UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549

FORM 10-Q

(Mark One)

x QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the quarterly period ended September 30, 2017

OR

¨ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES ACT OF 1934

For the transition period from _____ to _____

Commission File Number: 001-12584

SYNTHETIC BIOLOGICS, INC.

(Exact name of Registrant as Specified in Its Charter)

Nevada	13-3808303
(State or Other Jurisdiction of Incorporation or Organization)	*(I.R.S. Employer Identification No.)*
9605 Medical Center Drive, Suite 270 Rockville, MD	20850
(Address of Principal Executive Offices)	*(Zip Code)*

(301) 417-4364
(*Registrant's Telephone Number, Including Area Code*)

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes x No ¨

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes x No ¨

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated file, a non-accelerated file, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer, "accelerated filer" "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer	¨	Accelerated filer	x
Non-Accelerated filer	¨	Smaller reporting company	¨
(Do not check if a smaller reporting company)		Emerging growth company	¨

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to

Section 13(a) of the Exchange Act. ¨

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ¨ No x

As of October 31, 2017, the registrant had 128,566,883 shares of common stock, $0.001 par value per share, outstanding.

SYNTHETIC BIOLOGICS, INC.

NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Quarterly Report on Form 10-Q contains "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended (the "Securities Act"), and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). In particular, statements contained in this Quarterly Report on Form 10-Q, including but not limited to, statements regarding the timing of our clinical trials, the development and commercialization of our pipeline products, the sufficiency of our cash, our ability to finance our operations and business initiatives and obtain funding for such activities and the timing of any such financing, our future results of operations and financial position, business strategy and plan prospects, or costs and objectives of management for future research, development or operations, are forward-looking statements. These forward-looking statements relate to our future plans, objectives, expectations and intentions and may be identified by words such as "may," "will," "should," "expects," "plans," "anticipates," "intends," "targets," "projects," "contemplates," "believes," "seeks," "goals," "estimates," "predicts," "potential" and "continue" or similar words. Readers are cautioned that these forward-looking statements are based on our current beliefs, expectations and assumptions and are subject to risks, uncertainties, and assumptions that are difficult to predict, including those identified below, under Part II, Item 1A. "Risk Factors" and elsewhere in this Quarterly Report on Form 10-Q, and those identified under Part I, Item 1A of our Annual Report on Form 10-K for the year ended December 31, 2016 filed with the Securities and Exchange Commission (the "SEC") on March 2, 2017 ("2016 Form 10-K"). Therefore, actual results may differ materially and adversely from those expressed, projected or implied in any forward-looking statements. We undertake no obligation to revise or update any forward-looking statements for any reason.

NOTE REGARDING COMPANY REFERENCES

Throughout this Quarterly Report on Form 10-Q, "Synthetic Biologics," the "Company," "we," "us" and "our" refer to Synthetic Biologics, Inc.

NOTE REGARDING TRADEMARKS

All trademarks, trade names and service marks appearing in this Quarterly Report on Form 10-Q are the property of their respective owners.

SYNTHETIC BIOLOGICS, INC.

FORM 10-Q
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PART I–FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS (UNAUDITED)

Synthetic Biologics, Inc. and Subsidiaries
Condensed Consolidated Balance Sheets
(In thousands except share and per share amounts)

	September 30, 2017	December 31, 2016
Assets		
Current Assets:		
Cash and cash equivalents	$ 21,050	$ 19,055
Prepaid expenses and other current assets	1,263	2,515
Total Current Assets	22,313	21,570
Property and equipment, net	943	905
Deposits and other assets	23	23
Total Assets	$ 23,279	$ 22,498
Liabilities and Stockholders' (Deficit) Equity		
Current Liabilities:		
Accounts payable	$ 1,097	$ 1,993
Accrued expenses	2,070	2,627
Warrant liabilities	12,664	14,821
Accrued employee benefits	1,606	313
Deferred rent	88	3
Total Current Liabilities	17,525	19,757
Long term deferred rent	426	492
Total Liabilities	17,951	20,249
Series A convertible preferred stock, $0.001 par value; 10,000,000 and zero shares authorized; 120,000 and zero shares issued and outstanding	11,992	-
Stockholders' Equity:		
Common stock, $0.001 par value; 350,000,000 shares authorized; 128,648,365 and 117,254,196 shares issued; and 128,566,883 and 117,172,714 shares outstanding	129	117
Additional paid-in capital	192,042	175,762
Accumulated deficit	(196,959)	(172,034)
Total Synthetic Biologics, Inc. and Subsidiaries (Deficit) Equity	(4,788)	3,845
Non-controlling interest	(1,876)	(1,596)
Total Stockholders' (Deficit) Equity	(6,664)	2,249
Total Liabilities and Stockholders' (Deficit) Equity	$ 23,279	$ 22,498

See accompanying notes to unaudited condensed consolidated financial statements.

Synthetic Biologics, Inc. and Subsidiaries
Condensed Consolidated Statements of Operations
(In thousands except share and per share amounts)
(Unaudited)

	For the three months ended September 30,		For the nine months ended September 30,	
	2017	2016	2017	2016
Operating Costs and Expenses:				
General and administrative	$ 1,705	$ 2,095	$ 5,440	$ 6,668
Research and development	4,137	7,061	15,028	22,380
Total Operating Costs and Expenses	5,842	9,156	20,468	29,048
Loss from Operations	(5,842)	(9,156)	(20,468)	(29,048)
Other (Expense) Income:				
Change in fair value of warrant liability	(5,092)	666	2,157	3,681
Interest income	4	1	7	36
Total Other (Expense) Income	(5,088)	667	2,164	3,717
Net Loss	(10,930)	(8,489)	(18,304)	(25,331)
Net Loss Attributable to Non-controlling Interest	(8)	(136)	(280)	(451)
Net Loss Attributable to Synthetic Biologics, Inc. and Subsidiaries	$ (10,922)	$ (8,353)	$ (18,024)	$ (24,880)
Series A Preferred Stock Dividends	(6,901)	-	(6,901)	-
Net Loss Attributable to Common Stockholders	$ (17,823)	$ (8,353)	$ (24,925)	$ (24,880)
Net Loss Per Share - Basic and Dilutive	$ (0.14)	$ (0.09)	$ (0.20)	$ (0.27)
Weighted average number of shares outstanding during the period - Basic and Dilutive	128,279,674	91,441,687	122,950,397	91,095,990

See accompanying notes to unaudited condensed consolidated financial statements.

Synthetic Biologics, Inc. and Subsidiaries
Condensed Consolidated Statements of Cash Flows
(In thousands except share and per share amounts)
(Unaudited)

	For the nine months ended September 30,	
	2017	2016
Cash Flows From Operating Activities:		
Net Loss	$ (18,304)	$ (25,331)
Adjustments to reconcile net loss to net cash used in operating activities:		
Stock-based compensation	2,906	2,906
Change in fair value of warrant liabilities	(2,157)	(3,681)
Depreciation	172	111
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	1,251	6,428
Deposits and other assets	-	(12)
Accounts payable	(895)	(171)
Accrued expenses	(557)	1,193
Accrued employee benefits	1,293	1,063
Deferred rent	19	(23)
Net Cash Used In Operating Activities	(16,272)	(17,517)
Cash Flows From Investing Activities:		
Purchases of property and equipment	(209)	(199)
Net Cash Used In Investing Activities	(209)	(199)
Cash Flows From Financing Activities:		
Proceeds from sale of Series A convertible preferred stock, net of issuance cost	11,952	-
Proceeds from issuance of common stock for stock option exercises	166	814
Proceeds from “at the market” stock issuance	6,358	633
Net Cash Provided By Financing Activities	18,476	1,447
Net increase (decrease) in cash	1,995	(16,269)
Cash at beginning of period	19,055	20,818
Cash at end of period	$ 21,050	$ 4,549

See accompanying notes to unaudited condensed consolidated financial statements.

Synthetic Biologics, Inc. and Subsidiaries
Notes to Condensed Consolidated Financial Statements
(Unaudited)

1. Organization, Nature of Operations and Basis of Presentation

Description of Business

Synthetic Biologics, Inc. (the "Company" or "Synthetic Biologics") is a late-stage clinical company developing therapeutics designed to preserve the microbiome to protect and restore the health of patients. The Company's lead candidates poised for Phase 3 development are: (1) SYN-004 (ribaxamase) which is designed to protect the gut microbiome (gastrointestinal (GI) microflora) from the effects of certain commonly used intravenous (IV) antibiotics for the prevention of *C. difficile* infection (CDI), overgrowth of pathogenic organisms and the emergence of antimicrobial resistance (AMR), and (2) SYN-010 which is intended to reduce the impact of methane-producing organisms in the gut microbiome to treat an underlying cause of irritable bowel syndrome with constipation (IBS-C). In collaboration with Intrexon Corporation (NYSE: XON), the Company is also developing preclinical stage monoclonal antibody therapies for the prevention and treatment of pertussis, and novel discovery stage biotherapeutics for the treatment of phenylketonuria (PKU).

Basis of Presentation

The accompanying condensed consolidated financial statements have been prepared pursuant to the rules and regulations of the SEC for interim financial information. Accordingly, they do not include all of the information and notes required by Accounting Principles Generally Accepted in the United States of America ("U.S. GAAP") for complete financial statements. The accompanying condensed consolidated financial statements include all adjustments, comprised of normal recurring adjustments, considered necessary by management to fairly state the Company's results of operations, financial position and cash flows. The operating results for the interim periods are not necessarily indicative of results that may be expected for any other interim period or for the full year. These condensed consolidated financial statements should be read in conjunction with the consolidated financial statements and notes thereto included in the Company's 2016 Form 10-K. The interim results for the three and nine months ended September 30, 2017 are not necessarily indicative of results for the full year.

The condensed consolidated financial statements are prepared in conformity with U.S. GAAP, which requires the use of estimates, judgments and assumptions that affect the amounts of assets and liabilities at the reporting date and the amounts of revenue and expenses in the periods presented. The Company believes that the accounting estimates employed are appropriate and the resulting balances are reasonable; however, due to the inherent uncertainties in making estimates, actual results may differ from the original estimates, requiring adjustments to these balances in future periods.

Recent Accounting Pronouncements and Developments

In May 2017, the Financial Accounting Standards Board, ("FASB") issued Accounting Standards Update ("ASU") 2017-09, *Scope of Modification Accounting, clarifies Topic 718, Compensation – Stock Compensation*, which requires a company to apply modification accounting to changes in the terms or conditions of a share-based payment award unless all of the following criteria are met: (1) the fair value of the modified award is the same as the fair value of the original award immediately before the modification. The ASU indicates that if the modification does not affect any of the inputs to the valuation technique used to value the award, the entity is not required to estimate the value immediately before and after the modification; (2) the vesting conditions of the modified award are the same as the vesting conditions of the original award immediately before the modification; and (3) the classification of the modified award as an equity instrument or a liability instrument is the same as the classification of the original award immediately before the modification. The ASU is effective for all entities for fiscal years beginning after December 15, 2017, including interim periods within those years. Early adoption is permitted, including adoption in an interim period. The Company currently does not have any modifications to existing stock compensation

agreements and will be able to calculate the impact of the ASU once modifications arise.

In August 2016, the FASB issued ASU 2016-15, *Statement of Cash Flows (Topic 230), Classification of Certain Cash Receipts and Cash Payments*, to clarify whether the following items should be categorized as operating, investing or financing activities in the statement of cash flows: (i) debt prepayments and extinguishment costs, (ii) settlement of zero-coupon debt, (iii) settlement of contingent consideration, (iv) insurance proceeds, (v) settlement of corporate-owned life insurance (COLI) and bank-owned life insurance (BOLI) policies, (vi) distributions from equity method investees, (vii) beneficial interests in securitization transactions, and (viii) receipts and payments with aspects of more than one class of cash flows. Accordingly, ASU No. 2016-15 is effective for public business entities for fiscal years beginning after December 15, 2017, with early adoption permitted. The Company does not anticipate any impact from the adoption of this standard on its condensed consolidated financial statements.

In March 2016, the FASB issued ASU, No. 2016-09, *Compensation - Stock Compensation (Topic 718)*, which is part of the FASB's Simplification Initiative. The updated guidance simplifies the accounting for share-based payment transactions. The amended guidance is effective for fiscal years, and interim periods within those years, beginning after December 15, 2016, with early adoption permitted. The Company has adopted this standard beginning January 1, 2017. The adoption did not result in significant changes to the recognition and disclosure of stock-based compensation for the three and nine months ended September 30, 2017.

In February 2016, the FASB issued ASU No. 2016-02, *Leases (Topic 842*), which establishes a new lease accounting model for lessees. The updated guidance requires an entity to recognize assets and liabilities arising from a lease for both financing and operating leases, along with additional qualitative and quantitative disclosures. The amended guidance is effective for fiscal years, and interim periods within those years, beginning after December 15, 2018, with early adoption permitted. The Company is currently evaluating the impact of the adoption of this standard on its condensed consolidated financial statements.

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers (Topic 606)*, to provide guidance on revenue recognition. ASU No. 2014-09 requires a company to recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the company expects to be entitled in exchange for those goods or services. In doing so, companies will need to use more judgment and make more estimates than under today's guidance. These may include identifying performance obligations in the contract, estimating the amount of variable consideration to include in the transaction price and allocating the transaction price to each separate performance obligation.

In August 2015, the FASB issued ASU No. 2015-14, *Revenue from Contracts with Customers (Topic 606): Deferral of the Effective Date*, which provided for the adoption of the new standard for fiscal years beginning after December 15, 2017. Accordingly, ASU No. 2014-09 is effective for the Company in the first quarter of 2018 and early adoption up to the first quarter of 2017 is permitted. Upon adoption, ASU No. 2014-09 can be applied retrospectively to all periods presented or only to the most current period presented with the cumulative effect of changes reflected in the opening balance of retained earnings in the most current period presented. The FASB has also issued the following standards which clarify ASU No. 2014-09 and have the same effective date as the original standard:

- ASU No. 2016-10, *Identifying Performance Obligations and Licensing (Topic 606);*
- ASU No. 2016-11, *Revenue Recognition (Topic 605) and Derivatives and Hedging (Topic 815): Rescission of SEC Guidance Because of Accounting Standards Updates 2014-09 and 2014-16 Pursuant to Staff Announcements at the March 3, 2016 EITF Meeting;*
- ASU No. 2016-12, *Revenue from Contracts with Customers (Topic 606): Narrow-Scope Improvements and Practical Expedients*;
- ASU No. 2016-20, *Technical Correction and Improvements; and*
- ASU No. 2016-20, *Technical correction and improvements to Topic 606, Revenue from Contracts with Customers*.

The adoption of ASU 2014-09 may have a material effect on the recognition of future revenues. ASU 2014-09 differs from the current accounting standard in many respects, such as in the accounting for variable consideration, including milestone payments. Accordingly, we expect that our evaluation of the accounting for collaboration agreements under the new revenue standard could identify material changes from the current accounting treatment. The new accounting standard will require entities to determine an appropriate attribution method using either output or input methods and does not include a presumption that entities would default to a ratable attribution approach for upfront non-refundable fees. These factors could materially impact the amount and timing of our revenue recognition from our license and collaboration agreements under the new revenue standard. The Company will need to evaluate the impact of adoption ASU No. 2014-09 on its results of operations, cash flows

and financial position. Based on the Company's initial assessment, it does not expect any material changes to the recognition of its revenue. The Company has not yet completed its final review of the impact of this guidance, and will continue to evaluate the impacts of adoption over the coming quarters. The Company currently expects to apply ASU 2014-09 on a modified retrospective basis as of January 1, 2018 when revenue arrangements arise in the future. The Company will continue to monitor additional changes, modifications, clarifications or interpretations being undertaken by the FASB, which may impact its current evaluation.

2. Going Concern

The accompanying condensed consolidated financial statements have been prepared assuming the Company will continue as a going concern. The Company has recurring losses and as of September 30, 2017, the Company has an accumulated deficit of approximately $197.0 million. Since inception, the Company has financed its activities principally with proceeds from the issuance of equity securities.

The Company's ability to continue as a going concern is dependent upon the Company's ability to raise additional debt or equity capital. There can be no assurance that such capital will be available in sufficient amounts or on terms acceptable to the Company. These factors raise substantial doubt about the Company's ability to continue as a going concern. The accompanying condensed consolidated financial statements do not include any adjustments relating to the recoverability of the recorded assets or the classification of liabilities that may be necessary should the Company be unable to continue as a going concern.

The Company does not have sufficient capital to fund its plan of operations over the next twelve months which includes the initiation and completion of its planned Phase 2b/3 and Phase 3 clinical trials. In order to address its capital needs, including its planned Phase 2b/3 and Phase 3 clinical trials, the Company is actively pursuing additional equity or debt financing in the form of either a private placement or a public offering. The Company has been in ongoing discussions with strategic institutional investors and investment banks with respect to such possible offerings and partnerships and collaborations. Such additional financing opportunities might not be available to the Company, when and if needed, on acceptable terms or at all. If the Company is unable to obtain additional financing in sufficient amounts or on acceptable terms under such circumstances, the Company's operating results and prospects will be adversely affected.

With the exception of the quarter ended June 30, 2010, the Company has incurred negative cash flow from operations since its inception. The Company has spent, and expects to continue to spend, substantial amounts in connection with implementing its business strategy, including its planned product development efforts, clinical trials, and research and discovery efforts.

At September 30, 2017, the Company had cash and cash equivalents of approximately $21.1 million. Based upon the Company's current business plans, management does not believe that the Company's current cash on hand will be sufficient to execute its near term plans. Commencement of planned clinical trials is subject to the Company's successful pursuit of opportunities that will allow it to establish the clinical infrastructure and financial resources necessary to successfully initiate and complete its plan. The Company will be required to obtain additional funding in order to continue the development of its current product candidates within the anticipated time periods (including initiation of its planned clinical trials), if at all, and to continue to fund operations at the current cash expenditure levels. Currently, the Company does not have commitments from any third parties to provide it with capital. Potential sources of financing include strategic relationships, public or private sales of equity (including through the "at-the-market" Issuance Sales Agreement (the "FBR Sales Agreement") that the Company entered into with FBR Capital Markets & Co. in August 2016) or debt and other sources. The Company cannot assure that it will meet the requirements for use of the FBR Sales Agreement or that additional funding will be available on favorable terms, or at all. Current cash is expected to cover overhead costs, manufacturing costs for clinical supply, commercial scale up costs and limited research efforts. If the Company fails to obtain additional funding for its clinical trials in the next few months, whether through the sale of securities or a partner or collaborator, and otherwise when needed, it will not be able to execute its business plan as planned and will be forced to cease certain development activities (including initiation of planned clinical trials) until funding is received and its business will suffer, which would have a material adverse effect on its financial position, results of operations and cash flows. Clinical development will resume once sufficient funding is available. These factors raise doubt regarding the Company's ability to continue as a going concern. The condensed consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

The actual amount of funds the Company will need to operate is subject to many factors, some of which are beyond the Company's control. These factors include the following:

- the progress of research activities;
- the number and scope of research programs;
- the progress of preclinical and clinical development activities;
- the progress of the development efforts of parties with whom the Company has entered into research and development agreements and amount of funding received from partners and collaborators;
- the costs associated with additional clinical trials of product candidates;
- the ability to maintain current research and development licensing arrangements and to establish new research and development, and licensing arrangements;

- the ability to achieve milestones under licensing arrangements;
- the costs associated with manufacturing-related services to produce material for use in its clinical trials;
- the costs involved in prosecuting and enforcing patent claims and other intellectual property rights; and
- the costs and timing of regulatory approvals.

The Company has based its estimates on assumptions that may prove to be wrong. The Company may need to obtain additional funds sooner or in greater amounts than it currently anticipates.

If the Company raises funds by selling additional shares of common stock or other securities convertible into common stock, the ownership interest of the existing stockholders will be diluted. If the Company is not able to obtain financing when needed, it may be unable to carry out its business plan. As a result, the Company may have to significantly limit its operations and its business, financial condition and results of operations would be materially harmed.

3. Fair Value of Financial Instruments

Fair Value of Financial Instruments

The fair value accounting standards define fair value as the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is determined based upon assumptions that market participants would use in pricing an asset or liability. Fair value measurements are rated on a three-tier hierarchy as follows:

- Level 1 inputs: Quoted prices (unadjusted) for identical assets or liabilities in active markets;
- Level 2 inputs: Inputs, other than quoted prices, included in Level 1 that are observable either directly or indirectly; and
- Level 3 inputs: Unobservable inputs for which there is little or no market data, which require the reporting entity to develop its own assumptions.

In many cases, a valuation technique used to measure fair value includes inputs from multiple levels of the fair value hierarchy described above. The lowest level of significant input determines the placement of the entire fair value measurement in the hierarchy.

The carrying amounts of the Company's short-term financial instruments, including cash and cash equivalents, other current assets, accounts payable and accrued liabilities approximate fair value due to the relatively short period to maturity for these instruments.

Cash and cash equivalents include money market accounts of $0.2 million and $1.7 million as of September 30, 2017 and December 31, 2016, respectively, that are measured using Level 1 inputs.

The warrants issued in conjunction with the registered direct offering in October 2014 include a provision that if the Company were to enter into a certain transaction, as defined in the warrant agreement, the warrants would be purchased from the holder at a premium. The warrants issued in conjunction with the public offering of the Company's securities in November 2016 include a provision that if the Company were to enter into a certain transaction, as defined in the warrant agreement, the warrants would be purchased from the holder for cash. Accordingly, the Company recorded the warrants as liabilities at their fair value upon issuance and re-measures the fair value at each period end with the change in fair value recorded in the condensed consolidated statement of operations. The Company uses a Monte Carlo simulation to estimate the fair value of the warrants. In using this model, the fair value is determined by applying Level 3 inputs for which there is little or no observable market data, requiring the Company to develop its own assumptions. The assumptions used in calculating the estimated fair value of the warrants represent the Company's best estimates; however, these estimates involve inherent uncertainties and the application of management judgment. As a result, if factors change and different assumptions are used, the warrant liability and the change in estimated fair value could be materially different.

4. Selected Balance Sheet Information

Prepaid expenses and other current assets (in thousands)

	September 30, 2017	December 31, 2016
Clinical consulting services refund receivable	$ 612	$ -
Prepaid conferences, travel and other expenses	406	295
Grant receivable	130	185
Prepaid insurances	69	358
Prepaid clinical research organizations	46	1,677

Total	$ 1,263	$ 2,515

Prepaid clinical research organizations expense is classified as a current asset. The Company makes payments to the clinical research organizations based on agreed upon terms that include payments in advance of study services. The Company anticipates that the majority of the prepaid clinical research organization expenses will be applied to research and development expenses during fiscal year 2017.

Property and equipment, net (in thousands)

	September 30, 2017	December 31 2016
Computer and office equipment	$ 661	$ 641
Leasehold improvements	439	439
Construction in progress	190	-
Software	11	11
	1,301	1,091
Less accumulated depreciation and amortization	(358)	(186)
Total	$ 943	$ 905

Accrued expenses (in thousands)

	September 30, 2017	December 31, 2016
Accrued manufacturing costs	$ 1,069	$ 14
Accrued clinical consulting services	806	2,211
Accrued vendor payments	187	400
Other accrued expenses	8	2
Total	$ 2,070	$ 2,627

Accrued employee benefits (in thousands)

	September 30, 2017	December 31, 2016
Accrued bonus expense	$ 1,265	$ -
Accrued vacation expense	341	261
Other accrued employee benefits	-	52
Total	$ 1,606	$ 313

5. Stock-Based Compensation

Stock Incentive Plans

On March 20, 2007, the Company's Board of Directors approved the 2007 Stock Incentive Plan (the "2007 Stock Plan") for the issuance of up to 2,500,000 shares of common stock to be granted through incentive stock options, nonqualified stock options, stock appreciation rights, dividend equivalent rights, restricted stock, restricted stock units and other stock-based awards to officers, directors, other employees and consultants of the Company and its subsidiaries. This plan was approved by the stockholders on November 2, 2007. The exercise price of stock options under the 2007 Stock Plan was determined by the compensation committee of the Board of Directors and should be equal to or greater than the fair market value of the Company's common stock on the date the option was granted. The total number of shares of stock with respect to which stock options and stock appreciation rights may be granted to any one employee of the Company or a subsidiary during any one-year period under the 2007 Stock Plan could not exceed 250,000. Options become exercisable over various periods from the date of grant, and generally expire ten years after the grant date. As of September 30, 2017, there were 743,924 options issued and outstanding under the 2007 Stock Plan.

On November 2, 2010, the Board of Directors and stockholders adopted the 2010 Stock Incentive Plan ("2010 Stock Plan") for the issuance of up to 3,000,000 shares of common stock to be granted through incentive stock options, nonqualified stock options, stock appreciation rights, dividend equivalent rights, restricted stock, restricted stock units and other stock-based awards to officers, directors, other employees and consultants of the Company and its subsidiaries. On October 22, 2013, the stockholders approved and adopted an amendment to the 2010 Stock Plan to increase the number of shares of the Company's common stock reserved for issuance under the 2010 Stock Plan from 3,000,000 to 6,000,000. On May 15, 2015, the stockholders approved and adopted an amendment to the 2010 Stock Plan to increase the number of shares of the Company's common stock reserved for issuance under the 2010 Stock Plan from 6,000,000 to 8,000,000. On August 25, 2016, the stockholders approved and adopted an amendment to the 2010 Stock Plan to increase the number of shares of the Company's common stock reserved for issuance under the 2010 Stock Plan from 8,000,000 to 14,000,000. On September 7, 2017, the stockholders approved and adopted an amendment to the 2010 Stock Plan to increase the number of shares of the Company's common stock reserved for issuance under the 2010 Stock Plan from 14,000,000 to 17,500,000. The exercise price of stock options under the 2010 Stock Plan is determined by the compensation committee of the Board of Directors, and may be equal to or greater than the fair market value of the Company's common stock on the date the option is granted. There is no limit on the number or the value of the shares with respect to which stock options and stock appreciation rights may be granted to any one employee of the Company or a subsidiary during any one-year period. Options become exercisable over various periods from the date of grant, and generally expire between five and ten years after the grant date. As of September 30, 2017, there were 10,475,091 options issued and outstanding under the 2010 Stock Plan.

In the event of an employee's termination, the Company will cease to recognize compensation expense for that employee. There is no deferred compensation recorded upon initial grant date; instead, the fair value of the stock-based payment is recognized ratably over the stated vesting period.

The Company has applied fair value accounting for all stock-based payment awards since inception. The fair value of each option or warrant granted is estimated on the date of grant using the Black-Scholes option pricing model. There were no options granted during the nine months ended September 30, 2017. The Black-Scholes assumptions used in the nine months ended September 30, 2017 and 2016 are as follows:

	Nine months ended September 30,	
	2017	2016
Exercise price	$0.83 - $0.87	$1.08 - $2.66
Expected dividends	0%	0%
Expected volatility	90% - 92 %	102% - 117%
Risk free interest rate	1.67% - 1.75 %	1.40% - 1.57 %

Expected life of option	4.2 - 4.3 years	7.0 years

The Company records stock-based compensation based upon the stated vested provisions in the related agreements. The vesting provisions for these agreements have various terms as follows:

- immediate vesting;
- half vesting immediately and remaining over three years;
- quarterly over three years;
- annually over three years;

- one-third immediate vesting and remaining annually over two years;
- one half immediate vesting and remaining over nine months;
- one quarter immediate vesting and remaining over three years;
- one quarter immediate vesting and remaining over 33 months; and
- monthly over three years.

During the nine months ended September 30, 2017, the Company granted 543,927 options to employees having an approximate fair value of $308,000 based upon the Black-Scholes option pricing model. During the same period in 2016, the Company granted 560,000 options to employees having an approximate fair value of $962,000 based upon the Black-Scholes option pricing model.

A summary of stock option activities for the nine months ended September 30, 2017 and for the year ended December 31, 2016 is as follows:

	Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Life	Aggregate Intrinsic Value
Balance - December 31, 2015	8,941,930	$ 2.14	5.67 years	$ 2,900,000
Granted	3,861,425	0.98		
Exercised	(445,334)	1.83		$ 137,488
Expired	(338,529)	1.96		
Forfeited	(383,265)	2.26		
Balance - December 31, 2016	11,636,227	1.77	5.49 years	$ 194,355
Granted	543,927	0.85		
Exercised	(418,773)	0.40		$ 163,050
Expired	(450,962)	2.00		
Forfeited	(91,404)	2.00		
Balance - September 30, 2017 - outstanding	11,219,015	$ 1.76	5.29 years	$ 548,588
Balance - September 30, 2017 - exercisable	7,205,382	$ 2.02	4.77 years	$ 204,437
Grant date fair value of options granted - September 30, 2017		$ 308,000		
Weighted average grant date fair value - September 30, 2017		$ 0.57		
Grant date fair value of options granted - December 31, 2016		$ 3,091,000		
Weighted average grant date fair value - December 31, 2016		$ 0.80		

Stock-based compensation expense included in operating expenses related to stock options issued to employees and consultants for the three months ended September 30, 2017 and 2016 was $900,000 and $946,000 respectively, and $2,906,000 and $2,906,000 for the nine month periods ended September 30, 2017 and 2016, respectively.

As of September 30, 2017, total unrecognized stock-based compensation expense related to stock options was $3.7 million, which is expected to be expensed through March 2019.

6. Stock Purchase Warrants

On November 18, 2016, the Company completed a public offering of 25 million shares of common stock with accompanying warrants to purchase an aggregate of 50 million shares of common stock. The stock and warrants were sold in combination, with two warrants for each share of common stock sold, a Series A warrant and a Series B warrant, each representing the right to purchase one share of common stock. The purchase price for each share of common stock and accompanying warrants was $1.00. The shares of common stock were immediately separable from the warrants and were issued separately. The initial per share exercise price of the Series A warrants was $1.43 and the per share exercise price of the Series B warrants was $1.72, each subject to adjustment as specified in the warrants. The Series A and Series B warrants may be exercised at any time on or after the date of issuance. The Series A warrants are exercisable until the four year anniversary of the issuance date. The Series B warrants are exercisable until December 31, 2017. The warrants include a provision that if the Company were to enter into a certain transaction, as defined in the agreement, the warrants would be purchased from the holder for cash. Accordingly, the Company recorded the warrants as a liability at their estimated fair value on the issuance date, which was $15.7 million, and changes in estimated fair value will be recorded as non-cash income or expense in the Company's statement of operations at each subsequent period. At September 30, 2017, the fair value of the warrant liability was $10.7 million, which resulted in non-cash expense of $4.1 million for the three months ended September 30, 2017 and non-cash income of $2.0 million for the nine months ended September 30, 2017. In accordance with U.S. GAAP, the warrants were valued on the date of grant using a Monte Carlo simulation.

The assumptions used by the Company are summarized in the following table:

	Series A			Series B		
	September 30, 2017	December 31, 2016	Issuance Date	September 30, 2017	December 31, 2016	Issuance Date
Closing stock price	$ 0.93	$ 0.76	$ 0.89	$ 0.93	$ 0.76	$ 0.89
Expected dividends	0%	0%	0%	0%	0%	0%
Expected volatility	80%	85%	85%	70%	90%	85%
Risk free interest rate	1.64%	1.67%	1.58%	1.06%	0.85%	0.81%
Expected life of warrant (years)	3.1	3.9	4.0	0.3	1.0	1.1

On October 10, 2014, the Company raised net proceeds of $19.1 million through the sale of 14,059,616 units at a price of $1.47 per unit to certain institutional investors in a registered direct offering. Each unit consisted of one share of the Company's common stock and a warrant to purchase 0.5 shares of common stock. The warrants, exercisable for an aggregate of 7,029,808 shares of common stock, have an exercise price of $1.75 per share and a life of five years. The warrants vested immediately and expire October 10, 2019.

The warrants issued in conjunction with the registered direct offering in October 2014 include a provision that if the Company were to enter into a certain transaction, as defined in the agreement, the warrants would be purchased from the holder at a premium. Accordingly, the Company recorded the warrants as a liability at their estimated fair value on the issuance date, which was $7.4 million, and changes in estimated fair value are being recorded as non-cash income or expense in the Company's condensed consolidated statement of operations at each subsequent period. At September 30, 2017, the fair value of the warrant liability was $2.0 million, which resulted in non-cash expense of $1.0 million for the three months ended September 30, 2017 and non-cash income of $0.2 million for nine months ended September 30, 2017. At September 30, 2016, the fair value of the warrant liability was $6.9 million, which resulted in non-cash income of $0.7 million and $3.7 million for the three and nine months ended September 30, 2016, respectively. In accordance with U.S. GAAP, the warrants were valued on the date of grant using the Black-Scholes valuation model which approximates the value derived using a Monte Carlo simulation. The assumptions used by the Company are summarized in the following table:

	September 30, 2017	December 31, 2016	Issuance Date
Closing stock price	$ 0.93	$ 0.76	$ 1.75
Expected dividends	0%	0%	0%
Expected volatility	85%	95%	95%
Risk free interest rate	1.48%	1.41%	1.39%
Expected life of warrant (years)	2.0	2.8	5.0

The following table summarizes the estimated fair value of the warrant liability *(in thousands)*:

Balance at December 31, 2016	$ 14,821
Change in fair value of warrant liability	(2,157)
Balance at September 30, 2017	$ 12,664

On October 25, 2012, the Company entered into a Common Stock Purchase Agreement with certain accredited investors. As part of this agreement, the Company issued warrants to purchase 635,855 shares of common stock to the placement agent, or its permitted assigns. The warrants have an exercise price of $1.60 and a life of five years. The warrants vested immediately and expired on October 25, 2017. Since these warrants were granted as part of an equity raise, the Company has treated them as a direct offering cost. Warrants outstanding as of September 30, 2017 were 311,834.

A summary of warrant activity for the Company for the nine months ended September 30, 2017 and for the year ended December 31, 2016 is as follows:

	Number of Warrants	Weighted Average Exercise Price
Balance at December 31, 2015	7,908,899	$ 1.79
Granted	50,000,000	1.58
Exercised	-	-
Forfeited	(567,257)	2.35
Balance at December 31, 2016	57,341,642	1.60
Granted	-	-
Exercised	-	-
Forfeited	-	-
Balance at September 30, 2017	57,341,642	$ 1.60

A summary of all outstanding and exercisable warrants as of September 30, 2017 is as follows:

Exercise Price	Warrants Outstanding	Warrants Exercisable	Weighted Average Remaining Contractual Life (years)
$ 1.43	25,000,000	25,000,000	3.14
$ 1.60	311,834	311,834	0.07
$ 1.72	25,000,000	25,000,000	0.25
$ 1.75	7,029,808	7,029,808	2.03
$ 1.60	57,341,642	57,341,642	1.73

7. Net Loss per Share

Basic net loss per share is computed by dividing net loss by the weighted average number of common shares outstanding. Included in net loss is the deemed dividend from preferred shares issuance of $6.9 million for the three and nine months ended September 30, 2017. The deemed dividend relates to the discount provided to preferred stockholders upon conversion of their preferred stock to common shares and is subtracted from net loss (see Note 9). Diluted net loss per share is computed by dividing net loss by the weighted average number of common shares outstanding including the effect of common share equivalents. Diluted net loss per share assumes the issuance of potential dilutive common shares outstanding for the period and adjusts for any changes in income and the repurchase of common shares that would have occurred from the assumed issuance, unless such effect is anti-dilutive. The number of options and warrants for the purchase of common stock that were excluded from the computations of net loss per common share for the three and nine months ended September 30, 2017 were 11,219,015 and 57,341,642, respectively, and for the three and nine months ended September 30, 2016 were 8,513,552 and 7,858,899, respectively.

The following tables set forth the computation of diluted net loss per weighted average number of shares outstanding attributable to Synthetic Biologics, Inc. and Subsidiaries for the three and nine months ended September 30, 2017 and 2016 *(in thousands except share and per share amounts)*:

	Three months ended September 30, 2017			Nine months ended September 30, 2017		
	Net loss (Numerator)	Shares (Denominator)	Per Share Amount	Net Loss (Numerator)	Shares (Denominator)	Per Share Amount
Net loss - Basic	$ (17,823)	128,279,674	$ (0.14)	$ (24,925)	122,950,397	$ (0.20)
Dilutive shares related to warrants	$ -	-	$ -	$ -	-	$ -
Net loss - Dilutive	$ (17,823)	128,279,674	$ (0.14)	$ (24,925)	122,950,397	$ (0.20)

	Three months ended September 30, 2016			Nine months ended September 30, 2016		
	Net loss (Numerator)	Shares (Denominator)	Per Share Amount	Net Loss (Numerator)	Shares (Denominator)	Per Share Amount
Net loss - Basic	$ (8,353)	91,441,687	$ (0.09)	$ (24,880)	91,095,990	$ (0.27)
Dilutive shares related to warrants	$ -	-	$ -	$ -	-	$ -
Net loss - Dilutive	$ (8,353)	91,441,687	$ (0.09)	$ (24,880)	91,095,990	$ (0.27)

8. Non-controlling Interest

The Company's non-controlling interest is accounted for under ASC 810, *Consolidation*, and represents the minority shareholder's ownership interest related to the Company's subsidiary, Synthetic Biomics, Inc. ("SYN Biomics"). In accordance with ASC 810, the Company reports its non-controlling interest in subsidiaries as a separate component of equity in the condensed consolidated balance sheets and reports both net loss attributable to the non-controlling interest and net loss attributable to the Company and its subsidiaries on the face of the condensed consolidated statements of operations. The Company's equity interest in SYN Biomics is 88.5% and the non-controlling stockholder's interest is 11.5%. For the three and nine months ended September 30, 2017, the accumulated net loss attributable to the non-controlling interest was $8,000 and $280,000, respectively.

9. Common and Preferred Stock

Series A Preferred Stock

On September 11, 2017, the Company entered into a share purchase agreement (the "Purchase Agreement") with an accredited investor (the "Investor"), pursuant to which the Company offered and sold in a private placement 120,000 shares of its Series A Convertible Preferred Stock, par value $0.001 per share (the "Series A Preferred Stock") for an aggregate purchase price of $12 million, or $100 per share.

The Series A Preferred Stock ranks senior to the shares of the Company's common stock, and any other class or series of stock issued by the Company with respect to dividend rights, redemption rights and rights on the distribution of assets on any voluntary or involuntary liquidation, dissolution or winding up of the affairs of the Company. Holders of Series A Preferred Stock are entitled to a cumulative dividend at the rate of 2.0% per annum, payable quarterly in arrears, as set forth in the Certificate of Designation of Series A Preferred Stock classifying the Series A Preferred Stock. The Series A Preferred Stock is convertible at the option of the holders at any time into shares of common stock at an initial conversion price of $0.54 per share, subject to certain customary anti-dilution adjustments.

Any conversion of Series A Preferred Stock may be settled by the Company in shares of common stock only.

The holder's ability to convert the Series A Preferred Stock into common stock is subject to (i) a 19.99% blocker provision to comply with NYSE American Listing Rules, (ii) if so elected by the Investor, a 4.99% blocker provision that will prohibit beneficial ownership of more than 4.99% of the outstanding shares of the Company's common stock or voting power at any time, and (iii) applicable regulatory restrictions.

In the event of any liquidation, dissolution or winding-up of the Company, holders of the Series A Preferred Stock are entitled to a preference on liquidation equal to the greater of (i) an amount per share equal to the stated value plus any accrued and unpaid dividends on such share of Series A Preferred Stock (the "Accreted Value"), and (ii) the amount such holders would receive in such liquidation if they converted their shares of Series A Preferred Stock (based on the Accreted Value and without regard to any conversion limitation) into shares of the common stock immediately prior to any such liquidation, dissolution or winding-up (the greater of (i) and (ii), is referred to as the "Liquidation Value").

Except as otherwise required by law, the holders of Series A Preferred Stock shall have no voting rights, other than customary protections against adverse amendments and issuance of *pari passu* or senior preferred stock. Upon certain change of control events involving the Company, the Company will be required to repurchase all of the Series A Preferred Stock at a redemption price equal to the greater of (i) the Accreted Value and (ii) the amount that would be payable in the change of control (as defined in the Certificate of Designation) in respect of common stock issuable upon conversion of such share of Series A Preferred Stock if all outstanding shares of Series A Preferred Stock were converted into common stock immediately prior to the change of control.

On or at any time after (i) the VWAP (as defined in the Certificate of Designation) for at least twenty (20) trading days in any thirty (30) trading day period is greater than $2.00, subject to adjustment in the case of stock split, stock dividends or the like the Company has the right, after providing notice not less than 6 months prior to the redemption date, to redeem, in whole or in part, on a pro rata basis from all holders thereof based on the number of shares of Series A Preferred Stock then held, the outstanding Series A Preferred Stock, for cash, at a redemption price per share of Series A Preferred Stock of $225.00, subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series A Convertible Preferred Stock or (ii) the five year anniversary of the issue date, the Company shall have the right to redeem, in whole or in part, on a pro rata basis from all holders thereof based on the number of shares of Series A Convertible Preferred Stock then held, the outstanding Series A Preferred Stock, for cash, at a redemption price per share equal to the Liquidation Value.

The Series A Preferred Stock is classified as temporary equity due to the shares are (i) redeemable based on contingent events outside of the Company's control and (ii) convertible immediately and from time to time. Since the effective conversion price of the Series A Preferred Stock is less than the fair value of the underlying common stock at the date of issuance, there is a beneficial conversion feature ("BCF") at the issuance date. Because the Series A Preferred Stock has no stated maturity or redemption date and is immediately convertible at the option of the holder, the discount created by the BCF is immediately charged to retained earnings as a "deemed dividend" and impacts EPS. Because the Series A Preferred Stock is not currently redeemable, the discount arising from issuance costs and allocated to temporary equity will not be accreted until such time redemption becomes probable. The stated dividend rate of 2% per annum is cumulative, the Company will accrue the dividend on a quarterly basis (in effect accreting the dividend regardless of declaration because it is declared). Once the dividend is declared, the Company will reclassify the declared amount from temporary equity to a "dividends payable" liability. When the redemption of the Series A Preferred Stock becomes probable, the temporary equity will be accreted to redemption value as a "deemed dividend."

FBR Sales Agreement

On August 5, 2016, the Company entered into the FBR Sales Agreement with FBR Capital Markets & Co., which enables the Company to offer and sell shares of the Company's common stock with an aggregate sales price of up to $40.0 million from time to time through FBR Capital Markets & Co. as the Company's sales agent. Sales of common stock under the FBR Sales Agreement are made in sales deemed to be "at-the-market" equity offerings as defined in Rule 415 promulgated under the Securities Act, as amended. FBR Capital Markets & Co. is entitled to receive a commission rate of up to 3.0% of gross sales in connection with the sale of the Company's common stock sold on the Company's behalf. For the three and nine months ending September 30, 2017, the Company sold through the FBR Sales Agreement an aggregate of 0.8 million and 11.0 million shares of the Company's common stock, and received net proceeds of approximately $0.4 million and $6.4 million, respectively, before deducting issuance expenses.

10. Related Party Transactions

In December 2013, through the Company's subsidiary, Synthetic Biomics, Inc., the Company entered into a worldwide exclusive license agreement with Cedars-Sinai Medical Center ("CSMC") and acquired the rights to develop products for therapeutic and prophylactic treatments of acute and chronic diseases, including the development of SYN-010 to target IBS-C. The Company licensed from CSMC a portfolio of intellectual property comprised of several U.S. and foreign patents and pending patent applications for various fields of use, including IBS-C, obesity and diabetes. An investigational team led by Mark Pimentel, M.D. at CSMC discovered that these products may reduce the production of methane gas by certain GI microorganisms. During the nine months ended September 30, 2017 and 2016, the Company did not pay Cedars-Sinai Medical Center for milestone payments related this license agreement.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS.

The following discussion should be read in conjunction with our unaudited condensed consolidated financial statements and notes thereto included in this Quarterly Report on Form 10-Q, and our audited consolidated financial statements and notes thereto for the year ended December 31, 2016 included in our Annual Report on Form 10-K filed with the SEC on March 2, 2017. This discussion contains forward-looking statements reflecting our current expectations that involve risks and uncertainties. See "Note Regarding Forward-Looking Statements" for a discussion of the uncertainties, risks and assumptions associated with these statements. Our actual results and the timing of events could differ materially from those expressed or implied by the forward-looking statements due to important factors and risks including, but not limited to, those set forth below under "Risk Factors" and elsewhere herein, and those identified under Part I, Item 1A of our Annual Report on Form 10-K for the year ended December 31, 2016 filed with the SEC on March 2, 2017.

Overview

We are a late-stage clinical company focused on developing therapeutics designed to preserve the microbiome to protect and restore the health of patients. Our lead candidates poised for Phase 3 development are: (1) SYN-004 (ribaxamase) which is designed to protect the gut microbiome from the effects of certain commonly used intravenous (IV) beta-lactam antibiotics for the prevention of *C. difficile* infection (CDI), overgrowth of pathogenic organisms and the emergence of antimicrobial resistance (AMR), and (2) SYN-010 which is intended to reduce the impact of methane-producing organisms in the gut microbiome to treat an underlying cause of irritable bowel syndrome with constipation (IBS-C). We are also developing preclinical stage monoclonal antibody therapies for the prevention and treatment of pertussis, and novel discovery stage biotherapeutics for the treatment of phenylketonuria (PKU).

Product Pipeline:

C- Cedars-Sinai Medical Center Collaboration
I- Intrexon Collaboration
T- The University of Texas at Austin Collaboration
M- Scientific collaboration with Massachusetts General Hospital

Summary of Clinical and Preclinical Programs

Therapeutic Area	Product Candidate	Status
Prevention of CDI, overgrowth of pathogenic organisms and AMR (Degrade IV beta-lactam antibiotics)	SYN-004 (ribaxamase) (oral enzyme)	· Reported supportive Phase 1a/1b data (1Q 2015) · Initiated Phase 2b proof-of-concept clinical trial (3Q 2015) · Reported supportive topline data from first Phase 2a clinical trial (4Q 2015) · Reported supportive topline data from second Phase 2a clinical trial (2Q 2016) · Received USAN approval of the generic name "ribaxamase" for SYN -004 (July 2016) · Completed Enrollment of Phase 2b proof-of concept clinical trial (3Q 2016) · Awarded contract by the Centers for Disease Control and Prevention (CDC) (4Q 2016) · Announced positive topline data from Phase 2b proof-of-concept clinical trial, including achievement of primary endpoint of significantly reducing CDI (1Q 2017) · Announced additional results from Phase 2b proof-of-concept clinical trial demonstrating SYN-004 (ribaxamase) protected and maintained the naturally occurring composition of gut microbes from antibiotic-mediated dysbiosis in treated patients (2Q 2017) · Announced FDA granted Breakthrough Therapy Designation for the prevention of *Clostridium difficile* infection (CDI) (May 2017) · Announced additional results from Phase 2b proof-of-concept clinical trial funded by a contract awarded by the CDC, demonstrating that SYN-004 (ribaxamase) prevented significant change to the presence of certain AMR genes in the gut resistome of patients receiving SYN-004 compared to placebo (3Q 2017) · Held a Type-B multidisciplinary meeting with the FDA to discuss the high-level drug development plan and regulatory pathway towards marketing approval for SYN-004 (ribaxamase) (3Q 2017) · Expect to share additional results regarding several exploratory endpoints from Phase 2b proof-of-concept clinical trial designed to evaluate SYN-004's (ribaxamase) ability to protect the gut

		microbiome from opportunistic bacterial infections and prevent the emergence of antimicrobial resistance (AMR) in the gut microbiome (4Q 2017) · Plan to continue collaborative discussions with the FDA to solidify details and components of the drug development plan and regulatory pathway towards marketing approval for SYN-004 (ribaxamase) (1Q 2018) · Plan to initiate Phase 3 clinical trial(s) (2018)
Treatment of IBS-C	SYN-010 (oral modified-release lovastatin lactone)	· Reported supportive topline data from two Phase 2 clinical trials (4Q 2015 & 1Q 2016) · Received Type C meeting responses from U.S. Food and Drug Administration (FDA) regarding late-stage aspects of clinical pathway (2Q 2016) · Presented detailed data supporting previously reported positive topline data from two Phase 2 clinical trials at Digestive Disease Week Conference 2016 (DDW) (May 2016) · Held End of Phase 2 meeting with FDA (July 2016)

		· Confirmed key elements of Pivotal Phase 2b/3 clinical trial design pursuant to consultations with FDA (1Q 2017)
		· Collaboration with Cedars-Sinai Medical Center
Prevention of CDI, overgrowth of pathogenic organisms and AMR (Degrade oral beta-lactam antibiotics)	SYN-007 (oral enzyme)	· Preclinical work ongoing to determine ability of SYN-007 to protect the gut microbiome and degrade oral beta-lactam antibiotics
Prevention and Treatment of pertussis	SYN-005 (monoclonal antibody therapies)	· Reported supportive preclinical research findings (2014)
		· The University of Texas at Austin ("UT Austin") received a grant from the Bill and Melinda Gates Foundation to support a preclinical study to evaluate the prophylactic capability of SYN-005 (4Q 2015)
		· Reported supportive preclinical data demonstrating SYN-005 provided protection from pertussis five weeks in neonatal non-human primate study (Q2 2017)
		· Collaborations with Intrexon and UT Austin

Our Microbiome-Focused Pipeline

Our IBS-C and CDI programs are focused on protecting the healthy function of the gut microbiome, or gut flora, which is home to billions of microbial species and composed of a natural balance of both "good" beneficial species and potentially "bad" pathogenic species. When the natural balance or normal function of these microbial species is disrupted, a person's health can be compromised. All of our programs are supported by our growing intellectual property portfolio. We are maintaining and building our patent portfolio through: filing new patent applications; prosecuting existing applications; and licensing and acquiring new patents and patent applications. In total, we hold over 110 U.S. and foreign patents and have over 100 U.S. and foreign patents pending. Our plan remains focused on the advancement of our two late-stage clinical programs. We continue to actively manage resources in preparation of the late-stage clinical advancement of our two-lead microbiome-focused clinical programs, including our pursuit of successful and viable opportunities that will allow us to establish the clinical infrastructure and financial resources necessary to successfully initiate and complete this plan.

SYN-004 (ribaxamase) — Prevention of C. difficile infections (CDI), overgrowth by pathogenic organisms, and the emergence of antimicrobial resistance (AMR)

SYN-004 (ribaxamase) is an oral prophylactic therapy designed to degrade certain IV beta-lactam antibiotics within the gastrointestinal (GI) tract and maintain the natural balance of the gut microbiome for the prevention of CDI, overgrowth of pathogenic organisms and the emergence of antibiotic-resistant organisms. SYN-004 (ribaxamase) is a beta-lactamase enzyme which, when released in the proximal small intestine, can degrade beta-lactam antibiotics in the GI tract without altering systemic antibiotic levels. Beta-lactam antibiotics are a mainstay in hospital infection management and include the commonly used penicillin and cephalosporin classes of antibiotics.

In November 2012, we acquired a series of oral beta-lactamase enzymes (P1A, P2A and P3A) and related assets targeting the prevention of CDI, the leading healthcare-associated infection that generally occurs secondary to treatment with IV antibiotics from Prev ABR LLC. The acquired assets include a pre-Investigation New Drug (IND) package for P3A, Phase 1 and Phase 2 clinical data for P1A, manufacturing processes and data, and a portfolio of issued and pending U.S. and foreign patents intended to support an IND and Biologics License Application (BLA) with the FDA. Utilizing this portfolio of assets, we developed a proprietary, second generation oral beta-lactamase enzyme product candidate that we now refer to as SYN-004 or by its generic name "ribaxamase".

Compared to the first generation oral enzyme candidate of P1A, we believe that the second generation candidate, SYN-004 (ribaxamase), will have activity against a broader spectrum of beta-lactam antibiotics, including both penicillins and certain cephalosporins. Due to the structural similarities between P1A and SYN-004 (ribaxamase), and based on previous discussions with the FDA, certain preclinical data collected on P1A were used in support of an IND application for our new product candidate, SYN-004 (ribaxamase).

Specifically, P1A had been evaluated in four Phase 1 and one Phase 2 clinical trials conducted in Europe. In total, 112 patients and 143 healthy volunteers participated in these studies.

P1A (the first generation candidate) showed acceptable safety and tolerability in a Phase 1 clinical trial. In addition, data from two Phase 2 clinical trials demonstrated that P1A had the ability to preserve GI microflora in hospitalized patients treated with IV ampicillin or the combination of piperacillin and tazobactam.

In September 2016, we completed enrollment in our randomized placebo-controlled Phase 2b proof-of-concept clinical trial intended to evaluate the ability of SYN-004 (ribaxamase) to prevent CDI, *C. difficile* associated diarrhea (CDAD) and AAD in patients hospitalized for a lower respiratory tract infection and receiving IV ceftriaxone.

On January 5, 2017, we announced positive topline data from our Phase 2b clinical trial demonstrating SYN-004 (ribaxamase) achieved its primary endpoint of significantly reducing CDI. Preliminary analysis of the data indicated seven confirmed cases of CDI in the placebo group compared to two cases in the SYN-004 (ribaxamase) treatment group. Patients receiving SYN-004 (ribaxamase) achieved a 71.4% relative risk reduction (p-value=0.045) in CDI rates

compared to patients receiving placebo. Adverse events reported during this trial were comparable between treatment and placebo arms. Results from this trial also demonstrated that patients administered ribaxamase in conjunction with IV-ceftriaxone demonstrated comparable cure rates (approximately 99%) for the treatment of primary infection compared to the placebo group.

Preliminary analysis of the data demonstrated a significant reduction in new colonization by vancomycin-resistant enterococci (VRE) for patients receiving SYN-004 (ribaxamase) compared to placebo (p-value=0.0002). With agreement from the FDA, the study included a secondary endpoint to assess SYN-004's (ribaxamase) capacity to decrease the incidence of antibiotic-associated diarrhea from all causes. Preliminary analysis of the data suggested a trend towards such a reduction (p-value=0.13), which was due, for the most part, to the reduction of CDI.

On April 7, 2017, we met with the CDC to share additional supportive results from several exploratory endpoints from our Phase 2b proof-of-concept clinical trial demonstrating SYN-004 (ribaxamase) successfully protected and preserved the naturally occurring composition of gut microbes in patients receiving SYN-004 (ribaxamase) from the dysbiotic effects of antibiotic-mediated intravenous ceftriaxone compared to placebo. Results indicate that patients who were administered SYN-004 (ribaxamase) in conjunction with IV ceftriaxone demonstrated significantly better maintenance of and recovery of the composition and diversity of the gut microbiome, compared to patients who were administered placebo. Patients receiving SYN-004 (ribaxamase) also demonstrated lower incidences of new colonization by opportunistic and potentially pathogenic microorganisms, such as VRE, compared to patients who received placebo.

We are in the process of further analyzing data from this clinical trial and expect to share results from additional exploratory endpoints as they become available later this year, including results focused on the ability of SYN-004 (ribaxamase) to protect the gut microbiome from opportunistic bacterial infections as well as prevent the emergence of antimicrobial resistance in the gut microbiome.

Under a contract funded by the Centers for Disease Control and Prevention (CDC), we have been examining the gut resistome (the anti-microbial resistance genes of the gut microbiome) from the patients in our Phase 2b clinical study with ribaxamase. During this study, DNA extracted from 350 longitudinal fecal samples collected during the study were sequenced by whole genome shotgun sequencing. The DNA sequences were then interrogated against the Comprehensive Antimicrobial Resistant Database to determine the AMR genes present in the samples. A statistical analysis was then performed to compare the change in relative abundance of AMR genes of interest in the ribaxamase group vs. the placebo group. This analysis identified AMR genes that significantly changed from the screening sample to the post antibiotic samples. These changes included AMR genes that significantly increased and decreased following ceftriaxone treatment. There were approximately four-fold more genes that changed significantly in the placebo group as compared with the ribaxamase group. Among the genes that significantly increased in the placebo group are a family of five beta-lactamase genes which is consistent with the selective pressure from the ceftriaxone administered during the study. There were also several vancomycin resistance genes that increased in the placebo group which is consistent with the significant increase in colonization by vancomycin resistant enterococci seen in the placebo patients. The genes that decreased were mostly tetracycline and erythromycin resistance genes that are associated with normal gut flora. These data are consistent with ribaxamase degrading the ceftriaxone in the upper GI and thus relieving the selective pressure of the antibiotics on the gut microbiome. We plan to continue collaborative efforts with the CDC to gain public health support for SYN-004 (ribaxamase).

On May 11, 2017, we announced that the FDA granted a Breakthrough Therapy Designation (BTD) to SYN-004 (ribaxamase) for the prevention of *Clostridium difficile* infection (CDI). The Breakthrough Therapy Designation is based on data from the successful Phase 2b clinical trial of SYN-004 (ribaxamase), which met its primary endpoint of significantly reducing CDI. FDA Breakthrough Therapy Designation is intended to expedite development and review timelines when preliminary clinical evidence indicates that a drug may demonstrate substantial improvement on one or more clinically significant endpoints over available therapies for serious or life-threatening diseases. Following BTD, we engaged in a Type-B Multidisciplinary meeting with the FDA, focused upon a high-level drug development plan and pathway to marketing approval for SYN-004 (ribaxamase). Discussions at the meeting included, the preliminary structure of a potential Phase 3 trial(s) we anticipate conducting as well as cGMP and CMC considerations. We plan to continue collaborative discussions with the FDA to solidify the details and components of the Phase 3 drug development plan and regulatory pathway towards marketing approval for SYN-004 (ribaxamase), and expect to initiate a Phase 3 trial(s) in 2018 or later, subject to our successful pursuit of opportunities that will allow us to establish the clinical infrastructure and financial resources necessary to successfully initiate and complete this plan. If approved by the FDA, SYN-004 (ribaxamase) would be the first available drug designed to prevent *Clostridium difficile* infection by protecting the gut microbiome from antibiotic-mediated dysbiosis.

SYN-010 — Treatment of Irritable Bowel Syndrome with Constipation (IBS-C)

SYN-010 is our proprietary, modified-release formulation of lovastatin lactone that is intended to reduce methane production by certain microorganisms (*M. smithii*) in the gut while minimizing disruption to the microbiome. Methane produced by *M. smithii* is an underlying cause of pain, bloating and constipation associated with IBS-C, and published reports have associated higher intestinal methane production with increased constipation severity in IBS-C patients. SYN-010 is intended to act primarily in the intestinal lumen while avoiding systemic absorption, thereby targeting the major cause of IBS-C, not just the patient's symptoms.

In December 2013, through our subsidiary Synthetic Biomics, Inc. (SYN Biomics), we entered into a worldwide exclusive license agreement with Cedars-Sinai Medical Center (CSMC) and acquired the rights to develop products for therapeutic and prophylactic treatments of acute and chronic diseases, including the development of SYN-010

to target IBS-C. We licensed from CSMC a portfolio of intellectual property comprised of several U.S. and foreign patents and pending patent applications for various fields of use, including IBS-C, obesity and diabetes. An investigational team led by Mark Pimentel, M.D. at CSMC discovered that these products may reduce the production of methane gas by certain GI microorganisms.

We believe SYN-010 may reduce the impact of methane producing organisms on IBS-C.

Overview of our two Phase 2 Clinical Trials

In 2015 and 2016, we reported supportive data from our two SYN-010 Phase 2 trials, the first study was comprised of a randomized, double-blind, placebo-controlled, 4-week study comparing SYN-010 21 mg and 42 mg dose strengths to placebo (Study 1), followed by an open-label study in which eligible patients who completed Study 1 received SYN-010 42 mg for an additional 8 weeks (Study 2). The two Phase 2 SYN-010 clinical trials evaluated the change from baseline (Day 1 of Study 1) in breath methane, stool frequency and abdominal pain and bloating at the end of weeks 1, 4, 8 and 12 (Study 2 – Day 84) in patients diagnosed with IBS-C and with breath methane levels greater than 10 parts per million (ppm) at screening.

Allowance of Key U.S. Patent

On June 27, 2017, we announced that the U.S. Patent and Trademark Office (USPTO) issued a Notice of Allowance for a patent which covers the use of the active agent of SYN-010, our proprietary, modified-release formulation of lovastatin lactone, for the treatment of constipation. Upon issuance, this patent will strengthen the intellectual property estate covering the use of SYN-010 for the treatment of IBS-C until at least 2034, affording us an extended term for commercialization.

Phase 3 Planning

On July 20, 2016, we participated in an End of Phase 2 meeting with the FDA. Following a review of data from the two Phase 2 clinical trials of SYN-010 conducted by us, a collaborative and positive discussion ensued with the FDA to determine the optimal pathway to advance SYN-010 into Phase 3 development. On January 18, 2017, and in accordance with guidance from the FDA, we confirmed our plan to conduct a Phase 2b/3 adaptive design study for our first pivotal trial intended to further evaluate the efficacy and safety of SYN-010. Our plan to initiate the Phase 2b/3 adaptive design study is subject to our successful pursuit of opportunities that will allow us to establish the clinical infrastructure and financial resources necessary to successfully initiate and complete this plan.

In accordance with collaborative discussions with the FDA, key components of the SYN-010 Phase 2b/3 adaptive pivotal trial will include:

- A 12-week, multi-center, double-blind, placebo-controlled, adaptive design clinical trial;
- A study population of approximately 840 adult subjects diagnosed with IBS-C;
- Evaluation of efficacy and safety of two dose strengths of SYN-010 (21 mg and 42 mg) compared to placebo;
- Conducted in approximately 150 clinical sites in North America;
- Study subjects will be randomized in a 1:1:1 ratio, receiving either 21 mg of SYN-010, 42 mg of SYN-010, or placebo;
- Enrollment will be open to all IBS-C patients; breath-methane will be measured at baseline to ensure a comparable ratio of high-to-low breath methane IBS-C patients in each treatment arm; and
- An interim futility analysis may be conducted when approximately 50% of patients in each dosing arm have completed treatment.

Consistent with FDA written guidance, the primary objective for this study is to determine the efficacy of SYN-010, measured as an improvement from baseline in the percentage of overall weekly responders during the 12-week treatment period for SYN-010 21 mg and 42 mg daily doses compared to placebo. Secondary efficacy endpoints for both dose strengths of SYN-010 will measure changes from baseline in abdominal pain, bloating, bowel movement frequency and stool consistency. Exploratory outcomes include adequate relief and quality of life measures using the well-validated EQ-5D-5L and PAC-SYM patient questionnaires.

Anticipated Regulatory Strategy

We believe that we will be able to utilize the regulatory approval pathway provided in Section 505(b)(2) of the Federal Food, Drug, and Cosmetic Act (the "FDCA") for SYN-010. A New Drug Application (NDA) submitted under Section 505(b)(2), referred to as a 505(b)(2) NDA, contains full safety and efficacy reports but allows at least some of the information required for NDA approval, such as safety and efficacy information on the active ingredient, to come from studies not conducted by or for the applicant and for which the applicant has not obtained a right of reference. We believe we can rely in part on the FDA's previous findings of safety for Mevacor (lovastatin) in

published clinical data. We expect to rely on published clinical trials using Mevacor to provide support of efficacy.

SYN-007 — Prevention of CDI, overgrowth of pathogenic organisms and the emergence of antimicrobial resistance (AMR)

We are currently developing two pipeline products to expand the potential utility of our beta-lactamase strategy. The first, termed SYN-007, is a specially formulated version of SYN-004 (ribaxamase) designed to degrade orally administered beta-lactam antibiotics to protect the gut microbiome from antibiotic-mediated dysbiosis. SYN-007 is formulated for release in the distal small intestine to allow systemic absorption of the oral antibiotic while still providing protection upstream of the colon and to the gut microbiome. SYN-007 is designed for patients who have been administered SYN-004 (ribaxamase) in combination with intravenous beta-lactam antibiotics and who are then transferred to an oral beta-lactam antibiotic, thereby extending gut microbiome protection from antibiotic-mediated dysbiosis. At the recent ID Week 2017 conference, we presented a poster demonstrating that the SYN-007 formulation in development did not substantially interfere with amoxicillin absorption in our porcine or canine models. Preclinical work is ongoing to determine the ability of SYN-007 to degrade oral beta-lactam antibiotics and protect the gut microbiome from antibiotic-mediated dysbiosis, including microbiome analyses from the porcine and canine models.

SYN-006 — Prevention of CDI, overgrowth of pathogenic organisms and the emergence of antimicrobial resistance (AMR)

The second pipeline product, termed SYN-006, has the potential to further expand the utility of our SYN-004 (ribaxamase) program to a broader spectrum of IV beta-lactam antibiotics in the GI tract to include carbapenem antibiotics. Carbapenems are broad-spectrum beta lactam antibiotics that have been shown to significantly damage the gut microbiome, incur a high risk for *C. difficile* infection, and enable GI overgrowth with multidrug resistant organisms. Carbapenems are frequently a last line of defense antibiotic, therefore the emergence and spread of carbapenem resistance is very worrisome. SYN-006 is a carbapenemase designed to degrade intravenous (IV) carbapenem antibiotics within the GI tract to maintain the natural balance of the gut microbiome for the prevention of CDI, overgrowth of pathogenic organisms and the emergence of antimicrobial resistance (AMR). It is anticipated that, by protecting the gut microbiome from exposure to carbapenem antibiotics, SYN-006 may potentially diminish the spread of such resistance. At the recent ID Week 2017 conference, we presented a poster demonstrating SYN-006's broad activity against four carbapenem antibiotics as well as efficacy in a canine model. The poster also showed that the carbapenem, ertapenem, potently damaged gut microbiomes and mediated expansion of antibiotic resistance genes in the porcine GI tract. Preclinical work is ongoing to determine the ability of SYN-006 to degrade intravenous carbapenem antibiotics and protect the gut microbiome from antibiotic-mediated dysbiosis.

Research Programs

Infectious disease outbreaks are increasing while intervention options are declining due to widespread multidrug-resistant bacteria, increasing numbers of immuno-compromised patients (e.g., the elderly and cancer patients) and the isolation of new pathogens.

SYN-005 — Pertussis (Whooping Cough)

Intrexon Collaboration and The University of Texas (UT) at Austin Agreement

In August 2012, we entered into a worldwide exclusive channel collaboration with Intrexon through which we intend to develop monoclonal antibody (mAb) therapies for the treatment of certain infectious diseases not adequately addressed by existing therapies. In December 2012, we initiated mAb development for the prevention and treatment of pertussis focusing on toxin neutralization. Unlike antibiotics, we are developing a mAb therapy to target and neutralize the pertussis toxin as a prophylaxis for high-risk newborns and in order to reduce the mortality rate in infected infants.

To further the development of this potential therapy for pertussis, we entered into an agreement with UT Austin to license the rights to certain research and pending patents related to pertussis antibodies. These research efforts are being conducted at the Cockrell School of Engineering in the laboratory of Associate Professor, Jennifer A. Maynard, Ph.D., the Laurence E. McMakin, Jr. Centennial Faculty Fellow in the McKetta Department of Chemical Engineering. Dr. Maynard brings to the project her expertise in the development, optimization, and application of mAbs for the treatment of pertussis.

We previously reported that SYN-005, a cocktail of two mAbs, was highly efficacious as a therapeutic in non-human primates infected with B. pertussis. The data were published in *Science Translational Medicine* in December 2015.

In October 2015, the Bill & Melinda Gates Foundation awarded a grant to UT Austin to generate preclinical proof-of-concept data in the neonatal non-human primate model to test the hypothesis that antibody administration at birth may have a role in the prevention of pertussis.

In December 2015, the non-human primate prophylaxis study was initiated by UT Austin to determine if administration of hu1B7, one component of SYN-005, at two days of age could protect animals from a subsequent pertussis infection. On April 19, 2017, we announced supportive preclinical data demonstrating hu1B7 provided five weeks of protection from pertussis in neonatal non-human primates. Control animals (n=6), infected with *Bordetella pertussis (B. pertussis)* at five weeks of age, demonstrated marked elevations in white blood cell counts and most exhibited behavioral signs of pertussis, including coughing and diminished activity. In contrast, the experimental animals (n=7), who were treated with hu1B7 at two days of age and then infected five weeks later, had significantly lower peak white blood cell counts (p=0.004) that remained within the normal range or were only slightly elevated. Importantly, all seven of the animals that received prophylactic hu1B7 appeared healthy and none exhibited any behavioral signs of pertussis. Building on this early success, we have initiated preclinical testing of a modified version of hu1B7 that has the potential to extend the plasma half-life and substantially reduce the required dose of SYN-005.

This current study expands the potential clinical utility beyond therapy to also include prophylaxis.

SYN-200 — Treatment of Phenylketonuria (PKU)

In August 2015, we initiated the SYN-200 discovery program for development and commercialization of novel biotherapeutics for the treatment of patients with PKU pursuant to an exclusive channel collaboration with Intrexon. We are utilizing Intrexon's ActoBiotics platform to provide a proprietary method of delivering therapeutic protein to the GI tract through food-grade microbes. This program is in the discovery stage.

SYN-020 — Oral Intestinal Alkaline Phosphatase

SYN-020 is in the preclinical development stage. SYN-020 is being developed as a modified-release oral dosage form of intestinal alkaline phosphatase (IAP). Published preclinical and clinical studies on IAP indicate that an oral IAP product may have efficacy in a broad range of significant therapeutic indications including inflammatory bowel disease, microbial dysbiosis and metabolic syndrome. We have generated manufacturing cell lines and processes, and are initiating preclinical animal modeling for multiple novel indications.

Intellectual Property

All of our programs are supported by growing patent estates that we either own or exclusively license. Each potential product has issued patents that provide protection. In total, we have over 110 U.S. and foreign patents and over 100 U.S. and foreign patents pending. For instance, U.S. Patent Nos. 8,894,994 and 9,587,234, which include claims to compositions of matter and pharmaceutical compositions of beta-lactamases, including SYN-004 (ribaxamase), have patent terms to at least 2031. Further, U.S. Patent 9,301,995 and 9,301,996, both of which will expire in 2031, cover various uses of beta-lactamases, including SYN-004 (ribaxamase), in protecting the microbiome, and U.S. Patent Nos. 9,290,754, 9,376,673, 9,404,103, 9,464,280, and 9,695,409 which, will expire in at least 2035, covers further beta-lactamase compositions of matter related to SYN-004 (ribaxamase). Also, U.S. Patent No. 9,192,618, which expires in at least 2023, includes claims that cover use of statins, including SYN-010, for the treatment of IBS-C. U.S. Patent No. 9,289,418, which expires in at least 2033, includes claims that cover the use of a variety of compounds, including the active agent of SYN-010, to treat constipation in certain screened patients. U.S. Patent No. 9,744,208 covers methods of use of the active agent of SYN-010 for the treatment of constipation until at least 2034. Pending applications US 14/826,115 and various foreign equivalent applications cover SYN-010 formulations and, if issued, are expected to have a term to at least 2035.

Our goal is to (i) obtain, maintain, and enforce patent protection for our products, formulations, processes, methods, and other proprietary technologies, (ii) preserve our trade secrets, and (iii) operate without infringing on the proprietary rights of other parties, worldwide. We seek, where appropriate, the broadest intellectual property protection for product candidates, proprietary information, and proprietary technology through a combination of contractual arrangements and patents.

Critical Accounting Policies

The condensed consolidated financial statements are prepared in conformity with U.S. GAAP, which require the use of estimates, judgments and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses in the periods presented. We believe that the accounting estimates employed are appropriate and resulting balances are reasonable; however, due to inherent uncertainties in making estimates, actual results may differ from the original estimates, requiring adjustments to these balances in future periods. The critical accounting estimates that affect the condensed consolidated financial statements and the judgments and assumptions used are consistent with those described under Part II, Item 7 of our 2016 Form 10-K.

Results of Operations

Three Months Ended September 30, 2017 and 2016

General and Administrative Expenses

General and administrative expenses decreased by 19% to $1.7 million for the three months ended September 30, 2017, from $2.1 million for the three months ended September 30, 2016. This decrease is primarily the result of higher salary expense and related benefits costs incurred in 2016 in connection with the transition of the administrative and financial office to our Maryland headquarters, along with the reduction of travel, registration fees, and legal expenses in 2017. The charge related to stock-based compensation expense was $583,000 for the three months ended September 30, 2017, compared to $524,000 the three months ended September 30, 2016.

Research and Development Expenses

Research and development expenses decreased by 41% to $4.1 million for the three months ended September 30, 2017, from $7.1 million for the three months ended September 30, 2016. This decrease is primarily the result of lower SYN-004 (ribaxamase) and SYN-010 program costs. In addition, there were reductions in our other research and development activities, offset by an increase in indirect costs for manufacturing and medical affairs. The charge related to stock-based compensation expense was $317,000 for the three months ended September 30, 2017, compared to $422,000 for the three months ended September 30, 2016.

The following table sets forth our research and development expenses directly related to our therapeutic areas for the three months ended September 30, 2017 and 2016. These direct expenses were external costs associated with preclinical studies and clinical trials. Indirect research and development expenses related to employee costs, facilities, stock-based compensation and research and development support services that are not directly allocated to specific drug candidates.

Therapeutic Areas	September 30, 2017	September 30, 2016
Ribaxamase	$ 119	$ 3,190
SYN-010	67	1,181
SYN-005	17	33
Other therapeutic areas	(2)	15
Total direct costs	201	4,419
Total indirect costs	3,936	2,642
Total Research and Development	$ 4,137	$ 7,061

Other Income/Expense

Other expense was $5.1 million for the three months ended September 30, 2017, compared to other income of $0.7

million for the three months ended September 30, 2016. Other expense for the three months ended September 30, 2017 is primarily comprised of non-cash expense of $5.1 million from the change in fair value of warrants. The increase in the fair value of the warrants was due to the increase in our stock price from the prior quarter.

Net Loss Attributable to Common Stockholders

Our net loss attributable to common stockholders was $17.8 million, or $0.14 per basic and dilutive common share for the three months ended September 30, 2017, compared to a net loss of $8.4 million, or $0.09 per basic common share and dilutive common share for the three months ended September 30, 2016.

Nine Months Ended September 30, 2017 and 2016

General and Administrative Expenses

General and administrative expenses decreased to $5.4 million for the nine months ended September 30, 2017, from $6.7 million for the nine months ended September 30, 2016. This decrease of 18% is primarily the result of higher salary expense and related benefits costs incurred in 2016 in connection with the transition of the administrative and financial office to our Maryland headquarters, together with a decrease in travel, registration fees, and legal costs in 2017. The charge relating to stock-based compensation expense was $1.8 million for the nine months ended September 30, 2017, compared to $1.7 million for the nine months ended September 30, 2016.

Research and Development Expenses

Research and development expenses decreased to $15.0 million for the nine months ended September 30, 2016, from $22.4 million for the nine months ended September 30, 2016. This decrease of 33% is primarily the result of lower SYN-004 (ribaxamase) and SYN-010 program costs. In addition, there were reductions in our other research and development activities, offset by an increase in indirect costs for manufacturing and medical affairs. Research and development expenses also include a charge relating to stock-based compensation expense of $1.1 million for the nine months ended September 30, 2017, compared to $1.2 million for the nine months ended September 30, 2016.

The following table sets forth our research and development expenses directly related to our therapeutic areas for the nine months ended September 30, 2017 and 2016. These direct expenses were external costs associated with preclinical studies and clinical trials. Indirect research and development expenses related to employee costs, facilities, stock-based compensation and research and development support services that are not directly allocated to specific drug candidates.

Therapeutic Areas	September 30, 2017	September 30, 2016
Ribaxamase	$ 1,251	$ 8,453
SYN-010	2,437	3,916
SYN-005	38	45
Other therapeutic areas	(3)	94
Total direct costs	3,723	12,508
Total indirect costs	11,305	9,872
Total Research and Development	$ 15,028	$ 22,380

Other Income

Other income was $2.2 million for the nine months ended September 30, 2017, compared to other income of $3.7 million for the nine months ended September 30, 2016. Other income for the nine months ended September 30, 2017 is primarily comprised of non-cash income of $2.2 million from the change in fair value of warrants. The decrease in the fair value of the warrants was due to the decrease in our stock price from December 31, 2016.

Net Loss Attributable to Common Stockholders

Our net loss attributable to common stockholders was $24.9 million, or $0.20 per basic and dilutive common share for the nine months ended September 30, 2017, compared to a net loss of $24.9 million, or $0.27 per basic and dilutive common share for the nine months ended September 30, 2016.

Liquidity and Capital Resources

With the exception of the three months ended June 30, 2010, we have experienced significant losses since inception and have a significant accumulated deficit. To date, we have financed our operations primarily through public and private sales of our common stock and a private placement of our preferred stock, and we expect to continue to seek to obtain the required capital in a similar manner. We have incurred an accumulated deficit of $197.0 million as of September 30, 2017 and expect to continue to incur losses in the future. With the exception of the quarter ended June 30, 2010, we have incurred negative cash flow from operations since our inception. We have spent, and expect to continue to spend, a substantial amount of funds in connection with implementing our business strategy, including our planned product development efforts, our clinical trials and our research and discovery efforts.

Based on our current plans, our cash and cash equivalents will not be sufficient to enable us to meet our near term expected plans, including our planned Phase 2b/3 and Phase 3 clinical trials. Our notes to the condensed consolidated financial statements contain an explanatory paragraph referring to our recurring and continuing losses from operations and expressing substantial doubt in our ability to continue as a going concern without additional capital becoming available. We cannot provide any assurance that we will be able to achieve profitability on a sustained basis, if at all, obtain the required funding to achieve our current business plan, obtain the required regulatory approvals for our product candidates or complete additional corporate partnering or acquisition transactions in order to commercialize such product candidates once regulatory approval is received.

Our cash and cash equivalents totaled $21.1 million as of September 30, 2017, an increase of $2.0 million from December 31, 2016. During the nine months ended September 30, 2017, the primary use of cash was for working capital requirements and operating activities which resulted in a net loss of $18.3 million for the nine months ended September 30, 2017.

Our continued operations as currently planned will primarily depend on our ability to raise additional capital from various sources, including equity (the FBR Sales Agreement as well as other equity sources) and debt financings, as well as license fees and other funding received from potential corporate partners, joint ventures and grant funding. Although we have been awarded a contract by the CDC's Broad Agency Announcement (BAA) 2016-N-17812, the amount of the award will not be sufficient to enable us to complete our clinical trials as planned and therefore we will be required to obtain additional capital. Such additional funds may not become available on acceptable terms or at all and there can be no assurance that any additional funding that we do obtain will be sufficient to meet our needs. We will continue to fund operations from cash on hand and through the similar sources of capital previously described. We can give no assurance that any additional capital that we are able to obtain will be sufficient to meet our needs.

Series A Preferred Stock Offering

On September 11, 2017, we entered into a share purchase agreement with an accredited investor pursuant to which we offered and sold in a private placement 120,000 shares of our Series A Convertible Preferred Stock, par value $0.001 per share (the "Series A Preferred Stock"), for an aggregate purchase price of $12 million, or $100 per share. The use of proceeds from the sale of the Series A Preferred Stock is for working capital purposes.

Current and Future Financing Needs

Based on our current plans, despite the proceeds from the sale of the Series A Preferred Stock, our cash and cash equivalents will not be sufficient to enable us to meet our financing needs required to complete our anticipated clinical trial and other expected plans. Our notes to the condensed consolidated financial statements contain an explanatory paragraph referring to our recurring and continuing losses from operations and expressing substantial doubt in our ability to continue as a going concern without additional capital becoming available. Our plan to initiate the planned clinical trials is subject to our successful pursuit of opportunities that will allow us to establish the clinical infrastructure and financial resources necessary to successfully initiate and complete this plan. In order to continue the development of our current product candidates as currently planned, including commencing our planned Phase 2b/3 and Phase 3 clinical trials, and to continue to fund operations at the current cash expenditure levels, we are required to obtain additional funding, although we do not currently have commitments from any third parties to provide us with capital. Potential sources of financing that we are pursuing include strategic relationships, public or private sales of our equity (including through the FBR Sales Agreement that we entered into with FBR Capital Markets & Co. in August 2016) or debt and other sources. We cannot assure that we will meet the requirements for use of the FBR Sales Agreement or that additional funding will be available on favorable terms, or at all. If we fail to obtain additional funding in the next few months we will be forced to delay the initiation of our planned clinical trials until such time as we obtain adequate financing and, if we fail to obtain additional funding otherwise in the future when needed, we may not be able to execute our business plan as planned and we may be forced to cease certain development activities until funding is received, including manufacturing activities, and our business will suffer, which would have a material adverse effect on our financial position, results of operations and cash flows.

The actual amount of funds we will need to operate is subject to many factors, some of which are beyond our control. These factors include the following:

- the progress of our research activities;
- the number and scope of our research programs;

- the progress of our preclinical and clinical development activities;
- the progress of the development efforts of parties with whom we have entered into research and development agreements and amount of funding received from partners and collaborators;
- our ability to maintain current research and development licensing arrangements and to establish new research and development and licensing arrangements;
- our ability to achieve our milestones under licensing arrangements;
- the costs associated with manufacturing-related services to produce material for use in our clinical trials;
- the costs involved in prosecuting and enforcing patent claims and other intellectual property rights; and
- the costs and timing of regulatory approvals.

We have based our estimate on assumptions that may prove to be wrong. We may need to obtain additional funds sooner or in greater amounts than we currently anticipate. Potential sources of financing include strategic relationships, public or private sales of our shares (including through the FBR Sales Agreement, if we meet the conditions for sale thereunder) or debt and other sources. Additionally, we may seek to access the public or private equity markets when conditions are favorable due to our long-term capital requirements. We do not have any committed sources of financing at this time, and it is uncertain whether additional funding will be available when we need it on terms that will be acceptable to us, or at all. From August 11, 2016 through December 31, 2016, we sold through the FBR Sales Agreement an aggregate of 900,628 shares of our common stock, and received net proceeds of approximately $1,550,197. During the nine months ended September 30, 2017, we sold through the FBR Sales Agreement an aggregate of 10.9 million shares of our common stock, and received net proceeds of approximately $6.4 million. During the nine months ended September 30, 2017, our only sources of funding was from the sale of $12 million of our Series A Preferred Stock and sales of common stock through the FBR Sales Agreement. During the year ended December 31, 2016, our only source of funding was from the sale of our securities in our public offering of 25 million shares of common stock in combination with accompanying warrants to purchase an aggregate of 50,000,000 shares of the common stock for gross proceeds of $25,000,000 and sales of common stock through the FBR Sales Agreement. However, there can be no assurance that we will be able to continue to raise funds through the sale of shares of common stock through the FBR Sales Agreement. If we raise funds by selling additional shares of common stock or other securities convertible into common stock, the ownership interest of our existing stockholders will be diluted. If we are not able to obtain funding when needed, we will be unable to carry out our business plan and we will be forced to delay the initiation of our planned clinical trials until such time as we obtain adequate financing. As a result, we may have to significantly limit our operations and our business, financial condition and results of operations would be materially harmed.

Off-Balance Sheet Arrangements

During the nine months ended September 30, 2017, we did not have, and we do not currently have, any off-balance sheet arrangements, as defined under SEC rules.

Contractual Obligations

There have been no material changes to our contractual obligations during the period covered by this report from those disclosed in our 2016 Form 10-K.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

The primary objective of our investment activities is to preserve our capital to fund operations. We also seek to maximize income from our investments without assuming significant risk. Our exposure to market risk is confined to our cash and cash equivalents. As of September 30, 2017, our cash and cash equivalents consisted primarily of money market securities. We do not engage in any hedging activities against changes in interest rates. Due to the short-term duration of our investment portfolio and the low risk profile of our investments, we would not expect our operating results or cash flows to be affected to any significant degree by the effect of a sudden change in market interest rates or credit conditions on our securities portfolio. We may, however, require additional financing to fund future obligations and no assurance can be given that the terms of future sources of financing will not expose us to material market risk.

ITEM 4. CONTROLS AND PROCEDURES.

(a) Evaluation of Disclosure Controls and Procedures

The Company has adopted and maintains disclosure controls and procedures (as defined Rules 13a-15(e) and 15d-15(e) under the Exchange Act) that are designed to provide reasonable assurance that information required to be disclosed in the reports filed under the Exchange Act, such as this Quarterly Report on Form 10-Q, is collected, recorded, processed, summarized and reported within the time periods specified in the rules of the SEC. The

Company's disclosure controls and procedures are also designed to ensure that such information is accumulated and communicated to management to allow timely decisions regarding required disclosure. As required under Exchange Act Rule 13a-15, the Company's management, including the Chief Executive Officer and Chief Financial Officer, after evaluating the effectiveness of our disclosure controls and procedures as of September 30, 2017, the end of the period covered by this Quarterly Report on Form 10-Q, have concluded that based on such evaluation, the Company's disclosure controls and procedures are effective as of September 30, 2017 to ensure that information required to be disclosed by the Company in the reports that the Company files or submits under the Exchange Act, is recorded, processed, summarized and reported, within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to the Company's management, including the Company's Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

(b) Changes in Internal Control over Financial Reporting

There have not been any changes in our internal controls over financial reporting during the three and nine months ended September 30, 2017 that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II–OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS.

From time to time we may become involved in legal proceedings or be subject to claims arising in the ordinary course of our business. We are not presently a party to any legal proceedings that, if determined adversely to us, would individually or taken together have a material adverse effect on our business, operating results, financial condition or cash flows. Regardless of the outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

ITEM 1A. RISK FACTORS.

The following information updates, and should be read in conjunction with, the information disclosed in Part 1, Item 1A, "Risk Factors," contained in our 2016 Form 10-K. Except as disclosed below, there have been no material changes from the risk factors disclosed in our 2016 Form 10-K.

RISKS RELATING TO OUR BUSINESS

We will need to raise additional capital to operate our business and our failure to obtain funding when needed may force us to delay, reduce or eliminate our development programs or commercialization efforts.

During the nine months ended September 30, 2017, our operating activities used net cash of approximately $16.3 million and as of September 30, 2017 our cash and cash equivalents were $21.1 million. With the exception of the three months ended June 30, 2010, we have experienced significant losses since inception and have a significant accumulated deficit. As of September 30, 2017, our accumulated deficit totaled approximately $197.0 million on a consolidated basis. We expect to incur additional operating losses in the future and therefore expect our cumulative losses to increase. With the exception of the quarter ended June 30, 2010, and limited laboratory revenues from Adeona Clinical Laboratory, which we sold in March 2012, we have generated very minimal revenues. We do not expect to derive significant revenue from any source in the near future until we or our potential partners successfully commercialize our products. We expect our expenses to increase in connection with our ongoing activities, particularly as we continue research and development, initiate and conduct clinical trials and seek marketing approval for our product candidates. Until such time as we receive approval from the FDA and other regulatory authorities for our product candidates, we will not be permitted to sell our products and therefore will not have product revenues from the sale of products. For the foreseeable future, we will have to fund all of our operations and capital expenditures from equity and debt offerings, cash on hand, licensing fees and development funding received from third parties and grants. Based upon our business plans, we do not believe that our current cash, cash equivalents and short-term investments will be sufficient to sustain our operations as currently planned, including initiation of planned clinical trials. Our plan to initiate the planned clinical trials is subject to our successful pursuit of opportunities that will allow us to establish the clinical infrastructure and financial resources necessary to successfully initiate and complete this plan. Therefore, we will need to seek additional sources of funding, such as additional financing or grant funding, as well as license fees from potential corporate partners, joint ventures and additional financing may not be available on favorable terms, if at all. If we do not succeed in raising additional funds on acceptable terms or in a timely manner, we will be unable to commence or planned preclinical and clinical trials in the periods anticipated, if at all, or obtain approval of our product candidates from the FDA and other regulatory authorities. In addition, if we do not raise additional capital in the next few months or otherwise in the future when needed we will be forced to delay, discontinue or curtail product development, including product manufacturing, forego sales and marketing efforts, and forego licensing in attractive business opportunities. Any delay in manufacturing timelines may result in delays in commencement or continuation of clinical trials. Any additional sources of financing will likely involve the issuance of our equity or debt securities, which will have a dilutive effect on our stockholders.

RISKS RELATING TO OUR STOCK

We cannot assure you that the common stock will be liquid or that it will remain listed on the NYSE American.

Our common stock is listed on the NYSE American. The NYSE American's listing standards generally mandate that we meet certain requirements relating to stockholders' equity, market capitalization, aggregate market value of publicly held shares and distribution requirements. We cannot assure you that we will be able to maintain the continued listing standards of the NYSE American. The NYSE American requires companies to meet certain continued listing criteria including a minimum stockholders' equity of $6.0 million if an issuer has sustained losses from continuing operations and/or net losses in its five most recent years, as outlined in the NYSE American Exchange Company Guide. At September 30, 2017, we had stockholders' deficit of $6.7 million. The NYSE American Exchange Company Guide also states that the NYSE normally will not consider removing from listing securities of an issuer with total value of market capitalization of at least $50.0 million and 1,100,000 shares publicly held, a market value of publicly held shares of at least $15.0 million and 400 round lot shareholders. Although the total value of our market capitalization today exceeds $50.0 million and we have more than 1,100,000 shares publicly held, a market value of publicly held shares of at least $15.0 million and 400 round lot shareholders, our stock price is volatile and a decrease in the price of our stock could result in a market capitalization below $50.0 million. There can be no assurance that the NYSE American will continue to list our common stock if we should continue to fail to maintain the minimum stockholders' equity. In addition, in the future we may not be able to maintain such minimum stockholders' equity and/or issue additional equity securities in exchange for cash or other assets, if available, to maintain certain minimum stockholders' equity required by the NYSE American. If we are delisted from the NYSE American then our common stock will trade, if at all, only on the over-the-counter market, such as the OTC Bulletin Board securities market, and then only if one or more registered broker-dealer market makers comply with quotation requirements. In addition, delisting of our common stock could depress our stock price, substantially limit liquidity of our common stock and materially adversely affect our ability to raise capital on terms acceptable to us, or at all. Delisting from the NYSE American could also have other negative results, including the potential loss of confidence by suppliers and employees, the loss of institutional investor interest and fewer business development opportunities.

The issuance of shares of the Series A Preferred Stock would reduce the relative voting power of holders of our common stock, would dilute the ownership of such holders and may adversely affect the market price of our common stock.

The conversion of the Series A Preferred Stock to common stock would dilute the ownership interest of existing holders of our common stock, and any sales in the public market of the common stock issuable upon conversion of the Series A Preferred Stock could adversely affect prevailing market prices of our common stock. Sales by such holders of a substantial number of shares of our common stock in the public market, or the perception that such sales might occur, could have a material adverse effect on the price of our common stock.

The holders of shares of the Series A Preferred Stock may exercise significant influence over us.

The holders of the Series A Preferred Stock will own approximately 15% of our shares of common stock on a fully diluted as-converted basis based on the number of shares of common stock outstanding as of the date hereof.

In addition, under the terms of the Certificate of Designation that governs the Series A Preferred Stock, the Series A Preferred Stock generally ranks, with respect to liquidation, dividends and redemption, senior to other securities and, so long as any shares of Series A Preferred Stock remain outstanding, the approval of the holders of a majority of the Series A Preferred Stock outstanding at the time of approval is required in order for us to, among other things, (i) alter or change adversely the powers, preferences or rights given to the Series A Preferred Stock or alter or amend the Certificate of Designation; (ii) amend our Articles of Incorporation or bylaws in any manner that adversely affects any powers, preferences or rights of the Series A Preferred Stock; (iii) authorize or create any series or class of stock ranking as to redemption, distribution of assets upon a Liquidation Event (as defined in the Certificate of Designation) or dividends senior to, or otherwise pari passu with, the Series A Preferred Stock; (iv) declare or make any dividends other than dividend payments on the Series A Preferred Stock or other distributions payable solely in common stock; (v) authorize any increase in the number of shares of Series A Preferred Stock or issue any additional shares of Series A Preferred Stock; or (vi) enter into any agreement with respect to any of the foregoing.

The holders of Series A Preferred Stock will have rights, preferences and privileges that are not held by, and are preferential to, the rights of our common stockholders.

Upon our liquidation, dissolution or winding up, the holders of the Series A Preferred Stock will be entitled to receive out of our assets, in preference to the holders of the common stock and any junior preferred stock, an amount per share equal to the greater of (i) the sum of the Accreted Value (as defined in the Certificate of Designation) plus an amount equal to all accrued or declared and unpaid dividends on the Series A Preferred Stock that have not previously been added to the Accrued Value, or (ii) the amount that such shares would have been entitled to receive if they had converted into common stock immediately prior to such liquidation, dissolution or winding up. In addition, upon consummation of a specified change of control transaction, each holder of Series A Preferred Stock will be entitled to have us redeem the Series A Preferred Stock at a price specified in the Certificate of Designation. These provisions may make it more costly for a potential acquirer to engage in a business combination transaction with us. Provisions that have the effect of discouraging, delaying or preventing a change in control could limit the opportunity for our stockholders to receive a premium for their shares of our common stock and could also affect the price that some investors are willing to pay for our common stock. If there are insufficient assets to pay in full such amounts, then the available assets will be ratably distributed to the holders of the Series A Preferred Stock in accordance with the respective amounts that would be payable on such shares if all amounts payable thereon were paid in full. This will reduce the remaining amount of our assets, if any, available to distribute to holders of our common stock. The holders of Series A Preferred Stock also have a preferential right to receive cumulative dividends on the Accreted Value of each share of Series A Preferred Stock at an initial rate of 2% per annum, compounded quarterly.

In addition, the holders of the Series A Preferred Stock also have certain redemption and conversion rights.

Our obligations to the holders of Series A Preferred Stock could limit our ability to obtain additional financing or increase our borrowing costs, which could have an adverse effect on our financial condition. These preferential rights could also result in divergent interests between the holders of shares of the Series A Preferred Stock and holders of our common stock.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS.

We did not sell any equity securities during the quarter ended September 30, 2017 in transactions that were not registered under the Securities Act, other than as previously disclosed in our filings with the SEC.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES.

Not applicable.

ITEM 4. MINE SAFETY DISCLOSURES.

Not applicable.

ITEM 5. OTHER INFORMATION.

Not applicable

ITEM 6. EXHIBITS

The exhibits filed or furnished as part of this Quarterly Report on Form 10-Q are set forth on the Exhibit Index, which Exhibit Index is incorporated herein by reference.

SIGNATURES

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

SYNTHETIC BIOLOGICS, INC.

By: /s/ Jeffrey Riley
Jeffrey Riley
President and Chief Executive Officer
(Principal Executive Officer)
Date: November 1, 2017

By: /s/ Steven A. Shallcross
Steven A. Shallcross
Chief Financial Officer
(Principal Financial and Accounting Officer)
Date: November 1, 2017

EXHIBIT INDEX

3.1	Certificate of Amendment to the Synthetic Biologics, Inc. Articles of Incorporation (incorporated by reference to Exhibit 3.1 of the Registrant's Current Report on Form 8-K filed on September 8, 2017, File No. 001-12584)
3.2	Certificate of Designation of Series A Convertible Preferred Stock (incorporated by reference to Exhibit 3.1 of the Registrant's Current Report on Form 8-K filed on September 12, 2017, File No. 001-12584)
4.1	Registration Rights Agreement, dated September 11, 2017, by and between Synthetic Biologics, Inc. and the holders of the Series A Convertible Preferred Stock (incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K filed on September 12, 2017, File No. 001-12584)
10.1	Synthetic Biologics, Inc. 2010 Stock Incentive Plan, as amended (incorporated by reference to Appendix B to the Definitive Proxy Statement filed with the Securities and Exchange Commission on July 18, 2017)
10.2	Share Purchase Agreement, dated September 11, 2017, by and between Synthetic Biologics, Inc. and the Purchasers named therein(incorporated by reference to Exhibit 10.1 of the Registrant's Current Report on Form 8-K filed on September 12, 2017, File No. 001-12584)
31.1	Certification of Principal Executive Officer pursuant to Rule 13a-14(a)/15d-14(a) *
31.2	Certification of Principal Financial Officer pursuant to Rule 13a-14(a)/15d-14(a) *
32.1	Certification of Principal Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 *
32.2	Certification of Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 *
101.INS	XBRL Instance Document *
101.SCH	XBRL Taxonomy Extension Schema *
101.CAL	XBRL Taxonomy Extension Calculation Linkbase *
101.DEF	XBRL Taxonomy Extension Definition Linkbase *
101.LAB	XBRL Taxonomy Extension Label Linkbase *
101.PRE	XBRL Taxonomy Extension Presentation Linkbase *

*Filed herewith.