

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP

| OMB APPROVAL | |
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Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See Instruction 1(b).

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the Investment Company Act of 1940

| | | |
|---|---|---|
| 1. Name and Address of Reporting Person* <u>Haviland Kate</u> (Last) (First) (Middle) C/O BLUEPRINT MEDICINES CORPORATION 38 SIDNEY STREET, SUITE 200 (Street) CAMBRIDGE MA 02139 (City) (State) (Zip) | 2. Issuer Name and Ticker or Trading Symbol <u>Blueprint Medicines Corp [BPMC]</u> | 5. Relationship of Reporting Person(s) to Issuer (Check all applicable) Director 10% Owner <input checked="" type="checkbox"/> Officer (give title below) Other (specify below) <u>Chief Business Officer</u> |
| | 3. Date of Earliest Transaction (Month/Day/Year) <u>03/14/2017</u> | |
| 4. If Amendment, Date of Original Filed (Month/Day/Year) | | |

Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned

| 1. Title of Security (Instr. 3) | 2. Transaction Date (Month/Day/Year) | 2A. Deemed Execution Date, if any (Month/Day/Year) | 3. Transaction Code (Instr. 8) | | 4. Securities Acquired (A) or Disposed Of (D) (Instr. 3, 4 and 5) | | | 5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4) | 6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4) | 7. Nature of Indirect Beneficial Ownership (Instr. 4) |
|---------------------------------|--------------------------------------|--|--------------------------------|---|---|------------|------------------------|---|--|---|
| | | | Code | V | Amount | (A) or (D) | Price | | | |
| Common Stock | 03/14/2017 | | M ⁽¹⁾ | | 12,714 | A | \$16.28 | 12,714 | D | |
| Common Stock | 03/14/2017 | | S ⁽²⁾ | | 12,714 | D | \$40.01 ⁽³⁾ | 0 | D | |

Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)

| 1. Title of Derivative Security (Instr. 3) | 2. Conversion or Exercise Price of Derivative Security | 3. Transaction Date (Month/Day/Year) | 3A. Deemed Execution Date, if any (Month/Day/Year) | 4. Transaction Code (Instr. 8) | | 5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5) | | 6. Date Exercisable and Expiration Date (Month/Day/Year) | | 7. Title and Amount of Securities Underlying Derivative Security (Instr. 3 and 4) | 8. Price of Derivative Security (Instr. 5) | 9. Number of derivative Securities Beneficially Owned Following Reported Transaction(s) (Instr. 4) | 10. Ownership Form: Direct (D) or Indirect (I) (Instr. 4) | 11. Nature of Indirect Beneficial Ownership (Instr. 4) | |
|--|--|--------------------------------------|--|--------------------------------|---|--|--------|--|-----------------|---|--|--|---|--|----------------------------|
| | | | | Code | V | (A) | (D) | Date Exercisable | Expiration Date | | | | | | Amount or Number of Shares |
| Stock Option (Right to Buy) | \$16.28 | 03/14/2017 | | M ⁽¹⁾ | | | 12,714 | (4) | 02/01/2026 | Common Stock | 12,714 | \$0 | 87,286 | D | |

Explanation of Responses:

- The exercise reported on this Form 4 was effected pursuant to a trading plan adopted pursuant to Rule 10b5-1 under the Securities Exchange Act of 1934, as amended (the "Exchange Act").
- The sales reported on this Form 4 were effected pursuant to a trading plan adopted pursuant to Rule 10b5-1 under the Exchange Act.
- The price reported is a weighted average price. These shares were sold in multiple transactions at prices ranging from \$39.77 to \$40.27 per share. The Reporting Person undertakes to provide to the Issuer, any security holder of the Issuer or the staff of the Securities and Exchange Commission, upon request, full information regarding the number of shares sold at each separate price within the range.
- This option was granted on February 1, 2016. This option vests with respect to 25% of the shares underlying the option on January 5, 2017 and as to an additional 1/48th of the shares underlying the option each month thereafter.

/s/ Christopher Frankfield,
Attorney-in-Fact 03/16/2017

** Signature of Reporting Person Date

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

* If the form is filed by more than one reporting person, see Instruction 4 (b)(v).

** Intentional misstatements or omissions of facts constitute Federal Criminal Violations See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB Number.