

ARCA biopharma, Inc.  
Form 8-K  
March 26, 2010

**UNITED STATES**  
**SECURITIES AND EXCHANGE COMMISSION**

**WASHINGTON, D.C. 20549**

**FORM 8-K**

**CURRENT REPORT**

**Pursuant to Section 13 or 15(d) of the**  
**Securities Exchange Act of 1934**

**Date of Report (Date of Earliest Event Reported): March 26, 2010**

**ARCA biopharma, Inc.**

**(Exact Name of Registrant as Specified in Charter)**

**Delaware**  
**(State or Other Jurisdiction**  
  
**of Incorporation)**

**000-22873**  
**(Commission File Number)**

**36-3855489**  
**(I.R.S. Employer**  
  
**Identification No.)**

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**8001 Arista Place, Suite 200, Broomfield, CO 80021**

**(Address of Principal Executive Offices) (Zip Code)**

**(720) 940-2200**

**(Registrant's Telephone Number, Including Area Code)**

**Not Applicable**

**(Former Name or Former Address, if Changed Since Last Report)**

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

- .. Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
  
- .. Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
  
- .. Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
  
- .. Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

**Item 8.01 Other Events**

On March 26, 2010, ARCA biopharma, Inc., or ARCA, issued a press release announcing that the U.S. Patent and Trademark Office has issued a patent on methods of treating heart failure patients with bucindolol based on genetic testing. ARCA also announced that on March 25, 2010 it submitted a revised clinical study protocol for review under the U.S. Food and Drug Administration's Special Protocol Assessment process for the design of a clinical trial to assess the safety and efficacy of Gencaro in approximately 3,200 patients with chronic heart failure who have the genotype that appears to respond most favorably to Gencaro. The press release is attached as Exhibit 99.1 hereto, the contents of which are incorporated herein by reference.

**Item 9.01 Financial Statements and Exhibits**

(d) Exhibits

| <b>Exhibit No.</b> | <b>Description</b>  |
|--------------------|---|
| 99.1               | Press Release titled "ARCA biopharma announces patent issued for treating heart failure patients with bucindolol based on genetic testing", subtitled "revised request for FDA Special Protocol Assessment for Gencaro development in genotype-defined heart failure population submitted", dated March 26, 2010. |

**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Dated: March 26, 2010

**ARCA biopharma, Inc.**

(Registrant)

By: /s/ Patrick M. Wheeler

Name: Patrick M. Wheeler

Title: Acting Chief Financial Officer

**EXHIBIT INDEX**

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