

ARCA biopharma, Inc.  
Form SC 13G  
February 16, 2010

OMB APPROVAL  
OMB Number: 3235-0145  
Expires: February 28, 2010  
Estimated average burden  
hours per response.....10.4

**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 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)

**December 31, 2009**

(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. 00211Y100

13G

Page 2 of 21 Pages

NAME OF REPORTING PERSONS

1 InterWest Partners IX, LP

I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S) (ENTITIES ONLY)

CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP

2  
(a)   
(b)

SEC USE ONLY

3

CITIZENSHIP OR PLACE OF ORGANIZATION

4  
California

SOLE VOTING POWER

5

NUMBER OF 732,713

SHARED VOTING POWER

6

OWNED BY 0

SOLE DISPOSITIVE POWER

7

EACH REPORTING PERSON 732,713

SHARED DISPOSITIVE POWER

8

0

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

9

732,713

**10** CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES :

o

**11** PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

9.6%

**12** TYPE OF REPORTING PERSON

PN

---

CUSIP No. 00211Y100

13G

Page 3 of 21 Pages

NAME OF REPORTING PERSONS

**1** InterWest Management Partners IX, LLC (the General Partner of InterWest Partners IX, LP)

I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S) (ENTITIES ONLY)

CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP

**2**  
(a)   
(b)

SEC USE ONLY

**3**

CITIZENSHIP OR PLACE OF ORGANIZATION

**4**  
California

SOLE VOTING POWER

**5**

NUMBER OF 732,713

SHARED VOTING POWER

SHARES BENEFICIALLY **6**

OWNED BY 0

SOLE DISPOSITIVE POWER

EACH REPORTING **7**

PERSON 732,713

SHARED DISPOSITIVE POWER

WITH **8**

0

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

**9**

732,713

**10** CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES :

o

**11** PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

9.6%

**12** TYPE OF REPORTING PERSON

OO

---

CUSIP No. 00211Y100

13G

Page 4 of 21 Pages

NAME OF REPORTING PERSONS

1 Harvey B. Cash (a Managing Director of InterWest Management Partners IX, LLC)

I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S) (ENTITIES ONLY)

CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP

2  
(a)   
(b)

SEC USE ONLY

3

CITIZENSHIP OR PLACE OF ORGANIZATION

4  
United States

SOLE VOTING POWER

5

NUMBER OF 0

SHARED VOTING POWER

SHARES BENEFICIALLY OWNED BY 6  
732,713

SOLE DISPOSITIVE POWER

EACH REPORTING PERSON 7  
0

SHARED DISPOSITIVE POWER

WITH 8  
732,713

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

9

732,713

CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES :

**10**

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

**11**

9.6%

TYPE OF REPORTING PERSON

**12**

IN

Neither the filing of this statement on Schedule 13G nor any of its contents shall be deemed to constitute an admission by Harvey B. Cash that he is the beneficial owner of any of the Common Stock referred to herein for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, or for any other purpose, and such beneficial ownership is expressly disclaimed, except to the extent of his pecuniary interest.

---

CUSIP No. 00211Y100

13G

Page 5 of 21 Pages

NAME OF REPORTING PERSONS

1 Bruce A. Cleveland (a Venture Member of InterWest Management Partners IX, LLC)

I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S) (ENTITIES ONLY)

CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP

2 (a)   
(b)

SEC USE ONLY

3

CITIZENSHIP OR PLACE OF ORGANIZATION

4 United States

SOLE VOTING POWER

5

NUMBER OF 0

SHARED VOTING POWER

SHARES BENEFICIALLY OWNED BY 6 732,713

SOLE DISPOSITIVE POWER

EACH REPORTING PERSON 7 0

SHARED DISPOSITIVE POWER

WITH 8 732,713

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

9



732,713

**10**

CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES :

o

**11**

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

9.6%

**12**

TYPE OF REPORTING PERSON

IN

Neither the filing of this statement on Schedule 13G nor any of its contents shall be deemed to constitute an admission by Bruce A. Cleveland that he is the beneficial owner of any of the Common Stock referred to herein for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, or for any other purpose, and such beneficial ownership is expressly disclaimed, except to the extent of his pecuniary interest.

---

CUSIP No. 00211Y100

13G

Page 6 of 21 Pages

NAME OF REPORTING PERSONS

1 Christopher B. Ehrlich (a Venture Member of InterWest Management Partners IX, LLC)

I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S) (ENTITIES ONLY)

CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP

2 (a)   
(b)

SEC USE ONLY

3

CITIZENSHIP OR PLACE OF ORGANIZATION

4 United States

SOLE VOTING POWER

5

NUMBER OF 0

SHARED VOTING POWER

SHARES BENEFICIALLY OWNED BY 6 732,713

SOLE DISPOSITIVE POWER

EACH REPORTING PERSON 7 0

SHARED DISPOSITIVE POWER

WITH 8 732,713

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

9

732,713

CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES :

**10**

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

**11**

9.6%

TYPE OF REPORTING PERSON

**12**

IN

Neither the filing of this statement on Schedule 13G nor any of its contents shall be deemed to constitute an admission by Christopher B. Ehrlich that he is the beneficial owner of any of the Common Stock referred to herein for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, or for any other purpose, and such beneficial ownership is expressly disclaimed, except to the extent of his pecuniary interest.

---

CUSIP No. 00211Y100

13G

Page 7 of 21 Pages

NAME OF REPORTING PERSONS

1 Philip T. Gianos (a Managing Director of InterWest Management Partners IX, LLC)

I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S) (ENTITIES ONLY)

CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP

2  
(a)   
(b)

SEC USE ONLY

3

CITIZENSHIP OR PLACE OF ORGANIZATION

4  
United States

SOLE VOTING POWER

5

NUMBER OF 0

SHARED VOTING POWER

6  
SHARES BENEFICIALLY OWNED BY 732,713

SOLE DISPOSITIVE POWER

7  
EACH REPORTING PERSON 0

SHARED DISPOSITIVE POWER

8  
WITH 732,713

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

9

732,713

CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES :

**10**

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

**11**

9.6%

TYPE OF REPORTING PERSON

**12**

IN

Neither the filing of this statement on Schedule 13G nor any of its contents shall be deemed to constitute an admission by Philip T. Gianos that he is the beneficial owner of any of the Common Stock referred to herein for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, or for any other purpose, and such beneficial ownership is expressly disclaimed, except to the extent of his pecuniary interest.

---

CUSIP No. 00211Y100

13G

Page 8 of 21 Pages

NAME OF REPORTING PERSONS

1 Linda S. Grais (a Venture Member of InterWest Management Partners IX, LLC)

I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S) (ENTITIES ONLY)

CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP

2  
(a)   
(b)

SEC USE ONLY

3

CITIZENSHIP OR PLACE OF ORGANIZATION

4  
United States

SOLE VOTING POWER

5

NUMBER OF 4,063

SHARED VOTING POWER

SHARES BENEFICIALLY OWNED BY 6 732,713

SOLE DISPOSITIVE POWER

EACH REPORTING PERSON 7 4,063

SHARED DISPOSITIVE POWER

WITH 8 732,713

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

9

736,776

CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES :

**10**

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

**11**

9.6%

TYPE OF REPORTING PERSON

**12**

IN

Neither the filing of this statement on Schedule 13G nor any of its contents shall be deemed to constitute an admission by Linda S. Grais that she is the beneficial owner of any of the Common Stock referred to herein for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, or for any other purpose, and such beneficial ownership is expressly disclaimed, except to the extent of his pecuniary interest.

---

CUSIP No. 00211Y100

13G

Page 9 of 21 Pages

NAME OF REPORTING PERSONS

**1** W. Stephen Holmes III (a Managing Director of InterWest Management Partners IX, LLC)

I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S) (ENTITIES ONLY)

CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP

**2**  
 (a)   
 (b)

SEC USE ONLY

**3**

CITIZENSHIP OR PLACE OF ORGANIZATION

**4**  
 United States

SOLE VOTING POWER

**5**

NUMBER OF 0

SHARED VOTING POWER

SHARES BENEFICIALLY OWNED BY **6** 732,713

SOLE DISPOSITIVE POWER

EACH REPORTING PERSON **7** 0

SHARED DISPOSITIVE POWER

WITH **8** 732,713

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

**9**



732,713

CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES :

**10**

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

**11**

9.6%

TYPE OF REPORTING PERSON

**12**

IN

Neither the filing of this statement on Schedule 13G nor any of its contents shall be deemed to constitute an admission by W. Stephen Holmes III that he is the beneficial owner of any of the Common Stock referred to herein for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, or for any other purpose, and such beneficial ownership is expressly disclaimed, except to the extent of his pecuniary interest.

---

CUSIP No. 00211Y100

13G

Page 10 of 21 Pages

NAME OF REPORTING PERSONS

1 Nina S. Kjellson (a Venture Member of InterWest Management Partners IX, LLC)

I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S) (ENTITIES ONLY)

CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP

2  
(a)   
(b)

SEC USE ONLY

3

CITIZENSHIP OR PLACE OF ORGANIZATION

4  
United States

SOLE VOTING POWER

5

NUMBER OF 0

SHARED VOTING POWER

6  
SHARES BENEFICIALLY OWNED BY 732,713

SOLE DISPOSITIVE POWER

7  
EACH REPORTING PERSON 0

SHARED DISPOSITIVE POWER

8  
WITH 732,713

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

9

732,713

CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES :

**10**

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

**11**

9.6%

TYPE OF REPORTING PERSON

**12**

IN

Neither the filing of this statement on Schedule 13G nor any of its contents shall be deemed to constitute an admission by Nina S. Kjellson that she is the beneficial owner of any of the Common Stock referred to herein for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, or for any other purpose, and such beneficial ownership is expressly disclaimed, except to the extent of his pecuniary interest.

---

CUSIP No. 00211Y100

13G

Page 11 of 21 Pages

NAME OF REPORTING PERSONS

**1** Gilbert H. Kliman (a Managing Director of InterWest Management Partners IX, LLC)

I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S) (ENTITIES ONLY)

CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP

**2**  
 (a)   
 (b)

SEC USE ONLY

**3**

CITIZENSHIP OR PLACE OF ORGANIZATION

**4**  
 United States

SOLE VOTING POWER

**5**

NUMBER OF 0

SHARED VOTING POWER

**6**  
 SHARES BENEFICIALLY OWNED BY 732,713

SOLE DISPOSITIVE POWER

**7**  
 EACH REPORTING PERSON 0

SHARED DISPOSITIVE POWER

**8**  
 WITH 732,713

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

**9**

732,713

CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES :

**10**

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

**11**

9.6%

TYPE OF REPORTING PERSON

**12**

IN

Neither the filing of this statement on Schedule 13G nor any of its contents shall be deemed to constitute an admission by Gilbert H. Kliman that he is the beneficial owner of any of the Common Stock referred to herein for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, or for any other purpose, and such beneficial ownership is expressly disclaimed, except to the extent of his pecuniary interest.

---

CUSIP No. 00211Y100

13G

Page 12 of 21 Pages

NAME OF REPORTING PERSONS

1 Khaled A. Nasr (a Venture Member of InterWest Management Partners IX, LLC)

I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S) (ENTITIES ONLY)

CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP

2 (a)   
 (b)

SEC USE ONLY

3

CITIZENSHIP OR PLACE OF ORGANIZATION

4 United States

SOLE VOTING POWER

5

NUMBER OF 0

SHARED VOTING POWER

6 SHARES BENEFICIALLY OWNED BY 732,713

SOLE DISPOSITIVE POWER

7 EACH REPORTING PERSON 0

SHARED DISPOSITIVE POWER

8 WITH 732,713

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

9

732,713

CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES :

**10**

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

**11**

9.6%

TYPE OF REPORTING PERSON

**12**

IN

Neither the filing of this statement on Schedule 13G nor any of its contents shall be deemed to constitute an admission by Khaled A. Nasr that he is the beneficial owner of any of the Common Stock referred to herein for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, or for any other purpose, and such beneficial ownership is expressly disclaimed, except to the extent of his pecuniary interest.

---

CUSIP No. 00211Y100

13G

Page 13 of 21 Pages

NAME OF REPORTING PERSONS

**1** Arnold L. Oronsky (a Managing Director of InterWest Management Partners IX, LLC)

I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S) (ENTITIES ONLY)

CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP

**2**  
 (a)   
 (b)

SEC USE ONLY

**3**

CITIZENSHIP OR PLACE OF ORGANIZATION

**4**  
 United States

SOLE VOTING POWER

**5**

NUMBER OF 0

SHARED VOTING POWER

**6**  
 SHARES BENEFICIALLY OWNED BY 732,713

SOLE DISPOSITIVE POWER

**7**  
 EACH REPORTING PERSON 0

SHARED DISPOSITIVE POWER

**8**  
 WITH 732,713

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

**9**



732,713

CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES :

**10**

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

**11**

9.6%

TYPE OF REPORTING PERSON

**12**

IN

Neither the filing of this statement on Schedule 13G nor any of its contents shall be deemed to constitute an admission by Arnold L. Oronsky that he is the beneficial owner of any of the Common Stock referred to herein for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, or for any other purpose, and such beneficial ownership is expressly disclaimed, except to the extent of his pecuniary interest.

---

CUSIP No. 00211Y100

13G

Page 14 of 21 Pages

NAME OF REPORTING PERSONS

**1** Douglas A. Pepper (a Venture Member of InterWest Management Partners IX, LLC)

I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S) (ENTITIES ONLY)

CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP

**2**  
(a)   
(b)

SEC USE ONLY

**3**

CITIZENSHIP OR PLACE OF ORGANIZATION

**4**  
United States

SOLE VOTING POWER

**5**

NUMBER OF 0

SHARED VOTING POWER

SHARES BENEFICIALLY OWNED BY **6** 732,713

SOLE DISPOSITIVE POWER

EACH REPORTING PERSON **7** 0

SHARED DISPOSITIVE POWER

WITH **8** 732,713

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

**9**

732,713

**10**

CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES :

o

**11**

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

9.6%

**12**

TYPE OF REPORTING PERSON

IN

Neither the filing of this statement on Schedule 13G nor any of its contents shall be deemed to constitute an admission by Douglas A. Pepper that he is the beneficial owner of any of the Common Stock referred to herein for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, or for any other purpose, and such beneficial ownership is expressly disclaimed, except to the extent of his pecuniary interest.

---

CUSIP No. 00211Y100

13G

Page 15 of 21 Pages

NAME OF REPORTING PERSONS

1 Thomas L. Rosch (a Managing Director of InterWest Management Partners IX, LLC)

I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S) (ENTITIES ONLY)

CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP

2 (a)   
(b)

SEC USE ONLY

3

CITIZENSHIP OR PLACE OF ORGANIZATION

4 United States

SOLE VOTING POWER

5

NUMBER OF 0

SHARED VOTING POWER

SHARES BENEFICIALLY OWNED BY 6 732,713

SOLE DISPOSITIVE POWER

EACH REPORTING PERSON 7 0

SHARED DISPOSITIVE POWER

WITH 8 732,713

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

9

732,713

CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES :

**10**

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

**11**

9.6%

TYPE OF REPORTING PERSON

**12**

IN

Neither the filing of this statement on Schedule 13G nor any of its contents shall be deemed to constitute an admission by Thomas L. Rosch that he is the beneficial owner of any of the Common Stock referred to herein for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, or for any other purpose, and such beneficial ownership is expressly disclaimed, except to the extent of his pecuniary interest.

---

CUSIP No. 00211Y100

13G

Page 16 of 21 Pages

NAME OF REPORTING PERSONS

1 Michael B. Sweeney (a Managing Director of InterWest Management Partners IX, LLC)

I.R.S. IDENTIFICATION NO(S). OF ABOVE PERSON(S) (ENTITIES ONLY)

CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP

2 (a)   
(b)

SEC USE ONLY

3

CITIZENSHIP OR PLACE OF ORGANIZATION

4 United States

SOLE VOTING POWER

5

NUMBER OF 0

SHARED VOTING POWER

6 SHARES BENEFICIALLY OWNED BY 732,713

SOLE DISPOSITIVE POWER

7 EACH REPORTING PERSON 0

SHARED DISPOSITIVE POWER

8 WITH 732,713

AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

9

732,713

CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN SHARES :

**10**

o

PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)

**11**

9.6%

TYPE OF REPORTING PERSON

**12**

IN

Neither the filing of this statement on Schedule 13G nor any of its contents shall be deemed to constitute an admission by Michael B. Sweeney that he is the beneficial owner of any of the Common Stock referred to herein for purposes of Section 13(d) of the Securities Exchange Act of 1934, as amended, or for any other purpose, and such beneficial ownership is expressly disclaimed, except to the extent of his pecuniary interest.

---

**ITEM 1.**

**(a) NAME OF ISSUER :** ARCA biopharma, Inc.

**(b) ADDRESS OF ISSUER S PRINCIPAL EXECUTIVE OFFICE:**

8001 Arista Place, Suite 200, Broomfield, CO 80021

**ITEM 2.**

**(a) NAME OF PERSON(S) FILING:**

InterWest Partners IX, LP ( IWP IX )

InterWest Management Partners IX, LLC ( IMP IX )

Harvey B. Cash ( Cash )

Bruce A. Cleveland ( Cleveland )

Christopher B. Ehrlich ( Ehrlich )

Philip T. Gianos ( Gianos )

Linda S. Grais ( Grais )

W. Stephen Holmes III ( Holmes )

Nina S. Kjellson ( Kjellson )

Gilbert H. Kliman ( Kliman )

Khaled A. Nasr ( Nasr )

Arnold L. Oronsky ( Oronsky )

Douglas A. Pepper ( Pepper )

Thomas L. Rosch ( Rosch )

Michael B. Sweeney ( Sweeney )

**(b) ADDRESS OF PRINCIPAL BUSINESS OFFICE OR, IF NONE, RESIDENCE:**

2710 Sand Hill Road, Second Floor, Menlo Park, CA 94025

**(c) CITIZENSHIP/PLACE OF ORGANIZATION:**

IWP IX: California  
IMP IX: California  
Cash: United States  
Cleveland: United States  
Ehrlich: United States  
Gianos: United States  
Grais: United States  
Holmes: United States  
Kjellson: United States  
Kliman: United States  
Nasr: United States  
Oronsky: United States  
Pepper: United States  
Rosch: United States  
Sweeney: United States



(d) **TITLE OF CLASS OF SECURITIES:** Common Stock(e) **CUSIP NUMBER:** 00211Y100**ITEM 3. NOT APPLICABLE.****ITEM 4. OWNERSHIP.**

	<b>IWP IX (1)</b>	<b>IMP IX (1,2)</b>	<b>Cash (1,3)</b>	<b>Cleveland (1,3)</b>	<b>Ehrlich (1,3)</b>
Beneficial Ownership	732,713	732,713	732,713	732,713	732,713
Percentage of Class	9.6%	9.6%	9.6%	9.6%	9.6%
Sole Voting Power	732,713	732,713	0	0	0
Shared Voting Power	0	0	732,713	732,713	732,713
Sole Dispositive Power	732,713	732,713	0	0	0
Shared Dispositive Power	0	0	732,713	732,713	732,713
			<b>Grais (1,3)</b>	<b>Holmes (1,3)</b>	<b>Kjellson (1,3)</b>
Beneficial Ownership		<b>Gianos (1,3)</b>	**		
Percentage of Class		732,713	736,776	732,713	732,713
Sole Voting Power		9.6%	9.6%	9.6%	9.6%
Shared Voting Power		0	4,063	0	0
Sole Dispositive Power		732,713	732,713	732,713	732,713
Shared Dispositive Power		0	4,063	0	0
		732,713	732,713	732,713	732,713
			<b>Kliman (1,3)</b>	<b>Nasr (1,3)</b>	<b>Oronsky (1,3)</b>
Beneficial Ownership			732,713	732,713	732,713
Percentage of Class			9.6%	9.6%	9.6%
Sole Voting Power			0	0	0
Shared Voting Power			732,713	732,713	732,713
Sole Dispositive Power			0	0	0
Shared Dispositive Power			732,713	732,713	732,713
			<b>Pepper (1,3)</b>	<b>Rosch (1,3)</b>	<b>Sweeney (1,3)</b>
Beneficial Ownership			732,713	732,713	732,713
Percentage of Class			9.6%	9.6%	9.6%
Sole Voting Power			0	0	0
Shared Voting Power			732,713	732,713	732,713
Sole Dispositive Power			0	0	0
Shared Dispositive Power			732,713	732,713	732,713

\*\* Includes 4,063 shares issuable to Grais pursuant to outstanding options exercisable

within 60 days  
of December 31,  
2009.

- (1) Includes 30,015  
shares issuable  
pursuant to  
warrant  
exercise.
- (2) IMP IX is the  
general partner  
of IWP IX.
- (3) Cash, Gianos,  
Holmes,  
Kliman,  
Oronsky, Rosch,  
and Sweeney  
are Managing  
Directors of  
IMP IX.  
Cleveland,  
Ehrlich, Grais,  
Kjellson, Nasr,  
and Pepper are  
Venture  
Members of  
IMP IX.

**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.**

Under certain circumstances set forth in the limited liability company operating agreement of IMP IX, the members of such limited liability company have the right to receive dividends from, or the proceeds from the sale of, the common stock of Issuer beneficially owned by such limited liability company.

**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.**

No reporting person is a member of a group as defined in section 240.13d-1(b)(1)(iii)(H) of the Act.

**ITEM 9. NOTICE OF DISSOLUTION OF THE GROUP.**

Not applicable.

**ITEM 10. CERTIFICATION.**

Not applicable.

**EXHIBITS**

Joint Filing Statement attached as Exhibit A.

Page 19 of 21 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: February 16, 2010

INTERWEST PARTNERS IX, LP

By: InterWest Management Partners IX, LLC  
its General Partner

By: /s/ W. Stephen Holmes

Managing Director

By: /s/ Harvey B. Cash

Name: Harvey B. Cash

INTERWEST MANAGEMENT PARTNERS IX,  
LLC

By: /s/ Bruce A. Cleveland

Name: Bruce A. Cleveland

By: /s/ W. Stephen Holmes

Managing Director

By: /s/ Christopher B. Ehrlich

Name: Christopher B. Ehrlich

By: /s/ Douglas A. Pepper

By: /s/ Philip T. Gianos

Name: Philip T. Gianos

Name: Douglas A. Pepper

By: /s/ Linda S. Grais

Name: Linda S. Grais

By: /s/ Thomas L. Rosch

Name: Thomas L. Rosch

By: /s/ W. Stephen Holmes

Name: W. Stephen Holmes

By: /s/ Michael B. Sweeney

Name: Michael B. Sweeney

By: /s/ Nina S. Kjellson

Name: Nina S. Kjellson

By: /s/ Gilbert H. Kliman

Name: Gilbert H. Kliman

By: /s/ Khaled A. Nasr

Name: Khaled A. Nasr

By: /s/ Arnold L. Oronsky

Name: Arnold L. Oronsky

Page 20 of 21 Pages