

**Prospectus Supplement No. 5
(To Prospectus dated October 14, 2015)**



**4,000,000 shares of common stock issuable upon the
exercise of the 4,000,000 outstanding Class A warrants**

and

**2,000,000 shares of common stock issuable upon the
exercise of the 4,000,000 outstanding Class B warrants**

This prospectus supplement No. 5 supplements the prospectus dated October 14, 2015 filed pursuant to Rule 424(b)(4) by Cerecor Inc. (the “Company” or “we”), as supplemented by the prospectus supplement No. 1 dated October 20, 2015, the prospectus supplement No. 2 dated November 13, 2015, the prospectus supplement No. 3 dated November 23, 2015 and the prospectus supplement No. 4 dated December 17, 2015, each filed pursuant to Rule 424(b)(3) by the Company (collectively, the “Prospectus”). Pursuant to the Prospectus, this prospectus supplement relates to the continuous offering of 4,000,000 shares of common stock underlying our Class A warrants and 2,000,000 shares of our common stock underlying Class B warrants. Each warrant was a component of a unit that we issued in our initial public offering, which closed on October 20, 2015. The components of the units began to trade separately on November 13, 2015. Each Class A warrant became exercisable on the date when the units detached and the components began to trade separately and will expire on October 20, 2018, or earlier upon redemption. Each Class B warrant became exercisable on the date the units detached and the components began to trade separately and will expire on April 20, 2017.

This prospectus supplement incorporates into our Prospectus the information contained in Item 5.02 of our attached Current Report on Form 8-K, which was filed with the Securities and Exchange Commission on December 21, 2015.

You should read this prospectus supplement in conjunction with the Prospectus, including any supplements and amendments thereto. This prospectus supplement is qualified by reference to the Prospectus except to the extent that the information in this prospectus supplement supersedes the information contained in the Prospectus.

This prospectus supplement is not complete without, and may not be delivered or utilized except in connection with, the Prospectus, including any supplements and amendments thereto.

Our common stock, the Class A warrants and the Class B warrants are traded on The NASDAQ Capital Market under the symbols “CERC,” “CERCW,” and “CERCZ,” respectively.

**AN INVESTMENT IN OUR SECURITIES INVOLVES A HIGH DEGREE OF RISK. SEE THE
SECTION ENTITLED “RISK FACTORS” BEGINNING ON PAGE 16 OF THE PROSPECTUS FOR A
DISCUSSION OF INFORMATION THAT SHOULD BE CAREFULLY CONSIDERED IN CONNECTION WITH
AN INVESTMENT IN OUR SECURITIES**

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

The date of this prospectus supplement is December 21, 2015

**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): **December 17, 2015**

Cerecor Inc.

(Exact name of Registrant as Specified in Its Charter)

Delaware
(State or Other Jurisdiction
of Incorporation)

001-37590
(Commission
File Number)

45-0705648
(IRS Employer Identification No.)

**400 E. Pratt Street
Suite 606
Baltimore, Maryland**
(Address of Principal Executive Offices)

21202
(Zip Code)

Registrant's Telephone Number, Including Area Code: **(410) 522-8707**

Not Applicable

(Former Name or Former Address, if Changed Since Last Report)

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 Instructions 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 5.02. Departure of Directors or Certain Officers; Election of Directors; Appointment of Certain Officers;
Compensatory Arrangements of Certain Officers.**

(b) *Resignation of Blake Paterson as President, Chief Executive Officer and Member of the Board of Directors*

On December 17, 2015, Blake Paterson resigned as the President and Chief Executive Officer of Cerecor Inc. (the “**Company**”) and as a member of the Board of Directors of the Company (the “**Board**”), in each case effective December 31, 2015. Mr. Paterson will also cease serving as the Company’s principal executive officer as of that date.

(c) *Appointment of Uli Hacksell as Chief Executive Officer*

On December 20, 2015, the Board appointed Uli Hacksell, Ph.D. as the Company’s Chief Executive Officer, effective January 1, 2016. Dr. Hacksell will begin service as the Company’s principal executive officer as of that date.

Dr. Hacksell, age 65, has served as the Chairman of the Board since May 2015. From September 2000 to March 2015, Dr. Hacksell served as the Chief Executive Officer and as a director of ACADIA Pharmaceuticals Inc. He previously served as the Executive Vice President of Drug Discovery of ACADIA and held various senior executive positions at Astra AB, a pharmaceutical company, including Vice President of Drug Discovery and Technology and President of Astra Draco AB, one of the company’s largest research and development subsidiaries, where he directed an organization of more than 1,100 employees. He also served as Vice President of CNS Preclinical R&D at Astra Arcus, another Astra subsidiary. Earlier in his career, Dr. Hacksell held the positions of Professor of Organic Chemistry and Department Chairman at Uppsala University in Sweden and also served as Chairman and Vice Chairman of the European Federation of Medicinal Chemistry. Dr. Hacksell received his Master of Pharmacy and a Ph.D. in Medicinal Chemistry from Uppsala University.

There are no arrangements or understandings between Dr. Hacksell and any other person pursuant to which he was selected as an officer of the Company, and there is no family relationship between Dr. Hacksell and any of the Company’s other directors or executive officers.

Item 7.01. Regulation FD Disclosure.

On December 21, 2015, the Company issued a press release announcing Mr. Paterson’s departure and Dr. Hacksell’s appointment. A copy of this press release is furnished herewith as Exhibit 99.1 to this Current Report.

The information in this Item 7.01 of this Current Report on Form 8-K (including Exhibit 99.1) is being furnished and shall not be deemed “filed” for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the “**Exchange Act**”), or otherwise subject to the liabilities of that Section. The information in this Current Report shall not be deemed incorporated by reference in any filing under the Securities Act of 1933, as amended, or the Exchange Act, except as expressly set forth by specific reference in such a filing.

Item 9.01. Financial Statements and Exhibits.

<u>Exhibit No.</u>	<u>Description</u>
99.1	Press Release, dated December 21, 2015, entitled “Cerecor Inc. Names Uli Hacksell, Chairman of Cerecor and Former CEO of ACADIA, as President and CEO.”

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 thereunto duly authorized.

Cerecor Inc.

By: /s/ Mariam Morris
Mariam Morris
Chief Financial Officer

Date: December 21, 2015

EXHIBIT INDEX

<u>Exhibit No.</u>	<u>Description</u>
99.1	Press Release, dated December 21, 2015, entitled “Cerecor Inc. Names Uli Hacksell, Chairman of Cerecor and Former CEO of ACADIA, as President and CEO.”

Cerecor Inc. Names Uli Hacksell, Chairman of Cerecor and Former CEO of ACADIA, as President and CEO

BALTIMORE—(BUSINESS WIRE)—Dec. 21, 2015— Cerecor Inc. (NASDAQ: CERC) today announced that Uli Hacksell, Chairman of Cerecor and former CEO of ACADIA, has been named to the additional positions of CEO and President of the company as of January 1, 2016. Dr. Blake Paterson will step down as the company’s CEO and resign from its board, but will continue to work with the company as a scientific advisor.

“I am looking forward to the next phase of my career and will continue to serve as a scientific advisor to the Cerecor going forward” said Paterson. “I am excited about the next phase of Cerecor’s growth as it continues to develop CNS drug candidates.”

Dr. Hacksell joined Cerecor Inc. in May 2015 as its Chairman, seeing the company through its initial public offering. Prior to Cerecor, Dr. Hacksell served as Chief Executive Officer of ACADIA from September 2000 to March 2015 and was a member of its Board of Directors. Dr. Hacksell joined ACADIA when it was private and led it to becoming a multibillion dollar public biotech company. Dr. Hacksell had initially joined ACADIA as Executive Vice President of Drug Discovery. From August 1991 to February 1999, Dr. Hacksell held various senior executive positions at Astra, a major pharmaceutical company, including Vice President of Drug Discovery and Technology as well as President of Astra Draco, one of Astra’s largest research and development subsidiaries, where he directed an organization of more than 1,100 employees. From August 1991 to May 1994, he served as Vice President of CNS Preclinical R&D at Astra Arcus, another subsidiary. Earlier in his career, Dr. Hacksell held the positions of Professor of Organic Chemistry and Department Chairman at Uppsala University in Sweden and also served as Chairman and Vice Chairman of the European Federation of Medicinal Chemistry. He currently serves on the board of directors of Uppsala University, InDex Pharmaceuticals, and Glionova Therapeutics.

“I am very pleased to be serving Cerecor.” said Dr. Hacksell. “There is a lot to be excited about at Cerecor, it has a portfolio of CNS products, each with its own unique mechanisms and significant market potential. Cerecor has clear development plans, strong leadership, and very talented employees. I am committed to our shareholders to help Cerecor become a leader in developing CNS drugs.”

“We are thankful for Blake’s significant contributions during his tenure as Chief Executive Officer. Under Blake’s leadership, Cerecor made significant progress towards strategic imperatives, including enhancing our portfolio of compounds and positioning the company for long-term development success. We wish Blake the best in the next phase of his career,” said Isaac Blech, Vice Chairman. “As we move forward, we are fortunate to have a leader of Uli Hacksell’s experience to lead our development and executive team at Cerecor.”

About Cerecor

Cerecor Inc. is a Baltimore-based biopharmaceutical company with the goal of becoming a leader in the development of innovative drugs that make a difference in the lives of patients with neurological and psychiatric diseases. www.cerecor.com

Forward-Looking Statements

This press release may include forward-looking statements made pursuant to the Private Securities Litigation Reform Act of 1995. Forward-looking statements are statements that are not historical facts. Such forward-looking statements are subject to significant risks and uncertainties that are subject to change based on various factors (many of which are beyond Cerecor’s control), which could cause actual results to differ from the forward-looking statements. Such statements may include, without limitation, statements with respect to Cerecor’s plans, objectives, projections, expectations and intentions and other statements identified by words such as “projects,” “may,” “will,” “could,” “would,” “should,” “believes,” “expects,” “anticipates,” “estimates,” “intends,” “plans,” “potential” or similar expressions. These statements are based upon the current beliefs and expectations of Cerecor’s management but are subject to significant risks and uncertainties, including those detailed in Cerecor’s filings with the Securities and Exchange Commission. Actual results (including, without limitation, the timing for the separation of Cerecor’s publicly traded units into their component securities as described herein) may differ from those set forth in the forward-looking statements. Except as required by applicable law, Cerecor expressly disclaims any obligations or undertaking to release publicly any updates or revisions to any forward-looking statements contained herein to reflect any change in Cerecor’s expectations with

respect thereto or any change in events, conditions or circumstances on which any statement is based.

For more information about the Company and its products, please visit: www.cerecor.com or contact Mariam E. Morris, Chief Financial Officer, at (443) 304-8002.

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<http://www.businesswire.com/news/home/20151221005245/en/>

Source: Cerecor Inc.

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