Synthetic Biologics, Inc.
Form 424B3
August 09, 2012

Filed Pursuant to Rule 424(b)(3)

Registration Statement No. 333-180562

August 9, 2012

PROSPECTUS SUPPLEMENT NO. 1

SYNTHETIC BIOLOGICS, INC.

112,573 Shares of Common Stock

This prospectus supplement amends and supplements our prospectus, dated July 26, 2012, relating to the resale, from time to time, of up to 112,573 shares of common stock of Synthetic Biologics, Inc. upon the exercise of warrants issued in July 2011 at an exercise price of $1.00 per share and warrants sold in our July 2010 offering at an exercise price of $1.32 per share. We will receive proceeds if the warrants are exercised for cash; to the extent we receive such proceeds, they will be used for working capital purposes.

Our common stock became eligible for trading on the NYSE MKT October 16, 2008. Our common stock is eligible for quotation on the NYSE MKT under the symbol “SYN”. The closing price of our stock on August 8, 2012 was $2.03.

This prospectus supplement is being filed to include the information set forth in the Current Report on Form 8-K filed on August 9, 2012, which is set forth below. This prospectus supplement should be read in conjunction with the prospectus dated July 26, 2012, which is to be delivered with this prospectus supplement.

Investing in our securities involves a high degree of risk. See " Risk Factors " beginning on page 4 of the original prospectus for more information.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus or the prospectus to which it relates is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this Prospectus Supplement No. 1 is August 9, 2012.

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, D.C. 20549

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

Date of Report (date of earliest event reported): **August 6,** 2012

Synthetic Biologics, Inc.

(Exact name of registrant as specified in charter)

Nevada

(State or other jurisdiction of incorporation)

01-12584	13-3808303
(Commission File Number)	(IRS Employer Identification No.)

617 Detroit Street, Suite 100

Ann Arbor, MI 48104

(Address of principal executive offices and zip code)

(734) 332-7800

(Registrant's telephone number including area code)

N/A

(Former Name and Former Address)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of registrant under any of the following provisions:

¨Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

¨Soliciting material pursuant to Rule 14a-12(b) under the Exchange Act (17 CFR 240.14a-12)

¨Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

¨Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Item 1.01 Entry into a Material Definitive Agreement.

Exclusive Channel Collaboration Agreement

On August 6, 2012, Synthetic Biologics, Inc. (the "Company") expanded its relationship with Intrexon Corporation ("Intrexon") and entered into an Exclusive Channel Collaboration Agreement (the "Channel Agreement") with Intrexon that governs a "channel collaboration" arrangement in which the Company will use Intrexon's technology relating to the identification, design and production of human antibodies and DNA vectors for the development and commercialization of a series of monoclonal antibody therapies for the treatment of certain serious infectious diseases (collectively, the "Program"). The Channel Agreement establishes committees comprised of Company and Intrexon representatives that will govern activities related to the Program in the areas of project establishment, chemistry, manufacturing and controls, clinical and regulatory matters, commercialization efforts and intellectual property.

The Channel Agreement grants the Company a worldwide exclusive license to use specified patents and other intellectual property of Intrexon in connection with the research, development, use, importing, manufacture, sale, and offer for sale of monoclonal antibody therapies for the treatment of eight specific target infectious disease indications (the "Field"). Initially, the Company's development efforts will target three infectious diseases within the Field. Within the first two years of the collaboration, the Company has the right to exchange its initial three targets on a one-for-one basis with any of the other five targeted infectious diseases in the Field at no additional cost. The Company also has the option, within such two year period, to choose to develop any or all of the other five target diseases in the Field, upon payment of the additional consideration described below. Such license is exclusive with respect to any clinical development, selling, offering for sale or other commercialization of the Company's products within the Field ("Synthetic Products"), and otherwise is non-exclusive. The Company may not sublicense the rights described without Intrexon's written consent.

Under the Channel Agreement, and subject to certain exceptions, the Company is responsible for, among other things, the performance of the Program including the development, commercialization and manufacturing of products.

Subject to certain expense allocations and other offsets provided in the Channel Agreement, the Company will pay Intrexon royalties on annual net sales of the Synthetic Products, calculated on a Synthetic Product-by-Synthetic Product basis. The Company has likewise agreed to pay Intrexon a percentage of quarterly revenue obtained from a sublicensor in the event of a sublicensing arrangement. In addition, in partial consideration for each party's execution and delivery of the Channel Agreement, the Company entered into the Stock Issuance Agreement (as defined below) and the First Amendment to Registration Rights Agreement (as defined below). The Channel Agreement, Stock Issuance Agreement and First Amendment to Registration Rights Agreements shall collectively be referred as the "Agreements".

If any shareholder, exchange, board or member approvals of the issuance of the securities under the Stock Issuance Agreement is not received by 120 days after the effective date of the agreement, Intrexon has the right to terminate the Agreements. During the first 18 months, the Company may not terminate the Channel Agreement, except under limited circumstances. Following the first 18 months, the Company may voluntarily terminate the Channel Agreement upon 90 days written notice to Intrexon. Intrexon may also terminate the Channel Agreement if the Company elects not to pursue the development of a Program identified by Intrexon that is a "Superior Therapy" as defined in the Channel Agreement upon 60 days notice unless the Company remedies the circumstances giving rise to the termination during such notice period. Each party has the right to terminate the agreement upon 60 days notice if the other party commits a material breach of the Channel Agreement, subject to certain cure periods.

Upon termination of the Channel Agreement, the Company may continue to develop and commercialize any Synthetic Product that, at the time of termination satisfies one of the following:

- is being commercialized by the Company,

- has received regulatory approval,
- is a subject of an application for regulatory approval that is pending before the applicable regulatory authority,
- is a subject of at least a Phase 2 or Phase 3 clinical trial if such termination is by Intrexon due to a material breach by the Company of the Channel Agreement or by the Company upon 60 days notice after the first 18 months.

The Company's obligation to pay the royalties described above with respect to these "retained" products will survive termination of the Channel Agreement.

Stock Issuance Agreement and Registration Rights Agreement

On August 6, 2012, the Company entered into a Stock Issuance Agreement with Intrexon pursuant to which the Company has agreed to issue to Intrexon a number of shares of Company common stock equal to the difference between (i) 19.99% of the number of shares of Common Stock of Company outstanding as of the date of the closing prior to the issuance of such shares, and (ii) the number of shares of Common Stock of Company held by Intrexon immediately prior to the Closing (the "Technology Access Shares"), which issuance will be deemed paid in partial consideration for the execution and delivery of the Channel Agreement.

The Company has also agreed upon the filing of an Investigational New Drug application with the U.S. Food and Drug Administration for a Synthetic Product, or alternatively the filing of the first equivalent regulatory filing with a foreign regulatory agency (both as applicable, the "IND Milestone Event"), to pay Intrexon either (i) two million dollars ($2M) in cash, or (ii) that number of shares of Common Stock (the "IND Milestone Shares") having a fair market value equaling two million dollars ($2M) where such fair market value is determined using published market data of the share price for Common Stock at the close of market on the business day immediately preceding the date of public announcement of attainment of the IND Milestone Event.

The Company has also agreed upon the first to occur of either first commercial sale of a Synthetic Product in a country or the granting of the regulatory approval of that Synthetic Product (both as applicable, the "Approval Milestone Event"), to pay to Intrexon either (i) three million dollars ($3M) in cash, or (ii) that number of shares of Common Stock (the "Approval Milestone Shares") having a fair market value equaling three million dollars ($3M) where such fair market value is determined using published market data of the share price for Common Stock at the close of market on the business day immediately preceding the date of public announcement of attainment of the Approval Milestone Event.

The Company has also agreed that it will pay an optional and varying fee whereby the Company remits a payment, in cash or equity at the Company's sole discretion, to Intrexon calculated as a multiple of the number of targets in excess of three (3) total that the Company desires to elect (the "Field Expansion Fee"). The Field Expansion Fee must be paid completely in either Common Stock or cash, and will comprise either (i) two million dollars ($2M) in cash for each target in excess of three (3) total that the Company will elect, or (ii) that number of shares of Common Stock (the "Field Expansion Fee Shares") having a fair market value equaling two million dollars ($2M) for each such target that Company will elect in excess of three where such fair market value is determined using published market data establishing the volume-weighted average price for a share of Common Stock over the thirty (30) day period immediately preceding the date of the Field Expansion Fee Closing.

In connection with the transactions contemplated by the Stock Issuance Agreement, and pursuant to the First Amendment to Registration Rights Agreement executed and delivered by the parties at the closing, the Company agreed to file a "resale" registration statement (the "Registration Statement") registering the resale of the shares issued and to be issued under the Stock Issuance Agreement. None of the shares to be issued under the Stock Issuance Agreement need to be registered until April 30, 2013. Under that agreement, the Company will be obligated to use its reasonable best efforts to cause the "resale" registration statement to be declared effective as promptly as practicable after filing and to maintain the effectiveness of the registration statement until all securities therein are sold or are otherwise can be sold pursuant to Rule 144, without any restrictions.

The foregoing description of each of the Channel Agreement, the Stock Issuance Agreement and the First Amendment to Registration Rights Agreement is qualified in its entirety by reference to such agreements, which are filed as Exhibits 10.1, 10.2 and 10.3 to this Current Report, respectively, and are incorporated herein by reference. The benefits of the representations and warranties set forth in the Channel Agreement, the Stock Issuance Agreement and the First Amendment to Registration Rights Agreement are intended to be relied upon by the parties to such

agreements only and, except as otherwise expressly provided therein, do not constitute continuing representations and warranties to any other party or for any other purpose. The press release dated August 8, 2012 announcing the transactions described above is filed as Exhibit 99.1 to this Current Report on Form 8-K and incorporated herein by reference.

Item 3.02 Unregistered Sales of Equity Securities.

The disclosure in Item 1.01 is incorporated herein by reference thereto. The offer and issuance of the Technology Access Shares, IND Milestone Shares, Approval Milestone Shares and Field Expansion Fee Shares will not be registered under the Securities Act of 1933 at the time of issuance, and therefore may not be offered or sold in the United States absent registration or an applicable exemption from registration requirements. For these issuances, the Company intends to rely on the exemption from federal registration under Section 4(2) of the Securities Act, based on the Company's belief that the offer and sale of the Technology Access Shares, IND Milestone Shares, Approval Milestone Shares and Field Expansion Fee Shares has not and will not involve a public offering as Intrexon is an "accredited investor" as defined under Section 501 promulgated under the Securities Act and no general solicitation has been involved in the offering.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits

Exhibit No.	Description
10.1	Exclusive Channel Collaboration Agreement by and between Synthetic Biologics, Inc. and Intrexon Corporation dated as of August 6, 2012 **
10.2	Stock Issuance Agreement by and between Synthetic Biologics, Inc. and Intrexon Corporation dated as of August 6, 2012
10.3	First Amendment to Registration Rights Agreement by and between Synthetic Biologics, Inc. and Intrexon Corporation dated as of August 6, 2012
99.1	Press Release dated August 8, 2012

** Confidential treatment has been requested as to certain portions of this exhibit pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Dated: August 9, 2012

SYNTHETIC BIOLOGICS, INC.
(Registrant)

By: /s/ Jeffrey Riley
Name: Jeffrey Riley
Title: President and Chief Executive Officer

INDEX OF EXHIBITS

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Exclusive Channel Collaboration Agreement

This Exclusive Channel Collaboration Agreement (the "**Agreement**") is made and entered into effective as of August 6, 2012 (the "**Effective Date**") by and between **Intrexon Corporation**, a Virginia corporation with offices at 20358 Seneca Meadows Parkway, Germantown, MD 20876 ("**Intrexon**"), and **Synthetic Biologics, Inc.,** a Nevada corporation having its principal place of business at 617 Detroit Street, Suite 100, Ann Arbor, MI 48104 ("**Synthetic**"). Intrexon and Synthetic may be referred to herein individually as a "**Party**", and collectively as the "**Parties**."

Recitals

Whereas, Intrexon has expertise in and owns or controls proprietary technology relating to the identification, design and production of human antibodies and DNA vectors; and

Whereas, Synthetic now desires to become Intrexon's exclusive channel collaborator with respect to such technology for the purpose of developing the Anti-Infectives Program (as defined herein), and Intrexon is willing to appoint Synthetic as a channel collaborator in the Field (as defined herein, and subject to amendments to the definition as permitted herein) under the terms and conditions of this Agreement.

Now Therefore, in consideration of the foregoing and the covenants and promises contained herein, the Parties agree as follows:

ARTICLE 1

Definitions

As used in this Agreement, the following capitalized terms shall have the following meanings:

1.1 "**Affiliate**" means, with respect to a particular Party, any other person or entity that directly or indirectly controls, is controlled by, or is in common control with such Party. As used in this Section 1.1, the term "controls" (with correlative meanings for the terms "controlled by" and "under common control with") means the ownership, directly or indirectly, of more than fifty percent (50%) of the voting securities or other ownership interest of an entity, or the possession, directly or indirectly, of the power to direct the management or policies of an entity, whether through the ownership of voting securities, by contract, or otherwise. Notwithstanding the foregoing, any person, corporation, partnership, or other entity that would be an Affiliate of a Party solely because it and such Party are under common control by Third Security or Randal J. Kirk shall not be deemed to be an Affiliate of such Party solely by reason of such common control, with the caveat that, notwithstanding the foregoing, any entity other than Synthetic affiliated with Third Security or Randal J. Kirk shall be deemed to be an Affiliate of Intrexon solely for purposes of Article 9.

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1.2 "**Applicable Laws**" has the meaning set forth in Section 8.2(d)(xii).

1.3 **"Anti-Infectives Program**" has the meaning set forth in Section 2.1(a).

1.4 "**Authorizations**" has the meaning set forth in Section 8.2(d)(xii).

1.5 "**CC**" has the meaning set forth in Section 2.2(b).

1.6 "**Channel-Related Program IP**" has the meaning set forth in Section 6.1(c).

1.7 "**Claims**" has the meaning set forth in Section 9.1.

1.8 "**CMCC**" has the meaning set forth in Section 2.2(b).

1.9 "**Committees**" has the meaning set forth in Section 2.2(a).

1.10 "**Commercialize**" or "**Commercialization**" means any activities directed to marketing, promoting, distributing, importing for sale, offering to sell and/or selling Synthetic Products.

1.11 "**Commercial Sale**" means for a given product and country the sale for value of that product by a Party (or, as the case may be, by an Affiliate or permitted sublicensee of a Party), to a Third Party after regulatory approval (and any pricing or reimbursement approvals, if necessary) has been obtained for such product in such country.

1.12 **"Complementary In-Licensed Third Party IP**" has the meaning set forth in Section 3.9(a).

1.13 "**Confidential Information**" means each Party's confidential Information, inventions, non-public know-how or non-public data disclosed pursuant to this Agreement or any other confidentiality agreement between the Parties and shall include, without limitation, manufacturing, technical, marketing, financial, personnel and other business information and plans, whether in oral, written, graphic or electronic form.

1.14 "**Control**" means, with respect to Information, a Patent or other intellectual property right, that a Party owns or has a license from a Third Party to such right and has the ability to grant a license or sublicense as provided for in this Agreement under such right without violating the terms of any agreement or other arrangement with any Third Party.

1.15 "**CRC**" has the meaning set forth in Section 2.2(b).

1.16 "**Diligent Efforts**" means, with respect to a Party's obligation under this Agreement, the level of efforts and resources reasonably required to diligently develop, manufacture, and/or Commercialize (as applicable) each Synthetic Product in a sustained manner, consistent with the efforts and resources a similarly situated company working in the Field would typically devote to a product of similar market potential, profit potential, strategic value and/or proprietary protection, based on market conditions then prevailing. With respect to a particular task or obligation, Diligent Efforts requires that the applicable Party promptly assign responsibility for such task and consistently make and implement decisions and allocate resources designed to advance progress with respect to such task or obligation.

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1.17 "**Equity Agreements**" has the meaning set forth in Section 5.1.

1.18 "**Excess Product Liability Costs**" has the meaning set forth in Section 9.3.

1.19 "**Executive Officer**" means : (i) the Chief Executive Officer of the applicable Party, or (ii) another senior executive officer of such Party who has been duly appointed by the Chief Executive Officer to act as the representative of the Party to resolve, as the case may be, (a) a Committee dispute, provided that such appointed officer is not a member of the applicable Committee and occupies a position senior to the positions occupied by the applicable Party's members of the applicable Committee, or (b) a dispute described in Section 11.1.

1.20 "**FDA**" has the meaning set forth in Section 8.2(d)(xiii).

1.21 "**Field Infringement**" has the meaning set forth in Section 6.3(b)

1.22 "**Field**" means the exogenous production and use of human recombinant monoclonal antibodies, and mixes thereof, for the treatment of the following eight (8) target toxins and/or diseases in humans (irespective of whether such requires regulatory approval) : [*****]. The Field as defined in the previous sentence is subject to amendment according to the mechanisms described in Sections 2.1(b), 2.1(c) and 2.1(d) of this Agreement. Unless context or usage for a particular reference herein to Field dictates otherwise, each particular reference to Field in this Agreement should be interpreted as meaning the definition of the Field that is in effect at the particular point in time that is relevant to that particular reference.

1.23 "**Fully Loaded Cost**" means the direct cost of the applicable good, product or service plus indirect charges and overheads reasonably allocable to the provision of such good, product or service in accordance with US GAAP. Subject to the approval of a project and its associated budget by the JSC and the terms of Sections 4.6 and 4.7 (as

appropriate), Intrexon will bill for its internal direct costs incurred through the use of annualized standard full-time equivalents; such rate shall be based upon the actual fully loaded costs of those personnel directly involved in the provision of such good, product or service. Intrexon may, from time to time, adjust such full-time equivalent rate based on changes to its actual fully loaded costs and will review the accuracy of its full-time equivalent rate at least quarterly. Intrexon shall provide Synthetic with reasonable documentation indicating the basis for any direct and indirect charges, any allocable overhead, and any such adjustment in full-time equivalent rate.

1.24 "**In-Licensed Program IP**" has the meaning set forth in Section 3.9(a).

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1.25 "**Information**" means information, results and data of any type whatsoever, in any tangible or intangible form whatsoever, including without limitation, databases, inventions, practices, methods, techniques, specifications, formulations, formulae, knowledge, know-how, skill, experience, test data including pharmacological, biological, chemical, biochemical, toxicological and clinical test data, analytical and quality control data, stability data, studies and procedures, and patent and other legal information or descriptions.

1.26 "**Infringement**" has the meaning set forth in Section 6.3(a).

1.27 "**Intrexon Channel Technology**" means Intrexon's current and future technology directed towards the design, identification, and/or production of recombinant monoclonal antibodies, including without limitation the technology embodied in the Intrexon Materials and the Intrexon IP, and specifically including without limitation the following of Intrexon's platform areas and capabilities: (1) UltraVector®, (2) mAbLogix™ (3) DNA and RNA MOD engineering, (4) protein engineering, (5) transcription control chemistry, (6) genome engineering, (7) LEAP™, and (8) cell system engineering.

1.28 "**Intrexon Indemnitees**" has the meaning set forth in Section 9.2.

1.29 "**Intrexon IP**" means the Intrexon Patents and Intrexon Know-How.

1.30 "**Intrexon Know-How**" means all Information (other than Intrexon Patents) that (a) is Controlled by Intrexon as of the Effective Date or during the Term and (b) is reasonably required or useful for Synthetic to conduct the Anti-Infectives Program. For the avoidance of doubt, the Intrexon Know-How shall include any Information (other than Intrexon Patents) in the Channel-Related Program IP.

1.31 "**Intrexon Materials**" means the genetic code and associated amino acids and gene constructs used alone or in combination and such other proprietary reagents including but not limited to plasmid vectors, virus stocks, cells and cell lines, antibodies, and ligand-related chemistry, in each case that are reasonably required or provided to Synthetic to conduct the Anti-Infectives Program.

1.32 "**Intrexon Patents**" means all Patents that (a) are Controlled by Intrexon as of the Effective Date or during the Term; and (b) are reasonably required or useful for Synthetic to conduct the Anti-Infectives Program. For the avoidance of doubt, the Intrexon Patents shall include any Patent in the Channel-Related Program IP.

1.33 "**Intrexon Trademarks**" means those trademarks related to the Intrexon Channel Technology that are established from time to time by Intrexon for use across its channel partnerships or collaborations.

1.34 "**Inventions**" has the meaning set forth in Section 6.1(b).

1.35 "**IPC**" has the meaning set forth in Section 2.2(b).

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1.36 "**JSC**" has the meaning set forth in Section 2.2(b).

1.37 "**Losses**" has the meaning set forth in Section 9.1.

1.38 "**Net Sales**" means, with respect to any Synthetic Product, the net sales of such Synthetic Product by Synthetic or an Affiliate of Synthetic (including without limitation net sales of Synthetic Product to a non-Affiliate sublicensee but not including net sales by such non-Affiliate sublicensee), as determined in accordance with US GAAP as the gross amount invoiced on account of sales of Synthetic Product less the usual and customary discounts as determined in accordance with US GAAP. In the case of any sale for value, such as barter or counter-trade other than in an arm's length transaction exclusively for cash, Net Sales shall be deemed to be the net sales at which substantially similar quantities of the product are sold for cash in an arm's length transaction in the relevant country. If Synthetic Product is sold to any third party together with other products or services, the price of such product, solely for purposes of the calculation of Net Sales, shall be deemed to be no less than the price at which such product would be sold in a similar transaction to a third party not also purchasing the other products or services.

1.39 "**Patents**" means (a) all patents and patent applications (including provisional applications), (b) any substitutions, divisions, continuations, continuations-in-part, reissues, renewals, registrations, requests for continued examination, confirmations, re-examinations, extensions, supplementary protection certificates and the like of the foregoing, and (c) any foreign or international equivalents of any of the foregoing.

1.40 "**Primary Program Targets**" has the meaning as set forth in Section 2.1(b).

1.41 "**Product-Specific Program Patent**" means any issued Intrexon Patent where all the claims are directed to Inventions that relate solely and specifically to Synthetic Products. In the event of a disagreement between the Parties as to whether a particular Intrexon Patent is or is not a Product-Specific Program Patent, the Parties shall seek to resolve the issue through discussions at the IPC, provided that if the Parties are unable to resolve the disagreement, the issue shall be submitted to arbitration pursuant to Section 11.2. Any Intrexon Patent that is subject to such a

dispute shall be deemed not to be a Product-Specific Program Patent unless and until (a) Intrexon agrees in writing that such Patent is a Product-Specific Program Patent or (b) an arbitrator or arbitration panel determines, pursuant to Article 11, that such Intrexon Patent is a Product-Specific Program Patent.

1.42 "**Proposed Terms**" has the meaning set forth in Section 11.2.

1.43 "**Prosecuting Party**" has the meaning set forth in Section 6.2(c).

1.44 "**Recovery**" has the meaning set forth in Section 6.3(f).

1.45 "**Retained Product**" has the meaning set forth in Section 10.4(a).

1.46 "**Reverted Product**" has the meaning set forth in Section 10.4(c).

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1.47 "**SEC**" means the United States Securities and Exchange Commission.

1.48 "**Sublicensing Revenue**" means any cash consideration, or the cash equivalent value of non-cash consideration, regardless of whether in the form of upfront payments, milestones, or royalties, actually received by Synthetic or its Affiliate from a Third Party in consideration for a grant of a sublicense under the Intrexon IP or any rights to develop or commercialize Synthetic Products, but excluding: (a) any amounts paid as bona fide reimbursement for research and development costs to the extent incurred following such grant; (b) bona fide loans or any payments in consideration for a grant of equity of Synthetic to the extent that such consideration is equal to or less than fair market value (i.e. any amounts in excess of fair market value shall be Sublicensing Revenue); and (d) amounts received from sublicensees in respect of any Synthetic Product sales that are included in Net Sales.

1.49 "**Superior Therapy**" means a therapy in the Field that, based on the data then available, (a) demonstrably appears to offer either superior efficacy or safety or significantly lower cost of therapy, as compared with both (i) those therapies that are marketed (either by Synthetic or others) at such time for the indication and (ii) those therapies that are being actively developed by Synthetic for such indication; (b) demonstrably appears to represent a substantial improvement over such existing therapies; and (c) has intellectual property protection and a regulatory approval pathway that, in each case, would not present a significant barrier to commercial development.

1.50 "**Supplemental In-Licensed Third Party IP**" has the meaning set forth in Section 3.8(a).

1.51 "**Support Memorandum**" has the meaning set forth in Section 11.2.

1.52 "**Synthetic Indemnitees**" has the meaning set forth in Section 9.1.

1.53 "**Synthetic Product**" means any product in the Field that is created, produced, developed, or identified in whole or in part, directly or indirectly, by or on behalf of Synthetic during the Term through use or practice of Intrexon Channel Technology, Intrexon IP, or the Intrexon Materials.

1.54 "**Synthetic Program Patent**" has the meaning set forth in Section 6.2(b).

1.55 "**Synthetic Termination IP**" means all Patents or other intellectual property that Synthetic or any of its Affiliates Controls as of the Effective Date or during the Term that cover, or is otherwise necessary or useful for, the development, manufacture or commercialization of a Reverted Product or necessary or useful for Intrexon to operate in the Field.

1.56 "**Term**" has the meaning set forth in Section 10.1.

1.57 "**Territory**" means the entire world.

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1.58 **"Third Party**" means any individual or entity other than the Parties or their respective Affiliates.

1.59 "**Third Security**" means Third Security, LLC.

1.60 "**US GAAP**" means generally accepted accounting principles in the United States.

ARTICLE 2

Scope of Channel Collaboration; Management

2.1 **Scope.**

(a) **Generally**. The general purpose of the channel collaboration described in this Agreement will be to use the Intrexon Channel Technology to research, develop and commercialize products for use in the Field (collectively, the "**Anti-Infectives Program**"). As provided below, the JSC shall establish, monitor, and govern projects for the Anti-Infectives Program. Either Party may propose potential projects in the Field for review and consideration by the JSC.

(b) **Initial Project for Immediate Commencement**. The Parties as of the Effective Date have identified three specific targets in the Field as being desirable projects for immediate development under the Anti-Infectives Program (the "**Primary Program Targets**"), and the JSC will be directed upon its creation to produce, and thereafter initiate performance of, an initial research project for the production of Synthetic Products for each of the Primary Program Targets. The Primary Program Targets are : [*****]. Synthetic will review data derived from these research projects for the Primary Program Targets via the JSC and will use such to consider the scientific and commercial viability of the Primary Program Targets. The JSC, consistent with its authority herein and subject to Synthetic's

agreement to reimburse Intrexon for expenses relating thereto in accord with Section 4.7 below, may also authorize additional research projects for any of the five (5) other targets in the Field that are not Primary Program Targets. Such additional research projects may be authorized by the JSC prior to Synthetic making its election in accord with Section 2.1(c) below. Further, at any time prior to the two-year anniversary of the Effective Date and prior to the election by Synthetic under Section 2.1(c), Synthetic at its sole discretion may suspend the initial research project for one or more of the Primary Program Targets, and swap for such, on a one-for-one basis, any of the five (5) other targets in the Field that are not Primary Program Targets. In the event that Synthetic swaps out a Primary Program Target as set forth in the previous sentence, or in the event that Synthetic otherwise suspends or terminates the initial research project for a Primary Program Target prior to making its election under Section 2.1(c), the definition of Field under Section 1.21 above will be automatically amended such that the suspended, terminated, or swapped-out Primary Program Target will be removed automatically, immediately and irrevocably from the Field, and thereby all obligations and rights

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of the Parties as set forth herein which are defined at least in part by or in conjunction with the Field will likewise be immediately amended as such from that time forward. In the event that Synthetic swaps out a Primary Program Target as set forth in the previous sentence, the Primary Program Targets will be automatically amended such that any swapped-out Primary Program Target is removed and replaced with the other target in the Field chosen to be swapped-in by Synthetic, and thereby all obligations and rights of the Parties as set forth herein which are defined at least in part by or in conjunction with the Primary Program Targets will likewise be immediately amended as such from that time forward. Any Synthetic Products corresponding to these suspended, terminated, or swapped-out Primary Program Targets will be treated as Reverted Products in accord with Section 10.4.

(c) Field Election. On or before the two-year anniversary of the Effective Date, Synthetic must notify Intrexon in writing of Synthetic's final and binding election, which election identifies up to three (3) target toxins or diseases in the Field (as the Field is defined at the point in time of the notification, taking into account any amendments to its definition caused by operation of Section 2.1(b)). Such election must reference this Section 2.1(c), will be effective immediately upon receipt by Intrexon, and will cause the definition of Field under this agreement to be amended immediately and permanently such that the Field from that time forward shall include only those three (3) elected toxins or diseases (and not any of the toxins or diseases not elected). All rights and obligations of the Parties under this Agreement within and without the Field will be permanently altered accordingly from the date of receipt of that election forward for the remaining Term. For any of the target toxins or diseases in the Field that are not elected by Synthetic under this Section 2.1(c), Synthetic (i) shall immediately cease, and shall cause its Affiliates and, if applicable, (sub)licensees to immediately cease, all development and Commercialization of Synthetic Products pertaining thereto; (ii), shall not use or practice, nor shall it cause or permit any of its Affiliates or, if applicable, (sub)licensees to use or practice, directly or indirectly, any Intrexon IP with respect to such; and (iii) shall return to Intrexon, or destroy all copies thereto at Intrexon's option, all data and materials relating to such not-elected indications. Any Synthetic Products corresponding to these not-elected indications will be treated as Reverted Products in accord with Section 10.4.

(d) Effect of No Election. In the event that Synthetic does not communicate an election to Intrexon under Section 2.1(c) on or before the two-year anniversary of the Effective Date, the definition of Field will be amended automatically, immediately and permanently such that on the day after the two-year anniversary of the Effective Date the Field shall include only the Primary Program Targets and not any of the other target toxins or diseases that are not Primary Program Targets. All rights and obligations of the Parties under this Agreement which are defined at least in part by or in conjunction with the Field will thereby be permanently altered accordingly for the remaining Term from that time forward.

(e) Option to Expand Field Election. Synthetic, at its sole option, may expand its election rights under Section 2.1(c) to enable it to elect up to five (5) additional indications from the list of items (a) through (h) in Section 1.21 if : (i) prior to or concurrent with making an election under Section 2.1(c) Synthetic notifies Intrexon in writing of its intent to expand its election rights in accord with this Section 2.1(e), and (ii) Synthetic remits a payment, in cash or equity at Synthetic's sole discretion, to Intrexon

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of two million dollars ($2M) for each target in excess of three (3) that it desires to elect under Section 2.1(c). Any payment under this section made by Synthetic in equity must be made in compliance with the terms of the Equity Agreements. Any expansion of Synthetic's election rights under Section 2.1(c) hereunder shall not be effective until the appropriate payment required under this Section 2.1(e) is received by Intrexon, and cannot be used to enable Synthetic to elect any targets that were already permanently removed from the Field under Section 2.1(b). Upon successful execution of the option to expand under this Section 2.1(e), all rights and obligations of the Parties under this Agreement within and without the Field will be permanently altered accordingly from the date of receipt of that option forward for the remaining Term.

2.2 Committees.

(a) Generally. The Parties desire to establish several committees (collectively, "**Committees**") to oversee the Anti-Infectives Program and to facilitate communications between the Parties with respect thereto. Each of such Committees shall have the responsibilities and authority allocated to it in this Article 2. Each of the Committees shall have the obligation to exercise its authority consistent with the respective purpose for such Committee as stated herein and any such decisions shall be made in good faith.

(b) Formation and Purpose. Promptly following the Effective Date, the Parties shall confer and then create the Committees listed in the chart below, each of which shall have the purpose indicated in the chart. To the extent that after conferring both Parties agree that a given Committee need not be created until a later date, the Parties may agree to defer the creation of the Committee until one Party informs the other Party of its then desire to create the so-deferred Committee, at which point the Parties will thereafter promptly create the so-deferred Committee and schedule a meeting of such Committee within one (1) month.

Committee	Purpose
Joint Steering Committee ("**JSC**")	Establish projects for the Anti-Infectives Program and establish the priorities, as well as approve budgets for such projects. Approve all subcommittee projects and plans. The JSC shall establish budgets not less than on a quarterly basis.

Chemistry, Manufacturing and Controls Committee ("**CMCC**")	Establish project plans and review and approve activities and budgets for chemistry, manufacturing, and controls under the Anti-Infectives Program.

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Committee	Purpose
Clinical/Regulatory Committee ("**CRC**")	Review and approve all research and development plans, clinical projects and publications, and regulatory filings and correspondence under the Anti-Infectives Program; review and approve itemized budgets with respect to the foregoing.
Commercialization Committee ("**CC**")	Establish project plans and review and approve activities and budgets for commercialization activities under the Anti-Infectives Program.
Intellectual Property Committee ("**IPC**")	Evaluate intellectual property issues in connection with the Anti-Infectives Program; review and approve itemized budgets with respect to the foregoing.

2.3 General Committee Membership and Procedure.

(a) Membership. For each Committee, each Party shall designate an equal number of representatives (not to exceed four (4) for each Party) with appropriate expertise to serve as members of such Committee. For the JSC the representatives must all be employees of such Party or an Affiliate of such Party, and for Committees other than the JSC the representatives must all be employees of such Party or an Affiliate of such Party with the caveat that each Party may designate for each such other Committee up to one (1) representative who is not an employee if : (i) such non-employee representative agrees in writing to be bound to the terms of this Agreement for the treatment and ownership of Confidential Information and Inventions of the Parties, and (ii) the other Party consents to the designation of such non-employee representative, which consent shall not be unreasonably withheld. Each representative as qualified above may serve on more than one Committee as appropriate in view of the individual's expertise. Each Party may replace its Committee representatives at any time upon written notice to the other Party. Each Committee shall have a chairperson; the chairperson of each committee shall serve for a two-year term and the right to designate which representative to the Committee will act as chairperson shall alternate between the Parties, with Synthetic selecting the chairperson first for the JSC, CRC and CC, and Intrexon selecting the chairperson first for the CMCC and IPC. The chairperson of each Committee shall be responsible for calling meetings, preparing and circulating an agenda in advance of each meeting of such Committee, and preparing and issuing minutes of each meeting within fifteen (15) days thereafter.

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(b) **Meetings**. Each Committee shall hold meetings at such times as it elects to do so, but in no event shall such meetings be held less frequently than once every six (6) months, with the caveat that both Parties may agree to suspend activities of a given Committee other than the JSC until such time as one Party informs the other Party of its then desire to reactivate the so-suspended Committee, at which point the Parties will thereafter schedule and hold the next meeting for the reactivated Committee within one (1) month. Meetings of any Committee may be held in person or by means of telecommunication (telephone, video, or web conferences). To the extent that a Committee holds any meetings in person, the Parties will alternate in designating the location for such in-person meetings, with Synthetic selecting the first meeting location for each Committee. A reasonable number of additional representatives of a Party may attend meetings of a Committee in a non-voting capacity. Each Party shall be responsible for all of its own expenses of participating in any Committee excepting that an Intrexon employee or agent serving on a Committee shall not prevent Intrexon from recouping the Fully Loaded Costs otherwise derived from the labor of that employee or agent in the course of providing manufacturing or support services as set forth in Sections 4.6 and 4.7 below.

(c) **Meeting Agendas**. Each Party will disclose to the other proposed agenda items along with appropriate information at least three (3) business days in advance of each meeting of the applicable Committee; provided, that a Party may provide its agenda items to the other Party within a lesser period of time in advance of the meeting, or may propose that there not be a specific agenda for a particular meeting, so long as such other Party consents to such later addition of such agenda items or the absence of a specific agenda for such Committee meeting..