FORM 4

## **UNITED STATES SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

| OMB APPROVAL             |           |  |  |  |  |  |  |  |
|--------------------------|-----------|--|--|--|--|--|--|--|
| OMB Number:              | 3235-0287 |  |  |  |  |  |  |  |
| 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

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the Investment Company Act of 1940

| Name and Address of Reporting Person*  LYNCH DANIEL                              |   |            |   |                         |      | 2. Issuer Name <b>and</b> Ticker or Trading Symbol bluebird bio, Inc. [ BLUE ] |  |  |   |      |  |   |                                      |                               | 5. Relationship of Reporting Person(s) to Issuer (Check all applicable)  X Director 10% Owner |   |  |  |   |  |  |
|--|---|------------|---|-------------------------|------|--|--|--|---|------|--|---|--------------------------------------|-------------------------------|---|---|--|--|---|--|--|
|  |   |            |   |                         |      | 3. Date of Earliest Transaction (Month/Day/Year)                               |  |  |   |      |  |   |                                      | X                             |   |   |  | 10% Owner  |   |  |  |
| (Last)   |   |            |   |                         |      |  | 02/24/2017                                 |  |   |      |  |   |                                      |                               | Officer (give title below)  |   |  | Other (specify below)  |   |  |  |
| C/O BLUEBIRD BIO, INC.   |   |            |   |                         | 4. 1 | 4. If Amendment, Date of Original Filed (Month/Day/Year)                       |  |  |   |      |  |   |                                      |                               | 6. Individual or Joint/Group Filing (Check Applicable   |   |  |  |   |  |  |
| 150 SECOND STREET  |   |            |   |                         | _    |  |  |  |   |      |  |   |                                      | Line)<br>X                    | ,   |   |  |  |   |  |  |
| (Street)   |   |            |   |                         |      |  |  |  |   |      |  |   |                                      |                               | Form filed by More than One Reporting   |   |  |  |   |  |  |
| CAMBR  | RIDGE M   | A (        | 02141   |                         |      |  |  |  |   |      |  |   |                                      |                               |   | on  |  |  |   |  |  |
| (City)   | (Si   | tate) (    | Zip)  |                         |      |  |  |  |   |      |  |   |                                      |                               |   |   |  |  |   |  |  |
| Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned |   |            |   |                         |      |  |  |  |   |      |  |   |                                      |                               |   |   |  |  |   |  |  |
| 1. Title of Security (Instr. 3)  2. Transactic Date (Month/Day/                  |   |            |   |                         |      | Executif any   | Deemed<br>ution Date,<br>/<br>th/Day/Year) |  | 3.<br>Transaction<br>Code (Instr.<br>8) |      | 4. Securities Acquired (A)<br>Disposed Of (D) (Instr. 3, 4 |   |                                      | 4 and 5) Secu<br>Bene<br>Owne |   | ficially<br>d   | 6. Ownership<br>Form: Direct<br>(D) or<br>Indirect (I)         |  | 7. Nature<br>of Indirect<br>Beneficial<br>Ownership |  |  |
|  |   |            |   |                         |      |  |  |  | Code                                    | v    | Amount   | (A) or<br>(D)   | Price                                |                               |   |   | (Instr. 4)   |  | (Instr. 4)  |  |  |
| Common Stock   |   |            |   | 02/24/20                | )17  |  |  |  | M                                       |      | 2,000  | A   | \$2.0                                | 864                           |   | 3,400   | D  |  |   |  |  |
| Common Stock 02/2  |   |            |   | 02/24/20                | 17   | 17   |  |  | <b>S</b> <sup>(1)</sup>                 |      | 1,000  | D   | \$77.3                               | 365(2)                        | 5(2) 2,400  |   | D  |  |   |  |  |
| Common Stock 02/24/2   |   |            |   | 02/24/20                | 17   | 17   |  |  | <b>S</b> <sup>(1)</sup>                 |      | 1,000  | D   | \$8                                  | \$80                          |   | 1,400   | D  |  |   |  |  |
|  |   | Та         | able  | II - Deriva<br>(e.g., p |      |  |  |  |   |      | posed of<br>convert  |   |                                      |                               | wned  |   |  |  |   |  |  |
| 1. Title of<br>Derivative<br>Security<br>(Instr. 3)                              | 2.<br>Conversion<br>or Exercise<br>Price of<br>Derivative<br>Security |            | 3A. Deemed<br>Execution Date,<br>if any<br>(Month/Day/Year) |                         |      | Secur<br>Acqui<br>(A) or   |  | rivative<br>curities<br>quired<br>or<br>sposed<br>(D)<br>str. 3, | 6. Date<br>Expirati<br>(Month)          | on D |  | 7. Title and<br>Amount of<br>Securities<br>Underlying<br>Derivative<br>Security (Instr. 3<br>and 4) |                                      | Secu<br>(Ins                  | vative  | 9. Number of<br>derivative<br>Securities<br>Beneficially<br>Owned<br>Following<br>Reported<br>Transaction<br>(Instr. 4) | Ownership<br>Form:<br>Direct (D)<br>or Indirect<br>(I) (Instr. | 11. Nature<br>of Indirect<br>Beneficial<br>Ownership<br>(Instr. 4) |   |  |  |
|  |   |            |   |                         |      | ode V (A)  |  | (D)  | Date<br>Exercis                         | able | Expiration<br>Date   | Title   | Amour<br>or<br>Numbe<br>of<br>Shares | er                            |   |   |  |  |   |  |  |
| Stock<br>Option<br>(right to<br>buy)   | \$2.0864  | 02/24/2017 |   |                         | M    |  |  | 2,000  | (3)                                     |      | 07/13/2021   | Common<br>Stock   | 2,000                                | \$(                           | ).00  | 20,508  | I  | )  |   |  |  |

## Explanation of Responses:

- 1. The sales reported in this Form 4 were effected pursuant to a Rule 10b5-1 trading plan adopted by the reporting person on December 14, 2016.
- 2. The range of prices for the transaction reported on this line was \$77.35 to \$77.40. The average weighted price was \$77.3650. The reporting person will provide, upon request by the SEC, the issuer or a security holder of the issuer, full information regarding the number of shares sold at each separate price.
- 3. This option vests over a four-year period in 48 equal monthly installments beginning on April 15, 2011

## Remarks:

/s/ Jason F. Cole, Attorney-in-02/28/2017

\*\* Signature of Reporting Person

Date

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

- \* 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).

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

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 Number.