

Lowe David George  
 Form 3  
 February 05, 2009

**FORM 3 UNITED STATES SECURITIES AND EXCHANGE COMMISSION**  
**Washington, D.C. 20549**

OMB APPROVAL

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**INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF SECURITIES**

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934,  
 Section 17(a) of the Public Utility Holding Company Act of 1935 or Section  
 30(h) of the Investment Company Act of 1940

(Print or Type Responses)

1. Name and Address of Reporting Person \*  
 ^ Lowe David George  
 (Last) (First) (Middle)

2. Date of Event Requiring Statement  
 (Month/Day/Year)  
 01/27/2009

3. Issuer Name and Ticker or Trading Symbol  
 ARCA biopharma, Inc. [ABIO]

4. Relationship of Reporting Person(s) to Issuer

5. If Amendment, Date Original Filed(Month/Day/Year)

C/O SKYLINE  
 VENTURES, ^ 525  
 UNIVERSITY AVENUE, STE  
 520  
 (Street)

(Check all applicable)

Director  10% Owner  
 Officer  Other  
 (give title below) (specify below)

PALO ALTO, ^ CA ^ 94301  
 (City) (State) (Zip)

6. Individual or Joint/Group Filing(Check Applicable Line)  
 Form filed by One Reporting Person  
 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)
Common Stock	877,583	I	See Footnote <sup>(1)</sup>

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

SEC 1473 (7-02)

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**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	4. Conversion or Exercise	5. Ownership Form of	6. Nature of Indirect Beneficial Ownership (Instr. 5)
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	Date Exercisable	Expiration Date	(Instr. 4) Title	Amount or Number of Shares	Price of Derivative Security	Derivative Security: Direct (D) or Indirect (I) (Instr. 5)	
Warrant to Purchase Common Stock	Â (2)	10/10/2013	Common Stock	37,486	\$ 9.7406	I	See Footnote (3)

## Reporting Owners

Reporting Owner Name / Address	Relationships			
	Director	10% Owner	Officer	Other
Lowe David George C/O SKYLINE VENTURES 525 UNIVERSITY AVENUE, STE 520 PALO ALTO, CA 94301	Â X	Â X	Â	Â

## Signatures

Patrick Wheeler, attorney  
in fact

02/05/2009

\*\*Signature of Reporting Person

Date

## Explanation of Responses:

\* 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).

These shares are owned directly by Skyline Venture Partners Qualified Purchaser Fund IV, L.P. John G. Freund and Yasunori Kaneko are the Managing Members of Skyline Venture Management IV, LLC, which is the general partner of Skyline Venture Partners Qualified Purchaser Fund IV, L.P., and as such Drs. Freund and Kaneko may be deemed to share voting and dispositive power with respect to all

(1) shares of common stock held by Skyline Venture Partners Qualified Purchaser Fund IV, L.P. In addition, Dr. Lowe, one of ARCA's current directors, is a Managing Director of Skyline Ventures and as such may be deemed to share voting and dispositive power with respect to all shares of common stock held by Skyline Venture Partners Qualified Purchasers Fund IV, L.P. Each of Drs. Freund, Kaneko and Lowe disclaims beneficial ownership of such shares except to the extent of his pecuniary interest, if any.

(2) This warrant is immediately exercisable.

This warrant is owned directly by Skyline Venture Partners Qualified Purchaser Fund IV, L.P. John G. Freund and Yasunori Kaneko are the Managing Members of Skyline Venture Management IV, LLC, which is the general partner of Skyline Venture Partners Qualified Purchaser Fund IV, L.P., and as such Drs. Freund and Kaneko may be deemed to share voting and dispositive power with respect to all

(3) shares of common stock held by Skyline Venture Partners Qualified Purchaser Fund IV, L.P. In addition, Dr. Lowe, one of ARCA's current directors, is a Managing Director of Skyline Ventures and as such may be deemed to share voting and dispositive power with respect to all shares of common stock held by Skyline Venture Partners Qualified Purchasers Fund IV, L.P. Each of Drs. Freund, Kaneko and Lowe disclaims beneficial ownership of such shares except to the extent of his pecuniary interest, if any.

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

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