

INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF SECURITIES

OMB APPROVAL	
OMB Number:	3235-0104
Estimated average burden hours per response:	0.5

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>Third Rock Ventures II, L.P.</u> <hr/> (Last) (First) (Middle) 29 NEWBURY STREET, 3RD FLOOR <hr/> (Street) BOSTON MA 02116 <hr/> (City) (State) (Zip)	2. Date of Event Requiring Statement (Month/Day/Year) 04/29/2015	3. Issuer Name and Ticker or Trading Symbol <u>Blueprint Medicines Corp [BPMC]</u>	
		4. Relationship of Reporting Person(s) to Issuer (Check all applicable) Director <input checked="" type="checkbox"/> 10% Owner Officer (give title below) Other (specify below)	5. If Amendment, Date of Original Filed (Month/Day/Year) 6. Individual or Joint/Group Filing (Check Applicable Line) Form filed by One Reporting Person <input checked="" type="checkbox"/> Form filed by More than One Reporting Person

Table I - Non-Derivative Securities Beneficially Owned

1. Title of Security (Instr. 4)	2. Amount of Securities Beneficially Owned (Instr. 4)	3. Ownership Form: Direct (D) or Indirect (I) (Instr. 5)	4. Nature of Indirect Beneficial Ownership (Instr. 5)
Common Stock	272,727	D ⁽¹⁾	

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

1. Title of Derivative Security (Instr. 4)	2. Date Exercisable and Expiration Date (Month/Day/Year)		3. Title and Amount of Securities Underlying Derivative Security (Instr. 4)	4. Conversion or Exercise Price of Derivative Security	5. Ownership Form: Direct (D) or Indirect (I) (Instr. 5)	6. Nature of Indirect Beneficial Ownership (Instr. 5)
	Date Exercisable	Expiration Date				
Series A Preferred Stock	(2)	(2)	Common Stock 5,454,545	(2)	D ⁽¹⁾	
Series B Preferred Stock	(3)	(3)	Common Stock 1,424,242	(3)	D ⁽¹⁾	
Series C Preferred Stock	(4)	(4)	Common Stock 241,545	(4)	D ⁽¹⁾	

1. Name and Address of Reporting Person* <u>Third Rock Ventures II, L.P.</u> <hr/> (Last) (First) (Middle) 29 NEWBURY STREET, 3RD FLOOR <hr/> (Street) BOSTON MA 02116 <hr/> (City) (State) (Zip)

1. Name and Address of Reporting Person* <u>Third Rock Ventures GP II, L.P.</u> <hr/> (Last) (First) (Middle) 29 NEWBURY STREET, 3RD FLOOR <hr/> (Street) BOSTON MA 02116 <hr/> (City) (State) (Zip)
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1. Name and Address of Reporting Person* <u>TRV GP II, LLC</u> <hr/> (Last) (First) (Middle) 29 NEWBURY STREET, 3RD FLOOR <hr/> (Street) BOSTON MA 02116 <hr/> (City) (State) (Zip)

(City)	(State)	(Zip)
1. Name and Address of Reporting Person*		
LEVIN MARK J		
(Last)	(First)	(Middle)
29 NEWBURY STREET, 3RD FLOOR		
(Street)		
BOSTON	MA	02116
(City)	(State)	(Zip)
1. Name and Address of Reporting Person*		
STARR KEVIN P		
(Last)	(First)	(Middle)
29 NEWBURY STREET, 3RD FLOOR		
(Street)		
BOSTON	MA	02116
(City)	(State)	(Zip)
1. Name and Address of Reporting Person*		
TEPPER ROBERT I		
(Last)	(First)	(Middle)
29 NEWBURY STREET, 3RD FLOOR		
(Street)		
BOSTON	MA	02116
(City)	(State)	(Zip)

Explanation of Responses:

1. The shares are directly held by Third Rock Ventures II, L.P. ("TRV II"). The general partner of TRV II is Third Rock Ventures GP II, L.P. ("TRV GP II LP"). The general partner of TRV GP II LP is TRV GP II, LLC ("TRV GP II LLC"). The individual managers of TRV GP II LLC are Mark Levin ("Levin"), Kevin Starr ("Starr") and Dr. Robert Tepper ("Tepper") and, as such, each of TRV GP II LP and TRV GP II LLC, Levin, Starr and Tepper exercises shared voting and investment power over the shares held of record by TRV II. Each of the Reporting Persons disclaims beneficial ownership of the shares except to the extent of their pecuniary interest therein, if any.
2. The Series A Preferred Stock is convertible into Common Stock on a 5.5-for-one basis into the number of shares of Common Stock as shown in column 3 at any time at the holder's election, and automatically upon the closing of the Issuer's initial public offering, and has no expiration date.
3. The Series B Preferred Stock is convertible into Common Stock on a 5.5-for-one basis into the number of shares of Common Stock as shown in column 3 at any time at the holder's election, and automatically upon the closing of the Issuer's initial public offering, and has no expiration date.
4. The Series C Preferred Stock is convertible into Common Stock on a 5.5-for-one basis into the number of shares of Common Stock as shown in column 3 at any time at the holder's election, and automatically upon the closing of the Issuer's initial public offering, and has no expiration date.

Remarks:

/s/ Kevin Gillis, Chief Financial Officer of TRV GP II, LLC, general partner of Third Rock Ventures GP II, L.P., general partner of Third Rock Ventures II, L.P.	04/29/2015
/s/ Kevin Gillis, Chief Financial Officer of TRV GP II, LLC, general partner of Third Rock Ventures GP II, L.P.	04/29/2015
/s/ Kevin Gillis, Chief Financial Officer of TRV GP II, LLC	04/29/2015
/s/ Kevin Gillis by power of attorney for Mark Levin	04/29/2015
/s/ Kevin Gillis by power of attorney for Kevin Starr	04/29/2015
/s/ Kevin Gillis by power of attorney for Robert I. Tepper	04/29/2015

** 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 5 (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.