

Anthera Pharmaceuticals Inc
Form 424B5
April 05, 2013

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Filed Pursuant to Rule 424(b)(5)
Registration Nos. 333-179043 and 333-187771

PROSPECTUS SUPPLEMENT
(To Prospectus dated January 24, 2012)

\$19,055,000

Common Stock

This prospectus supplement relates to the issuance and sale of up to \$19,055,000 in shares of our common stock to Lincoln Park Capital Fund, LLC, or Lincoln Park, under a Purchase Agreement entered into on April 5, 2013, or the Purchase Agreement.

The shares offered include:

3,086,420 shares of common stock that Lincoln Park is purchasing for gross proceeds of \$2,000,000 on the date of this prospectus supplement as the initial purchase, at a purchase price of \$0.648 per share;

up to \$16,500,000 of shares of common stock that may be sold from time to time after the initial purchase, at our sole discretion, to Lincoln Park over the next 24 months in accordance with the Purchase Agreement;

598,706 shares of common stock to be issued to Lincoln Park as Initial Commitment Shares, in consideration for entering into the Purchase Agreement, valued at \$0.618 per share; and

up to 299,353 shares of common stock, valued at \$0.618 per share, that we may issue to Lincoln Park on a pro rata basis, as Additional Commitment Shares, upon each purchase by Lincoln Park under the Purchase Agreement up to a total of \$18,500,000 of common stock (including the initial purchase of \$2,000,000) purchased.

This prospectus supplement and the accompanying prospectus also cover the resale of these shares by Lincoln Park to the public.

Our common stock is traded on the NASDAQ Global Market under the symbol "ANTH." On April 4, 2013, the last reported sales price for our common stock was \$0.65 per share.

Investing in our common stock involves a high degree of risk. Please read "Risk Factors" beginning on page S-10 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.

Prospectus Supplement dated April 5, 2013.

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You should rely only on the information contained in or incorporated by reference in this prospectus supplement, the accompanying prospectus and in any free writing prospectus that we have authorized for use in connection with this offering. We have not authorized anyone to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We are 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 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" and the sections of the accompanying prospectus entitled "Incorporation of Certain Information by Reference" and "Where You Can Find More Information."

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ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus form part of a registration statement on Form S-3 that we have filed with the Securities and Exchange Commission, or SEC, using a "shelf" registration process. 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 dated January 18, 2012, 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" and "our" in this prospectus supplement to refer to Anthera Pharmaceuticals, Inc. and its subsidiaries.

All references in this prospectus supplement to our 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.

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

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," "could," "intends," "target," "projects," "contemplates," "believes," "estimates," "predicts," "assume," "intend," "potential," "continue" or other 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

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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;

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

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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.

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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 and under "Incorporation of Certain Information by Reference" and "Where You Can Find More Information" in the accompanying prospectus. You should also carefully consider the matters discussed in the section entitled "Risk Factors" in this prospectus supplement, in the accompanying prospectus and in other periodic reports incorporated herein by reference.

Our Company

We are a biopharmaceutical company focused on developing and commercializing products to treat serious diseases associated with inflammation and 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, or lupus, lupus nephritis, vasculitis, rheumatoid arthritis, idiopathic thrombocytopenia purpura, IgA nephropathy, as well as other B-cell mediated disease such as multiple myeloma.

Summary of Product Development Programs

Blisibimod a Potent Inhibitor of B-Cell Activating Factor

Blisibimod (formerly referred to as A-623) is a peptibody antagonist of the BAFF cytokine which we are developing as a treatment for systemic lupus erythematosus, or lupus. 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. According to the Journal of Arthritis and Rheumatism the prevalence of lupus is estimated to be between 50 and 150 per 100,000 in the United States. The Journal of Arthritis and Rheumatism estimates similar prevalence rates for Europe and Asia.

Blisibimod Development History

In April of 2012 we completed a Phase 2b clinical study, called PEARL-SC, with blisibimod for the treatment of patients with seropositive markers of lupus and active disease defined as SELENA/SLEDAI score of greater than 6. The primary endpoint of the PEARL-SC study was a clinical improvement in the Systemic Lupus Erythematosus responder index, or SRI-5, at week 24 for the pooled blisibimod dose groups versus pooled placebo groups. SRI-5 is defined as a five-point improvement in the SELENA/SLEDAI score, no new BILAG A or two B scores, and no increase in a physician's global assessment of more than 0.3 points.

In June and July of 2012 we announced results from the Phase 2b PEARL-SC study which we believe support the initiation of a differentiated Phase 3 registration plan utilizing the 200mg weekly dose of blisibimod in patients with active lupus, despite the concomitant use of corticosteroids. While the pre-specified primary efficacy endpoint in the PEARL-SC clinical study was not met due to a lack of clinical efficacy in the low dose groups, additional prospective data from the PEARL-SC study suggest consistent treatment benefits in the 200mg weekly dose group when utilizing higher thresholds of disease improvement, as measured by larger point reductions in SELENA/SLEDAI scoring index.

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In addition, in a subgroup population of severely ill, seropositive lupus patients, defined as those patients having a SELENA/SLEDAI score of greater or equal to ten who were also receiving background corticosteroid medication at the time of randomization, a more pronounced treatment benefit was seen with the blisibimod 200mg weekly dose compared to other doses.

Using a higher treatment threshold of an eight point reduction in the SELENA/SLEDAI, or an SRI-8 endpoint, in this enhanced subgroup population, the 200mg blisibimod treatment group demonstrated a 15.6% treatment difference compared to pooled placebo (41.7% versus 26.1%, $p \leq 0.05$) and 31.1% treatment difference compared to treatment matched placebo (41.7% versus 10.6%, $p < 0.001$) at 24 weeks. In this subgroup, which we plan to enroll in our Phase 3 CHABLIS-SC studies, separation of clinical response occurred as early as week eight and numerical differences were observed beyond week 24. All doses of blisibimod demonstrated consistent serological response including reductions of B-cells, ds-DNA antibodies and improvement in complement levels. Blisibimod was safe and well-tolerated at all dose levels with no meaningful imbalances in serious adverse events.

Phase 3 Development of Blisibimod in Lupus

In the third quarter of 2012 at an end of phase 2 meeting with the U.S. Food and Drug Administration, or 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.

The phase 3 studies (CHABLIS-SC1 and CHABLIS-SC2) are multicenter, placebo-controlled, randomized, double-blind studies designed to evaluate the efficacy, safety, tolerability and immunogenicity of blisibimod in patients with clinically active SLE (SELENA/SLEDAI ≥ 10) who require corticosteroid therapy for treatment of their disease. Each study will randomize approximately 400 patients to receive either 200mg of blisibimod or placebo for 52 weeks. As agreed with the FDA, the primary endpoint of the phase 3 studies will be clinical improvement in the SRI-8 response at 52 weeks. We plan to conduct periodic interim analyses during the course of the CHABLIS-SC1 study to ensure the accuracy of our estimates. Following our initial interim analysis of clinical data from the CHABLIS-SC1 study we plan to initiate patient enrollment in our second phase 3 clinical study, CHABLIS-SC2.

Development of Blisibimod for Orphan Indications

We intend to study blisibimod in B-cell mediated autoimmune diseases such as IgA nephropathy (Berger's disease). According to the National Organization for Rare Disorders (NORD) IgA nephropathy, an orphan indication, is believed to affect approximately 130,000 people annually in the United States. In Asia it is estimated to affect over 500,000 people annually. In Asia, routine urinalyses are performed for schoolchildren, and renal biopsies are performed for patients with asymptomatic hematuria, thus raising the reported prevalence of the disease. According to the National Kidney and Urologic Diseases Information Clearinghouse, 25% of adults with IgA nephropathy eventually develop total kidney failure. IgA is a human antibody that helps the body fight infections. IgA nephropathy occurs when too much of this protein is deposited in the kidneys. These IgA deposits build up inside the small blood vessels of the kidney and as a result kidney glomeruli become inflamed and damaged leading to leakage of blood and protein into urine. According to the New England Journal of Medicine, primary IgA nephropathy occurs at any age, most commonly with clinical onset in the second and third decades of life and that a large number of cases eventually progress to renal failure.

Similar to patients with other auto-immune diseases such as lupus, in IgA Nephropathy, or IgAN, elevated levels of BAFF are associated with the proliferation of B-cells and plasma B-cells which may contribute to disease. In patients with IgAN, levels of BAFF are significantly higher than healthy patients. In IgAN increased plasma B-cells express immunogenic IgA that forms immune complexes

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that deposit in renal tissue and lead to renal inflammation and damage that can progress to renal failure and end-stage renal disease. Significant reductions in plasma B-cells were observed in previous clinical studies of SLE patients with another BAFF inhibitor antibody, belimumab. In our PEARL-SC phase 2 study, significant reductions in total B-cells as well as significant improvements in proteinuria and increases in complement C3 were observed with blisibimod in SLE patients. We believe inhibition of BAFF may reduce proliferative B-cells and plasma B-cells, reduce serum levels of IgA and therefore reduce progressive renal damage in patients with IgAN.

We plan to initiate patient enrollment in a Phase 2 proof-of-concept study for the treatment of IgA Nephropathy in 2013. The BRIGHT-SC study will enroll at least 48 patients with biopsy proven IgAN who have proteinuria greater than one gram per 24 hours and are receiving standard of care with an option to expand enrollment up to 240 patients depending on such factors as site enrollment and regulatory feedback. Patients will receive high dose blisibimod or placebo for 8 weeks, the induction phase, followed by 24 weeks, the maintenance phase, of 200mg weekly blisibimod or placebo. The primary endpoint of the BRIGHT-SC study will be improvements in proteinuria versus placebo after 32 weeks. We plan to conduct an interim analysis after the eight-week induction phase to determine effects of blisibimod on proteinuria. In 2013 we will submit an orphan designation application to the FDA for the use of blisibimod as a treatment for IgA nephropathy. We believe data from the BRIGHT-SC clinical study may provide information for other B-cell mediated kidney orphan diseases such as idiopathic membranous glomerulonephritis and lupus nephritis.

Our current plan includes commencing its BRIGHT-SC clinical studies, and continuing the support of its CHABLIS-SC and blisibimod open label extension studies ("OLE") and investigating the structure of future trials and research and development activities. Anthera has successfully manufactured blisibimod at launch scale volumes and has sufficient inventory to support the CHABLIS and BRIGHT-SC trials in 2013. The product is designed for patient at-home administration and is presented in pre-filled syringes for subcutaneous administration. We are actively pursuing various partnerships with major pharmaceutical and biotech companies to develop and commercialize blisibimod for both lupus and additional indications.

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.

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.

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RECENT DEVELOPMENTS

Agreement with Lincoln Park Capital Fund, LLC

On April 5, 2013, we entered into a Purchase Agreement with Lincoln Park Capital Fund, LLC, or Lincoln Park, which provides that, upon the terms and subject to the conditions and limitations set forth therein, we have the right to sell to Lincoln Park up to \$18,500,000 (including the initial purchase of \$2,000,000) worth of shares of our common stock at our discretion as described below. As consideration for entering into the Purchase Agreement, we agreed to issue 598,706 shares of our common stock to Lincoln Park, or the Initial Commitment Shares.

We are filing this prospectus supplement with regard to the offering of up to \$19,055,000 worth of shares of our common stock, which consists of (i) 3,086,420 shares that Lincoln Park is purchasing as the initial purchase under the Purchase Agreement for gross proceeds of \$2,000,000, or the Initial Purchase, at a purchase price of \$0.648 per share, (ii) additional shares of common stock with an aggregate offering price of up to \$16,500,000 which we may sell from time to time, in our sole discretion, to Lincoln Park over the next 24 months subject to the conditions and limitations in the Purchase Agreement, (iii) the 598,706 Initial Commitment Shares and (iv) up to 299,353 shares of common stock that we may issue to Lincoln Park on a pro rata basis, as Additional Commitment Shares, upon each purchase by Lincoln Park under the Purchase Agreement up to a total of \$18,500,000 worth of shares of our common stock (including the initial purchase of \$2,000,000) purchased.

In addition to the Initial Purchase of \$2,000,000 worth of shares of our common stock, under the Purchase Agreement, on any business day and as often as every two (2) business days over the 24-month term of the Purchase Agreement, we have the right, in our sole discretion, subject to the conditions and limitations in the Purchase Agreement, to direct Lincoln Park to purchase up to \$500,000 worth of shares of our common stock. The purchase price for shares of common stock to be purchased by Lincoln Park will be the lower of (i) the lowest sale price on the purchase date, as reported by the NASDAQ Global Market, and (ii) the arithmetic average of the three lowest closing sale prices for our common stock during the 12 consecutive business days prior to the purchase date.

We can also accelerate the amount of our shares of common stock to be purchased under certain circumstances in amount up to the lesser of (i) \$1,000,000 worth of shares and (ii) 30% of the trading volume on such accelerated purchase date, if the closing sale price of our common stock equals or exceeds \$0.65 on such purchase date, as reported by the NASDAQ Global Market. The purchase price for the additional shares is the lower of:

the closing sale price for the common stock on the date of sale; and

ninety-six percent (96%) of the volume weighted average price of the common stock on the NASDAQ Global Market on the date of sale.

There is no upper limit on the price per share that Lincoln Park must pay for our common stock under the Purchase Agreement, but in no event will shares be sold to Lincoln Park on a day our closing price is less than the floor price of \$0.50 per share. The purchase price will be equitably adjusted for any reorganization, recapitalization, non-cash dividend, stock split, or other similar transaction occurring during the business days used to compute the purchase price.

There are no trading volume requirements or restrictions under the Purchase Agreement, but there are limitations on the number of shares we can direct Lincoln Park to purchase, as described below. We will control the timing and amount of any sales of our common stock to Lincoln Park. We may at any time, in our sole discretion terminate the Purchase Agreement without fee, penalty or cost, upon one business day notice. We issued 598,706 Initial Commitment Shares to Lincoln Park as consideration for entering into the Purchase Agreement and we may issue up to 299,353 Additional

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Commitment Shares as an additional commitment fee on a *pro rata* basis as Lincoln Park purchases up to \$18,500,000 worth of shares of our stock (including the initial purchase of \$2,000,000) in our discretion. For example, if we elect, at our sole discretion, to require Lincoln Park to purchase \$500,000 worth of shares of our common stock, then we would issue 8,091 Additional Commitment Shares as a *pro rata* additional commitment fee, which is the product of \$500,000, the amount we have elected to sell, divided by \$18,500,000, the total amount we can sell to Lincoln Park under the Purchase Agreement, multiplied by 299,353, the maximum number of Additional Commitment Shares. The Additional Commitment Shares will only be issued pursuant to this formula if, as and when we elect to sell our common stock to Lincoln Park. Lincoln Park may not assign or transfer its rights or obligations under the Purchase Agreement.

The Purchase Agreement limits our sales of shares of common stock to Lincoln Park to the maximum number of shares of our common stock that we may issue without breaching our obligations under applicable rules of the NASDAQ Global Market (approximately 29,765,160 shares, or 19.99% of our total outstanding common stock) or obtaining stockholder approval under such rules.

The Purchase Agreement also prohibits us from directing Lincoln Park to purchase any shares of common stock if those shares, when aggregated with all other shares of our common stock then beneficially owned by Lincoln Park and its affiliates, would result in Lincoln Park and its affiliates having beneficial ownership, at any single point in time, of more than 9.99% of the then total outstanding shares of our common stock (approximately 14,875,135 shares as of the date of this prospectus supplement), as calculated pursuant to Section 13(d) of the Securities Exchange Act of 1934, as amended, or the Exchange Act, and Rule 13d-3 thereunder.

The number of shares ultimately offered for sale by Lincoln Park under this prospectus supplement is dependent upon the number of shares purchased by Lincoln Park under the Purchase Agreement. The following table sets forth the amount of proceeds we would receive from Lincoln Park from the sale of shares that are registered in this offering at varying purchase prices (without accounting for certain fees and expenses):

Assumed Average Purchase Price(3)	Number of Registered Shares to be Issued if Full Purchase(1)(5)	Percentage of Outstanding Shares After Giving Effect to the Issuance to Lincoln Park(2)	Proceeds from the Sale of Shares to Lincoln Park Under the Purchase Agreement
\$ 0.50	37,299,353	19.97%	\$ 18,500,000
\$ 0.65(4)	28,760,891	16.13%	\$ 18,500,000
\$ 1.00	18,799,353	11.17%	\$ 18,500,000
\$ 2.00	9,549,353	6.00%	\$ 18,500,000
\$ 3.00	6,466,019	4.15%	\$ 18,499,998

(1) Includes Additional Commitment Shares of 299,353 that may be issued to Lincoln Park on a pro rata basis, upon each purchase by Lincoln Park pursuant to the Purchase Agreement.

(2) The denominator is based on 148,900,254 shares outstanding as of April 4, 2013, adjusted to include the 598,706 Initial Commitment Shares to be issued to Lincoln Park as consideration for its commitment to purchase our common stock pursuant to the Purchase Agreement, and the number of shares set forth in the adjacent column which we would have sold to Lincoln Park. The numerator is based on the number of shares issuable under the Purchase Agreement at the corresponding assumed purchase price set forth in the adjacent column.

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- (3) Under the Purchase Agreement, we may not sell shares to Lincoln Park on a day our closing price is less than the floor price of \$0.50 per share.
- (4) The closing sale price of our shares on April 4, 2013.
- (5) If we seek to issue shares, including shares from other transactions but not included in this offering that may be aggregated with this transaction under the applicable rules of the NASDAQ Global Market, in excess of 29,765,160, or 19.99% of the total common stock outstanding as of the date of the Purchase Agreement, we may be required to seek stockholder approval in order to be in compliance with the rules of the NASDAQ Global Market.

Events of default under the Purchase Agreement include the following:

the effectiveness of the registration statement, of which this prospectus supplement and accompanying prospectus are a part, lapses for any reason (including, without limitation, the issuance of a stop order), or this prospectus supplement and accompanying prospectus are unavailable for sale by us or the resale by Lincoln Park of our common stock offered hereby, and such lapse or unavailability continues for a period of 10 consecutive business days or for more than an aggregate of 30 business days in any 365-day period;

suspension by our principal market of our common stock from trading for a period of one business day;

the de-listing of our common stock from the NASDAQ Global Market, provided our common stock is not immediately thereafter trading on the New York Stock Exchange, the NASDAQ Capital Market, the NASDAQ Global Select Market, the NYSE MKT, the NYSE Arca, the OTC Bulletin Board or OTC Markets (or nationally recognized successor to any of the foregoing);

the transfer agent's failure for three business days to issue to Lincoln Park shares of our common stock which Lincoln Park is entitled to receive under the Purchase Agreement;

any breach of the representations or warranties or covenants contained in the Purchase Agreement or any related agreements which has or which has a material adverse effect on us subject to a cure period of five business days;

any participation or threatened participation in insolvency or bankruptcy proceedings by or against us;

if at any time we are not eligible to transfer our common stock electronically; or

if at any time the Exchange Cap is reached, to the extent applicable.

Lincoln Park does not have the right to terminate the Purchase Agreement upon any of the events of default set forth above. During an event of default, all of which are outside the control of Lincoln Park, shares of our common stock cannot be sold by us or purchased by Lincoln Park under the terms of the Purchase Agreement.

This offering will terminate on the date that all shares offered by this prospectus supplement have been sold or, if earlier, the expiration or termination of the Purchase Agreement. We have the right to terminate the Purchase Agreement at any time, at no cost to us. In the event of bankruptcy proceedings by or against us, the Purchase Agreement will automatically terminate without action of any party.

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THE OFFERING

Common stock offered by Anthera

598,706 shares of common stock to be issued to Lincoln Park as Initial Commitment Shares, in consideration for entering into the Purchase Agreement;

3,086,420 shares of common stock that Lincoln Park is purchasing for gross proceeds of \$2,000,000 on the date of this prospectus supplement as the initial purchase, at a purchase price of \$0.648 per share;

up to \$16,500,000 of shares of common stock that may be sold from time to time after the initial purchase, at our sole discretion, to Lincoln Park over the next 24 months in accordance with the Purchase Agreement; and

up to 299,353 shares of common stock that we may issue to Lincoln Park on a pro rata basis, as Additional Commitment Shares, upon each purchase by Lincoln Park under the Purchase Agreement up to a total of \$18,500,000 of common stock (including the initial purchase of \$2,000,000) purchased.

Common stock to be outstanding after this offering

Up to 178,269,348 shares, assuming a sales price of \$0.65 per share for the remaining \$16,500,000 that may be sold from time to time after the initial purchase, which was the closing price on the NASDAQ Global Market on April 4, 2013, including up to 898,059 shares to be issued to Lincoln Park as a fee for its commitment to purchase shares of our common stock. Actual number of shares issued and outstanding will vary depending on the sales price under this offering.

Use of proceeds

We intend to use the net proceeds from this offering for general corporate purposes. See "Use of Proceeds" on page S-10.

NASDAQ Global Market Symbol

"ANTH"

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-10 of this prospectus supplement, page 4 of the accompanying prospectus and in the documents incorporated by reference into this prospectus supplement.

The number of shares of common stock to be outstanding immediately after this offering is based on 148,900,254 shares outstanding on April 4, 2013 and excludes as of that date:

options representing the right to purchase a total of 1,006,294 shares of common stock at a weighted average exercise price of \$1.93 per share;

restricted stock units representing a total of 518,298 shares of common stock issuable upon vesting; and

warrants representing the right to purchase a total of 5,400,133 shares of common stock at a weighted-average exercise price of \$3.42 per share.

Except as otherwise noted, all information in this prospectus supplement reflects the public offering price of \$0.65 per share, which was the last reported sale price of our common stock on April 4, 2013.

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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, 2012 and in other documents that we subsequently file with the Securities and Exchange Commission, all of which are 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 the common stock offered pursuant to this prospectus supplement is substantially higher than the net tangible book value per share of our common stock. Therefore, if you purchase shares of common stock in this offering, you will incur immediate and substantial dilution in the pro forma net tangible book value per share of common stock from the price per share that you pay for the common stock. If the holders of outstanding options or warrants exercise those options or warrants at prices below the public offering price, you will incur further dilution. See the section entitled "Dilution" below for a more detailed discussion of the dilution you will incur if you purchase shares in this offering.

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 repay indebtedness, or 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.

USE OF PROCEEDS

We estimate receiving net proceeds from this offering of approximately \$17.9 million, after commissions and estimated expenses payable by us, assuming that an aggregate of \$18,500,000 worth of common stock (including the initial purchase of \$2,000,000) is sold pursuant to this offering.

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 repay indebtedness, or to 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.

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Any indebtedness discharged would be indebtedness outstanding under our Credit Agreement with MidCap Financial SBIC, LP, pursuant to which MidCap made a \$10.0 million loan to us which bears interest at an annual rate equal to 9.75% and has a maturity date of October, 2016, and under our Loan Agreement with Square 1 Bank, pursuant to which Square 1 made a \$10.0 million loan to us which bears interest at an annual rate equal to 1.00% and has a maturity date of April, 2017. All of this indebtedness was incurred in April 2013, and the proceeds of this indebtedness were principally used to repay indebtedness previously incurred under our credit facility with Hercules Growth Capital, which was terminated in April 2013.

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.

Table of Contents**DILUTION**

Our net tangible book value as of December 31, 2012 was approximately \$(3.6) million, or \$(0.05) 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, 2012. 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 assumed sale of 28,461,538 of our common stock at an assumed public price of \$0.65 per share, the last reported sale price of our common stock on April 4, 2013, for assumed gross proceeds of \$18,500,000, not including the shares to be issued to Lincoln Park as a fee for its commitment to purchase shares of our common stock, and after deducting commission and estimated offering expenses payable by us, our net tangible book value as of December 31, 2012 would have been approximately \$14.2 million, or \$0.13 per share of common stock. This represents an immediate increase in the net tangible book value of \$0.18 per share to existing stockholders and an immediate dilution in net tangible book value of \$0.52 per share to new investors purchasing our common stock in this offering. The following table illustrates this per share dilution:

Assumed public offering price per share	\$ 0.65
Net tangible book value per share as of December 31, 2012	\$ (0.05)
Increase in net tangible book value per share attributable to new investors	\$ 0.18
As adjusted net tangible book value per share after this offering	\$ 0.13
Net dilution per share to new investors	\$ 0.52

The table above assumes for illustrative purposes that an aggregate of 28,461,538 shares of our common stock are sold at a price of \$0.65 per share, the last reported sale price of our common stock on the NASDAQ Global Market on April 4, 2013, for aggregate gross proceeds of \$18,500,000. The shares, if any, sold in this offering will be sold from time to time at various prices.

The number of shares of common stock to be outstanding after this offering is based on 79,151,592 shares outstanding on December 31, 2012 and excludes as of that date:

options representing the right to purchase a total of 2,403,711 shares of common stock at a weighted average exercise price of \$3.02 per share;

restricted stock units representing a total of 224,912 shares of common stock issuable upon vesting;

warrants representing the right to purchase a total of 4,811,898 shares of common stock at a weighted-average exercise price of \$3.75 per share; and

898,059 shares to be issued to Lincoln Park as a fee for its commitment to purchase shares of our common stock.

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.

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PLAN OF DISTRIBUTION

Pursuant to this prospectus supplement and the accompanying prospectus, we are offering up to \$19,055,000 in shares of our common stock that may be issued by us directly to Lincoln Park under the Purchase Agreement. This prospectus supplement and the accompanying prospectus also cover the resale of these shares by Lincoln Park to the public.

We entered into the Purchase Agreement with Lincoln Park on April 5, 2013. In consideration for entering into the Purchase Agreement, we issued 598,706 shares of our common stock to Lincoln Park as initial commitment shares, all of which are covered by this prospectus supplement. The Purchase Agreement provides that, upon the terms and subject to the conditions set forth therein, Lincoln Park is irrevocably committed to purchase an aggregate of up to \$18,500,000 worth of shares of our common stock (including the initial purchase of \$2,000,000) over the 24-month term of the Purchase Agreement.

The Purchase Agreement provides that, from time-to-time over the term of the Purchase Agreement, on any business day, and as often as every two (2) business days, and at our sole discretion, we may require Lincoln Park to purchase up to \$500,000 worth of shares of our common stock. We can also increase the amount of our shares of common stock to be purchased on any business day under certain circumstances up to \$1,000,000 worth of shares of our common stock, *provided* that the closing sale price of our common stock equals or exceeds \$0.65 on such purchase date.

The Purchase Agreement limits our sales of shares of common stock to Lincoln Park to the maximum number of shares of our common stock that we may issue without breaching our obligations under applicable rules of the NASDAQ Global Market or obtaining stockholder approval under such rules, or the Exchange Cap. The Purchase Agreement also prohibits us from directing Lincoln Park to purchase any shares of common stock if those shares, when aggregated with all other shares of our common stock then beneficially owned by Lincoln Park and its affiliates, would result in Lincoln Park and its affiliates having beneficial ownership, at any single point in time, of more than 9.99% of the then total outstanding shares of our common stock (as calculated pursuant to Section 13(d) of the Exchange Act and Rule 13d-3 thereunder).

We may suspend the sale of shares to Lincoln Park pursuant to this prospectus supplement for certain periods of time for certain reasons, including if this prospectus supplement is required to be supplemented or amended to include additional material information.

This offering will terminate on the date that all shares offered by this prospectus supplement have been sold or, if earlier, the expiration or termination of the Purchase Agreement. We have the right to terminate the Purchase Agreement at any time, at no cost to us. In the event of bankruptcy proceedings by or against us, the Purchase Agreement will automatically terminate without action of any party.

Lincoln Park is an "underwriter" within the meaning of Section 2(a)(11) of the Securities Act. Lincoln Park has informed us that it will use an unaffiliated broker-dealer to effectuate all sales, if any, of the common stock that it may purchase from us pursuant to the Purchase Agreement. Such sales will be made on the NASDAQ Global Market at prices and at terms then prevailing or at prices related to the then current market price. Each such unaffiliated broker-dealer will be an underwriter within the meaning of Section 2(a)(11) of the Securities Act. Lincoln Park has informed us that each such broker-dealer will receive commissions from Lincoln Park that will not exceed customary brokerage commissions.

We know of no existing arrangements between Lincoln Park and any other stockholder, broker, dealer, underwriter, or agent relating to the sale or distribution of the shares offered by this Prospectus. At the time a particular offer of shares is made, a prospectus supplement, if required, will be distributed that will set forth the names of any agents, underwriters, or dealers and any compensation from the selling stockholder, and any other required information.

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We have entered into an agreement with Bayridge Securities, LLC, a registered broker-dealer and FINRA member, pursuant to which Bayridge Securities, LLC agreed to act as the advisor in connection with the Purchase Agreement with Lincoln Park. Bayridge Securities, LLC will receive \$10,000 as compensation in connection with its services and expense reimbursement up to \$5,000, upon receipt of written confirmation from the Financial Industry Regulatory Authority, Inc., or FINRA, to the effect that FINRA's Corporate Finance Department has determined not to raise any objection with respect to the fairness or reasonableness of the terms of the Purchase Agreement or the transactions contemplated thereby.

We will pay all of the expenses incident to the registration, offering, and sale of the shares to Lincoln Park. We expect to pay to Lincoln Park up to \$10,000 as reimbursement of its expenses in connection with entering into the Purchase Agreement, including its legal fees and due diligence expenses.

We have agreed to indemnify Lincoln Park, Bayridge Securities, LLC and certain other persons against certain liabilities in connection with the offering of shares of common stock offered hereby, including liabilities arising under the Securities Act or, if such indemnity is unavailable, to contribute amounts required to be paid in respect of such liabilities.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to our directors, officers, and controlling persons, we have been advised that in the opinion of the SEC this indemnification is against public policy as expressed in the Securities Act and is therefore, unenforceable.

Lincoln Park represented to us that at no time prior to the date of the Purchase Agreement has Lincoln Park or its agents, representatives or affiliates engaged in or effected, in any manner whatsoever, directly or indirectly, any short sale (as such term is defined in Rule 200 of Regulation SHO of the Exchange Act) of our common stock or any hedging transaction. Lincoln Park agreed that during the term of the Purchase Agreement, it, its agents, representatives or affiliates will not enter into or effect, directly or indirectly, any of the foregoing transactions.

We have advised Lincoln Park that it is required to comply with Regulation M promulgated under the Exchange Act, to the extent applicable to this offering. With certain exceptions, Regulation M precludes the selling stockholder, any affiliated purchasers, and any broker-dealer or other person who participates in the distribution from bidding for or purchasing, or attempting to induce any person to bid for or purchase any security which is the subject of the distribution until the entire distribution is complete. Regulation M also prohibits any bids or purchases made in order to stabilize the price of a security in connection with the distribution of that security. All of the foregoing may affect the marketability of the shares offered by this prospectus supplement.

The transfer agent for our common stock is American Stock Transfer & Trust Company LLC. Its address is 6201 15th Avenue, Brooklyn, New York 11219, and its telephone number is 800-937-5449.

Our common stock is listed on the NASDAQ Global Market under the symbol "ANTH."

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.

EXPERTS

The financial statements of Anthera Pharmaceuticals, Inc. (the "Company") incorporated in this prospectus supplement 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

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public accounting firm, as stated in their report (which report expresses an unqualified opinion on the financial statements 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 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, 2012;
2. The information specifically incorporated by reference in our Form 10-K from our Definitive Proxy Statement on Schedule 14A filed with the SEC 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; and
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.

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 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.

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 January 23, 2012, the closing sale price of our common stock on the NASDAQ Global Market was \$6.98 per share.

Investing in our securities involves certain risks. See "Risk Factors" beginning on page 5 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 January 24, 2012.

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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

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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 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 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 therapeutics to treat serious diseases associated with inflammation, including cardiovascular and autoimmune diseases. Two of our primary product candidates, varespladib and A-001, are inhibitors of the family of human enzymes known as secretory phospholipase A2, or sPLA₂. Elevated levels of sPLA₂ have been implicated in a variety of acute inflammatory conditions, including acute coronary syndrome and acute chest syndrome, as well as chronic diseases such as stable coronary artery disease, or CAD. The Company's other primary product candidate, blisibimod (A-623), 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, or lupus. We have worldwide rights to our product candidates, with the exception of Japan, where Shionogi & Co., Ltd. retains commercial rights to our sPLA₂ product candidates.

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" and "our" in this prospectus to refer to Anthera Pharmaceuticals, Inc. and its sole subsidiary.

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," "could," "intends," "target," "projects," "contemplates," "believes," "estimates," "predicts," "assume," "intend," "potential," "continue" or other 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;

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 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;

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

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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;

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

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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 depository for securities in registered form, if such series are to be issuable as a global security;

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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;

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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 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.

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

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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.

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;

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

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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;

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;

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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

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.

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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 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.

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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 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 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.

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.

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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 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.

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,

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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.

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.

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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.

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, 2010 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, 2010;
2. Our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2011, June 30, 2011 and September 30, 2011, respectively;
3. Our Current Reports on Form 8-K filed with the SEC on February 1, 2011, March 29, 2011, April 19, 2011, April 25, 2011, June 3, 2011, August 9, 2011, October 27, 2011 and December 2, 2011, 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, 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, Hayward, California 94545; telephone: (510) 856-5600. We have

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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.

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\$19,055,000

Common Stock

PROSPECTUS SUPPLEMENT
