

INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF SECURITIES

OMB APPROVAL	
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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 LP</u> (Last) (First) (Middle) 29 NEWBURY STREET, 3RD FLOOR (Street) BOSTON MA 02116 (City) (State) (Zip)	2. Date of Event Requiring Statement (Month/Day/Year) 06/18/2014	3. Issuer Name and Ticker or Trading Symbol <u>ZAFGEN, INC.</u> [ZFGN]	
		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)
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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	Title	Amount or Number of Shares			
Series B Preferred Stock	(1)	(1)	Common Stock	3,543,116	(1)	D ⁽⁴⁾	
Series C Preferred Stock	(2)	(2)	Common Stock	1,315,859	(2)	D ⁽⁴⁾	
Series D Preferred Stock	(3)	(3)	Common Stock	743,070	(3)	D ⁽⁴⁾	

1. Name and Address of Reporting Person* <u>THIRD ROCK VENTURES LP</u> (Last) (First) (Middle) 29 NEWBURY STREET, 3RD FLOOR (Street) BOSTON MA 02116 (City) (State) (Zip)

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

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

TEPPER ROBERT I

(Last) (First) (Middle)

C/O THIRD ROCK VENTURES
29 NEWBURY STREET, 3RD FLOOR

(Street)

BOSTON MA 02116

(City) (State) (Zip)

1. Name and Address of Reporting Person*

LEVIN MARK J

(Last) (First) (Middle)

C/O THIRD ROCK VENTURES
29 NEWBURY STREET, 3RD FLOOR

(Street)

BOSTON MA 02116

(City) (State) (Zip)

Explanation of Responses:

1. The Series B Preferred Stock is convertible into Common Stock on a 6.28-for-1 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.
2. The Series C Preferred Stock is convertible into Common Stock on a 6.28-for-1 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 D Preferred Stock is convertible into Common Stock on a 6.28-for-1 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 shares are directly held by Third Rock Ventures, L.P. ("TRV"). The general partner of TRV is Third Rock Ventures GP, L.P. ("TRV GP"). The general partner of TRV GP is TRV GP, LLC ("TRV GP LLC"). The individual managers of TRV GP, LLC are Mark Levin ("Levin"), Kevin Starr ("Starr") and Dr. Robert Tepper ("Tepper") and, as such, each of TRV GP, TRV GP LLC, Levin, Starr and Tepper exercises shared voting and investment power over the shares held of record by TRV. Each of the Reporting Persons disclaims beneficial ownership of the shares except to the extent of their pecuniary interest therein, if any.

Remarks:

/s/ Kevin Gillis, Manager of
TRV GP, LLC, general partner
of Third Rock Ventures GP,
L.P., general partner of Third
Rock Ventures, L.P. 06/18/2014

/s/ Kevin Gillis, Manager of
TRV GP, LLC, general partner
of Third Rock Ventures GP,
L.P. 06/18/2014

/s/ Kevin Gillis, Manager of
TRV GP, LLC 06/18/2014

/s/ Robert Tepper 06/18/2014

/s/ Mark Levin 06/18/2014

** 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.