
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

**Pre-Effective Amendment No. 1
to
FORM S-3
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933**

REGENXBIO INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

47-1851754
(I.R.S. Employer
Identification Number)

**9600 Blackwell Road, Suite 210
Rockville, MD 20850**

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

**Kenneth T. Mills
President and Chief Executive Officer
9600 Blackwell Road, Suite 210
Rockville, MD 20850
(240) 552-8181**

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

**Jay K. Hachigian, Esq.
Keith J. Scherer, Esq.
Albert W. Vanderlaan, Esq.
Gunderson Dettmer Stough
Villeneuve Franklin & Hachigian, LLP
One Marina Park Drive, Suite 900
Boston, MA 02210
(617) 648-9100**

**Patrick J. Christmas
Senior Vice President, General Counsel
9600 Blackwell Road, Suite 210
Rockville, MD 20850
(240) 552-8181**

Approximate date of commencement of proposed sale to the public: From time to time after this registration statement becomes effective.

If the only securities being registered on this form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

If any of the securities being registered on this form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box.

If this form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

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. (Check one):

Large accelerated filer

Accelerated filer

Non-accelerated filer (Do not check if a smaller reporting company)

Smaller reporting company

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until this registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to such Section 8(a), may determine.

EXPLANATORY NOTE

REGENXBIO Inc. is filing this pre-effective Amendment No. 1 (this “Amendment”) to the Registration Statement on Form S-3 (Registration No. 333-215146) (the “Registration Statement”) as an exhibit-only filing to re-file Exhibit 5.1 filed with the Registration Statement on December 16, 2016. Accordingly, this Amendment consists only of the facing page, this explanatory note, Item 16 of Part II of the Registration Statement, the signature page to the Registration Statement, the exhibit index and the re-filed Exhibit 5.1. The remainder of the Registration Statement, including the prospectus, is unchanged and therefore has not been included in this Amendment.

PART II
INFORMATION NOT REQUIRED IN PROSPECTUS

Item 16. Exhibits

A list of exhibits filed with this registration statement is set forth in the exhibit index that immediately precedes such exhibits and is incorporated herein by reference.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Rockville, State of Maryland, on the 29th day of December, 2016.

REGENXBIO INC.

By: /s/ Kenneth T. Mills
Kenneth T. Mills
President and Chief Executive Officer

POWER OF ATTORNEY

Pursuant to the requirements of the Securities Act of 1933, as amended, this amendment has been signed by the following persons in the capacities and on the dates indicated.

| <u>Signature</u> | <u>Title</u> | <u>Date</u> |
|---|---|-------------------|
| <u>/s/ Kenneth T. Mills</u> Kenneth T. Mills | President and Chief Executive Officer (Principal Executive Officer) and Director | December 29, 2016 |
| <u>*</u> Vittal Vasista | Chief Financial Officer (Principal Financial and Accounting Officer) | December 29, 2016 |
| <u>*</u> Donald J. Hayden, Jr. | Chairman of the Board of Directors | December 29, 2016 |
| <u>*</u> Daniel J. Abdun-Nabi | Director | December 29, 2016 |
| <u>*</u> Luke M. Beshar | Director | December 29, 2016 |
| <u>*</u> Allan M. Fox | Director | December 29, 2016 |
| <u>*</u> A.N. "Jerry" Karabelas | Director | December 29, 2016 |
| <u>*</u> David C. Stump | Director | December 29, 2016 |
| <u>*</u> Daniel Tassé | Director | December 29, 2016 |

*By: /s/ Patrick J. Christmas
Patrick J. Christmas, As Attorney-in-Fact

EXHIBIT INDEX

| Exhibit Number | Description |
|-------------------|---|
| 1.1** | Form of underwriting agreement. |
| 4.1* | Restated Certificate of Incorporation (incorporated herein by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed on September 22, 2015). |
| 4.2* | Amended and Restated Bylaws (incorporated herein by reference to Exhibit 3.2 to the Registrant's Current Report on Form 8-K filed on September 22, 2015). |
| 4.3* | Specimen stock certificate evidencing shares of the Registrant's \$0.0001 par value Common Stock (incorporated herein by reference to Exhibit 4.1 to the Registrant's Registration Statement on Form S-1 filed on August 17, 2015). |
| 4.4** | Form of certificate of designation with respect to any preferred stock issued hereunder and the related form of preferred stock certificate. |
| 4.5** | Form of warrant agreement. |
| 4.6** | Form of warrant certificate. |
| 4.7* | Form of indenture to be entered into between registrant and a trustee acceptable to the registrant. |
| 4.8** | Form of debt security. |
| 4.9** | Form of rights certificate. |
| 4.10** | Form of unit agreement. |
| 4.11** | Form of unit certificate. |
| 5.1 | Opinion of Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP. |
| 12.1** | Computation of Ratio of Earnings to Fixed Charges and Earnings to Preferred Stock Dividends |
| 23.1* | Consent of PricewaterhouseCoopers LLP. |
| 23.2 | Consent of Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP (included in its Opinion filed as Exhibit 5.1 hereto). |
| 24.1* | Powers of Attorney (included on signature page hereto). |
| 25.1*** | Statement of Eligibility of Trustee on Form T-1 under Trust Indenture Act of 1939. |

* Previously filed

** To be filed by amendment or as an exhibit to a document filed under the Exchange Act and incorporated by reference herein.

*** To be filed separately pursuant to Section 305(b)(2) of the Trust Indenture Act of 1939, as amended, and the appropriate rules and regulations thereunder.

December 29, 2016

REGENXBIO Inc.
9600 Blackwell Road, Suite 210
Rockville, Maryland 20850

Re: Registration Statement on Form S-3

Ladies and Gentlemen:

This opinion is furnished to REGENXBIO Inc. (the "Company"), in connection with the registration statement on Form S-3 (the "Registration Statement"), including the prospectus that is part of the Registration Statement (the "Prospectus"), filed with the Securities and Exchange Commission on December 16, 2016 under the Securities Act of 1933, as amended (the "Act"). The Prospectus provides that it will be supplemented in the future by one or more prospectus supplements (each, a "Prospectus Supplement"). The Prospectus, as supplemented by the various Prospectus Supplements, relates to the registration of the offering by the Company from time to time of (a)(i) shares of common stock, \$0.0001 par value per share (the "Common Stock") of the Company, (ii) shares of preferred stock, \$0.0001 par value per share (the "Preferred Stock") of the Company, (iii) one or more series of the debt securities of the Company (the "Debt Securities"), which may be either senior securities or subordinated securities and which may be convertible into or exchangeable for shares of the Common Stock or Preferred Stock, (iv) warrants to purchase shares of Common Stock, shares of Preferred Stock and/or Debt Securities (the "Warrants") (v) rights to purchase shares of Common Stock, shares of Preferred Stock and/or Debt Securities (the "Rights") or (vi) units representing an interest in a combination of one or more of the foregoing (the "Units") and (b) 5,057,458 shares of Common Stock to be offered and sold by certain stockholders of the Company (the "Selling Stockholder Shares").

The Common Stock, the Preferred Stock, the Debt Securities, the Warrants and the Units are collectively referred to herein as the "Securities." The Securities are being registered for offering and sale from time to time pursuant to Rule 415 under the Securities Act. The maximum aggregate public offering price of the Common Stock, the Preferred Stock, the Debt Securities, the Warrants and the Units being registered is \$225,000,000.

The Debt Securities will be issued pursuant to one or more indentures in the form filed as an exhibit to the Registration Statement, as amended or supplemented from time to time (each, an "Indenture"), between the Company, as obligor, and a trustee chosen by the Company and qualified to act as such under the Trust Indenture Act of 1939, as amended (each, a "Trustee").

In connection with this opinion, we have examined the Registration Statement and such other documents, records, certificates, memoranda and other instruments as we deem necessary as a basis for this opinion. We have assumed the genuineness of all signatures, the legal capacity of natural persons, the genuineness and authenticity of all documents submitted to us as originals, the conformity to originals of all documents submitted to us as copies thereof and the due execution and delivery of all documents where due execution and delivery are a prerequisite to the effectiveness thereof. As to questions of fact material to this opinion, we have relied upon certificates or comparable documents of public officials and of officers and representatives of the Company.

Based upon the foregoing and subject to the additional qualifications set forth below, we are of the opinion that:

1. When the issuance and the terms of the sale of the shares of Common Stock have been duly authorized by the board of directors of the Company in conformity with its certificate of incorporation, and such shares have been issued and delivered against payment of the purchase price therefor in an amount in excess of the par value thereof, in accordance with the applicable definitive purchase, underwriting or similar agreement, and as contemplated by the Registration Statement, the Prospectus and the related Prospectus Supplement, and, if issued upon the conversion, exchange or exercise of Debt Securities or Warrants, when such shares have been duly issued and delivered as contemplated by the terms of the applicable Indenture or Warrant, such shares of Common Stock will be validly issued, fully paid and nonassessable.

2. When the issuance and the terms of the sale of the shares of Preferred Stock have been duly authorized by the board of directors of the Company in conformity with its certificate of incorporation; an appropriate certificate or certificates of designation relating to a series of the Preferred Stock to be sold under the Registration Statement has or have been duly authorized and adopted and filed with the Secretary of State of Delaware; the terms of issuance and sale of shares of such series of Preferred Stock have been duly established in conformity with the Company's certificate of incorporation and by-laws so as to not violate any applicable law or result in a default under or breach of any agreement or instrument binding upon the Company and comply with any requirement or restriction imposed by any court or governmental body having jurisdiction over the Company or any of its property; and such shares have been issued and delivered against payment of the purchase price therefor in an amount in excess of the par value thereof, in accordance with the applicable definitive purchase, underwriting or similar agreement, and as contemplated by the Registration Statement, the Prospectus and the related Prospectus Supplement, and, if issued upon the conversion, exchange or exercise of any Debt Securities or Warrants, when such shares have been duly issued and delivered as contemplated by the terms of the applicable Indenture or Warrant, the shares of Preferred Stock will be validly issued, fully paid and nonassessable.

3. When the issuance and the terms of the sale of the Debt Securities have been duly authorized by the board of directors of the Company and duly established in conformity with the applicable Indenture so as not to violate any applicable law or result in a default under, or breach of, any agreement or instrument binding upon the Company and so as to comply with any requirement or restriction imposed by any court or governmental or regulatory body having jurisdiction over the Company or any of its property, and the Debt Securities have been duly executed, authenticated, issued, delivered and sold in accordance with the applicable definitive purchase, underwriting or similar agreement, as contemplated by the Registration Statement, the Prospectus and the related Prospectus Supplement, and in the manner provided for in the applicable Indenture against payment of the purchase price therefor, the Debt Securities will constitute valid and binding obligations of the Company enforceable against the Company in accordance with their respective terms.

4. When the issuance and the terms of the sale of the Warrants have been duly authorized by the board of directors of the Company; the terms of the Warrants and of their issuance and sale have been duly established so as to not violate any applicable law or result in a default under or breach of any agreement or instrument binding upon the Company and comply with any requirement or restriction imposed by any court or governmental body having jurisdiction over the Company or any of its property; and the Warrants have been duly executed and issued and sold in accordance with the applicable definitive purchase, underwriting or similar agreement, as contemplated by the Registration Statement, the Prospectus and the related Prospectus Supplement, the Warrants will constitute valid and binding obligations of the Company enforceable against the Company in accordance with their terms.

5. When the issuance and the terms of the sale of the Rights have been duly authorized by the board of directors of the Company; the terms of the Rights and of their issuance and sale have been duly established so as to not violate any applicable law or result in a default under or breach of any agreement or instrument binding upon the Company and comply with any requirement or restriction imposed by any court or governmental body having jurisdiction over the Company or any of its property; and the Rights have been duly executed and issued and sold in accordance with the applicable definitive purchase, underwriting or similar agreement, as contemplated by the Registration Statement, the Prospectus and the related Prospectus Supplement, the Rights will constitute valid and binding obligations of the Company enforceable against the Company in accordance with their terms.

6. When the issuance and the terms of the sale of the Units have been duly authorized by the board of directors of the Company; the terms of the Units and of their issuance and sale have been duly established so as to not violate any applicable law or result in a default under or breach of any agreement or instrument binding upon the Company and comply with any requirement or restriction imposed by any court or governmental body having jurisdiction over the Company or any of its property; and the Units have been duly executed and issued and sold in accordance with the applicable definitive purchase, underwriting or similar agreement, as contemplated by the Registration Statement, the Prospectus and the related Prospectus Supplement, the Units will constitute valid and binding obligations of the Company enforceable against the Company in accordance with their terms.

7. The Selling Stockholder Shares have been duly authorized and validly issued and are fully paid and nonassessable.

We do not express any opinion herein concerning any law other than the Delaware General Corporation Law (including the statutory provisions, all applicable provisions of the Delaware Constitution and reported judicial decisions interpreting the foregoing) and the laws of the Commonwealth of Massachusetts and the State of New York. Without limiting the generality of the foregoing, we express no opinion with respect to the qualification of the Securities under the securities or blue sky laws of any state or any foreign jurisdiction.

In rendering the opinions set forth above, we have assumed that (i) the Registration Statement will have become effective under the Securities Act, a Prospectus Supplement will have been prepared and filed with the SEC describing the Securities offered thereby and such Securities will have been issued and/or sold in accordance with the terms of such Prospectus Supplement; (ii) a definitive purchase, underwriting or similar agreement with respect to such Securities (if applicable) will have been duly authorized, executed and delivered by the Company and the other parties thereto; (iii) the Securities issued by the Company will be duly authorized by all necessary corporate action by the Company and any Indenture, any applicable supplemental indenture thereto, and other agreement pursuant to which such Securities may be issued will be duly authorized, executed and delivered by the Company and the other parties thereto; (iv) the Company is and will remain duly organized, validly existing and in good standing under applicable state law; and (v) the Company will have reserved a sufficient number of shares of its duly authorized, but unissued, Common Stock and Preferred Stock as is necessary to provide for the issuance of the shares of Common Stock and Preferred Stock pursuant to the Registration Statement.

The opinions set forth above are subject to the following exceptions, limitations and qualifications: (i) the effect of bankruptcy, insolvency, reorganization, fraudulent conveyance, moratorium or other similar laws now or hereafter in effect relating to or affecting the rights and remedies of creditors; (ii) the effect of general principles of equity, including without limitation, concepts of materiality, reasonableness, good faith and fair dealing and the possible unavailability of specific performance or injunctive relief, regardless of whether enforcement is considered in a proceeding in equity or at law, and the discretion of the court before which any proceeding therefore may be brought; (iii) the unenforceability under certain circumstances under law or court decisions of provision providing for the indemnification of, or contribution to, a party with respect to a liability where such indemnification or contribution is contrary to public policy. We express no opinion (i) concerning the enforceability of any waiver of rights or defenses with respect to stay, extension or usury laws or (ii) with respect to whether acceleration of Debt Securities may affect the collectability of any portion of the stated principal amount thereof which might be determined to constitute unearned interest thereon. Our opinions expressed herein are also subject to the qualification that no term or provision shall be included in any Indenture, any Warrant, any Unit or any other agreement or instrument pursuant to which any of the Securities are to be issued that would affect the validity of such opinions.

We consent to the use of this opinion as Exhibit 5.1 to the Registration Statement, and further consent to the use of our name under the caption "Legal Matters" in the prospectus included in the Registration Statement, and in any amendment or supplement thereto.

Sincerely,

/s/ Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP

Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP