

BELLICUM PHARMACEUTICALS, INC
Form 424B5
October 05, 2018
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Filed Pursuant to Rule 424(b)(5)
Registration No. 333-226652

PROSPECTUS SUPPLEMENT

(To Prospectus dated August 23, 2018)

\$60,000,000

Common Stock

We have entered into an Open Market Sale AgreementSM, or sales agreement, with Jefferies LLC, or Jefferies, relating to shares of our common stock offered by this prospectus supplement and the accompanying prospectus. In accordance with the terms of the sales agreement, we may offer and sell shares of our common stock, from time to time, having an aggregate offering price of up to \$60.0 million through Jefferies acting as sales agent.

Our common stock is traded on The Nasdaq Global Market under the symbol BLCM. On October 3, 2018, the last reported sale price of our common stock was \$6.35 per share.

Sales of our shares, if any, under this prospectus supplement and the accompanying prospectus may be made in sales deemed to be an at the market offering as defined in Rule 415(a)(4) promulgated under the Securities Act of 1933, as amended, or the Securities Act. Jefferies is not required to sell any specific number or dollar amount of securities, but will act as a sales agent using commercially reasonable efforts consistent with its normal trading and sales practices, on mutually agreed terms between Jefferies and us. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

Jefferies will be entitled to compensation under the terms of the sales agreement at a fixed commission rate of up to 3.0% of the gross sales price per share sold under the sales agreement. See Plan of Distribution beginning on page S-11 for additional information regarding Jefferies compensation. In connection with the sale of common stock on our behalf, Jefferies will be deemed to be an underwriter within the meaning of the Securities Act and the compensation of Jefferies will be deemed to be underwriting commissions or discounts. We have also agreed to provide indemnification to Jefferies against certain liabilities, including liabilities under the Securities Act.

Investing in our common stock involves risks. See Risk Factors beginning on page S-7.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities, or determined if this prospectus supplement or the accompanying prospectus are truthful or complete. Any representation to the contrary is a criminal offense.

Jefferies

October 5, 2018

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ABOUT THIS PROSPECTUS SUPPLEMENT

This document is in two parts. The first part is this prospectus supplement, which describes the terms of this offering of common stock and also adds to and updates information contained in the accompanying prospectus and the documents incorporated by reference into this prospectus supplement and the accompanying prospectus. The second part, the accompanying prospectus dated August 23, 2018, including the documents incorporated by reference therein, provides more general information. Generally, when we refer to this prospectus, we are referring to both parts of this document combined. To the extent there is a conflict between the information contained in this prospectus supplement, on the one hand, and the information contained in the accompanying prospectus or in any document incorporated by reference that was filed with the Securities and Exchange Commission, or SEC, before the date of this prospectus supplement, on the other hand, you should rely on the information in this prospectus supplement. If any statement in one of these documents is inconsistent with a statement in another document having a later date for example, a document incorporated by reference in the accompanying prospectus the statement in the document having the later date modifies or supersedes the earlier statement.

We have not, and Jefferies has not, authorized anyone to provide you with information different than or inconsistent with the information contained in or incorporated by reference in this prospectus supplement, the accompanying prospectus and in any free writing prospectus that we have authorized for use in connection with this offering. We and Jefferies take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We are not, and Jefferies is not, making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information appearing in this prospectus supplement, the accompanying prospectus, the documents incorporated by reference in this prospectus supplement and the accompanying prospectus, and in any free writing prospectus that we have authorized for use in connection with this offering, is accurate only as of the date of those respective documents, regardless of the time of delivery of those respective documents. Our business, financial condition, results of operations and prospects may have changed since those dates. You should read this prospectus supplement, the accompanying prospectus, the documents incorporated by reference in this prospectus supplement and the accompanying prospectus, and any free writing prospectus that we have authorized for use in connection with this offering, in their entirety before making an investment decision. You should also read and consider the information in the documents to which we have referred you in the section of this prospectus supplement entitled Incorporation of Certain Information by Reference.

We are offering to sell, and seeking offers to buy, shares of our common stock only in jurisdictions where offers and sales are permitted. The distribution of this prospectus supplement and the accompanying prospectus and the offering of our common stock in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus supplement and the accompanying prospectus must inform themselves about, and observe any restrictions relating to, the offering of our common stock and the distribution of this prospectus supplement and the accompanying prospectus outside the United States. This prospectus supplement and the accompanying prospectus do not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus supplement and the accompanying prospectus by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

Unless otherwise stated, all references in this prospectus to we, us, our, Bellicum, Bellicum Pharmaceuticals, the Company and similar designations refer to Bellicum Pharmaceuticals, Inc. and its subsidiaries on a consolidated basis. This prospectus supplement, the accompanying prospectus and the information incorporated by reference herein and therein contain common law, unregistered trademarks for Bellicum Pharmaceuticals based on use of the trademarks in the United States. Other trademarks referred to in this prospectus supplement or the accompanying prospectus or the information incorporated by reference herein and therein are the property of their respective owners. Solely for convenience, trademarks and trade names referred to in this prospectus supplement, the accompanying prospectus and

the information incorporated by reference herein and therein, including logos, artwork and other visual displays, may appear without the ® or TM symbols, but such references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or the rights of the applicable licensor to these trademarks and trade names. We do not intend our use or display of other companies' trade names or trademarks to imply a relationship with, or endorsement or sponsorship of us by, any other companies.

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Notice to Prospective Investors in the European Economic Area

This prospectus supplement and the accompanying prospectus are not prospectuses for the purpose of the Prospectus Directive (as defined below). This prospectus supplement and the accompanying prospectus have been prepared on the basis that any offer of shares in any Member State of the European Economic Area (the "EEA") which has implemented the Prospectus Directive (each, a "Relevant Member State") will only be made to a legal entity which is a qualified investor under the Prospectus Directive ("Qualified Investors"). Accordingly any person making or intending to make an offer in that Relevant Member State of shares which are the subject of the offering contemplated in this prospectus supplement and the accompanying prospectus may only do so with respect to Qualified Investors. Neither we nor Jefferies have authorized, nor do we or Jefferies authorize, the making of any offer of shares other than to Qualified Investors. The expression "Prospectus Directive" means Directive 2003/71/EC (as amended, including by Directive 2010/73/EU), and includes any relevant implementing measure in the Relevant Member State.

MIFID II Product Governance

Any distributor subject to Directive 2014/65/EU, as amended ("MiFID II") that is offering, selling or recommending the shares of common stock is responsible for undertaking its own target market assessment in respect of the shares of common stock and determining its own distribution channels for the purposes of the MiFID II product governance rules under Commission Delegated Directive (EU) 2017/593 ("Delegated Directive"). Neither we nor Jefferies make any representations or warranties as to a distributor's compliance with the Delegated Directive.

Notice to Prospective Investors in the United Kingdom

The communication of this prospectus supplement, the accompanying prospectus and any other document or materials relating to the issue of the shares offered hereby is not being made, and such documents and/or materials have not been approved, by an authorized person for the purposes of section 21 of the United Kingdom's Financial Services and Markets Act 2000, as amended. Accordingly, such documents and/or materials are not being distributed to, and must not be passed on to, the general public in the United Kingdom. The communication of such documents and/or materials as a financial promotion is only being made to those persons in the United Kingdom falling within the definition of investment professionals (as defined in Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the "Financial Promotion Order")), or within Article 49(2)(a) to (d) of the Financial Promotion Order, or to any other persons to whom it may otherwise lawfully be made under the Financial Promotion Order (all such persons together being referred to as "relevant persons"). In the United Kingdom, the shares offered hereby are only available to, and any investment or investment activity to which this prospectus supplement and the accompanying prospectus relate will be engaged in only with, relevant persons. Any person in the United Kingdom that is not a relevant person should not act or rely on this prospectus supplement or the accompanying prospectus or any of their contents.

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FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus, the documents incorporated by reference and any free writing prospectus that we have authorized for use in connection with this offering contain forward-looking statements within the meaning of Section 27A of the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act, which are subject to the safe harbor created by those sections. We may, in some cases, use words such as anticipate, believe, could, estimate, expect, intend, may, plan, potential, predict, will, would or the negative of those terms, and similar expressions that convey uncertainty of future events or outcomes to identify these forward-looking statements. Any statements contained herein that are not statements of historical facts may be deemed to be forward-looking statements. Forward-looking statements may include, but are not limited to, statements about:

the success, cost and timing of our product development activities and clinical trials;

our ability to advance Chemical Induction of Dimerization, or CID, CID-based technologies, including CaspaCIDE and GoCAR-T;

our ability to obtain and maintain regulatory approval of BPX-501 and any other product candidates, and any related restrictions, limitations and/or warnings in the label of an approved product candidate;

our ability to successfully maintain our internal manufacturing operations;

our ability to obtain funding for our operations, including funding necessary to complete further development and commercialization of our product candidates;

the commercialization of our product candidates, if approved;

our plans to research, develop and commercialize our product candidates;

our ability to attract collaborators with development, regulatory and commercialization expertise and the success of any such collaborations;

future agreements with third parties in connection with the commercialization of our product candidates and any other approved product;

the size and growth potential of the markets for our product candidates, and our ability to serve those markets;

the rate and degree of market acceptance of our product candidates;

regulatory developments in the United States, or U.S., and foreign countries;

our ability to contract with third-party suppliers and manufacturers and their ability to perform adequately;

the success of competing therapies that are or may become available;

our ability to attract and retain key scientific or management personnel;

our ability to grow our organization and increase the size of our facilities to meet our anticipated growth;

the accuracy of our estimates regarding expenses, future revenue, capital requirements and needs for additional financing;

our expectations regarding the period during which we qualify as an emerging growth company under the Jumpstart Our Business Startups Act of 2012, or the JOBS Act;

our use of cash and other resources, including the use of proceeds from this offering; and

our expectations regarding our ability to obtain and maintain intellectual property protection for our product candidates.

These forward-looking statements reflect our management's beliefs and views with respect to future events and are based on estimates and assumptions as of the date of this prospectus supplement and are subject to risks and uncertainties. We discuss many of these risks in greater detail under Risk Factors. Moreover, we operate in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. Given these uncertainties, you should not place undue reliance on these forward-looking statements.

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You should read this prospectus supplement and the accompanying prospectus together with the documents that we have filed with the SEC that are incorporated by reference and any free writing prospectus we have authorized for use in connection with a specific offering completely and with the understanding that our actual future results may be materially different from what we expect. We qualify all of the forward-looking statements in this prospectus supplement by these cautionary statements. Except as required by law, we undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise.

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PROSPECTUS SUPPLEMENT SUMMARY

This summary highlights certain information about us, this offering and selected information contained elsewhere in or incorporated by reference into this prospectus supplement. This summary is not complete and does not contain all of the information that you should consider before deciding whether to invest in our common stock. For a more complete understanding of our company and this offering, you should read and consider carefully the more detailed information included or incorporated by reference in this prospectus supplement and the accompanying prospectus, including the risks described under the heading Risk Factors, as well as the information included in any free writing prospectus that we have authorized for use in connection with this offering.

Overview

We are a clinical stage biopharmaceutical company focused on discovering and developing novel cellular immunotherapies for various forms of cancer, including both hematological cancers and solid tumors, as well as orphan inherited blood disorders. We are using our proprietary Chemical Induction of Dimerization, or CID, technology platform to engineer our product candidates with switch technologies that are designed to control components of the immune system in real time. By incorporating our CID platform, our product candidates may offer better safety and efficacy outcomes than are seen with current cellular immunotherapies.

We are developing next-generation product candidates in some of the most important areas of cellular immunotherapy, including chimeric antigen receptor T cell therapy, or CAR T, T cell receptors, or TCRs and hematopoietic stem cell transplantation, or HSCT. CAR T and TCR cell therapies are an innovative approach in which a patient's T cells are genetically modified to carry chimeric antigen receptors, or CARs, or TCRs which redirect the T cells against cancer cells. While high objective response rates have been reported in some hematological malignancies, serious and sometimes fatal toxicities have arisen in patients treated with CAR T cell therapies. These toxicities include instances in which the CAR T cells have caused high levels of cytokines due to over-activation, referred to as cytokine release syndrome, or CRS, neurologic toxicities and cases in which CAR T cells have attacked healthy organs. In each case, these toxicities have sometimes resulted in death. In solid tumors, where the behavior of CAR T cells is particularly unpredictable and results have been inconsistent, researchers are developing enhanced CAR T cell approaches that raise even greater safety concerns. HSCT, also known as bone marrow transplantation, has for decades been curative for many patients with hematological cancers or orphan inherited blood disorders. However, adoption of HSCT to date has been limited by the risks of transplant-related morbidity and mortality from graft-versus-host-disease, or GvHD, and the potential for serious infections or cancer recurrence due to the lack of an effective immune system following a transplant.

Our proprietary CID platform is designed to address these challenges. Events inside a cell are controlled by cascades of specialized signaling proteins. CID consists of molecular switches, modified forms of these signaling proteins, which are triggered inside the patient by infusion of a small molecule, rimiducid, instead of by natural upstream signals. We include these molecular switches in the appropriate immune cells and deliver the cells to the patient in the manner of conventional cellular immunotherapy. We have developed two such switches: a safety switch, designed to initiate programmed cell death, or apoptosis, of the immunotherapy cells, and an activation switch, designed to stimulate activation and in some cases proliferation and/or persistence of the immunotherapy cells. Each of our product candidates incorporates one of these switches, for enhanced, real time control of safety and efficacy:

CaspaCIDE (also known as inducible Caspase-9, or iC9) is our safety switch, incorporated into our HSCT and TCR product candidates, and into academic CAR T collaborations, where it is inactive unless the patient

experiences a serious side effect. In that event, rimiducid is administered to induce Caspase-9 and eliminate a majority of the cells, with the goal of attenuating the therapy and resolving the serious side effect.

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Our activation switch (also known as inducible MyD88/CD40, or iMC) incorporated into our GoCAR-T product candidates is designed to enable control of the activation and proliferation of the T cells through the scheduled administration of a course of rimiducid infusions that may continue until the desired patient outcome is achieved. In the event of emergence of side effects, the level of activation of the GoCAR-T cells is designed to be attenuated by extending the interval between rimiducid doses, reducing the dosage per infusion, or suspending further rimiducid administration.

In addition, we have an active research effort to develop other advanced molecular switch approaches, including a dual-switch GoCAR-T that is designed to provide a user-controlled system for managing proliferation and/or persistence and safety of tumor antigen-specific CAR T cells.

By incorporating our novel switch technologies, we are developing product candidates with the potential to elicit positive clinical outcomes and ultimately change the treatment paradigm in various areas of cellular immunotherapy. Our clinical product candidates are described below.

BPX-501 is a CaspaCIDE product candidate designed as an adjunct polyclonal T cell therapy administered after allogeneic HSCT. BPX-501 is designed to improve transplant outcomes by enhancing the recovery of the immune system following an HSCT procedure, thereby preventing serious infections and leukemic relapse, two leading causes of morbidity and mortality in these patients. BPX-501 addresses the risk of infusing donor T cells by enabling the elimination of donor T cells through the activation of the CaspaCIDE safety switch if there is an emergence of uncontrolled GvHD.

The European Commission has granted orphan drug designations to BPX-501 for treatment in HSCT, and for activator agent rimiducid for the treatment of GvHD. Additionally, BPX-501 and rimiducid have received orphan drug status from the U.S. Food and Drug Administration, or the FDA, as a combination replacement T-cell therapy for the treatment of immunodeficiency and GvHD after allogeneic HSCT.

Based on interactions with the European Medicines Agency, or the EMA, we believe that data from the European arm of our BP-004 trial could form the basis of marketing authorization applications, or MAAs, for BPX-501 and rimiducid for pediatric patients with certain orphan inherited blood disorders or treatment-refractory hematological cancers. In addition, the EMA's Committee for Medicinal Products for Human Use, or the CHMP, has agreed that review and approval under exceptional circumstances may be suitable, recognizing that a randomized trial may not be feasible in the pediatric haploidentical hematopoietic stem cell transplant setting. In place of a randomized trial, we are collecting data from the C-004 study, a concurrent observational study in the pediatric matched unrelated donor hematopoietic stem cell transplant setting, which includes both retrospective patients and prospective patients. We expect to report updated interim results from the European BP-004 clinical trial in the fourth quarter of 2018 and to file MAAs for European marketing approvals in 2019.

We are currently planning an additional clinical trial for BPX-501. We are designing a randomized, controlled trial in adults with acute myeloid leukemia or myelodysplastic syndromes to compare outcomes in patients receiving a haplo-transplant with and without BPX-501. We expect to initiate this clinical trial by the end of 2018.

BPX-601 is a GoCAR-T product candidate containing our proprietary inducible MyD88/CD40, or iMC, activation switch, designed to treat solid tumors expressing prostate stem cell antigen, or PSCA. Preclinical data shows enhanced T cell proliferation, persistence and in vivo anti-tumor activity compared to traditional

CAR T therapies. A Phase 1 clinical trial in patients with non-resectable pancreatic cancer is ongoing and we expect to report initial data from this clinical trial in the fourth quarter of 2018. In addition to pancreatic cancer, PSCA is expressed in several other solid tumor indications. We modified the ongoing Phase 1 protocol to include prostate and gastric cancer patients in the third quarter of 2018, and expect to add additional clinical trial sites in the second half of 2018.

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BPX-701 is a CaspaCIDE-enabled natural high affinity TCR product candidate designed to target malignant cells expressing the preferentially-expressed antigen in melanoma, or PRAME. The ongoing Phase 1 clinical trial for BPX-701 is in adult patients with refractory or relapsed acute myeloid leukemia, or AML, and myelodysplastic syndromes, or MDS. Recruitment in this clinical trial has been slower than projected and we are working to address this by adding clinical trial sites. We expect to report initial data from this clinical trial in 2019.

CD19 CAR T Program We are working with academic collaborators to establish clinical proof of concept for CaspaCIDE® in the CD19-expressing B cell malignancies setting. We believe that this strategy allows a cost-effective approach for clinical evaluation of CaspaCIDE in attenuating the acute toxicities of CD19-targeted therapies. In November 2016 we announced an expanded collaboration with Ospedale Pediatrico Bambino Gesù, or OPBG, a leading European pediatric research center and hospital, where clinical development of a CaspaCIDE-enabled CD19 CAR T cell therapy is ongoing. As of June 15, 2018, six patients had been dosed in the CD19 clinical trial at OPBG without yet an incident of toxicities for which the CaspaCIDE® safety switch has been used.

We have developed efficient and scalable processes to manufacture genetically modified T cells of high quality, which are currently being used to produce BPX-501, BPX-601 and BPX-701 for our clinical trials. We are leveraging this know how in combination with our proprietary cellular control technologies, resources, capabilities and expertise for the manufacture of CAR T and TCR product candidates to create and develop first and best-in-class product candidates.

We have established in-house cell manufacturing and vector production capabilities at our headquarters facility in Houston, Texas. In the first quarter of 2017, the initial phase of the build-out was completed and we began manufacturing clinical trial material from this site. We completed the facility build-out in early 2018, and we expect that our facilities will meet our U.S. clinical trial and early commercialization requirements. For the European market, we plan to continue working with established contract manufacturers, with our U.S. manufacturing facility as a potential backup supply source.

Corporate Information

We were incorporated in Delaware in July 2004. Our principal offices are located at 2130 W. Holcombe Blvd., Ste. 800, Houston, Texas and our telephone number is (832) 384-1100. Our corporate website address is www.bellicum.com. The contents of our website are not a part of, and are not incorporated into, this prospectus supplement or the accompanying prospectus, and you should not consider it part of this prospectus supplement or the accompanying prospectus and you should not rely on any such information in making any decisions of whether to purchase our securities. For further information regarding us and our financial information, you should refer to our recent filings with the SEC. See Incorporation of Certain Information by Reference.

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THE OFFERING

Issuer	Bellicum Pharmaceuticals, Inc.
Common stock offered by us	Shares of our common stock having an aggregate offering price of up to \$60.0 million
Common stock to be outstanding after this offering	52,795,038 shares (as more fully described in the notes following this table)
Manner of offering	At-the-market offering that may be made from time to time through our sales agent, Jefferies. See Plan of Distribution.
Use of proceeds	We currently intend to use the net proceeds, if any, from this offering to fund clinical development and other research and development activities and for working capital and general corporate purposes. See Use of Proceeds.
Risk factors	Investing in our common stock involves a high degree of risk. See Risk Factors for a discussion of factors that you should consider before buying shares of our common stock.

Symbol on The Nasdaq Global Market **BLCM**

The number of shares of common stock to be outstanding after this offering as shown in the table above assumes for illustrative purposes that an aggregate 9,448,818 shares of our common stock are sold at a price of \$6.35 per share, the last reported sale price of our common stock on The Nasdaq Global Market on October 3, 2018, for aggregate gross proceeds of \$60.0 million, and is based on 43,346,220 shares outstanding as of June 30, 2018. The number of shares of common stock to be outstanding after this offering will adjust based on the actual number of shares that we sell in this offering. In addition, the number of shares of our common stock outstanding as of June 30, 2018 excludes the following:

5,265,521 shares of common stock issuable upon the exercise of outstanding stock options as of June 30, 2018, at a weighted-average exercise price of \$12.67 per share of common stock;

217,186 shares of common stock issuable upon the vesting of outstanding restricted stock units as of June 30, 2018;

14,707 shares of common stock subject to repurchase by us as of June 30, 2018;

2,498,102 shares of common stock reserved for future issuance under our 2014 Equity Incentive Plan, as of June 30, 2018; and

446,248 shares of common stock reserved for future issuance under our 2014 Employee Stock Purchase Plan, as of June 30, 2018.

Except as otherwise noted, all information in this prospectus supplement assumes no exercise of the underwriters option to purchase additional shares and no exercise of the outstanding stock options described above.

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RISK FACTORS

*Investing in our common stock involves a high degree of risk. You should carefully consider the risks described below, those contained in the section entitled **Risk Factors** in our Quarterly Report on Form 10-Q for the period ended June 30, 2018, which are incorporated herein by reference in their entirety, as well as any amendment or update to our risk factors reflected in subsequent filings with the SEC, all other information in this prospectus supplement, the accompanying prospectus, and the other documents incorporated by reference, and in any free writing prospectus that we have authorized for use in connection with this offering. The risks described in these documents are not the only ones we face, but those that we consider to be material. The occurrence of any of these risks could harm our business, financial condition, results of operations and growth prospects. In such an event, the market price of our common stock could decline and you may lose all or part of your investment. Additional risks and uncertainties not presently known to us or that we currently deem immaterial also may impair our business operations.*

Risks Relating to this Offering

If you purchase shares of common stock in this offering, you will experience immediate and substantial dilution in your investment. You will experience further dilution if we issue additional equity or equity-linked securities in the future.

Since the price per share of our common stock being offered may be substantially higher than the net tangible book value per share of our common stock, you may suffer immediate and substantial dilution with respect to the net tangible book value of the common stock you purchase in this offering. The shares sold in this offering, if any, will be sold from time to time at various prices. After giving effect to the sale of our common stock in the maximum aggregate offering amount of \$60.0 million at an assumed offering price of \$6.35 per share, and our net tangible book value as of June 30, 2018, if you purchase shares of common stock in this offering, you will suffer immediate and substantial dilution of \$3.11 per share with respect to the net tangible book value of the common stock. See the section entitled **Dilution** for a more detailed discussion of the dilution you will incur if you purchase common stock in this offering.

If we issue additional shares of common stock, or securities convertible into or exchangeable or exercisable for shares of common stock, our stockholders, including investors who purchase shares of common stock in this offering, will experience additional dilution, and any such issuances may result in downward pressure on the price of our common stock. We also cannot assure you that we will be able to sell shares or other securities in any other offering at a price per share that is equal to or greater than the price per share paid by investors in this offering, and investors purchasing shares or other securities in the future could have rights superior to existing stockholders.

We will have broad discretion in the use of the net proceeds from this offering and may not use them effectively.

We will have broad discretion in the use of the net proceeds from this offering and could spend the proceeds in ways that do not improve our results of operations or enhance the value of our common stock. Our failure to apply these funds effectively could have a material adverse effect on our business, impair or delay our ability to develop our product candidates and cause the price of our common stock to decline. See the section entitled **Use of Proceeds**.

The actual number of shares we will issue under the sales agreement, at any one time or in total, is uncertain.

Subject to certain limitations in the sales agreement and compliance with applicable law, we have the discretion to deliver a placement notice to Jefferies at any time throughout the term of the sales agreement. The number of shares that are sold by Jefferies after delivering a placement notice will fluctuate based on the market price of our common

stock during the sales period and limits we set with Jefferies. Because the price per share of each share sold will fluctuate based on the market price of our common stock during the sales period, it is not possible at this time to predict the number of shares that will ultimately be issued.

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USE OF PROCEEDS

The amount of the net proceeds to us from this offering will depend upon the number of shares of our common stock sold and the price at which they are sold. There can be no assurance that we will be able to sell any shares under or fully utilize the sales agreement with Jefferies.

We currently intend to use the net proceeds, if any, from this offering to fund clinical development and other research and development activities and for working capital and general corporate purposes. Amounts and timing of our actual expenditures will depend on numerous factors, including the timing and progress of our clinical trial and research and development efforts. We therefore cannot estimate with certainty the amount of net proceeds to be used for the purposes described above. We may find it necessary or advisable to use the net proceeds for other purposes, and we will have broad discretion in the application of the net proceeds.

Pending their use as described above, we plan to invest the net proceeds from this offering in short-and intermediate-term, interest-bearing obligations, investment-grade instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government.

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Our net tangible book value as of June 30, 2018 was approximately \$112.5 million, or \$2.60 per share. Net tangible book value per share is determined by dividing our total tangible assets, less total liabilities, by the number of shares of our common stock outstanding as of June 30, 2018. Dilution with respect to net tangible book value per share represents the difference between the amount per share paid by purchasers of shares of common stock in this offering and the net tangible book value per share of our common stock immediately after this offering.

After giving effect to the sale of \$60.0 million of our common stock in this offering at the assumed public offering price of \$6.35 per share, which is the last reported sale price of our common stock on The Nasdaq Global Market on October 3, 2018, and after deducting offering commissions and estimated expenses payable by us, our as adjusted net tangible book value as of June 30, 2018 would have been approximately \$170.9 million, or \$3.24 per share. This represents an immediate increase in net tangible book value of \$0.64 per share to existing stockholders and immediate dilution in net tangible book value of \$3.11 per share to new investors purchasing our common stock in this offering. The following table illustrates this dilution on a per share basis:

Assumed public offering price per share	\$ 6.35
Net tangible book value per share as of June 30, 2018	\$ 2.60
Increase in net tangible book value per share attributable to investors purchasing our common stock in this offering	\$ 0.64
As adjusted net tangible book value per share as of June 30, 2018 after this offering	\$ 3.24
Dilution per share to investors purchasing our common stock in this offering	\$ 3.11

The table above assumes for illustrative purposes that an aggregate 9,448,818 shares of our common stock are sold at a price of \$6.35 per share, which is the last reported sale price of our common stock on The Nasdaq Global Market on October 3, 2018, for aggregate gross proceeds of \$60.0 million. The shares sold in this offering, if any, will be sold from time to time at various prices. An increase of \$1.00 per share in the price at which the shares are sold from the assumed public offering price of \$6.35 per share shown in the table above, assuming all of our common stock in the aggregate amount of \$60.0 million is sold at that price, would increase our as adjusted net tangible book value per share after the offering to approximately \$3.32 per share and would increase the dilution in net tangible book value per share to new investors in this offering to approximately \$4.03 per share, after deducting commissions and estimated aggregate offering expenses payable by us. A decrease of \$1.00 per share in the price at which the shares are sold from the assumed public offering price of \$6.35 per share shown in the table above, assuming all of our common stock in the aggregate amount of \$60.0 million is sold at that price, would decrease our as adjusted net tangible book value per share after the offering to \$3.13 per share and would decrease the dilution in net tangible book value per share to new investors in this offering to \$2.22 per share, after deducting commissions and estimated aggregate offering expenses payable by us.

The number of shares of common stock to be outstanding after this offering will adjust based on the actual number of shares that we sell in this offering. In addition, the number of shares of our common stock outstanding as of June 30, 2018 excludes the following:

5,265,521 shares of common stock issuable upon the exercise of outstanding stock options as of June 30, 2018, at a weighted-average exercise price of \$12.67 per share of common stock;

217,186 shares of common stock issuable upon the vesting of outstanding restricted stock units as of June 30, 2018;

14,707 shares of common stock subject to repurchase by us as of June 30, 2018;

2,498,102 shares of common stock reserved for future issuance under our 2014 Equity Incentive Plan, as of June 30, 2018; and

446,248 shares of common stock reserved for future issuance under our 2014 Employee Stock Purchase Plan, as of June 30, 2018.

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To the extent that outstanding options are exercised, investors purchasing our common stock in this offering will experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

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PLAN OF DISTRIBUTION

We have entered into an Open Market Sale AgreementSM, or sales agreement, with Jefferies, under which we may issue and sell from time to time up to \$60.0 million of our shares of common stock through the sales agent. The sales agreement has been filed as an exhibit to a Current Report on Form 8-K filed under the Exchange Act and is incorporated by reference in this prospectus supplement. Sales of our shares, if any, under this prospectus supplement may be made in sales deemed to be at the market offerings as defined in Rule 415 under the Securities Act, including by means of ordinary brokers transactions on The Nasdaq Global Market at market prices, in privately negotiated transactions, block transactions, or as otherwise agreed upon by the sales agent and us. The sales agent will use commercially reasonable efforts to sell on our behalf all of the shares requested to be sold by us, consistent with its normal trading and sales practices, on mutually agreed terms between the sales agent and us. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

The sales agent will offer the shares subject to the terms and conditions of the sales agreement on any trading day or as otherwise agreed upon by us and the sales agent. We will designate the maximum amount and minimum price of shares to be sold through the sales agent, which may be on a daily basis or otherwise determine such amounts together with the sales agent. Subject to the terms and conditions of the sales agreement, the sales agent will use its commercially reasonable efforts to sell on our behalf the shares. We may instruct the sales agent not to sell shares if the sales cannot be effected at or above the price designated by us in any such instruction. We or the sales agent may suspend the offering of shares being made through the sales agent under the sales agreement upon proper notice to the other party.

Under the terms of the sales agreement, the sales agent will receive from us a commission of up to 3.0% of the gross proceeds of any shares sold through it pursuant to the sales agreement. The remaining sales proceeds, after deducting any expenses payable by us and any transaction fees imposed by any governmental, regulatory, or self-regulatory organization in connection with the sales, will equal our net proceeds for the sale of such shares.

The sales agent will provide written confirmation to us before the open of trading on The Nasdaq Global Market on the day following each day in which shares are sold by the sales agent for us under the sales agreement. Each confirmation will include the number of shares sold on that day, the gross sales price per share, and the net proceeds to us.

Settlement for sales of shares will occur, unless the parties agree otherwise, on the second business day following the date on which any sales were made in return for payment of the net proceeds to us.

If we and Jefferies so agree, Jefferies may act as principal in connection with the placement of the securities offered hereby. In connection with the sale of the shares on our behalf, the sales agent will be deemed to be an underwriter within the meaning of the Securities Act and the compensation paid to the sales agent will be deemed to be underwriting commissions or discounts. We have agreed in the sales agreement to provide indemnification and contribution to the sales agent against certain civil liabilities, including liabilities under the Securities Act.

We estimate that the total expenses of the offering payable by us, excluding discounts and commissions payable to the sales agent under the sales agreement, will be approximately \$100,000, which amount includes up to \$50,000 that we have agreed to reimburse Jefferies for the fees and expenses of their counsel. In accordance with FINRA Rule 5110 these reimbursed fees and expenses are deemed sales compensation to Jefferies in connection with this offering.

The offering of shares pursuant to the sales agreement will terminate upon the earlier of (1) the sale of all of the shares subject to the sales agreement and (2) the termination of the sales agreement by the sales agent or us.

The sales agent has from time to time provided, and in the future may provide, certain commercial banking, investment banking and financial advisory services to us and our affiliates, for which it has received, and in the future will receive, customary fees. In the course of its business, Jefferies may actively trade our securities for its own account or for the accounts of customers, and, accordingly, Jefferies may at any time hold long or short positions in such securities.

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This prospectus supplement and the accompanying prospectus in electronic format may be made available on a website maintained by Jefferies and Jefferies may distribute this prospectus supplement and the accompanying prospectus electronically.

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LEGAL MATTERS

The validity of the shares of common stock offered hereby will be passed upon for us by Cooley LLP, San Diego, California. Covington & Burling LLP, New York, New York is counsel to Jefferies in connection with this offering.

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EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2017, as set forth in their report, which is incorporated by reference in this prospectus supplement and elsewhere in the registration statement. Our financial statements are incorporated by reference in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

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INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to incorporate by reference information from other documents that we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus supplement and the accompanying prospectus. Information in this prospectus supplement supersedes information incorporated by reference that we filed with the SEC prior to the date of this prospectus supplement, while information that we file later with the SEC will automatically update and supersede the information in this prospectus supplement and the accompanying prospectus. We incorporate by reference the documents listed below and any future filings made with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act between the date of this prospectus supplement and the termination of the offering (other than, unless otherwise specifically indicated, current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items):

our Annual Report on Form 10-K for the year ended December 31, 2017, filed with the SEC on March 13, 2018;

the information specifically incorporated by reference into our Annual Report on Form 10-K for the year ended December 31, 2017 from our Definitive Proxy Statement on Schedule 14A filed with the SEC on April 26, 2018;

our Quarterly Reports on Form 10-Q filed with the SEC for the quarters ended March 31, 2018 and June 30, 2018, filed with the SEC on May 5, 2018 and August 7, 2018, respectively;

our Current Reports on Form 8-K filed with the SEC on February 23, 2018, March 13, 2018, April 16, 2018, April 18, 2018, June 15, 2018, July 16, 2018 and October 5, 2018;

the description of our common stock contained in our registration statement on Form 8-A filed with the SEC on December 10, 2014, under Section 12 of the Exchange Act, including any amendments or reports filed for the purpose of updating such description.

We will provide to each person, without charge upon written or oral request, a copy of any or all of the documents that are incorporated by reference into this prospectus supplement, including exhibits which are specifically incorporated by reference into such documents. You should direct any requests for documents by writing us at 2130 W. Holcombe Blvd., Ste. 800, Houston, Texas 77030, Attn: Corporate Secretary or telephoning us at (832) 384-1100.

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PROSPECTUS

\$150,000,000

Common Stock

Preferred Stock

Debt Securities

Warrants

From time to time, we may offer up to \$150,000,000 of any combination of the securities described in this prospectus in one or more offerings. We may also offer securities as may be issuable upon conversion, redemption, repurchase, exchange or exercise of any securities registered hereunder, including any applicable antidilution provisions.

This prospectus provides a general description of the securities we may offer. Each time we offer securities, we will provide specific terms of the securities offered in a supplement to this prospectus. We may also authorize one or more free writing prospectuses to be provided to you in connection with these offerings. The prospectus supplement and any related free writing prospectus may also add, update or change information contained in this prospectus. You should carefully read this prospectus, the applicable prospectus supplement and any related free writing prospectus, as well as any documents incorporated by reference, before you invest in any of the securities being offered.

This prospectus may not be used to consummate a sale of any securities unless accompanied by a prospectus supplement.

Our common stock is traded on the Nasdaq Global Market under the symbol BLCM. On August 3, 2018, the last reported sales price of our common stock was \$5.87 per share. The applicable prospectus supplement will contain information, where applicable, as to any other listing on the Nasdaq Global Market or any securities market or other exchange of the securities, if any, covered by the prospectus supplement.

We will sell these securities directly to investors, through agents designated from time to time or to or through underwriters or dealers, on a continuous or delayed basis. For additional information on the methods of sale, you should refer to the section entitled Plan of Distribution in this prospectus. If any agents or underwriters are involved in the sale of any securities with respect to which this prospectus is being delivered, the names of such agents or underwriters and any applicable fees, commissions, discounts or over-allotment options will be set forth in a prospectus supplement. The price to the public of such securities and the net proceeds we expect to receive from such

sale will also be set forth in a prospectus supplement.

Investing in our securities involves a high degree of risk. You should review carefully the risks and uncertainties described under the heading Risk Factors contained in the applicable prospectus supplement and any related free writing prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED OF THESE SECURITIES OR DETERMINED IF THIS PROSPECTUS IS TRUTHFUL OR COMPLETE. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

The date of this prospectus is August 23, 2018.

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