

PROSPECTUS SUPPLEMENT NO. 17 DATED SEPTEMBER 29, 2016
TO
PROSPECTUS DATED JANUARY 15, 2016
(AS SUPPLEMENTED)

ARCH THERAPEUTICS, INC.

PROSPECTUS

Up to 25,590,599 Shares of Common Stock

This Prospectus Supplement No. 17 supplements the prospectus of Arch Therapeutics, Inc. (“the **Company**”, “**we**”, “**us**”, or “**our**”) dated January 15, 2016 (as supplemented to date, the “**Prospectus**”) with the following attached documents which we filed with the Securities and Exchange Commission:

- A. Our Current Report on Form 8-K filed with the Securities and Exchange Commission on September 29, 2016

This Prospectus Supplement No. 17 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. 17 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. 17 is September 29, 2016

INDEX TO FILINGS

The Company’s Current Report on Form 8-K filed with the Securities and Exchange Commission on September 29, 2016

Annex
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): **September 28, 2016**

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 1.01 Entry into a Material Definitive Agreement.

On September 30, 2013, Arch Therapeutics, Inc. (the “**Company**”) entered into (i) a Life Sciences Accelerator Funding Agreement with the Massachusetts Life Sciences Center (“**MLSC**” and such agreement, the “**MLSC Loan Agreement**”) pursuant to which MLSC has provided the Company an unsecured subordinated loan in principal amount of \$1,000,000 (such loan, the “**MLSC Loan**”); and (ii) a promissory note executed in favor of MLSC to evidence the indebtedness under the MLSC Loan (the “**Note**”). The MLSC Loan bore interest at a rate of 10% per annum, and was scheduled to become fully due and payable on the earlier of (i) September 30, 2018; (ii) the occurrence of a Default (as defined in the Note); or (iii) the completion of a sale of substantially all of our assets or a change-of-control transaction (a “**Qualified Sale**”), or one or more financing transactions in which we receive from third parties other than our then existing shareholders net proceeds of \$5,000,000 or more in a 12-month period (a “**Qualified Financing**”).

On September 28, 2016, the Company and MLSC entered into that certain Amendment Agreement to Arch Therapeutics, Inc. Accelerator Funding Agreement (the “**Amendment**”). Under the terms of the Amendment, (i) interest on the MLSC Loan will decrease from 10% per annum to 7% per annum beginning October 3, 2016; and (ii) the MLSC Loan will now become due and payable on the earlier of October 3, 2017 (the “**Maturity Date**”), the occurrence of a Corporate Event (which is defined as the occurrence of either a Qualified Sale or Qualified Financing), and the occurrence of a Default (as defined in the Note). In addition, under the terms of the Amendment, (a) beginning October 3, 2016, the Company will begin amortizing the principal and accrued interest under the MLSC Loan by making the first of 13 monthly payments of approximately \$106,022, with the last payment scheduled to occur on the Maturity Date; and (b) the term “**Qualified Financing**” is now defined to mean one or more financing transactions in which we receive, in a single transaction or series of transactions, cumulative net proceeds of not less than five million dollars (\$5,000,000) at any time after October 3, 2016. As a result of the Amendment, the Company expects to reduce interest expenses that would otherwise be incurred under the MLSC Loan Agreement by approximately \$232,000 due to the effect of the amortization payments and the lower 7% per annum interest rate.

The foregoing description of the Amendment does not purport to be complete and is qualified in its entirety by reference to the copy of the Amendment filed herewith as Exhibit 10.1 to this Current Report on Form 8-K (“**Form 8-K**”), which is incorporated herein by reference.

Notice Regarding Forward Looking Statements

This Form 8-K contains “forward-looking statements” as that term is defined in Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Statements in this Form 8-K that are not purely historical are forward-looking statements and include any statements regarding beliefs, plans, expectations or intentions regarding the future. These forward-looking statements are made as of the date this Form 8-K has been filed with the Securities and Exchange Commission, 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 Form 8-K 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.

Item 2.03 Creation of a Direct Financial Obligation or an Obligation under an Off-Balance Sheet Arrangement of a Registrant.

Reference is made to the disclosure set forth in Item 1.01 of this Current Report on Form 8-K, which disclosure is incorporated by reference into this Item 2.03.

Item 9.01 Financial Statements and Exhibit

(d) Exhibits

Exhibit	Description
10.1	Amendment Agreement to Arch Therapeutics, Inc. Accelerator Funding Agreement dated September 28, 2016 by and between Arch Therapeutics, Inc. and Massachusetts Life Sciences Center

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: September 29, 2016

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

Name: Terrence W. Norchi, M.D.

Title: President, Chief Executive Officer

Exhibit List

Exhibit	Description
10.1	Amendment Agreement to Arch Therapeutics, Inc. Accelerator Funding Agreement dated September 28, 2016 by and between Arch Therapeutics, Inc. and Massachusetts Life Sciences Center

**AMENDMENT AGREEMENT TO
ARCH THERAPEUTICS, INC.
ACCELERATOR FUNDING AGREEMENT**

This **AMENDMENT AGREEMENT** (“Amendment”) is made as of the 28th day of September, 2016 by and between the Massachusetts Life Sciences Center (“MLSC”), an independent public instrumentality of The Commonwealth of Massachusetts established pursuant to Chapter 23I of the Massachusetts General Laws, and Arch Therapeutics, Inc. (“Recipient”), a Nevada corporation, having its principal office and place of business at 235 Walnut Street, Suite 6, Framingham, MA 01702.

WHEREAS, MLSC and Recipient are parties to that certain Massachusetts Life Sciences Center Accelerator Funding Agreement, dated as of September 30, 2013 (the “Loan Agreement”), pursuant to which MLSC loaned recipient \$1,000,000 (the “Loan”);

WHEREAS, in connection with the Loan Agreement, Recipient issued MLSC that certain Promissory Note in the original principal amount of \$1,000,000 issued by Recipient to MLSC on September 30, 2013 (the “Note” and collectively with the Loan Agreement and the Loan (the “Loan Documents”); and

WHEREAS, MLSC and Recipient have agreed to an early repayment plan of the Loan, a reduction in the interest rate and amendment of the Loan Documents on the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the mutual covenants contained herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereby agree as follows:

1. Repayment of Loan.

a. Section 1.1(b) of the Loan Agreement shall be deleted in its entirety and the following Section 1.1(b) shall be inserted in lieu thereof:

The Loan will bear interest at the rate of ten percent (10%) per annum compounding annually based on a 365-day year and determined as of the Distribution Date (as defined in Section 1.4 hereof) through October 2, 2016 and at the rate of seven percent (7%) based on a 360-day year as of October 3, 2016 and in accordance with the schedule attached as Exhibit F whereby Recipient shall make twelve (12) monthly payments of \$106,022.04 (“Installment Payments”) on or before the third day of each month beginning with October 3, 2016 and making a final payment of \$106,022.05 on October 3, 2017 (“Maturity Date”).

Notwithstanding the foregoing, in the event of the earlier of (i) the closing of a Corporate Event (as defined below) or (ii) the occurrence of a Default (as defined in the Note), the principal and any remaining unpaid accrued interest on the Note (the "Accrued Balance"), less the total of any Installment Payments, shall be immediately due and payable.

Recipient may elect to redeem the Note and pay the Accrued Balance, in whole or in part (whether by stated maturity, by acceleration or otherwise) without penalty or premium, subject to providing MLSC with thirty (30) days' written notice of proposed redemption.

b. Section 1.1(c)(v) of the Loan Agreement shall be deleted in its entirety and the following Section 1.1(c)(v) shall be inserted in lieu thereof:

"Qualified Financing" shall mean a sale of any shares of Recipient's capital stock or any other equity interest to any party pursuant to which Recipient receives, in a single transaction or series of transactions, cumulative net proceeds of not less than five million dollars (\$5,000,000) from October 3, 2016 through the Maturity Date.

c. The second paragraph of the Note shall be deleted in its entirety and the following paragraph shall be inserted in lieu thereof:

All outstanding principal and unpaid accrued interest shall be due and payable upon the earlier of (i) October 3, 2017 ("Maturity Date"), (ii) the closing of a Corporate Event (as defined herein) or (iii) upon Default (as defined herein).

2. Event of Default. Section 4 of the Note is amended by adding the following Section 4(h) at the end thereof:

(h) Recipient shall have (i) breached or violated any provision of the Amendment Agreement, dated as of September 28th, 2016, by and between Recipient and MLSC and (ii) not cured such breach within ten (10) business days after Recipient is notified by MLSC in writing of such breach.

3. Corporate Event. Section 5(b) of the Note shall be deleted in its entirety and the following Section 5(b) shall be inserted in lieu thereof:

"Qualified Financing" shall mean a sale of any shares of Recipient's capital stock or any other equity interest to any party pursuant to which Recipient receives, in a single transaction or series of transactions, cumulative net proceeds of not less than five million dollars (\$5,000,000) from October 3, 2016 through the Maturity Date.
