

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

**FORM S-3**

**REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933**

**STELLAR BIOTECHNOLOGIES, INC.**  
(Exact name of registrant as specified in its charter)

**British Columbia, Canada**  
(State or other jurisdiction of  
incorporation or organization)

**N/A**  
(I.R.S. Employer  
Identification No.)

**332 E. Scott Street  
Port Hueneme, California 93041  
(805) 488-2800**  
(Address, including zip code, and telephone number, including  
area code, of registrant's principal executive offices)

**Kathi Niffenegger  
Chief Financial Officer  
Stellar Biotechnologies, Inc.  
332 E. Scott Street  
Port Hueneme, California 93041  
(805) 488-2800**  
(Name, address, including zip code, and telephone number, including area code, of agent for service)

*With a copy to:*  
**Barbara A. Jones, Esq.  
Greenberg Traurig, LLP  
One International Place  
Boston, Massachusetts 02110  
Telephone: (617) 310-6064  
Facsimile: (617) 310-6001**

*Approximate date of commencement of proposed sale to public:* From time to time after the effective date of this Registration Statement as determined by the selling shareholder named in the prospectus contained herein.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See definition of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

(Do not check if a smaller reporting company)

Title of Each Class of Securities to be Registered (1)	Amount to be Registered (2)	Proposed Maximum Offering Price Per Share (3)	Proposed Maximum Aggregate Offering Price (3)	Amount of Registration Fee (3)
Common Shares, no par value	1,265,626	\$2.25	\$2,847,658.50	\$286.76

- (1) Pursuant to Rule 416 under the Securities Act of 1933, as amended (the "Securities Act"), the securities being registered under this registration statement include such indeterminate number of common shares that may be issued by the registrant with respect to the securities being registered hereunder as a result of share splits, share dividends, or similar transactions.
- (2) Represents common shares issuable upon the exercise of warrants that may be sold by the selling shareholders named herein.
- (3) Estimated solely for purposes of calculating the registration fee pursuant to Rule 457(c) under the Securities Act based upon the average of the high and low prices for the registrant's common shares as reported on The NASDAQ Capital Market on September 13, 2016.

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**The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the registration statement shall become effective on such date as the Commission acting pursuant to said Section 8(a), may determine.**

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The information in this prospectus is not complete and may be changed. The selling shareholders may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

Subject to completion, dated September 16, 2016

## PROSPECTUS



### STELLAR BIOTECHNOLOGIES, INC.

#### 1,265,626 Common Shares

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The selling shareholders named in this prospectus are offering up to 1,265,626 common shares they may acquire upon the exercise of outstanding warrants. We issued the warrants to the selling shareholders in a private placement financing we completed in July 2016. The warrants have an exercise price of \$4.50 per share (as it may be adjusted pursuant to the terms of the warrants). We will not receive any proceeds from the resale of the common shares by the selling shareholders. Any proceeds received by us from the exercise of the warrants will be used for general corporate purposes.

The selling shareholders may offer our common shares from time to time in a number of different methods and at varying prices. For more information on possible methods of offer and sale by the selling shareholders, refer to the section of this prospectus entitled "Plan of Distribution."

Our common shares are listed on The NASDAQ Capital Market under the symbol "SBOT." The last reported sale price of our common shares on September 15, 2016 was \$2.22 per share.

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**Investing in our securities involves a high degree of risk. See "Risk Factors" beginning on page 3 of this prospectus and under similar headings in the other documents that are incorporated by reference into this prospectus.**

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

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The date of this prospectus is \_\_\_\_\_, 2016.

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### ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we have filed with the U.S. Securities and Exchange Commission (the “SEC”) under the Securities Act of 1933, as amended (the “Securities Act”). Under this registration process, holders of the warrants we issued in a private placement financing in July 2016 may, from time to time, sell or otherwise dispose of up to an aggregate of 1,265,626 common shares issued to them upon exercise of such warrants. The registration statement containing this prospectus, including the exhibits to the registration statement, provides additional information about us and the securities offered under this prospectus. The registration statement, including the exhibits, can be read on the SEC’s website or at the SEC offices mentioned under the heading “Where You Can Find More Information.”

You should rely only on the information contained or incorporated by reference in this prospectus. We have not authorized any other person to provide you with different information. If anyone provides you with different information, you should not rely on it. We are not making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information contained in this prospectus and the documents incorporated by reference herein and therein are accurate only as of the date such information is presented or in any applicable prospectus supplement. Neither the delivery of this prospectus nor any sale made in connection with this prospectus shall, under any circumstances, create any implication that there has been no change in our affairs since the date of this prospectus or that the information contained by reference to this prospectus is correct as of any time after its date.

This prospectus may be supplemented from time to time to add, update or change information in this prospectus. Any statement contained in this prospectus will be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in such prospectus supplement modifies or supersedes such statement. Any statement so modified will be deemed to constitute a part of this prospectus only as so modified, and any statement so superseded will be deemed not to constitute a part of this prospectus.

In this prospectus, (i) “Stellar,” “the Company,” “we,” “us,” and “our” refer to Stellar Biotechnologies, Inc., a British Columbia corporation, unless the context otherwise requires and (ii) “common shares” refer to the Company’s common shares, no par value per share.

## PROSPECTUS SUMMARY

The following summary highlights selected information contained in this prospectus. Because it is a summary, it does not contain all of the information you should consider before making an investment decision. Before making an investment decision, you should read the entire prospectus carefully, including the “Risk Factors” section, and the information incorporated by reference in this prospectus.

### Stellar Biotechnologies, Inc.

#### Our Business

We are a biotechnology company engaged in the aquaculture, research and development, manufacture and commercialization of Keyhole Limpet Hemocyanin (“KLH”) protein. KLH is a high molecular weight, immune-stimulating protein with an extensive history (over 40 years) of safe and effective use in immunological applications.

KLH can be used as an active pharmaceutical ingredient (“API”) and combined with a disease-targeting agent to create immunotherapies targeting cancer, immune disorders, Alzheimer’s disease, and inflammatory diseases, or it can be used as a finished, injectable product in the immunodiagnostic market for measuring immune response in patients and research settings. Our mission is to become the world leader in the sustainable manufacture of KLH and use our unique, proprietary methods and intellectual property to serve the growing demand for KLH in immunotherapeutic and immunodiagnostic markets.

Immunotherapies (also known as therapeutic vaccines) involve using the body’s own immune system to target and treat disease. Immunodiagnostics involve assessing the body’s immune status in relation to the effects of a new drug, a disease, or the environment. Our KLH products can be used to stimulate the immune system in both applications.

KLH is refined from the hemolymph of a relatively scarce ocean mollusk, the Giant Keyhole Limpet (*Megathura crenulata*), which is native only to the rocky Pacific Ocean waters off Southern California and Baja California, Mexico. Based upon our specialized knowledge of aquaculture science and KLH, we have built unique aquaculture, laboratory, and production facilities in Port Hueneme, California, and developed sustainable and commercially viable manufacturing processes to produce KLH using Current Good Manufacturing Practices (“cGMP” or “GMP”). We contract with contract manufacturing organizations and contract testing organizations for certain steps of the cGMP processing and quality control testing.

Using our proprietary intellectual property and methods related to KLH manufacture, including a patented non-lethal protein extraction process, we are able to raise and sustain commercial-scale colonies of Giant Keyhole Limpets, and extract and purify high quality KLH protein, without relying solely on ocean-harvest techniques. We believe we are positioning our Company to meet the anticipated long-term demand within the pharmaceutical industry for GMP grade KLH by providing a sustainable source for its scalable, controlled, and traceable production.

Our core business is the manufacture and supply of KLH protein under the brand “Stellar KLH™.” We raise Giant Keyhole Limpets in our own land-based aquaculture facilities, extract KLH protein using non-lethal methods, and manufacture and sell GMP and research grade Stellar KLH™ products to third parties. Our products include Stellar KLH™ protein in various grades, formulations and configurations for both preclinical and clinical applications, and certain KLH-based in vitro diagnostic kits for preclinical use. Stellar KLH™ protein can be used as an API for conjugation as a carrier molecule or adjuvant in immunotherapies under development, and as an immune stimulant in immunotoxicology applications. Our customers and partners include multinational biotechnology and pharmaceutical companies, academic institutions, clinical research organizations, and research centers.

We believe we are the leader in the sustainable manufacture of GMP grade KLH because of our expanding intellectual property portfolio, our achievements in aquaculture science, our KLH production capacity, and our proprietary KLH sustainable manufacturing know-how. The complexity and versatility of the KLH molecule and the growing need for commercial-scale GMP grade KLH provide numerous commercial opportunities for us.

Our strategic objectives are to:

- Expand our Stellar KLH™ technology portfolio through ongoing research and development and selective acquisitions, while maintaining a strong balance sheet with careful resource management;
- Pursue opportunities for commercial growth that build on our strengths and core competencies in KLH development and manufacture; and
- Identify strategic pathways that leverage our Stellar KLH™ products and expertise into immunotherapy and immunodiagnostics solutions.

## **Corporate Information**

We operate through our wholly-owned subsidiary, Stellar Biotechnologies, Inc., a California corporation which was organized on September 9, 1999. We acquired the subsidiary on April 12, 2010 through a reverse merger, began trading on the TSX Venture Exchange under the symbol “KLH” on April 19, 2010, and continued trading on the TSX Venture Exchange until April 8, 2016. We were originally incorporated in Canada on June 12, 2007, as a Canadian “capital pool company” under the name China Growth Capital, Inc. and subsequently changed our name to CAG Capital, Inc. on April 15, 2008. Our common shares began trading on the TSX Venture Exchange on August 29, 2008, and continued trading on the TSX Venture Exchange until we voluntarily delisted on April 8, 2016. We became a British Columbia corporation on November 25, 2009. Our reverse merger in April 2010 constituted our “qualifying transaction” under Canadian law, at which time we changed our name to Stellar Biotechnologies, Inc. In January 2013, our common shares began trading on the U.S. OTCQB Marketplace Exchange under the symbol “SBOTF” and, on November 5, 2015, our common shares were listed on The NASDAQ Capital Market under the symbol “SBOT.”

Our executive offices are located at 332 East Scott Street, Port Hueneme, California 93041. Our phone number is (805) 488-2800. Our website address is <http://www.stellarbiotechnologies.com>. The contents of our website are not incorporated by reference into this report and you should not consider information provided on our website to be part of this report.

## The Offering

Common shares being offered by the selling shareholders:	Up to 1,265,626 common shares issuable upon exercise of outstanding warrants. See "Selling Shareholders" beginning on page 6 of this prospectus.
Warrant exercise price:	\$4.50 per share
Warrant exercisability and expiration:	The warrants become exercisable on January 6, 2017 and expire on January 6, 2022.
Use of Proceeds:	All proceeds from the sale of the common shares under this prospectus will be for the account of the selling shareholders. We will not receive any proceeds from the sale of our common shares offered pursuant to this prospectus. Any proceeds received by us from the exercise of the warrants will be used for general corporate purposes, which may include working capital, capital expenditures and research and development expenses. See the section entitled "Use of Proceeds" in this prospectus.
NASDAQ symbol:	SBOT
Listing:	Our common shares are listed for trading on The NASDAQ Capital Market. There is no established trading market for the warrants and we do not intend to list the warrants on any exchange or other trading or quotation system.

## RISK FACTORS

Investing in our common shares involves significant risks. Please see the risk factors under the heading "Risk Factors" in our most recent Annual Report on Form 10-K, as revised or supplemented by our Quarterly Reports on Form 10-Q filed with the SEC since the filing of our most recent Annual Report on Form 10-K, each of which are on file with the SEC and are incorporated by reference in this prospectus. Before making an investment decision, you should carefully consider these risks as well as other information we include or incorporate by reference in this prospectus.

## WHERE YOU CAN FIND MORE INFORMATION

We are subject to the informational requirements of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). Accordingly, we file annual, quarterly and special reports, proxy statements and other information with the SEC. You may read and copy any document that we file at the SEC's public reference room at 100 F Street, NE, Washington, DC 20549. Information about the operation of the public reference room may be obtained by calling the SEC at 1-800-SEC-0330. Our SEC filings are also available to you free of charge at the SEC's web site at <http://www.sec.gov>.

You can read and print press releases, financial statements, our most recent annual and quarterly reports and additional information about us, free of charge, at our website at <http://www.stellarbiotechnologies.com/>. Our website and the information contained on that site, or connected to that site, are not incorporated into and are not a part of this prospectus.

This prospectus is part of a registration statement on Form S-3 filed by us with the SEC under the Securities Act. This prospectus does not contain all of the information set forth in the registration statement, certain parts of which are omitted in accordance with the rules and regulations of the SEC. For further information with respect to us and the common shares offered by the selling shareholders upon exercise of outstanding warrants, please refer to the registration statement. The registration statement may be inspected at the public reference facilities maintained by the SEC at the addresses set forth above. Statements in this prospectus about any document filed as an exhibit are not necessarily complete and, in each instance, you should refer to the copy of such document filed with the SEC. Each such statement is qualified in its entirety by such reference.

You should rely only on the information contained in this prospectus or to which we have referred you. We have not authorized any person to provide you with different information or to make any representation not contained in this prospectus.

#### **CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS**

This prospectus and the information incorporated by reference in this prospectus contain certain statements that constitute "forward-looking statements" within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act. These statements relate to future events or to our future operating or financial performance and involve known and unknown risks, uncertainties and other factors which may cause our actual results, performance or achievements to be materially different from any future results, performances or achievements expressed or implied by the forward-looking statements, and are identified by words such as "believe," "anticipate," "expect," "intend," "plan," "may," "seek" and other similar expressions. Forward-looking statements may include, but are not limited to, statements about:

- our history of net losses;
- our ability to raise substantial additional capital to finance our planned operations;
- our ability to gain market acceptance for our current and future Stellar KLH<sup>TM</sup> products;
- our ability to protect and maintain our intellectual property and licensing arrangements;
- our ability to promote, manufacture and sell our products, either directly or through collaborative and other arrangements with third parties; and
- our ability to attract and retain key personnel.

These statements reflect our current views with respect to future events and are based on assumptions and subject to risks and uncertainties. Given these uncertainties, you should not place undue reliance on these forward-looking statements.

You should read these risks and other cautionary statements made in this prospectus, and in the documents we incorporate by reference as being applicable to all related forward-looking statements wherever they appear in the prospectus, and in the documents incorporated by reference. We do not assume any obligation to update any forward-looking statements made by us.



## INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to “incorporate” into this prospectus the information contained in other documents and reports that we file with the SEC. This means that we can disclose important information to you by referring to other documents that contain that information. Any information that we incorporate by reference is considered part of this prospectus. The documents and reports that we list below are incorporated by reference into this prospectus, other than any portion of any such documents that are not deemed “filed” under the Exchange Act in accordance with the Exchange Act and applicable SEC rules.

In addition, all documents and reports which we file pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act after the date of the initial registration statement and prior to the effectiveness of the registration statement and after the date of this prospectus and prior to the termination of the offering under this prospectus shall be deemed to be incorporated in this prospectus by reference and to be a part hereof from the date of filing of such documents and reports.

We have filed the following documents with the SEC. These documents are incorporated herein by reference as of their respective dates of filing:

- (1) Our Annual Report on Form 10-K for the fiscal year ended September 30, 2015, filed on December 14, 2015;
- (2) Our Quarterly Reports on Form 10-Q for the three months ended December 31, 2015, filed on February 8, 2016, for the three and six months ended March 31, 2016, filed on May 9, 2016 and for the three and nine months ended June 30, 2016, filed on August 9, 2016;
- (3) Our Current Reports on Form 8-K filed on October 27, October 30, November 3, November 5, 2015 and on January 20, March 18, March 22, March 23, March 29, May 17, May 23, May 25, June 30, July 7 and July 19, 2016;
- (4) Our Definitive Proxy Statement on Schedule 14(a), filed on January 25, 2016; and
- (5) The description of our common shares contained in our Registration Statement on Form 8-A filed on November 3, 2015, including any amendments or reports filed for the purpose of updating such description.

The documents incorporated by reference in this prospectus are available from us upon request. We will provide a copy of any and all of the information that is incorporated by reference in this prospectus to any person, without charge, upon written or oral request. Exhibits to SEC filings will not be sent, however, unless those exhibits have specifically been incorporated by reference in this prospectus. Requests for such copies should be directed to the following:

Stellar Biotechnologies, Inc.  
332 E. Scott Street  
Port Hueneme, California 93041  
Attn: Corporate Secretary  
Telephone: (805) 488-2800

Statements contained in documents that we file with the SEC and that are incorporated by reference in this prospectus will automatically update and supersede information contained in this prospectus, including information in previously filed documents or reports that have been incorporated by reference in this prospectus, to the extent the new information differs from or is inconsistent with the old information. Any statement so modified or superseded will not be deemed to be a part of this prospectus, except as so modified or superseded. Because information that we later file with the SEC will update and supersede previously incorporated information, you should look at all of the SEC filings that we incorporate by reference to determine if any of the statements in this prospectus or in any documents previously incorporated by reference have been modified or superseded.

#### **USE OF PROCEEDS**

We will not receive any proceeds from the resale of our common shares by the selling shareholders. We cannot predict when or if the warrants will be exercised, and it is possible that the warrants may expire and never be exercised. Any proceeds received by us from the exercise of the warrants will be used for general corporate purposes, which may include working capital, capital expenditures, and research and development expenses.

We have not yet determined the amount of net proceeds to be used specifically for any of the foregoing purposes. Accordingly, our management will have significant discretion and flexibility in applying the net proceeds from the exercise of the warrants. Pending any use, as described above, we intend to invest the net proceeds in high-quality, short-term, interest-bearing securities.

#### **SELLING SHAREHOLDERS**

In July 2016, we issued warrants in a private placement financing to “accredited investors” as defined in Rule 501(a) under the Securities Act pursuant to an exemption from registration under the Securities Act (the “2016 Warrants”). The 2016 Warrants will be exercisable for our common shares as of January 6, 2017, for five years, at an exercise price of \$4.50 per share. The 2016 Warrants will expire on January 6, 2022 if not previously exercised.

We have agreed to register for resale the common shares underlying the 2016 Warrants (the “2016 Warrant Shares”) under the Securities Act. Pursuant to the securities purchase agreements with the purchasers of the 2016 Warrants (the “Purchase Agreements”), we have agreed to file a registration statement on Form S-3 covering the 2016 Warrant Shares within 90 days of entering into the Purchase Agreements, and have agreed to use commercially reasonable efforts to cause such registration statement to become effective no later than 181 days following the closing date of the sale of the 2016 Warrants (the “Registration Rights”). The resale registration statement, of which this prospectus is a part, when declared effective by the SEC, permits the resale of the 2016 Warrant Shares by the selling shareholders and their permitted assigns into the market from time to time over an extended period. Such registration statement has been filed pursuant to the Registration Rights to register the common shares the selling shareholders listed in the table below may acquire upon the exercise of the 2016 Warrants without regard to any restrictions or limitations on the number of common shares issuable upon exercise thereof.

When we refer to the selling shareholders in this prospectus, we mean those persons listed in the table below, as well as the permitted transferees, pledgees, donees, assignees, successors and others who later come to hold any of the selling shareholders’ interests other than through a public sale.

The selling shareholders may from time to time offer and sell pursuant to this prospectus any or all of the common shares set forth in the following table. There is no requirement for the selling shareholders to sell their shares, and we do not know when, or if, or in what amount the selling shareholders may offer the common shares for sale pursuant to this prospectus.

The table below has been prepared based on the information furnished to us by the selling shareholders as of September 9, 2016. The selling shareholders identified below may have sold, transferred or otherwise disposed of some or all of their shares since the date on which the information in the following table is presented in transactions exempt from or not subject to the registration requirements of the Securities Act. Information concerning the selling shareholders may change from time to time and, if necessary, we will supplement this prospectus accordingly. We are unable to confirm whether the selling shareholders will in fact sell any or all of their common shares.

To our knowledge and except as noted below, none of the selling shareholders has, or within the past three years has had, any material relationships with us or any of our affiliates.

Selling Shareholders	Beneficial Ownership Prior to this Offering		Shares to be Sold in this Offering	Beneficial Ownership After this Offering	
	Shares	Percentage		Shares	Percentage(1)
Anson Investments Master Fund LP (2) 5950 Berkshire Lane, Suite 210 Dallas, Texas 75225	783,700	7.7%	632,813(3)	783,700	7.7%
Empery Asset Master, LTD (4) c/o Empery Asset Management, LP 1 Rockefeller Plaza, Suite 1205 New York, New York 10020	312,285	3.1%	274,184(5)	312,285	3.1%
Empery Tax Efficient, LP (6) c/o Empery Asset Management, LP 1 Rockefeller Plaza, Suite 1205 New York, New York 10020	143,562	1.4%	126,047(7)	143,562	1.4%
Empery Tax Efficient II, LP (8) c/o Empery Asset Management, LP 1 Rockefeller Plaza, Suite 1205 New York, New York 10020	232,582	2.3%	232,582(9)	232,582	2.3%

Beneficial ownership of shares and percentage ownership are determined in accordance with the SEC's rules. In calculating the number of shares beneficially owned by an individual or entity and the percentage ownership of that individual or entity, shares underlying options or warrants that are either currently exercisable or exercisable within 60 days from the date of this prospectus are deemed outstanding. These shares, however, are not deemed outstanding for the purpose of computing the percentage ownership of any other individual or entity. None of the 2016 Warrants are exercisable within 60 days of the date of this filing, so none of the common shares underlying the 2016 Warrants are listed as beneficially owned by the selling shareholders. In addition, under the terms of the 2016 Warrants, a selling shareholder may not exercise the 2016 Warrants to the extent such exercise would cause such selling shareholder, together with its affiliates and attribution parties, to beneficially own a number of common shares which would exceed 4.99% of our then outstanding common shares following such exercise, excluding for purposes of such determination common shares issuable upon exercise of the 2016 Warrants which have not been exercised.

1. Assumes all shares to be sold in this offering are sold.
2. Voting and investment power over the shares held by Anson Investments Master Fund LP is exercised by the co-investment advisors to Anson Investments Master Fund LP. The co-investment advisors of Anson Investments Master Fund LP consist of Frigate Ventures LP (d/b/a Anson Group), a Texas limited partnership, and M5V Advisors Inc. (d/b/a Anson Group Canada), an Ontario, Canada Corporation. As the general partner of Frigate Ventures LP, Admiralty Advisors LLC, a Texas limited liability company, may direct the vote and disposition of the common shares held by Anson Investments Master Fund LP. As the principal of Frigate Ventures LP and Admiralty Advisors, LLC, Bruce R. Wilson may direct the vote and disposition of the common shares held by Anson Investments Master Fund LP. As directors of M5V Advisors Inc., Adam Spears and Moez Kassam may each direct the vote and disposition of the common shares held by Anson Investments Master Fund LP.

3. Represents 632,813 common shares issuable upon exercise of warrants exercisable beginning January 6, 2017.
4. Empery Asset Management LP, the authorized agent of Empery Asset Master Ltd ("EAM"), has discretionary authority to vote and dispose of the shares held by EAM and may be deemed to be the beneficial owner of these shares. Martin Hoe and Ryan Lane, in their capacity as investment managers of Empery Asset Management LP, may also be deemed to have investment discretion and voting power over the shares held by EAM. EAM, Mr. Hoe and Mr. Lane each disclaim any beneficial ownership of these shares .
5. Represents 274,184 common shares issuable upon exercise of warrants exercisable beginning January 6, 2017.
6. Empery Asset Management LP, the authorized agent of Empery Tax Efficient, LP ("ETE"), has discretionary authority to vote and dispose of the shares held by ETE and may be deemed to be the beneficial owner of these shares. Martin Hoe and Ryan Lane, in their capacity as investment managers of Empery Asset Management LP, may also be deemed to have investment discretion and voting power over the shares held by ETE. ETE, Mr. Hoe and Mr. Lane each disclaim any beneficial ownership of these shares.
7. Represents 126,047 common shares issuable upon exercise of warrants exercisable beginning January 6, 2017.
8. Empery Asset Management LP, the authorized agent of Empery Tax Efficient II, LP ("ETE II"), has discretionary authority to vote and dispose of the shares held by ETE II and may be deemed to be the beneficial owner of these shares. Martin Hoe and Ryan Lane, in their capacity as investment managers of Empery Asset Management LP, may also be deemed to have investment discretion and voting power over the shares held by ETE II. ETE II, Mr. Hoe and Mr. Lane each disclaim any beneficial ownership of these shares.
9. Represents 232,582 common shares issuable upon exercise of warrants exercisable beginning January 6, 2017.

#### **DIVIDEND POLICY**

We have not declared any dividends on our common shares since our incorporation and do not anticipate that we will do so in the foreseeable future. Our present policy is to retain future earnings, if any, for use in our operations and the expansion of our business.

#### **DESCRIPTION OF SECURITIES**

The following description of our securities summarizes the material terms and provisions of our common shares that the selling shareholders are offering under this prospectus. For the complete terms of our common shares, please refer to our memorandum and articles of incorporation, or Articles, that are incorporated by reference into the registration statement of which this prospectus forms a part. The summary below is qualified in its entirety by reference to our Articles.

## **Description of Common Shares**

In this offering, the selling shareholders are offering 1,265,626 of our common shares. The following summary of certain provisions of our common shares does not purport to be complete. The summary below is qualified by provisions of applicable law.

### **General Terms**

We are authorized to issue an unlimited number of common shares, no par value. As of September 13, 2016, we had 10,136,258 common shares issued and outstanding. Holders of our common shares are entitled to one vote per share on all matters to be voted upon by our shareholders. Our Articles do not authorize cumulative voting. A majority of two-thirds of the votes cast is required for the passage of a special resolution or a special separate resolution.

The holders of our common shares are entitled to receive dividends, if any, as may be declared from time to time by our Board of Directors out of funds legally available for the payment of dividends, subject to the rights of any series of preferred stock. In the event of a liquidation, dissolution or winding up, the holders of our common shares are entitled to share ratably in all assets remaining after payment of the preferential amounts, if any, to which the holders of our preferred stock, if any, are entitled. Our common shares have no preemptive, conversion or other subscription rights. There are no redemption or sinking fund provisions applicable to our common shares. All of our outstanding common shares are fully paid and non-assessable.

### **Description of Outstanding Warrants to Purchase Common Shares pursuant to which the Offered Common Shares may be Issued**

The following description summarizes the material terms and provisions of the 2016 Warrants. Each warrant will have an exercise price of \$4.50 per share, subject to adjustment pursuant to its terms as summarized below, and is exercisable beginning on January 6, 2017 at any time until 11:59 p.m. (New York time) on January 6, 2022. Each warrant will be exercisable for 0.75 of a common share.

The 2016 Warrants are callable by the Company beginning July 6, 2018, under certain conditions, including the volume weighted average price of the common shares exceeding \$13.00 for a period of 20 consecutive trading days (the "Measurement Period"). The Company may, within one trading day of the end of such Measurement Period, call for cancellation of all or any portion of the outstanding and unexercised warrants for consideration equal to \$.001 per 2016 Warrant Share.

The 2016 Warrants will be exercisable, at the option of each holder, in whole or in part by delivering to the Company a duly executed exercise notice and payment in full for the number of common shares purchased upon such exercise (except in the case of a cashless exercise as discussed below). Unless otherwise specified in the warrant, the holder will not have the right to exercise any portion of the warrant if the holder (together with its affiliates) would beneficially own in excess of 4.99% (subject to increase or decrease by a holder to any other percentage not in excess of 9.99% upon 61 days' prior written notice to the Company and any such increase or decrease will apply only to the holder sending such notice and not to any other holder of the warrants) of the number of our common shares outstanding immediately after giving effect to the exercise, as such percentage ownership is determined in accordance with the terms of the 2016 Warrants.

If at any time after January 6, 2017 there is no effective registration statement registering, or no current prospectus contained is available for resale of the 2016 Warrant Shares, the holder may, in its sole discretion, exercise the warrant in whole or in part and, in lieu of making cash payment otherwise contemplated to be made to the Company upon such exercise in payment of the aggregate exercise price, elect instead to receive upon such exercise the net number of common shares determined according to the formula set forth in the 2016 Warrants.

The exercise price and the number of common shares issuable upon valid exercise of the 2016 Warrants will be subject to adjustment in the event of any share dividends and splits, reverse share split, recapitalization, reorganization or similar transaction, as described in the 2016 Warrants.

Upon the consummation of a “Fundamental Transaction” (as defined below), the holder of the warrant will have the right to receive, upon exercise of the warrant, the same amount and kind of securities, cash or property as it would have been entitled to receive upon the occurrence of such Fundamental Transaction if it had been, immediately prior to such Fundamental Transaction, the holder of the number of shares then issuable upon exercise in full of the warrant without regard to any limitations on exercise contained in the warrant.

A “Fundamental Transaction” is defined in the 2016 Warrants as a transaction where (i) the Company, directly or indirectly, in one or more related transactions effects any merger or consolidation of the Company with or into another person or entity, (ii) the Company, directly or indirectly, effects any sale, lease, license, assignment, transfer, conveyance or other disposition of all or substantially all of its assets in one or a series of related transactions, (iii) any direct or indirect purchase offer, tender offer or exchange offer (whether by the Company or another person or entity) is completed pursuant to which holders of common shares are permitted to sell, tender or exchange their shares for other securities, cash or property and has been accepted by the holders of 50% or more of the outstanding common shares, (iv) the Company, directly or indirectly, in one or more related transactions effects any reclassification, reorganization or recapitalization of the common shares or any compulsory share exchange pursuant to which the common shares are effectively converted into or exchanged for other securities, cash or property, or (v) the Company, directly or indirectly, in one or more related transactions consummates a share purchase agreement or other business combination (including, without limitation, a reorganization, recapitalization, spin-off or scheme of arrangement) with another person or entity or group of persons or entities whereby such other person, entity or group acquires more than 50% of the outstanding common shares (not including any common shares held by the other person or entity or other persons or entities making or party to, or associated or affiliated with the other persons or entities making or party to, such share purchase agreement or other business combination).

Except as otherwise provided in the 2016 Warrants or by virtue of such holder’s ownership of our common shares, the holder of a warrant does not have the rights or privileges of a holder of our common shares, including any voting rights, until the holder exercises the warrant and receives our common shares.

#### **Transfer Agent and Registrar**

The transfer agent and registrar for our common shares is ComputerShare Investor Services, Inc.

#### **Trading Market**

Our common shares are listed on The NASDAQ Capital Market under the symbol “SBOT.”

## PLAN OF DISTRIBUTION

Each Selling Shareholder (the “Selling Shareholders”) of the common shares and any of their pledgees, assignees and successors-in-interest may, from time to time, sell any or all of their common shares included in the registration statement of which this prospectus is a party, on The NASDAQ Capital Market or any other stock exchange, market or trading facility on which the common shares are traded or in private transactions. These sales may be at fixed or negotiated prices.

A Selling Shareholder may use any one or more of the following methods when selling securities:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchases;
- block trades in which the broker-dealer will attempt to sell the securities as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- settlement of short sales;
- in transactions through broker-dealers that agree with the Selling Shareholder to sell a specified number of such securities at a stipulated price per security;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- a combination of any such methods of sale; or
- any other method permitted pursuant to applicable law.

The Selling Shareholders may also sell our common shares under Rule 144 under the Securities Act or any other exemption from registration, if available, rather than under this prospectus.

Broker-dealers engaged by the Selling Shareholders may arrange for other broker-dealers to participate in sales. Broker-dealers may receive commissions or discounts from the Selling Shareholders (or, if any broker-dealer acts as agent for the purchaser of our common shares, from the purchaser) in amounts to be negotiated, but, except as set forth in a supplement to this prospectus, in the case of an agency transaction not in excess of a customary brokerage commission in compliance with FINRA Rule 2121.

In connection with the sale of the common shares or interests therein, the Selling Shareholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the common shares in the course of hedging the positions they assume. The Selling Shareholders may also sell common shares short and deliver these common shares to close out their short positions, or loan or pledge the common shares to broker-dealers that in turn may sell these common shares. The Selling Shareholders may also enter into option or other transactions with broker-dealers or other financial institutions or create one or more derivative securities which require the delivery to such broker-dealer or other financial institutions of common shares offered by this prospectus, which common shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The Selling Shareholders and any broker-dealers or agents that are involved in selling the common shares may be deemed to be “underwriters” within the meaning of the Securities Act in connection with such sales. In such event, any commissions received by such broker-dealers or agents and any profit on the resale of the common shares purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. Each Selling Shareholder has informed the Company that it does not have any written or oral agreement or understanding, directly or indirectly, with any person to distribute the common shares and that there is no underwriter or coordinating broker acting in connection with the proposed sale of the common shares offered hereby by the Selling Shareholders.

The Company is required to pay certain fees and expenses incurred by it incident to the registration of the common shares. The Company has agreed to indemnify the Selling Shareholders against certain losses, claims, damages and liabilities, including liabilities under the Securities Act.

We agreed to keep this prospectus effective until the earlier of (i) the date on which the common shares may be resold by the Selling Shareholders without registration and without regard to any volume or manner-of-sale limitations by reason of Rule 144, without the requirement for the Company to be in compliance with the current public information under Rule 144 under the Securities Act or any other rule of similar effect, (ii) all of the common shares offered hereby have been sold pursuant to this prospectus or Rule 144 under the Securities Act or any other rule of similar effect, or (iii) 66 months after the date of the issuance of the common shares. The common shares offered hereby will be sold only through registered or licensed brokers or dealers if required under applicable state securities laws.

Under applicable rules and regulations under the Exchange Act, any person engaged in the distribution of the common shares offered hereby may not simultaneously engage in market making activities with respect to the common shares for the applicable restricted period, as defined by Regulation M, prior to the commencement of the distribution. In addition, the Selling Shareholders will be subject to applicable provisions of the Exchange Act and the rules and regulations thereunder, including Regulation M, which may limit the timing of purchases and sales of the common shares by the Selling Shareholders or any other person. We will make copies of this prospectus available to the Selling Shareholders and have informed them of the need to deliver a copy of this prospectus to each purchaser at or prior to the time of the sale (including by compliance with Rule 172 under the Securities Act).

#### **EXPERTS**

The consolidated financial statements of the Company as of September 30, 2015 and 2014, and August 31, 2014, and for the fiscal year ended September 30, 2015, the one month ended September 30, 2014, and the fiscal year ended August 31, 2014, incorporated in this prospectus by reference to the Annual Report on Form 10-K for the year ended September 30, 2015 have been so incorporated in reliance on the report of Moss Adams LLP, independent registered public accounting firm, given on the authority of said firm as experts in accounting and auditing.

#### **LEGAL MATTERS**

The validity of the shares offered by this prospectus has been passed upon by McMillan LLP, Vancouver, British Columbia, and certain other matters have been passed upon for us by Greenberg Traurig, LLP, Boston, Massachusetts.





**STELLAR BIOTECHNOLOGIES, INC.**

**1,265,626**

**Common Shares**

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**PROSPECTUS**

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**, 2016**

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## PART II

### INFORMATION NOT REQUIRED IN PROSPECTUS

#### Item 14. Other Expenses of Issuance and Distribution.

Expenses estimated to be incurred by Stellar Biotechnologies, Inc. for the issuance and distribution of the securities being registered under this prospectus are as follows:

SEC registration fee	\$	287
Legal fees and expenses		30,000
Accounting fees and expenses		15,000
Printing fees and expenses		1,000
Total	\$	46,287

#### Item 15. Indemnification of Directors and Officers.

Subject to the British Columbia Business Corporations Act, or “the Act”, our directors, former directors and alternate directors and their heirs and legal personal representatives are indemnified against any judgment, penalty or fine awarded or imposed in, or an amount paid in settlement of, a stipulated legal or investigative proceeding, as set forth in our Articles. In addition, our Articles provide that we may, subject to any restrictions in the Act, indemnify any person.

Under the Act, we may indemnify (a) a current or former director or officer of the Company; (b) a current or former director or officer of another corporation at a time when that corporation is or was an affiliate of the Company; (c) a current or former director or officer of another corporation who holds or held such position at the request of the Company; or (d) an individual who at the request of the Company, is or was, or holds or held a position equivalent to that of, a director, or officer of a partnership, trust, joint venture or other unincorporated entity, (collectively, an “Eligible Party”). In certain circumstances an Eligible Party will include the heirs and personal or other legal representatives of an Eligible Party. We may indemnify an Eligible Party against any Eligible Penalty (defined below) to which the Eligible Party is or may be liable. After the final disposition of an Eligible Proceeding (defined below), we may pay all Expenses (defined below) actually and reasonably incurred by the Eligible Party in connection with such Proceeding (defined below) and must pay all such Expenses actually and reasonably incurred by the Eligible Party in connection with such Proceeding if the Eligible Party has not been reimbursed for those Expenses and is wholly successful on the merits or otherwise in the outcome of the Proceeding. Among other circumstances, we shall not indemnify or cover the Expenses of an Eligible Party if the Eligible Party did not act honestly and in good faith with a view to the best interests of the Company or if the Eligible Party (other than in connection with a civil Proceeding) did not have reasonable grounds for believing that the Eligible Party’s conduct in respect of which the Proceeding was brought was lawful. Further, we cannot indemnify or cover the Expenses of an Eligible Party in respect of any Proceeding brought by or on behalf of the Company against an Eligible Party. The Supreme Court of British Columbia may, among other things, on the applications of a corporation or an Eligible Party, order indemnification by the Company of any liability or expense incurred by an Eligible Party.

“Eligible Penalty” means a judgment, penalty or fine awarded or imposed in, or an amount paid in settlement of, an Eligible Proceeding.

“Eligible Proceeding” means any legal proceeding or investigative action, whether current, threatened, pending or completed (each, a “Proceeding”), in which an Eligible Party, or any of the Eligible Party’s heirs and personal or other legal representatives (i) is or may be joined as a party, or (ii) is or may be liable for or in respect of a judgment, penalty or fine in, or Expenses related to, such Proceeding, in each case by reason of the Eligible Party’s being or having been a director or officer of, or holding or having held a position equivalent to that of a director or officer of, the Company, one of its current or former subsidiaries or affiliates, or another entity at the Company’s request.

“Expenses” includes costs, charges and expenses, including legal and other fees, but does not include judgments, penalties, fines or amounts paid in settlement of a Proceeding.

We have also entered into separate indemnification agreements with each of our directors and executive officers, which are intended to indemnify our directors and executive officers to the fullest extent permitted under the Securities Act, subject to certain exceptions. Our obligations under such separate indemnification agreements are in addition to our indemnification obligations under the Act and our charter documents.

We maintain a directors’ and officers’ liability insurance policy, which insures directors and officers of the Company and its subsidiaries for losses as a result of claims based upon the directors’ and officers’ acts or omissions, including liabilities arising under the Securities Act. The policy also reimburses us for payments made pursuant to the indemnity provisions under the Act and our charter documents.

**Item 16. Exhibits.**

The exhibits listed in the Exhibit Index immediately preceding the exhibits are filed as part of this registration statement.

**Item 17. Undertakings.**

(a) The undersigned registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
  - (i) To include any prospectus required by section 10(a)(3) of the Securities Act of 1933;
  - (ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the SEC pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than 20% change in the maximum aggregate offering price set forth in the “Calculation of Registration Fee” table in the effective registration statement;
  - (iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

*Provided, however*, that paragraphs (a)(1)(i), (a)(1)(ii) and (a)(1)(iii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the SEC by the registrant pursuant to section 13 or section 15(d) of the Exchange Act that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:

(i)(A) Each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

(B) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof. *Provided, however*, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date; or

(5) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to section 13(a) or section 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to section 15(d) of the Exchange Act) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(6) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

## SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Port Hueneme, California, on this 16th day of September, 2016.

### STELLAR BIOTECHNOLOGIES, INC.

By: /s/ Kathi Niffenegger  
Kathi Niffenegger  
Chief Financial Officer and Secretary

Each person whose signature to this registration statement appears below hereby constitutes and appoints each of Frank R. Oakes and Kathi Niffenegger as such person's true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution, for such person and in such person's name, place and stead, in any and all capacities, to sign any and all amendments to the registration statement, including post-effective amendments, and registration statements filed pursuant to Rule 462 under the Securities Act of 1933, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, and does hereby grant unto each said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as such person might or could do in person, hereby ratifying and confirming all that each said attorney-in-fact and agents or any of them, or their substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

#### Signature

#### Title

#### Date

/s/ Frank R. Oakes  
Frank R. Oakes

Chairman, Chief Executive Officer  
(Principal Executive Officer)

September 16, 2016

/s/ Kathi Niffenegger  
Kathi Niffenegger

Chief Financial Officer and Secretary  
(Principal Financial and Accounting Officer)

September 16, 2016

/s/ Daniel E. Morse  
Daniel E. Morse

Director

September 16, 2016

/s/ Gregory T. Baxter  
Gregory T. Baxter

Director

September 16, 2016

/s/ David L. Hill  
David L. Hill

Director

September 16, 2016

/s/ Mayank D. Sampat  
Mayank D. Sampat

Director

September 16, 2016

/s/ Tessie M. Che  
Tessie M. Che

Director

September 16, 2016

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## EXHIBIT INDEX

**EXHIBIT  
NUMBER****DESCRIPTION**

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3.1	Amended and Restated Articles of Incorporation of Stellar Biotechnologies, Inc., dated October 29, 2015 (incorporated by reference from Exhibit 3.1 to the Registrant's Current Report on Form 8-K, as filed with the SEC on October 30, 2015).
4.1	Form of Warrant issued to investors (incorporated by reference from Exhibit 4.1 to the Registrant's Current Report on Form 8-K, as filed with the SEC on June 30, 2016).
*5.1	Opinion of McMillan LLP.
*23.1	Consent of Moss Adams LLP.
*23.2	Consent of McMillan LLP (included in Exhibit 5.1).
*24.1	Power of Attorney (contained in signature page).

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\* Filed herewith.

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September 16, 2016

Stellar Biotechnologies, Inc.  
332 East Scott Street  
Port Hueneme, California 93041

Dear Sirs:

Re: Registration Statement on Form S-3

We have acted as Canadian legal counsel to Stellar Biotechnologies, Inc., a corporation organized under the laws of British Columbia (the "Company"), in connection with the registration statement on Form S-3, as amended (the "Registration Statement"), being filed by the Company with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Act"), on the date hereof. This Registration Statement relates to the registration of up to an aggregate of 1,265,626 of the Company's common shares, no par value per share (the "Common Shares") issuable upon the exercise of outstanding warrants to be sold from time to time by the selling shareholders named therein (the "Shares").

This opinion is being furnished in connection with the requirements of Item 601(b)(5) of Regulation S-K under the Act, and no opinion is expressed herein as to any matter pertaining to the contents of the Registration Statement or related applicable prospectus, other than as expressly stated herein with respect to the issue of the Shares.

As such counsel, we have examined such matters of fact and questions of law as we have considered appropriate for purposes of this letter. With your consent, we have relied upon certificates and other assurances of officers of the Company and others as to factual matters without having independently verified such factual matters. We are qualified to practice law in the Provinces of British Columbia, Alberta, Ontario and Quebec and we do not purport to be experts on the law of any other jurisdiction other than the Provinces of British Columbia, Alberta, Ontario and Quebec and the federal laws of Canada applicable therein. We do not express any opinion herein concerning any law other than the laws of the Provinces of British Columbia, Alberta, Ontario and Quebec and the federal laws of Canada applicable therein. We express no opinion and make no representation with respect to the law of any other jurisdiction.

Subject to the foregoing and the other matters set forth herein, it is our opinion that, as of the date hereof, the Shares have been duly authorized by all necessary corporate action of the Company and, upon issuance, delivery and payment therefor, will be validly issued, fully paid and nonassessable.

This opinion is for your benefit in connection with the Registration Statement and may be relied upon by you and by persons entitled to rely upon it pursuant to the applicable provisions of the Act. We consent to your filing this opinion as an exhibit to the Registration Statement and to the reference to our firm in the Prospectus under the heading "Legal Matters." In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Act or the rules and regulations of the Commission thereunder.

Yours truly,

/s/ McMillan LLP

MCMILLAN LLP

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**CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

We consent to the incorporation by reference in this Registration Statement on Form S-3 of Stellar Biotechnologies, Inc. of our report dated December 14, 2015, relating to the consolidated financial statements of Stellar Biotechnologies, Inc., which appears in the Annual Report on Form 10-K of Stellar Biotechnologies, Inc. for the year ended September 30, 2015, filed with the Securities and Exchange Commission, and to the reference to our firm under the caption "Experts" in the Prospectus, which is part of this Registration Statement.

/s/ Moss Adams LLP

Los Angeles, California  
September 16, 2016

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