

OMB APPROVAL	
OMB Number:	3235-0104
Estimated average burden hours per response:	0.5

INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF SECURITIES

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the Investment Company Act of 1940

1. Name and Address of Reporting Person* <u>RA CAPITAL MANAGEMENT, LLC</u> (Last) (First) (Middle) 20 PARK PLAZA, SUITE 1200 (Street) BOSTON MA 02116 (City) (State) (Zip)	2. Date of Event Requiring Statement (Month/Day/Year) 10/25/2016	3. Issuer Name and Ticker or Trading Symbol <u>Ra Pharmaceuticals, Inc. [RARX]</u>	
		4. Relationship of Reporting Person(s) to Issuer (Check all applicable) <input checked="" type="checkbox"/> Director <input checked="" type="checkbox"/> 10% Owner Officer (give title below) Other (specify below)	5. If Amendment, Date of Original Filed (Month/Day/Year) 6. Individual or Joint/Group Filing (Check Applicable Line) <input type="checkbox"/> Form filed by One Reporting Person <input checked="" type="checkbox"/> Form filed by More than One Reporting Person

Table I - Non-Derivative Securities Beneficially Owned

1. Title of Security (Instr. 4)	2. Amount of Securities Beneficially Owned (Instr. 4)	3. Ownership Form: Direct (D) or Indirect (I) (Instr. 5)	4. Nature of Indirect Beneficial Ownership (Instr. 5)
---------------------------------	---	--	---

Table II - Derivative Securities Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)

1. Title of Derivative Security (Instr. 4)	2. Date Exercisable and Expiration Date (Month/Day/Year)		3. Title and Amount of Securities Underlying Derivative Security (Instr. 4)		4. Conversion or Exercise Price of Derivative Security	5. Ownership Form: Direct (D) or Indirect (I) (Instr. 5)	6. Nature of Indirect Beneficial Ownership (Instr. 5)
	Date Exercisable	Expiration Date	Title	Amount or Number of Shares			
Series B-1 Preferred Stock	(4)	(4)	Common Stock	616,646	(4)	I	See footnotes ⁽¹⁾⁽³⁾
Series B-2 Preferred Stock	(5)	(5)	Common Stock	573,624	(5)	I	See footnotes ⁽²⁾⁽³⁾

1. Name and Address of Reporting Person* <u>RA CAPITAL MANAGEMENT, LLC</u> (Last) (First) (Middle) 20 PARK PLAZA, SUITE 1200 (Street) BOSTON MA 02116 (City) (State) (Zip)
1. Name and Address of Reporting Person* <u>RA Capital Healthcare Fund LP</u> (Last) (First) (Middle) C/O RA CAPITAL MANAGEMENT, LLC 20 PARK PLAZA, SUITE 1200 (Street) BOSTON MA 02116 (City) (State) (Zip)

1. Name and Address of Reporting Person*

[Kolchinsky Peter](#)

(Last) (First) (Middle)

[C/O RA CAPITAL MANAGEMENT, LLC](#)
[20 PARK PLAZA, SUITE 1200](#)

(Street)

[BOSTON](#) [MA](#) [02116](#)

(City) (State) (Zip)

Explanation of Responses:

1. These securities include 507,500 shares held by RA Capital Healthcare Fund, L.P. (the "Fund") and 109,146 shares held in an account owned by Blackwell Partners LLC--Series A (the "Account").
2. These securities include 472,093 shares held by the Fund and 101,531 shares held in the Account.
3. RA Capital Management, LLC (the "Adviser") is the general partner of the Fund and the investment adviser of the Account. Peter Kolchinsky is the sole manager of the Adviser. The Adviser and Mr. Kolchinsky disclaim beneficial ownership of the reported securities: (A) in reliance on Rule 16a-1(a)(1)(v) and (vii); and (B) held by the Fund, for purposes of Rule 16a-1(a)(2), except to the extent of their pecuniary interest therein. The Adviser and Mr. Kolchinsky have no pecuniary interest in the reported securities held in the Account and disclaim: (A) beneficial ownership thereof for purposes of Rule 16a-1(a)(2); and (B) any obligation to file reports under Section 16 other than as directors by deputation. The filing of this Form 3 shall not be construed as an admission that either the Adviser or Mr. Kolchinsky is or was the beneficial owner of any of the securities reported herein for purposes of Rule 16a-1(a)(1).
4. Each share of the Series B-1 Preferred Stock is convertible into Common Stock on a 1-for-7 basis automatically upon the closing of the Issuer's initial public offering, and has no expiration date.
5. Each share of the Series B-2 Preferred Stock is convertible into Common Stock on a 1-for-7 basis automatically upon the closing of the Issuer's initial public offering, and has no expiration date.

[/s/ Peter Kolchinsky, Manager](#)
[of RA Capital Management, LLC](#) [10/25/2016](#)

[/s/ Peter Kolchinsky, Manager](#)
[of RA Capital Management, LLC, the General Partner of](#)
[RA Capital Healthcare Fund, L.P.](#) [10/25/2016](#)

[/s/ Peter Kolchinsky,](#)
[individually](#) [10/25/2016](#)

** Signature of Reporting Person Date

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

* If the form is filed by more than one reporting person, see Instruction 5 (b)(v).

** Intentional misstatements or omissions of facts constitute Federal Criminal Violations See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB Number.