As filed with the Securities and Exchange Commission on January 3, 2013

Registration No. 333-179590

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

POST-EFFECTIVE AMENDMENT NO. 1 TO
FORM S-1
REGISTRATION STATEMENT

UNDER
THE SECURITIES ACT OF 1933

MEI PHARMA, INC.

(Exact name of registrant as specified in its charter)

Delaware	2834	51-0407811
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification Number)

11975 El Camino Real, Suite 101
San Diego, California 92130
(858) 792-6300

(Address, including zip code and telephone number, including area code, of registrant's principal executive offices)

Daniel P. Gold
President and Chief Executive Officer
11975 El Camino Real, Suite 101
San Diego, California 92130
(858) 792-6300

(Name, address, including zip code and telephone number, including area code, of agent for service)

Copies to:

Steven A. Navarro, Esq.
Finnbarr D. Murphy, Esq.
Morgan, Lewis & Bockius LLP
101 Park Avenue
New York, New York 10178

Approximate date of commencement of proposed sale to the public: From time to time after this Registration Statement becomes effective.

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, 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 post-effective amendment filed pursuant to Rule 462(d) 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. ☐

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	☐ (Do not check if a smaller reporting company)	Smaller reporting company	☒

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.

EXPLANATORY NOTE

This Post-Effective Amendment No. 1 to Form S-1 (this "Post-Effective Amendment") is being filed pursuant to Section 10(a)(3) of the Securities Act of 1933, as amended, to update the Registration Statement on Form S-1 (Registration No. 333-179590) (the "Original Registration Statement"), which was previously declared effective by the Securities and Exchange Commission (the "SEC") on March 26, 2012, to include the audited consolidated financial statements and the notes thereto included in the Registrant's Annual Report on Form 10-K for the fiscal year ended June 30, 2012, which was filed with the SEC on September 18, 2012. This Post-Effective Amendment also contains an updated prospectus relating to the offering and sale of certain of the securities that were included in the Original Registration Statement. The subscription rights offering (the "Rights Offering") to which the Original Registration Statement related was completed on May 11, 2012. Accordingly, this Post-Effective Amendment relates only to the exercise of the warrants that were issued as a component of the units in the Right Offering.

All applicable registration fees were paid in connection with the filing of the Original Registration Statement on February 21, 2012.

THE INFORMATION IN THIS PROSPECTUS IS NOT COMPLETE AND MAY BE CHANGED. THESE SECURITIES MAY NOT BE SOLD UNTIL THE REGISTRATION STATEMENT FILED WITH THE SECURITIES AND EXCHANGE COMMISSION IS EFFECTIVE. THIS PROSPECTUS IS NOT AN OFFER TO SELL THESE SECURITIES, AND IS NOT SOLICITING OFFERS TO BUY THESE SECURITIES IN ANY STATE WHERE THE OFFER OR SALE IS NOT PERMITTED.

Subject to Completion, Dated January 3, 2013

PROSPECTUS

MEI PHARMA, INC.

319,191 Shares of Common Stock at $7.14 Per Share Upon Exercise of Outstanding Warrants

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In connection with our rights offering, the subscription period for which expired on May 11, 2012, we previously issued and sold 11,660,606 units, each unit consisting of 0.50 shares of our common stock and a warrant to purchase 0.25 shares of our common stock, par value $0.00000002 per share (the "Common Stock"). The warrants may be exercised for a five-year term ending on May 10, 2017, and have an exercise price of $7.14 per share. This prospectus relates to the potential issuance of up to 319,191 shares of Common Stock upon exercise of the warrants issued in connection with the rights offering, which we refer to herein as the warrants. This amount represents the 2,915,152 shares of Common Stock originally issuable upon exercise of the warrants less 1,000,000 shares of Common Stock that had been issuable upon exercise of the warrants, which were cancelled in connection with the previously disclosed agreement, dated December 5, 2012, between us, Novogen Limited, Novogen Research Pty Ltd, Andrew Heaton and Graham Kelly, as adjusted for our 1-for-6 reverse stock split (the "2012 Reverse Stock Split") that became effective on December 18, 2012.

All costs associated with this registration statement will be borne by us. Shares of our Common Stock are traded on the Nasdaq Capital Market under the symbol "MEIP." On January 2, 2013, the closing price for a share of our Common Stock on the Nasdaq Capital Market was $7.15 per share. The shares of Common Stock issued upon the exercise of the warrants will also be quoted on the Nasdaq Capital Market under the same ticker symbol. We do not intend to list the warrants for trading on any stock exchange or market or automated quotation system.

Investing in our securities involves risks. See "Risk Factors" beginning on page 7 of this prospectus.

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

The date of this prospectus is , 2013.

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We have not authorized anyone to provide any information other than that contained or incorporated by reference in this prospectus or in any free writing prospectus prepared by or on behalf of us or to which we have referred you. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you.

This prospectus and any applicable prospectus supplement are not offers to sell nor are they seeking an offer to buy these securities in any jurisdiction where the offer or sale is not permitted. The information contained in this prospectus and any applicable prospectus supplement is complete and correct only as of the date on the front cover of such documents, regardless of the time of the delivery of such documents or any sale of these securities. In this prospectus, "MEI Pharma," "the Company," "we," "us," and "our" refer to the consolidated operations of MEI Pharma, Inc., and references to a company name refer solely to such company.

For investors outside the United States: We have not taken any action to permit a public offering of our securities or the possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than the United States. You are required to inform yourselves about and to observe any restrictions relating to this offering and the distribution of this prospectus.

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission (the "SEC"). When required, we will amend the registration statement or file prospectus supplements to update or change information contained in this prospectus. You should read this prospectus, as well as any amended prospectus and any prospectus supplement, together with additional information described under the headings "Additional Information" and "Incorporation By Reference."

ADDITIONAL INFORMATION

As permitted by SEC rules, this prospectus omits certain information that is included in the registration statement and its exhibits. Since the prospectus may not contain all of the information that you may find important, you should review the full text of these documents. If we have filed a contract, agreement or other document as an exhibit to the registration statement, you should read the exhibit for a more complete understanding of the document or matter involved. Each statement in this prospectus, including statements incorporated by reference as discussed below, regarding a contract, agreement or other document is qualified in its entirety by reference to the actual document.

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

INCORPORATION BY REFERENCE

The SEC allows us to "incorporate by reference" the information we file with the SEC, which means we can disclose important information to you by referring to these documents. The information included in the following documents is incorporated by reference and is considered a part of this prospectus. The most recent information that we filed with the SEC automatically updated and superseded previously filed information.

We hereby incorporate by reference into this prospectus the following documents that we have filed with the SEC:

- Our Annual Report on Form 10-K for the fiscal year ended June 30, 2012 filed with the SEC on September 18, 2012;
- Our Quarterly Report on Form 10-Q for the quarter ended September 30, 2012 filed with the SEC on November 13, 2012;
- Our Current Reports on Form 8-K filed with the Commission on July 2, 2012, August 8, 2012, August 23, 2012, September 28, 2012, October 4, 2012, November 5, 2012, November 7, 2012, November 21, 2012, December 7, 2012 and December 19, 2012; and
- the description of our common stock contained in the Registration Statement on Form 8-A filed on November 26, 2003, and any further amendment or report filed thereafter for the purpose of updating such description.

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

MEI Pharma, Inc.
11975 El Camino Real, Suite 101
San Diego, California 92130
Tel: (858) 792-6300
Attn: Investor Relations

Copies of these filings are also available, without charge, through the “Investors” section of our website (www.meipharma.com) as soon as reasonably practicable after they are filed electronically with the SEC. The information contained on our website is not a part of this prospectus.

SUMMARY

This summary does not contain all of the information you should consider before investing in our Common Stock. This prospectus includes or incorporates by reference information about the shares we are offering as well as information regarding our business and detailed financial data. Before you decide to invest in our Common Stock, you should read the entire prospectus carefully, including the "Risk Factors" section and any information incorporated by reference herein.

The Company

MEI Pharma, Inc. (formerly Marshall Edwards Inc.) is a development-stage oncology company focused on the clinical development of novel therapies for cancer. We were incorporated in Delaware in 2000 as a wholly owned subsidiary of Novogen Limited ("Novogen"). Our common stock is listed on the Nasdaq Capital Market and was previously listed under the symbol "MSHL" through June 30, 2012. On July 2, 2012, in conjunction with the change of our corporate name to MEI Pharma, Inc., our common stock began trading under the symbol "MEIP". In December 2012, Novogen distributed to its shareholders substantially all of its MEI Pharma common stock. Please refer to "Relationship with Novogen" below for a discussion of Novogen's distribution.

Our business purpose is the development of drugs for the treatment of cancer. We are currently focused on the clinical development of our three lead drug candidates, Pracinostat, ME-143 and ME-344. In August 2012, we completed the acquisition of certain assets and intellectual property, including those related to Pracinostat, from S*BIO Pte Ltd ("S*BIO").In May 2011, we completed the acquisition of certain assets and intellectual property, including those related to ME-143 and ME-344, from Novogen, in accordance with the terms of an Asset Purchase Agreement, dated as of December 21, 2010, between us, Novogen and Novogen Research Pty Limited.

As of September 30, 2012, our existing cash balances were approximately $3.7 million. On December 18, 2012, we completed the sale of 9,166,665 shares of our common stock and warrants to purchase an additional 6,416,665 shares of common stock in a private placement for an aggregate offering price of $27.5 million. Changes to our research and development plans or other changes affecting our operating expenses may affect actual future use of existing cash resources. In any event, however, we may pursue one or more capital raising transactions, whether through the sale of equity securities or the entry into strategic partnerships, in order to continue the development of our lead drug candidates and financing to fund our operations in the future.

Relationship with Novogen

Novogen was our majority shareholder from our inception through December 3, 2012. On such date, Novogen completed the distribution of substantially all of its MEI Pharma common stock to its shareholders. Historically, we licensed from Novogen the rights to Novogen patents and applications for our lead isoflavone-based drug candidates, as well as other compounds. Additionally, Novogen historically provided research and development services and administrative and finance services to us under service agreements. The license agreements were terminated in May 2011 in conjunction with our purchase of a portfolio of isoflavone-related assets from Novogen, which we refer to as the "Isoflavone Transaction". The service agreements were terminated in December 2010.

Rights Offering

In May 2012, we completed a rights offering pursuant to which we distributed, at no charge, to holders of our Common Stock as of 5:00 p.m., Eastern time, on March 30, 2012, subscription rights (the "Rights"), to purchase up to 17,129,361 units for an aggregate purchase price of up to $7.6 million. The subscription period for the Rights Offering expired on May 11, 2012. Each unit consisted of 0.0833 shares of Common Stock and a warrant representing the right to purchase 0.04167 shares of Common Stock at an exercise price of $7.14 per share, as

adjusted for the 2012 Reverse Stock Split. The exercise of one Right entitled holders to purchase one unit at a subscription price of $0.445 per unit, which represented the subscription price of $5.34 per whole share, as adjusted for the 2012 Reverse Stock Split. Eligible participants in the Rights Offering exercised Rights to purchase an aggregate of 11,660,606 units; accordingly, the Company issued 971,700 shares of Common Stock, as adjusted for the 2012 Reverse Stock Split, and warrants to purchase an additional 319,191 shares of Common Stock, as adjusted for the 2012 Reverse Stock Split. We received net proceeds of $4.8 million in connection with the Rights Offering.

Recent Events

Waiver Agreement

As previously disclosed in our Current Report on Form 8-K filed with the SEC on December 7, 2012, On December 5, 2012, we entered into an agreement (the "Waiver Agreement") with Novogen and Novogen Research Pty Limited, a wholly-owned subsidiary of Novogen (together, the "Novogen Parties"), Graham Kelly, an individual ("Kelly"), and Andrew Heaton, an individual ("Heaton"), pursuant to which we granted a limited waiver with respect to certain non-compete provisions contained in the Asset Purchase Agreement dated as of December 20, 2010, between us and the Novogen Parties. In consideration of our grant of the limited waiver, upon the execution of the Waiver Agreement, Novogen surrendered to us for cancellation warrants held by Novogen for the purchase of 166,666 shares of Common Stock, as adjusted for the Reverse Stock Split; accordingly, such shares are not included among the shares of Common Stock to which this prospectus relates.

Reverse Stock Split

As previously disclosed in our Current Report on Form 8-K filed with the SEC on December 19, 2012, on December 18, 2012, the Company filed a Certificate of Amendment to its Restated Certificate of Incorporation in order to effect a 1-for-6 reverse stock split of the Company's common stock effective as of 9:00 a.m. on December 18, 2012. As a result of the 2012 Reverse Stock Split, every six shares of the Company's issued and outstanding common stock were combined into one share of common stock. The 2012 Reverse Stock Split did not change the number of authorized shares of the Company's common stock. Except as otherwise indicated, financial data and share information presented in this prospectus is presented on an as-adjusted basis to give effect to the 2012 Reverse Stock Split.

Private Placement

Also as previously disclosed in our Current Report on Form 8-K filed with the SEC on December 19, 2012, on December 18, 2012, the Company completed the sale (the "December 2012 private placement") of 9,166,665 shares of common stock and warrants to purchase an additional 6,416,665 shares of common stock for an aggregate offering price of $27.5 million, pursuant to the terms of the previously announced Securities Purchase Agreement, dated November 4, 2012, between the Company and certain accredited investors identified therein. As a result of the December 2012 private placement, two of the investors, Vivo Ventures Fund VII, L.P. ("Vivo") and New Leaf Ventures II, L.P. ("New Leaf") own in excess of 20% of our outstanding Common Stock. We have entered into a separate governance agreement with each of Vivo and New Leaf pursuant to which each of them is entitled to propose a candidate for election to our board of directors for consideration by the nominating committee of the board of directors in connection with each annual meeting of our stockholders following the effectiveness of an amended and restated certificate of incorporation eliminating our classified board of directors, and at such other times as such investor may propose.

Corporate Information

Our principal executive offices are located at 11975 El Camino Real, Suite 101, San Diego, California, 92130, and our phone number is (858) 792-6300. Our website address is www.meipharma.com.

The Offering

Securities Offered	319,191 shares of Common Stock issuable upon exercise of the warrants issued in connection with the Rights Offering that was completed on May 11, 2012.*
Exercise Price and Term of Warrants	The warrants have an exercise price of $7.14 per share and are exercisable at any time prior to May 11, 2017. The warrants are exercisable for cash, or, solely during any period when a registration statement for the exercise of the warrants is not in effect, on a cashless basis. For a more complete description of the terms of the warrants, see "Description of Capital Stock—Warrants; Options—Warrants Issued in the Rights Offering."
Shares Outstanding	As of January 3, 2013, we had 15,015,454 shares of Common Stock outstanding.**
Use of Proceeds	We intend to use the net proceeds we receive from any exercise of the warrants to continue the clinical development of our lead oncology drug candidates and for other general corporate purposes. See "Use of Proceeds."
Dividends	We have never paid or declared any cash dividends on our Common Stock, and we intend to retain any future earnings to finance the development and expansion of our business. We do not anticipate paying any cash dividends on our Common Stock in the foreseeable future. See "Market Price and Dividend Information."
Market for Warrants and Common Stock	The warrants are transferable; however, there is no established trading market for the warrants, and we do not expect a market to develop. We do not intend to list the warrants for trading on any stock exchange or market or automated quotation system. Our Common Stock is currently traded on the Nasdaq Capital Market under the symbol "MEIP." See "Market Price and Dividend Information."
Risk Factors	Before you exercise the warrants to purchase shares of our Common Stock, you should carefully consider the risks described or referred to in the section entitled "Risk Factors," beginning on page 5 of this prospectus.
Warrant Agent	Computershare Inc.

* As adjusted for the 2012 Reverse Stock Split and the cancellation, pursuant to the Waiver Agreement, of warrants exercisable for the purchase of 166,666 shares of Common Stock that were previously held by Novogen.

** In addition to the warrants issued in the Rights Offering to which this prospectus relates, as of January 3, 2013, there were outstanding (i) warrants issued in our December 2012 private placement exercisable to purchase 4,639,061 shares of Common Stock at an exercise price of $3.12, which expire on December 17, 2017; (ii) Series A warrants issued in our May 2011 private placement exercisable to purchase 215,721 shares of Common Stock at an exercise price of $6.00, which expire on November 18, 2016, and (iii) other outstanding warrants exercisable to purchase 768 shares of our Common Stock at an exercise price of $130.20 per share, which expire in calendar year 2013. Also as of January 3, 2013, there were outstanding options to purchase 287,059 shares of Common Stock at exercise prices from $2.76 to $37.80 per share, which expire at various dates in calendar years 2014, 2015, 2016 and 2017.

RISK FACTORS

Any investment in our securities involves a high degree of risk. In addition to the other information included or incorporated by reference in this prospectus and any accompanying prospectus supplement, you should carefully consider the important factors set forth under the heading "Risk Factors" starting on page 17 of our Annual Report on Form 10-K for the fiscal year ended June 30, 2012, as well as in our subsequent annual reports on Form 10-K and in other reports we file with the SEC from time to time and incorporated herein by reference, before investing in our securities. For further details, see the sections entitled "Where You Can Find More Information" and "Incorporation of Certain Information by Reference."

Any of the risk factors set forth below or referred to above could significantly and negatively affect our business, results of operations or financial condition, which may lower the trading price of our common stock. The risks referred to above are not the only ones that may exist. Additional risks not currently known by us or that we deem immaterial may also impair our business operations. You may lose all or a part of your investment.

Risks Related to Our Business

We will need additional funds to progress the clinical trial program for our drug candidates Pracinostat, ME-143 and ME-344 and to develop new compounds. The actual amount of funds we will need will be determined by a number of factors, some of which are beyond our control.

We will need additional funds to progress the clinical trial program for our drug candidates Pracinostat, ME-143 and ME-344 and to develop any additional compounds. The factors which will determine the actual amount of funds that we will need to progress the clinical trial programs for Pracinostat, ME-143 and ME-344 may include the following:

- the number of sites included in the trials;
- the length of time required to enroll suitable patients;
- the number of patients who participate in the trials and the rate that they are recruited;
- the number of treatment cycles patients complete while they are enrolled in the trials; and
- the efficacy and safety profile of the product.

If we are unable to obtain additional funds on favorable terms or at all, we may be required to reduce our operations. Also, if we raise more funds by selling additional securities, the ownership interests of holders of our securities will be diluted.

We cannot assure you that we will be able to obtain financing sufficient to meet our future capital and operating needs

We may sell additional shares of common stock, and securities exercisable for or convertible into shares of our common stock, to satisfy our capital and operating needs; however, such transactions will be subject to market conditions and there can be no assurance any such transactions will be completed. The investors in our May 2011 private placement have the right to acquire up to 35% of any securities we offer through September 28, 2013. Additionally, the investors who participated in the December 2012 private placement have the right to purchase their pro rata portion of equity securities we offer through December 31, 2013 based on their equity ownership of the Company.

Future sales of our common stock, including upon exercise of our outstanding warrants, may depress the market price of our common stock and cause stockholders to experience dilution.

The market price of our common stock could decline as a result of sales of substantial amounts of our common stock in the public market, including upon exercise of outstanding warrants and the conversion of the Series A Convertible Preferred Stock. As of January 3, 2013, in addition to the warrants to which this prospectus relates, we had outstanding (i) warrants issued in our December 2012 private placement exercisable to purchase 4,639,061 shares of Common Stock at an exercise price of $3.12, which expire on December 17, 2017; (ii) Series A warrants issued in our May 2011 private placement exercisable to purchase 215,721 shares of Common Stock at an exercise price of $6.00, which expire on May 11, 2016, and (iii) other outstanding warrants exercisable to purchase 768 shares of our Common Stock at an exercise price of $130.20 per share, which expire in calendar year 2013. Additionally, we have agreed to register for resale the 9,166,665 shares of common stock issued to the investors in the December 2012 private placement. We may seek additional capital through one or more additional equity transactions in the future; however, such transactions will be subject to market conditions and there can be no assurance any such transactions will be completed. If we sell shares in the future, the prices at which we sell these future shares will vary, and these variations may be significant. Purchasers of the shares we sell pursuant to future offerings, as well as our existing stockholders, will experience significant dilution if we sell these future shares at prices significantly below the price at which previous shareholders invested.

Negative global economic conditions may pose challenges to our business strategy, which relies on access to capital from the markets or collaborators.

Negative conditions in the global economy, including credit markets and the financial services industry, have generally made equity and debt financing more difficult to obtain, and may negatively impact our ability to complete financing transactions. The duration and severity of these conditions is uncertain, as is the extent to which they may adversely affect our business and the business of current and prospective vendors and collaborators. If negative global economic conditions persist or worsen, we may be unable to secure additional funding to sustain our operations or to find suitable collaborators to advance our internal programs, even if we achieve positive results from our research and development efforts.

We have a limited operating history and are likely to incur operating losses for the foreseeable future.

You should consider our prospects in light of the risks and difficulties frequently encountered by early stage and developmental companies. We were incorporated in December 2000, and have been in operation since May 2002. We have incurred net losses of $87.6 million from our inception through September 30, 2012, including net losses of $7.5 million and $6.8 million for the years ended June 30, 2012 and 2011, respectively. We anticipate that we will incur operating losses and negative operating cash flow for the foreseeable future. We have not yet commercialized any drug candidates and cannot be sure that we will ever be able to do so, or that we may ever become profitable.

Our stockholders may not realize a benefit from the purchase of intellectual property commensurate with the associated ownership dilution experienced.

In August 2012, we completed the acquisition of certain assets and intellectual property, including those related to Pracinostat, from S*BIO.

If we are unable to realize the expected strategic and financial benefits from the purchase of intellectual property, our stockholders may experience substantial dilution of their ownership interest as a result of the issuance of shares of common stock to S*BIO to acquire certain assets and intellectual property, including those related to Pracinostat, without receiving any commensurate benefit. In the asset purchase agreement relating to the acquisition of certain assets and intellectual property from S*BIO, S*BIO made certain representations and warranties regarding its intellectual property rights to such assets; however, its indemnification obligations with respect to such representations and warranties are limited.

Accordingly, we do not expect to be adequately compensated, if at all, for the loss of any such intellectual property rights acquired in the acquisition from S*BIO.

The results of pre-clinical studies and completed clinical trials are not necessarily predictive of future results, and our current drug candidates may not have favorable results in later studies or trials.

Pre-clinical studies and Phase I clinical trials are not primarily designed to test the efficacy of a drug candidate, but rather to test safety, to study pharmacokinetics and pharmacodynamics, and to understand the drug candidate's side effects at various doses and schedules. Favorable results in early studies or trials may not be repeated in later studies or trials, including continuing pre-clinical studies, Phase II and large-scale Phase III clinical trials, and our drug candidates in later-stage trials may fail to show desired safety and efficacy despite having progressed through earlier-stage trials. Unfavorable results from ongoing pre-clinical studies or clinical trials could result in delays, modifications or abandonment of ongoing or future clinical trials, or abandonment of a clinical program. Pre-clinical and clinical results are frequently susceptible to varying interpretations that may delay, limit or prevent regulatory approvals or commercialization. Negative or inconclusive results or adverse medical events during a clinical trial could cause a clinical trial to be delayed, repeated or terminated, or a clinical program to be abandoned.

Final approval by regulatory authorities of our drug candidates for commercial use may be delayed, limited or prevented, any of which would adversely affect our ability to generate operating revenues.

We will not generate any operating revenue until we successfully license or commercialize one of our drug candidates. Currently, we have drug candidates at different stages of development, and each will need to successfully complete a number of studies and obtain regulatory approval before potential commercialization.

In particular, any of the following factors may serve to delay, limit or prevent the final approval by regulatory authorities of our drug candidates for commercial use:

- Pracinostat, ME-143 and ME-344 are in the early stages of development, and we will need to conduct significant clinical testing to demonstrate safety and efficacy of these drug candidates before applications for marketing can be filed with the FDA, or with the regulatory authorities of other countries;
- data obtained from pre-clinical and clinical studies can be interpreted in different ways, which could delay, limit or prevent regulatory approval;
- development and testing of product formulation, including identification of suitable excipients, or chemical additives intended to facilitate delivery of our drug candidates;
- it may take us many years to complete the testing of our drug candidates, and failure can occur at any stage of this process; and
- negative or inconclusive results or adverse medical events during a clinical trial could cause us to delay or terminate our development efforts.

The successful development of any of these drug candidates is uncertain and, accordingly, we may never commercialize any of these drug candidates or generate revenue.

Even if we receive regulatory approval to commercialize our drug candidates, our ability to generate revenues from any resulting products will be subject to a variety of risks, many of which are out of our control.

Even if our drug candidates obtain regulatory approval, resulting products may not gain market acceptance among physicians, patients, healthcare payers or the medical community. We believe that the degree of market acceptance and our ability to generate revenues from such products will depend on a number of factors, including:

- timing of market introduction of our drugs and competitive drugs;
- actual and perceived efficacy and safety of our drug candidates;
- prevalence and severity of any side effects;
- potential or perceived advantages or disadvantages over alternative treatments;
- strength of sales, marketing and distribution support;
- price of our future products, both in absolute terms and relative to alternative treatments;
- the effect of current and future healthcare laws on our drug candidates; and
- availability of coverage and reimbursement from government and other third-party payers.

If any of our drugs are approved and fail to achieve market acceptance, we may not be able to generate significant revenue to achieve or sustain profitability.

We may not be able to establish the contractual arrangements necessary to develop, market and distribute our product candidates.

A key part of our business plan is to establish contractual relationships with third parties to package, market and distribute our product candidates. There is no assurance that we will be able to negotiate commercially acceptable licensing or other agreements for the future exploitation of our drug product candidates, including continued clinical development, manufacture or marketing. If we are unable to successfully contract for these services, or if arrangements for these services are terminated, we may have to delay our commercialization program which will adversely affect our ability to generate operating revenues.

Our commercial opportunity will be reduced or eliminated if competitors develop and market products that are more effective, have fewer side effects or are less expensive than our drug candidates.

The development of drug candidates is highly competitive. A number of other companies have products or drug candidates in various stages of pre-clinical or clinical development that are intended for the same therapeutic indications for which our drug candidates are being developed. Some of these potential competing drugs are further advanced in development than our drug candidates and may be commercialized sooner. Even if we are successful in developing effective drugs, our compounds may not compete successfully with products produced by our competitors.

Our competitors include pharmaceutical companies and biotechnology companies, as well as universities and public and private research institutions. In addition, companies active in different but related fields represent substantial competition for us. Many of our competitors developing oncology drugs have significantly greater capital resources, larger research and development staffs and facilities and greater experience in drug development, regulation, manufacturing and marketing than we do. These organizations also compete with us and our service providers, to recruit qualified personnel, and with us to attract partners for joint ventures and to license technologies that are competitive with us. As a result, our competitors may be able to more easily develop technologies and products that would render our technologies or our drug candidates obsolete or non-competitive.

We rely on third parties to conduct our clinical trials and many of our pre-clinical studies. If those parties do not successfully carry out their contractual duties or meet expected deadlines, our drug candidates may not advance in a timely manner or at all.

In the course of our discovery, pre-clinical testing and clinical trials, we rely on third parties, including laboratories, investigators, clinical contract research organizations, or CROs, and manufacturers, to perform critical services for us. For example, we rely on third parties to conduct our clinical trials and many of our pre-clinical studies. CROs are responsible for many aspects of the trials, including finding and enrolling subjects for testing and administering the trials. Although we rely on these third parties to conduct our clinical trials, we are responsible for ensuring that each of our clinical trials is conducted in accordance with its investigational plan and protocol. Moreover, the FDA and foreign regulatory authorities require us to comply with regulations and standards, commonly referred to as good clinical practices, or GCPs, for conducting, monitoring, recording, and reporting the results of clinical trials to ensure that the data and results are scientifically credible and accurate, and that the trial subjects are adequately informed of the potential risks of participating in clinical trials. Our reliance on third parties does not relieve us of these responsibilities and requirements. These third parties may not be available when we need them or, if they are available, may not comply with all regulatory and contractual requirements or may not otherwise perform their services in a timely or acceptable manner, and we may need to enter into new arrangements with alternative third parties and our clinical trials may be extended, delayed or terminated. These independent third parties may also have relationships with other commercial entities, some of which may compete with us. In addition, if such third parties fail to perform their obligations in compliance with our clinical trial protocols or GCPs, our clinical trials may not meet regulatory requirements or may need to be repeated. As a result of our dependence on third parties, we may face delays or failures outside of our direct control. These risks also apply to the development activities of collaborators, and we do not control their research and development, clinical trial or regulatory activities.

We have no direct control over the cost of manufacturing our drug candidates. Increases in the cost of manufacturing our drug candidates would increase our costs of conducting clinical trials and could adversely affect our future profitability.

We do not intend to manufacture our drug product candidates ourselves, and we will rely on third parties for our drug supplies both for clinical trials and for commercial quantities in the future. We have taken the strategic decision not to manufacture active pharmaceutical ingredients (“API”) for our drug candidates, as these can be more economically supplied by third parties with particular expertise in this area. We have identified contract facilities that are registered with the FDA, have a track record of large scale API manufacture, and have already invested in capital and equipment. We have no direct control over the cost of manufacturing our product candidates. If the cost of manufacturing increases, or if the cost of the materials used increases, these costs will be passed on to us, making the cost of conducting clinical trials more expensive. Increases in manufacturing costs could adversely affect our future profitability if we are unable to pass all of the increased costs along to our customers.

We face a risk of product liability claims and may not be able to obtain adequate insurance.

Our business exposes it to the risk of product liability claims. This risk is inherent in the manufacturing, testing and marketing of human therapeutic products. We have product liability insurance coverage of $5 million. The coverage is subject to deductibles and coverage limitations. We may not be able to obtain or maintain adequate protection against potential liabilities, or claims may exceed our insurance limits. If we cannot or do not sufficiently insure against potential product liability claims, we may be exposed to significant liabilities, which may materially and adversely affect our business development and commercialization efforts.

Our financial results are affected by fluctuations in currency exchange rates.

A portion of our expenditures and potential revenue may be spent or derived outside of the United States. As a result, fluctuations between the U.S. dollar and the currencies of the countries in which we operate may increase our costs or reduce our potential revenue. At present, we do not engage in hedging transactions to protect against uncertainty in future exchange rates between particular foreign currencies and the U.S. dollar.

Risks Related to Securities Markets and Investment in Our Stock

The trading price of the shares of our common stock has been and may continue to be highly volatile and could decline in value and we may incur significant costs from class action litigation.

The trading price of our common stock could be highly volatile in response to various factors, many of which are beyond our control, including:

- failure to successfully develop drug candidates Pracinostat, ME-143 or ME-344;
- announcements of technological innovations by us or our competitors;
- new products introduced or announced by us or our competitors;
- changes in financial estimates by securities analysts;
- actual or anticipated variations in operating results;
- expiration or termination of licenses, research contracts or other collaboration agreements;
- conditions or trends in the regulatory climate and the biotechnology, pharmaceutical and genomics industries;
- instability in the stock market as a result of current global events;
- changes in the market valuations of similar companies;
- the liquidity of any market for our securities;
- additional sales by us of shares of our common stock; and
- threatened or actual delisting of our common stock from a national stock exchange.

Equity markets in general, and the market for biotechnology and life sciences companies in particular, have experienced substantial price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of companies traded in those markets. In addition, changes in economic conditions in the U.S., Europe or globally, particularly in the context of current global events, could impact upon our ability to grow profitably. Adverse economic changes are outside our control and may result in material adverse impacts on our business or our results of operations. These broad market and industry factors may materially affect the market price of shares of our common stock, regardless of our development and operating performance. In the past, following periods of volatility in the market price of a company's securities, securities class-action litigation has often been instituted against that company. Such litigation, if instituted against us, could cause us to incur substantial costs and divert management's attention and resources.

In addition, if the market price of our common stock falls below $5.00 per share, under stock exchange rules, our stockholders will not be able to use such shares as collateral for borrowing in margin accounts. Further, certain institutional investors are restricted from investing in shares priced below $5.00. This inability to use shares of our common stock as collateral and the inability of certain institutional investors to invest in our shares may depress demand and lead to sales of such shares creating downward pressure on and increased volatility in the market price of our common stock.

Because we do not intend to pay, and have not paid, any cash dividends on our shares of common stock, our stockholders will not be able to receive a return on their shares unless the value of our common stock appreciates and they sell their shares.

We have never paid or declared any cash dividends on our common stock, and we intend to retain any future earnings to finance the development and expansion of our business. We do not anticipate paying any cash dividends on our common stock in the foreseeable future. Therefore, our stockholders will not be able to receive a return on their investment unless the value of our common stock appreciates and they sell their shares.

We will have broad discretion over the use of the net proceeds from any exercise of outstanding warrants.

We will have broad discretion to use the net proceeds to us upon any exercise of outstanding warrants, and investors in our stock will be relying on the judgment of our board of directors and management regarding the application of these proceeds. Although we expect to use a substantial portion of the net proceeds from any exercise of the warrants for general corporate purposes and progression of our clinical trial program, we have not allocated these net proceeds for specific purposes.

We are authorized to issue blank check preferred stock, which could adversely affect the holders of our common stock.

Our restated certificate of incorporation allows us to issue blank check preferred stock with rights potentially senior to those of our common stock without any further vote or action by the holders of our common stock. The issuance of a class of preferred stock could decrease the amount of earnings and assets available for distribution to the holders of our common stock or could adversely affect the rights and powers, including voting rights, of such holders. In certain circumstances, such issuance could have the effect of decreasing the market price of our shares, or making a change in control of us more difficult.

Laws, rules and regulations relating to public companies may be costly and impact our ability to attract and retain directors and executive officers.

Laws and regulations affecting public companies, including rules adopted by the SEC and by Nasdaq, may result in increased costs to us. These laws, rules and regulations could make it more difficult or costly for us to obtain certain types of insurance, including director and officer liability insurance, and we may be forced to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. The impact of these events could also make it more difficult for us to attract and retain qualified persons to serve on our board of directors, on our board committees or as executive officers. We cannot estimate accurately the amount or timing of additional costs we may incur to respond to these laws, rules and regulations.

Our executive officers and directors may sell shares of their stock, and these sales could adversely affect our stock price.

Sales of our stock by our executive officers and directors, or the perception that such sales may occur, could adversely affect the market price of our stock. Our executive officers and directors may sell stock in the future, either as part, or outside, of trading plans under Securities and Exchange Commission, or SEC, Rule 10b5-1.

Risks Relating to Our Intellectual Property

Our commercial success is dependent, in part, on obtaining and maintaining patent protection and preserving trade secrets, which cannot be guaranteed.

Patent protection and trade secret protection are important to our business and our future will depend, in part on our ability maintain trade secret protection, obtain patents and operate without infringing the proprietary rights of others both in the United States and abroad. Litigation or other legal proceedings may be necessary to defend against claims of infringement, to enforce our patents or to protect our trade secrets. Such litigation could result in substantial costs and diversion of our management’s attention.

The patent positions of pharmaceutical and biotechnology companies can be highly uncertain and involve complex legal and factual questions. Prior to the Isoflavone Transaction, Novogen had applied for patents in a number of countries with respect to the use of their isoflavone compounds, including ME-143 and ME-344, for the treatment, prevention or cure of cancer and methods of production. We acquired both issued patents and pending patent applications from Novogen in relation to these technologies, which we previously licensed from Novogen. Additionally, in August 2012 we acquired patents and patent applications related to

Pracinostat from S*BIO. The patent applications may not proceed to grant or may be amended to reduce the scope of protection of any patent granted. The applications and patents may also be opposed or challenged by third parties. Our commercial success will depend, in part, on our ability to obtain and maintain effective patent protection for our compounds and their use in treating, preventing, or curing cancer, and to successfully defend patent rights in those technologies against third-party challenges. As patent applications in the United States are maintained in secrecy until published or issued and as publication of discoveries in the scientific or patent literature often lag behind the actual discoveries, we cannot be certain that Novogen or S*BIO were the first to make the inventions covered by its pending patent applications or issued patents that we acquired or that it was the first to file patent applications for such inventions. Additionally, the breadth of claims allowed in biotechnology and pharmaceutical patents or their enforceability cannot be predicted. We cannot be sure that, should any patents issue, we will be provided with adequate protection against potentially competitive products. Furthermore, we cannot be sure that should patents issue, they will be of commercial value to us, or that private parties, including competitors, will not successfully challenge our patents or circumvent our patent position in the United States or abroad.

Claims by other companies that we infringe on their proprietary technology may result in liability for damages or stop our development and commercialization efforts.

The pharmaceutical industry is highly competitive and patents have been applied for by, and issued to, other parties relating to products competitive with the compounds that we have acquired. Therefore, Pracinostat, ME-143, ME-344, and any other drug candidates may give rise to claims that they infringe the patents or proprietary rights of other parties existing now and in the future.

Furthermore, to the extent that we or our consultants or research collaborators use intellectual property owned by others in work performed for us, disputes may also arise as to the rights in such intellectual property or in resulting know-how and inventions. An adverse claim could subject us to significant liabilities to such other parties and/or require disputed rights to be licensed from such other parties.

We have contracted formulation development and manufacturing process development work for our product candidates. This process has identified a number of excipients, or additives to improve drug delivery, which may be used in the formulations. Excipients, among other things, perform the function of a carrier of the active drug ingredient. Some of these identified excipients or carriers may be included in third party patents in some countries. We intend to seek a license if we decide to use a patented excipient in the marketed product or we may choose one of those excipients that does not have a license requirement.

We cannot be sure that any license required under any such patents or proprietary rights would be made available on terms acceptable to us, if at all. If we do not obtain such licenses, we may encounter delays in product market introductions, or may find that the development, manufacture or sale of products requiring such licenses may be precluded. We have not conducted any searches or made any independent investigations of the existence of any patents or proprietary rights of other parties.

We may be subject to substantial costs stemming from our defense against third-party intellectual property infringement claims.

Third parties may assert that we are using their proprietary information without authorization. Third parties may also have or obtain patents and may claim that technologies licensed to or used by us infringe their patents. If we are required to defend patent infringement actions brought by third parties, or if we sue to protect our own patent rights, we may be required to pay substantial litigation costs and managerial attention may be diverted from business operations even if the outcome is not adverse to us. In addition, any legal action that seeks damages or an injunction to stop us from carrying on our commercial activities relating to the affected technologies could subject us to monetary liability and require us or any third party licensors to obtain a license to continue to use the affected technologies. We cannot predict whether we would prevail in any of these types of actions or that any required license would be made available on commercially acceptable terms or at all.

Risks Related to the Offering

The market price of our Common Stock may never exceed the exercise price of the warrants.

The warrants became exercisable on May 11, 2012 and will expire five years thereafter. We cannot provide you any assurance that the market price of our Common Stock will exceed the exercise price of these warrants prior to their date of expiration. Any warrants not exercised by their date of expiration will expire, and we will be under no further obligation to the warrant holder.

The exercise of warrants may cause the price of our Common Stock to decrease.

The shares of Common Stock that will be issuable upon exercise of the warrants may cause the price of a share of our Common Stock to decrease. If shares of Common Stock issued upon exercise of the warrants are sold, such sales could further depress the market price of our Common Stock.

The future price of our Common Stock may be less than the $7.14 exercise price per share of the warrants.

If you exercise your warrants to purchase Common Stock, you may not be able to sell the shares of Common Stock later at or above the $7.14 per share subscription price. The last reported price of a share of our Common Stock on the Nasdaq Capital Market as of January 2, 2013 was $7.15. Any warrants not exercised by their date of expiration will expire, and we will be under no further obligation to the holders of warrants.

This price could be subject to significant fluctuations in response to numerous factors, some of which are beyond our control. See "—Risks Related to Securities Markets and Investment in Our Stock—The trading price of the shares of our Common Stock has been and may continue to be highly volatile and could decline in value and we may incur significant costs from class action litigation."

There is no public market for the warrants.

There is no established public trading market for the warrants, and we do not expect a market to develop. In addition, we do not intend to apply to list the warrants on any national securities exchange or other nationally recognized trading system, including the Nasdaq Capital Market. Without an active market, the liquidity of the warrants will be limited.

CAUTIONARY STATEMENT ABOUT FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference herein include forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the "Securities Act") and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). All statements other than statements of historical facts contained in this prospectus and in the documents incorporated by reference herein, including statements regarding the future financial position, business strategy and plans and objectives of management for future operations, are forward-looking statements. The words "believe," "may," "will," "estimate," "continue," "anticipate," "intend," "should," "plan," "expect," and similar expressions, as they relate to us, are intended to identify forward-looking statements. We have based these forward-looking statements largely on current expectations and projections about future events and financial trends that we believe may affect our financial condition, results of operations, business strategy and financial needs. These forward-looking statements are subject to a number of risks, uncertainties and assumptions, including, without limitation, those described in "Risk Factors" and elsewhere in this prospectus and the documents incorporated by reference herein, including, among other things:

- our inability to obtain required additional financing or financing available to us on acceptable terms, or at all, which may cause us to delay, scale-back or eliminate plans related to development of our drug candidates;
- we are in an early stage of clinical studies for our product candidates on which our development plans are based; clinical studies by their nature typically have a high level of risk and may not produce successful results;
- our inability to maintain or enter into, and the risks resulting from our dependence upon, contractual arrangements necessary for the clinical development, manufacture, commercialization, marketing, sales and distribution of our product candidates;
- costs and delays in the clinical development programs and/or receipt of FDA or other required governmental approvals, or the failure to obtain such approvals, for our product candidates;
- our failure to successfully commercialize our product candidates;
- the failure of any products to gain market acceptance;
- our inability to control the costs of manufacturing our products;
- competition and competitive factors;
- our inability to protect our patents or proprietary rights and obtain necessary rights to third party patents and intellectual property to operate our business;
- our inability to operate our business without infringing the patents and proprietary rights of others;
- costs stemming from our defense against third party intellectual property infringement claims;
- general economic conditions;
- technological changes;
- government regulation generally and the receipt of regulatory approvals;
- changes in industry practice; and
- one-time events.

These risks are not exhaustive. Other sections of this prospectus and the documents incorporated by reference herein include additional factors which could adversely impact our business and financial performance. Moreover, we operate in a very competitive and rapidly changing environment. New risk factors emerge from

time to time and it is not possible for us to predict all risk factors, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements.

You should not rely upon forward looking statements as predictions of future events. We cannot assure you that the events and circumstances reflected in the forward looking statements will be achieved or occur. Although we believe that the expectations reflected in the forward looking statements are reasonable, we cannot guarantee future results, levels of activity, performance or achievements.

PLAN OF DISTRIBUTION

Pursuant to the terms of the warrants, the shares of Common Stock issuable upon exercise of the warrants will be distributed to those warrant holders who surrender their warrant certificate, together with their subscription form and payment of the exercise price, to our warrant agent, Computershare Inc.

USE OF PROCEEDS

Assuming the exercise of warrants to purchase all 319,191 shares of Common Stock issuable upon exercise of the warrants, we estimate that the net proceeds from the exercise of the warrants will be approximately $2.3 million. We intend to use the net proceeds we receive from this offering to continue the clinical development of our lead oncology drug candidates and for other general corporate purposes.

MARKET PRICE AND DIVIDEND INFORMATION

Our Common Stock is currently listed on the Nasdaq Capital Market under the symbol "MEIP." As of January 2, 2013, we had 15,015,454 shares of our Common Stock outstanding, held by approximately 3,586 holders of record. Prior to March 16, 2011, our Common stock was listed on the Nasdaq Global Market.

The following table sets forth the quarterly high and low sales prices of our Common Stock on the Nasdaq Capital Market or the Nasdaq Global Market, as applicable, for the periods indicated, after adjustment of all amounts to retroactively reflect the 1-for-10 reverse stock split that occurred on March 29, 2010 and the 1-for-6 reverse stock split that occurred on December 18, 2012:

	Share Prices	
	High	**Low**
Year Ending June 30, 2013		
First Quarter	$ 4.80	$ 1.98
Second Quarter	$ 13.20	$ 2.10
Third Quarter (through January 2, 2013)	$ 7.15	$ 7.15
Year Ended June 30, 2012		
First Quarter	$ 19.68	$ 5.88
Second Quarter	$ 10.50	$ 5.70
Third Quarter	$ 7.68	$ 3.96
Fourth Quarter	$ 6.66	$ 2.46
Year Ended June 30, 2011		
First Quarter	$ 9.30	$ 4.26
Second Quarter	$ 8.40	$ 4.38
Third Quarter	$ 20.88	$ 5.82
Fourth Quarter	$ 11.94	$ 5.52
Year Ended June 30, 2010		
First Quarter	$104.40	$28.80
Second Quarter	$ 61.56	$37.20
Third Quarter	$ 54.00	$27.60
Fourth Quarter	$ 33.60	$ 7.32
Year Ended June 30, 2009		
First Quarter	$199.20	$67.20
Second Quarter	$124.80	$18.00
Third Quarter	$ 58.80	$15.00
Fourth Quarter	$ 80.40	$22.80

We have never paid or declared any cash dividends on our Common Stock, and we intend to retain any future earnings to finance the development and expansion of our business. We do not anticipate paying any cash dividends on our Common Stock in the foreseeable future.

SELECTED FINANCIAL DATA

You should read the following selected financial data together with our consolidated financial statements and the related notes, as well as the "Management's Discussion and Analysis of Financial Condition and Results of Operations" section and other financial data included in our Annual Report on Form 10-K for the year ended June 30, 2012 and in our Quarterly Report on Form 10-Q for the quarter ended September 30, 2012 and incorporated by reference in this prospectus.

	(Unaudited) Three months ended September 30,	Year ended June 30,				
	2012	2012	2011	2010	2009	2008
Operating Data						
Total operating expenses	$ (2,466)	$(8,394)	$(6,451)	$ (7,979)	$(11,407)	$(13,081)
Net loss	$ (2,464)	$(7,523)	$(6,781)	$ (7,896)	$(11,180)	$(12,410)
Cash Flow Data						
Net cash used in operating activities	$ (2,487)	$(7,081)	$(6,501)	$(10,033)	$(10,554)	$(11,498)
Net cash used in investing activities	$ (2)	—	$ (48)	$ (3)	—	—
Net cash provided by financing activities	—	$ 9,425	$ 1,376	—	$ 9,878	$ 15,083

	(Unaudited) As of September 30,	As of June 30,				
	2012	2012	2011	2010	2009	2008
Balance Sheet Data						
Total assets	$ 4,355	$ 6,373	$ 4,168	$ 9,136	$ 19,356	$ 19,978
Total current liabilities	$ (1,630)	$(1,774)	$(2,374)	$ (1,755)	$ (4,143)	$ (3,443)

DILUTION

If you exercise the warrants to purchase shares of our Common Stock, your ownership interest will be diluted to the extent of the difference between the exercise price per share of our Common Stock and the pro forma adjusted net tangible book value per share of our Common Stock after the exercise of the warrants. Our historical net tangible book value of Common Stock as of September 30, 2012 was approximately $2.2 million, or $0.102 per share ($0.617 per share, as adjusted for the 2012 Reverse Stock Split) of Common Stock, based on 21,673,482 shares (3,612,247 shares, as adjusted for the 2012 Reverse Stock Split) of Common Stock outstanding as of September 30, 2012. Historical net tangible book value per share represents the amount of our total tangible assets less total liabilities, divided by the total number of shares of Common Stock outstanding as of September 30, 2012.

On an adjusted basis, after giving effect to the issuance of (i) 9,166,665 shares of Common Stock in connection with the December 2012 private placement for an estimated net proceeds of $25.2 million, (ii) 1,312,883 shares of Common Stock issued upon the exercise, on a cashless basis, of warrants issued in connection with the December 2012 private placement, (iii) 119,158 shares of Common Stock issued upon exercise, on a cashless basis, of warrants issued in connection with the May 2011 private placement, and (iv) 804,500 shares of Common Stock to Novogen upon conversion of its Series A Convertible Preferred Stock, our net tangible book value as of September 30, 2012 was approximately $27.4 million, or $1.83 per share. On a pro forma adjusted basis, after giving effect to the foregoing and to the issuance of all 319,191 shares of Common Stock underlying the warrants at a price of $7.14 per share, for an aggregate amount of approximately $2.3 million, our pro forma adjusted net tangible book value as of September 30, 2012 would have been approximately $29.7 million, or $1.94 per share of Common Stock. This represents an immediate increase in adjusted net tangible book value of $0.11 per share to our existing stockholders and an immediate dilution in adjusted net tangible book value of $5.20 per share in connection with shares issued upon exercise of the warrants. The following table illustrates this per share dilution:

Exercise price per share		$7.14
Adjusted net tangible book value per share as of September 30, 2012	$1.83	
Increase in net adjusted tangible book value per share attributable to exercise of the warrants	$0.11	
Pro forma adjusted net tangible book value per share after exercise of the warrants		$1.94
Dilution per share for shares issued upon exercise of the warrants		$5.20

The number of shares to be outstanding upon exercise of the warrants is based on 15,015,454 shares outstanding as of January 3, 2013, and excludes, in each case as of January 3, 2013:

- the remaining warrants issued in the December 2012 private placement exercisable to purchase 4,639,061 shares of our Common Stock at an exercise price of $3.12 per share;
- the remaining Series A warrants issued in the May 2011 private placement exercisable to purchase 215,721 shares of our Common Stock at an exercise price of $6.00 per share; and
- other outstanding warrants to purchase 768 shares of our Common Stock at an exercise price of $130.20 per share, which expire in calendar year 2013, and options to purchase 287,059 shares of Common Stock at exercise prices from $2.76 to $37.80 per share, which expire at various dates in calendar years 2014, 2015, 2016 and 2017.

To the extent outstanding warrants or options are exercised, there will be further dilution to new investors. In addition, to the extent we issue additional equity securities in connection with future capital raising or other strategic activities, our then-existing stockholders may experience dilution.

DESCRIPTION OF CAPITAL STOCK

Our authorized capital stock consists of 113,000,000 shares of common stock, par value $0.00000002 per share, and 100,000 shares of preferred stock, par value $0.01 per share. As of January 3, 2013, there were 15,015,454 shares of Common Stock outstanding and no shares of preferred stock outstanding. The description set forth below is only a summary and is not complete. For more information regarding our capital stock, please refer to our restated certificate of incorporation, as amended, which is incorporated by reference as an exhibit to the registration statement of which this prospectus forms a part.

Common Stock

The holders of shares of Common Stock are entitled to one vote per share. In the event of a liquidation, dissolution or winding up of our affairs, holders of the Common Stock will be entitled to share ratably in all of our assets that are remaining after payment of our liabilities and the liquidation preference, if any, of any outstanding shares of preferred stock. All outstanding shares of Common Stock are fully paid and non-assessable. The rights, preferences and privileges of holders of Common Stock are subject to any series of preferred stock that we have issued or may issue in the future. The holders of Common Stock have no preemptive rights and are not subject to future calls or assessments by us. Our Common Stock is currently listed on the Nasdaq Capital Market under the trading symbol “MEIP.”

Preferred Stock

Our board of directors is authorized to provide for the issuance of blank check preferred stock in one or more series with designations as may be stated in the resolution or resolutions providing for the issue of such preferred shares. At the time that any series of our preferred stock is authorized, our board of directors will fix the dividend rights, any conversion rights, any voting rights, redemption provisions, liquidation preferences and any other rights, preferences, privileges and restrictions of that series, as well as the number of shares constituting that series and their designation. Our board of directors could, without stockholder approval, cause us to issue preferred stock which has voting, conversion and other rights that could adversely affect the holders of shares of our Common Stock or make it more difficult to effect a change in control. Our preferred stock could be used to dilute the share ownership of persons seeking to obtain control of us and thereby hinder a possible takeover attempt which, if our stockholders were offered a premium over the market value of their shares, might be viewed as being beneficial to our stockholders. In addition, our preferred stock could be issued with voting, conversion and other rights and preferences which would adversely affect the voting power and other rights of holders of our Common Stock.

On May 9, 2011, we issued to Novogen, in a transaction exempt from the registration requirements of the Securities Act, pursuant to Section 4(2) thereof, 1,000 shares of our newly-designated Series A Convertible Preferred Stock (the “Series A Preferred Stock”). Each share of Series A Preferred Stock was initially convertible at any time and from time to time and without the payment of additional consideration by the holder thereof into 4,827 shares of Common Stock (804.5 shares, as adjusted for the 2012 Reverse Stock Split). In addition, if a Phase II clinical trial involving our isoflavone technology were to achieve a statistically significant result (p=0.05 or less) or a first patient were enrolled in a Phase III clinical trial our isoflavone technology, then any share of the Series A Preferred Stock not already converted may thereafter have been converted into 9,654 (1,609 shares, as adjusted for the 2012 Reverse Stock Split) shares of Common Stock. On November 19, 2012, Novogen provided the Company written notice of conversion with respect to all of the 1,000 shares of Series A Preferred Stock held by Novogen. In accordance with the terms of the Preferred Shares, on November 20, 2012, the Company issued to Novogen 4,827,000 shares of Common Stock (804,500 shares, as adjusted for the 2012 Reverse Stock Split).

In December 2012, Novogen completed a capital reduction and in specie distribution to the Novogen shareholders of substantially all of the shares of the Company that it owned.

Warrants; Options

We may issue warrants or options to purchase our Common Stock or preferred stock. Warrants or options may be issued independently or together with any other securities and may be attached to, or separate from, such securities. Each series of warrants will be issued under a separate warrant agreement to be entered into between us and a warrant agent. All options will be issued under separate option agreements to be entered into between us and each holder of such options.

Warrants Issued in the Rights Offering

The warrants have an exercise price of $7.14 per share and the exercise price may be adjusted in certain instances. The exercise price of the warrants was determined in conjunction with the determination of the subscription price for the units offered in connection with the Rights Offering, and represented a 20 percent premium to the volume-weighted average price of our common stock for the 30 consecutive trading days ending on, and inclusive of, March 13, 2012. The exercise price will be payable by certified or bank check to an account designated by us of an amount equal to the then applicable warrant price multiplied by the number of warrant shares being issued. The warrants will expire on May 11, 2017.

No fractional shares will be delivered upon the exercise of a warrant. If the exercise of a warrant would result in the delivery of a fractional share, we will not be obligated to deliver such fractional share, and the number of shares to be delivered upon the exercise of a warrant will be rounded down to the nearest full share.

The warrants are transferable; however, there is no established public trading market for the warrants, and we do not expect a market to develop. In addition, we do not intend to apply to list the warrants on any national securities exchange or other nationally recognized trading system, including the Nasdaq Capital Market. Without an active market, the liquidity of the warrants will be limited.

The holders of unexercised warrants are not entitled, as such, to (i) receive dividends or distributions made to holders of Common Stock; (ii) acquire options, convertible securities, rights to purchase stock, warrants, securities or other property issued to holders of Common Stock; (iii) receive notice of, or to vote at, any meeting; (iv) receive notice of any other proceedings of MEI Pharma; or (v) to exercise any other rights whatsoever as our shareholders.

The number of shares for which the warrants may be exercised and the exercise price applicable to the warrants will be proportionately adjusted in the event that we make distributions of our Common Stock, or subdivide, combine or reclassify outstanding shares of our Common Stock, or if we pay a dividend in securities or property other than Common Stock. In the case of a merger or consolidation of us into another company where we are not the surviving company, the warrant holder will have the right to receive a new warrant in the surviving corporation; provided that the company will have the right to instead require the warrant holder to exercise all of its remaining warrants prior to any such merger or consolidation.

The warrants are exercisable for cash, or, solely during any period when a registration statement for the exercise of the warrants is not in effect, on a cashless basis.

Other Warrants; Options

In addition to the warrants issued in the Rights Offering to which this prospectus relates, as of January 3, 2013, there were outstanding (i) warrants issued in our December 2012 private placement exercisable to purchase 4,639,061 shares of Common Stock at an exercise price of $3.12, which expire on December 17, 2017; (ii) Series A warrants issued in our May 2011 private placement exercisable to purchase 215,721 shares of Common Stock at an exercise price of $6.00, which expire on November 18, 2016, and (iii) other outstanding warrants exercisable to purchase 768 shares of our Common Stock at an exercise price of $130.20 per share, which expire in calendar year 2013. Also as of January 3, 2013, there were outstanding options to purchase 287,059 shares of Common Stock at exercise prices from $2.76 to $37.80 per share, which expire at various dates in calendar years 2014, 2015, 2016 and 2017.

U.S. FEDERAL INCOME TAX CONSEQUENCES

The following is a general discussion of certain United States federal income tax consequences to U.S. holders, as defined below, of exercising the warrants issued in the Rights Offering to which this prospectus relates and owning the shares of Common Stock that would be issued upon an exercise of the warrants. This discussion is based on the Internal Revenue Code of 1986, as amended (the "Code"), Treasury regulations promulgated thereunder, and administrative and judicial interpretations thereof, all as in effect as of the date hereof and all of which are subject to change, possibly with retroactive effect. This discussion is not binding on the Internal Revenue Service (the "IRS"), or the courts. Accordingly, no assurance can be given that the tax consequences described herein will not be challenged by the IRS or that such a challenge would not be sustained by a court. No ruling has been sought from the IRS, and no opinion of counsel has been rendered, as to the federal income tax consequences set forth in this discussion.

This discussion does not address all aspects of U.S. federal income taxation that may be applicable to holders in light of their particular circumstances or to holders subject to special treatment under the U.S. federal income tax laws, including, but not limited to, financial institutions, brokers and dealers in securities or currencies, insurance companies, tax-exempt organizations, persons who hold their shares as part of a straddle, hedge, conversion or other risk-reduction transaction, persons liable for the alternative minimum tax, U.S. expatriates, persons whose functional currency is not the U.S. dollar, persons who hold their shares through "foreign financial institutions" within the meaning of Section 1471 of the Code, persons that could be subject to the 3.8% Medicare tax on certain investment income beginning in 2013, persons that distribute the Rights to their stockholders, members or general or limited partners and foreign taxpayers. This discussion also does not address any aspect of state, local or foreign income or other tax laws. This discussion is limited to U.S. holders which hold the warrants, and would hold the shares issued on an exercise of the warrants, as capital assets. For purposes of this discussion, a "U.S. holder" is a holder that is, for U.S. federal income tax purposes:

- a citizen or resident of the United States;
- a corporation or partnership created or organized in or under the laws of the United States or any political subdivision thereof;
- an estate the income of which is subject to U.S. federal income taxation regardless of its source; or
- a trust if a U.S. court is able to exercise primary supervision over the administration of the trust and one or more U.S. persons have the authority to control all substantial decisions of the trust.

YOU SHOULD CONSULT YOUR TAX ADVISOR AS TO THE PARTICULAR TAX CONSEQUENCES TO YOU OF YOUR EXERCISE OF THE WARRANTS AND OWNERSHIP OF THE SHARES, INCLUDING THE APPLICABILITY OF ANY FEDERAL ESTATE OR GIFT TAX LAWS OR ANY STATE, LOCAL OR FOREIGN TAX LAWS.

Exercise of the warrants

If you exercise the warrants for cash, you will not recognize any gain or loss on exercise, your tax basis in the shares you receive will reflect your tax basis in the warrants and the exercise price paid, and your holding period in the shares will begin on the date of exercise.

The tax treatment of a cashless exercise of the warrants is unclear. In one alternative treatment, a cashless exercise may be treated as a tax-free recapitalization of the warrants into shares, and as a result an exercising holder would not recognize gain or loss on the exercise, and would have a tax basis and holding period in the shares issued upon exercise reflecting the tax basis and holding period of the exercised warrant. In another alternative treatment, a cashless exercise may be treated in the same manner as an exercise of the warrants for cash, generally resulting in neither gain nor loss for the exercising holder, but the holder would then be treated as having sold a portion of the shares received on exercise to us, reflecting shares with a fair market value equal to

the exercise price for the warrants, and as a result may recognize gain (or loss) reflecting the amount by which the fair market value of such shares exceeds (or is less than) the holder's tax basis in such shares (reflecting, in turn, the holder's tax basis in the warrants exercised in exchange for such shares). You are urged to consult with your tax adviser regarding the tax treatment of a cashless exercise of the warrants.

Tax treatment of shares received on exercise of warrants

Distributions, if any, made on shares of our Common Stock, including shares received on exercise of warrants, generally will be included in your income as ordinary dividend income to the extent of our current and accumulated earnings and profits. However, if you are a noncorporate holder of our shares, such dividends are generally taxed at a maximum U.S. federal income tax rate of 20%, provided certain holding period requirements are satisfied. Distributions in excess of our current and accumulated earnings and profits will be treated as a return of capital to the extent of your adjusted tax basis in the common stock and thereafter as capital gain from the sale or exchange of such common stock. If you are a corporation, you may be eligible for a dividends received deduction on dividends you receive on our shares, subject to applicable limitations.

Upon the sale, exchange, certain redemptions or other taxable dispositions of shares of our Common Stock, you generally will recognize capital gain or loss equal to the difference between (i) the amount of cash and the fair market value of any property received upon such taxable disposition and (ii) your adjusted tax basis in the shares. Such capital gain or loss will be long-term capital gain or loss if your holding period in the shares is more than one year at the time of the taxable disposition. Otherwise, such gain or loss will be short-term capital gain or loss. If you are a noncorporate holder of our shares, any long-term capital gains you recognize will generally be subject to a maximum U.S. federal income tax rate of 20%. The deductibility of capital losses is subject to limitations.

Backup withholding and information reporting

In general, if you are not a corporation, we and other payors are required to report to the Internal Revenue Service dividends paid on the shares to you and proceeds you receive from a disposition of shares. Backup withholding may also apply to any payments if you fail to provide an accurate taxpayer identification number or you are notified by the Internal Revenue Service that you have failed to report all dividends or certain other income required to be shown on your federal income tax returns. Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules will be allowed as a refund or credit against your United States federal income tax liability, provided the required information is furnished to the Internal Revenue Service.

LEGAL MATTERS

The validity of the securities being offered by this prospectus has been passed upon for us by Morgan, Lewis & Bockius LLP.

EXPERTS

The financial statements as of June 30, 2012 and 2011, and for each of the two years in the period ended June 30, 2012, incorporated by reference into this prospectus have been so incorporated in reliance on the report of BDO USA, LLP, an independent registered public accounting firm, incorporated herein by reference, given on the authority of said firm as experts in auditing and accounting.

MEI PHARMA, INC.

319,191 Shares of Common Stock at $7.14 Per Share
Upon Exercise of Outstanding Warrants

PROSPECTUS

The date of this prospectus is , 2013

PART II INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution

We estimate that expenses in connection with the distribution of securities described in this registration statement (including the May 2012 Rights Offering) will be as set forth below. We will pay all of the expenses with respect to the distribution and such amounts, with the exception of the Securities and Exchange Commission registration fee, are estimates.

	Amount paid or to be paid
SEC registration fee	$ 1,458
Printing expenses	$ 30,000
Legal fees and expenses	$ 175,000
Accounting fees and expenses	$ 25,000
Nasdaq Stock Market listing fees	$ 85,600
Subscription agent and information agent fees and expenses	$ 40,000
Total Expenses	$ 357,058

Item 14. Indemnification of Directors and Officers

Our Restated Certificate of Incorporation, as amended, provides that we will indemnify our directors and officers to the full extent permitted by the Delaware General Corporation Law, or DGCL. Section 145 of the DGCL provides that the extent to which a corporation may indemnify its directors and officers depends on the nature of the action giving rise to the indemnification right. In actions not on behalf of the corporation, directors and officers may be indemnified for acts taken in good faith and in a manner reasonably believed to be in or not opposed to the best interests of the corporation. In actions on behalf of the corporation, directors and officers may be indemnified for acts taken in good faith and in a manner reasonably believed to be in or not opposed to the best interests of the corporation, except for acts as to which the director or officer is adjudged liable to the corporation, unless the relevant court determines that indemnification is appropriate despite such liability. Section 145 of the DGCL also permits a corporation to (i) reimburse present or former directors or officers for their defense expenses to the extent they are successful on the merits or otherwise and (ii) advance defense expenses upon receipt of an undertaking to repay the corporation if it is determined that payment of such expenses is unwarranted.

To supplement the general indemnification right contained in our Restated Certificate of Incorporation, our Amended and Restated By-Laws provide for the specific indemnification rights permitted by Section 145 (as described above). Our Amended and Restated By-Laws also permit us to purchase Directors & Officers insurance, but no director or officer has a right to require this.

In addition to the indemnification rights described above, our Restated Certificate of Incorporation, as amended, eliminates any monetary liability of directors to us or our stockholders for breaches of fiduciary duty except for (i) breaches of the duty of loyalty, (ii) acts or omissions in bad faith, (iii) improper dividends or share redemptions and (iv) transactions from which the director derives an improper personal benefit.

Finally, we have entered into an indemnification agreement with each of our directors and executive officers. Subject to certain exceptions, the indemnification agreements provide that an indemnitee will be indemnified for all expenses incurred or paid by the indemnitee in connection with a proceeding to which the indemnitee was or is a party, or is threatened to be made a party, by reason of the indemnitee’s status with or service to us or to another entity at our request. In connection with proceedings other than those by or in the right of our company and to which the indemnitee was or is a party, or is threatened to be made a party, by reason of the indemnitee’s status with or service to us or to another entity at our request, the indemnification agreements

provide that an indemnitee will also be indemnified for all liabilities incurred or paid by the indemnitee. The indemnification agreements also provide for advancement of expenses incurred by an indemnitee in connection with an indemnifiable claim, subject to reimbursement in certain circumstances.

Item 15. Recent Sales of Unregistered Securities.

The following sets forth information regarding unregistered securities that were sold by the Registrant within the past three years:

On December 18, 2012, the Company completed the sale of 9,166,665 shares of common stock and warrants to purchase an additional 6,416,665 shares of common stock for an aggregate offering price of $27.5 million, pursuant to the terms of the Securities Purchase Agreement, dated November 4, 2012, between the Company and the investors identified in Exhibit A thereto. The shares and warrants were issued in a private offering in reliance on Section 4(2) of the Securities Act of 1933, as amended (the "Securities Act").

On December 18, 2012, the Company filed a Certificate of Amendment to its Restated Certificate of Incorporation in order to effect a 1-for-6 reverse stock split of the Company's common stock effective as of the opening of trading on the Nasdaq Capital Market on December 19, 2012. As a result of the reverse stock split, every 6 shares of the Company's issued and outstanding common stock were combined into one share of common stock. The reverse stock split did not change the number of authorized shares of the Company's common stock.

The information presented below does not reflect the 1-for-6 reverse stock split effected on December 18, 2012.

On August 22, 2012, pursuant to the terms of the Asset Purchase Agreement, dated August 7, 2012, between the Company and S*BIO Pte Ltd., a Singapore private limited company ("S* Bio"), the Company consummated its acquisition from S*BIO of all of S*BIO's right, title and interest in, and the assumption of certain liabilities relating to, certain intellectual property and other assets related to compounds SB939, SB1304, SB1354 and SB1502 (the "Acquired Compounds"). As consideration for the Acquired Compounds, the Company issued to S*BIO, in a transaction exempt from the registration requirements of the Securities Act pursuant to Section 4(2) thereof, 1,174,536 shares of common stock. In addition, the Company has agreed to make certain milestone payments to S*BIO based on the achievement of certain clinical, regulatory and net sales-based milestones, as well as to make certain contingent earnout payments to S*BIO. The Company may pay up to $500,000 of the first milestone payment in shares of common stock.

On December 29, 2011, pursuant to the terms of a Securities Subscription Agreement dated as of December 28, 2011, between the Company and Novogen, the Company issued to Novogen 1,941,747 shares of common stock at a purchase price of $1.03 per share. The shares were issued in a private offering in reliance on Section 4(2) of the Securities Act.

On September 29, 2011, pursuant to the terms of a Securities Subscription Agreement dated as of September 27, 2011, between the Company and Novogen, the Company issued to Novogen 1,333,333 shares of common stock at a purchase price of $1.50 per share. The shares were issued in a private offering in reliance on Section 4(2) of the Securities Act.

On May 18, 2011, pursuant to the Amended and Restated Securities Purchase Agreement (the "May 2011 Securities Purchase Agreement"), dated as of May 16, 2011, between the Company and the investors named therein (the "May 2011 Financing Investors"), we issued 835,217 shares of common stock together with Series A and Series B warrants initially exercisable for an aggregate amount of approximately 2,792,000 shares of common stock, which amount was subject to increase to a maximum of approximately 4,416,000 shares of common stock to the extent the Series B warrants were exercised. As of September 26, 2011, all of the 2,165,534 Series B warrants had been exercised, resulting in Series A warrants becoming exercisable for an additional

1,624,151 shares of common stock. Also pursuant to the Amended and Restated Securities Purchase Agreement, we agreed to issue certain additional shares of our Common Stock (the "Adjustment Shares"), up to a maximum amount of approximately 2,333,000 shares to the extent the Series B warrants are exercised, and to the extent the trading price of our Common Stock is below certain levels on specified dates. On December 29, 2011, we issued 667,272 Adjustment Shares. Also pursuant to the terms of the Amended and Restated Securities Purchase Agreement, upon the issuance of the shares to Novogen, the Company was required to issue to the May 2011 Financing Investors an additional aggregate of 245,700 shares of Common Stock, which shares were issued on December 29, 2011. The shares, warrants and Adjustment Shares were issued in a private offering in reliance on Section 4(2) of the Securities Act.

On March 29, 2010, the Company filed a Certificate of Amendment to its Restated Certificate of Incorporation in order to effect a 1-for-10 reverse stock split of the Company's common stock effective as of the opening of trading of the Company's common stock on March 31, 2010. As a result of the reverse stock split, every 10 shares of the Company's issued and outstanding common stock were combined into one share of common stock. The reverse stock split did not change the number of authorized shares of the Company's common stock.

Item 16. Exhibits and Financial Statement Schedules.

(a) Exhibits.

The exhibits to the registration statement are listed in the Exhibit Index attached hereto and incorporated by reference herein.

(b) Financial Statements Schedules.

The Financial Statement Schedules have been omitted either because they are not required or because the information has been included in the financial statements or the notes thereto included in our Annual Report on Form 10-K, which is incorporated herein by reference.

Item 17. Undertakings.

(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 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.

(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) To deliver or cause to be delivered with the prospectus, to each person to whom the prospectus is sent or given, the latest annual report, to security holders that is incorporated by reference in the prospectus and furnished pursuant to and meeting the requirements of Rule 14a-3 or Rule 14c-3 under the Securities Exchange Act of 1934; and, where interim financial information required to be presented by Article 3 of Regulation S-X is not set forth in the prospectus, to deliver, or cause to be delivered to each person to whom the prospectus is sent or given, the latest quarterly report that is specifically incorporated by reference in the prospectus to provide such interim financial information.

(5) 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 the foregoing provisions, 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 Act, and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the 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 Act and will be governed by the final adjudication of such issue.

(6) For the purpose of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the Registrant pursuant to rule 424(b)(1), or (4), or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(7) For the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus 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.

SIGNATURES

Pursuant to the requirements of the Securities Act, the Registrant has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the city of San Diego, California, on January 3, 2013.

MEI Pharma, Inc.

By: /s/ Daniel P. Gold
Name: Daniel P. Gold
Title: President and Chief Executive Officer

Pursuant to the requirements of the Securities Act, this Registration Statement has been signed below by the following persons, in the capacities indicated, on January 3, 2013:

Signature	Title
/s/ Daniel P. Gold Daniel P. Gold	President and Chief Executive Officer (Principal Executive Officer)
/s/ Thomas M. Zech Thomas M. Zech	Chief Financial Officer (Principal Financial and Accounting Officer)
* Bryan R.G. Williams	Chairman of Board of Directors
* Leah Rush Cann	Director
* Christine A. White	Director
* William D. Rueckert	Director
* Charles V. Baltic III	Director

*By: /s/ Daniel P. Gold
Daniel P. Gold
Attorney-in-fact

Exhibit Index

3.1	Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to Registrant's Registration Statement on Form S-1 filed on September 25, 2003 (Reg. No. 333-109129)).
3.2	Certificate of Amendment to the Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1.1 to Registrant's Current Report on Form 8-K filed on March 31, 2010 (File No. 000-50484)).
3.3	Certificate of Ownership and Merger (incorporated by reference to Exhibit 3.1 to Registrant's Current Report on Form 8-K filed on July 2, 2012 (File No. 000-50484)).
3.4	Certificate of Amendment to the Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to Registrant's Current Report on Form 8-K filed on December 19, 2012 (File No. 000-50484)).
3.5	Amended and Restated Bylaws (incorporated by reference to Exhibit 3.2 to Registrant's Current Report on Form 8-K filed on December 19, 2012 (File No. 000-50484)).
3.6	Certificate of Designation of Series A Convertible Preferred Stock of Marshall Edwards, Inc. (incorporated by reference to Exhibit 3.1 to Registrant's Current Report on Form 8-K filed on May 11, 2011 (File No. 000-50484))
3.7	Certificate of Designation of Series B Preferred Stock of Marshall Edwards, Inc. (incorporated by reference to Exhibit 10.1 to Registrant's Current Report on Form 8-K filed on March 18, 2011 (File No. 000-50484))
4.1	Specimen Stock Certificate (incorporated by reference to Exhibit 4.1 to Amendment No. 1 to Registrant's Registration Statement on Form S-1 filed on October 31, 2003 (Reg. No. 333-109129)).
4.2	Specimen Warrant Certificate (incorporated by reference to Exhibit 4.2 to Registrant's Registration Statement on Form S-3 filed on August 9, 2006 (Reg. No. 333-136440).
4.3	Specimen Warrant Certificate (incorporated by reference to Exhibit 4.4 to Registrant's Annual Report on Form 10-K filed on September 27, 2007 (File No. 000-50484)).
4.4	Form of Warrant Agreement (incorporated by reference to Exhibit 10.3 to Registrant's Current Report on Form 8-K filed on July 12, 2006 (File No. 000-50484)).
4.5	Warrant Agreement (incorporated by reference to Exhibit 10.3 to Registrant's Current Report on Form 8-K filed on August 6, 2007 (File No. 000-50484)).
4.6	Amended and Restated Warrant Agreement (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K/A filed on September 27, 2007 (File No. 000-50484)).
4.7	Form of Warrant (incorporated by reference to Exhibit 10.4 to Registrant's Current Report on Form 8-K filed on July 12, 2006 (File No. 000-50484)).
4.8	Form of Warrant (incorporated by reference to Exhibit 10.4 to the Registrant's Current Report on Form 8-K filed on August 6, 2007 (File No. 000-50484)).
4.9	Form of Warrant (incorporated by reference to Exhibit 10.3 to the Registrant's Current Report on Form 8-K/A filed on September 27, 2007 (File No. 000-50484)).
4.10	Warrant dated July 30, 2008 issued to Mr. John O'Connor (incorporated by reference to Exhibit 4.1 to Registrant's Current Report on Form 8-K filed on July 30, 2008 (File No. 000-50484)).
4.11	Form of Amended and Restated Series A and Series B Warrants (incorporated by reference to Exhibits 4.1 and 4.2 to Registrant's Current Report on Form 8-K filed on September 29, 2011 (File No. 000-50484)).

4.12	Form of Warrant (incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed on November 5, 2012 (File No. 000-50484)).
4.13	Form of Subscription Agent Agreement between Marshall Edwards, Inc. and Computershare, Inc. (incorporated by reference to Exhibit 4.12 to Amendment No. 1 to the Registrant's Registration Statement on Form S-1 filed on March 20, 2012 (File No. 333-179590)).
4.14	Form of Information Agent Agreement between the Company and Georgeson, Inc. (incorporated by reference to Exhibit 4.13 to Amendment No. 1 to the Registrant's Registration Statement on Form S-1 filed on March 20, 2012 (File No. 333-179590)).
4.15	Form of Subscription Rights Certificate (incorporated by reference to Exhibit 4.14 to Amendment No. 1 to the Registrant's Registration Statement on Form S-1 filed on March 20, 2012 (File No. 333-179590)).
4.16	Form of Warrant Agreement between the Company and Computershare, Inc. (incorporated by reference to Exhibit 4.15 to Amendment No. 1 to the Registrant's Registration Statement on Form S-1 filed on March 20, 2012 (File No. 333-179590)).
4.17	Form of Warrant (incorporated by reference to Exhibit 4.16 to Amendment No. 1 to the Registrant's Registration Statement on Form S-1 filed on March 20, 2012 (File No. 333-179590)).
5.1	Opinion of Morgan, Lewis & Bockius LLP.**
10.1	Employment letter dated April 23, 2010, between Marshall Edwards, Inc. and Daniel Gold (incorporated by reference to Exhibit 10.1 to Registrant's Current Report on Form 8-K filed on April 26, 2010 (File No. 000-50484)).
10.2	Employment letter dated June 18, 2010, between Marshall Edwards, Inc. and Thomas Zech (incorporated by reference to Exhibit 10.1 to Registrant's Current Report on Form 8-K filed on June 23, 2010 (File No. 000-50484)).
10.3	Employment letter dated June 1, 2011, between Marshall Edwards, Inc. and Robert D. Mass (incorporated by reference to Exhibit 10.1 to Registrant's Current Report on Form 8-K filed on June 2, 2011 (File No. 000-50484)).
10.4	Amended and Restated License Agreement between Novogen Research Pty Limited and Marshall Edwards Pty Limited (incorporated by reference to Exhibit 10.1 to Registrant's Registration Statement on Form S-1 filed on September 25, 2003 (Reg. No. 333-109129)).
10.5	Amended and Restated Manufacturing License and Supply Agreement between Novogen Laboratories Pty Limited and Marshall Edwards Pty Limited (incorporated by reference to Exhibit 10.2 to Registrant's Registration Statement on Form S-1 filed on September 25, 2003 (Reg. No. 333-109129)).
10.6	Amended and Restated License Option Deed between Novogen Research Pty Limited and Marshall Edwards Pty Limited (incorporated by reference to Exhibit 10.3 to Registrant's Registration Statement on Form S-1 filed on September 25, 2003 (Reg. No. 333-109129)).
10.7	Amended and Restated Services Agreement among Novogen Limited, Marshall Edwards, Inc. and Marshall Edwards Pty Limited (incorporated by reference to Exhibit 10.4 to Registrant's Registration Statement on Form S-1 filed on September 25, 2003 (Reg. No. 333-109129)).
10.8	Guarantee and Indemnity among Marshall Edwards, Inc., Novogen Laboratories Pty Limited, Novogen Research Pty Limited and Novogen Limited (incorporated by reference to Exhibit 10.5 to Registrant's Registration Statement on Form S-1 filed on September 25, 2003 (Reg. No. 333-109129)).
10.9	License Agreement between Novogen Research Pty Limited and Marshall Edwards Pty Limited (incorporated by reference to Exhibit 99.1 to Registrant's Current Report on Form 8-K filed on May 16, 2006 (File No. 000-50484)).

10.10	Amendment Deed between Novogen Research Pty Limited and Marshall Edwards Pty Limited (incorporated by reference to Exhibit 10.1 to Registrant's Current Report on Form 8-K filed on June 9, 2006 (File No. 000-50484)).
10.11	Registration Rights Agreement, dated July 11, 2006 by and among Marshall Edwards, Inc. and the investors signatory thereto (incorporated by reference to Exhibit 10.2 to Registrant's Current Report on Form 8-K filed on July 12, 2006 (File No. 000-50484)).
10.12	Registration Rights Agreement, dated as of August 6, 2007 by and among Marshall Edwards, Inc. and the purchasers signatory thereto (incorporated by reference to Exhibit 10.2 to Registrant's Current Report on Form 8-K filed on August 6, 2007 (File No. 000-50484)).
10.13	Registration Rights Agreement, dated as of September 26, 2007 by and among Marshall Edwards, Inc. and Blue Trading, LLC (incorporated by reference to Exhibit 10.2 to Registrant's Current Report on Form 8-K/A filed on September 27, 2007 (File No. 000-50484)).
10.14	Amended & Restated Registration Rights Agreement, dated as of May 16, 2011, between Marshall Edwards, Inc. and certain investors signatory thereto (incorporated by reference to Exhibit 10.2 to Registrant's Current Report on Form 8-K filed on May 16, 2011 (File No. 000-50484).
10.15	Securities Subscription Agreement dated as of July 28, 2008 by and among Marshall Edwards, Inc., Novogen Limited and Oppenheimer Funds, Inc. (incorporated by reference to Exhibit 10.13 to Registrant's Current Report on Form 8-K filed on July 30, 2008 (File No. 000-50484)).
10.16	MEI Pharma, Inc. Amended and Restated 2008 Stock Omnibus Equity Compensation Plan (incorporated by reference to Exhibit 10.1 to Registrant's Current Report on Form 8-K filed on December 5, 2011 (File No. 000-50484)).
10.17	License Agreement dated August 4, 2009 by and between Novogen Research Pty Limited and Marshall Edwards Pty Limited (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on August 7, 2009 (File No. 000-50484)).
10.18	Asset Purchase Agreement, dated as of December 21, 2010, between Marshall Edwards, Inc. and Novogen Limited and Novogen Pty Limited (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on December 22, 2010 (File No. 000-50484)).
10.19	At Market Issuance Sales Agreement, dated February 7, 2011, between Marshall Edwards, Inc. and McNicoll, Lewis & Vlak LLC (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on February 7, 2011 (File No. 000-50484)).
10.20	Stock Purchase Agreement, dated March 17, 2011, between Marshall Edwards, Inc. and Ironridge Global IV, Ltd., including the form of Certificate of Designations of Preferences, Rights and Limitations of Series B Preferred Stock attached as Exhibit 4 thereto (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on March 18, 2011 (File No. 000-50484)).
10.21	Amended and Restated Securities Purchase Agreement, dated as of May 16, 2011, between Marshall Edwards, Inc. and the investors signatory thereto (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on May 16, 2011 (File No. 000-50484)).
10.22	Amended and Restated Voting Agreement between Marshall Edwards, Inc. and Novogen Limited (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed on May 16, 2011 (File No. 000-50484)).
10.23	Form of Indemnification Agreement (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on August 29, 2011 (File No. 000-50484)).
10.24	Securities Subscription Agreement, dated as of September 27, 2011, between Marshall Edwards, Inc. and Novogen Limited (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on September 29, 2011 (File No. 000-50484)).

10.25	Securities Subscription Agreement, dated as of December 28, 2011, between Marshall Edwards, Inc. and Novogen Limited (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on December 29, 2011 (File No. 000-50484)).
10.26	Letter, dated September 28, 2011, from Novogen Limited to Marshall Edwards, Inc. (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed on September 29, 2011 (File No. 000-50484)).
10.27	Form of Supplemental Agreement between Marshall Edwards, Inc. and each of the investors party to that certain Amended and Restated Securities Purchase Agreement, dated as of May 16, 2011, by and among Marshall Edwards, Inc. and such investors (incorporated by reference to Exhibit 10.3 to the Registrant's Current Report on Form 8-K filed on September 29, 2011 (File No. 000-50484)).
10.28	Asset Purchase Agreement, dated as of August 7, 2012, between MEI Pharma, Inc. and S*BIO Pte Ltd. (incorporated by reference to Exhibit 2.1 to the Registrant's Current Report on Form 8-K filed on August 8, 2012 (File No. 000-50484)).
10.29	Form of Registration Rights Agreement between the Company and S*BIO Pte Ltd. (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on August 8, 2012 (File No. 000-50484)).
10.30	Agreement, dated December 5, 2012, between MEI Pharma, Inc., Novogen Limited, Novogen Research Pty Ltd., Graham Kelly and Andrew Heaton (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on December 7, 2012 (File No. 000-50484)).
10.31	Securities Purchase Agreement, dated as of November 4, 2012, by and among MEI Pharma, Inc., Vivo Ventures Fund VII, L.P., Vivo Ventures VII Affiliates Fund, L.P., New Leaf Ventures II, L.P., and certain other accredited investors identified in Exhibit A thereto (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on November 5, 2012 (File No. 000-50484)).
10.32	Form of Governance Agreement between MEI Pharma, Inc. and each of Vivo Ventures Fund VII, L.P. and New Leaf Ventures II, L.P. (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed on November 5, 2012 (File No. 000-50484)).
10.32	Form of Registration Rights Agreement by and among MEI Pharma, Inc., Vivo Ventures Fund VII, L.P., Vivo Ventures VII Affiliates Fund, L.P., New Leaf Ventures II, L.P., and certain other accredited investors identified in Exhibit A thereto (incorporated by reference to Exhibit 10.3 to the Registrant's Current Report on Form 8-K filed on November 5, 2012 (File No. 000-50484)).
23.1	Consent of BDO USA LLP*
23.2	Consent of Morgan, Lewis & Bockius LLP (included in Exhibit 5.1 above).**
25.1	Powers of Attorney (included on the signature page hereto).**
99.1	Form of Instructions for Use of Marshall Edwards, Inc. Subscription Rights Certificate.**
99.2	Form of Letter to Registered Holders of Common Stock.**
99.3	Form of Letter to Brokers and Other Nominee Holders.**
99.4	Form of Letter to Clients.**
99.5	Form of Beneficial Owner Election Form.**
99.6	Form of Nominee Holder Certification.**
99 .7	Form of Notice of Guaranteed Delivery.**
99 .8	Information for Substitute Form W-9.**

(*) Filed herewith.
(**) Previously filed.

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

MEI Pharma, Inc.
San Diego, California 92130

We hereby consent to the incorporation by reference in the Prospectus constituting a part of this Registration Statement of our report dated September 17, 2012, relating to the consolidated financial statements of MEI Pharma, Inc., appearing in the Company's Annual Report on Form 10-K for the fiscal year ended June 30, 2012.

We also consent to the reference to us under the caption "Experts" in the Prospectus.

/s/ BDO USA LLP

San Diego, California
January 3, 2013