

Synthetic Biologics, Inc.
 Form 3
 October 19, 2012

FORM 3 UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

OMB APPROVAL
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INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF SECURITIES

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934,
 Section 17(a) of the Public Utility Holding Company Act of 1935 or Section
 30(h) of the Investment Company Act of 1940

(Print or Type Responses)

| | | | | |
|--|---------|--------------------------------------|--|--|
| 1. Name and Address of Reporting Person * | | 2. Date of Event Requiring Statement | 3. Issuer Name and Ticker or Trading Symbol | |
| KIRK RANDAL J | | (Month/Day/Year) | Synthetic Biologics, Inc. [SYN] | |
| (Last) | (First) | (Middle) | 10/16/2012 | |
| C/O THIRD SECURITY, LLC, 1881 GROVE AVENUE | | | 4. Relationship of Reporting Person(s) to Issuer | 5. If Amendment, Date Original Filed(Month/Day/Year) |
| (Street) | | | (Check all applicable) | |
| RADFORD, VA 24141 | | | <input type="checkbox"/> Director | <input checked="" type="checkbox"/> 10% Owner |
| (City) | (State) | (Zip) | <input type="checkbox"/> Officer | <input type="checkbox"/> Other |
| | | | (give title below) | (specify below) |
| | | | 6. Individual or Joint/Group Filing(Check Applicable Line) | |
| | | | <input type="checkbox"/> 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 | 6,675,768 ⁽¹⁾ | I | by Intrexon ⁽²⁾ |

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

SEC 1473 (7-02)

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 control number.

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 of Derivative Security: Direct (D) | 6. Nature of Indirect Beneficial Ownership (Instr. 5) |
|--|--|---|--|--|---|
| | | Title | | | |

| | | | |
|---------------------|--------------------|----------------------------------|----------------------------------|
| Date Exercisable | Expiration Date | Amount or Number of Shares | or Indirect (I) (Instr. 5) |
|---------------------|--------------------|----------------------------------|----------------------------------|

Reporting Owners

| Reporting Owner Name / Address | Relationships | | | |
|---|---------------|-----------|---------|-------|
| | Director | 10% Owner | Officer | Other |
| KIRK RANDAL J C/O THIRD SECURITY, LLC 1881 GROVE AVENUE RADFORD, VA 24141 | ^ | ^ X | ^ | ^ |
| INTREXON CORP C/O LEGAL DEPARTMENT 20358 SENECA MEADOWS PARKWAY GERMANTOWN, MD 20876 | ^ | ^ X | ^ | ^ |

Signatures

| | |
|--|------------|
| /s/ Randal J. Kirk | 10/19/2012 |
| **Signature of Reporting Person | Date |
| /s/ Randal J. Kirk, CEO Intrexon Corporation | 10/19/2012 |
| **Signature of Reporting Person | Date |

Explanation of Responses:

* 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).

Pursuant to an Exclusive Channel Collaboration Agreement entered into between Intrexon Corporation ("Intrexon") and Synthetic Biologics, Inc. ("Synthetic Biologics") on November 18, 2011 ("Channel Agreement #1"), Synthetic Biologics agreed to issue to Intrexon 3,123,558 shares of common stock of the issuer as partial consideration for the execution and delivery of Channel Agreement #1. The closing date of Channel Agreement #1 was December 7, 2011. In connection with a subsequent Exclusive Channel Collaboration Agreement between Intrexon and Synthetic Biologics on August 6, 2012 ("Channel Agreement #2"), Synthetic Biologics agreed to issue to Intrexon 3,552,210 shares of common stock of the issuer as partial consideration for the execution and delivery of Channel Agreement #2. The closing date of Channel Agreement #2 was October 16, 2012.

Randal J. Kirk, directly and through certain affiliates, has voting and dispositive power over a majority of the outstanding capital stock of Intrexon. Mr. Kirk may therefore be deemed to have voting and dispositive power over the shares of the issuer owned by Intrexon. Shares held by Intrexon may be deemed to be indirectly beneficially owned (as defined under Rule 13d-3 promulgated under the Securities Exchange Act of 1934, as amended) by Mr. Kirk. Mr. Kirk disclaims beneficial ownership of such shares, except to the extent of any pecuniary interest therein.

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, See Instruction 6 for procedure. Potential persons who are to respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB number.