

| OMB APPROVAL | |
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STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP

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

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| 1. Name and Address of Reporting Person* <u>Secor Alicia</u> (Last) (First) (Middle) <u>C/O ZAFGEN, INC.,</u> <u>ONE BROADWAY, 8TH FLOOR</u> (Street) <u>CAMBRIDGE MA 02142</u> (City) (State) (Zip) | 2. Issuer Name and Ticker or Trading Symbol <u>ZAFGEN, INC. [ZFGN]</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 Commercial Officer</u> |
| | 3. Date of Earliest Transaction (Month/Day/Year) <u>06/19/2014</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 | 06/19/2014 | | P | | 4,000 | A | \$20 | 4,000 | I | Held by Spouse ⁽¹⁾ |

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) | | 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) | | | | | |

Explanation of Responses:

1. These shares are held by Ms. Secor's spouse. The Reporting Person disclaims beneficial ownership of the shares except to the extent of her pecuniary interest therein, if any.

Remarks:

Laurie Burlingame, as
Attorney-in-Fact for Alicia 06/23/2014
Secor

** 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.

LIMITED POWER OF ATTORNEY

The undersigned hereby constitutes and appoints each of Thomas E. Hughes, Ph.D., Patricia L. Allen and Laurie Burlingame, signing singly, and with full power of substitution, the undersigned's true and lawful attorney-in-fact to:

(1) execute for and on behalf of the undersigned, in the undersigned's capacity as an officer and/or director of Zafgen, Inc. (the "Company"), from time to time the following U.S. Securities and Exchange Commission ("SEC") forms: (i) Form ID, including any attached documents, to effect the assignment of codes to the undersigned to be used in the transmission of information to the SEC using the EDGAR System; (ii) Form 3, Initial Statement of Beneficial Ownership of Securities, including any attached documents; (iii) Form 4, Statement of Changes in Beneficial Ownership of Securities, including any attached documents; (iv) Form 5, Annual Statement of Beneficial Ownership of Securities in accordance with Section 16(a) of the Securities Exchange Act of 1934, as amended, and the rules thereunder, including any attached documents; (v) Schedule 13D and (vi) amendments of each thereof, in accordance with the Securities Exchange Act of 1934, as amended, and the rules thereunder, including any attached documents;

(2) do and perform any and all acts for and on behalf of the undersigned which may be necessary or desirable to complete and execute any such Form 3, 4 or 5, Schedule 13D or any amendment(s) thereto, and timely file such form(s) with the SEC and any securities exchange, national association or similar authority; and

(3) take any other action of any type whatsoever in connection with the foregoing which, in the opinion of such attorney-in-fact, may be of benefit to, in the best interest of, or legally required by, the undersigned, it being understood that the documents executed by such attorney-in-fact on behalf of the undersigned pursuant to this Power of Attorney shall be in such form and shall contain such terms and conditions as such attorney-in-fact may approve in such attorney-in-fact's discretion.

The undersigned hereby grants to each such attorney-in-fact, acting singly, full power and authority to do and perform any and every act and thing whatsoever requisite, necessary or proper to be done in the exercise of any of the rights and powers herein granted, as fully to all intents and purposes as the undersigned might or could do if personally present, with full power of substitution or revocation, hereby ratifying and confirming all that such attorney-in-fact, or such attorney-in-fact's substitute or substitutes, shall lawfully do or cause to be done by virtue of this power of attorney and the rights and powers herein granted. The undersigned acknowledges that the foregoing attorneys-in-fact, in serving in such capacity at the request of the undersigned, are not assuming, nor is the Company assuming, any of the undersigned's responsibilities to comply with Section 16 or Regulation 13D-G of the Securities Exchange Act of 1934, as amended. The undersigned hereby agrees to indemnify the attorney in fact and the Company from and against any demand, damage, loss, cost or expense arising from any false or misleading information provided by the undersigned to the attorney-in fact.

This Power of Attorney shall remain in full force and effect until the undersigned is no longer required to file such forms with respect to the undersigned's holdings of and transactions in securities issued by the Company, unless earlier revoked by the undersigned in a signed writing delivered to the foregoing attorneys-in-fact.

IN WITNESS WHEREOF, the undersigned has caused this Power of Attorney to be executed as of June 13, 2014.

/s/ Alicia Secor

Alicia Secor