

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

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): August 13, 2024

bluebird bio, Inc.

(Exact name of Registrant as Specified in Its Charter)

Delaware
(State or Other Jurisdiction
of Incorporation)

001-35966
(Commission File Number)

13-3680878
(IRS Employer
Identification No.)

**455 Grand Union Boulevard,
Somerville, MA**
(Address of Principal Executive Offices)

02145
(Zip Code)

(339) 499-9300
(Registrant's telephone number, including area code)

Not Applicable
(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 (see General Instructions A.2. below):

- 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))

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, \$0.01 par value per share	BLUE	The Nasdaq Stock Market LLC

Indicate by check mark whether the registrant is an emerging growth company as defined 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 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 13(a) of the Exchange Act.

Item 1.01 Entry into a Material Definitive Agreement.

On August 13, 2024, bluebird bio, Inc. (the “Company”) entered into an amendment (the “Third Amendment”) to its Loan and Security Agreement, dated as of March 15, 2024, as amended on April 30, 2024 and July 9, 2024 (the “LSA”), by and among the Company, the several banks and other financial institutions or entities party thereto, as lenders (collectively, the “Lenders”), and Hercules Capital, Inc., as administrative agent and collateral agent (the “Agent”).

The LSA provides a secured term loan facility of up to \$175.0 million (the “Term Loans”), consisting of four tranches, the first of which was funded at closing on March 15, 2024 in an aggregate amount of \$75.0 million. Pursuant to the Third Amendment, the Company, the Agent and the Lenders agreed to, among other things: (a) revised terms for the availability of the second tranche of \$25.0 million, which the Company may draw subject to customary terms and conditions, during the period commencing on the date the Company has (x) received at least \$75.0 million in gross cash proceeds from qualified financing transactions by December 20, 2024 and (y) completed patient starts (cell collections) for at least 50 LYFGENIA patients by March 31, 2025 or 70 LYFGENIA patients by June 30, 2025 (collectively, the “Tranche 2 Milestone”) and ending on the earlier of (i) the date that is 30 days immediately following achievement of the Tranche 2 Milestone and (ii) July 31, 2025; and (b) revised terms for the availability of the third tranche of \$25.0 million, which the Company may draw, subject to customary terms and conditions, during the period commencing on the date the Company has (x) received at least \$100.0 million in gross cash proceeds from qualified financing transactions by December 20, 2024 or at least \$125.0 million by June 30, 2025 and (y) completed 70 drug product deliveries within a given six-month period ending no later than December 31, 2025, at least 40 of which are for LYFGENIA (collectively, the “Tranche 3 Milestone”) and ending on the earlier of (i) the date that is 30 days immediately following the date the Company achieves the Tranche 3 Milestone and (ii) December 31, 2025. The fourth tranche of \$50.0 million remains available in the sole discretion of the Lenders, and subject to customary terms and conditions, until December 15, 2026.

Additionally, the Third Amendment provides that the Terms Loans will be repayable in monthly interest-only payments until April 1, 2027, or April 1, 2028, if the Company has achieved, no later than December 31, 2026, the Tranche 3 Milestone and has generated at least \$10.0 million of EBITDA on a trailing six-month basis (the “Performance Milestone”). Pursuant to the Third Amendment, the Company will pay an end of term charge of 6.45% upon the prepayment or repayment of the Term Loans.

Further, pursuant to the Third Amendment, the parties agreed to the following revisions to the financial covenants: (a) the Company is required to maintain, at all times, “Qualified Cash” (defined as cash in accounts subject to control agreements minus any accounts payable not paid after the 120th day) in an amount greater than or equal to the outstanding principal amount of the Term Loans, multiplied by 45%; provided that if the Tranche 3 Milestone has occurred, the foregoing percentage will be decreased to 35% and if the Performance Milestone has occurred, the foregoing percentage will be reduced to 20%; and (b) commencing with the fiscal quarter ending December 31, 2024, the Company is required to maintain quarterly trailing six-month net product revenue from the sale of LYFGENIA, ZYNTEGLO and SKYSONA in designated amounts as set forth in the Third Amendment.

In connection with entry into the Third Amendment, the Company also agreed to amend the exercise price of warrants (the “Warrants”) to purchase shares of the Company’s common stock from \$1.45 per share to the lesser of (a) the volume weighted average price of the Company’s common stock for the ten-day period preceding August 13, 2024, and (b) the price per share of the Company’s first equity financing event within six months of August 13, 2024. The amendment does not impact the number of shares the Lenders may purchase pursuant to the Warrants.

The foregoing description of the Third Amendment and the Warrants does not purport to be complete and is qualified in its entirety by the full text of the Third Amendment, the Form of Warrant Agreement, and the Form of Warrant Agreement Amendment, copies of which are filed as Exhibit 10.1, Exhibit 4.1 and Exhibit 4.2 to this Current Report on Form 8-K, respectively, and incorporated herein by reference.

Forward-Looking Statements

This Current Report contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. All statements contained in this Current Report that do not relate to matters of historical fact should be considered forward-looking statements, including without limitation statements regarding the Company’s expectations with respect to its performance of obligations under the LSA and ability to access future tranches thereunder. Statements using words such as “expect”, “anticipate”, “believe”, “may”, “will” and similar terms are also forward-looking statements. These statements are neither promises nor guarantees, but involve known and unknown risks, uncertainties and other important factors that may

cause the Company's actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements, including, but not limited to, the important factors discussed under the caption "Risk Factors" in the Company's Annual Report on Form 10-K for the year ended December 31, 2022, as updated by its subsequent Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and other filings with the Securities and Exchange Commission. These risks and uncertainties include, but are not limited to, risks related to the Company's compliance with the LSA, including the risk that operating restrictions under the LSA adversely affect the Company's ability to conduct its business, the risk that the Company will not achieve milestones required to access future tranches under the LSA, and the risk that the Company will fail to comply with covenants under the LSA, including with respect to required cash and revenue levels, which could result in an event of default. Except as required by law, the Company undertakes no obligations to make any revisions to the forward-looking statements contained in this Current Report or to update them to reflect events or circumstances occurring after the date of this Current Report, whether as a result of new information, future developments or otherwise.

Item 2.02 Results of Operations and Financial Condition.

On August 14, 2024, the Company announced its financial results for the three months ended June 30, 2024. A copy of the press release is being furnished as Exhibit 99.1 to this Current Report on Form 8-K.

The information in Item 2.02 of this Current Report on Form 8-K, including Exhibit 99.1 attached hereto, is intended to be furnished and shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934 (the "Exchange Act") or otherwise subject to the liabilities of that section, nor shall it be deemed incorporated by reference in any filing under the Securities Act of 1933 or the Exchange Act, except as expressly set forth by specific reference in such filing.

Item 2.03 Creation of a Direct Financial Obligation or an Obligation under an Off-Balance Sheet Arrangement of a Registrant.

The information disclosed in Item 1.01 above is incorporated into this Item 2.03 by reference.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits

Exhibit No.	Description
4.1*	Form of Warrant Agreement
4.2	Form of Warrant Agreement Amendment
10.1	Third Amendment to Loan and Security Agreement, dated as of August 13, 2024, by and among the Company, the several banks and other financial institutions or entities party thereto, as lenders, and Hercules Capital, Inc., as administrative agent and collateral agent.
99.1	Press release issued by bluebird bio, Inc. on August 14, 2024
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

* Exhibits have been omitted pursuant to Item 601(a)(5) of Regulation S-K. The Registrant will furnish copies of any such exhibits to the SEC upon request.

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.

Date: August 14, 2024

bluebird bio, Inc.

By: /s/ O. James Sterling

Name: O. James Sterling

Title: *Chief Financial Officer, Principal Financial Officer and
Principal Accounting Officer*

Exhibit 4.1

In accordance with Instruction 2 to Item 601 of Regulation S-K, below is a schedule setting forth details in which the omitted executed warrants differ from the form of warrant that follows:

Warrantholder

Hercules Capital, Inc.

Hercules Private Credit Fund 1 L.P.

Hercules Private Global Venture Growth Fund I L.P.

THIS WARRANT AND THE SHARES ISSUABLE UPON EXERCISE HEREOF HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR ANY STATE SECURITIES LAWS, AND MAY NOT BE SOLD, OFFERED FOR SALE, PLEDGED, OR HYPOTHECATED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION STATEMENT RELATED THERETO OR, SUBJECT TO SECTION 11 HEREOF, AN OPINION OF COUNSEL (WHICH MAY BE COMPANY COUNSEL) REASONABLY SATISFACTORY TO THE COMPANY THAT SUCH REGISTRATION IS NOT REQUIRED UNDER THE ACT, OR ANY APPLICABLE STATE SECURITIES LAWS.

WARRANT AGREEMENT

To Purchase Shares of the Common Stock of

BLUEBIRD BIO, INC.

Dated as of March 15, 2024 (the "Effective Date")

WHEREAS, bluebird bio, Inc., a Delaware corporation (the "Company"), has entered into a Loan and Security Agreement of even date herewith (as amended and in effect from time to time, the "Loan Agreement") with Hercules Capital, Inc., a Maryland corporation, in its capacity as administrative and collateral agent, [____], a [____], (the "Warrantholder"), and the other parties thereto;

WHEREAS, pursuant to the Loan Agreement and as additional consideration to the Warrantholder for, among other things, its agreements in the Loan Agreement, the Company has agreed to issue to the Warrantholder this Warrant Agreement, evidencing the right to purchase shares of the Company's Common Stock (this "Warrant", "Warrant Agreement", or "Agreement", and together with any additional Warrants issued upon any permitted transfer of this Warrant hereunder, collectively, the "Warrants");

NOW, THEREFORE, in consideration of the Warrantholder having executed and delivered the Loan Agreement and provided the financial accommodations contemplated therein, and in consideration of the mutual covenants and agreements contained herein, the Company and the Warrantholder agree as follows:

SECTION 1. GRANT OF THE RIGHT TO PURCHASE COMMON STOCK.

(a) For value received, the Company hereby grants to the Warrantholder, and the Warrantholder is entitled, upon the terms and subject to the conditions hereinafter set forth, to subscribe for and purchase, from the Company, up to the aggregate number of fully paid and non-assessable shares of Common Stock (as defined below) as determined pursuant to Section 1(b) below, at a purchase price per share equal to the Exercise Price (as defined below). The number and Exercise Price of such shares are subject to adjustment as provided in Section 8. As used herein, the following terms shall have the following meanings:

“Act” means the Securities Act of 1933, as amended.

“Charter” means the Company’s Amended and Restated Certificate of Incorporation, as amended, or other constitutional document, as may be amended and in effect from time to time.

“Common Stock” means the Company’s common stock, \$0.01 par value per share, as presently constituted under the Charter, and any class and/or series of Company capital stock for or into which such common stock may be converted or exchanged in a reorganization, recapitalization or similar transaction.

“Exercise Price” means \$1.45, subject to adjustment from time to time in accordance with the provisions of this Warrant.

“Liquid Sale” means the closing of a Merger Event in which the consideration received by the Company and/or its shareholders, as applicable, consists solely of cash and/or Marketable Securities.

“Marketable Securities” in connection with a Merger Event means securities meeting all of the following requirements: (i) the issuer thereof is then subject to the reporting requirements of Section 13 or Section 15(d) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), and is then current in its filing of all required reports and other information under the Act and the Exchange Act; (ii) the class and series of shares or other security of the issuer that would be received by the Warrantholder in connection with the Merger Event were the Warrantholder to exercise this Warrant on or prior to the closing thereof is then traded on a national securities exchange or over-the-counter market, and (iii) following the closing of such Merger Event, the Warrantholder would not be restricted from publicly re-selling all of the issuer’s shares and/or other securities that would be received by the Warrantholder in such Merger Event were the Warrantholder to exercise this Warrant in full on or prior to the closing of such Merger Event, except to the extent that any such restriction (x) arises solely under federal or state securities laws, rules or regulations, and (y) does not extend beyond six (6) months from the closing of such Merger Event (except for any restrictions as a result of Warrantholder’s status as an Affiliate (as defined in Rule 144 (as defined below)) of the Company.

“Merger Event” means any of the following: (i) a sale, lease, exclusive license or other transfer of all or substantially all assets of the Company, (ii) any merger or consolidation involving the Company in which the Company is not the surviving entity or in which the outstanding shares of the Company’s capital stock are otherwise converted into or exchanged for shares of capital stock or other securities or property of another entity, or (iii) any sale by holders of the outstanding voting equity securities of the Company in a single transaction or series of related transactions of shares constituting a majority of the outstanding combined voting power of the Company.

“Purchase Price” means, with respect to any exercise of this Warrant, an amount equal to the then-effective Exercise Price multiplied by the number of shares of Common Stock as to which this Warrant is then exercised.

“Warrant Coverage” means five percent (5.00%) *multiplied* by the aggregate original principal amount of Term Loan Advances (as defined in the Loan Agreement) made by the Warrantholder.

(b) Number of Shares. This Warrant shall be exercisable for a number of shares of Common Stock equal to the quotient of (i) the Warrant Coverage, *divided* by (ii) the Exercise Price, subject to adjustment from time to time in accordance with the provisions of this Warrant.

SECTION 2. TERM OF THE AGREEMENT.

The term of this Agreement and the right to purchase Common Stock as granted herein shall commence on the Effective Date and, subject to Section 8(a) below, shall be exercisable until 5:00 p.m. (Eastern Time) on the seventh (7th) anniversary of the Effective Date.

SECTION 3. EXERCISE OF THE PURCHASE RIGHTS.

(a) Exercise. The purchase rights set forth in this Agreement are exercisable by the Warrantholder, in whole or in part, at any time, or from time to time, prior to the expiration of the term set forth in Section 2, by tendering to the Company at its principal office a notice of exercise in the form attached hereto as Exhibit I (the "Notice of Exercise"), duly completed and executed. Promptly upon receipt of the Notice of Exercise and the payment of the Purchase Price in accordance with the terms set forth below, and in no event later than three (3) business days thereafter, the Company or its transfer agent shall either (i) issue to the Warrantholder a certificate for the number of shares of Common Stock purchased or (ii) credit the same via book entry to the Warrantholder, and the Company shall execute the acknowledgment of exercise in the form attached hereto as Exhibit II (the "Acknowledgment of Exercise") indicating the number of shares which remain subject to future purchases under this Warrant, if any.

The Purchase Price may be paid at the Warrantholder's election either (i) by cash or check, or (ii) by surrender of all or a portion of the Warrant for shares of Common Stock to be exercised under this Agreement and, if applicable, an amended Agreement setting forth the remaining number of shares purchasable hereunder, as determined below ("Net Issuance"). If the Warrantholder elects the Net Issuance method, the Company will issue shares of Common Stock in accordance with the following formula:

$$A \quad X = \frac{Y(A-B)}{A}$$

Where: X = the number of shares of Common Stock to be issued to the Warrantholder.

Y = the number of shares of Common Stock requested to be exercised under this Agreement.

A = the then-current fair market value of one (1) share of Common Stock at the time of exercise of this Warrant.

B = the then-effective Exercise Price.

For purposes of the above calculation, the current fair market value of shares of Common Stock shall mean with respect to each share of Common Stock:

(i) at all times when the Common Stock is traded on a national securities exchange, inter-dealer quotation system or over-the-counter bulletin board service, the volume weighted average price over a ten (10) day period ending the day before the current fair market value of the securities is being determined;

(ii) if the exercise is in connection with a Merger Event, the fair market value of a share of Common Stock shall be deemed to be the per share value received by the holders of the outstanding shares of Common Stock pursuant to such Merger Event as determined in accordance with the definitive transaction documents executed among the parties in connection therewith; or

(iii) in cases other than as described in the foregoing clauses (i) and (ii), the current fair market value of a share of Common Stock shall be determined in good faith by the Company's Board of Directors.

Upon partial exercise by either cash or Net Issuance, prior to the expiration or earlier termination hereof, the Company shall promptly issue an amended Agreement

representing the remaining number of shares purchasable hereunder. All other terms and conditions of such amended Agreement shall be identical to those contained herein, including, but not limited to the Effective Date hereof.

(b) Exercise Prior to Expiration. To the extent this Warrant is not previously exercised as to all shares of Common Stock subject hereto, and if the then-current fair market value of one share of Common Stock is greater than the Exercise Price then in effect, or, in the case of a Liquid Sale, where the value per share of Common Stock (as determined as of the closing of such Liquid Sale in accordance with the definitive agreements executed by the parties in connection with such Merger Event) to be paid to the holders thereof is greater than the Exercise Price then in effect, this Agreement shall be deemed automatically exercised on a Net Issuance basis pursuant to Section 3(a) (even if not surrendered) as of immediately before its expiration determined in accordance with Section 2. For purposes of such automatic exercise, the fair market value of one share of Common Stock upon such expiration shall be determined pursuant to Section 3(a). To the extent this Warrant or any portion hereof is deemed automatically exercised pursuant to this Section 3(b), the Company agrees to promptly notify the Warrantheader of the number of shares of Common Stock if any, the Warrantheader is to receive by reason of such automatic exercise, and to issue or cause its transfer agent to issue a certificate or a book-entry credit to the Warrantheader evidencing such shares.

SECTION 4. RESERVATION OF SHARES.

During the term of this Agreement, the Company will at all times have authorized and reserved a sufficient number of shares of its Common Stock to provide for the exercise of the rights to purchase Common Stock as provided for herein. If at any time during the term hereof the number of authorized but unissued shares of Common Stock shall not be sufficient to permit exercise of this Warrant in full, the Company will take such corporate action as may, in the opinion of its counsel, be necessary to increase its authorized but unissued shares of Common Stock to such number of shares as shall be sufficient for such purposes.

SECTION 5. NO FRACTIONAL SHARES OR SCRIP.

No fractional shares or scrip representing fractional shares shall be issued upon the exercise of this Agreement, but in lieu of such fractional shares the Company shall make a cash payment therefor in an amount equal to the product of (a) the Exercise Price then in effect multiplied by (b) the fraction of a share.

SECTION 6. NO RIGHTS AS SHAREHOLDER.

Without limitation of any provision hereof, the Warrantheader agrees that this Agreement does not entitle the Warrantheader to any voting rights or other rights as a shareholder of the Company prior to the exercise of any of the purchase rights set forth in this Agreement.

SECTION 7. WARRANTHOLDER REGISTRY.

The Company shall maintain a registry showing the name and address of the registered holder of this Agreement. The Warrantheader's initial address, for purposes of such registry, is set forth in Section 12(g) below. The Warrantheader may change such address by giving written notice of such changed address to the Company.

SECTION 8. ADJUSTMENT RIGHTS.

The Exercise Price and the number of shares of Common Stock purchasable hereunder are subject to adjustment from time to time, as follows:

(a) Merger Event. In connection with a Merger Event that is a Liquid Sale, this Warrant shall, on and after the closing thereof, automatically and without further action on the part of any party or other person, represent the right to receive the consideration payable on or in respect of all shares of Common Stock that are issuable hereunder as of immediately prior to the closing of such Merger Event less the Purchase Price for all such shares of Common Stock

(such consideration to include both the consideration payable at the closing of such Merger Event and all deferred consideration payable thereafter, if any, including, but not limited to, payments of amounts deposited at such closing into escrow and payments in the nature of earn-outs, milestone payments or other performance-based payments), and such Merger Event consideration shall be paid to the Warranholder as and when it is paid to the holders of the outstanding shares of Common Stock. In connection with a Merger Event that is not a Liquid Sale, the Company shall cause the successor or surviving entity to assume this Warrant and the obligations of the Company hereunder on the closing thereof, and thereafter this Warrant shall be exercisable for the same number and type of securities or other property as the Warranholder would have received in consideration for the shares of Common Stock issuable hereunder had it exercised this Warrant in full as of immediately prior to such closing, at an aggregate Exercise Price no greater than the aggregate Exercise Price in effect as of immediately prior to such closing, and subject to further adjustment from time to time in accordance with the provisions of this Warrant. The provisions of this Section 8(a) shall similarly apply to successive Merger Events.

(b) Reclassification of Shares. Except for Merger Events subject to Section 8(a), if the Company at any time shall, by combination, reclassification, exchange or subdivision of securities or otherwise, change any of the securities as to which purchase rights under this Agreement exist into the same or a different number of securities of any other class or classes of securities, this Agreement shall thereafter represent the right to acquire such number and kind of securities as would have been issuable as the result of such change with respect to the securities which were subject to the purchase rights under this Agreement immediately prior to such combination, reclassification, exchange, subdivision or other change. The provisions of this Section 8(b) shall similarly apply to successive combination, reclassification, exchange, subdivision or other change.

(c) Subdivision or Combination of Shares. If the Company at any time shall combine or subdivide its Common Stock, (i) in the case of a subdivision, the Exercise Price shall be proportionately decreased and the number of shares for which this Warrant is exercisable shall be proportionately increased, or (ii) in the case of a combination, the Exercise Price shall be proportionately increased and the number of shares for which this Warrant is exercisable shall be proportionately decreased.

(d) Dividends. If the Company at any time while this Agreement is outstanding and unexpired shall:

(i) pay a dividend with respect to the Common Stock payable in additional shares of Common Stock, then the Exercise Price shall be adjusted, from and after the date of determination of shareholders entitled to receive such dividend, to that price determined by multiplying the Exercise Price in effect immediately prior to such date of determination by a fraction (A) the numerator of which shall be the total number of shares of Common Stock outstanding immediately prior to such dividend or distribution, and (B) the denominator of which shall be the total number of shares of Common Stock outstanding immediately after such dividend or distribution, and the number of shares of Common Stock for which this Warrant is exercisable shall be proportionately increased; or

(ii) make any other dividend or distribution on or with respect to Common Stock, except any dividend or distribution (A) in cash, or (B) specifically provided for in any other clause of this Section 8, then, in each such case, provision shall be made by the Company such that the Warranholder shall receive upon exercise or conversion of this Warrant a proportionate share of any such dividend or distribution as though it were the holder of the Common Stock (or other stock for which the Common Stock is convertible) as of the record date fixed for the determination of the shareholders of the Company entitled to receive such dividend or distribution.

(e) Notice of Certain Events. If: (i) the Company shall declare any dividend or distribution upon its outstanding Common Stock, payable in stock, cash, property or other securities; (ii) the Company shall offer for subscription pro rata to holders of its Common Stock

any additional shares of stock of any class or other rights; (iii) there shall be any Merger Event; or (iv) there shall be any voluntary dissolution, liquidation or winding up of the Company; then, in connection with each such event, the Company shall give the Warrantholder notice thereof at the same time and in the same manner as it gives notice thereof to the holders of outstanding Common Stock. In addition, if at any time the number of shares of Common Stock (or other securities of any other class or classes of securities of the Company for which this Warrant is then exercisable) outstanding is reduced such that the number of shares of Common Stock or other securities issuable upon exercise of this Warrant shall exceed five percent (5%) of the then outstanding class of such securities, then, within three (3) business days of such event, the Company shall give the Warrantholder written notice thereof.

SECTION 9. REPRESENTATIONS, WARRANTIES AND COVENANTS OF THE COMPANY.

(a) Reservation of Common Stock. The Company covenants and agrees that all shares of Common Stock that may be issued upon the exercise of the rights represented by this Warrant will, upon issuance, be validly issued and outstanding, fully paid and non-assessable, and will be free of any taxes, liens, charges or encumbrances of any nature whatsoever; provided, that the Common Stock issuable pursuant to this Agreement may be subject to restrictions on transfer under state and/or federal securities laws. The Company has made available to the Warrantholder true, correct and complete copies of its Charter and bylaws currently in effect. The issuance of certificates or book-entry credit for shares of Common Stock upon exercise of this Warrant shall be made without charge to the Warrantholder for any issuance tax in respect thereof, or other cost incurred by the Company in connection with such exercise and related issuance of shares of Common Stock. The Company further covenants and agrees that the Company will, at all times during the term hereof, have authorized and reserved, free from preemptive rights, a sufficient number of shares of Common Stock to provide for the exercise of the rights represented by this Warrant.

(b) Due Authority. The execution and delivery by the Company of this Agreement and the performance of all obligations of the Company hereunder, including the issuance to the Warrantholder of the right to acquire the shares of Common Stock, have been duly authorized by all necessary corporate action on the part of the Company. This Agreement: (i) does not violate the Charter or the Company's current bylaws; (ii) does not contravene any law or governmental rule, regulation or order applicable to the Company; and (iii) except as could not reasonably be expected to have a Material Adverse Effect (as defined in the Loan Agreement), does not and will not contravene any provision of, or constitute a default under, any indenture, mortgage, contract or other instrument to which the Company is a party or by which it is bound. This Agreement constitutes a legal, valid and binding agreement of the Company, enforceable in accordance with its terms, except as may be limited by bankruptcy, insolvency, reorganization, moratorium or similar laws relating to or affecting creditors' rights generally (including, without limitation, fraudulent conveyance laws) and by general principles of equity, regardless of whether considered in a proceeding in equity or at law.

(c) Consents and Approvals. No consent or approval of, giving of notice to, registration with, or taking of any other action in respect of any state, federal or other governmental authority or agency is required with respect to the execution, delivery and performance by the Company of its obligations under this Agreement, except for the filing of notices pursuant to Regulation D under the Act and any filing required by applicable state securities law, which filings will be effective by the time required thereby.

(d) Exempt Transaction. Subject to the accuracy of the Warrantholder's representations in Section 10, the issuance of the Common Stock upon exercise of this Agreement will constitute a transaction exempt from (i) the registration requirements of Section 5 of the Act, in reliance upon Section 4(a)(2) thereof, and (ii) the qualification requirements of the applicable state securities laws.

(e) Information Rights. At all times (if any) after the Loan Agreement has been terminated and prior to the earlier to occur of (x) the date on which all shares of Common Stock issued on exercise of this Warrant have been sold, or (y) the expiration or earlier termination of this Warrant, when the Company shall not be required to file reports pursuant to Section 13 or

15(d) of the Exchange Act or shall not have timely filed all such required reports, the Warrantholder shall be entitled to the information rights contained in Sections 7.1(b), 7.1(c) and 7.1(f) of the Loan Agreement, and in any such event Sections 7.1(b), 7.1(c) and 7.1(f) of the Loan Agreement are hereby incorporated into this Agreement by this reference as though fully set forth herein, provided, however, that the Company shall not be required to deliver a Compliance Certificate once all Indebtedness (as defined in the Loan Agreement) owed by the Company to the Warrantholder has been repaid. For the avoidance of doubt, the Company shall not be required to deliver any information contained in Sections 7.1(b), 7.1(c) and 7.1(f) of the Loan Agreement if it has timely filed all required reports under Section 13 or 15(d) of the Exchange Act.

(f) **Rule 144 Compliance.** The Company shall, at all times prior to the earlier to occur of (i) the date of sale or other disposition by Warrantholder of this Warrant or all shares of Common Stock issued on exercise of this Warrant, (ii) the expiration or earlier termination of this Warrant if the Warrant has not been exercised in full or in part on such date, use commercially reasonable efforts to timely file all reports required under the Exchange Act and otherwise timely take all actions necessary to permit the Warrantholder to sell or otherwise dispose of this Warrant and the shares of Common Stock issued on exercise hereof pursuant to Rule 144 promulgated under the Act (“Rule 144”), provided that the foregoing shall not apply in the event of a Merger Event following which the successor or surviving entity is not subject to the reporting requirements of the Exchange Act. If the Warrantholder proposes to sell Common Stock issuable upon the exercise of this Agreement in compliance with Rule 144, then, upon the Warrantholder’s written request to the Company, the Company shall furnish to the Warrantholder, within five (5) business days after receipt of such request, a written statement confirming the Company’s compliance with the filing and other requirements of such Rule 144.

SECTION 10. REPRESENTATIONS AND COVENANTS OF THE WARRANTHOLDER.

This Agreement has been entered into by the Company in reliance upon the following representations and covenants of the Warrantholder:

(a) **Investment Purpose.** This Warrant and the shares issued on exercise hereof will be acquired for investment and not with a view to the sale or distribution of any part thereof in violation of applicable federal and state securities laws, and the Warrantholder has no present intention of selling or engaging in any public distribution of the same except pursuant to a registration or exemption.

(b) **Private Issue.** The Warrantholder understands that (i) the Common Stock issuable upon exercise of this Agreement is not, as of the Effective Date, registered under the Act or qualified under applicable state securities laws, and (ii) the Company’s reliance on exemption from such registration is predicated on the representations set forth in this Section 10.

(c) **Financial Risk.** The Warrantholder has such knowledge and experience in financial and business matters as to be capable of evaluating the merits and risks of its investment, and has the ability to bear the economic risks of its investment.

(d) **Accredited Investor.** The Warrantholder is an “accredited investor” within the meaning of Rule 501 of Regulation D promulgated under the Act, as presently in effect (“Regulation D”).

(e) **No Short Sales.** The Warrantholder has not at any time on or prior to the Effective Date engaged in any short sales or equivalent transactions in the Common Stock. Warrantholder agrees that at all times from and after the Effective Date and on or before the expiration or earlier termination of this Warrant, it shall not engage in any short sales or equivalent transactions in the Common Stock.

SECTION 11. TRANSFERS.

Subject to compliance with applicable federal and state securities laws, this Agreement and all rights hereunder are transferable, in whole or in part, without charge to the holder hereof (except for transfer taxes) upon surrender of this Agreement properly endorsed. Each taker and holder of this Agreement, by taking or holding the same, consents and agrees that

this Agreement, when endorsed in blank, shall be deemed negotiable, and that the holder hereof, when this Agreement shall have been so endorsed and its transfer recorded on the Company's books, shall be treated by the Company and all other persons dealing with this Agreement as the absolute owner hereof for any purpose and as the person entitled to exercise the rights represented by this Agreement. The transfer of this Agreement shall be recorded on the books of the Company upon receipt by the Company of a notice of transfer in the form attached hereto as Exhibit III (the "Transfer Notice"), at its principal offices and the payment to the Company of all transfer taxes and other governmental charges imposed on such transfer. Until the Company receives such Transfer Notice, the Company may treat the registered owner hereof as the owner for all purposes. Notwithstanding anything herein or in any legend to the contrary, the Company shall not require an opinion of counsel in connection with any sale, assignment or other transfer by the Warrantholder of this Warrant (or any portion hereof or any interest herein) or of any shares of Common Stock issued upon any exercise hereof to an affiliate (as defined in Regulation D) of the Warrantholder, provided that such affiliate is an "accredited investor" as defined in Regulation D.

SECTION 12. MISCELLANEOUS.

(a) Effective Date. The provisions of this Agreement shall be construed and shall be given effect in all respects as if it had been executed and delivered by the Company on the date hereof. This Agreement shall be binding upon any successors or assigns of the Company.

(b) Remedies. In the event of any default hereunder, the non-defaulting party may proceed to protect and enforce its rights either by suit in equity and/or by action at law, including but not limited to an action for damages as a result of any such default, and/or an action for specific performance for any default where the Warrantholder will not have an adequate remedy at law and where damages will not be readily ascertainable.

(c) No Impairment of Rights. The Company will not, by amendment of its Charter or through any other means, avoid or seek to avoid the observance or performance of any of the terms of this Agreement, but will at all times in good faith assist in the carrying out of all such terms and in the taking of all such actions as may be necessary or appropriate in order to protect the rights of the Warrantholder against impairment.

(d) Additional Documents. In the event the Company shall not be required to file reports pursuant to Section 13 or 15(d) of the Exchange Act, the Company agrees to supply such other documents as the Warrantholder may from time to time reasonably request to value this Warrant for Warrantholder's accounting or reporting requirements and/or to evaluate whether to exercise (in cash or a net issuance basis) this Warrant.

(e) Attorneys' Fees. In any litigation, arbitration or court proceeding between the Company and the Warrantholder relating hereto, the prevailing party shall be entitled to reasonable attorneys' fees and expenses and all reasonable out-of-pocket costs of proceedings incurred in enforcing this Agreement. For the purposes of this Section 12(e), attorneys' fees shall include without limitation fees incurred in connection with the following: (i) contempt proceedings; (ii) discovery; (iii) any motion, proceeding or other activity of any kind in connection with an insolvency proceeding; (iv) garnishment, levy, and debtor and third party examinations; and (v) post-judgment motions and proceedings of any kind, including without limitation any activity taken to collect or enforce any judgment.

(f) Severability. In the event any one or more of the provisions of this Agreement shall for any reason be held invalid, illegal or unenforceable, the remaining provisions of this Agreement shall be unimpaired, and the invalid, illegal or unenforceable provision shall be replaced by a mutually acceptable valid, legal and enforceable provision, which comes closest to the intention of the parties underlying the invalid, illegal or unenforceable provision.

(g) Notices. Except as otherwise provided herein, any notice, demand, request, consent, approval, declaration, service of process or other communication that is required, contemplated, or permitted under this Agreement or with respect to the subject matter hereof shall be in writing, and shall be deemed to have been validly served, given, delivered, and received upon the earlier of: (i) personal delivery to the party to be notified, (ii) when sent by confirmed telex, electronic transmission or facsimile if sent during normal business hours of the recipient, if

not, then on the next business day, (iii) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid, or (iv) one day after deposit with a nationally recognized overnight courier, specifying next day delivery, with written verification of receipt, and shall be addressed to the party to be notified as follows:

If to the Warrantholder:

[_____]
Attention: [_____]
[_____]
Email: [_____]
Telephone: [_____]

With a copy to:

[_____]
Attention: [_____]
[_____]
Email: [_____]
Telephone: [_____]

If to the Company:

BLUEBIRD BIO, INC.
Attention: Chief Financial Officer
455 Grand Union Boulevard
Somerville, MA 02145
Email:
Telephone: 339-499-9300

With a copy to:

Latham & Watkins LLP
200 Clarendon Street
Boston, MA 02116
Attn: Wesley C. Holmes
Email:
Telephone:

or to such other address as each party may designate for itself by like notice.

(h) Entire Agreement; Amendments. This Agreement constitutes the entire agreement and understanding of the parties hereto in respect of the subject matter hereof, and supersedes and replaces in their entirety any prior proposals, term sheets, letters, negotiations or other documents or agreements, whether written or oral, with respect to the subject matter hereof. None of the terms of this Agreement may be amended except by an instrument executed by each of the parties hereto.

(i) Headings. The various headings in this Agreement are inserted for convenience only and shall not affect the meaning or interpretation of this Agreement or any provisions hereof.

(j) Advice of Counsel. Each of the parties represents to each other party hereto that it has discussed (or had an opportunity to discuss) with its counsel this Agreement and, specifically, the provisions of Sections 12(n), 12(o), 12(p), 12(q) and 12(r).

(k) No Strict Construction. The parties hereto have participated jointly in the negotiation and drafting of this Agreement. In the event an ambiguity or question of intent or interpretation arises, this Agreement shall be construed as if drafted jointly by the parties hereto

and no presumption or burden of proof shall arise favoring or disfavoring any party by virtue of the authorship of any provisions of this Agreement.

(l) No Waiver. No omission or delay by the Warrantholder at any time to enforce any right or remedy reserved to it, or to require performance of any of the terms, covenants or provisions hereof by the Company at any time designated, shall be a waiver of any such right or remedy to which the Warrantholder is entitled, nor shall it in any way affect the right of the Warrantholder to enforce such provisions thereafter during the term of this Agreement.

(m) Survival. All agreements, representations and warranties contained in this Agreement or in any document delivered pursuant hereto shall be for the benefit of the Warrantholder and shall survive the execution and delivery of this Agreement and the expiration or other termination of this Agreement.

(n) Governing Law. This Agreement has been negotiated and delivered to the Warrantholder in the State of California, and shall be deemed to have been accepted by the Warrantholder in the State of California. Delivery of Common Stock to the Warrantholder by the Company under this Agreement is due in the State of California. This Agreement shall be governed by, and construed and enforced in accordance with, the laws of the State of California, excluding conflict of laws principles that would cause the application of laws of any other jurisdiction.

(o) Consent to Jurisdiction and Venue. All judicial proceedings arising in or under or related to this Agreement may be brought in any state or federal court of competent jurisdiction located in the State of California. By execution and delivery of this Agreement, each party hereto generally and unconditionally: (i) consents to personal jurisdiction in Santa Clara County, State of California; (ii) waives any objection as to jurisdiction or venue in Santa Clara County, State of California; (iii) agrees not to assert any defense based on lack of jurisdiction or venue in the aforesaid courts; and (iv) irrevocably agrees to be bound by any judgment rendered thereby in connection with this Agreement. Service of process on any party hereto in any action arising out of or relating to this Agreement shall be effective if given in accordance with the requirements for notice set forth in Section 12(g), and shall be deemed effective and received as set forth in Section 12(g). Nothing herein shall affect the right to serve process in any other manner permitted by law or shall limit the right of either party to bring proceedings in the courts of any other jurisdiction.

(p) Mutual Waiver of Jury Trial. Because disputes arising in connection with complex financial transactions are most quickly and economically resolved by an experienced and expert person and the parties wish applicable state and federal laws to apply (rather than arbitration rules), the parties desire that their disputes arising under or in connection with this Warrant be resolved by a judge applying such applicable laws. EACH OF THE COMPANY AND THE WARRANTHOLDER SPECIFICALLY WAIVES ANY RIGHT IT MAY HAVE TO TRIAL BY JURY OF ANY CAUSE OF ACTION, CLAIM, CROSS-CLAIM, COUNTERCLAIM, THIRD PARTY CLAIM OR ANY OTHER CLAIM (COLLECTIVELY, "CLAIMS") ASSERTED BY THE COMPANY AGAINST THE WARRANTHOLDER OR ITS ASSIGNEE OR BY THE WARRANTHOLDER OR ITS ASSIGNEE AGAINST THE COMPANY RELATING TO THIS WARRANT. This waiver extends to all such Claims, including Claims that involve persons or entities other the Company and the Warrantholder; Claims that arise out of or are in any way connected to the relationship between the Company and the Warrantholder; and any Claims for damages, breach of contract, specific performance, or any equitable or legal relief of any kind, arising out of this Agreement.

(q) Arbitration. If the Mutual Waiver of Jury Trial set forth in Section 12(p) is ineffective or unenforceable, the parties agree that all Claims shall be submitted to binding arbitration in accordance with the commercial arbitration rules of JAMS (the "Rules"), such arbitration to occur before one arbitrator, which arbitrator shall be a retired California state judge or a retired Federal court judge. Such proceeding shall be conducted in Santa Clara County, State of California, with California rules of evidence and discovery applicable to such arbitration. The decision of the arbitrator shall be binding on the parties, and shall be final and nonappealable to the maximum extent permitted by law. Any judgment rendered by the arbitrator may be entered

in a court of competent jurisdiction and enforced by the prevailing party as a final judgment of such court.

(r) Pre-arbitration Relief. In the event Claims are to be resolved by arbitration, either party may seek from a court of competent jurisdiction identified in Section 12(o), any prejudgment order, writ or other relief and have such prejudgment order, writ or other relief enforced to the fullest extent permitted by law notwithstanding that all Claims are otherwise subject to resolution by binding arbitration.

(s) Counterparts. This Agreement and any amendments, waivers, consents or supplements hereto may be executed in any number of counterparts (including by facsimile or electronic delivery (PDF), and by different parties hereto in separate counterparts, each of which when so delivered shall be deemed an original, but all of which counterparts shall constitute but one and the same instrument.

(t) Specific Performance. The parties hereto hereby declare that it is impossible to measure in money the damages which will accrue to the Warrantholder by reason of the Company's failure to perform any of the obligations under this Agreement and agree that the terms of this Agreement shall be specifically enforceable by the Warrantholder. If the Warrantholder institutes any action or proceeding to specifically enforce the provisions hereof, any person against whom such action or proceeding is brought hereby waives the claim or defense therein that the Warrantholder has an adequate remedy at law, and such person shall not offer in any such action or proceeding the claim or defense that such remedy at law exists.

(u) Lost, Stolen, Mutilated or Destroyed Warrant. If this Warrant is lost, stolen, mutilated or destroyed, the Company may, on such terms as to indemnity or otherwise as it may reasonably impose (which shall, in the case of a mutilated Warrant, include the surrender thereof), issue a new Warrant of like denomination and tenor as this Warrant so lost, stolen, mutilated or destroyed. Any such new Warrant shall constitute an original contractual obligation of the Company, whether or not the allegedly lost, stolen, mutilated or destroyed Warrant shall be at any time enforceable by anyone.

(v) Legends. To the extent required by applicable laws, this Warrant and the shares of Common Stock issuable hereunder (and the securities issuable, directly or indirectly, upon conversion of such shares of Common Stock, if any) may be imprinted with a restricted securities legend in substantially the following form:

THIS SECURITY HAS NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED (THE "ACT"), OR ANY APPLICABLE STATE SECURITIES LAWS, AND MAY NOT BE SOLD, OFFERED FOR SALE, PLEDGED OR HYPOTHECATED IN THE ABSENCE OF AN EFFECTIVE REGISTRATION RELATED THERETO OR, SUBJECT TO SECTION 11 OF THE WARRANT AGREEMENT DATED MARCH 15, 2024, BETWEEN THE COMPANY AND [REDACTED], AN OPINION OF COUNSEL (WHICH MAY BE COMPANY COUNSEL) REASONABLY SATISFACTORY TO THE COMPANY THAT SUCH REGISTRATION IS NOT REQUIRED UNDER THE ACT OR ANY STATE SECURITIES LAWS.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, the parties hereto have caused this Warrant Agreement to be executed by its officers thereunto duly authorized as of the Effective Date.

COMPANY: BLUEBIRD BIO, INC.

By: _____
Name: _____
Title: _____

WARRANTHOLDER: [_____]

By: _____
Name: _____
Title: _____

In accordance with Instruction 2 to Item 601 of Regulation S-K, below is a schedule setting forth details in which the omitted executed warrants differ from the form of warrant that follows:

Warrantholder

Hercules Capital, Inc.

Hercules Private Credit Fund 1 L.P.

Hercules Private Global Venture Growth Fund I L.P.

FIRST AMENDMENT TO WARRANT

THIS FIRST AMENDMENT TO WARRANT (this "Amendment"), dated as of August 13, 2024, is entered into by and among bluebird bio, Inc., a Delaware corporation ("Company") and [] (the "Warrantholder"). Terms used herein and not defined herein shall have the meanings set forth in the Warrant (as defined below).

RECITALS

A. Company and Warrantholder have entered into that certain Warrant Agreement to Purchase Shares of Common Stock of the Company dated as of March 15, 2024 (as amended from time to time, the "Warrant") pursuant to which Warrantholder has the right to subscribe for and purchase, from the Company, up to the aggregate number of fully paid and non-assessable shares of Common Stock, subject to adjustment as set forth therein and otherwise on the terms set forth therein.

B. The execution and delivery of this Amendment is required pursuant to the terms and conditions of that certain Third Amendment to Loan and Security Agreement (the "Third Amendment"), dated as of the date hereof, which amends the Loan Agreement.

SECTION 1 Amendments to the Warrant. Upon the Third Amendment Effective Date (as defined in the Third Amendment), the Warrant is hereby amended as follows:

(a) New Definition. The following definitions are added to Section 1(a) of the Warrant in its proper alphabetical order:

"Equity Round" means any public or non-public offering of equity securities by the Company in a transaction or series of related transactions principally for equity financing purposes in which cash is received by the Company and/or debt of the Company is cancelled or converted in exchange for equity securities of the Company.

"Next Round" means the first Equity Round after August 13, 2024 in which the Company issues and sells shares of its Common Stock or preferred stock and any options, warrants, rights or other securities that are exercisable, convertible or exchangeable into, or otherwise provide the right to purchase or acquire shares of Common Stock or preferred stock.

"Original Exercise Price" means \$1.45, subject to adjustment from time to time in accordance with the provisions of this Warrant applicable to the Exercise Price.

(b) Amended and Restated Definition. The following definition appearing in Section 1(a) of each Warrant is hereby amended in its entirety and replaced with the following:

“Exercise Price” means the lower of (a) \$1.03, and (b) if the Company closes its Next Round on or before February 13, 2025, the lowest price per share paid by investors in the Next Round, subject to adjustment from time to time in accordance with the provisions of this Warrant.

(c) Amended and Restated Section. Section 1(b) of the Warrant is hereby amended in its entirety and replaced with the following:

(b) Number of Shares. This Warrant shall be exercisable for a number of shares of Common Stock equal to the quotient of (i) the Warrant Coverage, *divided* by (ii) the Original Exercise Price, subject to adjustment from time to time in accordance with the provisions of this Warrant.

SECTION 2 Miscellaneous.

(a) **Governing Law.** THIS AMENDMENT SHALL BE GOVERNED BY, AND CONSTRUED AND ENFORCED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF CALIFORNIA, EXCLUDING CONFLICT OF LAWS PRINCIPLES THAT WOULD CAUSE THE APPLICATION OF LAWS OF ANY OTHER JURISDICTION

(b) **Incorporation by Cross Reference.** Section 5(a), 5(c), 5(d), 5(e), 5(g), 5(h), 5(i) and 5(j) of the Third Amendment are incorporated in their entirety, *mutatis mutandis*, into the terms of this Amendment.

IN WITNESS WHEREOF, the parties hereto have caused this Amendment, as of the date first above written.

COMPANY: BLUEBIRD BIO, INC.

By: _____
Name: _____
Title: _____

WARRANTHOLDER: [_____]

By: _____
Name: _____
Title: _____

[Signature Page to First Amendment to Warrant]

THIRD AMENDMENT TO LOAN AND SECURITY AGREEMENT

THIS **THIRD AMENDMENT TO LOAN AND SECURITY AGREEMENT** (this “**Amendment**”), dated as of August 13, 2024 (the “**Third Amendment Effective Date**”), is entered into by and among BLUEBIRD BIO, INC., a Delaware corporation (“**Company**”), and each other Person that has delivered a Joinder Agreement from time to time party to the Existing Loan Agreement (together with Company, individually or collectively, as the context may require, “**Borrower**”), the several banks and other financial institutions or entities from time to time parties to the Existing Loan Agreement (each, a “**Lender**”, and collectively “**Lenders**”) that are party hereto and HERCULES CAPITAL, INC., a Maryland corporation, in its capacity as administrative agent and collateral agent for itself and Lenders (in such capacities, including any successors or permitted assigns, “**Agent**”).

A. Borrower, Lenders and Agent are parties to that certain Loan and Security Agreement, dated as of March 15, 2024 (as amended, restated, amended and restated, supplemented or otherwise modified from time to time to date, including by that certain First Amendment to Loan and Security Agreement dated as of April 30, 2024 and that certain Second Amendment to Loan and Security Agreement dated as of July 9, 2024, the “**Existing Loan Agreement**” and the Existing Loan Agreement, as amended by this Amendment, the “**Amended Loan Agreement**”). Borrower, Lenders and Agent have agreed to certain amendments to the Existing Loan Agreement upon the terms and conditions more fully set forth herein.

SECTION 1 Definitions; Interpretation.

(a) **Defined Terms.** All capitalized terms used in this Amendment (including in the recitals hereof) and not otherwise defined herein shall have the meanings assigned to them in the Amended Loan Agreement.

(b) **Rules of Construction.** The rules of construction that appear in Section 1.3 of the Amended Loan Agreement shall be applicable to this Amendment and are incorporated herein by this reference.

SECTION 2 Amendments to the Existing Loan Agreement.

(a) The Existing Loan Agreement shall be amended as follows effective as of the date hereof (except as otherwise noted):

(i) The following defined terms are hereby added, in appropriate alphabetical order, or amended and restated, as applicable, in Section 1.1 of the Existing Loan Agreement, as set forth below:

“**All Source Cash Proceeds**” means the unrestricted gross cash proceeds received by Borrower (which, for the sake of clarity, excludes any such proceeds subject to redemption, escrow, clawback or similar encumbrance or restriction (other than, in the case of Permitted Convertible Debt, conversion rights of the holders thereof and any obligation to repurchase such Permitted Convertible Debt upon certain ‘change of control’, ‘fundamental change’, ‘make-whole fundamental change’ or any comparable term)) from a combination of: (i) the sale or issuance of Borrower’s Equity Interests; (ii) the issuance of Subordinated Indebtedness; (iii) the issuance of Permitted Convertible Debt, net of the cost of any Permitted Bond Hedge Transaction and any proceeds received from any Permitted Warrant Transaction entered into in connection with such Permitted Convertible Debt; (iv) upfront payments under business development transactions (which may include the sale of a Priority Review Voucher); and (v) up to Twenty-Five Million Dollars (\$25,000,000) of cash, which as of the Third Amendment Effective Date is restricted (including, for the avoidance of doubt, any restricted cash in connection with the letters of credit set forth on Schedule 1A), upon it becoming unrestricted and being deposited into accounts subject to an Account Control Agreement in favor of Agent; provided that gross cash proceeds received by Borrower in connection with any such transaction to net expenses associated with such transaction shall not exceed seven percent (7%) or if they do, then for the purpose of this definition, the amount of gross cash proceeds shall be reduced by the amount of expenses in excess of seven percent (7%); provided, further, that in each

case of clauses (i) through (v) above, in no event shall proceeds of or under the Permitted Receivables Factoring Agreement constitute “All Source Cash Proceeds.”

“**Drug Product Deliveries**” means Borrower’s receipt of an acknowledgement from a qualified treatment center that such center has received a requested drug product for which Borrower has issued an invoice.

“**Funding Milestone I**” means Borrower’s receipt, from the period beginning on the Third Amendment Effective Date and on or prior to December 20, 2024, of All Source Cash Proceeds of at least Seventy-Five Million Dollars (\$75,000,000), subject to verification by Agent in its reasonable discretion (including supporting documentation requested by Agent).

“**Funding Milestone II**” means Borrower’s receipt, from the period beginning on the Third Amendment Effective Date and on or prior to December 20, 2024, of All Source Cash Proceeds of at least One Hundred Million Dollars (\$100,000,000), subject to verification by Agent in its reasonable discretion (including supporting documentation requested by Agent).

“**Funding Milestone III**” means Borrower’s receipt, from the period beginning on the Third Amendment Effective Date and on or prior to June 30, 2025, of All Source Cash Proceeds of at least One Hundred Twenty-Five Million Dollars (\$125,000,000), subject to verification by Agent in its reasonable discretion (including supporting documentation requested by Agent).

“**Performance Milestone**” means the first date on or prior to January 30, 2027 on which Borrower shall have satisfied the following conditions: (a) the Tranche 3 Milestone Date has occurred, (b) Borrower has achieved at least Ten Million Dollars (\$10,000,000) of EBITDA, measured on a trailing six-month basis, as of the last day of the month for which the most recent monthly financial statements were delivered in accordance with Section 7.1(a) and subject to verification by Agent in its reasonable discretion (including supporting documentation requested by Agent), and (c) no Default or Event of Default shall have occurred and is continuing.

“**Priority Review Voucher**” means a voucher issued by FDA under its Priority Review Voucher Program for priority review of eligible applications for regulatory approval of pharmaceutical products for the prevention or treatment of a qualifying disease.

“**Tranche 2 Commitment End Date**” means the earlier to occur of (a) July 31, 2025 and (b) the date that is thirty (30) days after the Tranche 2 Milestone Date.

“**Tranche 2 Milestone Date**” means the first date on which Borrower shall have satisfied the following conditions: (a) Borrower shall have achieved the Funding Milestone I, (b) Borrower shall have confirmed (i) cell collection has occurred for at least fifty (50) patients for the commercial use of LYFGENIA on or prior to March 31, 2025 or (ii) cell collection has occurred for at least seventy (70) patients for the commercial use of LYFGENIA on or prior to June 30, 2025, in each case, subject to verification by Agent in its reasonable discretion (including supporting documentation reasonably requested by Agent), and (c) no Default or Event of Default shall have occurred.

“**Tranche 3 Commitment End Date**” means the earlier to occur of (a) December 31, 2025 and (b) the date that is thirty (30) days after the Tranche 3 Milestone Date.

“**Tranche 3 Milestone Date**” means the first date on which Borrower shall have satisfied the following conditions: (a) Borrower shall have achieved either Funding Milestone II or Funding Milestone III, (b) Borrower shall have, no later than the period ending December 31, 2025, completed seventy (70) Drug Product Deliveries across its LYFGENIA, ZYNTGLO and SKYSONA products within a given trailing six (6) month period, and of which at least forty (40) such deliveries are for LYFGENIA, in each

case, subject to verification by Agent in its reasonable discretion (including supporting documentation requested by Agent) and (c) no Default or Event of Default shall have occurred and is continuing.

“**Third Amendment**” means that certain Third Amendment to Loan and Security Agreement, dated as of the Third Amendment Effective Date by and among Borrower, Lenders and Agent.

“**Third Amendment Effective Date**” means August 13, 2024.

(ii) Section 2.5 of the Existing Loan Agreement are hereby amended and restated to read as follows:

“2.5 End of Term Charge.

(a) On any date that Borrower partially prepays the outstanding Secured Obligations pursuant to Section 2.4 (and without duplication), Borrower shall pay Lenders a charge of six and forty-five hundredths percent (6.45%) *multiplied* by the principal amount of such Term Loan Advances being prepaid.

(b) On the earliest to occur of (i) the Term Loan Maturity Date, (ii) the date that Borrower prepays the outstanding Secured Obligations (other than any inchoate indemnity obligations and any other obligations which, by their terms, are to survive the termination of this Agreement) in full, or (iii) the date that the entire outstanding Secured Obligations become due and payable, Borrower shall pay Lenders a charge equal to (x) four and six and forty-five hundredths percent (6.45%) *multiplied* by the aggregate original principal amount of such Term Loan Advances made hereunder *minus* (y) the aggregate amount of payments made pursuant to Section 2.5(a) (the “End of Term Charge”).

(c) Notwithstanding the required payment date of such End of Term Charge, the applicable pro rata portion of the End of Term Charge shall be deemed earned by Lenders as of each date that an applicable Term Loan Advance is made. For the avoidance of doubt, if a payment hereunder becomes due and payable on a day that is not a Business Day, the due date thereof shall be the immediately subsequent Business Day.”

(iii) Section 7.21 of the Existing Loan Agreement is hereby amended and restated to read as follows:

“7.21 Financial Covenants.

(a)

(i) Borrower shall at all times after the Third Amendment Effective Date maintain Qualified Cash in an amount greater than or equal to (x) the outstanding principal amount of the Term Loan Advances, *multiplied* by (y) forty-five percent (45%) (the “Minimum Cash Coverage Percentage”); provided, however, if the Tranche 3 Milestone Date shall have occurred and the Borrower shall not have achieved the Performance Milestone, the Minimum Cash Coverage Percentage shall be reduced to thirty-five percent (35%); provided, further, that if the Borrower shall have achieved the Performance Milestone, the Minimum Cash Coverage Percentage shall be permanently reduced to twenty percent (20%).

(ii) If Borrower makes a redemption or any other cash payment in respect of Permitted Convertible Debt, subject to satisfaction of the Redemption Conditions, Borrower shall, at all times thereafter, maintain Qualified Cash in the amount required by the defined term “Redemption Conditions.”

(b) Beginning with the Company's fiscal quarter ending December 31, 2024, for the trailing six-month period ending on the last day of each fiscal quarter identified in the table set forth on Schedule 7.21(b), Borrower shall achieve Net Product Revenue, in an amount equal to at least the amount set forth on Schedule 7.21(b) opposite such date.

Notwithstanding the foregoing, the minimum Net Product Revenue requirements of this Section 7.21(b) shall be waived at any time in which (x) (I) Company's average Market Capitalization as of market close for the thirty (30) Trading Days immediately preceding each day of such measuring period is greater than Five Hundred Million Dollars (\$500,000,000) and (II) Borrower maintains Qualified Cash in an amount greater than or equal to the outstanding principal amount of the Term Loan Advances, multiplied by seventy percent (70%) or (y) Borrower maintains Qualified Cash of greater than or equal to the outstanding Secured Obligations, multiplied by one hundred twenty-five percent (125%). For the avoidance of doubt, if Company fails to so maintain the minimum Market Capitalization and/or Borrower fails to so maintain the minimum Qualified Cash (as applicable and required pursuant to clause (x) or (y)) at any time prior to the immediately following date on which Borrower has delivered the financial statements and a Compliance Certificate in accordance with Section 7.1(a) and Section 7.1(d), then Borrower shall be required to achieve Net Product Revenue with respect to the fiscal quarter for which the most recent quarterly financial statements were delivered in accordance with Section 7.1(a) in the amount equal to at least the amount set forth on Schedule 7.21(b) for such fiscal quarter."

(iv) Schedule 7.21(b) of the Existing Loan Agreement is hereby replaced with Schedule 7.21(b) attached hereto.

(b) **References Within Amended Loan Agreement.** Each reference in the Amended Loan Agreement to "this Agreement" and the words "hereof," "herein," "hereunder," or words of like import, shall mean and be a reference to the Amended Loan Agreement. This Amendment shall be a Loan Document. Any failure by Borrower to perform any obligation under this Amendment shall constitute an Event of Default under the Amended Loan Agreement.

SECTION 3 Conditions to Effectiveness. The effectiveness of this Amendment shall be subject to satisfaction of each of the following conditions precedent:

- (a) Agent shall have received this Amendment, executed by Agent, Required Lenders, and Borrower;
- (b) Each Lender shall have received a First Amendment to Warrant to Purchase Stock, executed by such Lender and Borrower;
- (c) Agent shall have received a copy of resolutions of each Borrower's Board of Directors, certified by an officer of such Borrower, evidencing (i) approval of the Loan and other transactions evidenced by this Amendment (including the amendments to warrants referenced in Section 3(b) above) and (ii) acknowledging that the Board of Directors are acting for a proper purpose and that the Loan Documents are in the best interests of that Borrower and for its commercial benefit;
- (d) immediately after giving effect to this Amendment, the representations and warranties contained in Section 4 hereof shall be true and correct on and as of the Third Amendment Effective Date as though made on and as of such date; and
- (e) immediately after giving effect to this Amendment, there exist no Events of Default or events that, with the passage of time, could result in an Event of Default.

SECTION 4 Representations and Warranties. To induce Agent and Lenders to enter into this Amendment, Borrower hereby confirms, as of the date hereof and immediately after giving effect to this Amendment, (a) that the representations and warranties made by it in Section 5 of the Amended Loan Agreement and in the other Loan

Documents are true and correct in all material respects (except to the extent such representations and warranties relate to an earlier date, in which case they are true and correct in all material respects as of such date); *provided, however*, that such materiality qualifier shall not be applicable to any representations and warranties that already are qualified or modified by materiality in the text thereof; and (b) that there has not been and there does not exist a Material Adverse Effect.

SECTION 5 Miscellaneous.

(a) **Loan Documents Otherwise Not Affected; Reaffirmation.** Except as expressly amended pursuant hereto or referenced herein, the Existing Loan Agreement and the other Loan Documents shall remain unchanged and in full force and effect and are hereby ratified and confirmed in all respects. Lenders' and Agent's execution and delivery of, or acceptance of, this Amendment shall not be deemed to create a course of dealing or otherwise create any express or implied duty by any of them to provide any other or further amendments, consents or waivers in the future. Borrower hereby reaffirms the security interest granted pursuant to the Loan Documents and hereby reaffirms that such grant of security in the Collateral granted as of the Closing Date continues without novation and secures all Secured Obligations under the Amended Loan Agreement and the other Loan Documents. Borrower acknowledges and agrees that it does not have any defense, set-off, counterclaim or challenge against the payment of any sums owing under the Existing Loan Agreement and the other Loan Documents, or the enforcement of any of the terms or conditions thereof.

(b) **Conditions.** For purposes of determining compliance with the conditions specified in Section 3 hereof, each Lender that has signed this Amendment shall be deemed to have consented to, approved or accepted or to be satisfied with, each document or other matter required thereunder to be consented to or approved by or acceptable or satisfactory to a Lender unless Agent shall have received notice from such Lender prior to the date hereof specifying its objection thereto.

(c) **Release.** In consideration of the agreements of Agent and Lenders contained herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Borrower, on behalf of itself and its successors and assigns, hereby fully, absolutely, unconditionally and irrevocably releases, remises and forever discharges Agent and each Lender, and its successors and assigns, and its present and former shareholders, affiliates, subsidiaries, divisions, predecessors, directors, officers, attorneys, employees, agents and other representatives (Agent, Lenders and all such other persons being hereinafter referred to collectively as the "**Releasees**" and individually as a "**Releasee**"), of and from all demands, actions, causes of action, suits, covenants, contracts, controversies, agreements, promises, sums of money, accounts, bills, reckonings, damages and any and all other claims, counterclaims, defenses, rights of set-off, demands and liabilities whatsoever of every name and nature, known or unknown, suspected or unsuspected, both at law and in equity, which Borrower, or any of its successors, assigns, or other legal representatives may now or hereafter own, hold, have or claim to have against the Releasees or any of them for, upon, or by reason of any circumstance, action, cause or thing whatsoever which arises at any time on or prior to the day and date of this Amendment, including, without limitation, for or on account of, or in relation to, or in any way in connection with the Existing Loan Agreement, or any of the other Loan Documents or transactions thereunder or related thereto (collectively, the "**Released Claims**"). Borrower waives the provisions of California Civil Code section 1542, which states:

A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS THAT THE CREDITOR OR RELEASING PARTY DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE AND THAT, IF KNOWN BY HIM OR HER, WOULD HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR OR RELEASED PARTY.

Borrower understands, acknowledges and agrees that the release set forth above may be pleaded as a full and complete defense and may be used as a basis for an injunction against any action, suit or other proceeding which may be instituted, prosecuted or attempted in breach of the provisions of such release. Borrower agrees that no fact, event, circumstance, evidence or transaction which could now be asserted or which may hereafter be discovered shall affect in any manner the final, absolute and unconditional nature of the release set forth above. The provisions

of this section shall survive payment in full of the Secured Obligations, full performance of all the terms of this Amendment and the other Loan Documents.

In addition to the release contained above, and not in limitation thereof, Borrower hereby agrees that it will never prosecute, nor voluntarily aid in the prosecution of, any action or proceeding relating to the Released Claims, whether by claim, counterclaim or otherwise. If, and to the extent that, any of the Released Claims are, for any reason whatsoever, not fully, finally and forever released and discharged pursuant to the terms above, Borrower hereby absolutely and unconditionally grants, sells, bargains, transfers, assigns and conveys to Agent all of the Released Claims and any proceeds, settlements and distributions relating thereto.

(d) **No Reliance.** Borrower hereby acknowledges and confirms to Agent and Lenders that Borrower is executing this Amendment on the basis of its own investigation and for its own reasons without reliance upon any agreement, representation, understanding or communication by or on behalf of any other Person.

(e) **Binding Effect.** This Amendment binds and is for the benefit of the successors and permitted assigns of each party.

(f) **Governing Law.** This Amendment and the other Loan Documents shall be governed by, and construed and enforced in accordance with, the laws of the State of California, excluding conflict of laws principles that would cause the application of laws of any other jurisdiction.

(g) **Complete Agreement; Amendments.** This Amendment and the Loan Documents represent the entire agreement about this subject matter and supersede prior negotiations or agreements with respect to such subject matter. All prior agreements, understandings, representations, warranties, and negotiations between the parties about the subject matter of this Amendment and the Loan Documents merge into this Amendment and the Loan Documents.

(h) **Severability of Provisions.** Each provision of this Amendment is severable from every other provision in determining the enforceability of any provision.

(i) **Counterparts.** This Amendment may be executed in any number of counterparts and by different parties on separate counterparts, each of which, when executed and delivered, is an original, and all taken together, constitute one Amendment. Delivery of an executed counterpart of a signature page of this Amendment by facsimile, portable document format (.pdf) or other electronic transmission will be as effective as delivery of a manually executed counterpart hereof.

(j) **Electronic Execution of Certain Other Documents.** The words "execution," "execute," "signed," "signature," and words of like import in or related to any document to be signed in connection with this Amendment and the transactions contemplated hereby (including without limitation assignments, assumptions, amendments, waivers and consents) shall be deemed to include electronic signatures, the electronic matching of assignment terms and contract formations on electronic platforms approved by Agent, or the keeping of records in electronic form, each of which shall be of the same legal effect, validity or enforceability as a manually executed signature or the use of a paper-based recordkeeping system, as the case may be, to the extent and as provided for in any applicable law, including the Federal Electronic Signatures in Global and National Commerce Act, the California Uniform Electronic Transaction Act, or any other similar state laws based on the Uniform Electronic Transactions Act.

(k) **Inconsistencies.** To the extent of any inconsistency between the terms and conditions of this Amendment and the terms and conditions of the Existing Loan Agreement and the other Loan Documents, the terms and conditions of this Amendment shall prevail.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the parties hereto have duly executed this Amendment, as of the date first above written.

BORROWER:

BLUEBIRD BIO, INC.

Signature: /s/ O. James Sterling

Print Name: O. James Sterling

Title: Chief Financial Officer

[Signature Page to Third Amendment to Loan and Security Agreement]

AGENT:

HERCULES CAPITAL, INC.

Signature: /s/ Seth H. Meyer
Print Name: Seth Meyer
Title: Chief Financial Officer

LENDERS:

HERCULES CAPITAL, INC.

Signature: /s/ Seth H. Meyer
Print Name: Seth Meyer
Title: Chief Financial Officer

HERCULES PRIVATE CREDIT FUND 1 L.P.

By: Hercules Private Global Venture Growth Fund GP I LLC, its general partner
By: Hercules Partner Holdings LLC, its sole member

Signature: /s/ Seth H. Meyer
Print Name: Seth Meyer
Title: Authorized Signatory

HERCULES PRIVATE GLOBAL VENTURE GROWTH FUND I L.P.

By: Hercules Private Global Venture Growth Fund GP I LLC, its general partner
By: Hercules Partner Holdings LLC, its sole member

Signature: /s/ Seth H. Meyer
Print Name: Seth Meyer
Title: Authorized Signatory

[Signature Page to Third Amendment to Loan and Security Agreement]

Schedule 7.21(b)

REQUIRED NET PRODUCT REVENUE

Fiscal Quarter Ending	Required Net Product Revenue
December 31, 2024	\$30,000,000
March 31, 2025	\$80,000,000
June 30, 2025	\$115,000,000
September 30, 2025	\$130,000,000
December 31, 2025	\$145,000,000
March 31, 2026	\$175,000,000
June 30, 2026	\$215,000,000
September 30, 2026	\$245,000,000
December 31, 2026	\$275,000,000
March 31, 2027	\$300,000,000
June 30, 2027	\$300,000,000
September 30, 2027	\$300,000,000
December 31, 2027	\$300,000,000
March 31, 2028 and thereafter	\$325,000,000

bluebird bio Reports Second Quarter 2024 Results and Highlights Operational Progress and 2024 Guidance

- 27 patient starts to date in 2024 (19 ZYNTEGLO, 4 LYFGENIA, 4 SKYSONA); anticipate approximately 85 patient starts across the portfolio as LYFGENIA patient starts accelerate in the second half of 2024 -

- Second quarter 2024 net revenue of \$16.1 million -

- Cash runway into Q2 2025 based on current operating plans and cash on hand -

- Management to host conference call today, August 14, 2024 at 8:00 am ET -

SOMERVILLE, Mass. – August 14, 2024 – bluebird bio, Inc. (NASDAQ: BLUE) (“bluebird bio” or the “Company”) today reported second quarter results and business highlights for the quarter ended June 30, 2024, including recent commercial and operational progress.

“We are seeing clear evidence that our commercial launch is accelerating, with over 20 cell collections completed in sickle cell disease and beta-thalassemia to date in 2024, and more than 40 additional patients already scheduled to initiate the treatment journey for a bluebird gene therapy by the end of this year,” said Andrew Obenshain, chief executive officer, bluebird bio. “We are further encouraged by the commitment to provide patient access across both commercial and government payers, most recently conveyed through multiple positive Medicaid decisions and the growing number of published coverage policies for LYFGENIA, and we expect approximately 85 patient starts across our portfolio this year.”

COMMERCIAL LAUNCH UPDATES

LYFGENIA™ launch building (lovotibeglogene autotemcel); continued commercial momentum for ZYNTEGLO™ (betibeglogene autotemcel) and SKYSONA™ (elivaldogene autotemcel)

- 27 patient starts completed across portfolio to date in 2024 (19 ZYNTEGLO, 4 LYFGENIA, 4 SKYSONA).
- Launch momentum building with more than 40 additional patients scheduled for cell collection across commercial portfolio through year end.
- Successfully completed manufacturing and release testing for first commercial LYFGENIA patient and the first infusion is being scheduled.
- Rapid acceleration projected for ZYNTEGLO following the recent approval of additional manufacturing capacity.

Validated access and reimbursement strategy is driving favorable coverage landscape

- Significant progress with formalized paths to market access. To date, more than half of Medicaid-insured individuals with sickle cell disease in the U.S. live in a state that has affirmed coverage for LYFGENIA through a preferred drug list or published coverage criteria.

- Nearly 20% of Medicaid-insured individuals with sickle cell disease in the U.S. live in a state that has already completed prior authorization approval for the use of LYFGENIA for at least one patient.
- Multiple outcomes-based agreements are published and in place for LYFGENIA with national commercial payer organizations, representing more than 200 million U.S. lives.
- Timely access to ZYNTEGLO and SKYSONA has continued, with zero ultimate denials to date for either therapy across both Medicaid and commercial payers.

Substantial QTC footprint established

- bluebird has activated more than 70 total QTCs for LYFGENIA and ZYNTEGLO (defined as a signed MSA).
- Six centers are activated to administer SKYSONA for patients with cerebral adrenoleukodystrophy (CALD).

RECENT COMPANY UPDATES

James Sterling appointed as Chief Financial Officer

- Effective June 10, James Sterling became Chief Financial Officer of bluebird bio. Mr. Sterling most recently served as chief financial officer of Renalytix plc, a diagnostics company focused on clinical management of kidney disease. Mr. Sterling was previously managing partner at Renwick Capital LLC, and managing director at investment banks Brock Capital Group LLC and Aleutian Capital Group. He also serves as a board director for a fund managed by Star Mountain Capital. Mr. Sterling has experience as a management consultant at Booz Allen Hamilton. He received his B.A. from Boston University and an M.B.A. from Columbia Business School.

Michael Cloonan appointed to bluebird bio's Board of Directors

- On June 20, 2024, Michael Cloonan was appointed to bluebird bio's Board of Directors. Mr. Cloonan is currently President and Chief Executive Officer of Sionna Therapeutics. He was previously Chief Operating Officer at Sage Therapeutics leading all business and G&A functions. During his four years with Sage, he helped lead the growth of the organization through multiple capital raises, the launch of the company's first product, and execution of a transformational, multi-billion-dollar collaboration. An experienced and respected global biotech leader, Mr. Cloonan has over 20 years of biopharma experience across global organizations in various business and commercial roles.

2024 GUIDANCE

- The Company anticipates approximately 85 patient starts (cell collections) combined across its portfolio of three FDA approved therapies (LYFGENIA, ZYNTEGLO, SKYSONA) in 2024. Consistent with previous quarters, bluebird plans to provide quarterly updates on patient starts by indication for each of its therapies.
- The Company continues to anticipate gross-to-net discounts across all three products to be in the range of 20% to 25% of gross revenue in 2024 and expects they will fluctuate based on product and payer mix, as well as utilization of outcomes-based agreements for LYFGENIA and ZYNTEGLO.

- Based on projected timelines from cell collection to infusion, the Company anticipates recognizing revenue from its first infusion of LYFGENIA in the third or fourth quarter of 2024.

SECOND QUARTER FINANCIAL HIGHLIGHTS

- **Cash Position:** The Company's cash, cash equivalents and restricted cash balance was approximately \$193 million, including restricted cash of approximately \$49 million, as of June 30, 2024.

Based on current operating assumptions, bluebird expects its cash and cash equivalents as of June 30, 2024 will be sufficient to fund its operations into the second quarter of 2025¹, not accounting for the cash minimums required under the Company's loan agreement with Hercules Capital, Inc. and excluding receipt of any future tranches under the agreement.

The Company has also renegotiated certain terms of its loan agreement with Hercules Capital, Inc. and is eligible to receive two future tranches totaling \$50 million, contingent upon achievement of patient start and product delivery milestones and completion of additional financing. These tranches take the place of previously agreed tranches tied to patient starts and gross profit.

- **Revenue, net:** Total revenue, net was \$16.1 million for the three months ended June 30, 2024, compared to \$6.9 million for the three months ended June 30, 2023. The increase of \$9.2 million was due to increased ZYNTEGLO product revenue.

On March 26, 2024, bluebird announced that it will restate its consolidated financial statements as of and for the year ended December 31, 2022, and for each of the first three quarters of 2022 and 2023 in its Annual Report on Form 10-K for the year ended December 31, 2023 (the "2023 Form 10-K"). The restatements relate to the identification of leases and the treatment of non-lease components contained in lease agreements. The restatement is not expected to impact the Company's cash position or revenue. As a result of the restatement, the Company is delayed in filing its 2023 Form 10-K and its Quarterly Reports on Form 10-Q for the quarters ended March 31, 2024 (the "Q1 2024 Form 10-Q") and June 30, 2024 (the "Q2 2024 Form 10-Q"). The Company is continuing to work expeditiously to complete these filings.

The financial results included in this press release represent the most current information available to the Company's management. The Company expects that its actual results to be reported in its Q2 2024 Form 10-Q will not differ materially from the results included herein, however, these results are subject to change following the completion of the Company's financial close procedures and the review of its consolidated financial statements for the quarter ended June 30, 2024.

CONFERENCE CALL DETAILS

bluebird will hold a conference call to discuss its second quarter 2024 results and business updates today, Wednesday, August 14, 2024, at 8:00 am ET.

¹ Taking into account the minimum cash requirements under the Company's loan agreement with Hercules Capital, Inc., bluebird expects its cash and cash equivalents will be sufficient to fund its operations into the first quarter of 2025.

To participate in the conference call, please dial +1 (800) 715-9871 (U.S. and Canada) and ask to be joined into the bluebird call or provide the Conference ID 2776050.

The live webcast of the call may be accessed by visiting the “Events & Presentations” page within the Investors & Media section of the bluebird website at <http://investor.bluebirdbio.com>. A replay of the webcast will be available on the bluebird website for 90 days following the event.

About bluebird bio, Inc.

bluebird bio is pursuing curative gene therapies to give patients and their families more bluebird days.

Founded in 2010, bluebird has been setting the standard for gene therapy for more than a decade—first as a scientific pioneer and now as a commercial leader. bluebird has an unrivaled track record in bringing the promise of gene therapy out of clinical studies and into the real-world setting, having secured FDA approvals for three therapies in under two years. Today, we are proving and scaling the commercial model for gene therapy and delivering innovative solutions for access to patients, providers, and payers.

With a dedicated focus on severe genetic diseases, bluebird has the largest and deepest ex-vivo gene therapy data set in the field, with industry-leading programs for sickle cell disease, β -thalassemia and cerebral adrenoleukodystrophy. We custom design each of our therapies to address the underlying cause of disease and have developed in-depth and effective analytical methods to understand the safety of our lentiviral vector technologies and drive the field of gene therapy forward.

bluebird continues to forge new paths as a standalone commercial gene therapy company, combining our real-world experience with a deep commitment to patient communities and a people-centric culture that attracts and grows a diverse flock of dedicated birds.

bluebird bio, LYFGENIA, ZYNTEGLO and SKYSONA are registered trademarks of bluebird bio, Inc. All rights reserved.

Forward-Looking Statements

This press release contains “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995. All statements that are not statements of historical facts are, or may be deemed to be, forward-looking statements, such as statements regarding the number of anticipated patient starts across bluebird’s portfolio of therapies; the Company’s anticipated cash runway; the Company’s expectations regarding its ability to maintain compliance with, and access future tranches under, its term loan facility; the Company’s expectations with respect to the commercialization of its products, including without limitation, the acceleration of patient starts, the timing of revenue recognition, anticipated gross-to-net discounts; and the Company’s ability to establish favorable coverage for its therapies; and expectations regarding the Company’s restatement of certain historical financial statements and the timing for filing of its 2023 Form 10-K, Q1 2024 Form 10-Q and Q2 2024 Form 10-Q. Such forward-looking statements are based on historical performance and current expectations and projections about bluebird’s future goals, plans and objectives and involve inherent risks, assumptions and uncertainties, including internal or external factors that could delay, divert or change any of them in the next several years, that are difficult to predict, may be beyond bluebird’s control and could cause bluebird’s future goals, plans and objectives to differ materially from those expressed in, or implied by, the statements. No forward-looking statement can be guaranteed. Forward-looking statements in this press release should be evaluated together with the many risks and uncertainties that affect bluebird bio’s business, particularly those identified in the risk factors discussion in bluebird bio’s Annual Report on Form 10-K for the year ended December 31, 2022, as updated by its

subsequent Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and other filings with the Securities and Exchange Commission, including our Prospectus Supplement, dated December 19, 2023. These risks and uncertainties include, but are not limited to: delays and challenges in bluebird's commercialization and manufacturing of its products, including challenges in manufacturing vector for ZYNTEGLO and SKYSONA to meet current demand; the internal and external costs required for bluebird's ongoing and planned activities, and the resulting impact on expense and use of cash, has been, and may in the future be, higher than expected, which has caused bluebird, and may in the future cause bluebird, to use cash more quickly than it expects or change or curtail some of its plans or both; substantial doubt exists regarding bluebird's ability to continue as a going concern; bluebird's expectations as to expenses, cash usage and cash needs may prove not to be correct for other reasons such as changes in plans or actual events being different than bluebird's assumptions; the risk that additional funding may not be available on acceptable terms, or at all; risks related to bluebird's loan agreement, including the risk that operating restrictions could adversely affect bluebird's ability to conduct its business, the risk that bluebird will not achieve milestones required to access future tranches under the agreement, and the risk that bluebird will fail to comply with covenants under the agreement, including with respect to required cash and revenue levels, which could result in an event of default; the risk that the efficacy and safety results from bluebird's prior and ongoing clinical trials will not continue or be seen in the commercial context; the risk that the QTCs experience delays in their ability to enroll or treat patients; the risk that bluebird experiences delays in establishing operational readiness across its supply chain ; the risk that there is not sufficient patient demand or payer reimbursement to support continued commercialization of the Company's therapies; the risk of insertional oncogenic or other safety events associated with lentiviral vector, drug product, or myeloablation, including the risk of hematologic malignancy; the risk that bluebird's products, including LYFGENIA, will not be successfully commercialized; and risks related to compliance with Nasdaq continued listing requirements. The forward-looking statements included in this document are made only as of the date of this document and except as otherwise required by applicable law, bluebird bio undertakes no obligation to publicly update or revise any forward-looking statement, whether as a result of new information, future events, changed circumstances or otherwise.

Investors & Media

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