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

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**FORM 8-A**

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**FOR REGISTRATION OF CERTAIN CLASSES OF SECURITIES  
PURSUANT TO SECTION 12(b) OR (g) OF THE  
SECURITIES EXCHANGE ACT OF 1934**

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**RA PHARMACEUTICALS, INC.**

(Exact name of registrant as specified in its charter)

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**Delaware**  
(State of incorporation or organization)

**26-2908274**  
(I.R.S. Employer Identification No.)

**87 Cambridge Park Drive**  
**Cambridge, MA**  
(Address of principal executive offices)

**02140**  
(Zip Code)

Securities to be registered pursuant to Section 12(b) of the Act:

Title of each class to be so registered	Name of each exchange on which each class is to be registered
Common Stock, \$0.001 par value per share	The NASDAQ Stock Market LLC

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If this form relates to the registration of a class of securities pursuant to Section 12(b) of the Exchange Act and is effective pursuant to General Instruction A. (c), please check the following box.

If this form relates to the registration of a class of securities pursuant to Section 12(g) of the Exchange Act and is effective pursuant to General Instruction A. (d), please check the following box.

Securities Act registration statement file number to which this form relates:  
**333-213917**

Securities to be registered pursuant to Section 12(g) of the Act:  
**None**

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## INFORMATION REQUIRED IN REGISTRATION STATEMENT

### **Item 1. Description of Registrant's Securities to be Registered.**

For a description of the Registrant's common stock, \$0.001 par value per share, to be registered hereunder, reference is made to the information set forth under the heading "DESCRIPTION OF CAPITAL STOCK — Common Stock" in the Registrant's prospectus that constitutes a part of the Registrant's Registration Statement on Form S-1, as amended (File No. 333-213917) (the "Registration Statement"), filed with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Securities Act"), which information is hereby incorporated by reference. Any form of the prospectus subsequently filed by the Registrant with the Commission pursuant to Rule 424(b) under the Securities Act that constitutes part of the Registration Statement shall be deemed to be incorporated herein by reference.

### **Item 2. Exhibits.**

Under the Instructions as to Exhibits with respect to Form 8-A, no exhibits are required to be filed, because no other securities of the Registrant are registered on The NASDAQ Stock Market LLC and the securities registered hereby are not being registered pursuant to Section 12(g) of the Securities Exchange Act of 1934, as amended.

**SIGNATURE**

Pursuant to the requirements of Section 12 of the Securities Exchange Act of 1934, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereto duly authorized.

**RA PHARMACEUTICALS, INC.**

DATE: October 21, 2016

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