



N/A

(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:

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))

Indicate by check mark whether the registrant is an emerging growth company as defined in in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company

If an emerging growth company, indicate by checkmark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

**Item 1.01 Entry into a Material Definitive Agreement.**

On May 7, 2018, Synthetic Biologics, Inc. (the “Company”) entered into amendment no. 1 (the “Amendment”) to its existing At Market Issuance Sales Agreement that it entered into with B. Riley FBR, Inc. on August 5, 2016 (the “Sales Agreement” and, as amended by the Amendment, the “Amended Sales Agreement”). The sole effect of the Amendment is to allow for the sale of the shares of the Company’s common stock under the Amended Sales Agreement to be sold pursuant to a new registration statement on Form S-3 to be filed by the Company.

A copy of the Amendment is attached as Exhibit 1.1 hereto and is incorporated herein by reference. A copy of the Sales Agreement is attached as Exhibit 1.2 hereto and is incorporated herein by reference. The foregoing description of the material terms of the Amended Sales Agreement, consisting of the Amendment and the Sales Agreement, does not purport to be complete and is qualified in its entirety by reference to such exhibits.

**Item 9.01 Financial Statements and Exhibits.**

(d)Exhibits

1.1 Amendment No. 1 to At-The-Market Issuance Sales Agreement dated May 7, 2018 between Synthetic Biologics, Inc. and B. Riley FBR, Inc.

1.2 At-the-Market Issuance Sales Agreement dated August 5, 2016 between Synthetic Biologics, Inc. and FBR Capital Markets & Co. (Incorporated by reference to 1.1 of the Registrant’s Current Report on Form 8-K filed August 5, 2016 (File No. 001-12584).

**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: May 7, 2018 SYNTHETIC BIOLOGICS, INC.

By: /s/ Steven A. Shallcross  
Name: Steven A. Shallcross  
Title: Interim Chief Executive Officer and  
  
Chief Financial Officer

## EXHIBIT INDEX

### Exhibit

#### Number Description

1.1 Amendment  
No. 1 to  
At-The-Market  
Issuance Sales  
Agreement dated  
May 7, 2018  
between  
Synthetic  
Biologics, Inc.  
and B. Riley  
FBR, Inc.

1.2  
At-the-Market  
Issuance Sales  
Agreement dated  
August 5, 2016  
between  
Synthetic  
Biologics, Inc.  
and FBR Capital  
Markets & Co.  
(Incorporated by  
reference to 1.1  
of the Registrant's  
Current Report  
on Form 8-K  
filed August 5,  
2016 (File No.  
001-12584).