



DIVISION OF  
CORPORATION FINANCE

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549

October 17, 2018

Laura K. Shawver, Ph.D.  
Chief Executive Officer  
Synthorx, Inc.  
11099 N. Torrey Pines Road, Suite 290  
La Jolla, CA 92037

**Re: Synthorx, Inc.**  
**Amendment No. 1 to Draft Registration Statement on Form S-1**  
**Submitted October 2, 2018**  
**CIK No. 0001609727**

Dear Dr. Shawver:

We have reviewed your amended draft registration statement and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by providing the requested information and either submitting an amended draft registration statement or publicly filing your registration statement on EDGAR. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing the information you provide in response to these comments and your amended draft registration statement or filed registration statement, we may have additional comments.

Amendment No. 1 to Draft Registration Statement on Form S-1 submitted October 2, 2018

Prospectus Summary, page 1

1. We note your response to our prior comment 3 that your THOR-707 IND will initially include a general solid tumor indication and you will specify particular indications after initial clinical trials in humans. Please provide such disclosure in the Prospectus Summary. In addition, please revise the indications for THOR-707 in the table on pages 2 and 84 to indicate that the current indication is solid tumor.

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2. We note your response to our prior comment 5. However, including qualifying language that statements of safety and efficacy are expressions of the company's beliefs or expectations, whether or not based on results of preclinical studies, does not address the concern that findings of safety and efficacy are solely within the authority of the FDA and are assessed throughout all clinical trial phases. Please revise to remove these statements. We will not object to reasonable statements explaining why you believe the product candidates may work in a different way or provide different results than current treatments.

You may contact Andi Carpenter at 202-551-3645 or Angela Connell at 202-551-3426 if you have questions regarding comments on the financial statements and related matters. Please contact Irene Paik at 202-551-6553 or Erin Jaskot at 202-551-3442 with any other questions.

Sincerely,

Division of Corporation Finance  
Office of Healthcare & Insurance

cc: Kenneth J. Rollins, Esq.