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): May 4, 2016

bluebird bio, Inc.
(Exact name of registrant as specified in its charter)

DELAWARE	**001-35966**	**13-3680878**
(State or other jurisdiction of incorporation)	(Commission File Number)	(I.R.S. Employer Identification No.)

150 Second Street Cambridge, MA	**02141**
(Address of principal executive offices)	(Zip Code)

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

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:

☐ 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))

Item 2.02 Results of Operations and Financial Condition

On May 4, 2016, bluebird bio, Inc. announced its financial results for the three months ended March 31, 2016. A copy of the press release is being furnished as Exhibit 99.1 to this Report on Form 8-K.

The information in this Report on Form 8-K and 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 9.01 Financial Statements and Exhibits.

(d) Exhibits

Exhibit No.	Description
99.1	Press release issued by bluebird bio, Inc. on May 4, 2016, furnished herewith.

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: May 4, 2016

bluebird bio, Inc.

By:/s/ Jeffrey T. Walsh
Jeffrey T. Walsh
Chief Financial and Strategy Officer and Principal Financial Officer

EXHIBIT INDEX

Exhibit No.	Description
99.1	Press release issued by bluebird bio, Inc. on May 4, 2016, furnished herewith.

Exhibit 99.1

bluebird bio Reports First Quarter 2016 Financial Results and Recent Operational Progress

– Presented interim clinical data from Starbeam study of Lenti-D™ in cerebral adrenoleukodystrophy (CALD) at American Academy of Neurology (AAN) Annual Meeting –
– Ten abstracts accepted for presentation at American Society for Gene and Cell Therapy (ASGCT) Meeting –
– Advanced Company's first CAR T oncology program into the clinic –
– Fully enrolled expanded Northstar study –
– Ended quarter with $826.9 million in cash, cash equivalents and marketable securities –

CAMBRIDGE, Mass., May 4, 2016 – bluebird bio, Inc. (Nasdaq: BLUE) a clinical-stage company committed to developing potentially transformative gene therapies for severe genetic diseases and T cell-based immunotherapies for cancer, today reported business highlights and financial results for the first quarter ended March 31, 2016.

"In early 2016 we achieved two crucial clinical milestones: treating the first patient in the Phase 1 study of our anti-BMCA CAR T therapy bb2121, and presenting the first clinical data from our Starbeam study of Lenti-D in boys with CALD. We are very pleased with this significant progress as we continue to build our T cell immunotherapy and HSC gene therapy platforms," said Nick Leschly, chief bluebird. "On the LentiGlobin™ program, we are on track to achieve our remaining milestones this year, which include initiation of the HGB-207 study in non-ß0/ß0 transfusion-dependent thalassemia (TDT) as well as integration of manufacturing process improvements into our LentiGlobin clinical trials."

Recent Highlights

- **PRESENTED INTERIM DATA FROM STARBEAM STUDY AT AAN –** In April, Dr. Florian Eichler of Massachusetts General Hospital for Children presented interim clinical data from the Starbeam study of Lenti-D in CALD at AAN. Initial Starbeam results suggest Lenti-D gene therapy may have similar efficacy to allogeneic hematopoietic stem cell transplant (HCT), the current standard of care, with a more favorable safety profile. As of March 31, 2016, three of the 17 patients enrolled in the study have reached two years of follow-up and remain free of major functional disabilities (MFDs), the primary endpoint of the study. Sixteen of the 17 patients had stabilization of their neurological function score (NFS), and 14 of 17 had a stable Loes score. The safety profile of Lenti-D treatment appeared consistent with myeloablative conditioning.

- **TEN ABSTRACTS ACCEPTED FOR PRESENTATION AT ASGCT 19th ANNUAL MEETING** – Two oral presentations given by bluebird's academic collaborators will highlight previously presented data from bluebird bio's ongoing gene therapy clinical trials, including interim data from the Starbeam Study of Lenti-D in cerebral adrenoleukodystrophy, and interim data from the HGB-205 study of LentiGlobin in severe sickle cell disease and TDT. Eight additional presentations will be featured at the meeting, highlighting progress across the company's preclinical, research and process development activities in both HSC gene therapy and T cell immunotherapy.

- **TREATED FIRST PATIENT IN PHASE 1 STUDY OF BB2121 IN MULTIPLE MYELOMA** – In February, the first patient was infused in the CRB-401 study of anti-BCMA CAR T therapy bb2121 in relapsed/refractory multiple myeloma. Additionally, Celgene exercised its option to exclusively license bb2121. Under the terms of the collaboration agreement between the two companies, bluebird bio received a $10.0 million option exercise payment from Celgene and may now elect to co-develop and co-promote the product candidate in the United States with Celgene. We are also eligible to receive specified development and regulatory milestone payments and royalty payments on net sales.

- **FULLY ENROLLED EXPANDED NORTHSTAR STUDY –** Achievement of 18 patient enrollment target in Northstar Study of LentiGlobin in patients with transfusion-dependent thalassemia, including three additional adolescent patients.

Upcoming Anticipated Milestones

- Update on LentiGlobin process improvements in the second half of 2016
- Initiation of the HGB-207 study in patients with TDT with the non-ß0/ß0 genotype in the second half of 2016
- Presentation of updated clinical data for LentiGlobin at the ASH annual meeting in December 2016

First Quarter 2016 Financial Results and Financial Guidance

- **Cash Position:** Cash, cash equivalents and marketable securities as of March 31, 2016 were $826.9 million, compared to $865.8 million as of December 31, 2015, a decrease of $38.9 million.

- **Revenues:** Collaboration revenue was $1.5 million for the first quarter of 2016 compared to $6.3 million for first quarter of 2015. The decrease is a result of an amendment to our collaboration agreement with Celgene in the second quarter of 2015.

- **R&D Expenses:** Research and development expenses were $41.9 million for the first quarter of 2016 compared to $23.7 million for the first quarter of 2015. The increase in

research and development expenses was primarily attributable to increased employee compensation and facilities costs due to increased headcount, and increased manufacturing, clinical, research, and information technology costs to support the advancement of our clinical and pre-clinical programs.

- **G&A Expenses:** General and administrative expenses were $16.0 million for the first quarter of 2016 compared to $7.3 million for the first quarter of 2015. The increase in general and administrative expenses was primarily attributable to increased employee compensation expense due to increased headcount, and consulting costs to support our overall growth.

- **Net Loss:** Net loss was $56.3 million for the first quarter of 2016 compared to $24.8 million for the first quarter of 2015.

- **Financial guidance:** bluebird bio expects that its cash, cash equivalents and marketable securities of $826.9 million as of March 31, 2016 will be sufficient to fund its current operations through 2018.

About bluebird bio, Inc.
With its lentiviral-based gene therapies, T cell immunotherapy expertise and gene editing capabilities, bluebird bio has built an integrated product platform with broad potential application to severe genetic diseases and cancer. bluebird bio's gene therapy clinical programs include its Lenti-D™ product candidate, currently in a Phase 2/3 study, called the Starbeam Study, for the treatment of cerebral adrenoleukodystrophy, and its LentiGlobin™ BB305 product candidate, currently in three clinical studies for the treatment of transfusion-dependent ß-thalassemia, and severe sickle cell disease. bluebird bio's oncology pipeline is built upon the company's leadership in lentiviral gene delivery and T cell engineering, with a focus on developing novel T cell-based immunotherapies, including chimeric antigen receptor (CAR T) and T cell receptor (TCR) therapies. bluebird bio's lead oncology program, bb2121, is an anti-BCMA CAR T program partnered with Celgene. bb2121 is currently being studied in a Phase 1 trial for the treatment of relapsed/refractory multiple myeloma. bluebird bio also has discovery research programs utilizing megaTALs/homing endonuclease gene editing technologies with the potential for use across the company's pipeline.

bluebird bio has operations in Cambridge, Massachusetts, Seattle, Washington, and Paris, France.

LentiGlobin and Lenti-D are trademarks of bluebird bio, Inc.

Forward-Looking Statements
This release contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, including statements regarding the Company's financial condition and results of operations, the sufficiency of its cash, cash equivalents and marketable securities, as well as the advancement of, and anticipated development and regulatory

milestones and plans related to the Company's product candidates and clinical studies. Any forward-looking statements are based on management's current expectations of future events and are subject to a number of risks and uncertainties that could cause actual results to differ materially and adversely from those set forth in or implied by such forward-looking statements. These risks and uncertainties include, but are not limited to, risks that the preliminary results from our clinical trials will not continue or be repeated in our ongoing clinical trials, the risk of cessation or delay of any of the ongoing or planned clinical studies and/or our development of our product candidates, the risk of a delay in the enrollment of patients in our clinical studies, the risk that our collaboration with Celgene will not continue or will not be successful, and the risk that any one or more of our product candidates will not be successfully developed, approved or commercialized. For a discussion of other risks and uncertainties, and other important factors, any of which could cause our actual results to differ from those contained in the forward-looking statements, see the section entitled "Risk Factors" in our most recent quarterly report on Form 10-Q, as well as discussions of potential risks, uncertainties, and other important factors in our subsequent filings with the Securities and Exchange Commission. All information in this press release is as of the date of the release, and bluebird bio undertakes no duty to update this information unless required by law.

Availability of other information about bluebird bio

Investors and others should note that we communicate with our investors and the public using our company website (www.bluebirdbio.com), including but not limited to investor presentations and FAQs, Securities and Exchange Commission filings, press releases, public conference calls and webcasts. You can also connect with us on Twitter @bluebirdbio, LinkedIn or our YouTube channel. The information that we post on these channels and websites could be deemed to be material information. As a result, we encourage investors, the media, and others interested in bluebird bio to review the information that we post on these channels, including our investor relations website, on a regular basis. This list of channels may be updated from time to time on our investor relations website and may include other social media channels than the ones described above. The contents of our website or these channels, or any other website that may be accessed from our website or these channels, shall not be deemed incorporated by reference in any filing under the Securities Act of 1933.

bluebird bio, Inc.
Condensed Consolidated Statements of Operations Data
(unaudited)
(in thousands, except per share data)

	Three months ended March 31,	
	2016	**2015**
Revenue:		
Collaboration revenue	$ 1,499	$ 6,344
Total revenue	1,499	6,344
Operating expenses:		
Research and development	41,911	23,719
General and administrative	15,955	7,336
Change in fair value of contingent consideration	1,013	215
Total operating expenses	58,879	31,270
Loss from operations	(57,380)	(24,926)
Other income, net	961	139
Loss before income taxes	(56,419)	(24,787)
Income tax benefit	145	-
Net loss	$ (56,274)	$ (24,787)
Net loss per share - basic and diluted:	$ (1.52)	$ (0.76)
Weighted-average number of common shares used in computing net loss per share - basic and diluted:	36,920	32,558

bluebird bio, Inc.
Condensed Consolidated Balance Sheets Data
(unaudited)
(in thousands)

	March 31, 2016	December 31, 2015
Cash, cash equivalents and marketable securities	$ 826,865	$ 865,763
Total assets	978,704	1,002,337
Total liabilities	172,197	151,841
Total stockholders' equity	806,507	850,496

Source: bluebird bio, Inc.

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