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 2, 2018**

Blueprint Medicines Corporation

(Exact name of registrant as specified in its charter)

Delaware	**001-37359**	**26-3632015**
(State or other jurisdiction of incorporation)	(Commission File Number)	(I.R.S. Employer Identification No.)

45 Sidney Street **Cambridge, Massachusetts**	**02139**
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code: **(617) 374-7580**

(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:

- o Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- o Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- o Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- o Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Item 2.02 Results of Operations and Financial Condition.

On May 2, 2018, Blueprint Medicines Corporation (the "Company") announced its financial results for the quarter ended March 31, 2018. The full text of the press release issued in connection with the announcement is furnished as Exhibit 99.1 to this Current Report on Form 8-K and is incorporated by reference herein.

The information in this Current Report on Form 8-K, including Exhibit 99.1 attached hereto, is intended to be furnished and shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (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, as amended, or the Exchange Act, except as expressly set forth by specific reference in such filing.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits.

The following exhibit relating to Item 2.02 of this Current Report on Form 8-K shall be deemed to be furnished and not filed:

Exhibit No.	Description
99.1	Press release issued by Blueprint Medicines Corporation on May 2, 2018

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.

BLUEPRINT MEDICINES CORPORATION

Date: May 2, 2018

By: /s/ Jeffrey W. Albers
Jeffrey W. Albers
Chief Executive Officer

Blueprint Medicines Reports First Quarter 2018 Financial Results

– Completed Patient Enrollment of PDGFRα D842V Expansion Cohort of Phase 1 NAVIGATOR Trial for avapritinib and Anticipate Initial New Drug Application Submission in First Half 2019 –
– Received FDA Feedback Supporting Proposed Registration Pathways for avapritinib in Advanced, Smoldering and Indolent Systemic Mastocytosis –
– Presented Proof-of-Concept Data from Ongoing Phase 1 ARROW Trial of BLU-667 in Patients with RET-Altered Solid Tumors at AACR Annual Meeting –

CAMBRIDGE, Mass., May 2, 2018 – Blueprint Medicines Corporation (Nasdaq:BPMC), a leader in discovering and developing targeted kinase medicines for patients with genomically defined diseases, today reported financial results and provided a business update for the quarter ended March 31, 2018.

"In the first quarter, we continued to make significant progress across our portfolio toward our vision of rapidly delivering potentially transformative kinase medicines to patients with genomically defined diseases," said Jeff Albers, Chief Executive Officer of Blueprint Medicines. "In particular, we were excited to present initial clinical proof-of-concept data for our highly selective RET inhibitor BLU-667, which showed consistent clinical activity in patients with multiple tumor types, RET alterations and prior therapies, along with a favorable safety and tolerability profile. In addition, we received positive feedback from the FDA supporting our registration plan in systemic mastocytosis, including support for a single-arm registration-enabling Phase 2 trial in patients with advanced systemic mastocytosis representing a potential expedited path to registration."

Clinical Programs:

Avapritinib: Gastrointestinal Stromal Tumors (GIST)

- In March 2018, Blueprint Medicines completed enrollment of the PDGFRα D842V expansion cohort of its ongoing Phase 1 NAVIGATOR clinical trial. Based on feedback from the U.S. Food and Drug Administration (FDA) at an End-of-Phase 1 meeting in 2017, Blueprint Medicines believes that data from the PDGFRα D842V expansion cohort may be sufficient to support a New Drug Application (NDA) for avapritinib for the treatment of patients with PDGFRα D842V-driven GIST. Based on the expected timeline for the collection of data, Blueprint Medicines now anticipates it will submit an initial NDA to the FDA for avapritinib in the first half of 2019. In the first quarter, Blueprint Medicines announced it had completed enrollment of the third-line or later (KIT-driven) GIST cohort and initiated enrollment of the second-line GIST cohort in the Phase 1 NAVIGATOR trial. Blueprint Medicines anticipates presenting updated data from the NAVIGATOR trial in the second half of 2018.

Avapritinib: Advanced Systemic Mastocytosis (SM)

- Blueprint Medicines recently received positive feedback from the FDA supporting its proposed registration plan for avapritinib in patients with advanced, smoldering and indolent SM. Consistent with feedback from the FDA, Blueprint Medicines plans to initiate a registration-enabling open-label, single-arm Phase 2 clinical trial in patients with advanced SM, called the PATHFINDER trial, by the middle of 2018. In addition, Blueprint Medicines plans to initiate a registration-enabling Phase 2 clinical trial in patients with indolent SM and smoldering SM, called the PIONEER trial, by the end of 2018.
- Enrollment in the expansion portion of the Phase 1 EXPLORER clinical trial for advanced SM is ongoing, and Blueprint Medicines anticipates presenting updated data from this trial in the second half of 2018.

BLU-667: RET-Altered Solid Tumors

- In April 2018, Blueprint Medicines presented proof-of-concept data from its ongoing Phase 1 ARROW clinical trial of BLU-667 in patients with RET-altered non-small cell lung cancer (NSCLC), medullary thyroid cancer (MTC) and other advanced solid tumors at the American Association for Cancer Research (AACR) Annual Meeting. The data showed broad and robust clinical activity across multiple tumor types and RET genotypes, including in patients whose disease had progressed on prior multi-kinase therapy. Radiographic tumor reductions were observed in 84 percent of patients with RET-altered solid tumors and measurable target lesions, and preliminary overall response rates were 50 percent and 40 percent in patients with NSCLC and MTC, respectively. The data also showed that BLU-667 was generally well-tolerated, and most adverse events reported by investigators were Grade 1. Read the full data here. The maximum tolerated dose (MTD) was determined to be 400 mg once daily, and global enrollment in the dose expansion portion of the Phase 1 ARROW clinical trial is ongoing.
- In April 2018, Blueprint Medicines announced the publication of foundational preclinical data and clinical proof-of-concept results for BLU-667. The publication outlined preclinical data characterizing the potency and selectivity of BLU-667 against multiple oncogenic RET variants and resistant mutants and anti-tumor activity in multiple solid tumor models. It also included four patient vignettes from the ongoing Phase 1 ARROW clinical trial, showing clinical responses in patients with RET-KIF5B-altered NSCLC and MTC harboring multiple RET mutations. The paper, titled “Precision targeted therapy with BLU-667 for RET-driven cancers,” was published online in *Cancer Discovery.*

Research Programs:

- In the first quarter of 2018, Blueprint Medicines initiated investigational new drug application-enabling studies for BLU-782, its development candidate for the treatment of patients with fibrodysplasia ossificans progressiva. Blueprint Medicines plans to report preclinical data for the program in 2018.
- Blueprint Medicines also recently nominated a new wholly-owned discovery program for an undisclosed kinase target.

First Quarter Financial Results:

- **Cash Position:** As of March 31, 2018, cash, cash equivalents and investments were $621.1 million, as compared to $673.4 million as of December 31, 2017. This decrease was primarily related to cash used in operating activities.
- **Collaboration Revenues**: Collaboration revenues were $0.9 million for the first quarter of 2018, as compared to $5.8 million for the first quarter of 2017. This decrease was primarily due to the termination of the Alexion agreement in 2017, which resulted in no revenue recognized under this agreement in the first quarter 2018, as well as the impact on revenue recognized under the Roche agreement as a result of the adoption of Accounting Standards Codification 606 effective January 1, 2018.
- **R&D Expenses**: Research and development expenses were $50.0 million for the first quarter of 2018, as compared to $28.5 million for the first quarter of 2017. This increase was primarily attributable to increased clinical and manufacturing expenses associated with advancing avapritinib, BLU-554, and BLU-667 further through clinical trials and increased personnel-related expenses. Research and development expenses included $3.0 million in stock-based compensation expenses for the first quarter of 2018.
- **G&A Expenses**: General and administrative expenses were $9.9 million for the first quarter of 2018, as compared to $5.7 million for the first quarter of 2017. This increase was primarily attributable to increased personnel-related expenses and increased professional fees, including pre-commercial planning activities. General and administrative expenses included $2.5 million in stock-based compensation expenses for the first quarter of 2018.
- **Net Loss:** Net loss was $56.5 million for the first quarter of 2018, or a net loss per share of $1.29, as compared to a net loss of $28.0 million for the first quarter of 2017, or a net loss per share of $0.84.

Financial Guidance:

Based on its current plans, Blueprint Medicines expects that its existing cash, cash equivalents and investments, excluding any potential option fees and milestone payments under its existing collaboration with Roche, will be sufficient to enable it to fund its operating expenses and capital expenditure requirements into the middle of 2020.

Conference Call Information:

Blueprint Medicines will host a live conference call and webcast today at 8:30 a.m. ET. The conference call may be accessed by dialing (855) 728-4793 (domestic) or (503) 343-6666 (international) and referring to conference ID 7572918. A webcast of the conference call will be available in the Investors section of the Blueprint Medicines' website at http://ir.blueprintmedicines.com. The archived webcast will be available on Blueprint Medicines' website approximately two hours after the conference call and will be available for 30 days following the conference call.

About Blueprint Medicines:

Blueprint Medicines is developing a new generation of targeted and potent kinase medicines to improve the lives of patients with genomically defined diseases. Its approach is rooted in a deep understanding of the genetic blueprint of cancer and other disease driven by the abnormal activation of kinases. Blueprint Medicines is advancing multiple programs in clinical development for subsets of patients with gastrointestinal stromal tumors, hepatocellular carcinoma, systemic mastocytosis, non-small cell lung cancer, medullary thyroid cancer and other advanced solid tumors, as well as multiple programs in research and preclinical development. For more information, please visit www.blueprintmedicines.com.

Cautionary Note Regarding Forward-Looking Statements:

This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, as amended, including, without limitation, statements regarding plans and timelines for the clinical development of avapritinib, BLU-554, BLU-667 and BLU-782; the potential benefits of Blueprint Medicines' current and future drug candidates in treating patients; plans and timelines for presenting preclinical and clinical data for Blueprint Medicines' current or future clinical trials; plans and timelines for presenting preclinical data for the BLU-782 program; plans and timelines for initiating Blueprint Medicines' PATHFINDER and PIONEER trials; plans and timelines for engaging regulatory authorities to obtain input on registration pathways for avapritinib and BLU-667; expectations regarding the potential for current and future clinical trials to be registration-enabling for Blueprint Medicines' current and future drug candidates in one or more indications; expectations regarding the collection of data for the PDGFRα D842V-driven GIST cohort of the NAVIGATOR trial; plans and timelines for submitting an NDA to the FDA for avapritinib; expectations regarding potential regulatory and commercial milestones; expectations regarding Blueprint Medicines' existing cash, cash equivalents and investments; and Blueprint Medicines' strategy, business plans and focus. The words "may," "will," "could," "would," "should," "expect," "plan," "anticipate," "intend," "believe," "estimate," "predict," "project," "potential," "continue," "target" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Any forward-looking statements in this press release are based on management's current expectations and beliefs and are subject to a number of risks, uncertainties and important factors that may cause actual events or results to differ materially from those expressed or implied by any forward-looking statements contained in this press release, including, without limitation, risks and uncertainties related to the delay of any current or planned clinical trials or the development of Blueprint Medicines' drug candidates, including avapritinib, BLU-554, BLU-667 and BLU-782; Blueprint Medicines' advancement of multiple early-stage efforts; Blueprint Medicines' ability to successfully demonstrate the safety and efficacy of its drug candidates; the preclinical and clinical results for Blueprint Medicines' drug candidates, which may not support further development of such drug candidates; actions of regulatory agencies, which may affect the initiation, timing and progress of clinical trials; Blueprint Medicines' ability to develop and commercialize companion diagnostic tests for its current and future drug candidates, including companion diagnostic tests for BLU-554 for FGFR4-driven HCC, avapritinib for

PDGFRα D842V-driven GIST and BLU-667 for RET-driven NSCLC; and the success of Blueprint Medicines' cancer immunotherapy collaboration with F. Hoffmann-La Roche Ltd and Hoffmann-La Roche Inc. These and other risks and uncertainties are described in greater detail in the section entitled "Risk Factors" in Blueprint Medicines' Annual Report on Form 10-K for the year ended December 31, 2017, as filed with the Securities and Exchange Commission (SEC) on February 21, 2018, and any other filings that Blueprint Medicines has made or may make with the SEC in the future. Any forward-looking statements contained in this press release represent Blueprint Medicines' views only as of the date hereof and should not be relied upon as representing its views as of any subsequent date. Except as required by law, Blueprint Medicines explicitly disclaims any obligation to update any forward-looking statements.

Blueprint Medicines Corporation
Selected Condensed Consolidated Balance Sheet Data
(in thousands)
(unaudited)

	March 31 2018	December 31, 2017
Cash, cash equivalents and investments	$ 621,123	$ 673,356
Working capital [1]	575,700	642,615
Total assets	664,468	715,737
Deferred revenue	39,734	35,373
Term loan payable	1,106	1,518
Lease incentive obligation	15,903	16,331
Total stockholders' equity	570,873	623,970

[1] Blueprint Medicines defines working capital as current assets less current liabilities.

Blueprint Medicines Corporation
Condensed Consolidated Statements of Operations Data
(in thousands, except per share data)
(unaudited)

	Three Months Ended March 31,	
	2018	2017
Collaboration revenue	$ 954	$ 5,840
Operating expenses:		
Research and development	49,954	28,487
General and administrative	9,911	5,683
Total operating expenses	59,865	34,170
Other income (expense):		
Other income, net	2,394	425
Interest expense	(32)	(72)
Total other income	2,362	353
Net loss	$ (56,549)	$ (27,977)
Net loss per share applicable to common stockholders — basic and diluted	$ (1.29)	$ (0.84)
Weighted-average number of common shares used in net loss per share applicable to common stockholders — basic and diluted	43,700	33,190

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