

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>STARR KEVIN P</u> (Last) (First) (Middle) <u>C/O THIRD ROCK VENTURES</u> <u>29 NEWBURY STREET</u> (Street) <u>BOSTON MA 02116</u> (City) (State) (Zip)	2. Date of Event Requiring Statement (Month/Day/Year) <u>06/18/2014</u>	3. Issuer Name and Ticker or Trading Symbol <u>ZAFGEN, INC. [ZFGN]</u>	
		4. Relationship of Reporting Person(s) to Issuer (Check all applicable) <input checked="" type="checkbox"/> 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) <input checked="" type="checkbox"/> Form filed by One Reporting Person <input 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)
<u>Common Stock</u>	<u>8,108</u>	<u>D</u>	

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			
<u>Series B Preferred Stock</u>	<u>(1)</u>	<u>(1)</u>	<u>Common Stock</u>	<u>3,543,116</u>	<u>(1)</u>	<u>I</u>	<u>See Footnote⁽⁴⁾</u>
<u>Series C Preferred Stock</u>	<u>(2)</u>	<u>(2)</u>	<u>Common Stock</u>	<u>1,315,859</u>	<u>(2)</u>	<u>I</u>	<u>See Footnote⁽⁴⁾</u>
<u>Series D Preferred Stock</u>	<u>(3)</u>	<u>(3)</u>	<u>Common Stock</u>	<u>743,070</u>	<u>(3)</u>	<u>I</u>	<u>See Footnote⁽⁴⁾</u>

Explanation of Responses:

- 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.
- 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.
- 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.
- 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"), Dr. Robert Tepper ("Tepper") and the Reporting Person and, as such, each of TRV GP, TRV GP LLC, Levin, Tepper and the Reporting Person exercises shared voting and investment power over the shares held of record by TRV. The Reporting Person disclaims beneficial ownership of the shares except to the extent of his pecuniary interest therein, if any.

Remarks:

/s/ Kevin P. Starr 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.