

bluebird bio, Inc.  
Form 4  
September 12, 2014

**FORM 4** UNITED STATES SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549

OMB APPROVAL

OMB Number: 3235-0287  
Expires: January 31, 2015  
Estimated average burden hours per response... 0.5

Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See Instruction 1(b).

**STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF SECURITIES**

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934, Section 17(a) of the Public Utility Holding Company Act of 1935 or Section 30(h) of the Investment Company Act of 1940

(Print or Type Responses)

1. Name and Address of Reporting Person \*  
THIRD ROCK VENTURES LP

(Last) (First) (Middle)

29 NEWBURY STREET, 3RD FLOOR

(Street)

BOSTON, MA 02116

(City) (State) (Zip)

2. Issuer Name and Ticker or Trading Symbol  
bluebird bio, Inc. [BLUE]

3. Date of Earliest Transaction (Month/Day/Year)  
09/11/2014

4. If Amendment, Date Original Filed (Month/Day/Year)

5. Relationship of Reporting Person(s) to Issuer

(Check all applicable)

\_\_\_ Director \_\_\_X\_\_\_ 10% Owner  
\_\_\_ Officer (give title below) \_\_\_ Other (specify below)

6. Individual or Joint/Group Filing (Check Applicable Line)

\_\_\_ Form filed by One Reporting Person  
\_\_\_X\_\_\_ Form filed by More than One Reporting Person

**Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned**

| 1. Title of Security (Instr. 3) | 2. Transaction Date (Month/Day/Year) | 2A. Deemed Execution Date, if any (Month/Day/Year) | 3. Transaction Code (Instr. 8) | 4. Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5) | 5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4) | 6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4) | 7. Nature of Indirect Beneficial Ownership (Instr. 4) |
|---------------------------------|--------------------------------------|--|--------------------------------|---|---|--|---|
|                                 |                                      |  | Code                           | V   | Amount  | (A) or (D)   | Price   |
| Common Stock                    | 09/11/2014                           |  | S                              |   | 87,000  | D  | \$ 36.52<br>(1)                                       |
| Common Stock                    | 09/11/2014                           |  | J                              | (3)   | 1,076,920   | D  | \$ 0  |
| Common Stock                    | 09/11/2014                           |  | J                              | (4)   | 79,062  | A  | \$ 0  |
| Common Stock                    | 09/11/2014                           |  | J                              | (6)   | 79,062  | D  | \$ 0  |
| Common Stock                    | 09/12/2014                           |  | S                              |   | 38,000  | D  | \$ 1,215,054<br>36.59                                 |

(7)

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

**Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB control number.**

SEC 1474  
(9-02)

**Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned**  
(e.g., puts, calls, warrants, options, convertible securities)

| 1. Title of Derivative Security (Instr. 3) | 2. Conversion or Exercise Price of Derivative Security | 3. Transaction Date (Month/Day/Year) | 3A. Deemed Execution Date, if any (Month/Day/Year) | 4. Transaction Code (Instr. 8) | 5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4, and 5) | 6. Date Exercisable and Expiration Date (Month/Day/Year) | 7. Title and Amount of Underlying Securities (Instr. 3 and 4) | 8. Price of Derivative Security (Instr. 5) | 9. Number of Derivative Securities Beneficially Owned Following Reported Transaction (Instr. 3) |
|--|--|--------------------------------------|--|--------------------------------|---|--|---|--|---|
|  |  |                                      |  | Code                           | V (A) (D)   | Date Exercisable   | Expiration Date   | Title                                      | Amount or Number of Shares  |

## Reporting Owners

| Reporting Owner Name / Address   | Relationships |           |         |       |
|--|---------------|-----------|---------|-------|
|  | Director      | 10% Owner | Officer | Other |
| THIRD ROCK VENTURES LP<br>29 NEWBURY STREET, 3RD FLOOR<br>BOSTON, MA 02116       |               | X         |         |       |
| Third Rock Ventures GP, L.P.<br>29 NEWBURY STREET, 3RD FLOOR<br>BOSTON, MA 02116 |               | X         |         |       |
| TRV GP, LLC<br>29 NEWBURY STREET, 3RD FLOOR<br>BOSTON, MA 02116                  |               | X         |         |       |

## Signatures

/s/ Kevin Gillis, Chief Financial Officer of TRV GP, LLC, general partner of Third Rock Ventures GP, L.P., general partner of Third Rock Ventures, L.P. 09/12/2014

\_\_Signature of Reporting Person

Date

/s/ Kevin Gillis, Chief Financial Officer of TRV GP, LLC, general partner of Third Rock Ventures GP, L.P. 09/12/2014

\_\_Signature of Reporting Person

Date

/s/ Kevin Gillis, Chief Financial Officer of TRV GP, LLC

09/12/2014

\_\_Signature of Reporting Person

Date

## Explanation of Responses:

\* If the form is filed by more than one reporting person, *see* Instruction 4(b)(v).

\*\* Intentional misstatements or omissions of facts constitute Federal Criminal Violations. *See* 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

(1) The price reported in Column 4 is a weighted average price. These shares were sold in multiple transactions at prices ranging from \$36.00 to \$36.95, inclusive. Each Reporting Person undertakes to provide to bluebird bio Inc., any security holder of bluebird bio Inc., or the staff of the Securities and Exchange Commission (the "SEC"), upon request, full information regarding the number of shares sold at each separate price within the range set forth in this footnote.

(2) The shares are directly held by Third Rock Ventures, L.P. ("TRV"). The general partner of TRV is Third Rock Ventures GP, L.P. ("TRV GP"). The general partner of TRV GP is TRV GP, LLC ("TRV GP LLC") and, as such, each of TRV GP and TRV GP LLC exercises shared voting and investment power over the shares held of record by TRV. Each of the Reporting Persons disclaims beneficial ownership of the shares except to the extent of their pecuniary interest therein, if any.

(3) Distribution of shares in kind by TRV on a pro rata basis to its partners.

(4) TRV GP received shares distributed in kind by TRV on a pro rata basis to its partners.

(5) The shares are directly held by TRV GP. As such, TRV GP LLC exercises voting and investment power over the shares held of record by TRV GP. Each of the filing persons disclaims beneficial ownership of the shares except to the extent of their pecuniary interest therein, if any.

(6) Distribution of shares in kind by TRV GP on a pro rata basis to its partners.

(7) The price reported in Column 4 is a weighted average price. These shares were sold in multiple transactions at prices ranging from \$36.25 to \$37.005, inclusive. Each Reporting Person undertakes to provide to bluebird bio Inc., any security holder of bluebird bio Inc., or the staff of the SEC, upon request, full information regarding the number of shares sold at each separate price within the range set forth in this footnote.

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, *see* Instruction 6 for procedure.

Potential persons who are to respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB number.