SEC, which means that we can disclose important information to you by referring you to those documents. Any statement contained in any document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded, for purposes of this prospectus supplement, to the extent that a statement contained in or omitted from this prospectus supplement, or in any other subsequently filed document that also is or is deemed to be incorporated by reference herein, modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus supplement. We incorporate by reference the documents listed below which have been filed by us:

1. Our Annual Report on Form 10-K for the year ended December 31, 2014 filed with the SEC on March 16, 2015;
2. Our Current Reports on Form 8-K filed with the SEC on January 7, January 28, February 11 (but only Item 8.01 contained therein), and March 16, 2015 (but only Item 1.01 contained therein); and
3. The description of our common stock contained in our registration statement on Form 8-A (File No. 001-34637) filed with the SEC on February 22, 2010, including any amendment or report filed for the purpose of updating such description.

We will provide, without charge, to each person, including any beneficial owner, to whom a copy of this prospectus supplement is delivered, upon such person's written or oral request, a copy of any and all of the information incorporated by reference in this prospectus supplement, other than exhibits to such documents, unless such exhibits are specifically incorporated by reference into the information that this prospectus supplement incorporates. Requests should be directed to the Corporate Secretary, Anthera Pharmaceuticals, Inc., 25801 Industrial Boulevard, Suite B, Hayward, California 94545; telephone: (510) 856-5600. We have authorized no one to provide you with any information that differs from that contained in this prospectus supplement. Accordingly, you should not rely on any such information that is not contained in this prospectus supplement. You should not assume that the information in this prospectus supplement is accurate as of any date other than the date of the front cover of this prospectus supplement.

S-18

Table of Contents

PROSPECTUS

\$100,000,000

Common Stock

Preferred Stock

Debt Securities

Warrants

We may offer and sell an indeterminate number of shares of our common stock and preferred stock, debt securities and warrants from time to time under this prospectus. We may offer these securities separately or as units, which may include combinations of the securities. We will describe in a prospectus supplement the securities we are offering and selling, as well as the specific terms of the securities.

We may offer these securities in amounts, at prices and on terms determined at the time of offering. We may sell the securities directly to you, through agents we select, or through underwriters and dealers we select. If we use agents, underwriters or dealers to sell the securities, we will name them and describe their compensation in a prospectus supplement.

Our common stock is traded on the NASDAQ Global Market under the symbol ANTH . On April 4, 2013, the closing sale price of our common stock on the NASDAQ Global Market was \$0.65 per share.

Investing in our securities involves certain risks. See Risk Factors beginning on page 4 of this prospectus and in the applicable prospectus supplement for certain risks you should consider. You should read the entire prospectus carefully before you make your investment decision.

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

The date of this prospectus is April 18, 2013.

Table of Contents

TABLE OF CONTENTS

	Page
<u>Prospectus Summary</u>	1
<u>Risk Factors</u>	4
<u>Special Note Regarding Forward-Looking Statements</u>	4
<u>Description of Securities</u>	5
<u>Use of Proceeds</u>	21
<u>Ratio of Earnings to Fixed Charges</u>	22
<u>Plan of Distribution</u>	22
<u>Legal Matters</u>	24
<u>Experts</u>	24
<u>Incorporation of Certain Information by Reference</u>	24
<u>Where You Can Find More Information</u>	25

Table of Contents

PROSPECTUS SUMMARY

About this Prospectus

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or SEC, utilizing a shelf registration process. Under the shelf registration process, we may offer shares of our common stock and preferred stock, various series of debt securities and warrants to purchase any of such securities with a total value of up to \$100,000,000 from time to time under this prospectus at prices and on terms to be determined by market conditions at the time of offering. This prospectus provides you with a general description of the securities we may offer. Each time we offer a type or series of securities, we will provide a prospectus supplement that will describe the specific amounts, prices and other important terms of the securities,

including, to the extent applicable:

designation or classification;

aggregate principal amount or aggregate offering price;

maturity;

original issue discount, if any;

rates and times of payment of interest, dividends or other payments, if any;

redemption, conversion, exchange, settlement or sinking fund terms, if any;

conversion, exchange or settlement prices or rates, if any, and, if applicable, any provisions for changes to or adjustments in the conversion, exchange or settlement prices or rates and in the securities or other property receivable upon conversion, exchange or settlement;

ranking;

restrictive covenants, if any;

voting or other rights, if any; and

important federal income tax considerations.

A prospectus supplement may include a discussion of risks or other special considerations applicable to us or the offered securities. A prospectus supplement may also add, update or change information in this prospectus. If there is any inconsistency between the information in this prospectus and the applicable prospectus supplement, you must rely on the information in the prospectus supplement. Please carefully read both this prospectus and the applicable prospectus supplement together with additional information described under the heading **Where You Can Find More Information**. This prospectus may not be used to offer or sell any securities unless accompanied by a prospectus supplement.

The registration statement containing this prospectus, including exhibits to the registration statement, provides additional information about us and the common stock offered under this prospectus. The registration statement can be read at the SEC website or at the SEC's public reading room mentioned under the heading **Where You Can Find More Information**.

We have not authorized any broker-dealer, salesperson or other person to give any information or to make any representation other than those contained or incorporated by reference in this prospectus and the accompanying supplement to this prospectus. You must not rely upon any information or representation not contained or incorporated by reference in this prospectus or the accompanying prospectus supplement. This prospectus and the accompanying supplement to this prospectus do not constitute an offer to sell or the solicitation of an offer to buy securities, nor do this prospectus and the accompanying supplement to this prospectus constitute an offer to sell or the solicitation of an offer to buy securities in any jurisdiction to any person to whom it is unlawful to make such offer or solicitation. The information contained in this prospectus

Table of Contents

and the accompanying prospectus supplement speaks only as of the date set forth on the cover page and may not reflect subsequent changes in our business, financial condition, results of operations and prospects even though this prospectus and any accompanying prospectus supplement is delivered or securities are sold on a later date.

We may sell the securities directly to or through underwriters, dealers or agents. We, and our underwriters or agents, reserve the right to accept or reject all or part of any proposed purchase of securities. If we do offer securities through underwriters or agents, we will include in the applicable prospectus supplement:

the names of those underwriters or agents;

applicable fees, discounts and commissions to be paid to them;

details regarding over-allotment options, if any; and

the net proceeds to us.

Common Stock. We may issue shares of our common stock from time to time. Holders of our common stock are entitled to one vote per share for the election of directors and on all other matters that require stockholder approval. Subject to any preferential rights of any outstanding preferred stock, in the event of our liquidation, dissolution or winding up, holders of our common stock are entitled to share ratably in the assets remaining after payment of liabilities and the liquidation preferences of any outstanding preferred stock. Our common stock does not carry any redemption rights or any preemptive rights enabling a holder to subscribe for, or receive shares of, any class of our common stock or any other securities convertible into shares of any class of our common stock.

Preferred Stock. We may issue shares of our preferred stock from time to time, in one or more series. Under our certificate of incorporation, our board of directors has the authority, without further action by stockholders, to designate up to 5,000,000 shares of preferred stock in one or more series and to fix the rights, preferences, privileges, qualifications and restrictions granted to or imposed upon the preferred stock, including dividend rights, conversion rights, voting rights, rights and terms of redemption, liquidation preference and sinking fund terms, any or all of which may be greater than the rights of the common stock.

If we issue preferred stock, we will fix the rights, preferences, privileges, qualifications and restrictions of the preferred stock of each series that we sell under this prospectus and applicable prospectus supplements in the certificate of designations relating to that series. If we issue preferred stock, we will incorporate by reference into the registration statement of which this prospectus is a part the form of any certificate of designations that describes the terms of the series of preferred stock we are offering before the issuance of the related series of preferred stock. We urge you to read the prospectus supplement related to any series of preferred stock we may offer, as well as the complete certificate of designations that contains the terms of the applicable series of preferred stock.

Debt Securities. We may issue debt securities from time to time, in one or more series, as either senior or subordinated debt or as senior or subordinated convertible debt. The senior debt securities will rank equally with any other unsubordinated debt that we may have and may be secured or unsecured. The subordinated debt securities will be subordinate and junior in right of payment, to the extent and in the manner described in the instrument governing the debt, to all or some portion of our indebtedness. Any convertible debt securities that we issue will be convertible

into or exchangeable for our common stock or other securities of ours. Conversion may be mandatory or at your option and would be at prescribed conversion rates.

If we issue debt securities, they will be issued under one or more documents called indentures, which are contracts between us and a trustee for the holders of the debt securities. We urge you to read the prospectus

Table of Contents

supplement related to the series of debt securities being offered, as well as the complete indenture that contains the terms of the debt securities (which will include a supplemental indenture). If we issue debt securities, indentures and forms of debt securities containing the terms of debt securities being offered will be incorporated by reference into the registration statement of which this prospectus is a part from reports we would subsequently file with the SEC.

Warrants. We may issue warrants for the purchase of common stock, preferred stock and/or debt securities in one or more series, from time to time. 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 those securities.

If we issue warrants, they will be evidenced by warrant agreements or warrant certificates issued under one or more warrant agreements, which are contracts between us and an agent for the holders of the warrants. We urge you to read the prospectus supplement related to any series of warrants we may offer, as well as the complete warrant agreement and warrant certificate that contain the terms of the warrants. If we issue warrants, forms of warrant agreements and warrant certificates relating to warrants for the purchase of common stock, preferred stock and debt securities will be incorporated by reference into the registration statement of which this prospectus is a part from reports we would subsequently file with the SEC.

About Anthera Pharmaceuticals, Inc.

We are a biopharmaceutical company focused on developing and commercializing products to treat autoimmune diseases. We currently have one Phase 3 product candidate, blisibimod, which targets elevated levels of B-cell activating factor, or BAFF, which has been associated with a variety of B-cell mediated autoimmune diseases, including systemic lupus erythematosus (SLE), or lupus, Immunoglobulin A nephropathy, or IgAN, lupus nephritis, vasculitis, rheumatoid arthritis, idiopathic thrombocytopenia purpura, as well as other B-cell mediated diseases such as Multiple Myeloma.

For additional information about our company, please refer to other documents we have filed with the SEC and that are incorporated by reference into this prospectus, as listed under the heading **Incorporation of Certain Information by Reference**. Copies of our current and periodic reports filed with the SEC are available at the SEC Public Reference Room at 100 F Street, N.E., Washington, D.C. 20549, and online at www.sec.gov and our website at www.anthera.com. The information contained on our website or that can be accessed through our website is not incorporated by reference into this prospectus and is not part of this prospectus.

We were incorporated in Delaware on September 9, 2004 as Anthera Pharmaceuticals, Inc. Our corporate headquarters are located at 25801 Industrial Boulevard, Suite B, Hayward, California 94545 and our telephone number is (510) 856-5600.

We use various trademarks, service marks and trade names in our business, including without limitation **Anthera Pharmaceuticals** and **Anthera**. This prospectus also contains trademarks, service marks and trade names of other businesses that are the property of their respective holders.

Unless the context otherwise requires, we use the terms **Anthera Pharmaceuticals**, **Anthera**, **we**, **us**, **the Company** or **our** in this prospectus to refer to Anthera Pharmaceuticals, Inc. and its subsidiaries.

Table of Contents

RISK FACTORS

Before making an investment decision, you should carefully consider the risks described under **Risk Factors** in the applicable prospectus supplement, together with all of the other information appearing in this prospectus or incorporated by reference into this prospectus and any applicable prospectus supplement, in light of your particular investment objectives and financial circumstances. Our business, financial condition or results of operations could be materially adversely affected by any of these risks. The trading price of our securities could decline due to any of these risks, and you may lose all or part of your investment. This prospectus and the incorporated documents also contain forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in these forward-looking statements as a result of certain factors, including the risks mentioned elsewhere in this prospectus.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference into it contain forward-looking statements. Forward-looking statements relate to future events or our future financial performance. We generally identify forward-looking statements by terminology such as *may, will, would, should, expects, plans, anticipates, intends, target, projects, contemplates, believes, estimates, predicts, assume, intend, potential,* or similar words or the negative of these terms. These statements are only predictions. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our business, financial condition and results of operations. The outcome of the events described in these forward-looking statements is subject to risks, uncertainties and other factors described in **Risk Factors** and in our periodic filings with the SEC, incorporated by reference or included in this prospectus or any prospectus supplement. Accordingly, you should not place undue reliance upon these forward-looking statements. We cannot assure you that the events and circumstances reflected in the forward-looking statements will be achieved or occur, the timing of events and circumstances and actual results could differ materially from those projected in the forward looking statements. Forward-looking statements contained in this prospectus include, but are not limited to, statements about:

our expectations related to the use of proceeds, if any, from this offering;

the progress of, timing of and amount of expenses associated with our research, development and commercialization activities;

the timing, conduct and success of our clinical studies for our product candidates;

our ability to obtain U.S. and foreign regulatory approval for our product candidates and the ability of our product candidates to meet existing or future regulatory standards;

our expectations regarding federal, state and foreign regulatory requirements;

the therapeutic benefits and effectiveness of our product candidates;

the accuracy of our estimates of the size and characteristics of the markets that may be addressed by our product candidates;

our ability to manufacture sufficient amounts of our product candidates for clinical studies and products for commercialization activities;

our intention to seek to establish strategic collaborations or partnerships for the development or sale of our product candidates;

our expectations as to future financial performance, expense levels and liquidity sources;

Table of Contents

the timing of commercializing our product candidates;

our ability to compete with other companies that are or may be developing or selling products that are competitive with our product candidates;

anticipated trends and challenges in our potential markets;

our ability to attract and retain key personnel; and

other factors discussed elsewhere in this prospectus or any prospectus supplement.

The forward-looking statements made or incorporated by reference in this prospectus relate only to events as of the date on which the statements are made. We have included important factors in the cautionary statements included in this prospectus and incorporated herein by reference, including under the caption entitled **Risk Factors** that we believe could cause actual results or events to differ materially from the forward-looking statements that we make. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures or investments we may make. Except as required by law, we do not assume any intent to update any forward-looking statements after the date on which the statement is made, whether as a result of new information, future events or circumstances or otherwise.

DESCRIPTION OF SECURITIES

We may offer shares of our common stock and preferred stock, various series of debt securities and warrants to purchase any such securities with a total value of up to \$100,000,000 from time to time under this prospectus at prices and on terms to be determined by market conditions at the time of offering. Each time we offer a type or series of securities, we will provide a prospectus supplement that will describe the specific amounts, prices and other important terms of the securities.

Description of Common Stock

We may issue shares of our common stock from time to time. Holders of our common stock are entitled to one vote per share for the election of directors and on all other matters that require stockholder approval. Subject to any preferential rights of any outstanding preferred stock, in the event of our liquidation, dissolution or winding up, holders of our common stock are entitled to share ratably in the assets remaining after payment of liabilities and the liquidation preferences of any outstanding preferred stock. Our common stock does not carry any redemption rights or any preemptive rights enabling a holder to subscribe for, or receive shares of, any class of our common stock or any other securities convertible into shares of any class of our common stock.

Description of Preferred Stock

We may issue shares of our preferred stock from time to time, in one or more series. Under our certificate of incorporation, our board of directors has the authority, without further action by stockholders, to designate up to 5,000,000 shares of preferred stock in one or more series and to fix the rights, preferences, privileges, qualifications and restrictions granted to or imposed upon the preferred stock, including dividend rights, conversion rights, voting rights, rights and terms of redemption, liquidation preference and sinking fund terms, any or all of which may be

greater than the rights of the common stock.

If we issue preferred stock, we will fix the rights, preferences, privileges, qualifications and restrictions of the preferred stock of each series that we sell under this prospectus and applicable prospectus supplements in the certificate of designations relating to that series. If we issue preferred stock, we will incorporate by reference into the registration statement of which this prospectus is a part the form of any certificate of designations that describes the terms of the series of preferred stock we are offering before the issuance of the related series of

Table of Contents

preferred stock. We urge you to read the prospectus supplement related to any series of preferred stock we may offer, as well as the complete certificate of designations that contains the terms of the applicable series of preferred stock.

Description of Debt Securities

The paragraphs below describe the general terms and provisions of the debt securities we may issue. When we offer to sell a particular series of debt securities, we will describe the specific terms of the securities in a supplement to this prospectus, including any additional covenants or changes to existing covenants relating to such series. The prospectus supplement also will indicate whether the general terms and provisions described in this prospectus apply to a particular series of debt securities. You should read the actual indenture if you do not fully understand a term or the way we use it in this prospectus.

We may offer senior or subordinated debt securities. Each series of debt securities may have different terms. The senior debt securities will be issued under one or more senior indentures, dated as of a date prior to such issuance, between us and a trustee, as amended or supplemented from time to time. We will refer to any such indenture throughout this prospectus as the *senior indenture*. Any subordinated debt securities will be issued under one or more separate indentures, dated as of a date prior to such issuance, between us and a trustee, as amended or supplemented from time to time. We will refer to any such indenture throughout this prospectus as the *subordinated indenture* and to the trustee under the senior or subordinated indenture as the *trustee*. The senior indenture and the subordinated indenture are sometimes collectively referred to in this prospectus as the *indentures*. The indentures will be subject to and governed by the Trust Indenture Act of 1939, as amended. We included copies of the forms of the indentures as exhibits to our registration statement and they are incorporated into this prospectus by reference.

If we issue debt securities at a discount from their principal amount, then, for purposes of calculating the aggregate initial offering price of the offered securities issued under this prospectus, we will include only the initial offering price of the debt securities and not the principal amount of the debt securities.

We have summarized below the material provisions of the indentures and the debt securities, or indicated which material provisions will be described in the related prospectus supplement. The prospectus supplement relating to any particular securities offered will describe the specific terms of the securities, which may be in addition to or different from the general terms summarized in this prospectus. Because the summary in this prospectus and in any prospectus supplement does not contain all of the information that you may find useful, you should read the documents relating to the securities that are described in this prospectus or in any applicable prospectus supplement. Please read *Where You Can Find More Information* to find out how you can obtain a copy of those documents. Except as otherwise indicated, the terms of the indentures are identical. As used under this caption, the term *debt securities* includes the debt securities being offered by this prospectus and all other debt securities issued by us under the indentures.

General

The indentures:

do not limit the amount of debt securities that we may issue;

allow us to issue debt securities in one or more series;

do not require us to issue all of the debt securities of a series at the same time;

Table of Contents

allow us to reopen a series to issue additional debt securities without the consent of the holders of the debt securities of such series; and

provide that the debt securities will be unsecured, except as may be set forth in the applicable prospectus supplement.

Unless we give you different information in the applicable prospectus supplement, the senior debt securities will be unsubordinated obligations and will rank equally with all of our other unsecured and unsubordinated indebtedness. Payments on the subordinated debt securities will be subordinated to the prior payment in full of all of our senior indebtedness, as described under **Description of the Debt Securities Subordination** and in the applicable prospectus supplement.

Each indenture provides that we may, but need not, designate more than one trustee under an indenture. Any trustee under an indenture may resign or be removed and a successor trustee may be appointed to act with respect to the series of debt securities administered by the resigning or removed trustee. If two or more persons are acting as trustee with respect to different series of debt securities, each trustee shall be a trustee of a trust under the applicable indenture separate and apart from the trust administered by any other trustee. Except as otherwise indicated in this prospectus, any action described in this prospectus to be taken by each trustee may be taken by each trustee with respect to, and only with respect to, the one or more series of debt securities for which it is trustee under the applicable indenture.

The prospectus supplement for each offering will provide the following terms, where applicable:

the title of the debt securities and whether they are senior or subordinated;

the aggregate principal amount of the debt securities being offered, the aggregate principal amount of the debt securities outstanding as of the most recent practicable date and any limit on their aggregate principal amount, including the aggregate principal amount of debt securities authorized;

the price at which the debt securities will be issued, expressed as a percentage of the principal and, if other than the principal amount thereof, the portion of the principal amount thereof payable upon declaration of acceleration of the maturity thereof or, if applicable, the portion of the principal amount of such debt securities that is convertible into common stock or preferred stock or the method by which any such portion shall be determined;

if convertible, the terms on which such debt securities are convertible, including the initial conversion price or rate and the conversion period and any applicable limitations on the ownership or transferability of common stock or preferred stock received on conversion;

the date or dates, or the method for determining the date or dates, on which the principal of the debt securities will be payable;

the fixed or variable interest rate or rates of the debt securities, or the method by which the interest rate or rates is determined;

the date or dates, or the method for determining the date or dates, from which interest will accrue;

the dates on which interest will be payable;

the record dates for interest payment dates, or the method by which we will determine those dates;

the persons to whom interest will be payable;

Table of Contents

the basis upon which interest will be calculated if other than that of a 360-day year of twelve 30-day months;

any make-whole amount, which is the amount in addition to principal and interest that is required to be paid to the holder of a debt security as a result of any optional redemption or accelerated payment of such debt security, or the method for determining the make-whole amount;

the place or places where the principal of, and any premium, or make-whole amount, and interest on, the debt securities will be payable;

where the debt securities may be surrendered for registration of transfer or conversion or exchange;

where notices or demands to or upon us in respect of the debt securities and the applicable indenture may be served;

the times, prices and other terms and conditions upon which we may redeem the debt securities;

any obligation we have to redeem, repay or purchase the debt securities pursuant to any sinking fund or analogous provision or at the option of holders of the debt securities, and the times and prices at which we must redeem, repay or purchase the debt securities as a result of such an obligation;

the currency or currencies in which the debt securities are denominated and payable if other than United States dollars, which may be a foreign currency or units of two or more foreign currencies or a composite currency or currencies and the terms and conditions relating thereto, and the manner of determining the equivalent of such foreign currency in United States dollars;

whether the principal of, and any premium, or make-whole amount, or interest on, the debt securities of the series are to be payable, at our election or at the election of a holder, in a currency or currencies other than that in which the debt securities are denominated or stated to be payable, and other related terms and conditions;

whether the amount of payments of principal of, and any premium, or make-whole amount, or interest on, the debt securities may be determined according to an index, formula or other method and how such amounts will be determined;

whether the debt securities will be in registered form, bearer form or both and (1) if in registered form, the person to whom any interest shall be payable, if other than the person in whose name the security is registered at the close of business on the regular record date for such interest, or (2) if in bearer form, the manner in which, or the person to whom, any interest on the security shall be payable if otherwise than upon

presentation and surrender upon maturity;

any restrictions applicable to the offer, sale or delivery of securities in bearer form and the terms upon which securities in bearer form of the series may be exchanged for securities in registered form of the series and vice versa if permitted by applicable laws and regulations;

whether any debt securities of the series are to be issuable initially in temporary global form and whether any debt securities of the series are to be issuable in permanent global form with or without coupons and, if so, whether beneficial owners of interests in any such permanent global security may or shall be required to exchange their interests for other debt securities of the series, and the manner in which interest shall be paid;

the identity of the depositary for securities in registered form, if such series are to be issuable as a global security;

Table of Contents

the date as of which any debt securities in bearer form or in temporary global form shall be dated if other than the original issuance date of the first security of the series to be issued;

the applicability, if any, of the defeasance and covenant defeasance provisions described in this prospectus or in the applicable indenture;

whether and under what circumstances we will pay any additional amounts on the debt securities in respect of any tax, assessment or governmental charge and, if so, whether we will have the option to redeem the debt securities in lieu of making such a payment;

whether and under what circumstances the debt securities being offered are convertible into common stock or preferred stock, as the case may be, including the conversion price or rate or manner or calculation thereof;

the circumstances, if any, specified in the applicable prospectus supplement, under which beneficial owners of interests in the global security may obtain definitive debt securities and the manner in which payments on a permanent global debt security will be made if any debt securities are issuable in temporary or permanent global form;

any provisions granting special rights to holders of securities upon the occurrence of such events as specified in the applicable prospectus supplement;

if the debt securities of such series are to be issuable in definitive form only upon receipt of certain certificates or other documents or satisfaction of other conditions, then the form and/or terms of such certificates, documents or conditions;

the name of the applicable trustee and the nature of any material relationship with us or any of our affiliates, and the percentage of debt securities of the class necessary to require the trustee to take action;

any deletions from, modifications of, or additions to our events of default or covenants and any change in the right of any trustee or any of the holders to declare the principal amount of any of such debt securities due and payable;

applicable CUSIP numbers; and

any other terms of such debt securities not inconsistent with the provisions of the applicable indenture.

We may issue debt securities at a discount below their principal amount and provide for less than the entire principal amount thereof to be payable upon declaration of acceleration of the maturity of the debt securities. We refer to any

such debt securities throughout this prospectus as original issue discount securities. The applicable prospectus supplement will describe the United States federal income tax consequences and other relevant considerations applicable to original issue discount securities.

We also may issue indexed debt securities. Payments of principal of and premium and interest on, indexed debt securities are determined with reference to the rate of exchange between the currency or currency unit in which the debt security is denominated and any other currency or currency unit specified by us, to the relationship between two or more currencies or currency units or by other similar methods or formulas specified in the prospectus supplement.

Except as described under Merger, Consolidation or Sale of Assets or as may be set forth in any prospectus supplement, the debt securities will not contain any provisions that (1) would limit our ability to incur indebtedness or (2) would afford holders of debt securities protection in the event of (a) a highly leveraged or similar transaction involving us, or (b) a change of control or reorganization, restructuring, merger or similar transaction involving us that may adversely affect the holders of the debt securities. In the future, we may enter

Table of Contents

into transactions, such as the sale of all or substantially all of our assets or a merger or consolidation, that may have an adverse effect on our ability to service our indebtedness, including the debt securities, by, among other things, substantially reducing or eliminating our assets.

Neither the Delaware General Corporation Law nor our governing instruments define the term *substantially all* as it relates to the sale of assets. Additionally, Delaware cases interpreting the term *substantially all* rely upon the facts and circumstances of each particular case. Consequently, to determine whether a sale of *substantially all* of our assets has occurred, a holder of debt securities must review the financial and other information that we have disclosed to the public.

We will provide you with more information in the applicable prospectus supplement regarding any deletions, modifications, or additions to the events of default or covenants that are described below, including any addition of a covenant or other provision providing event risk or similar protection.

Payment

Unless we give you different information in the applicable prospectus supplement, the principal of, and any premium, or make-whole amount, and interest on, any series of the debt securities will be payable at the corporate trust office of the trustee. We will provide you with the address of the trustee in the applicable prospectus supplement. We may also pay interest by mailing a check to the address of the person entitled to it as it appears in the applicable register for the debt securities or by wire transfer of funds to that person at an account maintained within the United States.

All monies that we pay to a paying agent or a trustee for the payment of the principal of, and any premium, or make-whole amount, or interest on, any debt security will be repaid to us if unclaimed at the end of two years after the obligation underlying payment becomes due and payable. After funds have been returned to us, the holder of the debt security may look only to us for payment, without payment of interest for the period which we hold the funds.

Denomination, Interest, Registration and Transfer

Unless otherwise described in the applicable prospectus supplement, the debt securities of any series will be issuable in denominations of \$1,000 and integral multiples of \$1,000.

Subject to the limitations imposed upon debt securities that are evidenced by a computerized entry in the records of a depository company rather than by physical delivery of a note, a holder of debt securities of any series may:

exchange them for any authorized denomination of other debt securities of the same series and of a like aggregate principal amount and kind upon surrender of such debt securities at the corporate trust office of the applicable trustee or at the office of any transfer agent that we designate for such purpose; and

surrender them for registration of transfer or exchange at the corporate trust office of the applicable trustee or at the office of any transfer agent that we designate for such purpose.

Every debt security surrendered for registration of transfer or exchange must be duly endorsed or accompanied by a written instrument of transfer satisfactory to the applicable trustee or transfer agent. Payment of a service charge will not be required for any registration of transfer or exchange of any debt securities, but we or the trustee may require payment of a sum sufficient to cover any tax or other governmental charge payable in connection therewith. If in

addition to the applicable trustee, the applicable prospectus supplement refers to any transfer agent initially designated by us for any series of debt securities, we may at any time rescind the designation of any such transfer agent or approve a change in the location through which any such transfer agent acts, except that we will be required to maintain a transfer agent in each place of payment for such series.

Table of Contents

We may at any time designate additional transfer agents for any series of debt securities.

Neither we, nor any trustee, will be required to:

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

register the transfer of or exchange any debt security, or portion thereof, so selected for redemption, in whole or in part, except the unredeemed portion of any debt security being redeemed in part; and

issue, register the transfer of or exchange any debt security that has been surrendered for repayment at the option of the holder, except the portion, if any, of such debt security not to be so repaid.

Merger, Consolidation or Sale of Assets

The indentures provide that we may, without the consent of the holders of any outstanding debt securities, (1) consolidate with, (2) sell, lease or convey all or substantially all of our assets to, or (3) merge with or into, any other entity provided that:

either we are the continuing entity, or the successor entity, if other than us, assumes the obligations (A) to pay the principal of, and any premium (or make-whole amount) and interest on, all of the debt securities and (B) to duly perform and observe all of the covenants and conditions contained in each indenture;

after giving effect to the transaction, there is no event of default under the indentures and no event which, after notice or the lapse of time, or both, would become such an event of default, occurs and continues; and

an officers' certificate and legal opinion covering such conditions are delivered to each applicable trustee.

Covenants

Existence. Except as permitted under *Merger, Consolidation or Sale of Assets*, the indentures require us to do or cause to be done all things necessary to preserve and keep in full force and effect our existence, rights and franchises. However, the indentures do not require us to preserve any right or franchise if we determine that any right or franchise is no longer desirable in the conduct of our business.

Provision of financial information. The indentures require us to (1) within 15 days of each of the respective dates by which we are required to file our annual reports, quarterly reports and other documents with the SEC, file with the trustee copies of the annual report, quarterly report and other documents that we file with the SEC under Section 13 or 15(d) of the Exchange Act, (2) file with the trustee and the SEC any additional information, documents and reports regarding compliance by us with the conditions and covenants of the indentures, as required, (3) within 30 days after the filing with the trustee, mail to all holders of debt securities, as their names and addresses appear in the applicable

register for such debt securities, without cost to such holders, summaries of any documents and reports required to be filed by us pursuant to (1) and (2) above, and (4) supply, promptly upon written request and payment of the reasonable cost of duplication and delivery, copies of such documents to any prospective holder.

Table of Contents

Additional covenants. The applicable prospectus supplement will set forth any additional covenants of Anthera relating to any series of debt securities.

Events of Default, Notice and Waiver

Unless the applicable prospectus supplement states otherwise, when we refer to *events of default* as defined in the indentures with respect to any series of debt securities, we mean:

default in the payment of any installment of interest on any debt security of such series continuing for 30 days;

default in the payment of principal of, or any premium, or make-whole amount, on any debt security of such series for five business days at its stated maturity;

default in making any sinking fund payment as required for any debt security of such series for five business days;

default in the performance or breach of any covenant or warranty in the debt securities or in the indenture by Anthera continuing for 60 days after written notice as provided in the applicable indenture, but not of a covenant added to the indenture solely for the benefit of a series of debt securities issued thereunder other than such series;

bankruptcy, insolvency or reorganization, or court appointment of a receiver, liquidator or trustee of Anthera or any significant subsidiary of Anthera; and

any other event of default provided with respect to a particular series of debt securities.

When we use the term *significant subsidiary*, we refer to the meaning ascribed to such term in Rule 1-02 of Regulation S-X promulgated under the Securities Act of 1933, as amended, or Securities Act.

If an event of default occurs and is continuing with respect to debt securities of any series outstanding, then the applicable trustee or the holders of 25% or more in principal amount of the debt securities of that series will have the right to declare the principal amount of all the debt securities of that series to be due and payable. If the debt securities of that series are original issue discount securities or indexed securities, then the applicable trustee or the holders of 25% or more in principal amount of the debt securities of that series will have the right to declare the portion of the principal amount as may be specified in the terms thereof to be due and payable. However, at any time after such a declaration of acceleration has been made, but before a judgment or decree for payment of the money due has been obtained by the applicable trustee, the holders of at least a majority in principal amount of outstanding debt securities of such series or of all debt securities then outstanding under the applicable indenture may rescind and annul such declaration and its consequences if:

we have deposited with the applicable trustee all required payments of the principal, any premium, or make-whole amount, interest and, to the extent permitted by law, interest on overdue installment of interest, plus applicable fees, expenses, disbursements and advances of the applicable trustee; and

all events of default, other than the non-payment of accelerated principal, or a specified portion thereof, and any premium, or make-whole amount, have been cured or waived.

The indentures also provide that the holders of at least a majority in principal amount of the outstanding debt securities of any series or of all debt securities then outstanding under the applicable indenture may, on behalf of all holders, waive any past default with respect to such series and its consequences, except a default:

in the payment of the principal, any premium, or make-whole amount, or interest;

Table of Contents

in respect of a covenant or provision contained in the applicable indenture that cannot be modified or amended without the consent of the holders of the outstanding debt security that is affected by the default; or

in respect of a covenant or provision for the benefit or protection of the trustee, without its express written consent.

The indentures require each trustee to give notice to the holders of debt securities within 90 days of a default unless such default has been cured or waived. However, the trustee may withhold notice if specified persons of such trustee consider such withholding to be in the interest of the holders of debt securities. The trustee may not withhold notice of a default in the payment of principal, any premium or interest on any debt security of such series or in the payment of any sinking fund installment in respect of any debt security of such series.

The indentures provide that holders of debt securities of any series may not institute any proceedings, judicial or otherwise, with respect to such indenture or for any remedy under the indenture, unless the trustee fails to act for a period of 60 days after the trustee has received a written request to institute proceedings in respect of an event of default from the holders of 25% or more in principal amount of the outstanding debt securities of such series, as well as an offer of indemnity reasonably satisfactory to the trustee. However, this provision will not prevent any holder of debt securities from instituting suit for the enforcement of payment of the principal of, and any premium, or make-whole amount, and interest on, such debt securities at the respective due dates thereof.

The indentures provide that, subject to provisions in each indenture relating to its duties in the case of a default, a trustee has no obligation to exercise any of its rights or powers at the request or direction of any holders of any series of debt securities then outstanding under the indenture, unless the holders have offered to the trustee reasonable security or indemnity. The holders of at least a majority in principal amount of the outstanding debt securities of any series or of all debt securities then outstanding under an indenture shall have the right to direct the time, method and place of conducting any proceeding for any remedy available to the applicable trustee, or of exercising any trust or power conferred upon such trustee. However, a trustee may refuse to follow any direction which:

is in conflict with any law or the applicable indenture;

upon a good faith determination of a responsible officer of the trustee, may involve the trustee in personal liability; or

upon a good faith determination of a responsible officer of the trustee, may be unduly prejudicial to the holders of debt securities of the series not joining the proceeding.

Within 120 days after the close of each fiscal year, we will be required to deliver to each trustee a certificate, signed by one of our several specified officers, stating whether or not that officer has knowledge of any default under the applicable indenture. If the officer has knowledge of any default, the notice must specify the nature and status of the default.

Modification of the Indentures

The indentures provide that modifications and amendments may be made only with the consent of the affected holders of at least a majority in principal amount of all outstanding debt securities issued under that indenture. However, no

such modification or amendment may, without the consent of the holders of the debt securities affected by the modification or amendment:

change the stated maturity of the principal of, or any premium, or make-whole amount, on, or any installment of principal of or interest on, any such debt security;

Table of Contents

reduce the principal amount of, the rate or amount of interest on or any premium, or make-whole amount, payable on redemption of any such debt security;

reduce the amount of principal of an original issue discount security that would be due and payable upon declaration of acceleration of the maturity thereof or would be provable in bankruptcy, or adversely affect any right of repayment of the holder of any such debt security;

change the place of payment or the coin or currency for payment of principal of, or any premium, or make-whole amount, or interest on, any such debt security;

impair the right to institute suit for the enforcement of any payment on or with respect to any such debt security;

reduce the percentage in principal amount of any outstanding debt securities necessary to modify or amend the applicable indenture with respect to such debt securities, to waive compliance with particular provisions thereof or defaults and consequences thereunder or to reduce the quorum or voting requirements set forth in the applicable indenture; and

modify any of the foregoing provisions or any of the provisions relating to the waiver of particular past defaults or covenants, except to increase the required percentage to effect such action or to provide that some of the other provisions may not be modified or waived without the consent of the holder of such debt security.

The holders of a majority in aggregate principal amount of the outstanding debt securities of each series may, on behalf of all holders of debt securities of that series, waive, insofar as that series is concerned, our compliance with material restrictive covenants of the applicable indenture.

We and our respective trustee may make modifications and amendments of an indenture without the consent of any holder of debt securities for any of the following purposes:

to evidence the succession of another person to us as obligor under such indenture;

to add to our covenants for the benefit of the holders of all or any series of debt securities or to surrender any right or power conferred upon us in such indenture;

to add events of default for the benefit of the holders of all or any series of debt securities;

to add or change any provisions of an indenture (1) to change or eliminate restrictions on the payment of principal of, or premium, or make-whole amount, or interest on, debt securities in bearer form, or (2) to

permit or facilitate the issuance of debt securities in uncertificated form, provided that such action shall not adversely affect the interests of the holders of the debt securities of any series in any material respect;

to change or eliminate any provisions of an indenture, provided that any such change or elimination shall become effective only when there are no debt securities outstanding of any series created prior thereto which are entitled to the benefit of such provision;

to secure the debt securities;

to establish the form or terms of debt securities of any series;

to provide for the acceptance of appointment by a successor trustee or facilitate the administration of the trusts under an indenture by more than one trustee;

to cure any ambiguity, defect or inconsistency in an indenture, provided that such action shall not adversely affect the interests of holders of debt securities of any series issued under such indenture; and

Table of Contents

to supplement any of the provisions of an indenture to the extent necessary to permit or facilitate defeasance and discharge of any series of such debt securities, provided that such action shall not adversely affect the interests of the holders of the outstanding debt securities of any series.

Voting

The indentures provide that in determining whether the holders of the requisite principal amount of outstanding debt securities of a series have given any request, demand, authorization, direction, notice, consent or waiver under the indentures or whether a quorum is present at a meeting of holders of debt securities:

the principal amount of an original issue discount security that shall be deemed to be outstanding shall be the amount of the principal thereof that would be due and payable as of the date of such determination upon declaration of acceleration of the maturity thereof;

the principal amount of any debt security denominated in a foreign currency that shall be deemed outstanding shall be the United States dollar equivalent, determined on the issue date for such debt

security, of the principal amount or, in the case of an original issue discount security, the United States dollar equivalent on the issue date of such debt security of the amount determined as provided in the preceding bullet point;

the principal amount of an indexed security that shall be deemed outstanding shall be the principal face amount of such indexed security at original issuance, unless otherwise provided for such indexed security under such indenture; and

debt securities owned by us or any other obligor upon the debt securities or by any affiliate of ours or of such other obligor shall be disregarded.

The indentures contain provisions for convening meetings of the holders of debt securities of a series. A meeting will be permitted to be called at any time by the applicable trustee, and also, upon request, by us or the holders of at least 25% in principal amount of the outstanding debt securities of such series, in any such case upon notice given as provided in such indenture. Except for any consent that must be given by the holder of each debt security affected by the modifications and amendments of an indenture described above, any resolution presented at a meeting or adjourned meeting duly reconvened at which a quorum is present may be adopted by the affirmative vote of the holders of a majority of the aggregate principal amount of the outstanding debt securities of that series represented at such meeting.

Notwithstanding the preceding paragraph, except as referred to above, any resolution relating to a request, demand, authorization, direction, notice, consent, waiver or other action that may be made, given or taken by the holders of a specified percentage, which is less than a majority of the aggregate principal amount of the outstanding debt securities of a series, may be adopted at a meeting or adjourned meeting duly reconvened at which a quorum is present by the affirmative vote of such specified percentage.

Any resolution passed or decision taken at any properly held meeting of holders of debt securities of any series will be binding on all holders of such series. The quorum at any meeting called to adopt a resolution, and at any reconvened meeting, will be persons holding or representing a majority in principal amount of the outstanding debt securities of a series. However, if any action is to be taken relating to a consent or waiver which may be given by the holders of at least a specified percentage in principal amount of the outstanding debt securities of a series, the persons holding such percentage will constitute a quorum.

Table of Contents

Notwithstanding the foregoing provisions, the indentures provide that if any action is to be taken at a meeting with respect to any request, demand, authorization, direction, notice, consent, waiver or other action that such indenture expressly provides may be made, given or taken by the holders of a specified percentage in principal amount of all outstanding debt securities affected by such action, or of the holders of such series and one or more additional series:

there shall be no minimum quorum requirement for such meeting; and

the principal amount of the outstanding debt securities of such series that vote in favor of such request, demand, authorization, direction, notice, consent, waiver or other action shall be taken account in determining whether such request, demand, authorization, direction, notice, consent, waiver or other action has been made, given or taken under such indenture.

Subordination

Unless otherwise provided in the applicable prospectus supplement, subordinated securities will be subject to the following subordination provisions.

Upon any distribution to our creditors in a liquidation, dissolution or reorganization, the payment of the principal of and interest on any subordinated securities will be subordinated to the extent provided in the applicable indenture in right of payment to the prior payment in full of all senior debt. However, our obligation to make payments of the principal of and interest on such subordinated securities otherwise will not be affected. No payment of principal or interest will be permitted to be made on subordinated securities at any time if a default on senior debt exists that permits the holders of such senior debt to accelerate its maturity and the default is the subject of judicial proceedings or we receive notice of the default. After all senior debt is paid in full and until the subordinated securities are paid in full, holders of subordinated securities will be subrogated to the rights of holders of senior debt to the extent that distributions otherwise payable to holders of subordinated securities have been applied to the payment of senior debt. The subordinated indenture will not restrict the amount of senior debt or other indebtedness of Anthera and its subsidiaries. As a result of these subordination provisions, in the event of a distribution of assets upon insolvency, holders of subordinated securities may recover less, ratably, than our general creditors.

The term *senior debt* will be defined in the applicable indenture as the principal of and interest on, or substantially similar payments to be made by us in respect of, other outstanding indebtedness, whether outstanding at the date of execution of the applicable indenture or subsequently incurred, created or assumed. The prospectus supplement may include a description of additional terms implementing the subordination feature.

No restrictions will be included in any indenture relating to subordinated securities upon the creation of additional senior debt.

If this prospectus is being delivered in connection with the offering of a series of subordinated securities, the accompanying prospectus supplement or the information incorporated in this prospectus by reference will set forth the approximate amount of senior debt outstanding as of the end of our most recent fiscal quarter.

Discharge, Defeasance and Covenant Defeasance

Unless otherwise indicated in the applicable prospectus supplement, the indentures allow us to discharge our obligations to holders of any series of debt securities issued under any indenture when:

either (1) all securities of such series have already been delivered to the applicable trustee for cancellation; or
(2) all securities of such series have not already been delivered to the applicable trustee for cancellation but
(A) have become due and payable, (B) will become due and payable within one

Table of Contents

year, or (C) if redeemable at our option, are to be redeemed within one year, and we have irrevocably deposited with the applicable trustee, in trust, funds in such currency or currencies, currency unit or units or composite currency or currencies in which such debt securities are payable, an amount sufficient to pay the entire indebtedness on such debt securities in respect of principal and any premium, or make-whole amount, and interest to the date of such deposit if such debt securities have become due and payable or, if they have not, to the stated maturity or redemption date;

we have paid or caused to be paid all other sums payable; and

an officers' certificate and an opinion of counsel stating the conditions to discharging the debt securities have been satisfied has been delivered to the trustee.

Unless otherwise indicated in the applicable prospectus supplement, the indentures provide that, upon our irrevocable deposit with the applicable trustee, in trust, of an amount, in such currency or currencies, currency unit or units or composite currency or currencies in which such debt securities are payable at stated maturity, or government obligations, or both, applicable to such debt securities, which through the scheduled payment of principal and interest in accordance with their terms will provide money in an amount sufficient to pay the principal of, and any premium, or make-whole amount, and interest on, such debt securities, and any mandatory sinking fund or analogous payments thereon, on the scheduled due dates therefor, the issuing company may elect either:

to defease and be discharged from any and all obligations with respect to such debt securities; or

to be released from its obligations with respect to such debt securities under the applicable indenture or, if provided in the applicable prospectus supplement, its obligations with respect to any other covenant, and any omission to comply with such obligations shall not constitute an event of default with respect to such debt securities.

Notwithstanding the above, we may not elect to defease and be discharged from the obligation to pay any additional amounts upon the occurrence of particular events of tax, assessment or governmental charge with respect to payments on such debt securities and the obligations to register the transfer or exchange of such debt securities, to replace temporary or mutilated, destroyed, lost or stolen debt securities, to maintain an office or agency in respect of such debt securities, or to hold monies for payment in trust.

The indentures only permit us to establish the trust described in the paragraph above if, among other things, it has delivered to the applicable trustee an opinion of counsel to the effect that the holders of such debt securities will not recognize income, gain or loss for United States federal income tax purposes as a result of such defeasance or covenant defeasance and will be subject to United States federal income tax on the same amounts, in the same manner and at the same times as would have been the case if such defeasance or covenant defeasance had not occurred. Such opinion of counsel, in the case of defeasance, will be required to refer to and be based upon a ruling received from or published by the Internal Revenue Service or a change in applicable United States federal income tax law occurring after the date of the indenture. In the event of such defeasance, the holders of such debt securities would be able to look only to such trust fund for payment of principal, any premium, or make-whole amount, and interest.

When we use the term "government obligations," we mean securities that are:

direct obligations of the United States or the government that issued the foreign currency in which the debt securities of a particular series are payable, for the payment of which its full faith and credit is pledged; or

obligations of a person controlled or supervised by and acting as an agency or instrumentality of the United States or other government that issued the foreign currency in which the debt securities of such

Table of Contents

series are payable, the payment of which is unconditionally guaranteed as a full faith and credit obligation by the United States or such other government, which are not callable or redeemable at the option of the issuer thereof and shall also include a depository receipt issued by a bank or trust company as custodian with respect to any such government obligation or a specific payment of interest on or principal of any such government obligation held by such custodian for the account of the holder of a depository receipt. However, except as required by law, such custodian is not authorized to make any deduction from the amount payable to the holder of such depository receipt from any amount received by the custodian in respect of the government obligation or the specific payment of interest on or principal of the government obligation evidenced by such depository receipt.

Unless otherwise provided in the applicable prospectus supplement, if after we have deposited funds and/or government obligations to effect defeasance or covenant defeasance with respect to debt securities of any series, (1) the holder of a debt security of such series is entitled to, and does, elect under the terms of the applicable indenture or the terms of such debt security to receive payment in a currency, currency unit or composite currency other than that in which such deposit has been made in respect of such debt security, or (2) a conversion event occurs in respect of the currency, currency unit or composite currency in which such deposit has been made, the indebtedness represented by such debt security will be deemed to have been, and will be, fully discharged and satisfied through the payment of the principal of, and premium, or make-whole amount, and interest on, such debt security as they become due out of the proceeds yielded by converting the amount so deposited in respect of such debt security into the currency, currency unit or composite currency in which such debt security becomes payable as a result of such election or such cessation of usage based on the applicable market exchange rate.

When we use the term conversion event, we mean the cessation of use of:

a currency, currency unit or composite currency both by the government of the country that issued such currency and for the settlement of transactions by a central bank or other public institutions of or within the international banking community;

the European Currency Unit both within the European Monetary System and for the settlement of transactions by public institutions of or within the European Communities; or

any currency unit or composite currency other than the European Currency Unit for the purposes for which it was established.

Unless otherwise provided in the applicable prospectus supplement, all payments of principal of, and any premium, or make-whole amount, and interest on, any debt security that is payable in a foreign currency that ceases to be used by its government of issuance shall be made in United States dollars.

In the event that (1) we effect covenant defeasance with respect to any debt securities and (2) those debt securities are declared due and payable because of the occurrence of any event of default, the amount in the currency, currency unit or composite currency in which such debt securities are payable, and government obligations on deposit with the applicable trustee, will be sufficient to pay amounts due on such debt securities at the time of their stated maturity but may not be sufficient to pay amounts due on such debt securities at the time of the acceleration resulting from such event of default. However, the issuing company would remain liable to make payments of any amounts due at the time of acceleration.

If a trustee or paying agent is unable to apply any money in accordance with the foregoing paragraphs describing discharge and defeasance by reason of any order or judgment of any court or governmental authority enjoining, restraining or otherwise prohibiting such application, then the obligations under the indentures and such securities from which Anthera has been discharged or released pursuant to the foregoing shall be revived

Table of Contents

and reinstated as though no deposit had occurred with respect to such securities, until such time as the trustee or paying agent is permitted to apply all money held in trust with respect to such securities in accordance with the foregoing; provided, that if Anthera makes any payment of principal of or any premium or interest on any such security following such reinstatement of its obligations, Anthera shall be subrogated to the rights (if any) of the holders of such securities to receive such payment from the money so held in trust.

The applicable prospectus supplement may further describe the provisions, if any, permitting such defeasance or covenant defeasance, including any modifications to the provisions described above, with respect to the debt securities of or within a particular series.

Conversion Rights

The terms and conditions, if any, upon which the debt securities are convertible into common stock or preferred stock will be set forth in the applicable prospectus supplement. The terms will include whether the debt securities are convertible into shares of common stock or preferred stock, the conversion price, or manner of calculation thereof, the conversion period, provisions as to whether conversion will be at the issuing company's option or the option of the holders, the events requiring an adjustment of the conversion price and provisions affecting conversion in the event of the redemption of the debt securities and any restrictions on conversion.

Global Securities

The debt securities of a series may be issued in whole or in part in the form of one or more global securities that will be deposited with, or on behalf of, a depository identified in the applicable prospectus supplement relating to such series. Global securities, if any, issued in the United States are expected to be deposited with The Depository Trust Company, or DTC, as depository. We may issue global securities in either registered or bearer form and in either temporary or permanent form. We will describe the specific terms of the depository arrangement with respect to a series of debt securities in the applicable prospectus supplement relating to such series. We expect that unless the applicable prospectus supplement provides otherwise, the following provisions will apply to depository arrangements.

Once a global security is issued, the depository for such global security or its nominee will credit on its book-entry registration and transfer system the respective principal amounts of the individual debt securities represented by such global security to the accounts of participants that have accounts with such depository. Such accounts shall be designated by the underwriters, dealers or agents with respect to such debt securities or by us if we offer such debt securities directly. Ownership of beneficial interests in such global security will be limited to participants with the depository or persons that may hold interests through those participants.

We expect that, under procedures established by DTC, ownership of beneficial interests in any global security for which DTC is the depository will be shown on, and the transfer of that ownership will be effected only through, records maintained by DTC or its nominee, with respect to beneficial interests of participants with the depository, and records of participants, with respect to beneficial interests of persons who hold through participants with the depository. Neither we nor the trustee will have any responsibility or liability for any aspect of the records of DTC or for maintaining, supervising or reviewing any records of DTC or any of its participants relating to beneficial ownership interests in the debt securities. The laws of some states require that certain purchasers of securities take physical delivery of such securities in definitive form. Such limits and laws may impair the ability to own, pledge or transfer beneficial interest in a global security.

Table of Contents

So long as the depository for a global security or its nominee is the registered owner of such global security, such depository or such nominee, as the case may be, will be considered the sole owner or holder of the debt securities represented by the global security for all purposes under the applicable indenture. Except as described below or in the applicable prospectus supplement, owners of beneficial interest in a global security will not be entitled to have any of the individual debt securities represented by such global security registered in their names, will not receive or be entitled to receive physical delivery of any such debt securities in definitive form and will not be considered the owners or holders thereof under the applicable indenture. Beneficial owners of debt securities evidenced by a global security will not be considered the owners or holders thereof under the applicable indenture for any purpose, including with respect to the giving of any direction, instructions or approvals to the trustee under the indenture. Accordingly, each person owning a beneficial interest in a global security with respect to which DTC is the depository must rely on the procedures of DTC and, if such person is not a participant with the depository, on the procedures of the participant through which such person owns its interests, to exercise any rights of a holder under the applicable indenture. We understand that, under existing industry practice, if DTC requests any action of holders or if an owner of a beneficial interest in a global security desires to give or take any action which a holder is entitled to give or take under the applicable indenture, DTC would authorize the participants holding the relevant beneficial interest to give or take such action, and such participants would authorize beneficial owners through such participants to give or take such actions or would otherwise act upon the instructions of beneficial owners holding through them.

Payments of principal of, and any premium, or make-whole amount, and interest on, individual debt securities represented by a global security registered in the name of a depository or its nominee will be made to or at the direction of the depository or its nominee, as the case may be, as the registered owner of the global security under the applicable indenture. Under the terms of the applicable indenture, we and the trustee may treat the persons in whose name debt securities, including a global security, are registered as the owners thereof for the purpose of receiving such payments. Consequently, neither we nor the trustee have or will have any responsibility or liability for the payment of such amounts to beneficial owners of debt securities including principal, any premium, or make-whole amount, or interest. We believe, however, that it is currently the policy of DTC to immediately credit the accounts of relevant participants with such payments, in amounts proportionate to their respective holdings of beneficial interests in the relevant global security as shown on the records of DTC or its nominee. We also expect that payments by participants to owners of beneficial interests in such global security held through such participants will be governed by standing instructions and customary practices, as is the case with securities held for the account of customers in bearer form or registered in street name, and will be the responsibility of such participants. Redemption notices with respect to any debt securities represented by a global security will be sent to the depository or its nominee. If less than all of the debt securities of any series are to be redeemed, we expect the depository to determine the amount of the interest of each participant in such debt securities to be redeemed to be determined by lot. Neither we, the trustee, any paying agent nor the security registrar for such debt securities will have any responsibility or liability for any aspect of the records relating to or payments made on account of beneficial ownership interests in the global security for such debt securities or for maintaining any records with respect thereto.

Neither we nor the trustee will be liable for any delay by the holders of a global security or the depository in identifying the beneficial owners of debt securities, and we and the trustee may conclusively rely on, and will be protected in relying on, instructions from the holder of a global security or the depository for all purposes. The rules applicable to DTC and its participants are on file with the SEC.

If a depository for any debt securities is at any time unwilling, unable or ineligible to continue as depository and we do not appoint a successor depository within 90 days, we will issue individual debt securities in exchange

Table of Contents

for the global security representing such debt securities. In addition, we may at any time and in their sole discretion, subject to any limitations described in the applicable prospectus supplement relating to such debt securities, determine not to have any of such debt securities represented by one or more global securities and in such event will issue individual debt securities in exchange for the global security or securities representing such debt securities. Individual debt securities so issued will be issued in denominations of \$1,000 and integral multiples of \$1,000.

The debt securities of a series may also be issued in whole or in part in the form of one or more bearer global securities that will be deposited with a depository, or with a nominee for such depository, identified in the applicable prospectus supplement. Any such bearer global securities may be issued in temporary or permanent form. The specific terms and procedures, including the specific terms of the depository arrangement, with respect to any portion of a series of debt securities to be represented by one or more bearer global securities will be described in the applicable prospectus supplement.

No Recourse

There is no recourse under any obligation, covenant or agreement in the applicable indenture or with respect to any security against any of our or our successor's past, present or future stockholders, employees, officers or directors.

Description of Warrants

We may issue warrants for the purchase of common stock, preferred stock and/or debt securities in one or more series, from time to time. 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 those securities.

If we issue warrants, they will be evidenced by warrant agreements or warrant certificates issued under one or more warrant agreements, which are contracts between us and an agent for the holders of the warrants. We urge you to read the prospectus supplement related to any series of warrants we may offer, as well as the complete warrant agreement and warrant certificate that contain the terms of the warrants. If we issue warrants, forms of warrant agreements and warrant certificates relating to warrants for the purchase of common stock, preferred stock and debt securities will be incorporated by reference into the registration statement of which this prospectus is a part from reports we would subsequently file with the SEC.

USE OF PROCEEDS

We will retain broad discretion over the use of the net proceeds from the sale of our securities offered hereby. Except as described in any prospectus supplement, we currently anticipate using the net proceeds from the sale of our securities offered hereby primarily for general corporate purposes which include, but are not limited to, general and administrative expenses, capital expenditures, working capital, prosecution and maintenance of our intellectual property and the potential investment in technologies or products that complement our business. We may also use a portion of the net proceeds to pay off outstanding indebtedness, if any, and/or acquire or invest in complementary businesses, products and technologies. Although we have no specific agreements, commitments or understandings with respect to any acquisition, we evaluate acquisition opportunities and engage in related discussions with other companies from time to time.

Pending the use of the net proceeds, we intend to invest the net proceeds in short-term, interest-bearing, investment-grade securities.

Table of Contents

RATIO OF EARNINGS TO FIXED CHARGES

If we offer debt securities and/or preference equity securities under this prospectus, then we will, if required at that time, provide a ratio of earnings to fixed charges and/or ratio of combined fixed charges and preference dividends to earnings, respectively, in the applicable prospectus supplement for such offering.

PLAN OF DISTRIBUTION

We may sell the securities covered by this prospectus from time to time in one or more offerings. Registration of the securities covered by this prospectus does not mean, however, that those securities will necessarily be offered or sold.

We may sell the securities separately or together:

through one or more underwriters or dealers in a public offering and sale by them;

directly to investors; or

through agents.

We may sell the securities from time to time:

in one or more transactions at a fixed price or prices, which may be changed from time to time;

at market prices prevailing at the times of sale;

at prices related to such prevailing market prices; or

at negotiated prices.

We will describe the method of distribution of the securities and the terms of the offering in the prospectus supplement.

Any discounts or concessions allowed or re-allowed or paid to dealers may be changed from time to time.

If underwriters are used in the sale of any securities, the securities will be acquired by the underwriters for their own account and may be resold from time to time in one or more transactions described above. The securities may be either offered to the public through underwriting syndicates represented by managing underwriters, or directly by underwriters. Generally, the underwriters' obligations to purchase the securities will be subject to conditions precedent and the underwriters will be obligated to purchase all of the securities if they purchase any of the securities. 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 authorize underwriters, dealers or agents to solicit offers by certain purchasers to purchase the 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. The contracts will be subject only to those conditions set forth in the prospectus supplement, and the prospectus supplement will set forth any commissions we pay for solicitation of these contracts.

Any public offering price and any discounts or concessions allowed or reallocated or paid to dealers may be changed from time to time. Pursuant to a requirement by the Financial Industry Regulatory Authority, or FINRA, the maximum commission or discount to be received by any FINRA member or independent broker/dealer may not be greater than 8% of the gross proceeds received by us for the sale of any securities being registered pursuant to SEC Rule 415 under the Securities Act.

Table of Contents

We may enter into derivative transactions with third parties, or sell securities not covered by this prospectus to third parties in privately negotiated transactions. If the applicable prospectus supplement indicates, in connection with those derivatives, the third parties may sell securities covered by this prospectus and the applicable prospectus supplement, including in short sale transactions. If so, the third party may use securities pledged by us or borrowed from us or others to settle those sales or to close out any related open borrowings of stock, and may use securities received from us in settlement of those derivatives to close out any related open borrowings of stock. The third party in such sale transactions will be an underwriter and will be identified in the applicable prospectus supplement or in a post-effective amendment.

Underwriters, dealers and agents may be entitled to indemnification by us against certain civil liabilities, including liabilities under the Securities Act, or to contribution with respect to payments made by the underwriters, dealers or agents, under agreements between us and the underwriters, dealers and agents.

We may grant underwriters who participate in the distribution of securities an option to purchase additional securities to cover over-allotments, if any, in connection with the distribution.

Underwriters, dealers or agents may receive compensation in the form of discounts, concessions or commissions from us or our purchasers, as their agents in connection with the sale of securities. These underwriters, dealers or agents may be considered to be underwriters under the Securities Act. As a result, discounts, commissions or profits on resale received by the underwriters, dealers or agents may be treated as underwriting discounts and commissions. The prospectus supplement will identify any such underwriter, dealer or agent and describe any compensation received by them from us. Any initial public offering price and any discounts or concessions allowed or re-allowed or paid to dealers may be changed from time to time.

Unless otherwise specified in the related prospectus supplement, all securities we offer, other than common stock, will be new issues of securities with no established trading market. Any underwriters 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. Any common stock sold pursuant to a prospectus supplement will be listed for trading on the NASDAQ Stock Market or other principal market for our common stock. We may apply to list any series of debt securities, preferred stock or warrants on an exchange, but we are not obligated to do so. Therefore, there may not be liquidity or a trading market for any series of securities.

Any underwriter may engage in over-allotment transactions, 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. Short covering transactions involve purchases of the securities 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 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. We make no representation or prediction as to the direction or magnitude of any effect that such transactions may have on the price of the securities. For a description of these activities, see the information under the heading **Underwriting or Plan of Distribution** in the applicable prospectus supplement.

Underwriters, broker-dealers or agents who may become involved in the sale of the common stock may engage in transactions with and perform other services for us in the ordinary course of their business for which they receive compensation.

Table of Contents

LEGAL MATTERS

The legality of the issuance of the securities being offered hereby and the binding nature of any debt securities or warrants being offered hereby is being passed upon by Goodwin Procter LLP, San Francisco, California.

EXPERTS

The financial statements of the Company incorporated in this Prospectus by reference from the Company's Annual Report on Form 10-K for the year ended December 31, 2012 have been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in their report (which report expresses an unqualified opinion and includes an explanatory paragraph regarding the Company's development stage status), which is incorporated herein by reference. Such financial statements have been so incorporated in reliance upon the report of such firm given upon their authority as experts in accounting and auditing.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference into this prospectus the information contained in other documents we file with the SEC, which means that we can disclose important information to you by referring you to those documents. Any statement contained in any document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded, for purposes of this prospectus, to the extent that a statement contained in or omitted from this prospectus, or in any other subsequently filed document that also is or is deemed to be incorporated by reference herein, modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus. We incorporate by reference the documents listed below which have been filed by us:

1. Our Annual Report on Form 10-K for the year ended December 31, 2012;
2. The information specifically incorporated by reference in our Form 10-K from our Definitive Proxy Statement on Schedule 14A filed on April 5, 2013.
3. Our Current Reports on Form 8-K filed with the SEC on January 28, 2013, February 5, 2013, February 25, 2013, March 26, 2013 (with respect only to Item 5.02), March 28, 2013 and April 5, 2013, respectively;
4. The description of our common stock contained in our registration statement on Form 8-A (File No. 001-34637) filed with the SEC on February 22, 2010, including any amendment or report filed for the purpose of updating such description.

All documents we file with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, except as to any portion of any report or documents that is not deemed filed under such provisions, (1) on or after the date of filing of the registration statement containing this prospectus and prior to the effectiveness of the registration statement and (2) on or after the date of this prospectus until the earlier of the date on which all of the securities registered hereunder have been sold or the registration statement of which this prospectus is a part has been withdrawn, shall be deemed incorporated by reference in this prospectus and to be a part of this prospectus from the date of filing of those documents.

We will provide, without charge, to each person, including any beneficial owner, to whom a copy of this prospectus is delivered, upon such person's written or oral request, a copy of any and all of the information incorporated by reference in this prospectus, other than exhibits to such documents, unless such exhibits are specifically incorporated by reference into the information that this prospectus incorporates. Requests should be directed to the Corporate Secretary, Anthera Pharmaceuticals, Inc., 25801 Industrial Boulevard, Suite B,

Table of Contents

Hayward, California 94545; telephone: (510) 856-5600. We have authorized no one to provide you with any information that differs from that contained in this prospectus. Accordingly, you should not rely on any information that is not contained in this prospectus. You should not assume that the information in this prospectus is accurate as of any date other than the date of the front cover of this prospectus.

WHERE YOU CAN FIND MORE INFORMATION

We have filed a registration statement, of which this prospectus is a part, covering the securities offered hereby. As allowed by SEC rules, this prospectus does not include all of the information contained in the registration statement. You are referred to the registration statement and the included exhibits for further information. This prospectus is qualified in its entirety by such other information.

We are subject to the informational requirements of the Securities Exchange Act and file annual, quarterly and current reports, proxy statements and other information with the SEC. You can read our SEC filings, including the registration statement, over the Internet at the SEC's website at *www.sec.gov*. You may also read and copy any document we file with the SEC at its 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 operation of the public reference facility. Additionally, we make these filings available, free of charge, on our website at *www.anthera.com* as soon as reasonably practicable after we electronically file such materials with, or furnish them to, the SEC.

* * *

Table of Contents

5,555,556 Shares

Common Stock

PROSPECTUS SUPPLEMENT

March 18, 2015