

PROSPECTUS SUPPLEMENT NO. 2 DATED AUGUST 7, 2019
TO
PROSPECTUS DATED NOVEMBER 25, 2016
(AS SUPPLEMENTED)

ARCH THERAPEUTICS, INC.

PROSPECTUS

Up to 9,415,546 Shares of Common Stock

This Prospectus Supplement No. 2 supplements the prospectus of Arch Therapeutics, Inc. (“the **Company**”, “**we**”, “**us**”, or “**our**”) dated November 25, 2016 (as supplemented to date, the “**Prospectus**”) with the following additions and changes:

- A. Amend the Selling Securityholder information set forth in the Prospectus.

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 August 7, 2019

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Amendment to Selling Securityholder Information

Annex

A

ANNEX A
AMENDMENT TO SELLING SECURITYHOLDER INFORMATION

This Prospectus Supplement No. 2 is being filed in connection with certain changes to the selling securityholder information as set forth in the Prospectus dated November 25, 2016 (as supplemented to date, the “**Prospectus**”) resulting from the transfer by by Tungsten III, LLC (“**Tungsten**”), an entity controlled by Michael A. Parker, of its Series D Warrants to Ana B. Parker, Mr. Parker’s wife. Consequently, the selling securityholders table (the “**Selling Securityholders Table**”) appearing under the heading “**SELLING SECURITYHOLDERS**” in the Prospectus is hereby amended and supplemented by (i) deleting the information for the Tungsten in the Selling Securityholders Table; (ii) adding the following information for Ms. Parker to the Selling Securityholders Table; and (iii) updating footnotes (1) through (5):

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Name of Selling Securityholder	Number of Shares of Common Stock Issued and Issuable (1)	Number of Shares of Common Stock Beneficially Owned Prior to this Offering (2)	Maximum Number of Shares of Common Stock to be Sold Pursuant to this Prospectus (3)	Number of Shares of Common Stock Beneficially Owned After This Offering (4)	Percentage of Shares of Common Stock Beneficially Owned After This Offering (5)
Ana B Parker (19)	12,348,932	4,434,829	1,583,334	4,434,829	3.35%

- (1) Reflects the total number of shares of Common Stock held or issuable to each selling securityholder including, to the extent applicable, (a) all remaining securities issued in the 2016 Private Placement Financing, in each case without regard to ownership limitations on the exercise of certain of the Series E Warrants as described in footnote (2) below; (b) all remaining securities issued in the 2015 Private Placement Financing (and together with the 2016 Private Placement Financing, the “**Private Placement Financings**”), none of which are being registered in the 2016 S-3 Registration Statement of which this prospectus forms a part and in each case without regard to the ownership limitations on the exercise of certain of the Series D Warrants as described in footnote (2) below; (c) all remaining securities issued in connection with the registered direct offering that closed on July 2, 2018 (the “**2018 Financing**”), none of which are being registered in the 2016 S-3 Registration Statement of which this prospectus forms a part and in each case without regard to the ownership limitations on the exercise of the Series G Warrants as described in footnote (2) below; (d) all remaining securities issued in connection with the registered direct offering that closed on May 14, 2019 (the “**2019 Financing**”, and together with the Private Placement Financings and 2018 Financing, the “**Equity Financings**”), none of which are being registered in the 2016 S-3 Registration Statement of which this prospectus forms a part and in each case without regard to the ownership limitations on the exercise of the Series H Warrants as described in footnote (2) below; and (e) all other securities issued in transactions unrelated to the Equity Financings, if any, none of which are being registered in the 2016 S-3 Registration Statement of which this prospectus forms a part and in each case without regard to any ownership limitations upon the exercise or conversion of such securities.
- (2) Certain of the Series E and Series D Warrants issued in the 2016 Private Placement Financing and 2015 Private Placement Financing, respectively and all the Series G Warrants and Series H Warrants issued in the 2018 Financing and 2019 Financing, respectively, contain ownership limitations to prevent the exercise of such warrants in certain circumstances. In particular, certain of the Series E Warrants provide that they shall not be exercisable in the event and to the extent that the exercise thereof would result in the holder of the Series E Warrant, together with its affiliates and any other persons whose beneficial ownership of Common Stock would be aggregated with the holder’s, would be deemed to beneficially own more than 4.99% of the Common Stock; *provided, however*, the (i) holder, upon notice to us, may increase or decrease this ownership limitation so long as the maximum ownership limitation does not exceed 9.99% of the Company’s Common Stock; and (ii) any increase in the ownership limitation will not become effective until the 61st day after delivery of such notice. Similarly, certain of the Series D Warrants provide that a selling securityholder may not exercise such warrants to the extent (but only to the extent) that the exercise thereof would result in the selling securityholder or any of its affiliates beneficially owning more than 4.9% of our Common Stock after giving effect to such exercise; *provided, however*, that in the case of any Series D Warrant with an ownership limitation, the holder may waive such ownership limitation, in which case such waiver will become effective sixty-one (61) days after the holder’s delivery of such wavier notice. Finally, the Series G Warrants and Series H Warrants provide that they may not be exercised if the holder, together with its affiliates and any other persons whose beneficial ownership of the Common Stock would be aggregated with the holder’s, would be deemed to beneficially own more than 4.99% of the Common Stock; *provided, however*, the (i) holder, upon notice to us, may increase this ownership limitation so long as the maximum ownership limitation does not exceed 9.99% of the Company’s Common Stock; and (ii) any increase in the ownership limitation will not become effective until the 61st day after delivery of such notice.

As a result, the number of shares of Common Stock reflected in this column as beneficially owned by each selling securityholder includes, to the extent applicable, (a) the shares of Common Stock that were issued in the 2016 Private Placement Financing held by such selling securityholder and/or issuable upon exercise of the Series E Warrants held by such selling securityholder which, in the case of any Series E Warrant with an ownership limitation that has not been previously waived, is limited to the number of shares of Common Stock that such selling securityholder has the right to acquire without it (along with any of its affiliates or any other persons whose beneficial ownership of Common Stock would be aggregated with the selling securityholder) beneficially owning more than 4.99% (or up to 9.99% at the securityholders' discretion) of our currently outstanding Common Stock; (b) the shares of Common Stock that were issued in the Closings conducted for the 2015 Private Placement Financing held by such selling securityholder and/or issuable upon exercise of the Series D Warrants held by such selling securityholder which, in the case of any Series D Warrant with an ownership limitation that has not been previously waived, is limited to the number of shares of Common Stock that such selling securityholder has the right to acquire without it or any of its affiliates beneficially owning more than 4.9% of our currently outstanding Common Stock; (c) the shares of Common Stock that were issued in the 2018 Financing held by such selling securityholder and/or issuable upon exercise of the Series G Warrants held by such selling securityholder which is limited to the number of shares of Common Stock that such selling securityholder has the right to acquire without it (along with any of its affiliates or any other persons whose beneficial ownership of Common Stock would be aggregated with the selling securityholder) beneficially owning more than 4.99% (or up to 9.99% at the securityholders' discretion) of our currently outstanding Common Stock; (d) the shares of Common Stock that were issued in the 2019 Financing held by such selling securityholder and/or issuable upon exercise of the Series H Warrants held by such selling securityholder which is limited to the number of shares of Common Stock that such selling securityholder has the right to acquire without it (along with any of its affiliates or any other persons whose beneficial ownership of Common Stock would be aggregated with the selling securityholder) beneficially owning more than 4.99% (or up to 9.99% at the securityholders' discretion) of our currently outstanding Common Stock; and (e) shares of our Common Stock beneficially owned by such selling securityholder that were acquired in transactions unrelated to the Equity Financings.

- (3) For each selling securityholder, the totals reported in this column reflect the total number of shares of Common Stock registered for resale under the 2016 S-3 Registration Statement of which this prospectus forms a part including (a) the shares of Common Stock held by such selling securityholder that were issued in connection with the Closings conducted for the 2016 Private Placement Financing and/or, to the extent applicable, acquired upon the exercise of the Series E Warrants; and (b) shares of Common Stock issuable upon exercise of the Series E Warrants held by such selling securityholder, in each case without taking into account the ownership limitations set forth in the Series E Warrants as described in footnote (2).
- (4) For each selling securityholder and to the extent applicable, the totals reported in this column reflect the ownership limitations set forth in the Series D, E, G and H Warrants described in footnote (2), and assume that (a) all of the shares of Common Stock to be registered by the 2016 S-3 Registration Statement of which this prospectus forms a part, including the shares of Common Stock issuable upon exercise of the Series D Warrants held by such selling securityholder (in each case without taking into account the ownership limitations set forth in certain of the Series D Warrants as described in footnote (2)), are sold in this offering; and (b) the selling securityholders do not (i) sell any of the securities that have been issued to them in transactions unrelated to the 2015 Private Placement Financing (including, but not limited to, the 2016 Private Placement Financing and the 2014 Private Placement Financing) and included in Column 2; and (ii) acquire additional shares of our Common Stock after November 23, 2016 and prior to completion of this offering.
- (5) Percentage ownership for each selling securityholder is determined in accordance with Section 13(d) of the Exchange Act and is based on 173,577,233 outstanding shares of our Common Stock as of August 7, 2019, and assumes that all shares underlying such selling securityholder's Series D Warrants that are being offered by such selling securityholder by this prospectus have been issued and are outstanding.
- (19) Ms. Parker may be deemed to have beneficial ownership of 4,434,829 shares of Common Stock, which consists of (i) 1,210,495 shares of Common Stock that were originally issued to Ms. Parker's IRA in connection with the 2016 Private Placement Financing and subsequently transferred by her IRA to her in her personal capacity, none of which are being registered in the 2016 S-3 Registration Statement of which this prospectus forms a part; (ii) 788,800 shares of Common Stock that were issued to Ms. Parker in connection with the registered direct offering that closed on July 2, 2018 (the "**2018 Financing**"), none of which are being registered in the 2016 S-3 Registration Statement of which this prospectus forms a part; (iii) 1,230,769 shares of Common Stock that were issued to Ms. Parker in connection with the registered direct offering that closed on May 14, 2019 (the "**2019 Financing**"), and together with the Private Placement Financings and 2018 Financing, the "**Equity Financings**"), none of which are being registered in the 2016 S-3 Registration Statement of which this prospectus forms a part; and (iv) 1,204,765 shares of Common Stock acquired by Ms. Parker in transactions unrelated to the Equity Financings, none of which are being registered in the 2016 S-3 Registration Statement of which this prospectus forms a part. The shares of Common Stock being registered in the 2016 S-3 Registration Statement of which this prospectus forms a part consist of 1,583,334 shares of Common Stock issuable upon exercise of Series E that were originally issued to Ms. Parker's IRA in connection with the 2016 Private Placement Financing, subsequently assigned to Tungsten III, LLC ("**Tungsten**"), an entity controlled by Michael A. Parker, Ms. Parker's spouse, and then assigned by Tungsten to Ms. Parker, effective as of May 30, 2019. The information presented for Ms. Parker in Column 3 of this table excludes (a) 4,500,000 shares of Common Stock issuable upon exercise of Series D Warrants that were originally issued to Mr. Parker, an investor in the 2015 Private Placement Financing, subsequently assigned by Mr. Parker to Tungsten, and then assigned by Tungsten to Ms. Parker, effective as of May 30, 2019, none of which are being registered in the 2016 S-3 Registration Statement of which this prospectus forms a part; (b) 600,000 shares of Common Stock issuable upon exercise of Series G Warrants that issued to Ms. Parker in connection with the 2018 Financing, none of which are being registered in the 2016 S-3 Registration Statement of which this prospectus forms a part; (c) 1,230,769 shares of Common Stock issuable upon exercise of Series H Warrants that issued to Ms. Parker in connection with the 2019 Financing, none of which are being registered in the 2016 S-3 Registration Statement of which this prospectus forms a part; (d) 5,000,000 shares of Common Stock that were originally issued to Mr. Parker in connection with the 2015 Private Placement Financing and subsequently assigned by Mr. Parker to Tungsten, none of which are being registered in the 2016 S-3 Registration Statement of which this prospectus forms a part; and (e) 1,380,891 shares of Common Stock acquired by Mr. Parker in transactions unrelated to the Equity Financings, none of which are being registered in the 2016 S-3 Registration Statement of which this prospectus forms a part.