bluebird bio, Inc.(BLUE)

$61.52 (As of 04/27/20)

Price Target (6-12 Months): **$65.00**

Long Term: 6-12 Months	**Zacks Recommendation:** (Since: 02/18/19) Prior Recommendation: Underperform	**Neutral**
Short Term: 1-3 Months	**Zacks Rank:** (1-5)	**2-Buy**
	Zacks Style Scores:	VGM:F
	Value: F | Growth: F | Momentum: D	

Summary

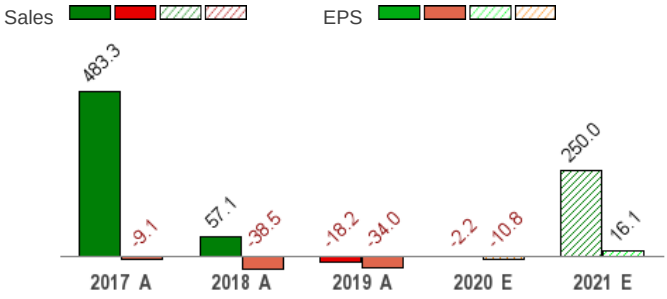
bluebird has an impressive pipeline of gene therapies for genetic diseases and cancers. The conditional approval of Zynteglo for patients aged 12 years or above with transfusion-dependent ?-thalassemia in Europe is a significant step for the company. Per bluebird, Zynteglo is the first gene therapy approved for this indication. We are also positive about bluebird's collaboration with Regeneron, as this provides the former with funds. The company is developing CART therapies for myeloma in collaboration with Bristol-Myers Squibb and the successful development of the candidates will benefit it in the long run. However, competition is stiffening in this space. Shares of the company have underperformed the industry in the past year.

Price, Consensus & Surprise

Data Overview

52 Week High-Low	**$147.48 - $38.95**
20 Day Average Volume (sh)	**1,416,952**
Market Cap	**$3.4 B**
YTD Price Change	**-29.9%**
Beta	**2.53**
Dividend / Div Yld	**$0.00 / 0.0%**
Industry	**Medical - Biomedical and Genetics**
Zacks Industry Rank	**Top 5% (13 out of 253)**
Last EPS Surprise	**-6.0%**
Last Sales Surprise	**3.6%**
EPS F1 Est- 4 week change	**-0.2%**
Expected Report Date	**05/07/2020**
Earnings ESP	**15.3%**
P/E TTM	**NA**
P/E F1	**NA**
PEG F1	**NA**
P/S TTM	**76.6**

Sales and EPS Growth Rates (Y/Y %)



Sales Estimates (millions of $)

	Q1	Q2	Q3	Q4	Annual*
2021	27 E	41 E	37 E	53 E	154 E
2020	9 E	10 E	11 E	12 E	44 E
2019	12 A	13 A	9 A	10 A	45 A

EPS Estimates

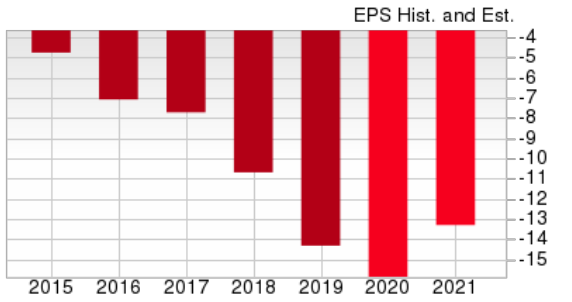
	Q1	Q2	Q3	Q4	Annual*
2021	-$3.62 E	-$3.73 E	-$3.62 E	-$3.51 E	-$13.29 E
2020	-$3.94 E	-$3.97 E	-$3.97 E	-$3.88 E	-$15.85 E
2019	-$2.99 A	-$3.55 A	-$3.73 A	-$4.04 A	-$14.31 A

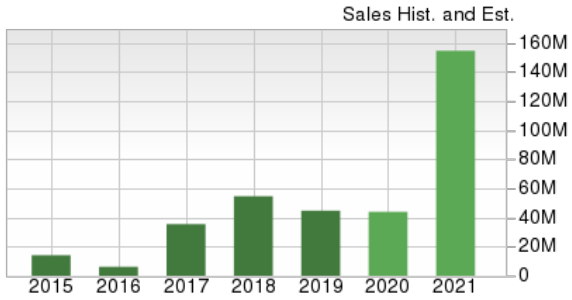
*Quarterly figures may not add up to annual.

The data in the charts and tables, including the Zacks Consensus EPS and Sales estimates, is as of 04/27/2020. The reports text is as of 04/28/2020.

Overview

Cambridge, MA based bluebird bio, Inc. is a clinical-stage biotechnology, which is focused on developing gene therapies for severe genetic diseases and cancer. The company has developed a deep pipeline using its lentiviral-based gene therapies, T cell immunotherapy expertise and gene editing capabilities to treat severe genetic diseases and cancer as well.





The pipeline for severe genetic diseases, include Zynteglo product candidate for the treatment of transfusion-dependent ?-thalassemia (TDT) and severe sickle cell disease (SCD), and Lenti-D product candidate for the treatment of cerebral adrenoleukodystrophy (CALD). Zynteglo (formerly LentiGlobin) was recently approved in Europe for TDT, making it the first gene therapy approved for this indication. The gene therapy has gained a lot of attention of late. The objective of the therapy is to correct the underlying genetic defect, which is the cause of the disease, rather than offering treatments that only address the symptoms. The gene therapy has a huge advantage over other therapies, especially for diseases like SCD and cancer, which have no cure.

The oncology programs are focused on developing novel T cell-based immunotherapies, including chimeric antigen receptor (CAR) and T cell receptor (TCR) T cell therapies. The oncology pipeline includes CAR T cell product candidates — bb2121 and bb21217 — for the treatment of multiple myeloma. The company is co-developing and co-promoting bb2121 in the United States with Celgene which is now acquired by Bristol Myers. Bristol Myers also owns the development and commercialization rights for bb2121 product candidate in the United States, while bluebird has an option to elect to co-develop and co-promote bb21217 within the United States.

With no approved products in its kitty, the company does not generate any revenues from the sale of products. However, the company derived revenues from collaboration arrangements, out-licensing arrangements including royalties on net sales of products to licensees or sublicensees, research fees, and grant revenues.

Revenues in 2019 came in at $44.7 million, down 18.2% year over year.

Reasons To Buy:

bluebird's efforts to develop its pipeline is impressive. The collaboration with Bristol-Myers is a big positive for the company.

- **Potential of Gene Therapy**: The gene therapy has gained a lot of attention of late. The objective of the therapy is to correct the underlying genetic defect, which is the cause of the disease, rather than offering treatments that only address the symptoms. The gene therapy has a huge advantage over other therapies, especially for diseases like SCD and cancer, which have no cure.

  The company acquired Washington based Pregenen, a privately-held biotechnology company in June 2014, thereby obtaining rights to Pregenen's gene editing technology platform and cell-signaling technology. bluebird has integrated these technologies and research team, and expanded its research efforts. The company is focused on utilizing homing endonuclease and megaTAL gene editing technologies in a variety of potential applications and disease areas, including for oncology and hematology.

- **Zynteglo Products Hold Promise**: bluebird's efforts to develop its pipeline is impressive. The company is developing its Zynteglo product candidate for different genotypes of TDT, and SCD. The company is currently conducting five clinical studies for its Zynteglo product candidate: first, a phase I/II study (Northstar Study (HGB-204)) in the United States, Australia, and Thailand for the treatment of subjects with TDT; second, a multi-site, international, phase III study (Northstar-2 Study (HGB-207)) for the treatment of patients with TDT and non-?0/?0 genotypes; third, a multi-site, international, phase III study (Northstar 3 Study (HGB-212)) for the treatment of subjects with TDT and a ?0/?0 genotype; fourth, a single-center phase I/II study in France for the treatment of subjects with TDT or severe SCD (HGB-205); and finally, a multi-site phase I study in the United States for the treatment of subjects with severe SCD (HGB-206). The company presented positive new data from Northstar (HGB-204) and Northstar-2 (HGB-207) studies. In December 2019, bluebird announced new data from ongoing studies of LentiGlobin gene therapy for ?-thalassemia in pediatric, adolescent and adult patients who have TDT, including results from the phase III Northstar-3 (HGB-212) study in patients with a ?0/?0 genotype or IVS-I-110 mutation, and the phase III Northstar-2 (HGB-207) study in patients who do not have a ?0/?0 genotype. The company also announced new data from its ongoing phase I/II HGB-206 study.

  In June 2019, the European Commission (EC) granted conditional marketing authorization to Zynteglo (autologous CD34+ cells encoding ?A-T87Q-globin gene) in patients aged 12 years or older with transfusion-dependent ?-thalassemia (TDT), who do not have a ?0/?0 genotype and for whom hematopoietic stem cell (HSC) transplantation is appropriate but a human leukocyte antigen (HLA)-matched related HSC donor is not available. The candidate is expected to treat the first commercial patient in early 2020. In January 2020, the company launched Zynteglo in Germany.

  bluebird initiated its rolling Biologics License Application (BLA) submission of LentiGlobin for ?-thalassemia for approval in the United States. The company is currently planning to complete the BLA submission in second-half 2020.

  The company is also developing its Lenti-D product candidate for CALD, a rare, hereditary neurological disorder, which can be often fatal. A multi-site, international phase II/III study, Starbeam Study (ALD-102), is ongoing for the same, with updated date expected by 2020-end. An observational study of subjects with CALD, treated by allogeneic hematopoietic stem-cell transplant referred to as the ALD-103 study, is also being conducted. The company expects to submit a Biologics License Application (BLA) to the FDA and a Marketing Authorization Application (MAA) to the European Medicines Agency for Lenti-D in patients with cerebral adrenoleukodystrophy by the end of 2020.

  The company also initiated a phase III HGB-210 study of LentoGlobin in patients with SCD. The company expects to initiate a phase III HGB-210 study of LentiGlobin for SCD in patients with a history of vaso-occlusive crises in first-half 2020. It also expects to initiate a phase III HGB-211 study of LentiGlobin for SCD in patients at risk of stroke in 2020.

  On fourth-quarter call,bluebird announced plans to launch HGB-211, the company's second phase III study of LentiGlobin for SCD. HGB-211 is in addition to the company's previously announced phase III study (HGB-210) and is intended to support potential approval of LentiGlobin for SCD in pediatric patients at elevated stroke risk. HGB-211 is expected to begin enrolling patients in 2020.

  The FDA granted Breakthrough Therapy designation to Lenti-D for the treatment of patients with CALD which should expedite the development and review of the therapy. Lenti-D also enjoys orphan drug status in the Unites States and Europe. It was also granted Rare Pediatric Disease designation by the FDA for the treatment of adrenoleukodystrophy (ALD).

- **Collaboration With Bristol-Myers Squibb a Big Positive**: bluebird's collaboration agreement with Bristol Myers is a big positive for the company, given the latter's expertise in the biotech space. Most importantly, the agreement provides bluebird with funds as upfront payments. In 2013, both the companies entered into a collaboration agreement, whereby Bristol Myers will discover, develop and commercialize potentially disease-altering gene therapies in oncology. The collaboration is primarily focused on applying gene therapy technology to genetically modify a patient's own T cells, known as chimeric antigen receptor or CAR T cells, to target and destroy cancer cells. Both the companies also entered into a licensing deal, whereby bluebird obtained a sublicense to certain intellectual property from Bristol Myers, originating under Bristol Myers' license from Baylor College of Medicine, for use in the collaboration. Per the terms, bluebird obtained an upfront payment of $75.0 million.

  The collaboration agreement was amended in June 2015. Per the amended terms, both the companies have narrowed the focus of the collaboration exclusively to anti- B-cell maturation antigen (BCMA) product candidates for a new three-year term ending in June 2018. bluebird received an upfront, one-time, non-refundable, non-creditable payment of $25.0 million upon the amendment.

  Bristol Myers is responsible for development and related funding of bb2121, after the substantial completion of the on-going trial. Thereafter, in March 2018, bluebird elected to co-develop and co-promote bb2121 within the United States. bluebird will have an equal share in all profits and losses, relating to developing, commercializing and manufacturing bb2121 within the country. The company may receive up to $70.0 million in development milestone payments for the first approved indication along with tiered royalty payments.

- **Anti - BCMA Candidates Hold Potential**: The two anti-BCMA candidates, bb2121 and bb21217, hold promise. bb2121 is the lead candidate in this program. The company is conducting a multi-site phase I study in the United States on bb2121, for the treatment of subjects with

relapsed/refractory multiple myeloma (CRB-401). The FDA has granted Breakthrough Therapy designation and the EMA has granted PRIME eligibility to bb2121 for relapsed/refractory multiple myeloma.

In November 2018, bluebird and Bristol Myers completed enrollment for the KarMMa pivotal study of ide-cel (bb2121), the lead investigational anti-BCMA CAR T cell therapy candidate, to treat patients with relapsed/refractory multiple myeloma. The open-label, single-arm, multi-center phase II study is evaluating the efficacy and safety of bb2121 in patients with relapsed/refractory multiple myeloma. In December 2019, Bristol-Myers Squibb and bluebird announced positive top-line results from the pivotal KarMMa study of ide-cel in relapsed and refractory multiple myeloma. The companies anticipate potential approval of ide-celfor the same indication in first-half 2020.

bluebird and partner Bristol Myers announced the completion of enrollment in the KarMMa pivotal study on the companies' lead investigational anti-B-cell maturation antigen (BCMA) chimeric antigen receptor (CAR) T cell therapy candidate, bb2121 for patients with relapsed and refractory multiple myeloma. KarMMa is a phase II study evaluating the efficacy and safety of bb2121 in patients with relapsed and refractory multiple myeloma.

The company also initiated a phase I study on bb21217, the second anti-BCMA product candidate in September 2017. Bristol Myers has exercised its option to obtain an exclusive worldwide license to develop and commercialize bb21217. Hence, bluebird plans to exercise its option to co-develop and co-promote bb21217 within the United States. The candidate also enjoys orphan drug status in the United States. The dose escalation part of its phase I study-CRB-402 is complete, and the dose expansion part is ongoing.

- **Collaborations With Other Big Pharma Companies Bode Well**: Apart from Bristol-Myers,bluebird has collaborations with other big companies as well, which provide it with funds as upfront payments. In April 2017, the company entered into a license agreement with GlaxoSmithKline Intellectual Property Development Limited, whereby Glaxo licensed certain patent rights of the company, related to lentiviral vector technology to develop and commercialize gene therapies for two rare genetic diseases — Wiscott-Aldrich syndrome and metachromatic leukodystrophy. In exchange, the company received an upfront payment and is entitled to milestone payments as well. Concurrently, the company also entered into a license agreement with Novartis Pharma, whereby the latter licensed certain patent rights of bluebird, related to lentiviral vector technology to develop and commercialize CAR T therapies for oncology, including Novartis' approved CAR-T therapy, Kymriah, in lieu of an upfront payment and potential milestone payments. Regeneron will also make a $100 million investment in the company's common stock at a price of $238.10 per share. Both companies have collaborated on applying their respective technology platforms to the discovery, development and commercialization of novel immune cell therapies for cancer. Regeneron will leverage its VelociSuite platform technologies for the discovery and characterization of fully human antibodies as well as T cell receptors (TCRs) directed against tumor-specific proteins and peptides while bluebird bio will contribute its field-leading expertise in gene transfer and cell therapy. Regeneron and bluebird have jointly selected six initial targets and will equally share the costs of research and development up to the point of submitting an Investigational New Drug (IND) application. Both companies might select additional targets over the five-year research collaboration term. When an IND is submitted for a potential cell therapy product, Regeneron will have the right to opt-in to a co-development/co-commercialization arrangement for certain collaboration targets, with 50/50 cost and profit sharing. If Regeneron decides not to opt-in, it will be entitled to receive payments and royalties from bluebird bio on any potential resulting products.

  In November 2019, bluebird bio and Forty Seven entered into a research collaboration to pursue clinical proof-of-concept for Forty Seven's novel antibody-based conditioning regimen, FSI-174 (anti-cKIT antibody) plus magrolimab (anti-CD47 antibody), with bluebird's ex vivo lentiviral vector hematopoietic stem cell (LVV HSC) gene therapy platform. Per the agreement, bluebird bio will provide its ex vivo LVV HSC gene therapy platform and Forty Seven will contribute its innovative antibody-based conditioning regimen for the collaboration.

  In October 2019, bluebird bio and Novo Nordisk announced a research collaboration to jointly develop next-generation vivo genome editing treatments for genetic diseases, including hemophilia. During the three-year research collaboration, bluebird and Novo Nordisk will focus on identifying a development gene therapy candidate with the ambition of offering people with hemophilia A a lifetime free of factor replacement therapy.

Reasons To Sell:

bluebird is highly dependent on its partners for funding requirements. R&D spend is expected to increase significantly.

- **Share Price Performance**: bluebird's shares have have underperformed the industry in the past year.

- **Intense Competition**: The company faces potential competition from many larger and better-funded pharmaceutical and biotechnology companies. Chronic blood transfusions are the current standard of care in the ?-thalassemia market but iron chelation therapy is often required by these patients. Novartis and ApoPharma Inc. provide the leading iron chelation therapy and are striving to further innovate the existing therapies. Moreover, Acceleron Pharma, Inc., in collaboration with Bristol Myers, has developed Reblozyl (luspatercept–aamt) which received approval by the FDA in November 2019, for the treatment of anemia (lack of red blood cells) in adult patients with beta thalassemia who require regular red blood cell (RBC) transfusions. For sickle cell disease, Emmaus Life Sciences, Inc. recently received FDA approval for Endari (L-glutamine) and has launched the same. In November 2019, Novartis received approval for Adakveo (crizanlizumab) to reduce the frequency of vaso-occlusive crises (VOCs), or pain crises, in adult and pediatric patients aged 16 years and older with SCD. In the relapsed/refractory multiple myeloma space, an anti-BCMA CAR T cell therapy is currently in a single-center phase I study by the University of Pennsylvania, in collaboration with Novartis. Gilead Sciences and Bristol Myers also have such candidates in their pipeline.

- **Dependence on Partners and Funding Requirement**: The company is highly dependent on Bristol Myers for the development of its candidates. Termination of the agreement with Bristol Myers will have a negative impact on the company's growth prospects. Moreover, R&D spend is expected to increase significantly as it advances its pipeline candidates to late-stage studies.

- **Pipeline Candidates Still Far from Commercialization**: Although the company is progressing well with its pipeline, there is still a lot of time for most of the candidates to get regulatory approval. Unfavorable outcome from any of the development programs could adversely affect the company's prospects as well as the stock.

Last Earnings Report

bluebird Q4 Earnings Miss Estimates, Revenues In Line

Quarter Ending	12/2019
Report Date	**Feb 18, 2020**
Sales Surprise	**3.63%**
EPS Surprise	**-6.04%**
Quarterly EPS	**-4.04**
Annual EPS (TTM)	**-14.31**

bluebird reported a loss of $4.04 per share in fourth-quarter 2019, wider than the Zacks Consensus Estimate of a loss of $3.81 and the year-ago loss of $2.72.

Revenues of $10 million were in line with the Zacks Consensus Estimate. The figure was down from $19.2 million in the year-ago quarter. The decrease mainly resulted from lower collaboration revenues under the company's arrangement with Bristol-Myers Squibb.

Quarter in Detail

R&D expenses increased to $161.8 million in fourth-quarter 2019 from $119.7 million a year ago due to costs incurred by the company to advance and expand the pipeline.

Selling, general and administrative (SG&A) expenses of $76.2 million were up 42.4% from the year-ago quarter to support its operations, overall growth of the pipeline, and commercial-readiness activities.

2019 Results

The company's loss per share was $14.31, wider than a loss of $10.68 in 2018.

It generated revenues of $44.7 million, down 18.2% year over year

Pipeline Development

During the quarter, the European Commission granted conditional marketing authorization to LentiGlobin for ?-thalassemia, to be marketed as Zynteglo (autologous CD34+ cells encoding ?A-T87Q-globin gene) gene therapy, for patients 12 years or older with TDT, who do not have a ?0/?0 genotype, for whom hematopoietic stem cell (HSC) transplantation is appropriate but a human leukocyte antigen (HLA)-matched related HSC donor is not available.

bluebird initiated its rolling Biologics License Application (BLA) submission of LentiGlobin for ?-thalassemia for approval in the United States. The company is currently planning to complete the BLA submission in second-half 2020.

In December 2019, the company announced positive top-line data from the pivotal phase II KarMMa study of ide-cel in relapsed and refractory multiple myeloma.

The company plans to submit a BLA to the FDA for ide-cel in patients with relapsed and refractory multiple myeloma in first-half 2020, in partnership with Bristol-Myers Squibb.

It also expects to submit a BLA to the FDA and a marketing authorization application to the European Medicines Agency for Lenti-D in patients with cerebral adrenoleukodystrophy by 2020-end.

Recent News

Submit BLA for Myeloma Drug to FDA - Mar 31

blue announced that both have submitted a biologics license application (BLA) to the FDA for their lead investigational BCMA-targeted chimeric antigen receptor (CAR) T-cell therapy candidate, idecabtagene vicleucel.

The companies are seeking approval of the candidate for the treatment of adult patients with multiple myeloma (MM), having received minimum three prior therapies including an immunomodulatory agent, a proteasome inhibitor and an anti-CD38 antibody.

Announces Zynteglo Launch in Germany –Jan 13

bluebird announced the launch in Germany of Zynteglo (autologous CD34+ cells encoding ?A-T87Q-globin gene), a one-time gene therapy for patients 12 years and older with transfusion-dependent ?-thalassemia (TDT) who do not have a ?0/?0 genotype, for whom hematopoietic stem cell (HSC) transplantation is appropriate but a human leukocyte antigen (HLA)-matched related HSC donor is not available. This is the first time Zynteglo is commercially available.

Further, bluebird also entered into value-based payment agreements with multiple statutory health insurances in Germany to help ensure patients and their healthcare providers have access to Zynteglo and that payers only pay if the therapy delivers on its promise. bluebird's proposed innovative model is limited to five payments made in equal installments. An initial payment is made at the time of infusion. The four additional annual payments are only made if no transfusions for TDT are required for the patient.

bluebird bio and Bristol-Myers Squibb Present Updated Data from CAR T Cell Therapy bb21217-Dec 9

bluebird and Bristol-Myers Squibb announced updated safety and efficacy results from the ongoing phase I study (CRB-402) of bb21217, an investigational BCMA-targeted chimeric antigen receptor (CAR) T cell therapy being studied in patients with relapsed/refractory multiple myeloma (R/RMM).

The data showed safety profile was consistent with known toxicities of CAR T therapies.

CAR T persistence observed in 8/10 evaluable responders at Month 6 and 2/2 evaluable responders at month 18.

Presents New Data Showing Long-Term Transfusion Independence and Safety for LentiGlobin Gene Therapy-Dec 9

bluebird announced new data from ongoing studies of LentiGlobin gene therapy for ?-thalassemia (betibeglogene autotemcel) in pediatric, adolescent and adult patients who have transfusion-dependent ?-thalassemia (TDT), including results from the phase III Northstar-3 (HGB-212) study in patients with a ?0/?0 genotype or IVS-I-110 mutation, and the phase III Northstar-2 (HGB-207) study in patients who do not have a ?0/?0 genotype.

The data showed that more than four years of durable transfusion independence (TI), stable total hemoglobin (Hb) levels and reduced liver iron concentrations in completed phase I/II Northstar (HGB-204) study in patients who do not have a ?0/?0 genotype

Ninety percent of evaluable patients who do not have a ?0/?0 genotype achieved TI, with median average total Hb levels of 12.2 g/dL in phase III Northstar-2 (HGB-207) study

In ongoing phase III Northstar-3 (HGB-212) study in patients with ?0/?0 genotype or IVS-I-110 mutation, the two patients evaluable for TI achieved it with Hb levels of 13.2 g/dL and 10.4 g/dL at last visit

Nine of 11 patients with at least six months of follow-up in HGB-212 have not had a transfusion for at least three months

Presents New Data from Ongoing HGB-206 Study of LentiGlobin Gene Therapy –Dec 7

bluebird bio, announced new data from its ongoing phase I/II HGB-206 study of investigational LentiGlobin gene therapy for sickle cell disease (SCD), including additional patients treated in the study and updated data for those previously reported. These data, as well as results from exploratory assays designed to assess the relationship between drug product characteristics and red blood cell physiology.

Treatment with LentiGlobin for SCD reduced key markers of hemolysis, including reticulocyte counts, lactate dehydrogenase (LDH) levels and total bilirubin concentration, which suggests that treatment is improving biological markers of the disease.

Among the nine patients with at least six months of follow-up who had four or more vaso-occlusive crises (VOC) or acute chest syndrome (ACS) events in the two years prior to treatment, there was a 99% reduction in annualized rate of VOC and ACS. There were no reports of ACS or serious VOC at up to 21 months post-treatment in these patients. As previously reported, there was one non-serious Grade 2 VOC was observed in a patient approximately 3.5 months post-LentiGlobin for SCD treatment.

Group C patients at six months post-treatment produced consistent median levels of gene therapy-derived anti-sickling hemoglobin (HbAT87Q) ranging from 44 – 59%, reducing the median level of abnormal sickle hemoglobin (HbS).

Continued improvement in key markers of hemolysis in Group C patients demonstrates the potential of LentiGlobin for SCD to modify the underlying pathophysiology of sickle cell disease

Reports Positive Top-Line Data on Myeloma Drug-Dec 6

bluebird and partner Bristol-Myers Squibb Company announced positive top-line results from a phase II study on their lead investigational BCMA-targeted chimeric antigen receptor (CAR) T-cell therapy candidate, idecabtagene vicleucel (ide-cel; bb2121).

The phase II KarMMa study evaluated the efficacy and safety of idecabtagene vicleucel in patients with relapsed and refractory multiple

myeloma. The study met its primary endpoint and key secondary endpoint demonstrating deep and durable responses in a heavily pre-treated multiple myeloma patient population.

In the study, all treated patients were exposed to at least three prior therapies, including an immunomodulatory (IMiD) agent, a proteasome inhibitor (PI) and an anti-CD38 antibody, and all were refractory to their last regimen. Of these patients, 94% were refractory to an anti-CD38 antibody and 84% were triple refractory to an IMiD agent, PI, and anti-CD38 antibody.

Overall, the safety results were consistent with those observed in the phase I CRB-401 study, which evaluated the preliminary safety and efficacy of ide-cel.

The company is preparing for the submission of these data to Health Authorities for the proposed initial registration of ide-cel as a first-in-class B-cell maturation antigen (BCMA)-targeted CAR T-cell therapy.

Ide-cel is being developed as part of a co-development, co-promotion and profit share agreement between bluebird and Bristol-Myers.

In November 2017, ide-cel was granted the Breakthrough Therapy designation by the FDA and PRIority Medicines (PRIME) eligibility by the European Medicines Agency based on preliminary clinical data from the phase I CRB-401 study.

Valuation

bluebird's shares are down 33.6% in the year-to-date period and down 58.7% over the trailing 12-month period. Stocks in the Zacks sub-industry are up 4.1% and stocks in the Zacks Medical sector are down 2.1% in the year-to-date period. Over the past year, the Zacks sub-industry is up 6.1% and the sector is up 2.7%.

The S&P 500 index is down 10.9% in the year-to-date period and 2.9% in the past year.

The stock is currently trading at 2.66X trailing 12-month book per share, which compares to 4.06X for the Zacks sub-industry, 3.8X for the Zacks sector and 3.81X for the S&P 500 index.

Over the past five years, the stock has traded as high as 13.42X and as low as 1.66X, with a 5-year median of 3.82X. Our Neutral recommendation indicates that the stock will perform in-line with the market. Our $60.00 price target reflects 2..59Xtrailing 12-month book per share.

Industry Analysis **Zacks Industry Rank:** Top 5% (13 out of 253)

Top Peers

Company (Ticker)	Rec	Rank
Amgen Inc. **(AMGN)**	Neutral	3
Bellicum Pharmaceuticals, Inc. **(BLCM)**	Neutral	3
CRISPR Therapeutics AG **(CRSP)**	Neutral	2
Emmaus Life Sciences, Inc. **(EMMA)**	Neutral	NA
Gilead Sciences, Inc. **(GILD)**	Neutral	3
Novartis AG **(NVS)**	Neutral	3
Sangamo Therapeutics, Inc. **(SGMO)**	Neutral	2
Acceleron Pharma Inc. **(XLRN)**	Neutral	3

Industry Comparison Industry: Medical - Biomedical And Genetics

	BLUE	X Industry	S&P 500	AMGN	NVS	SGMO
Zacks Recommendation (Long Term)	Neutral	-	-	Neutral	Neutral	Neutral
Zacks Rank (Short Term)	2	-	-	3	3	2
VGM Score	F	-	-	D	B	C
Market Cap	3.42 B	190.29 M	19.77 B	142.49 B	205.32 B	976.17 M
# of Analysts	13	3	14	14	5	4
Dividend Yield	0.00%	0.00%	2.13%	2.64%	2.24%	0.00%
Value Score	F	-	-	B	B	C
Cash/Price	0.34	0.24	0.06	0.06	0.06	0.37
EV/EBITDA	-3.22	-3.02	12.09	12.71	13.86	-7.23
PEG Ratio	NA	2.02	2.36	1.85	1.91	NA
Price/Book (P/B)	2.65	3.42	2.70	14.89	3.70	2.25
Price/Cash Flow (P/CF)	NA	15.45	10.70	12.82	11.48	NA
P/E (F1)	NA	30.25	18.72	15.78	15.72	NA
Price/Sales (P/S)	76.58	14.77	2.12	6.10	4.33	9.53
Earnings Yield	-25.76%	-17.13%	5.19%	6.34%	6.36%	-0.36%
Debt/Equity	0.13	0.02	0.72	2.79	0.40	0.10
Cash Flow ($/share)	-13.96	-1.04	7.01	18.91	7.80	-0.78
Growth Score	F	-	-	D	C	C
Hist. EPS Growth (3-5 yrs)	NA%	18.12%	10.88%	10.57%	0.76%	NA
Proj. EPS Growth (F1/F0)	-10.76%	3.50%	-5.87%	3.69%	8.78%	96.47%
Curr. Cash Flow Growth	43.40%	13.10%	5.92%	-2.47%	4.27%	25.74%
Hist. Cash Flow Growth (3-5 yrs)	NA%	7.77%	8.55%	5.06%	7.11%	NA
Current Ratio	5.15	4.75	1.23	1.44	1.04	5.80
Debt/Capital	11.73%	4.36%	43.90%	73.59%	28.42%	8.69%
Net Margin	-1,767.49%	-230.92%	11.32%	33.57%	24.73%	-92.93%
Return on Equity	-51.23%	-65.28%	16.60%	85.52%	23.39%	-23.40%
Sales/Assets	0.02	0.20	0.55	0.39	0.39	0.16
Proj. Sales Growth (F1/F0)	-1.73%	5.51%	-1.15%	8.04%	6.11%	46.62%
Momentum Score	D	-	-	C	B	C
Daily Price Chg	5.02%	1.51%	2.63%	2.60%	0.61%	0.96%
1 Week Price Chg	5.15%	2.32%	-1.74%	0.56%	-0.27%	9.62%
4 Week Price Chg	31.00%	18.04%	8.71%	16.28%	9.39%	29.43%
12 Week Price Chg	-29.55%	-8.59%	-17.57%	11.78%	-4.94%	15.07%
52 Week Price Chg	-56.37%	-22.51%	-11.60%	33.81%	10.43%	-30.46%
20 Day Average Volume	1,416,952	214,936	2,734,148	2,655,714	2,110,237	1,702,019
(F1) EPS Est 1 week change	0.00%	0.00%	0.00%	-0.05%	0.00%	0.00%
(F1) EPS Est 4 week change	-0.21%	0.00%	-6.57%	-0.71%	-0.70%	90.51%
(F1) EPS Est 12 week change	-6.00%	-1.79%	-12.64%	-3.68%	0.32%	97.35%
(Q1) EPS Est Mthly Chg	-0.28%	0.00%	-10.33%	-3.87%	-1.39%	0.00%

Zacks Stock Rating System

We offer two rating systems that take into account investors' holding horizons: Zacks Rank and Zacks Recommendation. Each provides valuable insights into the future profitability of the stock and can be used separately or in combination with each other depending on your investment style.

Zacks Recommendation

The Zacks Recommendation aims to predict performance over the next 6 to 12 months. The foundation for the quantitatively determined Zacks Recommendation is trends in the company's estimate revisions and earnings outlook. The Zacks Recommendation is broken down into 3 Levels; Outperform, Neutral and Underperform. Unlike many Wall Street firms, we have an excellent balance between the number of Outperform and Neutral recommendations. Our team of 70 analysts are fully versed in the benefits of earnings estimate revisions and how that is harnessed through the Zacks quantitative rating system. But we have given our analysts the ability to override the Zacks Recommendation for the 1200 stocks that they follow. The reason for the analyst over-rides is that there are often factors such as valuation, industry conditions and management effectiveness that a trained investment professional can spot better than a quantitative model.

Zacks Rank

The Zacks Rank is our short-term rating system that is most effective over the one- to three-month holding horizon. The underlying driver for the quantitatively-determined Zacks Rank is the same as the Zacks Recommendation, and reflects trends in earnings estimate revisions.

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The Zacks Style Score is as a complementary indicator to the Zacks rating system, giving investors a way to focus on the highest rated stocks that best fit their own stock picking preferences.

Academic research has proven that stocks with the best Value, Growth and Momentum characteristics outperform the market. The Zacks Style Scores rate stocks on each of these individual styles and assigns a rating of A, B, C, D and F. We also produce the VGM Score (V for Value, G for Growth and M for Momentum), which combines the weighted average of the individual Style Scores into one score. This is perfectly suited for those who want their stocks to have the best scores across the board.

Value Score	F
Growth Score	F
Momentum Score	D
VGM Score	F

As an investor, you want to buy stocks with the highest probability of success. That means buying stocks with a Zacks Recommendation of Outperform, which also has a Style Score of an A or a B.

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