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OPEXA THERAPEUTICS, INC.

FORM S-3/A

(Securities Registration Statement (simplified form))

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As filed with the Securities and Exchange Commission on December 19, 2012

Registration No. 333-185003

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

PRE-EFFECTIVE AMENDMENT NO. 1 TO

FORM S-3

REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

OPEXA THERAPEUTICS, INC.

(Exact Name of Registrant as Specified in Its Charter)

Texas (State or Other Jurisdiction of Incorporation or Organization)	76-0333165 (I.R.S. Employer Identification Number)

2635 Technology Forest Blvd.
The Woodlands, Texas 77381
(281) 272-9331
(Address, Including Zip Code, and Telephone Number, Including Area Code, of Registrant's Principal Executive Offices)

Neil K. Warma
President and Chief Executive Officer
OPEXA THERAPEUTICS, INC.
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Approximate date of commencement of proposed sale to the public: From time to time after this registration statement becomes effective, as determined by market conditions and other factors.

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

If any of the securities being registered on this form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box. ☒

If this form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box. ☐

If this form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer ☐ Accelerated filer ☐ Non-accelerated filer ☐ Smaller reporting company ☒
(Do not check if a smaller reporting company)

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities To Be Registered	Amount to be Registered(1)	Proposed Maximum Offering Price Per Share	Proposed Maximum Aggregate Offering Price	Amount of Registration Fee
Common Stock, $0.01 par value	980,400(2)	$ 2.00	$ 1,960,800(3)	$ 267.45
Common Stock, $0.01 par value	1,436,121(4)	$ 2.56	$ 3,676,470(5)	$ 501.47
Total	2,416,521	--	$ 5,637,270	$ 768.92(6)

PRESENTATION NOTE: The registrant implemented a 1-for-4 reverse stock split of its common stock on December 14, 2012. All share numbers and prices in the table and footnotes thereto have been adjusted to reflect the reverse split, unless indicated otherwise.

(1) Pursuant to Rule 416(a) under the Securities Act of 1933, the registrant is also registering hereunder an indeterminate number of shares that may be issued and resold resulting from stock splits, stock dividends or similar transactions.

(2) Represents shares of the registrant's common stock issuable upon payment of accrued interest on the outstanding 12% convertible secured promissory notes in shares of common stock, at an assumed value of $1.00 per share (the minimum bid price listing standard for The NASDAQ Capital Market). The notes were originally issued in the July 2012 private placement to certain accredited investors and are convertible into shares of Series A convertible preferred stock, which shares are ultimately convertible into common stock. No shares of Series A convertible preferred stock are currently outstanding.

(3) Estimated pursuant to Rule 457(c) solely for the purpose of calculating the registration fee, based upon the average of the high and low prices for the registrant's common stock as reported on The NASDAQ Capital Market on November 9, 2012, a date within five business days of the initial filing of this registration statement, of $0.50 per share pre-split ($2.00 split-adjusted).

(4) Represents shares of the registrant's common stock issuable upon the exercise of all outstanding Series I warrants to purchase shares of common stock issued in connection with the July 2012 private placement. The warrants were initially exercisable for an aggregate of 957,422 shares post-split (3,829,689 shares pre-split), and as a result of the antidilution adjustment provision of the warrants, the warrants are currently exercisable for an aggregate of 1,436,121 shares post-split (5,744,530 shares pre-split).

(5) Calculated in accordance with Rule 457(g) based upon the price at which the warrants may currently be exercised (the warrants were initially exercisable at $5.00 per share post-split ($1.25 pre-split), and as a result of the antidilution adjustment provision of the warrants, the warrants are currently exercisable at an adjusted exercise price of $2.56 per share post-split ($0.64 pre-split).

(6) Previously paid in connection with the initial filing of this registration statement on November 16, 2012.

The Registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the registration statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

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

Subject To Completion, Dated December 19, 2012

PROSPECTUS

OPEXA THERAPEUTICS

OPEXA THERAPEUTICS, INC.

2,416,521 Shares of Common Stock

This prospectus relates to the resale of up to 2,416,521 shares of our common stock being offered by the selling shareholders named in this prospectus, which includes:

- 980,400 shares of common stock issuable to the selling shareholders in payment of accrued interest on the outstanding 12% convertible secured promissory notes issued in the July 2012 private placement to certain accredited investors; and
- 1,436,121 shares of common stock issuable to the selling shareholders upon exercise of Series I warrants.

We will not receive any of the proceeds from the sales by the selling shareholders, but will receive funds from the exercise of warrants by the selling shareholder, if exercised for cash.

Our common stock is traded on The NASDAQ Capital Market under the symbol "OPXA." On December 18, 2012, the last reported sale price of our common stock on The NASDAQ Capital Market was $1.75 per share.

The shares of our common stock may be offered through public or private transactions at market prices prevailing at the time of sale, at a fixed price or fixed prices, at negotiated prices, at various prices determined at the time of sale or at prices related to prevailing market prices. In addition, shares of our common stock may be offered from time to time through ordinary brokerage transactions on The NASDAQ Capital Market. The timing and amount of any sale are within the sole discretion of the selling shareholders, subject to certain restrictions. See "Plan of Distribution."

Investing in our securities involves risks. See the section entitled "Risk Factors" beginning on page 5 in this prospectus and in the documents we incorporate by reference in this prospectus. You should carefully consider these risk factors, as well as the information contained in this prospectus before you invest.

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

The date of this prospectus is , 2012.

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You should rely only on the information incorporated by reference or provided in this prospectus, any prospectus supplement and the registration statement. We have not authorized anyone else 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 state where the offer or sale is not permitted. You should assume that the information in this prospectus and any prospectus supplement, or incorporated by reference, is accurate only as of the dates of those documents. Our business, financial condition, results of operations and prospects may have changed since those dates.

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or SEC, using a continuous offering process. Under this prospectus, the selling shareholders may, from time to time, sell shares of our common stock described in this prospectus in one or more offerings. This prospectus provides you with a general description of the securities offered by the selling shareholders. Any prospectus supplement may also add, update or change information contained in this prospectus. Any statement that we make in this prospectus will be modified or superseded by any inconsistent statement made by us in a prospectus supplement.

The registration statement we filed with the SEC includes exhibits that provide more detail of the matters discussed in this prospectus. You should read this prospectus and the related exhibits filed with the SEC and any prospectus supplement, together with additional information described under the heading “Where You Can Find More Information,” before making your investment decision.

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

PRESENTATION NOTE: We implemented a 1-for-4 reverse stock split of our common stock on December 14, 2012. All share numbers and prices in this prospectus have been adjusted to reflect the reverse stock split, unless indicated otherwise.

PROSPECTUS SUMMARY

This summary contains basic information about us and this offering. Because it is a summary, it does not contain all of the information that you should consider before investing. Before you decide to invest in our common stock, you should read this entire prospectus carefully, including the section entitled "Risk Factors," and our consolidated financial statements and the related notes and other documents incorporated by reference in the prospectus.

Our Company

Our Business

Opexa is a biopharmaceutical company developing personalized cellular therapies with the potential to treat major illnesses, including multiple sclerosis (MS). These therapies are based on our proprietary T-cell technology. The information discussed related to our product candidate is preliminary and investigative. Our product candidate has not been approved by the U.S. Food and Drug Administration (FDA) for marketing.

Our product candidate, Tcelna™ (formerly known as Tovaxin®), is a personalized T-cell therapy licensed from Baylor College of Medicine, which is in clinical development for the treatment of MS.

Opexa was incorporated in Texas in March 1991. Our principal executive offices are located at 2635 Technology Forest Blvd., The Woodlands, Texas 77381, and our telephone number is (281) 775-0600.

T-Cell Therapy and Tcelna™

Tcelna™ is a novel T-cell immunotherapy in Phase IIb clinical development for the treatment of patients with secondary progressive MS (SPMS). It is also positioned to enter Phase III clinical development for the treatment of patients with relapsing remitting MS (RRMS), subject to the availability of sufficient resources. Tcelna is a personalized therapy that is specifically tailored to each patient's disease profile. Tcelna is manufactured using ImmPath™, our proprietary method for the production of a patient-specific T-cell immunotherapy, which encompasses the collection of blood from the MS patient, isolation of peripheral blood mononuclear cells, generation of an autologous pool of myelin-reactive T-cells (MRTCs) raised against selected peptides from myelin basic protein (MBP), myelin oligodendrocyte glycoprotein (MOG) and proteolipid protein (PLP), and the return of these expanded, irradiated T-cells back to the patient. These attenuated T-cells are reintroduced into the patient via subcutaneous injection to trigger a therapeutic immune system response.

Initiation of Phase IIb Clinical Study in Patients with SPMS

We recently initiated a Phase IIb clinical trial of Tcelna in patients with SPMS. The trial is entitled: *A Phase II Double-Blind, Placebo Controlled Multi-Center Study to Evaluate the Efficacy and Safety of Tcelna in Subjects with Secondary Progressive Multiple Sclerosis* and has been named the "Abili-T" trial. The newly-initiated Abili-T trial is a double-blind, 1:1 randomized, placebo-controlled study in SPMS patients who demonstrate evidence of disease progression without associated relapses. The trial is expected to enroll 180 patients at approximately 30 leading clinical sites in the U.S. and Canada and is expected to take approximately three years to complete. According to the study protocol, patients will receive two annual courses of Tcelna treatment consisting of five subcutaneous injections per year at weeks 0, 4, 8, 12 and 24. The primary efficacy endpoint of the trial is the percentage of brain volume change (atrophy) at 24 months. Study investigators will also measure several important secondary outcomes commonly associated with MS including disease progression as measured by Expanded Disability Status Scale (EDSS), annualized relapse rate (ARR) and changes in disability as measured by EDSS and the Multiple Sclerosis Functional Composite (MSFC). The Abili-T clinical trial is expected to enroll over a 12-month period and the resulting top-line data is expected by the end of 2015.

Tcelna is the first ever personalized T-cell therapy for MS patients and has received Fast Track designation from the FDA in SPMS. The FDA's Fast Track program is designed to facilitate the development and expedite the review of drugs intended to treat serious or life-threatening conditions and that demonstrate the potential to address unmet medical need.

The costs of the Phase IIb clinical study of Tcelna in SPMS, as well as the ongoing expenses of our operations through the expected completion date of such study are estimated at approximately $35 million. Our existing resources are not adequate to permit us to proceed materially beyond the initiation of the study (i.e., the dosing of the first patients) or to continue and complete such study or any significant portion of it. We will need to secure significant additional resources to complete the trial and support our operations during the pendency of the trial.

SPMS Overview

SPMS is characterized by a steady accrual of irreversible disability, despite, in some cases, reversible relapses, remissions or clinical plateaus. Older age at onset of MS diagnosis is the strongest predictor of conversion to SPMS. Males have a shorter time to conversion to SPMS compared with females. Available immunomodulating and immunosuppressive therapies used for RRMS have not been effective in SPMS. In clinical trials, these therapies have demonstrated anti-inflammatory properties as measured by the reduction in number and volume of contrast-enhancing or acutely inflammatory central nervous system (CNS) lesions most commonly seen in patients with RRMS. The typical SPMS patient, however, has little or no radiographic evidence of acute inflammation. It is commonly observed that contrast-enhancing CNS lesions are uncommon among these patients, despite a clearly deteriorating neurologic course. The lack of effect of conventional MS therapeutics in SPMS suggests that the cerebral deterioration characterizing progressive disease may be driven by factors other than acute inflammation. For instance, the immunopathology of SPMS is more consistent with a transition to a chronic T-cell dependent inflammatory type, which may encompass the innate immune response and persistent activation of microglia cells. Radiographic features that stand out among patients with SPMS include significantly more atrophy of gray matter compared with RRMS patients. Of note, long-term disability in MS in general appears more closely correlated to gray matter atrophy than to white matter inflammation. Such atrophy may be suggestive of progressive clinical disability. Both clinically and radiographically, SPMS represents a disease process with certain features distinct from those of RRMS, and one with extremely limited treatment options.

Current Treatment Options for SPMS

Only one product, mitoxantrone, is currently approved for the indication of SPMS. However, as of 2005, this drug carries a black box warning, due to significant risks of decreased systolic function, heart failure, and leukemia. The American Academy of Neurology has issued a report indicating that these risks are even higher than suggested in the original report leading to the black box warning. Hence, a safe and effective treatment for SPMS remains a significant unmet medical need.

Tcelna Clinical Overview in SPMS

In multiple previously conducted clinical trials for the treatment of patients with MS (which have been weighted significantly toward patients with RRMS), Tcelna has demonstrated one of the safest side effect profiles for any marketed or development-stage MS therapy, as well as encouraging efficacy signals. A total of 142 MS patients have received Tcelna in previously conducted trials for RRMS and SPMS. The therapy has been well tolerated in all subjects and has demonstrated an excellent overall safety profile. The most common side effect is mild to moderate irritation at the site of injection, which is typically resolved in 24 hours. Tcelna has been administered to a total of 36 subjects with SPMS across three previous clinical studies. Based on preliminary data suggesting stabilized or improved disability among SPMS subjects receiving Tcelna, Opexa believes that further development of this product in SPMS is warranted.

Summary of TERMS Phase IIb Clinical Trial Data in RRMS

Tovaxin for Early Relapsing Multiple Sclerosis (TERMS) was a Phase IIb clinical study of Tcelna in RRMS patients completed in 2008. Although the study did not show statistical significance in its primary endpoint (the cumulative number of gadolinium-enhanced brain lesions using MRI scans summed at various points in the study), the study showed compelling evidence of efficacy in various clinical and other MRI endpoints.

The TERMS study was a multi-center, randomized, double blind, placebo-controlled trial in 150 patients with RRMS or high risk Clinically Isolated Syndrome. Patients received a total of five subcutaneous injections at weeks 0, 4, 8, 12 and 24. Key results from the TERMS trial included:

- In the modified intent to treat patient population (n=142), the ARR for Tcelna-treated patients was 0.214 as compared to 0.339 for placebo-treated patients, which represented a 37% decrease in ARR for Tcelna as compared to placebo in the general population;

- In a prospective group of patients with more active disease (ARR>1, n=50), Tcelna demonstrated a 55% reduction in ARR as compared to placebo, and a 73% reduction in relapse rate was observed in Tcelna patients in this population compared to placebo during the 24-week period following the administration of the full course of treatment; and

- In a retrospective analysis in patients naïve to previous disease modifying treatment (*i.e.*, patients who had not previously used any drugs other than steroids to treat their disease), the results showed that patients, when treated with Tcelna, had a 64% reduction in ARR versus placebo (p=0.046, n=70).

We remain committed to further advancing Tcelna in RRMS at a later date assuming the availability of sufficient resources. For Opexa, however, progressive MS is an area which we believe represents a higher unmet medical need.

Cash Position and Liquidity

As of September 30, 2012, we had cash and cash equivalents of $2,237,618. During July 2012, we closed a private offering consisting of convertible secured notes and warrants to purchase common stock which generated approximately $4.1 million in gross proceeds (of which $1.0 million is held in a controlled account). Our burn rate during the nine months ended September 30, 2012, inclusive of the cost of preparations to commence the Phase IIb clinical study, was approximately $885,000 per month. We will need to raise additional capital to fund our current business plan and support our clinical trial operations. Based on our current burn rate in conjunction with our expanded clinical trial activities, we believe we have sufficient liquidity to support our operations through December 2012. If we are unable to obtain additional funding for operations in the immediate future, we will be forced to suspend or terminate our current ongoing clinical trial for Tcelna, which may require us to modify our current business plan and curtail various aspects of our operations, as well as implement significant cost-reduction measures or potentially cease operations.

Given our need for substantial amounts of capital to continue and complete the Phase IIb clinical study in North America of Tcelna in SPMS, we intend to continue to explore potential opportunities and alternatives to obtain the additional resources that will be necessary to continue and complete the Phase IIb study and to support ongoing operations during the pendency of such study. In addition to one or more additional financings, these opportunities and alternatives may include a partnering arrangement with a large biotech or pharmaceutical company. There can be no assurance that any such financings or partnering arrangement can be consummated on acceptable terms, if at all.

Other Opportunities

Our proprietary T-cell technology has enabled us to develop intellectual property and a comprehensive sample database that may enable discovery of novel biomarkers and other relevant peptides to be used to treat MS patients.

We have developed (and, in part, in-licensed from the University of Chicago) a proprietary adult stem cell technology to produce monocyte-derived stem cells (MDSC) from blood. These MDSC can be derived from a patient's monocytes, expanded *ex vivo* , and then administered to the same patient. Our initial focus for this technology is the further development of this monocyte-derived stem cell technology as a platform for the *in vitro* generation of highly specialized cells for potential application in autologous cell therapy for patients with diabetes mellitus. The diabetes program is in an early (pre-clinical) development stage.

The Offering

Common stock offered by selling shareholders	2,416,521 shares (consisting of (i) 980,400 shares issuable upon payment of accrued interest on the 12% convertible secured promissory notes in shares of common stock at an assumed price per share of $1.00 (the minimum bid price listing standard for The NASDAQ Capital Market) and (ii) 1,436,121 shares issuable upon exercise of outstanding Series I warrants, including antidilution adjustments).
Common stock outstanding before the offering	5,995,468 shares.
Common stock outstanding after the offering	8,411,989 shares (assuming (i) all interest on the 12% convertible secured promissory notes is paid in shares of common stock at an assumed per share price of $1.00 and (ii) full exercise of the warrants, as adjusted).
Use of proceeds	We will not receive any proceeds from the sales by the selling shareholders, but we will receive funds from the exercise of the warrants, if exercised for cash, which we will use for general working capital purposes.
NASDAQ Capital Market Symbol	OPXA
Risk factors	See “Risk Factors” beginning on page 5 of this prospectus for a discussion of the factors you should consider before deciding to invest in our common stock.

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should consider the important factors set forth below and in the documents incorporated by reference in this prospectus, including the discussion under the section entitled "Risk Factors" in our Quarterly Report on Form 10-Q for the quarter ended September 30, 2012, which is incorporated herein by reference, together with all of the other information contained in this prospectus, before deciding to invest in our common stock. Additional risks and uncertainties not presently known to us, or that we may view as immaterial, may also impair our business. If any of these risks or uncertainties actually occur, they could materially and adversely affect our business, financial condition, results of operations, cash flows or prospects, which could in turn materially and adversely affect the price of our common stock and you could lose all or part of your investment.

The number of shares being registered for sale is significant in relation to our trading volume.

All of the shares registered for sale on behalf of the selling shareholders are "restricted securities" as that term is defined in Rule 144 under the Securities Act. We have filed this registration statement to register these restricted shares for sale into the public market by the selling shareholders. These restricted shares, if sold in the market all at once or at about the same time, could depress the market price during the period the registration statement remains effective and also could affect our ability to raise equity capital. Any outstanding shares not sold by the selling shareholders pursuant to this prospectus will remain as "restricted securities" in the hands of the holders, except for those held by non-affiliates for a period of six months, calculated pursuant to Rule 144.

FORWARD-LOOKING STATEMENTS

This prospectus contains "forward-looking statements" which are made pursuant to the safe harbor provisions of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Statements contained in this prospectus, other than statements of historical fact, constitute "forward-looking statements." The words "expects," "believes," "anticipates," "estimates," "may," "could," "intends," and similar expressions are intended to identify forward-looking statements. In particular, these forward-looking statements may be found, among other places, under the headings "The Company" and "Risk Factors." These forward-looking statements do not constitute guarantees of future performance. Investors are cautioned that statements which are not strictly historical statements, including, without limitation, statements regarding current or future financial payments, returns, royalties, performance and position, management's strategy, plans and objectives for future operations, plans and objectives for product development, plans and objectives for present and future clinical trials and results of such trials, plans and objectives for regulatory approval, litigation, intellectual property, product development, manufacturing plans and performance, and management's initiatives and strategies, constitute forward-looking statements. Such forward-looking statements are subject to a number of risks and uncertainties that could cause actual results to differ materially from those anticipated. These risks and uncertainties include, but are not limited to, those risks discussed in "Risk Factors," as well as, without limitation, risks associated with: our capital position; the rights and preferences provided to the Series A Convertible Preferred Stock and investors in the convertible secured notes we issued in July 2012 (including a secured interest in all of our assets); our ability to enter into and benefit from a partnering arrangement for our product candidate, Tcelna, on reasonably satisfactory terms (if at all), and our dependence (if partnered) on the resources and abilities of any partner for the further development of Tcelna; our ability to compete with larger, better financed pharmaceutical and biotechnology companies; new approaches to the treatment of our targeted diseases; our expectation of incurring continued losses; our uncertainty of developing a marketable product; our ability to raise additional capital to continue our development programs (including to undertake and complete any ongoing or further clinical studies for Tcelna), including in this regard our ability to satisfy various conditions required to access the financing potentially available under the purchase agreements with Lincoln Park (such as the minimum closing price for our common stock, the registration of the underlying shares of common stock under the Securities Act of 1933, as amended, and the requirement for an ongoing trading market for our stock); our ability to regain and maintain compliance with NASDAQ listing standards; the success of our clinical trials; the efficacy of Tcelna for any particular indication, such as for relapsing remitting MS or secondary progressive MS; our ability to develop and commercialize products; our ability to obtain required regulatory approvals; our compliance with all Food and Drug Administration regulations; our ability to obtain, maintain and protect intellectual property rights (including for Tcelna); the risk of litigation regarding our intellectual property rights or the rights of third parties; the success of third party development and commercialization efforts with respect to products covered by intellectual property rights that we may license or transfer; our limited manufacturing capabilities; our dependence on third-party manufacturers; our ability to hire and retain skilled personnel; our volatile stock price; and other risks detailed in our filings with the Securities and Exchange Commission. These forward-looking statements speak only as of the date of this report. We assume no obligation or undertaking to update any forward-looking statements contained herein to reflect any changes in expectations with regard thereto or any change in events, conditions or circumstances on which any such statement is based. You should, however, review additional disclosures we make in the reports we file with the Securities and Exchange Commission.

USE OF PROCEEDS

We will not receive any proceeds from the sale of the common stock by the selling shareholders, but we will receive funds from the exercise of the Series I warrants held by the selling shareholders if and when those warrants are exercised for cash. We will use any proceeds from the exercise of such warrants for general corporate and working capital purposes. We will have complete discretion over how we may use the proceeds, if any, from any exercise of the warrants.

SELLING SHAREHOLDERS

This prospectus relates to the resale by the selling shareholders named below from time to time of up to a total of 2,416,521 shares of our common stock that are issuable to the selling shareholders pursuant to transactions exempt from registration under the Securities Act. All of the common stock offered by this prospectus is being offered by the selling shareholders for their own accounts.

Private Placement

On July 25, 2012, we completed a private placement in which we issued to certain accredited investors who are the selling shareholders an aggregate principal amount $4,085,000 of our 12% convertible secured promissory notes, pursuant to a note purchase agreement of even date. The notes are secured by substantially all of our tangible and intangible assets, and $1.0 million of the proceeds from the note offering is being held in a controlled account as part of the security interest granted to the noteholders. The notes are convertible into shares of Series A convertible preferred stock which are ultimately convertible into common stock. No shares of Series A convertible preferred stock are currently outstanding. The notes are currently ultimately convertible into an aggregate of 1,276,563 shares post-split (5,106,250 shares pre-split) of common stock based upon a conversion price of $3.20 post-split ($0.80 pre-split) for the Series A convertible preferred stock. As a result of the antidilution adjustment provision of the Series A convertible preferred stock, the notes are potentially ultimately convertible into an aggregate of 1,308,236 shares post-split (5,232,975 shares pre-split) of common stock based upon a potential adjusted conversion price of $3.1225 post-split ($0.780625 pre-split) (which is a floor price). If we pay all accrued interest on the notes in shares of common stock, assumed to be valued at $1.00 per share, the minimum bid price listing standard for The NASDAQ Capital Market, an additional 980,400 shares of common stock are issuable. We also issued Series I warrants to purchase shares of common stock to the selling shareholders. The warrants have a five-year term and are exercisable on or after January 25, 2013; therefore, for purposes of the following table, the selling shareholders are deemed to beneficially own the shares of common stock underlying the Series I warrants. The warrants were initially exercisable at $5.00 per share post-split ($1.25 pre-split). As a result of the antidilution adjustment provision of the warrants, the warrants are currently exercisable at an adjusted exercise price of $2.56 per share post-split ($0.64 pre-split). The warrants were initially exercisable for an aggregate of 957,422 shares post-split (3,829,689 shares pre-split) of common stock. As a result of the antidilution adjustment provision of the warrants, the warrants are currently exercisable for an aggregate of 1,436,121 shares post-split (5,744,530 shares pre-split). We granted the noteholders certain registration rights relating to the shares of common stock ultimately underlying the 12% convertible secured promissory notes (*i.e.*, the common stock issuable upon conversion of the Series A convertible preferred stock which is issuable upon conversion of the notes) and upon exercise of the warrants. The securities were issued in reliance on exemptions provided by Section 4(2) of the Securities Act for the offer and sale of securities not involving a public offering and Rule 506 of Regulation D promulgated thereunder.

Selling Shareholders

The table below, which was prepared based on information filed publicly or supplied to us by the selling shareholders, sets forth information regarding the beneficial ownership of outstanding shares of our common stock by the selling shareholders and the shares that they may sell or otherwise dispose of from time to time under this prospectus. Each of the selling shareholders, or their respective transferees, donees or their successors, may resell, from time to time, all, some or none of the shares of our common stock covered by this prospectus, as provided in this prospectus under the section entitled "Plan of Distribution" and in any applicable prospectus supplement. However, we do not know when or in what amount the selling shareholders may offer their shares for sale under this prospectus, if any.

The number of shares disclosed in the table below as "beneficially owned" are those beneficially owned as determined under the rules of the SEC. Such information is not necessarily indicative of ownership for any other purpose. Under the rules of the SEC, a person is deemed to be a "beneficial owner" of a security if that person has or shares "voting power," which includes the power to vote or to direct the voting of such security, or "investment power," which includes the power to dispose of or to direct the disposition of such security. In computing the number of shares beneficially owned by a selling shareholder and the percentage of ownership of that selling shareholder, shares of common stock held by that selling shareholder are included. Those shares, however, are not deemed outstanding for the purpose of computing the percentage ownership of any other selling shareholder. Each selling shareholder's percentage of ownership in the following table is based upon 5,995,468 shares of common stock outstanding as of December 18, 2012.

Unless otherwise indicated and subject to community property laws where applicable, the selling shareholders named in the following table have, to our knowledge, sole voting and investment power with respect to the shares beneficially owned by them. In addition, none of the selling shareholders has any family relationships with our officers, directors or controlling shareholders. Furthermore, unless otherwise indicated below, no selling shareholder is a registered broker-dealer or an affiliate of a registered broker-dealer.

Information concerning any of the selling shareholders may change from time to time, and any changed information will be presented in a prospectus supplement as necessary. Please carefully read the footnotes located below the table in conjunction with the information presented in the table. We implemented a 1-for-4 reverse stock split of our common stock on December 14, 2012. All share numbers in the table and footnotes thereto have been adjusted to reflect the reverse stock split.

Name of Selling Shareholder	Beneficial Ownership Before the Offering	Shares of Common Stock Included in Prospectus [1]	Beneficial Ownership After the Offering [2]	Percentage of Common Stock Owned After Offering [2]
Albert and Margaret Alkek Foundation [3][4]	624,960	177,469	519,491	8.30%
Alkek & Williams Ventures Ltd. [5][6]	642,235	295,781	466,454	7.26%
DLD Family Investments, LLC [7][8]	603,180	295,781	427,398	6.68%
Charles E. Sheedy [9][10]	479,621	147,890	391,731	6.29%
George McDaniel [11]	176,665	118,312	106,353	1.73%
Robert and Susan deRose Family Trust [16]	66,656	59,156	31,500	*
David L. Anderson [27]	49,805	44,367	23,438	*
The Arnold Corporation [17]	132,813	118,312	62,500	1.02%
Paul Anthony Jacobs and Nancy E. Jacobs Joint Trust [12][18]	66,406	59,156	31,250	*
J.R. Seward Revocable Trust [12][19]	66,406	59,156	31,250	*
Mossman Partners LP [20]	89,650	29,578	72,072	1.20%
Arrow Realty, LLC [21]	132,813	118,312	62,500	1.02%
William F. Miller III [28]	33,203	29,578	15,625	*
Tom Juda and Nancy Juda Living Trust [22]	199,219	177,469	93,750	1.51%
JMJ Financial [23]	332,031	295,781	156,250	2.47%
Neil K. Warma [13]	176,196	8,873	170,922	2.77%
David E. Jorden [14]	399,334	68,029	358,905	5.82%
DIT Equity Holdings, LLC [12][24]	66,406	59,156	31,250	*
Brio Capital L.P. [25]	199,219	177,469	93,750	1.51%
The James P. Miscoll Bypass Trust [26]	22,597	17,746	12,050	*
Iroquois Master Fund Ltd. [15]	127,594	59,156	92,438	1.51%

* Less than 1%.

(1) The shares of common stock included in this prospectus and shown in the table for each selling shareholder are solely shares issuable (i) upon payment of accrued interest on the 12% convertible secured notes in shares of common stock at an assumed per share price of $1.00 (the minimum bid price listing requirement for The NASDAQ Capital Market), and (ii) upon exercise of Series I warrants held by each selling shareholder, including antidilution adjustments. Any other securities listed in the table or the footnotes to the table are not included in this prospectus.

(2) Assuming all securities offered are sold.

(3) This information is based on the Schedule 13D/A filed with the SEC on August 23, 2012, by Albert and Margaret Alkek Foundation (the "Foundation"), Alkek & Williams Ventures, Ltd. ("Ventures"), Scott Seaman, DLD Family Investments, LLC ("DLD Family"), and the other reporting persons named therein (the "Foundation 13D") and other information available to us. The Foundation acts through an investment committee of its board of directors, which includes Mr. Charles Williams, Mr. Daniel Arnold, Mr. Joe Bailey, Mr. Scott Seaman and Ms. Randa Duncan Williams. Mr. Seaman is the executive director of the Foundation and chairman of the investment committee. The investment committee has sole voting and investment power over all of the shares of common stock beneficially owned by the Foundation. However, pursuant to the Foundation 13D, neither the executive director nor any member of the investment committee may act individually to vote or sell shares of common stock held by the Foundation; therefore, the Foundation has concluded that no individual committee member is deemed to beneficially own, within the meaning of Rule 13d-3 of the Exchange Act, any shares of common stock held by the Foundation solely by virtue of the fact that he or she is a member of the investment committee. Additionally, pursuant to the Foundation 13D, the Foundation has concluded that because Mr. Seaman, in his capacity as executive director or chairman of the investment committee, cannot act in such capacity to vote or sell shares of common stock held by the Foundation without the approval of the investment committee, he is not deemed to beneficially own, within the meaning of Rule 13d-3 of the Exchange Act, any shares of common stock held by the Foundation by virtue of his position as executive director or chairman of the investment committee. Mr. Seaman has served as a director of Opexa since 2006 and as chair of the Audit Committee of Opexa's Board of Directors since August 2012.

(4) Consisting of: (i) 358,241 shares of common stock; (ii) 5,000 shares of common stock underlying Series E warrants; (iii) 62,500 shares of common stock underlying Series G warrants; (iv) 93,750 shares of common stock issuable if a 12% convertible secured promissory note was converted to Series A convertible preferred stock which was then ultimately converted into common stock; and (v) 105,469 shares of common stock underlying Series I warrants. Pursuant to the Foundation 13D, the Foundation and other reporting persons named therein may be deemed to constitute a group for purposes of Section 13(d) or Section 13(g) of the Exchange Act. However, the Foundation, Ventures, Chaswil, Ltd. and Mr. Seaman expressly disclaim (i) that, for purposes of Section 13(d) or Section 13(g) of the Exchange Act, they are a member of a group with respect to securities of Opexa held by DLD Family, Mr. Arnold, Mr. Bailey or Ms. Williams and (ii) that they have agreed to act together with DLD Family, Mr. Arnold, Mr. Bailey or Ms. Williams as a group other than as described in the Foundation 13D. Therefore, this does not include the following securities: (i) 201,148 shares of common stock held by DLD Family; (ii) 25,000 shares of common stock underlying Series E warrants held by DLD Family; (iii) 25,000 shares of common stock underlying Series G warrants held by DLD Family; (iv) 20,000 shares of common stock underlying Series H warrants held by DLD Family; (v) 156,250 shares of common stock issuable if a 12% convertible secured promissory note held by DLD Family was converted to Series A convertible preferred stock which was then ultimately converted into common stock; (vi) 175,781 shares of common stock underlying Series I warrants held by DLD Family; (vii) 6,667 shares of common stock held by Mr. Arnold; (viii) 12,500 shares of common stock held by Mr. Bailey; (ix) 210,204 shares of common stock held by Ventures; (x) 50,000 shares of common stock underlying Series E warrants held by Ventures; (xi) 50,000 shares of common stock underlying Series G warrants held by Ventures; (xii) 156,250 shares of common stock issuable if a 12% convertible secured promissory note held by Ventures was converted to Series A convertible preferred stock which was then ultimately converted into common stock; (xiii) 175,781 shares of common stock underlying Series I warrants held by Ventures; (xiv) 10,914 shares of common stock held by Mr. Seaman; (xv) 2,500 shares of common stock underlying Series E warrants held by Mr. Seaman; and (xvi) 43,785 shares of common stock underlying currently exercisable stock options held by Mr. Seaman.

(5) Chaswil, Ltd. is the investment manager of Ventures and holds voting power and investment power with respect to Company securities held by Ventures pursuant to a written agreement. Scott B. Seaman is a principal of Chaswil, Ltd. and has shared voting power and shared investment power over all of the shares of common stock beneficially owned by Ventures. The information in this footnote is primarily based on the Foundation 13D and other information provided to us. Mr. Seaman has served as a director of Opexa since 2006, and has served as chair of Audit Committee of Opexa's Board of Directors since August 2012. Ventures serves as the collateral agent under a security agreement and a patent and trademark security agreement, and as the secured party under a deposit account control agreement, each of which was entered into with Opexa in connection with the July 2012 private offering by Opexa of the 12% convertible secured promissory notes and Series I warrants.

(6) Consisting of: (i) 210,204 shares of common stock; (ii) 50,000 shares of common stock underlying Series E warrants; (iii) 50,000 shares of common stock underlying Series G warrants; (iv) 156,250 shares of common stock issuable if a 12% convertible secured promissory note was converted to Series A convertible preferred stock which was then ultimately converted into common stock; and (v) 175,781 shares of common stock underlying Series I warrants.

(7) Randa Duncan Williams is the principal of DLD Family and she may be deemed to exercise voting and investment power with respect to such shares. The information in this footnote is primarily based on the Foundation 13D and other information provided to us.

(8) Consisting of: (i) 201,148 shares of common stock; (ii) 25,000 shares of common stock underlying Series E warrants; (iii) 25,000 shares of common stock underlying Series G warrants; (iv) 20,000 shares of common stock underlying Series H warrants; (v) 156,250 shares of common stock issuable if a 12% convertible secured promissory note was converted to Series A convertible preferred stock which was then ultimately converted into common stock; and (vi) 175,781 shares of common stock underlying Series I warrants.

(9) The information in this footnote is primarily based on information reported on the Schedule 13G/A filed with the SEC on February 11, 2011 by Charles E. Sheedy and other information available to us.

(10) Consisting of: (i) 249,606 shares of common stock; (ii) 37,500 shares of common stock underlying Series E warrants; (iii) 12,500 shares of common stock underlying Series G warrants; (iv) 14,000 shares of common stock underlying Series H warrants; (v) 78,125 shares of common stock issuable if a 12% convertible secured promissory note was converted to Series A convertible preferred stock which was then ultimately converted into common stock; and (vi) 87,891 shares of common stock underlying Series I warrants.

(11) Consisting of: (i) 31,353 shares of common stock; (ii) 12,500 shares of common stock underlying Series G warrants; (iii) 62,500 shares of common stock issuable if a 12% convertible secured promissory note was converted to Series A convertible preferred stock which was then ultimately converted into common stock; and (iv) 70,313 shares of common stock underlying Series I warrants.

(12) Consisting of: (i) 31,250 shares of common stock issuable if a 12% convertible secured promissory note was converted to Series A convertible preferred stock which was then ultimately converted into common stock; and (ii) 35,156 shares of common stock underlying Series I warrants.

(13) Consisting of: (i) 8,059 shares of common stock; (ii) 2,500 shares of common stock underlying Series G Warrants; (iii) 4,688 shares of common stock issuable if a 12% convertible secured promissory note was converted to Series A convertible preferred stock which was then ultimately converted into common stock; (iv) 5,273 shares of common stock underlying Series I warrants; and (v) 155,676 shares of common stock underlying currently exercisable stock options. Mr. Warma has served as President and Chief Executive Officer of Opexa since June 2008 and as a director since September 2008. He served as Acting Chief Financial Officer from March 2009 to August 2012.

(14) Consisting of: (i) 222,500 shares of common stock; (ii) 36,250 shares of common stock underlying Series E warrants; (iii) 25,000 shares of common stock underlying Series G warrants; (iv) 35,938 shares of common stock issuable if a 12% convertible secured promissory note was converted to Series A convertible preferred stock which was then ultimately converted into common stock; (v) 40,430 shares of common stock underlying Series I warrants; and (vi) 39,217 shares of common stock underlying currently exercisable stock options. Mr. Jorden has served as Acting Chief Financial Officer of Opexa since August 2012 and as a director since August 2008 and previously served as Chair of the Audit Committee of Opexa's Board of Directors until August 2012.

(15) Consisting of: (i) 37,188 shares of common stock underlying Series A warrants; (ii) 24,000 shares of common stock underlying Series H warrants; (iii) 31,250 shares of common stock issuable if a 12% convertible secured promissory note was converted to Series A convertible preferred stock which was then ultimately converted into common stock; and (iv) 35,156 shares of common stock underlying Series I warrants. Iroquois Capital Management L.L.C. ("Iroquois Capital") is the investment manager of Iroquois Master Fund, Ltd. ("IMF"). Consequently, Iroquois Capital has voting control and investment discretion over securities held by IMF. As managing members of Iroquois Capital, Joshua Silverman and Richard Abbe make voting and investment decisions on behalf of Iroquois Capital in its capacity as investment manager to IMF. As a result of the foregoing, Mr. Silverman and Mr. Abbe may be deemed to have beneficial ownership (as determined under Section 13(d) of the Securities Exchange Act of 1934, as amended) of the securities held by IMF.

(16) Consisting of: (i) 250 shares of common stock; (ii) 31,250 shares of common stock issuable if a 12% convertible secured promissory note was converted to Series A convertible preferred stock which was then ultimately converted into common stock; and (iii) 35,156 shares of common stock underlying Series I warrants. Robert deRose and Susan deRose, co-trustees of the Trust, may be deemed to exercise voting and investment power with respect to such shares.

(17) Consisting of: (i) 62,500 shares of common stock issuable if a 12% convertible secured promissory note was converted to Series A convertible preferred stock which was then ultimately converted into common stock; and (ii) 70,313 shares of common stock underlying Series I warrants. Isaac Arnold, Jr., President, and Isaac Arnold, III, Robert T. Arnold and Antoinette Arnold Maywald may be deemed to exercise voting and investment power with respect to such shares.

(18) Paul Anthony Jacobs and Nancy E. Jacobs, co-trustees of the Trust, may be deemed to exercise voting and investment power with respect to such shares.

(19) James R. Seward, trustee of the Trust, may be deemed to exercise voting and investment power with respect to such shares.

(20) Consisting of: (i) 56,447 shares of common stock; (ii) 15,625 shares of common stock issuable if a 12% convertible secured promissory note was converted to Series A convertible preferred stock which was then ultimately converted into common stock; and (iii) 17,578 shares of common stock underlying Series I warrants. Gary Mossman, managing partner, may be deemed to exercise voting and investment power with respect to such shares.

(21) Consisting of: (i) 62,500 shares of common stock issuable if a 12% convertible secured promissory note was converted to Series A convertible preferred stock which was then ultimately converted into common stock; and (ii) 70,313 shares of common stock underlying Series I warrants. S. Reed Morian and William L. Hixon, members, may be deemed to exercise voting and investment power with respect to such shares.

(22) Consisting of: (i) 93,750 shares of common stock issuable if a 12% convertible secured promissory note was converted to Series A convertible preferred stock which was then ultimately converted into common stock; and (ii) 105,469 shares of common stock underlying Series I warrants. Tom Juda and Nancy Juda, co-trustees of the Trust, may be deemed to exercise voting and investment power with respect to such shares.

(23) Consisting of: (i) 156,250 shares of common stock issuable if a 12% convertible secured promissory note was converted to Series A convertible preferred stock which was then ultimately converted into common stock; and (ii) 175,781 shares of common stock underlying Series I warrants. Justin Keener, principal, may be deemed to exercise voting and investment power with respect to such shares.

(24) Kyung Won Lee, managing member, may be deemed to exercise voting and investment power with respect to such shares.

(25) Consisting of: (i) 93,750 shares of common stock issuable if a 12% convertible secured promissory note was converted to Series A convertible preferred stock which was then ultimately converted into common stock; and (ii) 105,469 shares of common stock underlying Series I warrants. Shaye Hirsch, managing partner, may be deemed to exercise voting and investment power with respect to such shares.

(26) Consisting of: (i) 2,675 shares of common stock; (ii) 9,375 shares of common stock issuable if a 12% convertible secured promissory note was converted to Series A convertible preferred stock which was then ultimately converted into common stock; and (iii) 10,547 shares of common stock underlying Series I warrants. Douglas P. Miscoll and Ingeburg W. Miscoll, co-trustees of the Trust, may be deemed to exercise voting and investment power with respect to such shares.

(27) Consisting of: (i) 23,438 shares of common stock issuable if a 12% convertible secured promissory note was converted to Series A convertible preferred stock which was then ultimately converted into common stock; and (ii) 26,367 shares of common stock underlying Series I warrants.

(28) Consisting of: (i) 15,625 shares of common stock issuable if a 12% convertible secured promissory note was converted to Series A convertible preferred stock which was then ultimately converted into common stock; and (ii) 17,578 shares of common stock underlying Series I warrants.

PLAN OF DISTRIBUTION

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

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

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent, but may position and resell a portion of the block as principal to facilitate the transaction;

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

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

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

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

The selling shareholders also may resell all or a portion of the shares in open market transactions in reliance upon Rule 144 under the Securities Act of 1933, provided that they meet the criteria and conform to the requirements of that rule.

The selling shareholders and any underwriters, broker-dealers or agents that participate in the sale of the common stock or interests therein may be “underwriters” within the meaning of Section 2(11) of the Securities Act. Any discounts, commissions, concessions or profit they earn on any resale of the shares may be underwriting discounts and commissions under the Securities Act. Selling shareholders will be subject to the prospectus delivery requirements of the Securities Act, unless an exemption therefrom is available.

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

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

There can be no assurance that any selling shareholder will sell any or all of the shares of common stock registered pursuant to the shelf registration statement, of which this prospectus forms a part.

We have advised the selling shareholders that the anti-manipulation rules of Regulation M under the Exchange Act may apply to sales of shares in the market and to the activities of the selling shareholders and their affiliates. In addition, to the extent applicable we will make copies of this prospectus (as it may be supplemented or amended from time to time) available to the selling shareholders for the purpose of satisfying the prospectus delivery requirements of the Securities Act. The selling shareholders may indemnify any broker-dealer that participates in transactions involving the sale of the shares against certain liabilities, including liabilities arising under the Securities Act.

We have agreed to indemnify the selling shareholders against liabilities, including liabilities under the Securities Act and state securities laws, relating to the registration of the shares offered by this prospectus.

We will pay all expenses of the registration of the shares of common stock pursuant to the registration rights agreement, estimated to be $45,000 in total, including, without limitation, Securities and Exchange Commission filing fees and expenses of compliance with state securities or “blue sky” laws and the selling shareholders’ expenses; provided, however, that a selling shareholder will pay all underwriting discounts and selling commissions, if any.

We have agreed with the selling shareholders to keep the registration statement of which this prospectus constitutes a part effective until the earlier of (1) such time as all of the shares covered by this prospectus have been disposed of pursuant to and in accordance with the registration statement or (2) the date on which the shares may be sold pursuant to Rule 144 of the Securities Act without regard to any volume limitation requirements under Rule 144 of the Securities Act.

LEGAL MATTERS

The validity of any securities offered by this prospectus will be passed upon for us by Pillsbury Winthrop Shaw Pittman LLP, San Diego, California.

EXPERTS

The financial statements of Opexa as of December 31, 2011, and for the years ended December 31, 2011 and 2010, incorporated in this prospectus by reference to our Annual Report on Form 10-K for the year ended December 31, 2011, have been audited by MaloneBailey, LLP, an independent registered public accounting firm, and are incorporated in reliance upon their report dated February 27, 2012, given upon such firm’s authority as experts in auditing and accounting.

WHERE YOU CAN FIND MORE INFORMATION

We have filed a registration statement on Form S-3 with the SEC under the Securities Act of 1933. This prospectus is part of the registration statement but the registration statement includes and incorporates by reference additional information and exhibits. We file annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy the registration statement and any other document we file with the SEC at the public reference room maintained by the SEC at 100 F Street, N.E., Washington, D.C. 20549. You may obtain information on the operation of the public reference room by calling the SEC at 1-800-SEC-0330. The SEC also maintains a web site that contains reports, proxy and information statements and other information regarding companies, such as ours, that file documents electronically with the SEC. The website address is www.sec.gov. The information on the SEC’s website is not part of this prospectus, and any references to this website or any other website are inactive textual references only.

The SEC permits us to "incorporate by reference" the information contained in documents we file with the SEC, which means that we can disclose important information to you by referring you to those documents rather than by including them in this prospectus. Information that is incorporated by reference is considered to be part of this prospectus and you should read it with the same care that you read this prospectus. Later information that we file with the SEC will automatically update and supersede the information that is either contained, or incorporated by reference, in this prospectus, and will be considered to be a part of this prospectus from the date those documents are filed. We have filed with the SEC, and incorporate by reference in this prospectus:

- our Annual Report on Form 10-K for the year ended December 31, 2011;
- our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2012, June 30, 2012 and September 30, 2012;
- our Current Reports on Form 8-K filed January 10, 2012, January 17, 2012, February 16, 2012, February 29, 2012, July 26, 2012, August 13, 2012, September 7, 2012, November 5, 2012, November 20, 2012, November 30, 2012 and December 14, 2012; and
- the description of our common stock contained in our Registration Statement on Form 8-A filed on August 30, 2006, as amended by our Form 8-12B/A filed on August 31, 2006.

We also incorporate by reference all additional documents that we file with the SEC under the terms of Sections 13(a), 13(c), 14 or 15 (d) of the Exchange Act that are made after the initial filing date of the registration statement of which this prospectus is a part and the effectiveness of the registration statement, as well as between the date of this prospectus and the termination of any offering of securities offered by this prospectus. We are not, however, incorporating, in each case, any documents or information that we are deemed to furnish and not file in accordance with SEC rules.

You may request a copy of any or all of the documents incorporated by reference but not delivered with this prospectus, at no cost, by writing or telephoning us at the following address and number: Investor Relations, Opexa Therapeutics, Inc., 2635 Technology Forest Blvd., The Woodlands, Texas 77381, telephone (281) 272-9331. We will not, however, send exhibits to those documents, unless the exhibits are specifically incorporated by reference in those documents. We also maintain a website at www.opexatherapeutics.com. However, the information on our website is not part of this prospectus.

2,416,521 Shares of Common Stock

OPEXA THERAPEUTICS, INC.

PROSPECTUS

, 2012

PART II
Information Not Required In Prospectus

Item 14. Other Expenses of Issuance and Distribution.

The following is a statement of estimated expenses in connection with the issuance and distribution of the securities being registered, other than underwriting discounts and commission.

	Amount to be Paid*
SEC Registration Fee	$ 992
Printing Expenses*	2,000
Legal Fees and Expenses*	30,000
Accounting Fees and Expenses*	10,000
Miscellaneous*	2,000
	$ 44,992

* All amounts shown, except the SEC registration fee, are estimated and may vary based upon, among other things, the number of issuances and amount of securities offered. We will pay all of these expenses.

Item 15. Indemnification of Directors and Officers.

Section 8.101 of the Texas Corporations Law (the "TCA") authorizes the Registrant to indemnify certain persons, including any person who was, is or is threatened to be made a named defendant or respondent in a threatened, pending or completed action or other proceeding, because the person is or was a director or officer, against judgments and reasonable expenses actually incurred by the person in connection with the threatened, pending or completed action or other proceeding. The Registrant is required by Section 8.051 of the TCA to indemnify a director or officer against reasonable expenses actually incurred by him or her in connection with a threatened, pending, or completed action or other proceeding in which he or she is a named defendant or respondent because he or she is or was a director or officer if he or she has been wholly successful, on the merits or otherwise, in the defense of the action or proceeding.

The Registrant's restated certificate of formation provides that none of its directors shall be personally liable to the Registrant or its shareholders for monetary damages for an act or omission in such director's capacity as a director; provided, however, that the liability of such director is not limited to the extent that such director is found liable for (i) a breach of the director's duty of loyalty to the Registrant or its shareholders, (ii) an act or omission not in good faith that constitutes a breach of duty of the director to the Registrant or an act or omission that involves intentional misconduct or a knowing violation of the law, (iii) a transaction from which the director received an improper benefit, whether or not the benefit resulted from an action taken within the scope of the director's office, or (iv) an act or omission for which the liability of the director is expressly provided by an applicable statute.

The Registrant's restated certificate of formation and amended and restated bylaws provide that the Registrant shall indemnify its officers, directors, agents and any other persons to the fullest extent permitted by applicable law. The Registrant's directors and officers are covered by insurance indemnifying them against certain liabilities which might be incurred by them in their capacities as such. Pursuant to terms of their employment contracts, certain of the Registrant's officers are entitled to indemnification in their capacity as such and to the fullest extent permitted by applicable law.

At the present time, there is no pending litigation or proceeding involving a director, officer, employee or other agent of the Registrant in which indemnification would be required or permitted. The Registrant is not aware of any threatened litigation or proceeding which may result in a claim for such indemnification.

Item 16. Exhibits .

The list of exhibits in the Exhibit Index to this prospectus is incorporated herein by reference.

Item 17. Undertakings .

The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Securities and Exchange Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement.

Provided, however, that paragraphs (i), (ii) and (iii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Securities and Exchange Commission by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:

(A) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

(B) Each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A, shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such first use, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such date of first use.

(5) That, for the purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

(6) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to any charter provision, by law or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act of 1933 and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized in the City of The Woodlands, State of Texas, on December 19, 2012.

OPEXA THERAPEUTICS, INC.

By: /s/ Neil K. Warma
Neil K. Warma
President and Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

Name	Title	Date
/s/ Neil K. Warma Neil K. Warma	President, Chief Executive Officer and Director *(Principal Executive Officer)*	December 19, 2012
/s/ David E. Jorden David E. Jorden	Acting Chief Financial Officer and Director *(Principal Financial and Accounting Officer)*	December 19, 2012
* Gail J. Maderis	Director	December 19, 2012
* Michael S. Richman	Director	December 19, 2012
* Scott B. Seaman	Director	December 19, 2012

*By: /s/ Neil K. Warma
Neil K. Warma
Attorney-in-Fact

EXHIBIT INDEX

Exhibit No.	Description
3.1	Restated Certificate of Formation of Opexa Therapeutics, Inc. (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K filed on July 26, 2012).
3.2	Amended and Restated Bylaws, as amended (incorporated by reference to Exhibit 3.3 to the Company's Annual Report on Form 10-K filed on March 8, 2011).
4.1	Specimen Common Stock Certificate (incorporated by reference to Exhibit 4.7 to the Company's Registration Statement on Form S-3 filed on November 13, 2009, File No. 333-163108).
4.2	Form of Series I Warrant (incorporated by reference to Exhibit 4.1 to the Company's Current Report on Form 8-K filed on July 26, 2012).
4.3	Certificate of Designation of Preferences, Rights and Limitations of Series A Convertible preferred Stock of Opexa Therapeutics, Inc. (incorporated by reference to Exhibit 4.2 to the Company's Current Report on Form 8-K filed on July 26, 2012).
4.4	Form of Registration Rights Agreement, dated July 25, 2012, by and among Opexa Therapeutics, Inc. and the investors signatory thereto (incorporated by reference to Exhibit 10.5 to the Company's Current Report on Form 8-K filed July 26, 2012).
4.5	Form of 12% Convertible Secured Promissory Note issued to investors (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K filed July 26, 2012).
5.1*	Opinion of Pillsbury Winthrop Shaw Pittman LLP.
23.1*	Consent of Pillsbury Winthrop Shaw Pittman LLP (included in Exhibit 5.1).
23.2*	Consent of MaloneBailey, LLP.
24.1*	Power of Attorney (included on the signature page hereof).

* Previously filed