

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

**FORM S-8**  
**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)  
 9600 Blackwell Road, Suite 210  
 Rockville, Maryland  
 (Address of Principal Executive Offices)

47-1851754  
 (I.R.S. Employer  
 Identification No.)

20850  
 (Zip Code)

2015 Equity Incentive Plan  
 (Full title of the plan)

Vittal K. Vasista  
 Chief Financial Officer  
 REGENXBIO Inc.

9600 Blackwell Road, Suite 210  
 Rockville, Maryland 20850

(Name and address of agent for service)

(240) 552-8181

(Telephone number, including area code, of agent for service)

*Copies to:*

Kerry Shannon Burke  
 Matthew C. Franker  
 Covington & Burling LLP  
 One CityCenter  
 850 Tenth Street, N.W.  
 Washington, D.C. 20001  
 (202) 662-6000

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer

Accelerated filer

Non-accelerated filer

(Do not check if a smaller reporting company)

Smaller reporting company

Emerging growth company

If an emerging growth company, indicate by check mark 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 7(a)(2)(B) of the Securities Act.

**CALCULATION OF REGISTRATION FEE**

| Title of securities to be registered                                    | Amount to be registered(1) | Proposed maximum offering price per share(2) | Proposed maximum aggregate offering price(2) | Amount of registration fee |
|---|----------------------------|--|--|----------------------------|
| Common Stock, \$0.0001 par value per share (2015 Equity Incentive Plan) | 1,251,810                  | \$28.15                                      | \$35,238,451.50                              | \$4,387.19                 |

(1) Pursuant to Rule 416(a) under the Securities Act of 1933, as amended (the "Securities Act"), this Registration Statement shall also cover any additional shares of the registrant's Common Stock that become issuable in respect of the securities identified in the above table by reason of any stock dividend, stock split, recapitalization or other similar transaction.

(2) Estimated solely for the purpose of calculating the amount of the registration fee pursuant to Rule 457(c) and Rule 457(h) under the Securities Act, and based upon the average of the high and low prices of the registrant's Common Stock as reported on The Nasdaq Global Select Market on March 1, 2018.

## EXPLANATORY NOTE

This Registration Statement on Form S-8 (the “Registration Statement”) is filed by REGENXBIO Inc. (the “Company”) for the purpose of registering additional shares of its common stock, \$0.0001 par value per share (the “Common Stock”), under the Company’s 2015 Equity Incentive Plan (the “Plan”).

The number of shares of Common Stock available for issuance under the Plan is subject to an automatic annual increase as of the first business day of the Company’s fiscal year equal to the lower of (a) 4.0% of the total number of shares of Common Stock outstanding on December 31 of the prior year or (b) a number of shares of Common Stock determined by the Company’s Board of Directors (the “Evergreen Provision”). Accordingly, the number of shares of Common Stock available for issuance under the Plan was increased by 1,251,810 shares effective January 2, 2018. This Registration Statement registers the 1,251,810 additional shares of Common Stock available for issuance under the Plan as a result of the Evergreen Provision.

Of the 6,315,513 shares of Common Stock currently authorized by the Plan, (a) 2,952,100 shares of Common Stock were registered pursuant to the Company’s Registration Statement on Form S-8 filed on September 17, 2015 (Commission File No. 333-206984), (b) 1,052,538 shares of Common Stock were registered pursuant to the Company’s Registration Statement on Form S-8 filed on March 3, 2016 (Commission File No. 333-209899) and (c) 1,059,065 shares of Common Stock were registered pursuant to the Company’s Registration Statement on Form S-8 filed on March 7, 2017 (Commission File No. 333-216508) (collectively, the “Original Registration Statements”). Pursuant to General Instruction E to Form S-8 under the Securities Act of 1933, as amended, the contents of the Original Registration Statements, including any amendments thereto or filings incorporated therein by reference are incorporated herein by reference and made part of this Registration Statement. Any items in the Original Registration Statements not expressly changed hereby shall be as set forth in the Original Registration Statements.

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PART II

INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

**Item 3. Incorporation of Documents by Reference.**

The following documents (File No. 001-37553) previously filed with the Securities and Exchange Commission (the "SEC") are hereby incorporated by reference:

- the Company's Annual Report on Form 10-K for the year ended December 31, 2017, filed with the SEC on March 6, 2018 (the "2017 Annual Report");
- the Company's definitive proxy statement on Schedule 14A for the 2017 Annual Meeting of Stockholders, filed with the SEC on April 13, 2017;
- all other reports filed with the SEC pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), since the end of the fiscal year covered by the Company's 2017 Annual Report; and
- the description of the Company's Common Stock contained in the Company's Registration Statement on Form 8-A, filed with the SEC on September 9, 2015.

All reports and other documents subsequently filed by us pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act, prior to the filing of a post-effective amendment which indicates that all securities registered have been sold or which deregisters all securities then remaining unsold, shall be deemed to be incorporated by reference into this Registration Statement and to be a part hereof from the date of filing of such documents, except as to specific sections of such statements as set forth therein.

Unless expressly incorporated into this Registration Statement, a report furnished on Form 8-K prior or subsequent to the date hereof shall not be incorporated by reference into this Registration Statement. Any statement contained in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this Registration Statement to the extent that a statement contained in any subsequently filed document which also is deemed to be incorporated by reference herein modifies or supersedes such statement.

**Item 8. Exhibits.**

| <u>Exhibit No.</u> | <u>Description</u>  |
|--------------------|---|
| 4.1*               | <a href="#"><u>Restated Certificate of Incorporation (incorporated by reference from Exhibit 3.1 to the Company's Current Report on Form 8-K, filed with the SEC on September 22, 2015).</u></a>  |
| 4.2*               | <a href="#"><u>Amended and Restated Bylaws (incorporated by reference from Exhibit 3.2 to the Company's Current Report on Form 8-K, filed with the SEC on September 22, 2015).</u></a>  |
| 4.3*               | <a href="#"><u>Specimen stock certificate evidencing the shares of Common Stock (incorporated by reference from Exhibit 4.1 to the Company's Registration Statement on Form S-1, filed with the SEC on August 17, 2015).</u></a>                          |
| 4.4*               | <a href="#"><u>2015 Equity Incentive Plan and form of option agreement thereunder (incorporated by reference from Exhibit 10.3 to Amendment No. 2 to the Company's Registration Statement on Form S-1, filed with the SEC on September 15, 2015).</u></a> |
| 5.1                | <a href="#"><u>Opinion and Consent of Covington &amp; Burling LLP.</u></a>  |
| 23.1               | <a href="#"><u>Consent of PricewaterhouseCoopers LLP, Independent Registered Public Accounting Firm.</u></a>  |
| 23.2               | <a href="#"><u>Consent of Covington &amp; Burling LLP (contained in Exhibit 5.1).</u></a>   |
| 24.1               | <a href="#"><u>Power of Attorney (contained on signature page hereto).</u></a>  |

\* Incorporated by reference

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## 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-8 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 this 6th day of March, 2018.

### REGENXBIO INC.

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

### POWER OF ATTORNEY AND SIGNATURES

**KNOW ALL PERSONS BY THESE PRESENTS**, that each person whose signature appears below hereby constitutes and appoints Kenneth T. Mills and Patrick J. Christmas, and each of them, as his or her true and lawful attorney-in-fact and agent with full power of substitution, for him or her in any and all capacities, to sign any and all amendments to this Registration Statement on Form S-8 (including post-effective amendments), and to file the same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully for all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or his or her substitute, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement 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><br>Kenneth T. Mills             | President, Chief Executive Officer and Director<br>(Principal Executive Officer) | March 6, 2018 |
| <u>/s/ Vittal Vasista</u><br>Vittal Vasista                 | Chief Financial Officer<br>(Principal Financial and Accounting Officer)          | March 6, 2018 |
| <u>/s/ Donald J. Hayden, Jr.</u><br>Donald J. Hayden, Jr.   | Chairman of the Board of Directors   | March 6, 2018 |
| <u>/s/ Daniel J. Abdun-Nabi</u><br>Daniel J. Abdun-Nabi     | Director   | March 6, 2018 |
| <u>/s/ Luke M. Beshar</u><br>Luke M. Beshar                 | Director   | March 6, 2018 |
| <u>/s/ Allan M. Fox</u><br>Allan M. Fox                     | Director   | March 6, 2018 |
| <u>/s/ A.N. "Jerry" Karabelas</u><br>A.N. "Jerry" Karabelas | Director   | March 6, 2018 |
| <u>/s/ David C. Stump</u><br>David C. Stump                 | Director   | March 6, 2018 |
| <u>/s/ Daniel Tassé</u><br>Daniel Tassé                     | Director   | March 6, 2018 |

[Letterhead of Covington &amp; Burling LLP]

March 6, 2018

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

Ladies and Gentlemen:

We have acted as counsel to REGENXBIO Inc., a Delaware corporation (the “Company”), in connection with the registration by the Company under the Securities Act of 1933, as amended (the “Act”), of 1,251,810 shares of the Company’s common stock, par value \$0.0001 per share (the “Shares”), issuable under the Company’s 2015 Equity Incentive Plan (the “Plan”), pursuant to the registration statement on Form S-8 filed with the Securities and Exchange Commission on the date hereof (such registration statement is referred to herein as the “Registration Statement”).

We have reviewed such corporate records, certificates and other documents, and such questions of law, as we have considered necessary or appropriate for the purposes of this opinion. We have assumed that all signatures are genuine, that all documents submitted to us as originals are authentic and that all copies of documents submitted to us conform to the originals.

We have relied as to certain matters on information obtained from public officials, officers of the Company and other sources believed by us to be responsible.

Based upon the foregoing, we are of the opinion that the Shares have been duly authorized and, when issued in accordance with the terms of the Plan and any individual agreements relating to such Shares, will be validly issued, fully paid and nonassessable.

We are members of the bar of the District of Columbia. We do not express any opinion herein on any laws other than the General Corporation Law of the State of Delaware and reported judicial decisions interpreting these laws.

We hereby consent to the filing of this opinion as Exhibit 5.1 to the Registration Statement. In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Act.

Very truly yours,

/s/ Covington & Burling LLP

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in this Registration Statement on Form S-8 of our report dated March 6, 2018 relating to the financial statements, which appears in REGENXBIO Inc.'s Annual Report on Form 10-K for the year ended December 31, 2017.

/s/ PricewaterhouseCoopers LLP  
McLean, Virginia  
March 6, 2018