

Synthetic Biologics, Inc.
Form DEF 14A
September 11, 2012

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

**SCHEDULE 14A
(RULE 14a-101)
INFORMATION REQUIRED IN PROXY STATEMENT**

SCHEDULE 14A INFORMATION

**Proxy Statement Pursuant to Section 14(a)
of the Securities Exchange Act of 1934**

Filed by the Registrant x
Filed by a Party other than the Registrant o
Check the appropriate box:

o Preliminary Proxy Statement
 o **Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))**
 x Definitive Proxy Statement
 o Definitive Additional Materials
 o Soliciting Material under §240.14a-12

SYNTHETIC BIOLOGICS, INC.

(Name of Registrant as Specified In Its Charter)

(Name of Person(s) Filing Proxy Statement, if other than the Registrant)

Payment of Filing Fee (Check the appropriate box):

x No fee required.
 o Fee computed on table below per Exchange Act Rules 14a-6(i)(1) and 0-11.
(1) Title of each class of securities to which transaction applies:

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(4) Proposed maximum aggregate value of transaction:

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(1) Amount Previously Paid:

(2) Form, Schedule or Registration Statement No.:

(3) Filing Party:

(4) Date Filed:

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**617 DETROIT STREET, SUITE 100
ANN ARBOR, MICHIGAN 48104
(734) 332-7800**

NOTICE OF ANNUAL MEETING OF STOCKHOLDERS

To the Stockholders of Synthetic Biologics, Inc.:

We hereby notify you that the 2012 annual meeting of stockholders of Synthetic Biologics, Inc., a Nevada corporation, will be held on October 5, 2012 at 9:00 a.m. (Eastern time), at the New York City office of Gracin & Marlow, LLP, Chrysler Building, 405 Lexington Avenue, 26th Floor, New York, New York, 10174, for the following purposes:

- (1) to elect five directors to our Board of Directors to hold office until our next annual meeting of stockholders and until their successors are elected;
- (2) to ratify the appointment of BDO USA, LLP as our independent registered public accounting firm for our fiscal year ending on December 31, 2012;
- (3) to approve the issuance of common stock in connection with the Intrexon Corporation Exclusive Channel Collaboration; and,
- (4) to transact such other business as may properly come before the meeting or any adjournments or postponements of the meeting.

The matters listed in this notice of meeting are described in detail in the accompanying proxy statement. Our Board of Directors has fixed the close of business on August 6, 2012 as the record date for determining those stockholders who are entitled to notice of and to vote at the meeting or any adjournment or postponement of our 2012 annual meeting.

The list of the stockholders of record as of the close of business on August 6, 2012 will be made available for inspection at the meeting.

**IMPORTANT NOTICE REGARDING THE AVAILABILITY
OF PROXY MATERIALS:**

THE NOTICE OF ANNUAL MEETING OF STOCKHOLDERS, THE PROXY STATEMENT AND THE COMPANY S ANNUAL REPORT ON FORM 10-K/A FOR THE YEAR ENDED DECEMBER 31, 2011 ARE AVAILABLE ELECTRONICALLY TO THE COMPANY S STOCKHOLDERS OF RECORD AS OF THE CLOSE OF BUSINESS ON AUGUST 6, 2012 AT *www.syntheticbiologics.com*.

Along with the attached proxy statement, we are sending to you our Annual Report on Form 10-K/A for our fiscal year ended December 31, 2011. Such annual report, which includes our audited financial statements, is not to be regarded as proxy solicitation material.

YOUR VOTE IS IMPORTANT

Even if you plan to attend the meeting, please sign, date, and return the enclosed proxy card in the envelope provided so that your vote will be counted if you later decide not to attend the meeting. No postage is required if the proxy card is mailed in the United States.

By order of the Board of Directors,

/s/ Jeffrey Riley
Chief Executive Officer
Ann Arbor, Michigan
September 11, 2012

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**SYNTHETIC BIOLOGICS, INC.
617 DETROIT STREET, SUITE 100
ANN ARBOR, MICHIGAN 48104
(734) 332-7800**

PROXY STATEMENT

This proxy statement is being furnished to holders of shares of common stock, \$0.001 par value per share, of Synthetic Biologics, Inc., a Nevada corporation (we, us, or the Company), in connection with the solicitation of proxies on behalf of our Board of Directors for use at the Company s 2012 annual meeting of stockholders to be held on October 5, 2012 at 9:00 a.m. (Eastern time), at the New York City office of Gracin & Marlow, LLP, Chrysler Building, 405 Lexington Avenue, 26th Floor, New York, New York, 10174, and at any adjournment or postponement of our annual meeting. The purpose of the annual meeting and the matters to be acted on are stated in the accompanying notice of annual meeting of stockholders. The Board of Directors knows of no other business that will come before the annual meeting.

The notice of our 2012 annual meeting, this proxy statement, and a proxy card, together with our Annual Report on Form 10-K/A for our fiscal year ended December 31, 2011, are being mailed to our stockholders on or about September 11, 2012. (Such annual report, which includes our audited financial statements, is not to be regarded as proxy solicitation material.) The Company will bear the cost of its solicitation of proxies. The original solicitation of proxies by mail may be supplemented by personal interview, telephone, or facsimile by our directors, officers, or employees, who will receive no additional compensation for such services. Arrangements will be made with brokerage houses and other custodians, nominees, and fiduciaries for the forwarding of solicitation material to the beneficial owners of stock held by any such persons, and we will reimburse those custodians, nominees, and fiduciaries for the reasonable out-of-pocket expenses incurred by them in doing so.

Our Board of Directors is soliciting votes FOR each of the nominees for election to our Board of Directors, FOR the ratification of the appointment of BDO USA, LLP as our independent registered public accounting firm for our fiscal year ending on December 31, 2012, and FOR the approval of the issuance of common stock in connection with the Intrexon Corporation Exclusive Channel Collaboration.

INFORMATION ABOUT VOTING

Q: Why am I receiving these materials?

The Board of Directors is providing these proxy materials for you in connection with our 2012 annual meeting of A: stockholders, which is scheduled to take place on October 5, 2012. As a stockholder of record as of August 6, 2012, you are invited to attend the annual meeting and to vote on the items of business described in this proxy statement.

Q: What information is contained in these materials?

A: The information included in this proxy statement relates to the proposals to be voted on at the annual meeting, the voting process, the compensation of our directors and executive officers, and other required information.

Q: What items of business will be voted on at the annual meeting?

A: The three items of business scheduled to be voted on at the annual meeting are: (1) the election of our directors, (2) the ratification of our independent auditors and (3) the approval of the issuance of common stock in connection with the Intrexon Corporation Exclusive Channel Collaboration. We will also consider any other business that properly comes before the annual meeting.

Q: *How does the Board of Directors recommend that I vote?*

The Board of Directors recommends that you vote your shares FOR each of the nominees to our board, FOR ratification of the independent auditors, and FOR the approval of the issuance of common stock in connection with the Intrexon Corporation Exclusive Channel Collaboration.

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Q: *What shares can I vote?*

You may vote or cause to be voted all shares owned by you as of the close of business on August 6, 2012, the record date. These shares include: (1) shares held directly in your name as a stockholder of record; and (2) shares held for you, as the beneficial owner, through a broker or other nominee, such as a bank.

Q: *What is the difference between holding shares as a stockholder of record and as a beneficial owner?*

Most of our stockholders hold their shares through a broker or other nominee rather than directly in their own name. As summarized below, there are some distinctions between shares held of record and those owned beneficially.

If your shares are registered directly in your name with our transfer agent, Corporate Stock Transfer, Inc., you are considered, with respect to those shares, the stockholder of record and these proxy materials are being sent directly to you by the Company. As the stockholder of record, you have the right to grant your voting proxy directly to the Board of Directors or to vote in person at the meeting. The Board of Directors has enclosed a proxy card for you to use to grant a voting proxy to the Board of Directors.

If your shares are held in a brokerage account or by another nominee, you are considered the beneficial owner of shares held in street name, and these proxy materials are being forwarded to you by your broker or nominee together with a voting instruction card. As the beneficial owner, you have the right to direct your broker or nominee how to vote and are also invited to attend the annual meeting. Since you are not the stockholder of record, however, you may not vote these shares in person at the meeting unless you obtain from the broker or nominee that holds your shares a valid proxy from them giving you the right to vote the shares. Your broker or nominee should have enclosed or provided voting instructions for you to use in directing the broker or nominee how to vote your shares. If you hold your shares through a broker and you do not give instructions to the record holder on how to vote, the record holder will be entitled to vote your shares in its discretion on certain matters considered routine, such as the ratification of the appointment of independent auditors. Because of recent rule changes, the uncontested election of directors is no longer considered a routine matter. Therefore, brokers do not have the discretion to vote on the election of directors. If you hold your shares in street name and you do not instruct your broker how to vote in these matters, no votes will be cast on your behalf. These Broker non-votes will be treated as shares that are present and entitled to vote for purposes of determining the presence of a quorum, but not as shares entitled to vote on a particular proposal.

Q: *May I attend the annual meeting?*

You are entitled to attend the annual meeting only if you were a stockholder of the Company as of the close of business on August 6, 2012, or you hold a valid proxy for the annual meeting. You should be prepared to present photo identification for admittance. If you are not a record holder but hold shares beneficially through a broker or nominee (that is, in street name), you should provide proof of beneficial ownership on the record date, such as your most recent account statement prior to August 6, 2012, a copy of the voting instruction card provided by your broker or nominee, or other similar evidence of ownership. If you do not provide photo identification or comply with the other procedures outlined above upon request, you may not be admitted to the annual meeting. The annual meeting will begin promptly at 9:00 a.m. (Eastern time). Check-in will begin at 8:30 a.m., and you should allow ample time for the check-in procedures.

Q: *How can I vote my shares in person at the annual meeting?*

You may vote by ballot in person at the annual meeting any shares that you hold as the stockholder of record. You may only vote in person shares held in street name if you obtain from the broker or nominee that holds your shares a valid proxy giving you the right to vote the shares.

Q: *How can I vote my shares without attending the annual meeting?*

A: Whether you hold shares directly as the stockholder of record or beneficially in street name, you may, without attending the meeting, direct how your shares are to be voted. If you are a stockholder of record,
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you may cause your shares to be voted as you instruct by granting a proxy to our Board of Directors. If you hold shares in street name, you may cause your shares to be voted as you instruct by submitting voting instructions to your broker or nominee. Each record holder of our common stock may appoint a proxy by completing, signing, and dating a proxy card and mailing it in the accompanying pre-addressed envelope. Each stockholder who holds shares in street name may vote by mail by completing, signing, and dating a voting instruction card provided by the broker or nominee and following the other instructions of your broker or nominee.

Q: *Can I change my vote?*

You may change your vote at any time prior to the vote at the annual meeting. For shares held directly in your name, you may accomplish this by granting a new proxy bearing a later date (which automatically revokes the earlier proxy) or by attending the annual meeting and voting in person. Attendance at the meeting will not cause your previously granted proxy to be revoked unless you specifically so request. For shares you hold beneficially, A: you may change your vote by submitting new voting instructions to your broker or nominee or, if you have obtained a valid proxy from your broker or nominee giving you the right to vote your shares, by attending the meeting and voting in person. You may also change your vote by sending a written notice of revocation to the Company's Corporate Secretary, Synthetic Biologics, Inc., 617 Detroit Street, Suite 100, Ann Arbor, Michigan 48104.

Q: *Can I revoke my proxy?*

You may revoke your proxy before it is voted at the meeting. To revoke your proxy, notify our corporate secretary in writing, or deliver to our corporate secretary a duly executed proxy bearing a later date. You may also revoke A: your proxy by appearing at the meeting in person and voting your shares. Attendance at the meeting will not, by itself, revoke a proxy.

Q: *Who can help answer my questions?*

If you have any questions about the annual meeting or how to vote or revoke your proxy, or you need additional A: copies of this proxy statement or voting materials, you should contact Corporate Secretary, Synthetic Biologics, Inc., 617 Detroit Street, Suite 100, Ann Arbor, Michigan 48104, (734) 332-7800.

Q: *How are votes counted?*

In the election of directors, you may vote FOR all of the five nominees or you may direct your vote to be A: WITHHELD with respect to any one or more of the five nominees.

With respect to the other two proposals, you may vote FOR, AGAINST, or ABSTAIN. On these proposals, if you vote ABSTAIN, it has the same effect as a vote AGAINST.

If you provide specific instructions, your shares will be voted as you instruct. If you sign your proxy card or voting instruction card with no further instructions, your shares will be voted in accordance with the recommendations of the Board of Directors, namely FOR all of the Company's nominees, FOR ratification of the independent auditors, and FOR the approval of the issuance of common stock in connection with the Intrexon Corporation Exclusive Channel Collaboration. If any other matters properly arise at the meeting, your proxy, together with the other proxies received, will be voted at the discretion of the proxy holders.

Q: *What is a quorum and why is it necessary?*

A: Conducting business at the meeting requires a quorum. The presence, either in person or by proxy, of the holders of a majority of our shares of common stock outstanding on August 6, 2012 is necessary to constitute a quorum.

Abstentions are treated as present for purposes of determining whether a quorum exists. Broker non-votes (which result when your shares are held in street name and you do not tell the nominee how to vote your shares) are

relevant in determining whether a quorum is present at the meeting.

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Q: *What is the voting requirement to approve each of the proposals?*

In the election of directors, the five persons receiving the highest number of FOR votes at the annual meeting will be elected. Accordingly, withheld votes and broker non-votes have no effect on the election of any nominee. You do not have the right to cumulate your votes.

The other two proposals require the affirmative FOR vote of a majority of those shares present in person or represented by proxy and entitled to vote on that proposal at the annual meeting. Accordingly, abstentions on these proposals will have the same effect as a vote against the proposal. Broker non-votes will have no effect on these proposals.

Q: *What should I do if I receive more than one set of voting materials?*

You may receive more than one set of voting materials, including multiple copies of this proxy statement and multiple proxy cards or voting instruction cards. For example, if you hold your shares in more than one brokerage account, you will receive a separate voting instruction card for each brokerage account in which you hold shares. If you are a stockholder of record and your shares are registered in more than one name, you will receive more than one proxy card. Please complete, sign, date, and return each proxy card and voting instruction card that you receive.

Q: *Where can I find the voting results of the annual meeting?*

We intend to announce preliminary voting results at the annual meeting and publish final results in a Current Report on Form 8-K which will be filed within four days of the meeting.

Q: *What happens if additional matters are presented at the annual meeting?*

Other than the three items of business described in this proxy statement, we are not aware of any other business to be acted upon at the annual meeting. If you grant a proxy, the persons named as proxy holders, Mr. Jeffrey Riley, our Chief Executive Officer, and Mr. C. Evan Ballantyne, our Chief Financial Officer, will have the discretion to vote your shares on any additional matters properly presented for a vote at the meeting. If for any unforeseen reason any of our nominees is not available as a candidate for director, the persons named as proxy holders will vote your proxy for any one or more other candidates nominated by the Board of Directors.

Q: *How many shares are outstanding and how many votes is each share entitled?*

Each share of our common stock that is issued and outstanding as of the close of business on August 6, 2012, the record date, is entitled to be voted on all items being voted on at the annual meeting, with each share being entitled to one vote on each matter. On the record date, 33,477,020 shares of common stock were issued and 33,395,538 shares of common stock were outstanding.

Q: *Who will count the votes?*

A: One or more inspectors of election will tabulate the votes.

Q: *Is my vote confidential?*

Proxy instructions, ballots, and voting tabulations that identify individual stockholders are handled in a manner that protects your voting privacy. Your vote will not be disclosed, either within the Company or to anyone else, except: (1) as necessary to meet applicable legal requirements; (2) to allow for the tabulation of votes and certification of the vote; or (3) to facilitate a successful proxy solicitation.

Q: *Who will bear the cost of soliciting votes for the annual meeting?*

A: The Board of Directors is making this solicitation on behalf of the Company, which will pay the entire cost of preparing, assembling, printing, mailing, and distributing these proxy materials. Certain of our directors, officers,

and employees, without any additional compensation, may also solicit your vote in person, by telephone, or by electronic communication. On request, we will reimburse brokerage houses and other custodians, nominees, and fiduciaries for their reasonable out-of-pocket expenses for forwarding proxy and solicitation materials to stockholders

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Q: *May I propose actions for consideration at next year's annual meeting of stockholders?*

A: You may submit proposals for consideration at future stockholder meetings. In order for a stockholder proposal to be considered for inclusion in the proxy statement for our annual meeting next year, however, the written proposal must be received by us by May 14, 2013. Those proposals also will need to be received by us a reasonable time before we begin to print and send our proxy materials for that meeting and must comply with Securities and Exchange Commission regulations under Rule 14a-8 regarding the inclusion of stockholder proposals in company-sponsored proxy materials.

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PROPOSAL 1

ELECTION OF DIRECTORS

The Board of Directors, based on the recommendation of the nominations committee of the Board of Directors, has nominated for annual election as director each of the individuals identified below, all of whom are incumbent directors.

THE NOMINEES

| Name | Age | Position | Director Since |
|---|-----|---|----------------|
| Steve H. Kanzer, C.P.A., J.D. | 48 | Director | 2001 |
| Jeffrey J. Kraws ⁽²⁾⁽³⁾ | 48 | Chairman | 2006 |
| Jeffrey Riley | 49 | Chief Executive Officer, President and Director | 2010 |
| Scott L. Tarriff | 53 | Director | 2012 |
| Jeffrey Wolf, J.D. ⁽¹⁾⁽²⁾⁽³⁾ | 49 | Director | 2006 |

(1)

Member of the audit committee

(2)

Member of the compensation committee

(3)

Member of the nominations committee

THE BOARD OF DIRECTORS RECOMMENDS THAT YOU VOTE YOUR SHARES FOR THE ELECTION OF EACH OF THESE NOMINEES.

It is the intention of the persons named in the accompanying proxy card to vote all shares of common stock for which they have been granted a proxy for the election of each of the nominees, each to serve as a director until the next annual meeting of stockholders and until his successor shall have been duly elected and qualified. All the nominees have consented to being named in this proxy statement and to serve as a director if elected. At the time of the annual meeting, if any of the nominees named above is not available to serve as director (an event that the Board of Directors does not currently have any reason to anticipate), all proxies will be voted for any one or more other persons that the Board of Directors designates. The Board of Directors believes that it is in the best interests of the Company to elect the above-described nominees.

DIRECTOR INDEPENDENCE

No director or executive officer of the Company is related to any other director or executive officer. None of the Company's officers or directors hold any directorships in any other public company. A majority of our board members are independent in compliance with the applicable listing standards of the NYSE MKT stock exchange. The independent directors and nominees are Jeffrey J. Kraws, Scott L. Tarriff, and Jeffrey Wolf.

INFORMATION ABOUT THE NOMINEES

Stated below is the principal occupation of each nominee, the business experience of each nominee for at least the past five years, and certain other information relating to the nominees.

Steve H. Kanzer, C.P.A., J.D. Mr. Kanzer is a co-founder and served as our President from our inception in February of 2001 until May of 2006. Since January 2, 2012, Mr. Kanzer has served as our Interim Director of our Biologics Division. Mr. Kanzer previously served as our Chief Executive Officer from September of 2004 until November of 2008, Chairman of the Board until February 6, 2010 and currently serves as a director. Mr. Kanzer has also been a director and officer of our subsidiaries, including Solovax, Inc., Effective Pharmaceuticals, Inc., Putney Drug Corp., Epitope Pharmaceuticals, Inc. and CD4 Biosciences, Inc. Since December 2000, he has served as co-founder and Chairman of Accredited Ventures Inc. and Accredited Equities Inc., a venture capital firm and investment bank, respectively, which both specialize in the biotechnology industry. Prior to founding Accredited Ventures and Accredited Equities in December 2000, Mr. Kanzer served as Senior Managing Director-Head of Venture Capital at Paramount Capital from 1991 until December of 2000. While at Paramount Capital, Mr. Kanzer was involved in the formation and financing of a number of biotechnology companies and held various positions in these companies. Prior to joining

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Paramount Capital in 1992, Mr. Kanzer was an attorney at the law firm of Skadden, Arps, Slate, Meagher & Flom in New York where he specialized in mergers and acquisitions. Mr. Kanzer received a J.D. from New York University School of Law in 1988 and a B.B.A. in Accounting from Baruch College in 1985, where he was a Baruch Scholar. Mr. Kanzer is active in university-based pharmaceutical technology licensing and has served as Co-Chair of the New York Chapter of the Licensing Executives Society.

Mr. Kanzer has been associated with the Company since inception, and initiated and negotiated our synthetic biology collaborations with Intrexon and brings to the Board extensive knowledge about our business operations and in particular our licenses and products. Mr. Kanzer also brings to the Board significant executive leadership and operational experience. Mr. Kanzer's legal background provides him with a broad understanding of the legal issues facing Synthetic Biologics, the financial markets and the financing opportunities available to Synthetic Biologics.

Jeffrey J. Kraws. Mr. Kraws has been a director since January of 2006, and was appointed independent, non-executive Chairman of the Board in May 2012. Since 2003, Mr. Kraws has served Chief Executive Officer and co-founder of Crystal Research Associates, and since February 2012, he has served as partner and co-founder of TopHat Capital, LLC. Well known and respected on Wall Street, Mr. Kraws has received some of the most prestigious awards in the industry. Among other awards, he was given a 5-Star Rating in 2001 by Zacks and was ranked the number one analyst among all pharmaceutical analysts for stock performance in 2001 by Starmine.com. Prior to founding Crystal Research Associates, Mr. Kraws served as co-president of The Investor Relations Group (IRG), a firm representing primarily under-followed, small-capitalization companies. Previously, Mr. Kraws served as a managing director of healthcare research for Ryan Beck & Co. and as director of research/senior pharmaceutical analyst and managing director at Gruntal & Co., LLC (prior to its merger with Ryan Beck & Company). Mr. Kraws served as managing director of the healthcare research group and senior pharmaceutical analyst at First Union Securities (formerly EVEREN Securities); as senior U.S. pharmaceutical analyst for the Swedish-Swiss conglomerate Asea Brown Boveri; and as managing director and president of the Brokerage/Investment Banking operation of ABB Aros Securities, Inc. He also served as senior pharmaceutical analyst at Nationsbank Montgomery Securities, BT Alex Brown & Sons, and Buckingham Research. Mr. Kraws also has industry experience, having been responsible for competitive analysis within the treasury group at Bristol-Myers-Squibb Company. He holds an M.B.A. from Cornell University and a B.S. degree from State University of New York-Buffalo. During 2006 through February of 2007, Mr. Kraws served as our Vice President of Business Development, on a part-time basis.

Mr. Kraws brings a strong business background to Synthetic Biologics, having worked as a pharmaceutical analyst for over 22 years. Mr. Kraws brings to the Board significant strategic, business and financial experience related to the business and financial issues facing pharmaceutical companies. Mr. Kraws has a broad understanding of the operational, financial and strategic issues facing pharmaceutical companies. Through his services as the Company's Vice President of Business Development during 2006 and a part of 2007, he developed extensive knowledge of Synthetic Biologics' business.

Jeffrey Riley. Mr. Riley, a member of the Synthetic Biologics' Board of Directors since March 2010 and Chairman of the Board from November 2011 to May 2012, was appointed as the Company's President and Chief Executive Officer in February 2012. Since November 2009 until January 2012, Mr. Riley served as the Managing Director of 526 Ventures, a life science-focused consulting firm with a commercial and transactional focus, and from April 2009 until February 2012 he was the business officer of Ruga Corporation, a Stanford University spin-out oncology drug discovery company focused on targeting tumor adaptive responses. From January 2005 until January 2010, Mr. Riley was a member of the advisory board and a venture partner of Queensland Biocapital Fund, an Australia-based venture fund. Mr. Riley has held senior corporate and commercial development positions with multiple venture-backed biotech companies. In these positions, he was responsible for raising equity and negotiating alliances including in-licensing, out-licensing, distribution agreements, technology acquisitions and research agreements with large

pharmaceutical companies and government agencies. Mr. Riley's pharmaceutical experience includes commercial management and mergers and acquisition roles for Pfizer and SmithKline Beecham. Additionally, Mr. Riley served as CFO and VP Corporate Development for Nichols Institute Diagnostics, later acquired by Corning and spun out as Quest Diagnostics. Mr. Riley's education includes: a B.S. degree from Boise State University, coursework at UCSF/

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Berkeley in drug discovery/development and participation in a dual-degree graduate program, an M.B.A./M.I.M. sponsored by Arizona State University and the Thunderbird School of Global Management.

Mr. Riley brings to the Board extensive knowledge of the pharmaceutical industry. Having served in senior corporate positions in biotech and pharmaceutical companies he has a vast knowledge of the industry. His business experience provides him with a broad understanding of the operational, financial and strategic issues facing public companies.

Scott L. Tarriff. Mr. Tarriff has been a director since February 3, 2012. Since January 2007 he has served as a director and Chief Executive Officer of Eagle Pharmaceuticals, Inc., a hospital specialty company. Eagle Pharmaceuticals, Inc. is focused on developing branded parenteral products through the application of various in-licensed drug delivery technologies. Prior to forming Eagle Pharmaceuticals, Inc., Mr. Tarriff was president and chief executive officer of Par Pharmaceutical Companies, Inc. Mr. Tarriff joined Par Pharmaceutical Companies, Inc., in 1998 as executive vice president. Mr. Tarriff was named president and Chief Executive Officer of Par Pharmaceutical, Inc., the company's principal operating subsidiary, in 2001, and was elected to the company's Board of Directors in 2002. In September 2003, he was appointed President and Chief Executive Officer of Par Pharmaceutical Companies, Inc. Mr. Tarriff joined Par Pharmaceutical Companies, Inc. following a 12-year career at Bristol-Meyers Squibb. He received his M.B.A. from Rider College and his undergraduate degree from Pennsylvania State University.

Mr. Tarriff brings to our Board of Directors significant knowledge of and experience in the pharmaceutical and medical industries. He has extensive business, managerial, executive and leadership experience that further qualify him to serve as a member of the Board and a valuable understanding of the role played by the Board of Directors acquired through service on the boards of many companies. He has had a long and successful career in top executive leadership positions with leading, publicly traded pharmaceutical companies including Par Pharmaceuticals Companies, Inc. and Bristol-Myers Squibb.

Jeffrey Wolf, J.D. Mr. Wolf, a director since 2006, has substantial experience in creating, financing, nurturing and growing new ventures based upon breakthrough research and technology. In August 2008, Mr. Wolf founded Heat Biologics, Inc., a company engaged in research and development of drugs focused on combating cancer and other diseases. Since April 2010, Mr. Wolf has served as the Chief Executive Officer of Heat Biologics, Inc. From 2006 until April 2010, Mr. Wolf served as the Chairman and Chief Executive Officer of GenerationOne, a company that was focused on mobile-based collaborative care. Mr. Wolf is the founding partner of Seed-One Ventures, LLC, a venture capital group formed in 1997 and focused on seed-stage technology-based investments. Mr. Wolf has been a founder of Elusys Therapeutics, Inc., an antibody-based therapeutic company, Tyrx Pharma, Inc., a biopolymer-based company, Sensatex, Inc., a medical device company and Generation Mobile, Inc. a telecommunications company.

Prior to founding Seed-One Ventures, Mr. Wolf served as the Managing Director of The Castle Group, Ltd., a biomedical venture capital firm. At both organizations, Mr. Wolf was responsible for supervising the formation and funding of new technology, biomedical, and service oriented ventures. Mr. Wolf currently sits on the board of Elusys Therapeutics and Netli, Inc. Mr. Wolf received an M.B.A. from Stanford Business School, a J.D. from New York University School of Law and a B.A. with honors in Economics from the University of Chicago.

Mr. Wolf has extensive knowledge of the industry and in particular research and development. His legal and business background provide him with a broad understanding of the legal, operational, financial and strategic issues facing Synthetic Biologics. Having served as a board member on other public company boards, Mr. Wolf has an extensive understanding of the operational, financial and strategic issues facing public companies.

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INFORMATION REGARDING THE COMMITTEES OF THE BOARD OF DIRECTORS

We formed an audit committee, compensation committee and nominations committee of our Board of Directors in 2007.

Audit Committee

The members of the audit committee are Mr. Wolf (Chairman) and Mr. Stacks. The primary purpose of the audit committee is to act on behalf of the Board of Directors in its oversight of all material aspects of the Company's accounting and financial reporting processes, internal controls and audit functions, including the Company's compliance with Section 404 of the Sarbanes-Oxley Act of 2002.

The duties of the audit committee include the hiring and retaining of the Company's independent registered public accounting firm, which reports to the audit committee. The committee also reviews, prior to publication, our quarterly earnings releases and our reports to the Securities and Exchange Commission on Forms 10-K and 10-Q. The formal report of the audit committee for fiscal year 2011 is set forth under the caption "Report of the Audit Committee" in Proposal Two.

Our Board of Directors has determined that each of the members of its audit committee are independent and that each of Mr. Wolf and Mr. Stacks is an audit committee financial expert within the meaning of the regulations of the United States Securities and Exchange Commission.

The audit committee has adopted a formal written charter, a copy of which is available on our website at www.syntheticbiologics.com in the Investors section of the site.

Compensation Committee

The members of the compensation committee are Mr. Wolf (Chairman) and Mr. Kraws. This committee determines, approves, and reports to the Board of Directors on all elements of compensation of our executive officers. The compensation committee also has the power to prescribe, amend, and rescind rules relating to the Company's stock incentive plans, to grant options and other awards under the stock incentive plans, and to interpret the stock incentive plans.

Each of Mr. Wolf and Mr. Kraws are independent under the applicable rules of the NYSE MKT, LLC.

The compensation committee operates under a formal charter that governs its duties and standards of performance. A copy of the charter is available on our website at www.syntheticbiologics.com in the Investors section of the site.

Our compensation committee annually reviews the compensation program for our Chief Executive Officer and other members of senior management and then makes recommendations to the full board for determination. In each case, the committee takes into account the results achieved by the executive, his future potential, and his scope of responsibilities and experience. During our fiscal year ended December 31, 2011, the committee evaluated the performance of our executives and considered the compensation levels and equity programs at comparable companies and related industries before it made its compensation recommendations to the full board, including recommendations regarding salary increases, awards of cash bonuses and awards of stock options.

The committee's philosophy is to provide a compensation package that attracts and retains superior executive talent and delivers higher rewards for superior performance and consequences for underperformance. It is also the committee's practice to provide a balanced mix of cash and equity-based compensation that aligns both the short and long-term interests of our executives with that of our stockholders.

The committee seeks to attract and retain executive talent by offering competitive base salaries, annual performance incentive opportunities and long-term incentives. Base salaries for certain executives are set by their respective employment contracts. Apart from these contractual commitments, the committee intends to maintain base salaries at competitive levels in the marketplace for comparable executive ability and experience. The committee therefore compares the compensation for our senior management with the compensation at several comparable companies, including those companies that are included in the S&P SmallCap 600 Pharmaceuticals index. The committee also considers changes in the consumer price index when determining base salaries.

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The committee also makes recommendations to the full board for determining annual incentive bonuses. Although the committee does not use any fixed formula in determining annual incentive bonuses, it does link them to financial objectives of importance to the Company, including revenue and earnings growth, return on invested capital, and creation of stockholder value. The committee focuses on individual performance, which enables the committee to differentiate among executives and emphasize the link between personal performance and compensation.

The committee also reviews and recommends long-term incentive compensation for each executive including grants of stock options. The committee believes that this long-term incentive compensation aligns the interests of the Company's executives with those of its stockholders and furthers executive retention.

Nominations Committee

The members of the nominations committee are Mr. Kraws (Chairman) and Mr. Wolf. This committee performs the following functions:

It considers, and recommends to the Board of Directors, individuals for appointment or election as directors;
It recommends to the Board of Directors individuals for appointment to vacancies on any committee of the Board of Directors;
It makes recommendations to the Board of Directors regarding any changes to the size of the Board of Directors or any committee;

It reports to the Board of Directors on a regular basis, not less than once a year; and
It performs any other duties or responsibilities expressly delegated to the committee by the Board of Directors relating to board or committee members.

Candidates for director should have certain minimum qualifications, including the ability to understand basic financial statements, being over 21 years of age, having relevant business experience (taking into account the business experience of the other directors), and having high moral character. The committee retains the right to modify these minimum qualifications from time to time.

In evaluating an incumbent director whose term of office is set to expire, the nominations committee reviews such director's overall service to the Company during such director's term, including the number of meetings attended, level of participation, quality of performance, and any transactions with the Company engaged in by such director during his term.

When selecting a new director nominee, the committee first determines whether the nominee must be independent for NYSE MKT, LLC stock exchange purposes or whether the candidate must qualify as an Audit Committee Financial Expert. The committee then uses its network of contacts to compile a list of potential candidates, but may also engage, if it deems appropriate, a professional search firm to assist in the identification of qualified director candidates. The nominations committee also will consider nominees recommended by our stockholders. The nominations committee does not distinguish between nominees recommended by our stockholders and those recommended by other parties.

The nominations committee evaluates the suitability of potential nominees, taking into account the current board composition, including expertise, diversity and the balance of inside and independent directors. The nominations committee endeavors to establish a diversity of background and experience in a number of areas of core competency, including business judgment, management, accounting, finance, knowledge of our industry, strategic vision, research and development and other areas relevant to our business.

Stockholders wishing to directly recommend candidates for election to the Board of Directors at our next annual meeting to be included in our proxy statement must do so by giving written notice to: Chairman of the Nominations Committee, Synthetic Biologics, Inc., 617 Detroit Street, Suite 100, Ann Arbor, Michigan 48104. Any such notice

must be delivered to the Chairman by May 14, 2013. The notice must state: (1) the name and address of the stockholder making the recommendations; (2) the name, age, business address, and residential address of each person recommended; (3) the principal occupation or employment of each person recommended; (4) the class and number of shares of the Company's stock that are beneficially owned by each

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person recommended and by the recommending stockholder; (5) any other information concerning the persons recommended that must be disclosed in nominee and proxy solicitations in accordance with Regulation 14A of the Securities Exchange Act of 1934, as amended; and (6) a signed consent of each person recommended stating that he or she consents to serve as a director of the Company if elected.

In considering any person recommended by one of our stockholders, the committee will look for the same qualifications that it looks for in any other person that it is considering for a position on the Board of Directors. Any stockholder nominee recommended by the committee and proposed by the Board of Directors for election at the next annual meeting of stockholders will be included in the Company's proxy statement for that annual meeting.

The nominations committee operates under a formal charter that governs its duties and standards of performance. A copy of the charter is available on our website at www.syntheticbiologics.com in the Investors section of the site.

Board Leadership Structure

We currently have two separate people serving as our Chairman of the Board and as our Chief Executive Officer and we do not have a formal policy on whether the same person should (or should not) serve as both the Chief Executive Officer and Chairman of the Board. Due to the size of our Company, we believe that this structure is appropriate in recognition of the time commitment and activities required to function effectively as a Chairman and as a Chief Executive Officer. Mr. Kraws has served as the Chairman of the Board since May 2012. Mr. Riley has served as our Chief Executive Officer since February 2012. In serving as Chairman of the Board, Mr. Kraws serves as a significant resource for our Chief Executive Officer, other members of management and the Board of Directors. We believe that the division of duties and additional avenues of communication between the board and management with Mr. Kraws serving as Chairman of the Board provides a basis for the proper functioning of our board and oversight of management.

We do not have a separate lead director. We believe the combination of Mr. Kraws as our Chairman of the Board and Mr. Riley as our Chief Executive Officer is an effective structure for the Company. Our current structure is operating effectively to foster productive, timely and efficient communication among the independent directors and management. We do have active participation in our committees by our independent directors, who comprise all of the members of all of our committees. Each committee performs an active role in overseeing our management and there are complete and open lines of communication with the management and independent directors.

Oversight of Risk Management

The Board of Directors has an active role, as a whole and also at the committee level, in overseeing management of the Company's risks. The board regularly reviews information regarding the Company's strategy, finances and operations, as well as the risks associated with each. The audit committee is responsible for oversight of Company risks relating to accounting matters, financial reporting and legal and regulatory compliance. The audit committee undertakes, at least annually, a review to evaluate these risks. Individual members of the audit committee are each assigned an area of risk to oversee. The members then meet separately with management responsible for such area, including the Company's chief financial officer, internal auditor and counsel, and report to the audit committee on any matters identified during such discussions with management. The Company's compensation committee is responsible for overseeing the management of risks relating to the Company's executive compensation plans and arrangements.

While each committee is responsible for evaluating certain risks and overseeing the management of such risks, the entire Board of Directors is regularly informed through committee reports about such risks.

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STOCKHOLDER COMMUNICATIONS WITH THE BOARD OF DIRECTORS

Stockholders may direct any communications intended for the Board of Directors to our Corporate Secretary, by telephone to (734) 332-7800, by facsimile to (734) 332-7878, or by mail to Synthetic Biologics, Inc., 617 Detroit Street, Suite 100, Ann Arbor, Michigan 48104.

This centralized process assists the Board of Directors in reviewing and responding to stockholder communications in an appropriate manner. If a stockholder wishes to direct any communication to a specific board member, the name of that board member should be noted in the communication. The Board of Directors has instructed the corporate secretary to forward stockholder correspondence only to the intended recipients, and has also instructed the corporate secretary to review all stockholder correspondence and, in the corporate secretary's discretion, refrain from forwarding any items deemed to be of a commercial or frivolous nature or otherwise inappropriate for the Board of Directors consideration. Any such items may be forwarded elsewhere in the Company for review and possible response.

BOARD AND COMMITTEE MEETINGS

During our fiscal year ended December 31, 2011, our Board of Directors held 11 meetings. During our fiscal year ended December 31, 2011, our audit, compensation and nominations committees met 6 times, 3 times, and 2 times, respectively. Each of our incumbent directors that were directors during our fiscal year ended December 31, 2011 attended more than 75% of the aggregate of the board meetings and total number of meetings held by the committees on which he served. Each director attended all of the committee meetings for the committees on which he serves.

DIRECTOR ATTENDANCE AT ANNUAL MEETINGS

Our directors are encouraged, but not required, to attend the annual meeting of stockholders. All of our directors attended the 2011 annual meeting of stockholders.

SECTION 16(A) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE

Section 16 of the Securities Exchange Act of 1934, as amended, and the related rules of the Securities and Exchange Commission require our directors and executive officers and beneficial owners of more than 10% of our common stock to file reports, within specified time periods, indicating their holdings of and transactions in our common stock and derivative securities. Based solely on a review of such reports provided to us and written representations from such persons regarding the necessity to file such reports, we are not aware of any failures to file reports or report transactions in a timely manner during our fiscal year ended December 31, 2011.

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We operate according to a comprehensive plan of corporate governance for the purpose of defining responsibilities, setting high standards of professional and personal conduct, and assuring compliance with those responsibilities and standards. We regularly monitor developments in the area of corporate governance and will continue to monitor developments and make adjustments from time to time to ensure compliance in this area. Information regarding our corporate governance that is not provided below is described elsewhere in this proxy statement.

Code of Conduct

We adopted a Code of Conduct that applies to all of our directors, officers and employees. This Code is intended to promote honest and ethical conduct, full, accurate and timely disclosure, and compliance with all applicable laws and government regulations. A copy of the Code of Conduct is available on our website at www.syntheticbiologics.com in the Investors section of the site.

Code of Ethics for Financial Management

We adopted a Code of Ethics for Financial Management that applies to all the persons at the Company that are responsible for our Company's financial management. This Code is intended to promote professional conduct in our financial management. A copy of our Code of Ethics for Financial Management is available on our website at www.syntheticbiologics.com in the Investors section of the site. Violations of the Code of Ethics for Financial Management may be reported anonymously to our audit committee and may result in disciplinary action.

Personal Loans to Executive Officers and Directors

We comply with, and operate in a manner consistent with, federal legislation outlawing extensions of credit in the form of personal loans to or for our directors and executive officers.

**EXECUTIVE COMPENSATION
SUMMARY COMPENSATION TABLE**

The following table summarizes all compensation awarded to, earned by or paid to Max Lyon and James S. Kuo, M.D., M.B.A., who each served as our chief executive officer and chief financial officer during the fiscal years ended December 31, 2011 and 2010.

| | Year | Bonus | Salary (\$) | Options Awarded ⁽¹⁾ | All Other Annual Compensation ⁽²⁾ | Total |
|---|------|----------|-------------------------|-----------------------------------|--|-----------|
| James S. Kuo, M.D., Former President, CEO and CFO ⁽³⁾ | 2011 | \$ | \$199,000 | \$ | \$ 12,000 | \$211,000 |
| | 2010 | \$20,000 | \$179,000 | \$ 328,000 | \$ 10,000 | \$537,000 |
| Max Lyon, Former | 2010 | \$ | \$43,000 ⁽⁴⁾ | \$ | \$ | \$43,000 |

President,
CEO and CFO⁽⁴⁾

(1) Amount reflects the grant date fair value of the named executive officer's stock options, calculated in accordance with FASB ASC Topic 718. For a discussion of the assumptions used in calculating these values, see Note 6 to our consolidated financial statements located in our Annual Report on Form 10-K/A for the year ended December 31, 2011.

(2) The all other compensation column includes the portion of medical, dental and vision premiums paid by us on behalf of our named executive officer. These benefits are offered to all full-time employees of Synthetic Biologics, Inc.

(3) Dr. Kuo resigned as President, Chief Executive Officer and Chief Financial Officer on February 3, 2012. Dr. Kuo remains as a consultant to Synthetic Biologics, Inc.

(4) Mr. Lyon resigned as President, Chief Executive Officer and Chief Financial Officer effective as of February 10, 2010. This amount represents the amount earned by Mr. Lyon prior to his resignation and severance in the amount of \$23,000 paid in shares of our common stock.

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The table below reflects all outstanding equity awards made to each of the named executive officers that are outstanding as of December 31, 2011. We currently grant stock-based awards pursuant to our 2010 Stock Incentive Plan and have outstanding awards under our 2001 Stock Incentive Plan and 2007 Stock Incentive Plan.

OUTSTANDING EQUITY AWARDS AT FISCAL YEAR-END

| Name | Grant Date ⁽¹⁾ | Number of Securities Underlying Unexercised Options Exercisable | Number of Securities Underlying Unexercised Options Unexercisable | Option Exercise Price (\$) | Option Expiration Date |
|--------------|---------------------------|---|---|----------------------------|------------------------|
| James S. Kuo | 02/06/10 ⁽²⁾ | 275,000 | 125,000 | \$ 0.82 | 02/06/20 |
| | 12/22/09 | | 8,333 | \$ 0.53 | 12/22/19 |
| | 10/02/08 | | 8,333 | \$ 0.53 | 10/02/18 |
| | 11/02/07 | | 8,333 | \$ 5.85 | 11/02/17 |
| | 02/07/07 | | 25,000 | \$ 3.87 | 02/07/17 |

(1) Unless otherwise noted, options vest immediately on the date of grant.

(2) These options vest 100,000 shares immediately and the remainder in equal monthly installments over a three-year period beginning on the date of grant.

EQUITY COMPENSATION PLAN INFORMATION

As of December 31, 2011, the number of stock options and restricted common stock outstanding under our equity compensation plans, the weighted average exercise price of outstanding options and restricted common stock and the number of securities remaining available for issuance were as follows:

| Plan Category | Number of securities to be issued upon exercise of outstanding options | Weighted-average exercise price of outstanding options | Number of securities remaining available for future issuance under equity compensation plans |
|--|--|--|--|
| Equity Compensation Plans Approved By Stockholders | | | |
| 2001 Stock Incentive Plan | 1,320,354 | \$ 1.15 | 22,690 |
| 2007 Stock Incentive Plan | 1,201,156 | \$ 1.67 | 1,033,932 |
| 2010 Stock Incentive Plan | 457,400 | \$ 1.05 | 2,542,500 |
| Equity Plans Not Approved By Stockholders | N/A | N/A | N/A |
| Total All Plans | 2,979,010 | \$ 1.46 | 3,599,122 |

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INFORMATION CONCERNING EXECUTIVE OFFICERS WHO ARE NOT DIRECTORS

Background information about our executive officers who are not nominees for election as directors is set forth below.

C. Evan Ballantyne. Mr. Ballantyne, age 53, joined Synthetic Biologics as its Chief Financial Officer in February 2012. He also serves as the Company's Corporate Secretary and Treasurer. From 2006 until its acquisition in April 2011, Mr. Ballantyne served as Executive Vice President and Chief Financial Officer of Clinical Data, Inc., a publicly-traded biopharmaceutical company which was acquired by Forest Laboratories, Inc. for \$1.3 billion. While at Clinical Data, he was instrumental in leading corporate financings totaling approximately \$220 million as well as a number of acquisition and divestitures totaling \$116 million. Mr. Ballantyne has also served as Chief Financial Officer of a number of private medical technology companies, including Avedro and ZymeQuest. Earlier in his career, he served as Vice President and Chief Operating Officer for ACNielsen Europe Middle East & Africa and held the Chief Financial Officer position as well for two years. There, Mr. Ballantyne was responsible for all aspects of operations, strategic planning and finance in more than 45 countries for a corporation with 9,700 employees. He also helped lead the company's successful ISO certification process. He began his career at the Dun & Bradstreet Corporation where he held several senior financial positions. Mr. Ballantyne earned a BA from the University of Western Ontario, and took a post-graduate degree in Business Administration with Honors from the University of Windsor.

Employment Agreements

On February 3, 2012, Jeffrey Riley was appointed to serve as our Chief Executive Officer and President, and on February 6, 2012, C. Evan Ballantyne was appointed to serve as our Chief Financial Officer. On February 3, 2012, James S. Kuo, M.D., resigned as our Chief Executive Officer, President and Chief Financial Officer. Dr. Kuo remains as a consultant to the Company. On February 6, 2010, Max Lyon resigned as President, Chief Executive Officer and Chief Financial Officer, and James S. Kuo, M.D., was thereby appointed Chairman, Chief Executive Officer, Chief Financial Officer and President. The following are summaries of the agreements that were executed in connection with these changes.

Jeffrey Riley Employment Agreement

In connection with his appointment, Mr. Riley entered into a three-year employment agreement with the Company (the Riley Employment Agreement). Pursuant to the Riley Employment Agreement, Mr. Riley will be entitled to an annual base salary of \$348,000 and will be eligible for discretionary performance and transactional bonus payments. Additionally, Mr. Riley was granted options to purchase 750,000 shares of our common stock with an exercise price equal to our per share market price on the date of issue. These options will vest pro rata, on a monthly basis, over thirty-six months. The Riley Employment Agreement also includes confidentiality obligations and inventions assignments by Mr. Riley.

If Mr. Riley's employment is terminated for any reason, he or his estate as the case may be, will be entitled to receive the accrued base salary, vacation pay, expense reimbursement and any other entitlements accrued by him to the extent not previously paid (the Accrued Obligations); provided, however, that if his employment is terminated: (1) by us without Just Cause (as defined in the Riley Employment Agreement) or by Mr. Riley for Good Reason (as defined in the Riley Employment Agreement) then in addition to paying the Accrued Obligations, (i) we shall continue to pay his

then current base salary and continue to provide benefits at least equal to those which were provided at the time of termination for a period of six months and (ii) he shall have the right to exercise any vested options until the earlier of the expiration of the severance or the expiration of the term of the option, or (2) by reason of his death or Disability (as defined in the Riley Employment Agreement), then in addition to paying the Accrued Obligations, he would have the right to exercise any vested options until the expiration of the term of the option. In such event, if Mr. Riley commenced employment with another employer and becomes eligible to receive medical or other welfare benefits under another employer-provider plan, the medical and other welfare benefits to be provided by us as described herein will terminate.

C. Evan Ballantyne Employment Agreement

Effective February 6, 2012, C. Evan Ballantyne was appointed our Chief Financial Officer. In connection with his appointment, Mr. Ballantyne entered into a three-year employment agreement with us (the

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Ballantyne Employment Agreement). Pursuant to the Ballantyne Employment Agreement, Mr. Ballantyne will be entitled to an annual base salary of \$298,000 and will be eligible for discretionary performance and transactional bonus payments. Additionally, Mr. Ballantyne was granted options to purchase 425,000 shares of our common stock with an exercise price equal to our per share market price on the date of issue. These options will vest pro rata, on a monthly basis, over thirty-six months. The Ballantyne Employment Agreement also includes confidentiality obligations and inventions assignments by Mr. Ballantyne.

If Mr. Ballantyne's employment is terminated for any reason, he or his estate as the case may be, will be entitled to receive the accrued base salary, vacation pay, expense reimbursement and any other entitlements accrued by him to the extent not previously paid (the Accrued Obligations); provided, however, that if his employment is terminated: (1) by us without Just Cause (as defined in the Ballantyne Employment Agreement) or by Mr. Ballantyne for Good Reason (as defined in the Ballantyne Employment Agreement) then in addition to paying the Accrued Obligations, (i) we shall continue to pay his then current base salary and continue to provide benefits at least equal to those which were provided at the time of termination for a period of six months and (ii) he shall have the right to exercise any vested options until the earlier of the expiration of the severance or the expiration of the term of the option, or (2) by reason of his death or Disability (as defined in the Ballantyne Employment Agreement), then in addition to paying the Accrued Obligations, he would have the right to exercise any vested options until the expiration of the term of the option. In such event, if Mr. Ballantyne commenced employment with another employer and becomes eligible to receive medical or other welfare benefits under another employer-provider plan, the medical and other welfare benefits to be provided by us as described herein will terminate.

Dr. Kuo's Agreements

Effective February 3, 2012, James S. Kuo, M.D., resigned from his positions as our President and Chief Executive Officer. In connection with his resignation, Dr. Kuo entered into a nine-month consulting agreement with us (the Consulting Agreement). Pursuant to the Consulting Agreement, Dr. Kuo will be entitled to a consulting fee of \$16,666 per month during the term of the Consulting Agreement, receive health and dental benefits for one year and retain the right to exercise the stock options held by him that have vested as of the effective date of the Consulting Agreement for a period expiring on the date that is one (1) year from the effective date of the Consulting Agreement. The Consulting Agreement also includes confidentiality obligations and inventions assignments by Dr. Kuo.

In February 2010, Dr. Kuo had entered into a three-year employment agreement with us (the Kuo Employment Agreement). Pursuant to the Kuo Employment Agreement, Dr. Kuo was entitled to an annual base salary of \$199,000 and was eligible for discretionary performance and transactional bonus payments. Additionally, Dr. Kuo was granted an initial stock option to purchase 400,000 shares of our common stock (with an exercise price of \$0.82, the fair market value on February 6, 2010, which is the date of grant). Of this stock option grant, 300,000 shares vested prior to his resignation.

Mr. Lyon's Agreement

In connection with his resignation, Mr. Lyon received \$23,000 paid in shares of our common stock, as a severance payment. This payment was made pursuant to a Separation Agreement, dated February 6, 2010, between Mr. Lyon and us.

The committee believes that all compensation paid or payable to its executive officers covered under Section 162(m) of the Internal Revenue Code will qualify for deductibility under such Section. The compensation committee is composed exclusively of non-employee independent directors.

TABLE OF CONTENTS**DIRECTOR COMPENSATION****GENERAL****Compensation of Directors**

The following table sets forth information for the fiscal year ended December 31, 2011 regarding the compensation of our directors who at December 31, 2011 were not also named executive officers.

| Name | Fees Earned or Paid in Cash | Option Awards ⁽¹⁾ | Other Compensation | Total |
|------------------------------|-----------------------------|------------------------------|--------------------|-----------|
| Steve H. Kanzer | \$ 13,000 | \$ 37,000 | \$ | \$ 50,000 |
| Jeffrey J. Kraws | \$ 12,000 | \$ 37,000 | \$ | \$ 49,000 |
| Jeffrey Riley ⁽²⁾ | \$ 14,000 | \$ 85,000 | \$ | \$ 99,000 |
| Jeffrey Wolf | \$ 17,000 | \$ 37,000 | \$ | \$ 54,000 |

(1) The amounts in the Option awards column reflect the dollar amounts recognized as compensation expense for the financial statement reporting purposes for stock options for the fiscal year ended December 31, 2011 in accordance with SFAS 123(R). The fair value of the options was determined using the Black-Scholes model.

(2) In consideration of Jeffrey Riley serving as our independent, non-executive Chairman, in November 2011 we issued Jeffrey Riley options exercisable for an additional 100,000 shares of our common stock. During 2007, director compensation for members who are not employees was approved at \$2,000 per board meeting that they attend in person, \$1,000 per telephonic board meeting and \$500 per committee meeting. In addition, we grant non-employee members of the Board of Directors upon appointment 25,000 stock options to purchase shares of our common stock at an exercise price equal to the fair market value of our common stock on the date of grant, and in 2011 we granted such members an additional 25,000 stock options. Directors who are employees or who are compensated for board service pursuant to a separate agreement or arrangement do not receive additional compensation for attending board, committee or shareholder meetings. We also reimburse directors for travel and other out-of-pocket expenses incurred in attending Board of Director and committee meetings. We have agreed to pay Mr. Kraws for his services as our independent, non-executive Chairman of the Board annual compensation of \$150,000 as well as a one-time grant of options exercisable for an additional 100,000 shares of our common stock.

LIMITS ON LIABILITY AND INDEMNIFICATION

Our articles of incorporation eliminate the personal liability of our directors to the Company and its stockholders for monetary damages for breach of their fiduciary duties in certain circumstances. Our articles of incorporation further provide that the Company will indemnify its officers and directors to the fullest extent permitted by law. We believe that this indemnification covers at least negligence and gross negligence on the part of the indemnified parties. Insofar as indemnification for liabilities under the Securities Act of 1933 may be permitted to directors, officers, and controlling persons of the Company under the foregoing provisions or otherwise, we have been advised that in the opinion of the Securities and Exchange Commission that indemnification is against public policy as expressed in the Securities Act of 1933, as amended, and is therefore unenforceable. We entered into an indemnification agreement with each of our directors and officers. The agreement confirms the obligations of the Company to indemnify the

directors and officers to the fullest extent authorized by the Company's Amended and Restated Bylaws and supplements the indemnification otherwise available to the covered person under the Company's Charter and Amended and Restated Bylaws. The form of indemnification agreement was described and filed as an exhibit to the Form 8-K filed by the Company with the Securities and Exchange Commission on January 6, 2009.

COMPENSATION COMMITTEE INTERLOCKS

During the last fiscal year, none of our executive officers served on the Board of Directors or compensation committee of any other entity whose officers served either on our Board of Directors or compensation committee.

TABLE OF CONTENTS**SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT**

The following table sets forth certain information regarding beneficial ownership of our common stock and options and warrants to purchase shares of our common stock as of August 31, 2012 by: (i) each person (or group of affiliated persons) who is known by us to own more than five percent of the outstanding shares of our common stock (ii) each director; (iii) each named executive officer and (iv) all directors and officers as a group.

Beneficial ownership is determined in accordance with SEC rules and generally includes voting or investment power with respect to securities. The principal address of each of the stockholders listed below except as indicated is c/o Synthetic Biologics, Inc., 617 Detroit Street, Suite 100, Ann Arbor, Michigan 48104. Except as otherwise indicated below, we believe that all persons named in the table have sole voting and investment power with respect to shares beneficially owned by them. All share ownership figures include shares issuable upon exercise of options or warrants exercisable within 60 days of August 31, 2012, which are deemed outstanding and beneficially owned by such person for purposes of computing his or her percentage ownership, but not for purposes of computing the percentage ownership of any other person.

| Name and Address of Beneficial Ownership ⁽²⁾ | Number of Shares Owned ⁽¹⁾ | Percentage of Shares ⁽³⁾ | | Proforma Beneficial Ownership if Proposal 3 is Approved ⁽¹⁵⁾ | |
|---|---------------------------------------|-------------------------------------|---|---|--------------------------------------|
| | | | | Number of Shares Owned ⁽¹⁶⁾ | Percentage of Shares ⁽¹⁷⁾ |
| Accredited Venture Capital, LLC ⁽⁴⁾ | 7,086,380 | 21.22 | % | 7,086,380 | 19.18 % |
| Intrexon Corporation | 3,123,558 ⁽⁵⁾ | 9.35 | % | 6,675,768 ⁽¹⁸⁾ | 18.07 % |
| C. Evan Ballantyne ⁽⁶⁾ | 94,444 | * | | 94,444 | * |
| Steve H. Kanzer ⁽⁷⁾ | 7,766,017 | 23.04 | % | 7,766,017 | 20.85 % |
| Jeffrey J. Krawns ⁽⁸⁾ | 312,105 | * | | 312,105 | * |
| James S. Kuo ⁽⁹⁾ | 354,499 | 1.05 | % | 354,499 | * |
| Jeffrey Riley ⁽¹⁰⁾ | 275,000 | * | | 275,000 | * |
| Nelson K. Stacks ⁽¹¹⁾ | 25,000 | * | | 25,000 | * |
| Scott L. Tarriff ⁽¹²⁾ | 25,000 | * | | 25,000 | * |
| Jeffrey Wolf ⁽¹³⁾ | 83,332 | * | | 83,332 | * |
| Randal J. Kirk | 3,123,558 ⁽¹⁴⁾ | 9.35 | % | 6,675,768 ⁽¹⁹⁾ | 18.07 % |
| All officers and directors as a group (8 persons) | 8,935,397 | 25.63 | % | 8,935,397 | 23.26 % |

* represents less than 1% of our common stock

Beneficial ownership is determined in accordance with SEC rules and generally includes voting or investment power with respect to securities. Except as indicated in the footnotes to the table, to the knowledge of the Company, the persons named in the table have sole voting and investment power with respect to all shares of (1) common stock shown as beneficially owned by them, subject to community property laws, where applicable.

Pursuant to the rules of the SEC, the number of shares of our common stock deemed outstanding includes shares issuable pursuant to options held by the respective person or group that are currently exercisable or may be exercised within 60 days of August 31, 2012.

The address for each beneficial owner except Intrexon Corporation and Randal J. Kirk is 617 Detroit Street, Suite 100, Ann Arbor, Michigan 48104. The address for Intrexon Corporation is 20358 Seneca Meadows Pkwy, (2) Germantown, Maryland 20876 and the address for Mr. Kirk is The Governor Tyler, 1881 Grove Avenue, Radford, Maryland 24141.

(3) As of August 31, 2012, we had 33,395,538 shares of common stock outstanding.

Consists of 7,086,380 shares of common stock issued to Accredited Venture Capital, LLC. Pharmainvestors, LLC is the managing member of Accredited Venture Capital, LLC, and Mr. Kanzer is the managing member of (4) Pharmainvestors, LLC. As such, Mr. Kanzer may be considered to have control over the voting and disposition of the shares registered in the name of Accredited Venture Capital, LLC, and therefore, such shares are also included in the shares listed as held by Mr. Kanzer. Mr. Kanzer disclaims beneficial ownership of those shares, except to the extent of his pecuniary interest.

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(5) Does not include the additional 3,552,210 shares of common stock to be issued in accordance with the terms of the collaboration agreement entered into on August 6, 2012 that would be beneficially owned if Proposal 3 is approved and the other conditions, including approval of the NYSE MKT are met.

(6) Includes 94,444 shares issuable upon exercise of options held by Mr. Ballantyne that are exercisable within the 60-day period following August 31, 2012. Does not include an additional 330,556 shares issuable upon exercise of options held by Mr. Ballantyne that are not exercisable within the 60-day period following August 31, 2012.

(7) Includes 7,086,380 shares of common stock issued to Accredited Venture Capital, LLC and 304,391 shares issuable upon exercise of options held by Mr. Kanzer that are exercisable within the 60-day period following August 31, 2012.

(8) Includes 312,105 shares issuable upon exercise of options held by Mr. Kraws that are exercisable within the 60-day period following August 31, 2012. Does not include an additional 75,000 shares issuable upon exercise of options held by Mr. Kraws that are not exercisable within the 60 day period following August 31, 2012.

(9) Includes 349,999 shares issuable upon exercise of options held by Dr. Kuo that are currently exercisable.

(10) Includes 275,000 shares issuable upon exercise of options held by Mr. Riley that are exercisable within the 60-day period following August 31, 2012. Does not include an additional 633,333 shares issuable upon exercise of options held by Mr. Riley that are not exercisable within the 60-day period following August 31, 2012.

(11) Includes 25,000 shares issuable upon exercise of options held by Mr. Stacks that are exercisable within the 60-day period following August 31, 2012.

(12) Includes 25,000 shares issuable upon exercise of options held by Mr. Tarriff that are exercisable within the 60-day period following August 31, 2012.

(13) Includes 83,332 shares issuable upon exercise of options held by Mr. Wolf that are exercisable within the 60-day period following August 31, 2012.

(14) All such shares are held by Intrexon Corporation. Mr. Kirk, directly and through certain affiliates, has voting and dispositive power over a majority of the outstanding capital stock of Intrexon Corporation. Mr. Kirk disclaims beneficial ownership of the shares held by Intrexon Corporation, except to the extent of any pecuniary interest therein. Does not include the additional 3,552,210 shares of common stock to be issued in accordance with the terms of the collaboration agreement entered into on August 6, 2012, that would be beneficially owned if Proposal 3 is approved and the other conditions, including approval of the NYSE MKT are met.

(15) Proforma beneficial ownership includes the additional 3,552,210 shares of common stock to be issued to Intrexon in accordance with the terms of the collaboration agreement, if Proposal 3 is approved and the other conditions, including approval of the NYSE MKT are met.

Beneficial ownership is determined in accordance with SEC rules and generally includes voting or investment power with respect to securities. Except as indicated in the footnotes to the table, to the knowledge of the Company, the persons named in the table have sole voting and investment power with respect to all shares of common stock shown as beneficially owned by them, subject to community property laws, where applicable.

(16) Pursuant to the rules of the SEC, the number of shares of our common stock deemed outstanding includes shares issuable pursuant to options held by the respective person or group that are currently exercisable or may be exercised within 60 days of August 31, 2012. The proforma beneficial ownership includes the additional 3,552,210 shares of common stock to be issued to Intrexon in accordance with the terms of the collaboration agreement, if Proposal 3 is approved and the other conditions, including approval of the NYSE MKT are met.

(17) On a proforma basis as of August 31, 2012, including the additional 3,552,210 shares of common stock to be issued to Intrexon in accordance with the terms of the collaboration agreement, if Proposal 3 is approved and the other conditions, including approval of the NYSE MKT are met, we would have had 36,947,748 shares of common stock outstanding.

(18) Proforma beneficial ownership includes the additional 3,552,210 shares of common stock to be issued to Intrexon in accordance with the terms of the collaboration agreement, if Proposal 3 is approved and the other conditions, including approval of the NYSE MKT are met.

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(19) All such shares are held by Intrexon Corporation. Mr. Kirk, directly and through certain affiliates, has voting and dispositive power over a majority of the outstanding capital stock of Intrexon Corporation. Mr. Kirk disclaims beneficial ownership of the shares held by Intrexon Corporation, except to the extent of any pecuniary interest therein. The proforma beneficial ownership includes the additional 3,552,210 shares of common stock to be issued to Intrexon in accordance with the terms of the collaboration agreement, if Proposal 3 is approved and the other conditions, including approval of the NYSE MKT are met.

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PROPOSAL 2 RATIFICATION OF APPOINTMENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

BDO USA, LLP has been our independent registered public accounting firm since July 2012.

Ratification of the selection of BDO USA, LLP by our stockholders is not required by law. As a matter of policy, however, the selection is being submitted to our stockholders for ratification at the annual meeting.

We anticipate that representatives of BDO USA, LLP will attend the annual meeting for the purpose of responding to appropriate questions. At the annual meeting, the representatives of BDO USA, LLP will be afforded an opportunity to make a statement if they so desire and are expected to be available to respond to appropriate questions. Berman & Company, P.A., our independent registered public accounting firm for the year ended December 31, 2011, is not expected to be present at the annual meeting. Upon recommendation of the Audit Committee and unanimous approval by our Board of Directors, on July 3, 2012, we dismissed Berman & Company, P.A. as our independent registered public accounting firm. In July 2012, we retained BDO USA, LLP as our new independent registered public accounting firm responsible for auditing our financial statements.

Berman & Company, P.A.'s reports on our financial statements as of and for the two years ended December 31, 2011 and 2010, did not contain an adverse opinion or disclaimer of opinion, and were not qualified or modified as to uncertainty, audit scope, or accounting principles; however, after being filed with the Securities and Exchange Commission (SEC) on March 30, 2012, the original audit opinion included in our Annual Report on Form 10-K for the year ended December 31, 2011, was withdrawn due to the failure of Berman & Company, P.A. to follow proper partner rotation procedures. On May 11, 2012, a new audit opinion for the year ended December 31, 2011 and an amended Annual Report on Form 10-K/A for such year was filed with the SEC.

During the years ended December 31, 2011 and 2010, and in the subsequent interim period through July 3, 2012: (i) there were no disagreements with Berman & Company on any matter of accounting principles or practices, financial statement disclosure, or auditing scope or procedure, which disagreements, if not resolved to the satisfaction of Berman & Company, P.A., would have caused it to make reference to the subject matter of the disagreement in connection with its reports on our financial statements for such years and (ii) there were no events otherwise reportable under Item 304(a)(1)(v) of Regulation S-K other than the following which was previously reported by us: the failure of Berman & Company, P.A. to follow proper partner rotation procedures that resulted in the withdrawal of Berman & Company, P.A.'s audit opinion included in our Annual Report on Form 10-K for the year ended December 31, 2011 and our being unable to rely upon such audit opinion. Such matters have been discussed by both our audit committee and Board of Directors with Berman & Company, P.A., and Berman & Company, P.A. is authorized to fully respond to inquiries of BDO USA, LLP concerning such matter.

We requested that Berman & Company, P.A. furnish us with a letter addressed to the SEC stating whether it agrees with the statements we made above. We filed a copy of such letter in which Berman & Company, P.A. stated such agreement, as an exhibit to a Current Report on Form 8-K filed with the SEC on July 10, 2012.

During our two most recent years and in the subsequent interim period through July 3, 2012, we did not consult with

BDO USA, LLP regarding the application of accounting principles to a specified transaction, either contemplated or proposed, or the type of audit opinion that might be rendered on our financial statements, and neither a written report nor oral advice was provided that was an important factor considered by us in reaching a decision as to the accounting, auditing or financial reporting issue, or with any of the matters outlined in Item 304(a)(2)(ii) of Regulation S-K.

OUR BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT YOU VOTE FOR RATIFICATION OF THE SELECTION OF BDO USA, LLP AS OUR INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR OUR FISCAL YEAR ENDING ON DECEMBER 31, 2012.

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REPORT OF THE AUDIT COMMITTEE OF THE BOARD OF DIRECTORS

Our audit committee reviews our financial reporting process on behalf of our Board of Directors. In January 2007, our Board of Directors adopted a written charter for our audit committee, which it re-evaluates annually in connection with the filing of our Annual Report on Form 10-K with the Securities and Exchange Commission and amended during its re-evaluation in November 2011. In fulfilling its responsibilities, the audit committee has reviewed and discussed the audited financial statements contained in the Annual Report on Form 10-K/A for our fiscal year ended December 31, 2011 with our management and our independent registered public accounting firm for such year, Berman & Company, P.A. Our management is responsible for the financial statements and the reporting process, including the system of internal controls. The independent registered public accounting firm is responsible for expressing an opinion on the conformity of those audited financial statements with accounting principles generally accepted in the United States.

The audit committee (i) discussed with Berman & Company, P.A. the matters required to be discussed by the statement on Auditing Standards No. 61, as amended (AICPA, *Professional Standards*, Vol. 1. AU section 380), as adopted by the Public Company Accounting Oversight Board (PCAOB) in Rule 3200T, (ii) received the written disclosures and the letter from Berman & Co., P.A. required by Independence Standards Board No. 1 (Independence Standards Board No. 1, *Independence Discussions with Audit Committees*), as adopted by the Public Company Accounting Oversight Board in Rule 3600T, and (iii) discussed with Berman & Company, P.A. its independence. The audit committee also considered whether, and determined that, the independent registered public accounting firm's provision of other non-audit services to us was compatible with maintaining Berman & Company, P.A.'s independence.

You should note the members of our audit committee are not employees of the Company and are not performing the functions of auditors or accountants. Accordingly, it is not the duty or responsibility of the audit committee or its members to conduct field work or other types of auditing or accounting reviews or procedures or to set auditor independence standards. Members of the audit committee necessarily rely on the information provided to them by management and the independent auditors. Accordingly, the audit committee's considerations and discussions referred to above do not constitute assurance that the audit of the Company's financial statements has been carried out in accordance with generally accepted accounting principles or that the Company's auditors are in fact independent.

Based on the review and discussions referred to above, the audit committee recommended to our Board of Directors (and our Board of Directors approved) that the audited financial statements be included in our Annual Report on Form 10-K/A for our fiscal year ended December 31, 2011, for filing with the SEC. In addition, the audit committee recommended to our Board of Directors and our Board of Directors approved, subject to stockholder ratification, that BDO USA, LLP be appointed as our independent registered public accounting firm for 2012.

Jeffrey Wolf
Nelson K. Stacks

TABLE OF CONTENTS**AUDIT FEES AND ALL OTHER FEES**

The aggregate fees, including expenses, billed to us for the years ended December 31, 2011 and 2010 for professional services by Berman & Company, P.A., our independent registered public accounting firm for each of those years were as follows:

| | December 31, 2011 | December 31, 2010 |
|--|-------------------------|-------------------------|
| Audit Fees and Expenses ⁽¹⁾ | \$ 88,000 | \$ 86,000 |
| Audit Related Fees ⁽²⁾ | 1,000 | 2,000 |
| | \$ 89,000 | \$ 88,000 |

Audit fees and expenses were for professional services rendered for the audit and reviews of the consolidated (1) financial statements of the Company, professional services rendered for issuance of consents and assistance with review of documents filed with the SEC.

- (2) The audit related fees were for professional services rendered for additional filing and consents for registration statements and forms in connection with equity offerings filed with the SEC.

Audit Committee Pre-Approval Policy

The audit committee has adopted procedures for pre-approving all audit and non-audit services provided by the independent registered public accounting firm, including the fees and terms of such services. These procedures include reviewing detailed back-up documentation for audit and permitted non-audit services. The documentation includes a description of, and a budgeted amount for, particular categories of non-audit services that are recurring in nature and therefore anticipated at the time that the budget is submitted. Audit committee approval is required to exceed the pre-approved amount for a particular category of non-audit services and to engage the independent registered public accounting firm for any non-audit services not included in those pre-approved amounts. For both types of pre-approval, the audit committee considers whether such services are consistent with the rules on auditor independence promulgated by the SEC and the PCAOB. The audit committee also considers whether the independent registered public accounting firm is best positioned to provide the most effective and efficient service, based on such reasons as the auditor's familiarity with the Company's business, people, culture, accounting systems, risk profile, and whether the services enhance the Company's ability to manage or control risks and improve audit quality. The audit committee may form and delegate pre-approval authority to subcommittees consisting of one or more members of the audit committee, and such subcommittees must report any pre-approval decisions to the audit committee at its next scheduled meeting. All of the services provided by the independent registered public accounting firm were pre-approved by your audit committee.

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PROPOSAL 3 APPROVAL OF ISSUANCE OF COMMON STOCK TO INTREXON CORPORATION IN CONNECTION WITH INTREXON EXCLUSIVE CHANNEL COLLABORATION

Our Board of Directors is seeking the approval of our stockholders for the issuance of 3,552,210 additional shares of our common stock to Intrexon Corporation (Intrexon) pursuant to the Stock Issuance Agreement between ourselves and Intrexon dated August 6, 2012 (the Stock Issuance Agreement).

GENERAL

On August 6, 2012, we expanded our relationship with Intrexon by entering into an Exclusive Channel Collaboration Agreement (the Channel Agreement) that governs a channel collaboration arrangement in which we 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 our 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. Pursuant to the terms of the Stock Issuance Agreement that we entered into with Intrexon in connection with the Channel Agreement and subject to approval of this Proposal 3 and fulfillment of certain conditions, including approval of the NYSE MKT, LLC, we have agreed to issue to Intrexon a number of shares of our common stock (estimated to be 3,552,210 shares of common stock) equal to the difference between: (i) 19.99% of the number of shares of our Common Stock outstanding as of the date of the closing prior to the issuance of such shares, and (ii) the number of shares of our Common Stock 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. We have also agreed upon attainment of certain milestones to make additional payments to Intrexon either in cash or stock. For additional information regarding the Channel Agreement reference is made to our Current Report on Form 8-K filed with the Securities and Exchange Commission on August 9, 2012.

The Channel Agreement grants us 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, our development efforts will target three infectious diseases within the Field. Within the first two years of the collaboration, we have the right to exchange the 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. We also have 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. Such license is exclusive with respect to any clinical development, selling, offering for sale or other commercialization of our products within the Field (Synthetic Products), and otherwise is non-exclusive. We may not sublicense the rights described without Intrexon's written consent.

Under the Channel Agreement, and subject to certain exceptions, we are 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, we will pay Intrexon royalties on annual net sales of the Synthetic Products, calculated on a Synthetic Product-by-Synthetic Product basis. We have likewise agreed to pay Intrexon a percentage of quarterly revenue obtained from a sublicensor in the event of a sublicensing arrangement.

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, we may not terminate the Channel Agreement, except under limited circumstances. Following the first 18 months, we may voluntarily terminate the Channel Agreement upon 90 days written notice to Intrexon. Intrexon may also terminate the Channel Agreement if we elect 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 we remedy the circumstances

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

is being commercialized by us,
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 us of the Channel Agreement or by us upon 60 days notice after the first 18 months.

Our obligation to pay the royalties described above with respect to these retained products will survive termination of the Channel Agreement.

Need For Stockholder Approval

Our common stock is listed on the NYSE MKT, LLC, and, as a result, we are subject to the rules of the NYSE MKT, LLC (the NYSE MKT Rules). The NYSE MKT, LLC has determined that we are required to seek stockholder approval for the issuance of the Technology Access Shares to be issued to Intrexon pursuant to the Stock Issuance Agreement in order to ensure compliance with Rule 712 of the NYSE MKT Rules and the limitations set forth therein (NYSE MKT Rule 712). NYSE MKT Rule 712 requires stockholder approval for an acquisition of the stock or assets of another company if any individual director, officer or substantial shareholder of the listed company has a 5% or greater interest (or such persons collectively have a 10% or greater interest), directly or indirectly, in the company or assets to be acquired or in the consideration to be paid in the transaction and the present or potential issuance of common stock, or securities convertible into common stock, could result in an increase in outstanding common shares of 5% or more.

Our stockholders are being asked to approve the issuance of the Technology Access Shares because the NYSE MKT, LLC has determined that due to Intrexon's current ownership of 9.35% of our outstanding common stock that Intrexon is a substantial shareholder and that the issuance of the Technology Access Shares in connection with the Channel Agreement would be deemed an issuance in connection with an acquisition of assets that would result in an increase in outstanding common shares in excess of 5%. Under the Stock Issuance Agreement, we have agreed to submit to our stockholders a proposal to approve the issuance of the Technology Access Shares.

Certain Consequences if Proposal 3 is Approved

If Proposal 3 is approved by the stockholders, we may issue up to an additional 3,552,210 shares of our common stock representing approximately 10.6% of our outstanding common stock as of August 27, 2012. After such issuance, Intrexon will own approximately 18.07% of our outstanding common shares. In such event, our existing stockholders will incur dilution to their voting and economic interests and will own a smaller percentage of the outstanding common stock. The fair value of the shares of common stock that may be issued pursuant to this collaboration is approximately \$7 million based on the closing price on August 27, 2012, and will be recorded as a research and development expense.

Certain Consequences if Proposal 3 is Not Approved

If Proposal 3 is not approved by the stockholders, the Channel Agreement will be terminated, and we will not have access to Intrexon's comprehensive suite of proprietary technologies for the development of fully human monoclonal antibodies intended for the treatment of certain infectious diseases.

Vote Required for Approval

The affirmative vote of the holders of shares of stock representing a majority of the votes cast on this Proposal 3 at the 2012 Annual Meeting is required to approve the authorization of the issuance of the

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Technology Access Shares. This Proposal 3 is a non-discretionary item, meaning that brokerage firms cannot vote shares in their discretion on behalf of a client if the client has not given voting instructions. Accordingly, if you hold your shares in street name and fail to instruct your broker to vote your shares for the proposal, your shares will not be counted as votes cast for the proposal and will have no effect on the outcome of this Proposal 3.

Description of the Common Stock that may be Issued as Technology Access Shares

Par Value

The par value of our common stock is \$0.001 per share.

Voting Rights

Each outstanding share of our common stock is entitled to one vote on all matters submitted to a vote of shareholders. There is no cumulative voting.

Dividend and Liquidation Rights

The holders of outstanding shares of our common stock are entitled to receive dividends out of assets legally available for the payment of dividends at the times and in the amounts as our board of directors may from time to time determine. The shares of our common stock are neither redeemable nor convertible. Holders of our common stock have no preemptive or subscription rights to purchase any of our securities. Upon our liquidation, dissolution or winding up, the holders of our common stock are entitled to receive pro rata our assets which are legally available for distribution, after payment of all debts and other liabilities and subject to the prior rights of any holders of preferred stock then outstanding.

We have never paid any cash dividends on our common stock.

Rights and Preferences

Holders of our common stock have no preemptive, conversion, subscription or other rights, and there are no redemption or sinking fund provisions applicable to the common stock. The rights, preferences and privileges of the holders of common stock are subject to and may be adversely affected by, the rights of the holders of shares of any series of preferred stock currently outstanding or that we may designate in the future.

Fully Paid and Nonassessable

The shares of common stock that may be issued as Technology Access Shares will be fully paid and nonassessable.

Price

The closing market price of our common stock on as of the close of business on August 27, 2012 was \$1.97.

Holders

As of August 27, 2012 there were 33,395,538 holders of record of our common stock.

Resale Limitations

The Technology Access Shares, if this Proposal 3 is approved and any such shares are issued, will also be issued in transactions exempt from registration under the Securities Act of 1933. Therefore, the shares of our common stock issued as Technology Access Shares will be restricted securities and may not be resold unless such resale is registered or an exemption from registration under the Securities Act is available. 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, we 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, we will be obligated to

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use our 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 otherwise can be sold pursuant to Rule 144, without any restrictions.

Interests of Certain Persons

On November 18, 2011, we entered into an Exclusive Channel Collaboration Agreement (the PAH Channel Agreement) with Intrexon that governs a channel collaboration arrangement in which we will use Intrexon's technology directed towards the production of prostaglandin synthase, through the use of *in vivo* conditionally regulated embedded controllable bioreactors for the treatment of pulmonary arterial hypertension (PAH) (collectively, the PAH Program). On November 18, 2011, in connection with the PAH Channel Agreement, we entered into a Stock Purchase Agreement with Intrexon pursuant to which we issued to Intrexon 3,123,558 shares of our common stock (the First Tranche Shares) at a purchase price equal to the \$0.001 par value of such shares, which issuance was deemed paid in partial consideration for the execution and delivery of the PAH Channel Agreement. We have also agreed to issue additional shares of our common stock to Intrexon upon dosing of the first patient in a Company-sponsored Phase II clinical trial in the United States, or similar study as the parties may agree in a country other than the United States, of a product developed under the PAH Program. Upon satisfaction of such contingency, we have agreed to issue to Intrexon an additional number of shares equal to the number of the First Tranche Shares, subject to certain adjustments (the Second Tranche Shares), for a purchase price equal to the \$0.001 par value of such shares, which issuance will be deemed paid in partial consideration for the execution and delivery of the PAH Channel Agreement.

Regulatory Approvals

We were not required to obtain any approvals or clearances from any federal or state regulatory authorities in the United States or other countries to consummate the transaction contemplated by the Channel Agreement and Stock Issuance Agreement. In the United States, we must comply with applicable federal and state securities laws and the Company Guide Rules of the NYSE MKT LLC in connection with the issuances of shares of our common stock to Intrexon pursuant to the Stock Issuance Agreement.

OUR BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS THAT YOU VOTE FOR THE ISSUANCE OF COMMON STOCK IN CONNECTION WITH THE INTREXON EXCLUSIVE CHANNEL COLLORATION.

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CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS

In June 2009, we entered into an employment agreement with Max Lyon, to serve as our Chief Executive Officer and President at an annual salary of \$190,000 per year. Mr. Lyon resigned from those positions in February 2010. See Executive Compensation-Employment Agreements.

In February 2010, we entered into an employment agreement with Dr. James S. Kuo, to serve as our Chief Executive Officer, Chief Financial Officer, President and Chairman of the Board of Directors at an annual salary of \$199,000 per year. Dr. Kuo resigned from those positions in February 2012. See Executive Compensation-Employment Agreements.

On November 18, 2011, we entered into the PAH Channel Agreement with Intrexon and in connection therewith issued to Intrexon 3,123,558 shares of our common stock at a purchase price equal to the \$0.001 par value of such shares. On August 6, 2012, we expanded our relationship with Intrexon by entering into the Channel Agreement that governs a channel collaboration arrangement in which we 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. Pursuant to the terms of the Stock Issuance Agreement that we entered into with Intrexon in connection with the Channel Agreement, subject to approval of Proposal 3 and the fulfillment of the other conditions to closing, including approval of the NYSE MKT, LLC, we have agreed to issue to Intrexon the Technology Access Shares. We have also agreed upon attainment of certain milestones to make additional payments to Intrexon either in cash or stock.

On January 2, 2012, Steve H. Kanzer was engaged as our Interim Director of our Biologics Division. In connection with his appointment, Mr. Kanzer entered into a six month employment agreement with us on a full time basis (the Kanzer Employment Agreement), which was extended for an additional three (3) months. Pursuant to the Kanzer Employment Agreement, Mr. Kanzer will be entitled to a base salary of \$90,000 for the six month term, healthcare coverage pursuant to our healthcare insurance plan, reimbursement for certain relocation expenses and rent expense. The Kanzer Employment Agreement also includes confidentiality obligations and inventions assignments by Mr. Kanzer. Mr. Kanzer is not entitled to severance pay upon termination of his employment.

Pursuant to its charter, the Company's audit committee, or one or more of its members with delegated authority, shall review and, if appropriate, approve all proposed related party transactions. Other than the transactions set forth above, there were no related party transactions since the beginning of the last fiscal year.

AVAILABILITY OF REPORT ON FORM 10-K

Our audited consolidated financial statements are included in our Annual Report on Form 10-K/A for the fiscal year ending December 31, 2011 filed with the Securities and Exchange Commission, 100 F Street, N.E., Washington, D.C. 20549. Upon your written request, we will provide to you a complimentary copy of our 2011 Annual Report on Form 10-K/A as filed with the Securities and Exchange Commission. Your request should be mailed to Synthetic Biologics, Inc., Attention: Corporate Secretary, 617 Detroit Street, Suite 100, Ann Arbor, Michigan 48104. A complimentary copy may also be obtained at the internet website maintained by the Securities and Exchange Commission at www.sec.gov, and by visiting our internet website at www.syntheticbiologics.com and clicking on Investors, then on SEC Filings.

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NOTICE REGARDING DELIVERY OF STOCKHOLDER DOCUMENTS (HOUSEHOLDING INFORMATION)

The Securities and Exchange Commission has adopted rules that permit companies and intermediaries (e.g., brokers) to satisfy the delivery requirements for proxy statements with respect to two or more stockholders sharing the same address by delivering a single proxy statement addressed to those stockholders. This process, which is commonly referred to as householding, potentially means extra convenience for stockholders and cost savings for companies and intermediaries. A number of brokers and other intermediaries with account holders who are our stockholders may be householding our stockholder materials, including this proxy statement. In that event, a single proxy statement will be delivered to multiple stockholders sharing an address unless contrary instructions have been received from the affected stockholders. Once you have received notice from your broker or other intermediary that it will be householding communications to your address, householding will continue until you are notified otherwise or until you revoke your consent, which is deemed to be given unless you inform the broker or other intermediary otherwise when you receive or received the original notice of householding. If, at any time, you no longer wish to participate in householding and would prefer to receive a separate proxy statement, please notify your broker or other intermediary to discontinue householding and direct your written request to receive a separate proxy statement to us at: Synthetic Biologics, Inc., Attention: Corporate Secretary, 617 Detroit Street, Suite 100, Ann Arbor, Michigan 48104 or by calling us at (734) 332-7800. Stockholders who currently receive multiple copies of the proxy statement at their address and would like to request householding of their communications should contact their broker or other intermediary.

STOCKHOLDER PROPOSALS

Stockholder proposals which are intended to be presented at the 2013 Annual Meeting of Stockholders pursuant to SEC Rule 14a-8 must be received by the Company by May 14, 2013 and must also be received a reasonable time before it begins to print and send its proxy materials for that meeting.

A stockholder who intends to present business, including the election of a director, at the 2013 Annual Meeting of Stockholders other than pursuant to Rule 14a-8, must comply with the requirements set forth in the Company's Amended and Restated Bylaws. Stockholders should consult the Company's Amended and Restated Bylaws to ensure that all of the specific requirements of such notice are met.

Available Information on Corporate Governance and SEC Filings

Through its website (www.syntheticbiologics.com), the Company makes available, free of charge, its Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, all amendments to those reports, and other filings with the Securities and Exchange Commission, as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. The Company also makes the following documents available on its website: the Audit Committee Charter; the Compensation Committee Charter; the Nominations Committee Charter; the Company's Code of Conduct; and the Company's Code of Ethics for Financial Management. You may also obtain a copy of any of the foregoing documents, free of charge, if you submit a written request to Synthetic Biologics, Inc., Attention: Corporate Secretary, 617 Detroit Street, Suite 100, Ann Arbor, Michigan 48104.

No person is authorized to give any information or make any representation other than that contained in this proxy statement, and if given or made, such information may not be relied upon as having been authorized.

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SYNTHETIC BIOLOGICS, INC.

**THIS PROXY IS SOLICITED BY THE BOARD OF
DIRECTORS
IN CONNECTION WITH THE 2012 ANNUAL MEETING
OF STOCKHOLDERS
TO BE HELD AT 9:00 A.M. (EASTERN TIME) ON
OCTOBER 5, 2012**

PROXY: JEFFREY RILEY AND C. EVAN BALLANTYNE, or either of them, are hereby appointed by the undersigned as attorneys and proxies with full power of substitution, to vote at the 2012 Annual Meeting of Stockholders of Synthetic Biologics, Inc. and at any adjournment(s) or postponement(s) of that meeting.

WITH RESPECT TO ANY MATTER THAT SHOULD PROPERLY COME BEFORE THE ANNUAL MEETING THAT IS NOT SPECIFIED HEREIN, THIS PROXY, WILL BE VOTED IN THE DISCRETION OF THE PROXY HOLDER.

THIS PROXY IS CONTINUED ON THE REVERSE SIDE.

PLEASE SIGN AND DATE ON THE REVERSE SIDE AND RETURN PROMPTLY

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**THE BOARD OF DIRECTORS OF SYNTHETIC
BIOLOGICS, INC.
RECOMMENDS THAT YOU VOTE
FOR ALL NOMINEES LISTED IN PROPOSAL 1,
FOR PROPOSALS 2 AND 3**

PROPOSAL 1. Election of the following director nominees to serve for the following year and until his successor is elected:

Nominees are: Steve H. Kanzer, Jeffrey J. Kraws, Jeffrey Riley, Scott L. Tarriff and Jeffrey Wolf.

| | | |
|-----------------------|--|---|
| FOR ALL NOMINEES | WITHHOLD AUTHORITY FOR ALL NOMINEES | WITHHELD FOR THE FOLLOWING ONLY: (WRITE THE NAME(S) OF THE NOMINEE(S) IN THE SPACE BELOW) |
| <input type="radio"/> | <input type="radio"/> | |

PROPOSAL 2. Ratification of the selection of BDO USA, LLP as the Company's independent registered public accounting firm for our fiscal year ending December 31, 2012.

| | | |
|-----------------------|-----------------------|-----------------------|
| FOR | AGAINST | ABSTAIN |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

PROPOSAL 3. Approval of the issuance of 3,552,210 shares of common stock to Intrexon Corporation in connection with the Exclusive Channel Collaboration.

| | | |
|-----------------------|-----------------------|-----------------------|
| FOR | AGAINST | ABSTAIN |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Dated:

Signature(s) of Stockholder(s)

Title

Please mark, date and sign exactly as your name appears on this proxy card and return in the enclosed envelope. If acting as executor, administrator, trustee, guardian, etc., you should so indicate when signing. If the signer is a corporation, please sign the full corporate name, by a duly authorized officer. If shares are held jointly, each stockholder named should sign.