

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

FORM S-8
REGISTRATION STATEMENT
Under
The Securities Act of 1933

RA PHARMACEUTICALS, INC.

(Exact name of registrant as specified in its charter)

Delaware
 (State or other jurisdiction of
 incorporation or organization)
87 Cambridge Park Drive
Cambridge, MA
 (Address of Principal Executive Offices)

26-2908274
 (I.R.S. Employer
 Identification Number)

02140
 (Zip Code)

Ra Pharmaceuticals, Inc. 2016 Stock Award and Incentive Plan
Ra Pharmaceuticals, Inc. 2016 Employee Stock Purchase Plan
 (Full title of the plans)

Douglas A. Treco, Ph.D.
President and Chief Executive Officer
Ra Pharmaceuticals, Inc.
87 Cambridge Park Drive
Cambridge, MA 02140
 (Name and address of agent for service)

(617) 401-4060
 (Telephone number, including area code, of agent for service)

Copies to:

Peter N. Handrinos
 Latham & Watkins LLP
 200 Clarendon Street
 Boston, Massachusetts 02116
 (617) 948-6000

David C. Lubner
 Executive Vice President
 and Chief Financial Officer
 Ra Pharmaceuticals, Inc.
 87 Cambridge Park Drive
 Cambridge, Massachusetts 02140
 (617) 401-4060

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

Large accelerated filer <input type="checkbox"/>	Accelerated filer <input checked="" type="checkbox"/>
Non-accelerated filer <input type="checkbox"/> (Do not check if a smaller reporting company)	Smaller reporting company <input type="checkbox"/>
Emerging growth company <input checked="" type="checkbox"/>	

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act. ☒

CALCULATION OF REGISTRATION FEE

Title of Securities to be Registered	Amount to be Registered(1)	Proposed Maximum Offering Price per Share	Proposed Maximum Aggregate Offering Price	Amount of Registration Fee
Common Stock, \$0.001 par value per share	905,067 shares(2)	\$ 5.95(3)	\$ 5,385,149	\$ 671
Common Stock, \$0.001 par value per share	226,266 shares(4)	\$ 5.06(5)	\$ 1,144,906	\$ 143
Total	1,131,333 shares		\$ 6,530,055	\$ 814

(1) Pursuant to Rule 416 under the Securities Act of 1933, as amended (the "Securities Act"), this Registration Statement shall also cover any additional shares of common stock of Ra Pharmaceuticals, Inc. (the "Registrant") that become issuable under the above-named plans by reason of any stock dividend, stock split, recapitalization or any other similar transaction effected without the receipt of consideration which results in an increase in the number of our outstanding shares of common stock. Pursuant to Rule 416(c) under the Securities Act, this Registration Statement shall also cover an indeterminate amount of interests to be offered or sold pursuant to the employee stock purchase plan described herein.

(2) Represents an automatic annual increase on January 1, 2018 to the number of shares of common stock reserved for issuance under the 2016 Stock Award and Incentive Plan (the "2016 Plan") pursuant to the terms of the 2016 Plan. Shares available for issuance under the 2016 Plan were previously registered on a registration statement on Form S-8 filed with the Securities and Exchange Commission on October 26, 2016 (File No. 333-214244).

(3) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457 of the Securities Act, and based on \$5.95 per share, which represents the average of the high and low prices of the Registrant's common stock reported on the Nasdaq Global Market on May 2, 2018.

- (4) Represents an automatic annual increase on January 1, 2018 to the number of shares of common stock reserved for issuance under the 2016 Employee Stock Purchase Plan (the "2016 ESPP") pursuant to the terms of the 2016 ESPP. Shares available for issuance under the 2016 ESPP were previously registered on a registration statement on Form S-8 filed with the Securities and Exchange Commission on October 26, 2016 (File No. 333-214244).
- (5) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457 of the Securities Act, and based on 85% of \$5.95 per share, which represents the average of the high and low prices of the Registrant's common stock reported on the Nasdaq Global Market on May 2, 2018. Pursuant to the 2016 ESPP, the purchase price of the shares of common stock reserved for issuance thereunder will be 85% of the fair market value of a share of common stock on the first trading day of the offering period or on the exercise date, whichever is less.
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EXPLANATORY NOTE

This Registration Statement on Form S-8 registers additional shares of common stock under the Registrant's 2016 Plan and the 2016 ESPP.

The number of shares of common stock reserved and available for issuance under the 2016 Plan is subject to an automatic annual increase on each January 1, beginning in 2017, by an amount equal to the lesser of (i) 4.0% of the number of shares of common stock issued and outstanding on the immediately preceding December 31, (ii) 2,000,000 shares or (iii) such amount as determined by the Administrator (as defined in the 2016 Plan), currently the Compensation Committee of the Registrant's Board of Directors. Accordingly, on January 1, 2018, the number of shares of common stock reserved and available for issuance under the 2016 Plan increased by 905,067 shares.

The number of shares of common stock reserved and available for issuance under the 2016 ESPP is subject to an automatic annual increase on each January 1, beginning in 2017, by an amount equal to the lesser of (i) 1.0% of the number of shares of common stock issued and outstanding on the immediately preceding December 31, (ii) 300,000 shares or (iii) such amount as determined by the Administrator (as defined in the 2016 ESPP), currently the Compensation Committee of the Registrant's Board of Directors. Accordingly, on January 1, 2018, the number of shares of common stock reserved and available for issuance under the 2016 ESPP increased by 226,266 shares.

This Registration Statement registers these additional 1,131,333 shares of common stock. The additional shares are of the same class as other securities relating to the 2016 Plan and the 2016 ESPP for which our registration statement filed on Form S-8 (Registration No. 333-214244) on October 26, 2016, is effective.

INCORPORATION BY REFERENCE OF CONTENTS OF REGISTRATION STATEMENTS ON FORM S-8

Except as set forth below, the contents of our Registration Statements on Form S-8 (File Nos. 333-217898 and 333-214244), both relating to the 2016 Plan and the 2016 ESPP, are hereby incorporated by reference herein.

PART II

INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

Item 8. Exhibits.

Exhibit No.	Description
4.1	<u>Third Amended and Restated Certificate of Incorporation of the Registrant, as currently in effect (incorporated by reference to Exhibit 3.1 to the Registrant's Quarterly Report on Form 10-Q (File No. 001-37926) filed November 29, 2016)</u>
4.2	<u>Amended and Restated By-laws of the Registrant, as currently in effect (incorporated by reference to Exhibit 3.2 to the Registrant's Quarterly Report on Form 10-Q (File No. 001-37926) filed November 29, 2016)</u>
4.3	<u>Investors' Rights Agreement among the Registrant and certain of its stockholders, dated July 10, 2015 (incorporated by reference to Exhibit 4.1 to the Registrant's Registration Statement on Form S-1 (File No. 333-213917) filed September 30, 2016)</u>
5.1 *	<u>Opinion of Latham & Watkins LLP</u>
23.1 *	<u>Consent of Deloitte & Touche LLP, Independent Registered Public Accounting Firm</u>
23.2 *	<u>Consent of Latham & Watkins LLP (included in Exhibit 5.1)</u>
24.1	<u>Power of Attorney (included on signature page)</u>

- 99.1 [2016 Stock Award and Incentive Plan and forms of award agreements thereunder \(incorporated by reference to Exhibit 10.2 to the Registrant's Registration Statement on Form S-1/A \(File No. 333-213917\) filed October 13, 2016\)](#)
- 99.2 [2016 Employee Stock Purchase Plan \(incorporated by reference to Exhibit 10.4 to the Registrant's Registration Statement on Form S-1/A \(File No. 333-213917\) filed October 13, 2016\)](#)

* Filed herewith.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Cambridge, Commonwealth of Massachusetts, on the 9th day of May, 2018.

RA PHARMACEUTICALS, INC.

By: /s/ Douglas A. Treco
Douglas A. Treco, Ph.D.
*President, Chief Executive Officer and
Principal Executive Officer*

POWER OF ATTORNEY AND SIGNATURES

KNOW ALL BY THESE PRESENT, that each individual whose signature appears below hereby constitutes and appoints each of Douglas A. Treco, Ph.D. and David C. Lubner as such person's true and lawful attorney-in-fact and agent with full power of substitution and resubstitution, for such person in such person's name, place and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this Registration Statement on Form S-8, and to file the same, with all exhibits thereto, and all documents in connection therewith, with the Securities and Exchange Commission granting unto each said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as such person might or could do in person, hereby ratifying and confirming all that any said attorney-in-fact and agent, or any substitute or substitutes of any of them, may lawfully do or cause to be done by virtue hereof.

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

Name	Title	Date
<u>/s/ DOUGLAS A. TRECO</u> Douglas A. Treco, Ph.D.	<i>Director, President, Chief Executive Officer and Principal Executive Officer</i>	May 9, 2018
<u>/s/ DAVID C. LUBNER</u> David C. Lubner	<i>Executive Vice President, Chief Financial Officer and Principal Financial and Accounting Officer</i>	May 9, 2018
<u>/s/ PETER TUXEN BISGAARD</u> Peter Tuxen Bisgaard	<i>Director</i>	May 9, 2018
<u>/s/ ROBERT HEFT</u> Robert Heft, Ph.D.	<i>Director</i>	May 9, 2018
<u>/s/ JASON LETTMANN</u> Jason Lettmann	<i>Director</i>	May 9, 2018
<u>/s/ EDWARD T. MATHERS</u> Edward T. Mathers	<i>Director</i>	May 9, 2018
<u>/s/ TIMOTHY R. PEARSON</u> Timothy R. Pearson	<i>Director</i>	May 9, 2018
<u>/s/ RAJEEV SHAH</u> Rajeev Shah	<i>Director</i>	May 9, 2018

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 Boston, Massachusetts 02116
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LATHAM & WATKINS^{LLP}

May 9, 2018

Ra Pharmaceuticals, Inc.
 87 Cambridge Park Drive
 Cambridge, MA 02140

FIRM / AFFILIATE OFFICES

Beijing	Moscow
Boston	Munich
Brussels	New York
Century City	Orange County
Chicago	Paris
Dubai	Riyadh
Düsseldorf	Rome
Frankfurt	San Diego
Hamburg	San Francisco
Hong Kong	Seoul
Houston	Shanghai
London	Silicon Valley
Los Angeles	Singapore
Madrid	Tokyo
Milan	Washington, D.C.

Re: Registration Statement on Form S-8; 1,131,333 shares of Ra Pharmaceuticals, Inc. Common Stock, \$0.001 par value per share

Ladies and Gentlemen:

We have acted as special counsel to Ra Pharmaceuticals, Inc., a Delaware corporation (the “**Company**”), in connection with the proposed issuance by the Company of up to 1,131,333 shares of common stock of the Company, \$0.001 par value per share (the “**Shares**”), issuable under the Ra Pharmaceuticals, Inc. 2016 Stock Award and Incentive Plan (the “**2016 Plan**”) and the Ra Pharmaceuticals, Inc. 2016 Employee Stock Purchase Plan (the “**2016 ESPP**” and, together with the 2016 Plan, the “**Plans**”). The Shares are included in a registration statement on Form S-8 under the Securities Act of 1933, as amended (the “**Act**”), filed with the Securities and Exchange Commission (the “**Commission**”) on May 9, 2018 (the “**Registration Statement**”). This opinion is being furnished in connection with the requirements of Item 601(b)(5) of Regulation S-K under the Act, and no opinion is expressed herein as to any matter pertaining to the contents of the Registration Statement or related prospectus, other than as expressly stated herein with respect to the issue of the Shares.

As such counsel, we have examined such matters of fact and questions of law as we have considered appropriate for purposes of this letter. With your consent, we have relied upon certificates and other assurances of officers of the Company and others as to factual matters without having independently verified such factual matters. We are opining herein as to the General Corporation Law of the State of Delaware (the “**DGCL**”), and we express no opinion with respect to any other laws.

Subject to the foregoing and the other matters set forth herein, it is our opinion that, as of the date hereof, when the Shares shall have been duly registered on the books of the transfer agent and registrar therefor in the name or on behalf of the purchasers, and have been issued by the Company for legal consideration in excess of par value in the circumstances contemplated by the Plans, assuming in each case that the individual grants or awards under the Plans are duly authorized by all necessary corporate action and duly granted or awarded and exercised in

accordance with the requirements of law and the Plans (and the agreements and awards duly adopted thereunder and in accordance therewith), the issue and sale of the Shares will have been duly authorized by all necessary corporate action of the Company, and the Shares will be validly issued, fully paid and nonassessable. In rendering the foregoing opinion, we have assumed that the Company will comply with all applicable notice requirements regarding uncertificated shares provided in the DGCL.

This opinion is for your benefit in connection with the Registration Statement and may be relied upon by you and by persons entitled to rely upon it pursuant to the applicable provisions of the Act. We consent to your filing this opinion as an exhibit to the Registration Statement. In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Act or the rules and regulations of the Commission thereunder.

Very truly yours,

/s/ LATHAM & WATKINS LLP

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in this Registration Statement on Form S-8 of our report dated March 14, 2018, relating to the financial statements of Ra Pharmaceuticals, Inc. appearing in the Annual Report on Form 10-K of Ra Pharmaceuticals, Inc. for the year ended December 31, 2017.

/s/ Deloitte & Touche LLP

Boston, Massachusetts
May 9, 2018
