

Prospectus Supplement No. 5
(to Prospectus dated January 14, 2013)

MEI PHARMA, INC.

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

This prospectus amends and supplements the prospectus dated January 14, 2013 (the "Prospectus"), which forms a part of our Registration Statement on Form S-1, as amended (Registration Statement No. 333-179590). This prospectus supplement is being filed to update and supplement the information included or incorporated by reference in the prospectus with the information contained in our Current Report on Form 8-K filed with the Securities and Exchange Commission (the "Commission") on June 18, 2013 (the "Form 8-K"). Accordingly, we have attached the Form 8-K to this prospectus supplement.

The prospectus and this prospectus supplement relate to the issuance of shares of our common stock, par value \$0.00000002 per share, (the "Common Stock") upon exercise of warrants (the "Warrants") issued in connection with our rights offering that was completed in May 2012.

Our common stock is traded on the Nasdaq Capital Market under the symbol "MEIP". The Warrants will not trade on the Nasdaq Capital Market or any other securities exchange or trading market. On June 17, 2013, the closing price for a share of our Common Stock on the Nasdaq Capital Market was \$7.62 per share.

Investing in our Common Stock involves risks. See "Risk Factors" beginning on page 7 of the Prospectus to read about factors you should consider before you make your investment decision.

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

The date of this Prospectus Supplement No. 5 is June 18, 2013

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

FORM 8-K

CURRENT REPORT
Pursuant to Section 13 or 15(d)
of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): June 18, 2013

MEI Pharma, Inc.
(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction
of incorporation or organization)

000-50484
(Commission
File Number)

51-0407811
(I.R.S. Employer
Identification No.)

11975 El Camino Real, Suite 101, San Diego, California 92130
(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code: (858) 792-6300

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (*see* General Instruction A.2. below):

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
 - Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
 - Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
 - Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))
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Item 8.01 Other Events.

On June 18, 2013, MEI Pharma, Inc. issued a press release announcing the initiation of a Phase II clinical trial of its lead drug candidate Pracinostat in combination with Vidaza® (azacitidine) in patients with previously untreated intermediate-2 or high-risk myelodysplastic syndrome (MDS). A copy of the press release is attached as Exhibit 99.1 to this Current Report on Form 8-K and incorporated herein by reference.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits

<u>Exhibit No.</u>	<u>Description</u>
99.1	Press release, dated June 18, 2013.

Signatures

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

MEI PHARMA, INC.

By: /s/ Daniel P. Gold
Daniel P. Gold
Chief Executive Officer

Dated: June 18, 2013

Exhibit Index

<u>Exhibit No.</u>	<u>Description</u>
99.1	Press release, dated June 18, 2013.



Contact:
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Corporate Communications
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**MEI PHARMA INITIATES PHASE II CLINICAL TRIAL OF PRACINOSTAT AND VIDAZA® IN
FRONTLINE MYELODYSPLASTIC SYNDROME**

First Patients Dosed in Multicenter, Randomized, Placebo-Controlled Study

San Diego – June 18, 2013 – MEI Pharma, Inc. (Nasdaq: MEIP), an oncology company focused on the clinical development of novel therapies for cancer, announced today that the first patients have been dosed in a Phase II clinical trial of its lead drug candidate Pracinostat in combination with Vidaza (azacitidine) in patients with previously untreated intermediate-2 or high-risk myelodysplastic syndrome (MDS). The randomized, double-blind trial is designed to evaluate the safety and efficacy of Pracinostat compared to placebo when combined with Vidaza, a drug approved by the U.S. Food & Drug Administration (FDA) for the treatment of MDS.

Results from an earlier pilot study of Pracinostat in combination with Vidaza in patients with intermediate-2 or high-risk MDS presented at the American Society of Hematology (ASH) Annual Meeting in December 2012 showed an overall response rate of 89% (eight out of nine), including seven patients who achieved either a complete remission (CR) or a complete remission with incomplete blood count recovery (CRi).

“The initiation of this randomized Phase II trial is an important milestone in the clinical development of Pracinostat,” said Robert D. Mass, MD, Chief Medical Officer of MEI Pharma. “The results from the pilot study reported at ASH were very exciting and helped to inform the design of this more robust, placebo-controlled trial. Now, our goal is to build on these preliminary data and get a more precise estimate of the clinical benefit of Pracinostat in combination with standard-of-care.”

The multicenter Phase II trial is expected to enroll 100 patients with a one-to-one randomization. Completion of enrollment is anticipated by June 2014 with topline data in December 2014. The primary endpoint of the study is complete remission (CR). Secondary endpoints include overall response rate (CR+CRi+PR), hematologic improvement, duration of response, progression-free survival, rate of leukemic transformation, overall survival and safety. The trial is being conducted in collaboration with the Sarah Cannon Research Institute; Dr. Guillermo Garcia-Manero of the MD Anderson Cancer Center is the principal investigator. Additional information regarding the trial is available at www.clinicaltrials.gov.

“This represents the first in a series of Phase II studies we have planned for Pracinostat in the months ahead,” said Daniel P. Gold, Ph.D., President and Chief Executive Officer of MEI Pharma. “We believe that Pracinostat truly has the potential to become a best-in-class drug. We intend to execute a comprehensive development program in order to realize its full potential and determine the most efficient registration path forward.”

In addition to the randomized Phase II clinical trial in frontline MDS, the Company is also preparing for the initiation of two open-label Phase II trials of Pracinostat: one in combination

with Vidaza in frontline acute myeloid leukemia (AML) in the fall of 2013 and the other in combination with Vidaza or Dacogen® (decitabine) in patients with refractory MDS soon thereafter.

About Pracinostat

Pracinostat is an orally available histone deacetylase (HDAC) inhibitor that has been tested in a number of Phase I and exploratory Phase II clinical trials in advanced hematologic disorders and solid tumor indications in both adult and pediatric patients. Pracinostat has been generally well tolerated in more than 200 patients to date, with readily manageable side effects that are often associated with drugs of this class, such as fatigue. Pracinostat has exhibited pharmacokinetic properties that compare favorably to other oral HDAC inhibitors, including Zolinza® (vorinostat), which is approved by the FDA for the treatment of cutaneous T-cell lymphoma. In addition to the evidence of clinical activity observed in combination with Vidaza in patients with MDS, Pracinostat has demonstrated single-agent activity in AML, including two CRs out of 14 patients (14%) in a dose-escalation trial, with durable responses persisting up to 362 days.

MEI Pharma owns exclusive worldwide rights to Pracinostat.

About MEI Pharma

MEI Pharma, Inc. (Nasdaq: MEIP) is a San Diego-based oncology company focused on the clinical development of novel therapies for cancer. The Company's lead drug candidate is Pracinostat, a potential best-in-class, oral HDAC inhibitor being developed for advanced hematologic malignancies, such as MDS and AML. Results from a pilot Phase II clinical trial of Pracinostat in combination with Vidaza in patients with MDS presented at the American Society of Hematology Annual Meeting in December 2012 showed an overall response rate of 89% (eight out of nine). The Company initiated a randomized, placebo-controlled Phase II trial of Pracinostat in combination with Vidaza in patients with previously untreated MDS in June 2013. In addition, MEI Pharma is developing two drug candidates derived from its isoflavone-based technology platform, ME-143 and ME-344. For more information, go to www.meipharma.com.

Under U.S. law, a new drug cannot be marketed until it has been investigated in clinical trials and approved by the FDA as being safe and effective for the intended use. Statements included in this press release that are not historical in nature are "forward-looking statements" within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995. You should be aware that our actual results could differ materially from those contained in the forward-looking statements, which are based on management's current expectations and are subject to a number of risks and uncertainties, including, but not limited to, our failure to successfully commercialize our product candidates; costs and delays in the development and/or FDA approval, or the failure to obtain such approval, of our product candidates; uncertainties or differences in interpretation in clinical trial results; our inability to maintain or enter into, and the risks resulting from our dependence upon, collaboration or contractual arrangements necessary for the development, manufacture, commercialization, marketing, sales and distribution of any products; 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; general economic conditions; the failure of any products to gain market acceptance; our inability to obtain any additional required financing; technological changes; government regulation; changes in industry practice; and one-time events. We do not intend to update any of these factors or to publicly announce the results of any revisions to these forward-looking statements.

Vidaza® is a registered trademark of Celgene Corporation. Dacogen® is a registered trademark used by Eisai Inc. under license from Astex Pharmaceuticals, Inc. Zolinza® is a registered trademark of Merck Sharp & Dohme Corp., a subsidiary of Merck & Co., Inc.