

ARCA biopharma, Inc.  
Form SC 13G/A  
February 14, 2018

**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, DC 20549**

**SCHEDULE 13G/A**

**Under the Securities Exchange Act of 1934  
(Amendment No. 2)\***

**ARCA biopharma, Inc.**

(Name of Issuer)

**Common stock**

(Title of Class of Securities)

**00211Y100**

(CUSIP Number)

**December 31, 2017**

(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).

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CUSIP No. 00211Y100

|   |   |  |
|---|---|--|
| 1   | Names of Reporting Persons<br>Venrock Healthcare Capital Partners, L.P.             |  |
| 2   | Check the Appropriate Box if a Member of a Group (See Instructions)                 |  |
|   | (a) <input checked="" type="checkbox"/> (1)   |  |
|   | (b) <input type="checkbox"/> (0)  |  |
| 3   | SEC Use Only  |  |
| 4   | Citizenship or Place of Organization<br>Delaware                                    |  |
| Number of<br>Shares<br>Beneficially<br>Owned by<br>Each<br>Reporting<br>Person With | 5   | Sole Voting Power<br>0                   |
|   | 6   | Shared Voting Power<br>2,157,864(2)      |
|   | 7   | Sole Dispositive Power<br>0              |
|   | 8   | Shared Dispositive Power<br>2,157,864(2) |
| 9   | Aggregate Amount Beneficially Owned by Each Reporting Person<br>2,157,864(2)        |  |
| 10  | Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions) | <input type="checkbox"/> (0)             |
| 11  | Percent of Class Represented by Amount in Row (9)<br>17.4%(3)                       |  |
| 12  | Type of Reporting Person (See Instructions)<br>PN                                   |  |

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(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; Nimish Shah and Bong Koh are members of a group for the purposes of this Schedule 13G/A.

(2) Consists of: (i) 390,912 shares of common stock held directly by VHCP and 156,365 shares of common stock currently exercisable under a warrant held by VHCP; (ii) 767,660 shares of common stock held directly by VHCP II and 307,064 shares of common stock currently exercisable under a warrant held by VHCP II; (iii) 71,487 shares of common stock held directly by Co-Invest and 28,595 shares of common stock currently exercisable under a warrant held by Co-Invest; and (iv) 311,272 shares of common stock held directly by Co-Invest II and 124,509 shares of common stock currently exercisable under a warrant held by Co-Invest II.

(3) This percentage is calculated based upon (i) 11,750,977 shares of the Issuer's common stock outstanding as of November 7, 2017, as set forth in the Issuer's Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on November 9, 2017, plus (ii) 616,533 shares of common stock underlying currently exercisable warrants held by the Reporting Persons.



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|   |   |   |                        |   |                                     |   |                             |   |  |
|---|---|---|------------------------|---|-------------------------------------|---|-----------------------------|---|--|
| 1   | Names of Reporting Persons.<br>Venrock Healthcare Capital Partners II, L.P.   |   |                        |   |                                     |   |                             |   |  |
| 2   | Check the Appropriate Box if a Member of a Group (See Instructions)<br>(a) <input checked="" type="checkbox"/> (1)<br>(b) <input type="checkbox"/> (0)  |   |                        |   |                                     |   |                             |   |  |
| 3   | SEC Use Only  |   |                        |   |                                     |   |                             |   |  |
| 4   | Citizenship or Place of Organization<br>Delaware  |   |                        |   |                                     |   |                             |   |  |
| Number of<br>Shares<br>Beneficially<br>Owned by<br>Each<br>Reporting<br>Person With | <table border="0"> <tr> <td style="vertical-align: top;">5</td> <td style="vertical-align: top;">Sole Voting Power<br/>0</td> </tr> <tr> <td style="vertical-align: top;">6</td> <td style="vertical-align: top;">Shared Voting Power<br/>2,157,864(2)</td> </tr> <tr> <td style="vertical-align: top;">7</td> <td style="vertical-align: top;">Sole Dispositive Power<br/>0</td> </tr> <tr> <td style="vertical-align: top;">8</td> <td style="vertical-align: top;">Shared Dispositive Power<br/>2,157,864(2)</td> </tr> </table> | 5 | Sole Voting Power<br>0 | 6 | Shared Voting Power<br>2,157,864(2) | 7 | Sole Dispositive Power<br>0 | 8 | Shared Dispositive Power<br>2,157,864(2) |
| 5   | Sole Voting Power<br>0  |   |                        |   |                                     |   |                             |   |  |
| 6   | Shared Voting Power<br>2,157,864(2)   |   |                        |   |                                     |   |                             |   |  |
| 7   | Sole Dispositive Power<br>0   |   |                        |   |                                     |   |                             |   |  |
| 8   | Shared Dispositive Power<br>2,157,864(2)  |   |                        |   |                                     |   |                             |   |  |
| 9   | Aggregate Amount Beneficially Owned by Each Reporting Person<br>2,157,864(2)  |   |                        |   |                                     |   |                             |   |  |
| 10  | Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions) <input type="checkbox"/> (0)  |   |                        |   |                                     |   |                             |   |  |
| 11  | Percent of Class Represented by Amount in Row (9)<br>17.4%(3)   |   |                        |   |                                     |   |                             |   |  |
| 12  | Type of Reporting Person (See Instructions)<br>PN   |   |                        |   |                                     |   |                             |   |  |

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(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; Nimish Shah and Bong Koh are members of a group for the purposes of this Schedule 13G/A.

(2) Consists of: (i) 390,912 shares of common stock held directly by VHCP and 156,365 shares of common stock currently exercisable under a warrant held by VHCP; (ii) 767,660 shares of common stock held directly by VHCP II and 307,064 shares of common stock currently exercisable under a warrant held by VHCP II; (iii) 71,487 shares of common stock held directly by Co-Invest and 28,595 shares of common stock currently exercisable under a warrant held by Co-Invest; and (iv) 311,272 shares of common stock held directly by Co-Invest II and 124,509 shares of common stock currently exercisable under a warrant held by Co-Invest II.

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|   |  |  |
|---|--|--|
| 1   | Names of Reporting Persons.<br>VHCP Co-Investment Holdings, LLC  |  |
| 2   | Check the Appropriate Box if a Member of a Group (See Instructions)<br>(a) <input checked="" type="checkbox"/> (1)<br>(b) <input type="checkbox"/> (0) |  |
| 3   | SEC Use Only   |  |
| 4   | Citizenship or Place of Organization<br>Delaware   |  |
| Number of<br>Shares<br>Beneficially<br>Owned by<br>Each<br>Reporting<br>Person With | 5  | Sole Voting Power<br>0                   |
|   | 6  | Shared Voting Power<br>2,157,864(2)      |
|   | 7  | Sole Dispositive Power<br>0              |
|   | 8  | Shared Dispositive Power<br>2,157,864(2) |
| 9   | Aggregate Amount Beneficially Owned by Each Reporting Person<br>2,157,864(2)   |  |
| 10  | Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions) <input type="checkbox"/>   |  |
| 11  | Percent of Class Represented by Amount in Row (9)<br>17.4%(3)  |  |
| 12  | Type of Reporting Person (See Instructions)<br>OO  |  |

(1) Venrock Healthcare Capital Partners, L.P. ( VHCP ); Venrock Healthcare Capital Partners II, L.P. ( VHCP II ); VHCP Co-Investment Holdings, LLC ( Co-Invest ); VHCP Co-Investment Holdings II, LLC ( Co-Invest II ); VCHP Management, LLC; VCHP Management II, LLC; Nimish Shah and Bong Koh are members of a group for the purposes of this Schedule 13G/A.

(2) Consists of: (i) 390,912 shares of common stock held directly by VHCP and 156,365 shares of common stock currently exercisable under a warrant held by VHCP; (ii) 767,660 shares of common stock held directly by VHCP II and 307,064 shares of common stock currently exercisable under a warrant held by VHCP II; (iii) 71,487 shares of common stock held directly by Co-Invest and 28,595 shares of common stock currently exercisable under a warrant held by Co-Invest; and (iv) 311,272 shares of common stock held directly by Co-Invest II and 124,509 shares of common stock currently exercisable under a warrant held by Co-Invest II.

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|   |  |  |
|---|--|--|
| 1   | Names of Reporting Persons.<br>VHCP Co-Investment Holdings II, LLC   |  |
| 2   | Check the Appropriate Box if a Member of a Group (See Instructions)<br>(a) <input checked="" type="checkbox"/> (1)<br>(b) <input type="checkbox"/> (0) |  |
| 3   | SEC Use Only   |  |
| 4   | Citizenship or Place of Organization<br>Delaware   |  |
| Number of<br>Shares<br>Beneficially<br>Owned by<br>Each<br>Reporting<br>Person With | 5  | Sole Voting Power<br>0                   |
|   | 6  | Shared Voting Power<br>2,157,864(2)      |
|   | 7  | Sole Dispositive Power<br>0              |
|   | 8  | Shared Dispositive Power<br>2,157,864(2) |
| 9   | Aggregate Amount Beneficially Owned by Each Reporting Person<br>2,157,864(2)   |  |
| 10  | Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions) <input type="checkbox"/>   |  |
| 11  | Percent of Class Represented by Amount in Row (9)<br>17.4%(3)  |  |
| 12  | Type of Reporting Person (See Instructions)<br>OO  |  |

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|   |   |  |
|---|---|--|
| 1   | Names of Reporting Persons.<br>VHCP Management, LLC                                 |  |
| 2   | Check the Appropriate Box if a Member of a Group (See Instructions)                 |  |
|   | (a) <input checked="" type="checkbox"/> (1)   |  |
|   | (b) <input type="checkbox"/> (0)  |  |
| 3   | SEC Use Only  |  |
| 4   | Citizenship or Place of Organization<br>Delaware                                    |  |
| Number of<br>Shares<br>Beneficially<br>Owned by<br>Each<br>Reporting<br>Person With | 5   | Sole Voting Power<br>0                   |
|   | 6   | Shared Voting Power<br>2,157,864(2)      |
|   | 7   | Sole Dispositive Power<br>0              |
|   | 8   | Shared Dispositive Power<br>2,157,864(2) |
| 9   | Aggregate Amount Beneficially Owned by Each Reporting Person<br>2,157,864(2)        |  |
| 10  | Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions) | <input type="checkbox"/> (0)             |
| 11  | Percent of Class Represented by Amount in Row (9)<br>17.4%(3)                       |  |
| 12  | Type of Reporting Person (See Instructions)<br>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; Nimish Shah and Bong Koh are members of a group for the purposes of this Schedule 13G/A.

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CUSIP No. 00211Y100

|   |   |  |
|---|---|--|
| 1   | Names of Reporting Persons.<br>VHCP Management II, LLC                              |  |
| 2   | Check the Appropriate Box if a Member of a Group (See Instructions)                 |  |
|   | (a) <input checked="" type="checkbox"/> (1)   |  |
|   | (b) <input type="checkbox"/> (0)  |  |
| 3   | SEC Use Only  |  |
| 4   | Citizenship or Place of Organization<br>Delaware                                    |  |
| Number of<br>Shares<br>Beneficially<br>Owned by<br>Each<br>Reporting<br>Person With | 5   | Sole Voting Power<br>0                   |
|   | 6   | Shared Voting Power<br>2,157,864(2)      |
|   | 7   | Sole Dispositive Power<br>0              |
|   | 8   | Shared Dispositive Power<br>2,157,864(2) |
| 9   | Aggregate Amount Beneficially Owned by Each Reporting Person<br>2,157,864(2)        |  |
| 10  | Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions) | <input type="checkbox"/> (0)             |
| 11  | Percent of Class Represented by Amount in Row (9)<br>17.4%(3)                       |  |
| 12  | Type of Reporting Person (See Instructions)<br>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; Nimish Shah and Bong Koh are members of a group for the purposes of this Schedule 13G/A.

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|    |   |                              |
|----|---|------------------------------|
| 1  | Names of Reporting Persons.<br>Shah, Nimish   |                              |
| 2  | Check the Appropriate Box if a Member of a Group (See Instructions)                 |                              |
|    | (a) <input checked="" type="checkbox"/> (1)   |                              |
|    | (b) <input type="checkbox"/> (0)  |                              |
| 3  | SEC Use Only  |                              |
| 4  | Citizenship or Place of Organization<br>United States                               |                              |
| 5  | Sole Voting Power   | 0                            |
| 6  | Shared Voting Power   | 2,157,864(2)                 |
| 7  | Sole Dispositive Power  | 0                            |
| 8  | Shared Dispositive Power  | 2,157,864(2)                 |
| 9  | Aggregate Amount Beneficially Owned by Each Reporting Person<br>2,157,864(2)        |                              |
| 10 | Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions) | <input type="checkbox"/> (0) |
| 11 | Percent of Class Represented by Amount in Row (9)<br>17.4%(3)                       |                              |
| 12 | Type of Reporting Person (See Instructions)<br>IN                                   |                              |

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(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; Nimish Shah and Bong Koh are members of a group for the purposes of this Schedule 13G/A.

(2) Consists of: (i) 390,912 shares of common stock held directly by VHCP and 156,365 shares of common stock currently exercisable under a warrant held by VHCP; (ii) 767,660 shares of common stock held directly by VHCP II and 307,064 shares of common stock currently exercisable under a warrant held by VHCP II; (iii) 71,487 shares of common stock held directly by Co-Invest and 28,595 shares of common stock currently exercisable under a warrant held by Co-Invest; and (iv) 311,272 shares of common stock held directly by Co-Invest II and 124,509 shares of common stock currently exercisable under a warrant held by Co-Invest II.

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CUSIP No. 00211Y100

|   |  |  |
|---|--|--|
| 1   | Names of Reporting Persons.<br>Koh, Bong   |  |
| 2   | Check the Appropriate Box if a Member of a Group (See Instructions)<br>(a) <input checked="" type="checkbox"/> (1)<br>(b) <input type="checkbox"/> o |  |
| 3   | SEC Use Only   |  |
| 4   | Citizenship or Place of Organization<br>United States  |  |
| Number of<br>Shares<br>Beneficially<br>Owned by<br>Each<br>Reporting<br>Person With | 5  | Sole Voting Power<br>0                   |
|   | 6  | Shared Voting Power<br>2,157,864(2)      |
|   | 7  | Sole Dispositive Power<br>0              |
|   | 8  | Shared Dispositive Power<br>2,157,864(2) |
| 9   | Aggregate Amount Beneficially Owned by Each Reporting Person<br>2,157,864(2)   |  |
| 10  | Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions) <input type="checkbox"/> o                                       |  |
| 11  | Percent of Class Represented by Amount in Row (9)<br>17.4%(3)  |  |
| 12  | Type of Reporting Person (See Instructions)<br>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; Nimish Shah and Bong Koh are members of a group for the purposes of this Schedule 13G/A.

(2) Consists of: (i) 390,912 shares of common stock held directly by VHCP and 156,365 shares of common stock currently exercisable under a warrant held by VHCP; (ii) 767,660 shares of common stock held directly by VHCP II and 307,064 shares of common stock currently exercisable under a warrant held by VHCP II; (iii) 71,487 shares of common stock held directly by Co-Invest and 28,595 shares of common stock currently exercisable under a warrant held by Co-Invest; and (iv) 311,272 shares of common stock held directly by Co-Invest II and 124,509 shares of common stock currently exercisable under a warrant held by Co-Invest II.

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|                     |
|---------------------|
| CUSIP No. 00211Y100 |
|---------------------|

Introductory Note: This Schedule 13G/A is filed on behalf of Venrock Healthcare Capital Partners, L.P., a limited partnership organized under the laws of the state of Delaware ( VHCP ), Venrock Healthcare Capital Partners II, L.P., a limited partnership organized under the laws of the state of Delaware ( VHCP II ), VHCP Co-Investment Holdings, LLC., a limited liability company organized under the laws of the state of Delaware ( Co-Invest ), VHCP Co-Investment Holdings II, LLC, a limited liability company organized under the laws of the state of Delaware ( Co-Invest II), 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, Nimish Shah 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  
  
Nimish Shah
- (b) Bong Koh  
Address of Principal Business Office or, if none, Residence:  
  

|  |   |   |
|--|---|---|
| New York Office:                                     | Palo Alto Office:                           | Boston Office:  |
| 530 Fifth Avenue<br>22nd Floor<br>New York, NY 10036 | 3340 Hillview Avenue<br>Palo Alto, CA 94304 | 34 Farnsworth Street<br>3rd Floor<br>Boston, MA 02210 |
- (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:**  
Not applicable.

**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:**



CUSIP No. 00211Y100

**Item 4. Ownership:**

(a) Amount beneficially owned as of December 31, 2017:

|  |              |
|--|--------------|
| Venrock Healthcare Capital Partners, L.P.    | 2,157,864(1) |
| Venrock Healthcare Capital Partners II, L.P. | 2,157,864(1) |
| VHCP Co-Investment Holdings, LLC             | 2,157,864(1) |
| VHCP Co-Investment Holdings, LLC             | 2,157,864(1) |
| VHCP Management, LLC                         | 2,157,864(1) |
| VHCP Management II, LLC                      | 2,157,864(1) |
| Nimish Shah                                  | 2,157,864(1) |
| Bong Koh                                     | 2,157,864(1) |

(b) Percent of class as of December 31, 2017:

|  |       |
|--|-------|
| Venrock Healthcare Capital Partners, L.P.    | 17.4% |
| Venrock Healthcare Capital Partners II, L.P. | 17.4% |
| VHCP Co-Investment Holdings, LLC             | 17.4% |
| VHCP Co-Investment Holdings II, LLC          | 17.4% |
| VHCP Management, LLC                         | 17.4% |
| VHCP Management II, LLC                      | 17.4% |
| Nimish Shah                                  | 17.4% |
| Bong Koh                                     | 17.4% |

(c) Number of shares to which the person has as of December 31, 2017:

(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 |
| Nimish Shah                                  | 0 |
| Bong Koh                                     | 0 |

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

|  |              |
|--|--------------|
| Venrock Healthcare Capital Partners, L.P.    | 2,157,864(1) |
| Venrock Healthcare Capital Partners II, L.P. | 2,157,864(1) |
| VHCP Co-Investment Holdings, LLC             | 2,157,864(1) |
| VHCP Co-Investment Holdings, LLC             | 2,157,864(1) |
| VHCP Management, LLC                         | 2,157,864(1) |
| VHCP Management II, LLC                      | 2,157,864(1) |
| Nimish Shah                                  | 2,157,864(1) |
| Bong Koh                                     | 2,157,864(1) |

CUSIP No. 00211Y100

(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 |
| Nimish Shah                                  | 0 |
| Bong Koh                                     | 0 |

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

|  |              |
|--|--------------|
| Venrock Healthcare Capital Partners, L.P.    | 2,157,864(1) |
| Venrock Healthcare Capital Partners II, L.P. | 2,157,864(1) |
| VHCP Co-Investment Holdings, LLC             | 2,157,864(1) |
| VHCP Co-Investment Holdings II, LLC          | 2,157,864(1) |
| VHCP Management, LLC                         | 2,157,864(1) |
| VHCP Management II, LLC                      | 2,157,864(1) |
| Nimish Shah                                  | 2,157,864(1) |
| Bong Koh                                     | 2,157,864(1) |

(1) These shares are owned directly as follows: (i) 390,912 shares of common stock are held directly by VHCP and 156,365 shares of common stock are currently exercisable under a warrant held by VHCP; (ii) 767,660 shares of common stock are held directly by VHCP II and 307,064 shares of common stock are currently exercisable under a warrant held by VHCP II; (iii) 71,487 shares of common stock are held directly by Co-Invest and 28,595 shares of common stock are currently exercisable under a warrant held by Co-Invest; and (iv) 311,272 shares of common stock are held directly by Co-Invest II and 124,509 shares of common stock are currently exercisable under a warrant held by Co-Invest II.

**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

**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.

CUSIP No. 00211Y100

**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.

**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 13, 2018

**Venrock Healthcare Capital Partners, L.P.**

By: VHCP Management, LLC  
Its: General Partner

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

**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, LLC**

By: VHCP Management, LLC  
Its: Manager

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

**VHCP Co-Investment Holdings II, LLC**

By: VHCP Management II, 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

**VHCP Management II, LLC**

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

**Nimish Shah**

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

**Bong Koh**

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

CUSIP No. 00211Y100

**EXHIBITS**

A: Joint Filing Agreement

B: Power of Attorney for Nimish Shah

C: Power of Attorney for Bong Koh (Incorporated by reference to Exhibit C to Schedule 13G/A filed on February 16, 2016)

CUSIP No. 00211Y100

**EXHIBIT A**

**JOINT FILING AGREEMENT**

In accordance with Rule 13d-1(k) under the Securities Exchange Act of 1934, as amended, the undersigned agree to the joint filing on behalf of each of them of a statement on Schedule 13G (including amendments thereto) with respect to the Common Stock of ARCA biopharma, Inc. and further agree that this agreement be included as an exhibit to such filing. Each party to the agreement expressly authorizes each other party to file on its behalf any and all amendments to such statement. Each party to this agreement agrees that this joint filing agreement may be signed in counterparts.

In evidence whereof, the undersigned have caused this Agreement to be executed on their behalf this 13th day of February, 2018.

**Venrock Healthcare Capital Partners, L.P.**

By: VHCP Management, LLC  
Its: General Partner

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

**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, LLC**

By: VHCP Management, LLC  
Its: Manager

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

**VHCP Co-Investment Holdings II, LLC**

By: VHCP Management II, 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

**VHCP Management II, LLC**

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

**Nimish Shah**

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

**Bong Koh**

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

CUSIP No. 00211Y100

**EXHIBIT B**

POWER OF ATTORNEY FOR NIMISH SHAH

KNOW ALL BY THESE PRESENTS, that the undersigned hereby constitutes and appoints each of David L. Stepp, Sherman G. Souther and Lisa D. Harris signing individually, the undersigned's true and lawful attorney-in fact and agent to:

- (i) prepare execute and file, for and on behalf of the undersigned, any and all documents and filings that are required or advisable to be made with the United States Securities and Exchange Commission, any stock exchange or similar authority, under the Securities Exchange Act of 1934, as amended (the Exchange Act), and the rules and regulations promulgated thereunder, including without limitation (a) any Joint Filing Agreement under Rule 13d-1(k) of the Exchange Act (or any successor provision thereunder), Schedule 13D and Schedule 13G (or any successor schedules or forms adopted under the Exchange Act) and any amendments thereto in accordance with Section 13 of the Exchange Act and the rules thereunder, and (b) Forms 3, 4 and 5 and any amendments thereto in accordance with Section 16(a) of the Exchange Act and the rules thereunder; and
- (ii) take any other action of any nature whatsoever in connection with the foregoing which, in the opinion of such attorney-in-fact, may be of benefit, in the best interest of, or legally required by, the undersigned, it being understood that the documents executed by such attorney-in-fact on behalf of the undersigned pursuant to this Power of Attorney shall be in such form and shall contain such terms and conditions as such attorney-in-fact may approve in such attorney-in-fact's discretion.

The undersigned hereby grants to such attorney-in-fact full power and authority to do and perform any and every act and thing whatsoever requisite, necessary, or proper to be done in the exercise of any of the rights and powers herein granted, as fully to all intents and purposes as the undersigned might or could do if personally present, with full power of substitution or revocation, hereby ratifying and confirming all that such attorney-in-fact, or such attorney-in-fact's substitute or substitutes, shall lawfully do or cause to be done by virtue of this power of attorney and the rights and powers herein granted. The undersigned acknowledges that the foregoing attorney-in-fact, in serving in such capacity at the request of undersigned, is not assuming, nor is Venrock assuming, any of the undersigned's responsibilities to comply with the Exchange Act, including without limitation Sections 13 and 16 of the Exchange Act.

This power of Attorney shall remain in full force and effect until the earliest to occur of (a) the undersigned is no longer required to file any form or document with respect to the undersigned's holdings of and transactions in securities issued by a company, (b) revocation by the undersigned in a signed writing delivered to the foregoing attorney-in-fact, or (c) until such attorney-in-fact shall no longer be employed by VR Management, LLC (or its successor).

IN WITNESS WHEREOF, the undersigned has cause this Power of Attorney to be executed as of this 13th day of February, 2017.

/s/ Nimish Shah