

---

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, DC 20549

---

SCHEDULE 13D

(Amendment No. 3)\*  
Under the Securities Exchange Act of 1934

SYNTHETIC BIOLOGICS, INC.

---

(Name of Issuer)

Common Stock, par value \$0.001 per share

---

(Title of Class of Securities)

87163U102

---

(CUSIP Number)

Third Security, LLC  
1881 Grove Avenue  
Radford, Virginia 24141  
Attention: Marcus E. Smith, Esq.  
(540) 633-7900

---

(Name, Address and Telephone Number of Person  
Authorized to Receive Notices and Communications)

Copy to:  
Intrexon Corporation  
Attention: Legal  
20374 Seneca Meadows Parkway  
Germantown, Maryland 20876  
(301) 556-9809

---

December 17, 2013

---

(Date of Event which Requires Filing of this Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition which is the subject of this Schedule 13D, and is filing this schedule because of Rule 13d-1(b)(3) or (4), check the following box ☐.

NOTE: Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See §240.13d-7 for other parties to whom copies are to be sent.

\* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).


1	NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS  Randal J. Kirk		
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF GROUP (a) <input type="radio"/> (b) <input checked="" type="radio"/>		
3	SEC USE ONLY		
4	SOURCE OF FUNDS  PF		
5	CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) OR 2(e) <input type="radio"/>		
6	CITIZENSHIP OR PLACE OF ORGANIZATION  United States		
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER  3,625,000	
	8	SHARED VOTING POWER  8,675,768	
	9	SOLE DISPOSITIVE POWER  3,625,000	
	10	SHARED DISPOSITIVE POWER  8,675,768	
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 12,300,768		
12	CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES <input type="radio"/>		
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 21.3%		
14	TYPE OF REPORTING PERSON IN		

1	NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS  THIRD SECURITY, LLC I.R.S. IDENTIFICATION NO.: 54-1923091		
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF GROUP (a) <input type="radio"/> (b) <input checked="" type="radio"/>		
3	SEC USE ONLY		
4	SOURCE OF FUNDS  WC		
5	CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) OR 2(e) <input type="radio"/>		
6	CITIZENSHIP OR PLACE OF ORGANIZATION  Virginia		
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER  3,625,000	
	8	SHARED VOTING POWER  0	
	9	SOLE DISPOSITIVE POWER  3,625,000	
	10	SHARED DISPOSITIVE POWER  0	
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 3,625,000		
12	CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES <input type="radio"/>		
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 6.3%		
14	TYPE OF REPORTING PERSON OO – limited liability company		

1	NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS  NRM VII Holdings I, LLC I.R.S. IDENTIFICATION NO.: 27-1471440		
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF GROUP (a) <input type="radio"/> (b) <input checked="" type="radio"/>		
3	SEC USE ONLY		
4	SOURCE OF FUNDS  WC		
5	CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) OR 2(e) <input type="radio"/>		
6	CITIZENSHIP OR PLACE OF ORGANIZATION  United States		
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER  3,625,000	
	8	SHARED VOTING POWER  0	
	9	SOLE DISPOSITIVE POWER  3,625,000	
	10	SHARED DISPOSITIVE POWER  0	
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 3,625,000		
12	CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES <input type="radio"/>		
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 6.3%		
14	TYPE OF REPORTING PERSON OO - Limited Liability Company		

1	NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS  Intrexon Corporation I.R.S. IDENTIFICATION NO.: 26-0084895		
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF GROUP (a) <input type="radio"/> (b) <input checked="" type="radio"/>		
3	SEC USE ONLY		
4	SOURCE OF FUNDS  WC		
5	CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) OR 2(e) <input type="radio"/>		
6	CITIZENSHIP OR PLACE OF ORGANIZATION  Virginia		
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER  0	
	8	SHARED VOTING POWER  8,675,768	
	9	SOLE DISPOSITIVE POWER  0	
	10	SHARED DISPOSITIVE POWER  8,675,768	
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 8,675,768		
12	CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES <input type="radio"/>		
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 15.0%		
14	TYPE OF REPORTING PERSON CO		

This Amendment No. 3 (the "Amendment") amends and supplements the Statement on Schedule 13D, dated December 7, 2011 and filed on December 12, 2011 as amended by Amendment No. 1 dated October 16, 2012 and filed on October 19, 2012, as amended by Amendment No. 2 dated October 29, 2012 and filed on November 1, 2012 (the "Original Schedule 13D"), relating to the Common Stock, par value \$0.001 per share (the "Common Stock"), of Synthetic Biologics, Inc. a Nevada corporation (the "Company"). Mr. Randal J. Kirk ("Mr. Kirk"), NRM VII Holdings I, LLC ("NRM VII Holdings"), a Virginia limited liability company that is managed by an affiliate that is managed by Third Security, LLC ("Third Security"), a Virginia limited liability company that is managed by Mr. Kirk, and Intrexon Corporation, a Virginia corporation ("Intrexon" and, together with Mr. Kirk, NRM VII Holdings and Third Security, the "Reporting Persons"), are filing this Amendment to disclose the acquisition by NRM VII Holdings and Intrexon of 500,000 shares of Common Stock and 2,000,000 shares of Common Stock, respectively, in an underwritten public offering conducted by the Company. Mr. Kirk could be deemed to have indirect beneficial ownership of the shares of Common Stock directly beneficially owned by NRM VII Holdings and Intrexon.

Except as set forth below, there are no changes to the information set forth in the Original Schedule 13D.

Item 3. Source and Amount of Funds or Other Consideration.

Item 3 of the Original Schedule 13D is hereby amended and supplemented as follows:

On December 17, 2013, NRM VII Holdings utilized its working capital to purchase 500,000 shares of Common Stock in an underwritten public offering of the Company, for an aggregate purchase price of \$500,000, or \$1.00 per share.

Also on such date, Intrexon utilized its working capital to purchase 2,000,000 shares of Common Stock in an underwritten public offering of the Company, for an aggregate purchase price of \$2,000,000, or \$1.00 per share.

Item 4. Purpose of Transaction.

Item 4 of the Original Schedule 13D is hereby amended and supplemented as follows:

The Reporting Persons' responses to Item 3 are incorporated herein by reference. The Reporting Persons acquired the shares disclosed hereunder for investment purposes.

Item 5. Interest in Securities of the Issuer.

Items 5(a) and (b) of the Original Schedule 13D are hereby amended and restated to read in its entirety as follows:

(a) and (b) See Items 11 and 13 of the cover pages to this Statement for the aggregate number of shares and percentage of issued and outstanding shares of Common Stock of the Company owned by the Reporting Persons. The percentage ownership is calculated based on 44,654,414 shares of Common Stock outstanding as of November 12, 2013 as disclosed in the Company's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2013, filed on November 14, 2013, increased by the number of shares issued in the underwritten public offering.

---

Reporting Person	Amount of Common Stock Beneficially Owned	Percent of Class	Sole Power to Vote or Direct the Vote	Shared Power to Vote or Direct the Vote	Sole Power to Dispose or to Direct the Disposition	Shared Power to Dispose or to Direct the Disposition
Randal J. Kirk	12,300,768	21.3%	3,625,000	8,675,768	3,625,000	8,675,768
NRM VII Holdings I, LLC	3,625,000	6.3%	3,625,000	—	3,625,000	—
Intrexon Corporation	8,675,768	15.0%	—	8,675,768	—	8,675,768

Mr. Kirk could be deemed to have indirect beneficial ownership of the shares of Common Stock directly beneficially owned by NRM VII Holdings and Intrexon.

Item 6. Contracts, Arrangements, Understandings or Relationships with Respect to Securities of the Issuer.

The Reporting Persons' responses to Items 3 and 4 are incorporated herein by reference.

Item 7. Material to be Filed as Exhibits.

Exhibit 1 Joint Filing Agreement, dated as of December 19, 2013, by and among Mr. Kirk, Third Security, NRM VII Holdings and Intrexon

---



SIGNATURES

After reasonable inquiry and to the best of their knowledge and belief, the undersigned certify that the information set forth in this statement is true, complete and correct.

Date: December 19, 2013

/s/ Randal J. Kirk

Randal J. Kirk

THIRD SECURITY, LLC

By: /s/ Randal J. Kirk

Randal J. Kirk

Manager

NRM VII HOLDINGS I, LLC

By: /s/ Randal J. Kirk

Randal J. Kirk

Manager

INTREXON CORPORATION

By: /s/ Randal J. Kirk

Randal J. Kirk

Chief Executive Officer

---

## EXHIBIT INDEX

[Exhibit 1](#) Joint Filing Agreement, dated as of December 19, 2013, by and among Mr. Kirk, Third Security, NRM VII Holdings and Intrexon

---