

**PROSPECTUS SUPPLEMENT NO. 2 DATED JUNE 9, 2015
TO
PROSPECTUS DATED MAY 22, 2015
(AS SUPPLEMENTED)**

ARCH THERAPEUTICS, INC.

PROSPECTUS

Up to 31,279,926 Shares of Common Stock

This Prospectus Supplement No. 2 supplements the prospectus of Arch Therapeutics, Inc. (“the **“Company”**”, “we”, “us”, or “our”) dated May 22, 2015 (as supplemented to date, the “**Prospectus**”) with the following attached document which we filed with the Securities and Exchange Commission on June 9, 2015:

A. Our Current Report on Form 8-K filed with the Securities and Exchange Commission on June 9, 2015

This Prospectus Supplement No. 2 should be read in conjunction with the Prospectus, which is required to be delivered with this Prospectus Supplement. This prospectus supplement updates, amends and supplements the information included in the Prospectus. If there is any inconsistency between the information in the Prospectus and this prospectus supplement, you should rely on the information in this prospectus supplement.

This prospectus supplement is not complete without, and may not be delivered or utilized except in connection with, the Prospectus, including any amendments or supplements to it.

Investing in our common stock involves a high degree of risk. Before making any investment in our common stock, you should carefully consider the risk factors for our common stock, which are described in the Prospectus, as amended or supplemented.

You should rely only on the information contained in the Prospectus, as supplemented or amended by this Prospectus Supplement No. 2 and any other prospectus supplement or amendment thereto. We have not authorized anyone to provide you with different information.

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

The date of this Prospectus Supplement No. 2 is June, 9, 2015

INDEX TO FILINGS

Annex

The Company’s Current Report on Form 8-K filed with the Securities and Exchange Commission on June 9, 2015

A

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): **June 9, 2015**

ARCH THERAPEUTICS, INC.

(Exact name of registrant as specified in its charter)

Nevada
(State or other jurisdiction
of incorporation)

000-54986
(Commission
File Number)

46-0524102
(I.R.S. Employer
Identification No.)

235 Walnut Street, Suite 6
Framingham, Massachusetts
(Address of principal executive offices)

01702
(Zip Code)

Registrant's telephone number, including area code: **(617) 431-2313**

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))
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Item 8.01 Other Events.

On June 9, 2015, Arch Therapeutics, Inc. (the “Company”) issued a press release announcing that the Company obtained additional safety Data for its AC5 Surgical Hemostatic DeviceTM in a standardized systemic preclinical toxicity test in animals. The text of the press release is attached hereto as Exhibit 99.1 and is incorporated by reference herein.

Item 9.01 Financial Statements and Exhibit

(d) Exhibits

Exhibit	Description
99.1	Press Release issued by Arch Therapeutics, Inc. on June 9, 2015

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.

ARCH THERAPEUTICS, INC.

Dated: June 9, 2015

By: /s/ Terrence W. Norchi, M.D.

Name: Terrence W. Norchi, M.D.

Title: President, Chief Executive Officer

EXHIBIT INDEX

Exhibit	Description
99.1	Press Release issued by Arch Therapeutics, Inc. on June 9, 2015

Arch Therapeutics Obtains Additional Safety Data for Its AC5 Surgical Hemostatic Device™ in Successful Preclinical Toxicity Test

Test of AC5™ Indicates Systemic Non-Toxicity

FRAMINGHAM, MA – June 9, 2015 -- Arch Therapeutics, Inc. (OTCQB: ARTH) (“Arch” or the “Company”), developer of the AC5 Surgical Hemostatic Device™ (“AC5™”), obtained data from a preclinical toxicity test for AC5™ that show the device was well-tolerated and classified as “not toxic” in a standardized test of systemic toxicity. The systemic toxicity animal test is a major component of the biocompatibility test panel that a medical device must typically complete successfully prior to use in humans. Testing was conducted under the guidelines provided by the International Organization for Standardization’s (ISO) and the study also complied with Good Laboratory Practice (GLP), a Federal regulation (21 CFR part 58) governing the conduct of nonclinical laboratory studies that support or are intended to support applications for research or marketing permits for products regulated by the Food and Drug Administration (FDA). AC5 is a development-stage hemostasis product being evaluated to control bleeding and fluid loss in order to provide faster and better surgical and interventional care.

In this standard *in vivo* study, designed to provide general information on the health hazards likely to arise from acute exposure to clinically relevant quantities of AC5, AC5 was well tolerated and classified as not-toxic using standardized success criteria based upon comparison with control materials, monitoring animal body weight and any changes in animal behavior. Results from this biocompatibility safety study indicate that AC5’s peptide structure and mechanism of action, which is based on the formation of a local physical-mechanical barrier at the wound site, does not promote toxicity to the overall biological system following injection of standardized AC5 solutions into animals. The results of this study provide further evidence of the absence of toxicity for AC5, and represent a critical step toward demonstrating biocompatibility of this medical device.

Arch Therapeutics President and CEO Terrence Norchi, MD, stated, “These results present another snapshot of promising data for AC5. We are continuing to study the characteristics, safety and performance of AC5 in preclinical studies as we prepare to start our human clinical trial next quarter.”

About Arch Therapeutics, Inc.

Arch Therapeutics, Inc. is a medical device company developing a novel approach to stop bleeding (hemostasis) and control leaking (sealant) during surgery and trauma care. Arch is developing products based on an innovative self-assembling peptide technology platform to make surgery and interventional care faster and safer for patients. Arch's flagship development stage product candidate, known as the AC5 Surgical Hemostatic Device, is being designed to achieve hemostasis in minimally invasive and open surgical procedures.

Find out more at www.archtherapeutics.com.

Notice Regarding Forward-Looking Statements

This news release contains "forward-looking statements" as that term is defined in Section 27(a) of the Securities Act of 1933, as amended, and Section 21(e) of the Securities Exchange Act of 1934, as amended. Statements in this press release that are not purely historical are forward-looking statements and include any statements regarding beliefs, plans, expectations or intentions regarding the future. Such forward-looking statements include, among other things, references to novel technologies and methods, our business and product development plans and projections, or market information. Actual results could differ from those projected in any forward-looking statements due to numerous factors. Such factors include, among others, the inherent uncertainties associated with developing new products or technologies and operating as a development stage company, our ability to retain important members of our management team and attract other qualified personnel, our ability to raise the additional funding we will need to continue to pursue our business and product development plans, our ability to develop and commercialize products based on our technology platform, and market conditions. These forward-looking statements are made as of the date of this news release, and we assume no obligation to update the forward-looking statements, or to update the reasons why actual results could differ from those projected in the forward-looking statements. Although we believe that any beliefs, plans, expectations and intentions contained in this press release are reasonable, there can be no assurance that any such beliefs, plans, expectations or intentions will prove to be accurate. Investors should consult all of the information set forth herein and should also refer to the risk factors disclosure outlined in the reports and other documents we file with the SEC, available at www.sec.gov.

On Behalf of the Board,
Terrence W. Norchi, MD
Arch Therapeutics, Inc.

Contact:

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