

ARCA biopharma, Inc.  
Form SC 13G/A  
February 16, 2016

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

**SCHEDULE 13G**

**Under the Securities Exchange Act of 1934**

**(Amendment No. 1)\***

**ARCA biopharma, Inc.**

(Name of Issuer)

**Common Stock, par value \$0.001 per share**

(Title of Class of Securities)

**00211Y407**

(CUSIP Number)

**December 31, 2015**

(Date of Event Which Requires Filing of this Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

Rule 13d-1(b)

Rule 13d-1(c)

Rule 13d-1(d)

\*The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter the disclosures provided in a prior cover page.

The information required in the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("*Act*") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

CUSIP No. **00211Y407 13G**

Names of Reporting Persons.  
I.R.S. Identification Nos. of above  
persons (entities only).

1.

**RA Capital Management, LLC**

Check the Appropriate Box if a  
2. Member of a Group (See  
Instructions)

(a) ..

(b) ..

3. SEC Use Only

4. Citizenship or Place of  
Organization **Massachusetts**

Number of	5. Sole Voting Power	<b>0 shares</b>
Shares	6. Shared Voting Power	<b>928,195 shares</b>
Beneficially	7. Sole Dispositive Power	<b>0 shares</b>
Owned by	8. Shared Dispositive Power	<b>928,195 shares</b>
Each Reporting		
Person With		

Aggregate Amount Beneficially Owned by Each Reporting Person

9. **928,195 shares**

Check if the Aggregate Amount in Row (9) Excludes ..

10.

Certain Shares (See Instructions)

Percent of Class Represented by Amount in Row (9)

11. **9.9%**

12. Type of Reporting Person (See Instructions)

**IA**

CUSIP No. **00211Y407** **13G**

Names of  
Reporting Persons.  
I.R.S.  
Identification Nos.  
of above persons  
1. (entities only).

**Peter Kolchinsky**

Check the  
Appropriate Box if  
2. a Member of a  
Group (See  
Instructions)  
(a) ..  
(b) ..

3. SEC Use Only

Citizenship or  
Place of  
4. Organization **United**  
**States**

Number of	5. Sole Voting Power	<b>0 shares</b>
Shares	6. Shared Voting Power	<b>928,195 shares</b>
Beneficially	7. Sole Dispositive Power	<b>0 shares</b>
Owned by	8. Shared Dispositive Power	<b>928,195 shares</b>
Each Reporting		
Person With		

Aggregate Amount Beneficially Owned by Each Reporting Person  
9. **928,195 shares**

10. Check if the Aggregate Amount in Row (9) Excludes ..

Certain Shares (See Instructions)

Percent of Class Represented by Amount in Row (9)

11.  
**9.9%**

Type of Reporting Person (See Instructions)

12.  
**IN**

CUSIP No. **00211Y407 13G**

Names of Reporting Persons.  
I.R.S. Identification Nos. of  
above persons (entities only).

1.

**RA Capital Healthcare  
Fund, L.P.**

Check the Appropriate Box if

2. a Member of a Group (See  
Instructions)

(a) ..

(b) ..

3. SEC Use Only

4. Citizenship or Place of  
Organization **Delaware**

Number of	5. Sole Voting Power	<b>0 shares</b>
Shares	6. Shared Voting Power	<b>746,891 shares</b>
Beneficially	7. Sole Dispositive Power	<b>0 shares</b>
Owned by	8. Shared Dispositive Power	<b>746,891 shares</b>
Each Reporting		
Person With		

Aggregate Amount Beneficially Owned by Each Reporting Person  
9. **746,891 shares**

Check if the Aggregate Amount in Row (9) Excludes ..

10.

Certain Shares (See Instructions)

Percent of Class Represented by Amount in Row (9)  
11. **8.0%**

12. Type of Reporting Person (See Instructions)

**PN (Limited Partnership)**

CUSIP No. **00211Y407**

**Item 1.**

(a) **Name of Issuer:** ARCA biopharma, Inc. (the “Issuer”).

(b) **Address of the Issuer’s Principal Executive Offices:** 11080 CirclePoint Road, Suite 140, Westminster, CO 80020.

**Item 2.**

(a) **Name of Person Filing:** This joint statement on Schedule 13G is being filed by Peter Kolchinsky, RA Capital Management, LLC (“Capital”), and RA Capital Healthcare Fund, L.P. (the “Fund”). Mr. Kolchinsky, Capital and the Fund are collectively referred to herein as the “Reporting Persons.”

(b) **Address of Principal Business Office:** The principal business office of the Reporting Persons is c/o RA Capital Management, LLC, 20 Park Plaza, Suite 1200, Boston, MA 02116.

(c) **Citizenship:** Capital is a Massachusetts limited liability company. The Fund is a Delaware limited partnership. Mr. Kolchinsky is a United States citizen.

(d) **Title and Class of Securities:** Common stock (“Common Stock”).

(e) **CUSIP Number:** 00211Y407

**Item 3.** If this statement is filed pursuant to §§240.13d-1(b) or 240.13d-2(b) or (c), check whether the person filing is a:

Not applicable.

**Item 4. Ownership:**

Provide the following information regarding the aggregate number and percentage of the class of securities of the issuer identified in Item 1.

Amount Beneficially Owned:\*\*

(a)

RA Capital Management, LLC – 928,195 shares

Peter Kolchinsky – 928,195 shares

RA Capital Healthcare Fund, L.P. – 746,891 shares

(b) Percent of Class:\*\*

RA Capital Management, LLC – 9.9%

Peter Kolchinsky – 9.9%

RA Capital Healthcare Fund, L.P. – 8.0%

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(c) Number of shares as to which such person has:

(i) sole power to vote or to direct the vote \*\*

RA Capital Management, LLC - 0 shares

Peter Kolchinsky - 0 shares

RA Capital Healthcare Fund, L.P. - 0 shares

(ii) shared power to vote or to direct the vote\*\*

RA Capital Management, LLC – 928,195 shares

Peter Kolchinsky – 928,195 shares

RA Capital Healthcare Fund, L.P. – 746,891 shares

(iii) sole power to dispose or to direct the disposition of\*\*

RA Capital Management, LLC - 0 shares

Peter Kolchinsky - 0 shares

RA Capital Healthcare Fund, L.P. - 0 shares

(iv) shared power to dispose or to direct the disposition of\*\*

RA Capital Management, LLC – 928,195 shares

Peter Kolchinsky – 928,195 shares

RA Capital Healthcare Fund, L.P. – 746,891 shares

\*\* RA Capital Management, LLC (“Capital”) is the general partner of RA Capital Healthcare Fund, L.P. (the “Fund”) and serves as investment adviser for a separately managed account (the “Account”). Peter Kolchinsky is the manager of Capital. Mr. Kolchinsky, Capital and the Fund are referred to herein collectively as the “Reporting Persons.” As the investment adviser to the Fund and the Account, Capital may be deemed a beneficial owner, for purposes of Section 13(d) of the Securities Exchange Act of 1934 (the “Act”), of any securities of the Issuer owned by the Fund or the Account. As the manager of Capital, Mr. Kolchinsky may be deemed a beneficial owner, for purposes of Section

13(d) of the Act, of any securities of the Issuer beneficially owned by Capital. Capital is a registered investment adviser within the meaning of Rule 13d-1(b)(1)(ii)(E) and Rule 16a-1(a)(v), and Mr. Kolchinsky is a parent or control person of Capital within the meaning of Rule 13d-1(b)(1)(ii)(G) and Rule 16a-1(a)(1)(vii). Capital and Mr. Kolchinsky disclaim beneficial ownership of the securities reported in this Schedule 13G Statement (the "Statement") and this Amendment other than for the purpose of determining their obligations under Section 13(d) of the Act, and neither the filing of the Statement nor the filing of this Amendment shall not be deemed an admission that either Capital or Mr. Kolchinsky is or was the beneficial owner of such securities for any other purpose. Shares reported herein for the Reporting Persons represent shares of Common Stock beneficially owned and shares of Common Stock the Reporting Persons have the right to acquire through the exercise of warrants dated June 16, 2015 ("Warrant Shares") beneficially owned as set forth below. In the aggregate, the Fund and the Account own 324,490 Warrant Shares. The Warrant Shares may not be converted such that after such conversion the number of shares of Common Stock held by the Reporting Persons, which for purposes hereof, shall include the Account, exceeds 9.9% of the outstanding shares of Common Stock of the Issuer, in the aggregate. Shares reported herein for Capital represent (a) the above-referenced shares of Common Stock and exercised Warrant Shares as reported for the Fund, for which Capital serves as the sole general partner, and (b) shares of Common Stock and exercised Warrant Shares held in the Account for which Capital serves as investment adviser. Shares reported herein for Mr. Kolchinsky represent the above-referenced shares of Common Stock and exercised Warrant Shares reported for Capital, for which Mr. Kolchinsky serves as the manager.

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**Item 5. Ownership of Five Percent or Less of a Class:**

Not applicable.

**Item 6. Ownership of More than Five Percent on Behalf of Another Person:**

Not applicable.

**Item 7. Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on By the Parent Holding Company or Control Person:**

Not applicable.

**Item 8. Identification and Classification of Members of the Group:**

Not applicable.

**Item 9. Notice of Dissolution of Group:**

Not applicable.

**Item 10. Certification:**

By signing below I hereby certify that, to the best of my knowledge and belief, the securities referred to above were not acquired and are not held for the purpose of or with the effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect.

Exhibits

<sup>1</sup> Joint Filing Agreement by and among the Reporting Persons is incorporated herein by reference to Exhibit 1 to the Schedule 13G filed by the Reporting Persons with the Securities and Exchange Commission on June 25, 2015.

**SIGNATURE**

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Date: February 16,  
2016

RA CAPITAL  
MANAGEMENT,  
LLC

By: /s/ Rajeev Shah  
Rajeev Shah  
Authorized  
Signatory

PETER  
KOLCHINSKY

/s/ Peter  
Kolchinsky

RA CAPITAL  
HEALTHCARE  
FUND, L.P.

By: RA Capital  
Management, LLC  
Its: General Partner

By: /s/ Rajeev Shah  
Rajeev Shah  
Authorized  
Signatory