ARCA biopharma, Inc. Form 424B4 May 12, 2015

Prospectus Supplement No. 35 Filed pursuant to Rule 424(b)(4)
Registration No. 333-187508
(to Prospectus dated May 30, 2013)

125,000 Shares of Series A Convertible Preferred Stock

12,500,000 Shares of Common Stock Underlying the Preferred Stock

Warrants to Purchase up to 6,250,000 Shares of Common Stock and

6,250,000 Shares of Common Stock Underlying the Warrants

ARCA biopharma, Inc.

This prospectus supplements the prospectus dated May 30, 2013 (the "Prospectus"), as supplemented by that certain Prospectus Supplement No. 1 dated July 17, 2013 ("Supplement No. 1"), by that certain Prospectus Supplement No. 2 dated July 19, 2013 ("Supplement No. 2"), by that certain Prospectus Supplement No. 3 dated July 24, 2013 ("Supplement No. 3"), by that certain Prospectus Supplement No. 4 dated July 30, 2013 ("Supplement No. 4"), by that certain Prospectus Supplement No. 5 dated August 6, 2013 ("Supplement No. 5"), by that certain Prospectus Supplement No. 6 dated September 4, 2013 ("Supplement No. 6"), by that certain Prospectus Supplement No. 7 dated September 23, 2013 ("Supplement No. 7"), by that certain Prospectus Supplement No. 8 dated October 29, 2013 ("Supplement No. 8"), by that certain Prospectus Supplement No. 9 dated November 6, 2013 ("Supplement No. 9"), by that certain Prospectus Supplement No. 10 dated November 13, 2013 ("Supplement No. 10"), by that certain Prospectus Supplement No. 11 dated November 21, 2013 ("Supplement No. 11"), by that certain Prospectus Supplement No. 12 dated December 5, 2013 ("Supplement No. 12"), by that certain Prospectus Supplement No. 13 dated January 8, 2014 ("Supplement No. 13"), by that certain Prospectus Supplement No. 14 dated February 10, 2014 ("Supplement No. 14"), by that certain Prospectus Supplement No. 15 dated February 12, 2014 ("Supplement No. 15"), by that certain Prospectus Supplement No. 16 dated February 18, 2014 ("Supplement No. 16"), by that certain Prospectus Supplement No. 17 dated March 3, 2014 ("Supplement No. 17"), by that certain Prospectus Supplement No. 18 dated March 20, 2014 ("Supplement No. 18"), by that certain Prospectus Supplement No. 19 dated May 13, 2014 ("Supplement No. 19"), by that certain Prospectus Supplement No. 20 dated June 9, 2014 ("Supplement No. 20"), by that certain Prospectus Supplement No. 21 dated August 13, 2014 ("Supplement No. 21"), by that certain Prospectus Supplement No. 22 dated

August 18, 2014 ("Supplement No. 22"), by that certain Prospectus Supplement No. 23 dated November 12, 2014 ("Supplement No. 23"), by that certain Prospectus Supplement No. 24 dated December 1, 2014 ("Supplement No. 24"), by that certain Prospectus Supplement No. 25 dated December 10, 2014 ("Supplement No. 25"), by that certain Prospectus Supplement No. 26 dated December 11, 2014 ("Supplement No. 26"), by that certain Prospectus Supplement No. 27 dated December 30, 2014 ("Supplement No. 27"), by that certain Prospectus Supplement No. 28 dated February 4, 2015 ("Supplement No. 28"), by that certain Prospectus Supplement No. 29 dated February 17, 2015 ("Supplement No. 29"), by that certain Prospectus Supplement No. 30 dated February 23, 2015 ("Supplement No. 30"), by that certain Prospectus Supplement No. 31 dated March 16, 2015 ("Supplement No. 31"), by that certain Prospectus Supplement No. 32 dated March 19, 2015 ("Supplement No. 32"), by that certain Prospectus Supplement No. 33 dated April 13, 2015 ("Supplement No. 33"), and by that certain Prospectus Supplement No. 34 dated April 14, 2015 ("Supplement No. 34", and together with Supplement No. 1, Supplement No. 2, Supplement No. 3, Supplement No. 4, Supplement No. 5, Supplement No. 6, Supplement No. 7, Supplement No. 8, Supplement No. 9, Supplement No. 10, Supplement No. 11, Supplement No. 12, Supplement No. 13, Supplement No. 14, Supplement No. 15, Supplement No. 16, Supplement No. 16, Supplement No. 17, Supplement No. 18, Supplement No No. 17, Supplement No. 18, Supplement No. 19, Supplement No. 20, Supplement No. 21, Supplement No. 22, Supplement No. 23, Supplement No. 24, Supplement No. 25, Supplement No. 26, Supplement No. 27, Supplement No. 28, Supplement No. 29, Supplement No No. 28, Supplement No. 29, Supplement No. 30, Supplement No. 31, Supplement No. 32, and Supplement No. 33, the "Supplements"), which form a part of our Registration Statement on Form S-1 (Registration No. 333-187508). This prospectus supplement is being filed to update and supplement the information in the Prospectus and the Supplements with the information contained in our Quarterly Report on Form 10-Q, filed with the Securities and Exchange Commission (the "Commission") on May 12, 2015 (the "Quarterly Report"). Accordingly, we have attached the Quarterly Report to this prospectus supplement.

The Prospectus, the Supplements and this prospectus supplement relate to the offer and sale of up to 125,000 shares of Series A Convertible Preferred Stock ("Preferred Stock") which are convertible into 12,500,000 shares of Common Stock, warrants to purchase up to 6,250,000 shares of our Common Stock and 6,250,000 shares of Common Stock underlying the warrants.

This prospectus supplement should be read in conjunction with the Prospectus and the Supplements. This prospectus supplement updates and supplements the information in the Prospectus and the Supplements. If there is any inconsistency between the information in the Prospectus, the Supplements and this prospectus supplement, you should rely on the information in this prospectus supplement.

Our common stock is traded on the Nasdaq Global Market under the trading symbol "ABIO." On May 12, 2015, the last reported sale price of our common stock was, rounded to the nearest penny, \$0.87 per share.

Investing in our securities involves a high degree of risk. You should review carefully the risks and uncertainties described under the heading "Risk Factors" beginning on page 5 of the Prospectus and beginning on page 22 of our quarterly report on Form 10-Q for the period ended March 31, 2015 before you decide whether to invest in shares of our common stock.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if the Prospectus or this prospectus supplement is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus supplement is May 12, 2015

UNITED STATES	
SECURITIES AND EXCHANGE COMMISSION	
WASHINGTON, D.C. 20549	
FORM 10-Q	
(Mark One)	
x QUARTERLY REPORT UNDER SECTION 13 OR 15( FOR THE QUARTERLY PERIOD ENDED MARCH 31,	
OR	
"TRANSITION REPORT UNDER SECTION 13 OR 15(c) FOR THE TRANSITION PERIOD FROM TO	d) OF THE SECURITIES EXCHANGE ACT OF 1934
Commission File Number 000-22873	
ARCA BIOPHARMA, INC.	
(Exact Name of Registrant as Specified in Its Charter)	
Delaware	36-3855489

(State or Other Jurisdiction of

Incorporation or Organization)

(I.R.S.

Employer Identification Number)

11080 CirclePoint Road, Suite 140, Westminster, CO 80020 (Zip Code) (Address of Principal Executive Offices)

(720) 940-2200

(Registrant's Telephone Number, including Area Code)

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Sections 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes x No "

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes x No "

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer "

Accelerated filer

Non-accelerated filer "(Do not check if smaller reporting company) Smaller reporting company x Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Yes " No x

Indicate the number of shares outstanding of each of the issuer's classes of common stock, as of the latest practicable date.

> Number of **Shares Outstanding** Class On May 11, 2015: 21,198,411 Common Stock \$0.001 par value

### ARCA BIOPHARMA, INC.

# FORM 10-Q

## FOR THE QUARTER ENDED MARCH 31, 2015

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### PART I. FINANCIAL INFORMATION

### ITEM 1. FINANCIAL STATEMENTS

ARCA BIOPHARMA, INC.

### **BALANCE SHEETS**

(Unaudited)

	share	December 31, 2014 nds, except
	and per share amounts)	
ASSETS	unio unio)	
Current assets:		
Cash and cash equivalents	\$12,184	\$15,354
Other current assets	490	134
Total current assets	12,674	15,488
Property and equipment, net	34	36
Other assets	553	608
Total assets	\$13,261	\$16,132
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$651	\$ 795
Accrued compensation and employee benefits	123	329
Accrued expenses and other liabilities	359	264
Total current liabilities	1,133	1,388
Deferred rent, net of current portion	1	3
Total liabilities	1,134	1,391
Commitments and contingencies		
Stockholders' equity:		
Common stock, \$0.001 par value; 100 million shares authorized	21	21

at March 31, 2015 and December 31, 2014; 21,198,411

and 21,150,486 shares issued and outstanding at

March 31, 2015 and December 31, 2014, respectively

Additional paid-in capital	99 472	99.342
Additional paid-in capital	JJ, <del>T</del> 12	JJ,J=2
Accumulated deficit	(87,366)	(84,622)
Total stockholders' equity	12,127	14,741
Total liabilities and stockholders' equity	\$13,261	\$16,132

See accompanying Notes to Financial Statements

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#### ARCA BIOPHARMA, INC.

#### STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS

(unaudited)

Three Months Ended March 31, 2015 2014 (in thousands, except share

and per share amounts) Costs and expenses: Research and development \$1,707 \$1,308 General and administrative 1,037 1,082 Total costs and expenses 2,744 2,390 Loss from operations (2,744)) (2,390 2 Interest and other income 1 Interest expense (1 ) (1 Net loss and comprehensive loss \$(2,744 ) \$(2,389 Net loss per share: Basic and diluted \$(0.13 ) \$(0.13 Weighted average shares outstanding: Basic and diluted 21,167,523 18,785,418

See accompanying Notes to Financial Statements

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### ARCA BIOPHARMA, INC.

### STATEMENTS OF STOCKHOLDERS' EQUITY (DEFICIT)

(unaudited)

	Stockholders' Equity (Deficit) Additional					
	Common stock		Paid-In			
	Shares	Amount	Capital	Deficit	Total	
(in thousands, except share and per share amounts)						
Balance, December 31, 2013	15,685,562	\$ 16	90,498	(74,933)	\$15,581	
Issuance of common stock for cash,						
net of offering costs	5,116,228	5	7,861	_	7,866	
Issuance of common stock upon						
exercise of warrants for cash	209,025	_	338	_		