August 24, 2017

VIA EDGAR

United States Securities
and Exchange Commission
100 F Street, NE
Washington, D.C. 20549
Attention: Division of Corporation Finance

Re: Synthetic Biologics, Inc.
Form 10-K filed on March 2, 2017
File No. 001-12584

Dear Ms. Paik:

Thank you for your August 18, 2017 letter regarding Synthetic Biologics, Inc. ("Synthetic"). Enclosed are responses to the comments in your letter. For your convenience, we have set forth below the staff's numbered comments in their entirety followed by our responses thereto.

Form 10-K for the Fiscal Year Ended December 31, 2016

Item 1. Business

Intellectual Property, page 11

1. Please expand your disclosure in future filings regarding your intellectual property portfolio to (i) clarify which patents are owned and which ones are licensed, (ii) identify the product candidate to which your patents and patent applications apply, and (iii) disclose the foreign jurisdictions where you have issued patents or pending patent applications, and the corresponding expiration dates (or expected expiration dates).

Response: In our Annual Report on 10-K for the year ended December 31, 2017, we will: (i) clarify which patents are owned and which ones are licensed; (ii) identify the product candidate to which the patents and patent applications apply; and (iii) disclose by region (e.g. Europe) the number of countries in each region for which we have foreign issued patents or pending patent applications, and a range of the corresponding expiration dates (or expected expiration dates) with regard to our intellectual property portfolio.

Our Collaborations, page 11

2. In future filings, please expand the description of your various collaboration agreements to disclose:

- the royalty rates (or a range of royalty rates within a 10% range) that are payable under these agreements, to the extent not already provided;
- the aggregate future potential milestone payments that are payable under the CSMC License Agreement and the Prev Agreement;
- the term of your collaboration and license agreements (and with respect to the Texas License Agreement, please clarify when the patent rights expire so that investors understand the term of the agreement); and
- the termination provisions under the PKU ECC and Prev Agreement.

Response: In our Annual Report on Form 10-K for the year ended December 31, 2017, we will provide the requested information regarding our various collaboration agreements.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

Liquidity and Capital Resources, page 42

3. We note your disclosure on page 43 that based on your current plans, your cash and cash equivalents will not be sufficient to enable you to meet your near term expected plans. In future filings, please expand your disclosure to describe how your cash position will affect your operations. To this end, we refer to your statements in recent earnings calls that you intend to initiate your Phase 2b/3 pivotal study for SYN-010 only once you have the clinical financial infrastructure necessary for its completion and to that end you are evaluating the option of a partnership with another pharmaceutical company.

Response: In our future filings, including our Annual Report on Form 10-K for the year ended December 31, 2017, we will further disclose how our cash position affects our operations. We respectfully also submit that in our Quarterly Report on Form 10-Q for the quarter ended June 30, 2017 we had sought to provide disclosure addressing this issue in under the subtitles "Phase 3 Planning" and "Current and Future Financing Needs" in Management's Discussion and Analysis of Financial Condition and Results of Operations. Please see below:

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, which we plan to initiate 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.

Current and Future Financing Needs

Based on our current plans, our cash and cash equivalents will not be sufficient to enable us to meet our near term 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. 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 and our business will suffer, which would have a material adverse effect on our financial position, results of operations and cash flows.

We acknowledge that the adequacy and accuracy of the disclosure in our filings is our responsibility. We acknowledge that the staff comments or changes to disclosure do not foreclose the Commission from taking any action with respect to the filings. We acknowledge that the company may not assert staff comments as a defense in any proceedings initiated by the Commission or any person under the federal securities laws of the United States.

If you have any questions or need additional information, please contact the undersigned at (301) 417-4359.

Sincerely,

Steven Shallcross