

ARCA biopharma, Inc.
Form SC 13G
June 25, 2015

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549

SCHEDULE 13G
Under the Securities Exchange Act of 1934

(Amendment No.)*

ARCA biopharma, Inc.

(Name of Issuer)

Common stock

(Title of Class of Securities)

00211Y100

(CUSIP Number)

June 16, 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 disclosures provided in a prior cover page.

The information required on 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).

SCHEDULE 13G

CUSIP No. 00211Y100

Page 2 of 15 Pages

1 Names of reporting persons.

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

Venrock Healthcare Capital Partners, L.P.

2 Check the appropriate box if a member of a group (see instructions)

(a) (b)

3 SEC use only

4 Citizenship or place of organization

Delaware

5 Sole voting power

Number of

shares 0
6 Shared voting power

beneficially

owned by 10,789,324²
each 7 Sole dispositive power

reporting

person 0
8 Shared dispositive power
with

10,789,324²

9 Aggregate amount beneficially owned by each reporting person

10,789,324²

10 Check if the aggregate amount in Row (9) excludes certain shares (see instructions)

N/A

11 Percent of class represented by amount in Row (9)

17.1%³

12 Type of reporting person (see instructions)

PN

1. Venrock Healthcare Capital Partners, L.P. (VHCP); Venrock Healthcare Capital Partners II, L.P. (VHCP II); VCHP Co-Investment Holdings, LLC (Co-Invest); VHCP Co-Investment Holdings II, LLC (Co-Invest II); VCHP Management, LLC; VCHP Management II, LLC; Anders Hove and Bong Koh are members of a group for the purposes of this Schedule 13G.
2. Consists of: 2,736,388 shares of common stock held directly by VHCP; 5,373,623 shares of common stock held directly by VHCP II; 500,409 shares of common stock held directly by Co-Invest; and 2,178,904 shares of common stock held directly by Co-Invest II.
3. This percentage is calculated based upon the number of the Issuer's total outstanding shares equal to the sum of (i) 21,198,411 shares of the Issuer's common stock outstanding as of May 11, 2015, as set forth in the Issuer's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on May 12, 2015 and (ii) 42,021,579 shares of common stock issued on June 16, 2015.

SCHEDULE 13G

CUSIP No. 00211Y100

Page 3 of 15 Pages

1 Names of reporting persons.

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

Venrock Healthcare Capital Partners II, L.P.

2 Check the appropriate box if a member of a group (see instructions)

(a) (b)

3 SEC use only

4 Citizenship or place of organization

Delaware

5 Sole voting power

Number of

shares 0
6 Shared voting power

beneficially

owned by 10,789,324²
each 7 Sole dispositive power

reporting

person 0
8 Shared dispositive power
with

10,789,324²

9 Aggregate amount beneficially owned by each reporting person

10,789,324²

10 Check if the aggregate amount in Row (9) excludes certain shares (see instructions)

N/A

11 Percent of class represented by amount in Row (9)

17.1%³

12 Type of reporting person (see instructions)

PN

1. Venrock Healthcare Capital Partners, L.P. (VHCP); Venrock Healthcare Capital Partners II, L.P. (VHCP II); VCHP Co-Investment Holdings, LLC (Co-Invest); VHCP Co-Investment Holdings II, LLC (Co-Invest II); VCHP Management, LLC; VCHP Management II, LLC; Anders Hove and Bong Koh are members of a group for the purposes of this Schedule 13G.
2. Consists of: 2,736,388 shares of common stock held directly by VHCP; 5,373,623 shares of common stock an held directly by VHCP II; 500,409 shares of common stock held directly by Co-Invest; and 2,178,904 shares of common stock held directly by Co-Invest II.
3. This percentage is calculated based upon the number of the Issuer s total outstanding shares equal to the sum of (i) 21,198,411 shares of the Issuer s common stock outstanding as of May 11, 2015, as set forth in the Issuer s Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on May 12, 2015 and (ii) 42,021,579 shares of common stock issued on June 16, 2015.

SCHEDULE 13G

CUSIP No. 00211Y100

Page 4 of 15 Pages

1 Names of reporting persons.

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

VHCP Co-Investment Holdings, LLC

2 Check the appropriate box if a member of a group (see instructions)

(a) (b)

3 SEC use only

4 Citizenship or place of organization

Delaware

5 Sole voting power

Number of

shares 0
6 Shared voting power

beneficially

owned by 10,789,324²
each 7 Sole dispositive power

reporting

person 0
8 Shared dispositive power

with

10,789,324²

9 Aggregate amount beneficially owned by each reporting person

10,789,324²

10 Check if the aggregate amount in Row (9) excludes certain shares (see instructions)

N/A

11 Percent of class represented by amount in Row (9)

17.1%³

12 Type of reporting person (see instructions)

OO

1. Venrock Healthcare Capital Partners, L.P. (VHCP); Venrock Healthcare Capital Partners II, L.P. (VHCP II); VCHP Co-Investment Holdings, LLC (Co-Invest); VHCP Co-Investment Holdings II, LLC (Co-Invest II); VCHP Management, LLC; VCHP Management II, LLC, Anders Hove and Bong Koh are members of a group for the purposes of this Schedule 13G.
2. Consists of: 2,736,388 shares of common stock held directly by VHCP; 5,373,623 shares of common stock held directly by VHCP II; 500,409 shares of common stock held directly by Co-Invest; and 2,178,904 shares of common stock held directly by Co-Invest II.
3. This percentage is calculated based upon the number of the Issuer's total outstanding shares equal to the sum of (i) 21,198,411 shares of the Issuer's common stock outstanding as of May 11, 2015, as set forth in the Issuer's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on May 12, 2015 and (ii) 42,021,579 shares of common stock issued on June 16, 2015.

SCHEDULE 13G

CUSIP No. 00211Y100

Page 5 of 15 Pages

1 Names of reporting persons.

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

VHCP Co-Investment Holdings II, LLC

2 Check the appropriate box if a member of a group (see instructions)

(a) (b)

3 SEC use only

4 Citizenship or place of organization

Delaware

5 Sole voting power

Number of

shares 0
6 Shared voting power

beneficially

owned by 10,789,324²
each 7 Sole dispositive power

reporting

person 0
8 Shared dispositive power
with

10,789,324²

9 Aggregate amount beneficially owned by each reporting person

10,789,324²

10 Check if the aggregate amount in Row (9) excludes certain shares (see instructions)

N/A

11 Percent of class represented by amount in Row (9)

17.1%³

12 Type of reporting person (see instructions)

OO

1. Venrock Healthcare Capital Partners, L.P. (VHCP); Venrock Healthcare Capital Partners II, L.P. (VHCP II); VCHP Co-Investment Holdings, LLC (Co-Invest); VHCP Co-Investment Holdings II, LLC (Co-Invest II); VCHP Management, LLC; VCHP Management II, LLC; Anders Hove and Bong Koh are members of a group for the purposes of this Schedule 13G.
2. Consists of: 2,736,388 shares of common stock held directly by VHCP; 5,373,623 shares of common stock held directly by VHCP II; 500,409 shares of common stock held directly by Co-Invest; and 2,178,904 shares of common stock held directly by Co-Invest II.
3. This percentage is calculated based upon the number of the Issuer's total outstanding shares equal to the sum of (i) 21,198,411 shares of the Issuer's common stock outstanding as of May 11, 2015, as set forth in the Issuer's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on May 12, 2015 and (ii) 42,021,579 shares of common stock issued on June 16, 2015.

1 Names of reporting persons.

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

VHCP Management, LLC

2 Check the appropriate box if a member of a group (see instructions)

(a) (b)

3 SEC use only

4 Citizenship or place of organization

Delaware

5 Sole voting power

Number of

shares 0
6 Shared voting power

beneficially

owned by 10,789,324²
each 7 Sole dispositive power

reporting

person 0
8 Shared dispositive power

with

10,789,324²

9 Aggregate amount beneficially owned by each reporting person

10,789,324²

10 Check if the aggregate amount in Row (9) excludes certain shares (see instructions)

N/A

11 Percent of class represented by amount in Row (9)

17.1%³

12 Type of reporting person (see instructions)

OO

1. Venrock Healthcare Capital Partners, L.P. (VHCP); Venrock Healthcare Capital Partners II, L.P. (VHCP II); VCHP Co-Investment Holdings, LLC (Co-Invest); VHCP Co-Investment Holdings II, LLC (Co-Invest II); VCHP Management, LLC; VCHP Management II, LLC; Anders Hove and Bong Koh are members of a group for the purposes of this Schedule 13G.
2. Consists of: 2,736,388 shares of common stock held directly by VHCP; 5,373,623 shares of common stock held directly by VHCP II; 500,409 shares of common stock held directly by Co-Invest; and 2,178,904 shares of common stock held directly by Co-Invest II.
3. This percentage is calculated based upon the number of the Issuer's total outstanding shares equal to the sum of (i) 21,198,411 shares of the Issuer's common stock outstanding as of May 11, 2015, as set forth in the Issuer's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on May 12, 2015 and (ii) 42,021,579 shares of common stock issued on June 16, 2015

1 Names of reporting persons.

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

VHCP Management II, LLC

2 Check the appropriate box if a member of a group (see instructions)

(a) ¹ (b) ²

3 SEC use only

4 Citizenship or place of organization

Delaware

5 Sole voting power

Number of

shares 6 Shared voting power

beneficially

owned by 7 Sole dispositive power
each

reporting

person 8 Shared dispositive power

with

9 Aggregate amount beneficially owned by each reporting person

10 Check if the aggregate amount in Row (9) excludes certain shares (see instructions)

N/A

11 Percent of class represented by amount in Row (9)

17.1%³

12 Type of reporting person (see instructions)

OO

1. Venrock Healthcare Capital Partners, L.P. (VHCP); Venrock Healthcare Capital Partners II, L.P. (VHCP II); VCHP Co-Investment Holdings, LLC (Co-Invest); VHCP Co-Investment Holdings II, LLC (Co-Invest II); VCHP Management, LLC; VCHP Management II, LLC; Anders Hove and Bong Koh are members of a group for the purposes of this Schedule 13G.
2. Consists of: 2,736,388 shares of common stock held directly by VHCP; 5,373,623 shares of common stock held directly by VHCP II; 500,409 shares of common stock held directly by Co-Invest; and 2,178,904 shares of common stock held directly by Co-Invest II.
3. This percentage is calculated based upon the number of the Issuer's total outstanding shares equal to the sum of (i) 21,198,411 shares of the Issuer's common stock outstanding as of May 11, 2015, as set forth in the Issuer's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on May 12, 2015 and (ii) 42,021,579 shares of common stock issued on June 16, 2015.

SCHEDULE 13G

CUSIP No. 00211Y100

Page 8 of 15 Pages

1 Names of reporting persons.

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

Koh, Bong

2 Check the appropriate box if a member of a group (see instructions)

(a) (b)

3 SEC use only

4 Citizenship or place of organization

United States

5 Sole voting power

Number of

shares 0
6 Shared voting power

beneficially

owned by 10,789,324²
each 7 Sole dispositive power

reporting

person 0
8 Shared dispositive power
with

10,789,324²

9 Aggregate amount beneficially owned by each reporting person

10,789,324²

10 Check if the aggregate amount in Row (9) excludes certain shares (see instructions)

N/A

11 Percent of class represented by amount in Row (9)

17.1%³

12 Type of reporting person (see instructions)

IN

1. Venrock Healthcare Capital Partners, L.P. (VHCP); Venrock Healthcare Capital Partners II, L.P. (VHCP II); VCHP Co-Investment Holdings, LLC (Co-Invest); VHCP Co-Investment Holdings II, LLC (Co-Invest II); VCHP Management, LLC; VCHP Management II, LLC; Anders Hove and Bong Koh are members of a group for the purposes of this Schedule 13G.
2. Consists of: 2,736,388 shares of common stock held directly by VHCP; 5,373,623 shares of common stock held directly by VHCP II; 500,409 shares of common stock held directly by Co-Invest; and 2,178,904 shares of common stock held directly by Co-Invest II.
3. This percentage is calculated based upon the number of the Issuer's total outstanding shares equal to the sum of (i) 21,198,411 shares of the Issuer's common stock outstanding as of May 11, 2015, as set forth in the Issuer's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on May 12, 2015 and (ii) 42,021,579 shares of common stock issued on June 16, 2015.

SCHEDULE 13G

CUSIP No. 00211Y100

Page 9 of 15 Pages

1 Names of reporting persons.

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

Hove, Anders

2 Check the appropriate box if a member of a group (see instructions)

(a) (b)

3 SEC use only

4 Citizenship or place of organization

United States

5 Sole voting power

Number of

shares 0
6 Shared voting power

beneficially

owned by 10,789,324²
each 7 Sole dispositive power

reporting

person 0
8 Shared dispositive power
with

10,789,324²

9 Aggregate amount beneficially owned by each reporting person

10,789,324²

10 Check if the aggregate amount in Row (9) excludes certain shares (see instructions)

N/A

11 Percent of class represented by amount in Row (9)

17.1%³

12 Type of reporting person (see instructions)

IN

1. Venrock Healthcare Capital Partners, L.P. (VHCP); Venrock Healthcare Capital Partners II, L.P. (VHCP II); VCHP Co-Investment Holdings, LLC (Co-Invest); VHCP Co-Investment Holdings II, LLC (Co-Invest II); VCHP Management, LLC; VCHP Management II, LLC; Anders Hove and Bong Koh are members of a group for the purposes of this Schedule 13G.
2. Consists of: 2,736,388 shares of common stock held directly by VHCP; 5,373,623 shares of common stock held directly by VHCP II; 500,409 shares of common stock held directly by Co-Invest; and 2,178,904 shares of common stock held directly by Co-Invest II.
3. This percentage is calculated based upon the number of the Issuer's total outstanding shares equal to the sum of (i) 21,198,411 shares of the Issuer's common stock outstanding as of May 11, 2015, as set forth in the Issuer's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on May 12, 2015 and (ii) 42,021,579 shares of common stock issued on June 16, 2015.

SCHEDULE 13G

CUSIP No. 00211Y100

Page 10 of 15 Pages

Introductory Note: This Schedule 13G is filed on behalf of Venrock Healthcare Capital Partners, L.P., a limited partnership organized under the laws of the state of Delaware, Venrock Capital Partners II, L.P., a limited partnership organized under the laws of the state of Delaware, VCHP Co-Investment Holdings, LLC., a limited liability company organized under the laws of the state of Delaware, VHCP Co-Investment Holdings II, LLC, a limited liability company organized under the laws of the state of Delaware, VCHP Management, LLC, a limited liability company organized under the laws of the state of Delaware, VCHP Management II, LLC, a limited liability company organized under the laws of the state of Delaware, Anders Hove and Bong Koh in respect of the shares of common stock of ARCA biopharma, Inc.

Item 1.

(a) Name of Issuer:

ARCA biopharma, Inc.

(b) Address of Issuer s Principal Executive Offices:

11080 CirclePoint Road, Suite 140

Westminster, CO 80020

Item 2.

(a) Name of Persons Filing:

Venrock Healthcare Capital Partners, L.P.

Venrock Healthcare Capital Partners II, L.P.

VHCP Co-Investment Holdings, LLC

VHCP Co-Investment Holdings II, LLC

VHCP Management, LLC

VHCP Management II, LLC

Anders Hove

Bong Koh

(b) **Address of Principal Business Office or, if none, Residence:**

New York Office

530 Fifth Avenue
22nd Floor
New York, NY 10036

Palo Alto Office

3340 Hillview Avenue
Palo Alto, CA 94304

Cambridge Office

55 Cambridge Parkway
Suite 100
Cambridge MA, 02142

CUSIP No. 00211Y100

Page 11 of 15 Pages

(c) Citizenship:

All entities are organized in Delaware. The individuals are both United States citizens.

(d) Title of Class of Securities:

Common Stock

(e) CUSIP Number:

00211Y100

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.

SCHEDULE 13G

CUSIP No. 00211Y100Page 12 of 15 Pages**Item 4. Ownership:**

(a) Amount beneficially owned as of June 16, 2015:

Venrock Healthcare Capital Partners, L.P.	10,789,324 ⁽¹⁾
Venrock Healthcare Capital Partners II, L.P.	10,789,324 ⁽¹⁾
VHCP Co-Investment Holdings, LLC	10,789,324 ⁽¹⁾
VHCP Co-Investment Holdings, LLC	10,789,324 ⁽¹⁾
VHCP Management, LLC	10,789,324 ⁽¹⁾
VHCP Management II, LLC	10,789,324 ⁽¹⁾
Anders Hove	10,789,324 ⁽¹⁾
Bong Koh	10,789,324 ⁽¹⁾

(b) Percent of class as of June 16, 2015:

Venrock Healthcare Capital Partners, L.P.	17.1%
Venrock Healthcare Capital Partners II, L.P.	17.1%
VHCP Co-Investment Holdings, LLC	17.1%
VHCP Co-Investment Holdings II, LLC	17.1%
VHCP Management, LLC	17.1%
VHCP Management II, LLC	17.1%
Anders Hove	17.1%
Bong Koh	17.1%

(c) Number of shares to which the person has as of June 16, 2015:

(i) Sole power to vote or to direct the vote:

Venrock Healthcare Capital Partners, L.P.	0
Venrock Healthcare Capital Partners II, L.P.	0
VHCP Co-Investment Holdings, LLC	0
VHCP Co-Investment Holdings II, LLC	0
VHCP Management, LLC	0
VHCP Management II, LLC	0
Anders Hove	0
Bong Koh	0

(ii) Shared power to vote or to direct the vote:

Venrock Healthcare Capital Partners, L.P.	10,789,324 ⁽¹⁾
Venrock Healthcare Capital Partners II, L.P.	10,789,324 ⁽¹⁾
VHCP Co-Investment Holdings, LLC	10,789,324 ⁽¹⁾
VHCP Co-Investment Holdings II, LLC	10,789,324 ⁽¹⁾
VHCP Management, LLC	10,789,324 ⁽¹⁾
VHCP Management II, LLC	10,789,324 ⁽¹⁾
Anders Hove	10,789,324 ⁽¹⁾
Bong Koh	10,789,324 ⁽¹⁾

(iii) Sole power to dispose or to direct the disposition of:

Venrock Healthcare Capital Partners, L.P.	0
Venrock Healthcare Capital Partners II, L.P.	0
VHCP Co-Investment Holdings, LLC	0
VHCP Co-Investment Holdings II, LLC	0
VHCP Management, LLC	0
VHCP Management II, LLC	0
Anders Hove	0
Bong Koh	0

(iv) Shared power to dispose or to direct the disposition of:

Venrock Healthcare Capital Partners, L.P.	10,789,324 ⁽¹⁾
Venrock Healthcare Capital Partners II, L.P.	10,789,324 ⁽¹⁾
VHCP Co-Investment Holdings, LLC	10,789,324 ⁽¹⁾
VHCP Co-Investment Holdings II, LLC	10,789,324 ⁽¹⁾
VHCP Management, LLC	10,789,324 ⁽¹⁾
VHCP Management II, LLC	10,789,324 ⁽¹⁾
Anders Hove	10,789,324 ⁽¹⁾
Bong Koh	10,789,324 ⁽¹⁾

- (1) These shares are owned directly as follows: 2,736,388 shares of common stock are owned by Venrock Healthcare Capital Partners, L.P. (VHCP); 5,373,623 shares of common stock are owned by Venrock Healthcare Capital Partners II, L.P. (VHCP II); 500,409 shares of common stock are owned by VHCP Co-Investment Holdings, LLC (Co-Invest); and 2,178,904 shares of common stock are owned by VHCP Co-Investment Holdings II, LLC (Co-Invest II). VHCP Management, LLC is the general partner of VHCP and the manager of Co-Invest. VHCP Management II, LLC is the general partner of VHCP II and the manager of Co-Invest II. Messrs. Hove and Koh are the managing members of VHCP Management, LLC and VHCP Management II, LLC.

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

If this statement is being filed to report the fact that as of the date hereof the reporting person has ceased to be the beneficial owner of more than five percent of the class of securities, check the following "

SCHEDULE 13G

CUSIP No. 00211Y100

Page 14 of 15 Pages

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:

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 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.

SCHEDULE 13G

CUSIP No. 00211Y100

Page 15 of 15 Pages

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: June 25, 2015

Venrock Healthcare Capital Partners, L.P.

By: VHCP Management, LLC
Its: Manager

By: /s/ David L. Stepp
Name: David L. Stepp
Its: Authorized Signatory

VHCP Co-Investment Holdings, LLC

By: VHCP Management, LLC
Its: Manager

By: /s/ David L. Stepp
Name: David L. Stepp
Its: Authorized Signatory

VHCP Management, LLC

By: /s/ David L. Stepp
Name: David L. Stepp
Its: Authorized Signatory

Anders Hove

By: /s/ David L. Stepp
David L. Stepp, as attorney-in-fact

Venrock Healthcare Capital Partners II, L.P.

By: VHCP Management II, LLC
Its: General Partner

By: /s/ David L. Stepp
Name: David L. Stepp
Its: Authorized Signatory

VHCP Co-Investment Holdings II, LLC

By: VHCP Management II, LLC
Its: General Partner

By: /s/ David L. Stepp
Name: David L. Stepp
Its: Authorized Signatory

VHCP Management II, LLC

By: /s/ David L. Stepp
Name: David L. Stepp
Its: Authorized Signatory

Bong Koh

By: /s/ David L. Stepp
David L. Stepp, as attorney-in-fact

EXHIBITS

A: Joint Filing Agreement