

ARCA biopharma, Inc.  
Form 5  
February 17, 2009

# FORM 5

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

OMB APPROVAL

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Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See Instruction 1(b).  
Form 3 Holdings Reported Form 4 Transactions Reported

**ANNUAL STATEMENT OF CHANGES IN 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

1. Name and Address of Reporting Person \*  
LOVE TED W

(Last) (First) (Middle)

201 INDUSTRIAL ROAD, SUITE 310

(Street)

SAN CARLOS, CA 94070

(City) (State) (Zip)

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

3. Statement for Issuer's Fiscal Year Ended (Month/Day/Year)  
12/31/2008

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

5. Relationship of Reporting Person(s) to Issuer

(Check all applicable)

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

6. Individual or Joint/Group Reporting

(check applicable line)

Form Filed by One Reporting Person  
 Form Filed by More than One Reporting Person

**Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned**

| 1. Title of Security (Instr. 3) | 2. Transaction Date (Month/Day/Year) | 2A. Deemed Execution Date, if any (Month/Day/Year) | 3. Transaction Code (Instr. 8) | 4. Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5) | 5. Amount of Securities Beneficially Owned at end of Issuer's Fiscal Year (Instr. 3 and 4) | 6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4) | 7. Nature of Indirect Beneficial Ownership (Instr. 4) |
|---------------------------------|--------------------------------------|--|--------------------------------|---|--|--|---|
| Common Stock <sup>(1)</sup>     | 02/29/2008                           | Â  | J <sup>(2)</sup>               | 576 A   | \$ 28.39   | 3,580 D  | Â   |
| Common Stock <sup>(1)</sup>     | 05/30/2008                           | Â  | J <sup>(2)</sup>               | 147 A   | \$ 13.09   | 3,580 D  | Â   |

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

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**Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned**  
(e.g., puts, calls, warrants, options, convertible securities)

| 1. Title of Derivative Security (Instr. 3) | 2. Conversion or Exercise Price of Derivative Security | 3. Transaction Date (Month/Day/Year) | 3A. Deemed Execution Date, if any (Month/Day/Year) | 4. Transaction Code (Instr. 8) | 5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4, and 5) | 6. Date Exercisable and Expiration Date (Month/Day/Year) | 7. Title and Amount of Underlying Securities (Instr. 3 and 4) | 8. Price of Derivative Security (Instr. 5) | 9. Amount or Number of Shares |
|--|--|--------------------------------------|--|--------------------------------|---|--|---|--|-------------------------------|
|  |  |                                      |  |                                | (A) (D)   | Date Exercisable   | Expiration Date   | Title                                      | Amount or Number of Shares    |

## Reporting Owners

| Reporting Owner Name / Address                                       | Relationships |           |         |       |
|--|---------------|-----------|---------|-------|
|  | Director      | 10% Owner | Officer | Other |
| LOVE TED W<br>201 INDUSTRIAL ROAD, SUITE 310<br>SAN CARLOS, CA 94070 | Â X           | Â         | Â       | Â     |

## Signatures

Lee Bendekgey,  
attorney-in-fact

02/17/2009

\*\*Signature of Reporting Person

Date

## Explanation of Responses:

\* If the form is filed by more than one reporting person, see Instruction 4(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).

(1) Purchased through the Employee Stock Purchase Plan pursuant to Rule 16b-3(c) of the Securities Exchange Act of 1934, as amended.

(2) Purchased through the Employee Stock Purchase Plan pursuant to Rule 16b-3(c) of the Securities Exchange Act of 1934, as amended.

Note: File three copies of this Form, one of which must be manually signed. If space provided is insufficient, see Instruction 6 for procedure. Potential persons who are to respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB number.