

Wheeler Patrick M  
 Form 3  
 December 15, 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 \*

Wheeler Patrick M  
 (Last) (First) (Middle)

2. Date of Event Requiring Statement

(Month/Day/Year)  
 12/07/2009

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)

(Check all applicable)

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

6. Individual or Joint/Group Filing(Check Applicable Line)  
 Form filed by One Reporting Person  
 Form filed by More than One Reporting Person

C/O ARCA BIOPHARMA,  
 INC., 8001 ARISTA PLACE,  
 SUITE 200

(Street)

BROOMFIELD, CO 80021

(City) (State) (Zip)

**Table I - Non-Derivative Securities Beneficially Owned**

1. Title of Security (Instr. 4)

Common Stock

2. Amount of Securities Beneficially Owned (Instr. 4)

3,338

3. Ownership Form: Direct (D) or Indirect (I) (Instr. 5)

D

4. Nature of Indirect Beneficial Ownership (Instr. 5)

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 (Instr. 4)

4. Conversion or Exercise Price of Derivative

5. Ownership Form of Derivative Security:

6. Nature of Indirect Beneficial Ownership (Instr. 5)

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	Date Exercisable	Expiration Date	Title	Amount or Number of Shares	Security	Direct (D) or Indirect (I) (Instr. 5)	
Option to purchase common stock	Â <u>(1)</u>	08/03/2016	Common Stock	5,011	\$ 0.9	D	Â
Option to purchase common stock	Â <u>(2)</u>	05/02/2017	Common Stock	1,669	\$ 1.8	D	Â
Option to purchase common stock	Â <u>(3)</u>	02/12/2018	Common Stock	24,212	\$ 1.86	D	Â
Option to purchase common stock	Â <u>(4)</u>	06/25/2019	Common Stock	20,000	\$ 2.9	D	Â
Option to purchase common stock	Â <u>(5)</u>	01/23/2019	Common Stock	5,844	\$ 5.57	D	Â

## Reporting Owners

Reporting Owner Name / Address	Relationships			
	Director	10% Owner	Officer	Other
Wheeler Patrick M C/O ARCA BIOPHARMA, INC. 8001 ARISTA PLACE, SUITE 200 BROOMFIELD,Â COÂ 80021	Â	Â	Â Acting CFO	Â

## Signatures

Patrick Wheeler                      12/15/2009

        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).

(1) The options vested as to 25% on July 31, 2007 and continue to vest by 6.25% at the end of each three month period thereafter. The shares subject to the option will become immediately vested and exercisable in full as of immediately prior to the closing of a change of control of the Company that is consummated on or after May 19, 2009, provided that at the relevant vesting date the Reporting Person's continuous service to the Issuer has not been terminated at the time such change of control is consummated.

(2) The options vested as to 25% on May 3, 2008 and continue to vest by 6.25% at the end of each three month period thereafter. The shares subject to the option will become immediately vested and exercisable in full as of immediately prior to the closing of a change of control of the Company that is consummated on or after May 19, 2009, provided that at the relevant vesting date the Reporting Person's continuous service to the Issuer has not been terminated at the time such change of control is consummated.

(3) The options vested as to 25% on February 12, 2009 and continue to vest by 6.25% at the end of each three month period thereafter. The shares subject to the option will become immediately vested and exercisable in full as of immediately prior to the closing of a change of control of the Company that is consummated on or after May 19, 2009, provided that at the relevant vesting date the Reporting Person's continuous service to the Issuer has not been terminated at the time such change of control is consummated.

(4) The options vest in equal monthly installments over a four year period from the date of grant. If the U.S. Food and Drug Administration (the "FDA") approves the New Drug Application for Gencaro (the "FDA Approval") and provided that the Reporting Person remains in service to the Issuer and fewer than 50% of the shares subject to the option have become vested by such date, the vesting of the option will be accelerated such that, on the date of the FDA Approval, the shares subject to the option will be vested as to an aggregate of 50%

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of the total number of shares subject to the option, with the balance of the shares vesting thereafter on the original vesting schedule described above. In the event of a change of control of the Company in which the option is not assumed or replaced, then all unvested shares subject to the option will become immediately vested prior to the date of the change of control.

- (5) The options vest in equal monthly installments over a four year period from the date of grant. The shares subject to the option will become immediately vested and exercisable in full as of immediately prior to the closing of a change of control of the Company that is consummated on or after May 19, 2009, provided that at the relevant vesting date the Reporting Person's continuous service to the Issuer has not been terminated at the time such change of control is consummated.

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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