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

DIVISION OF
CORPORATION FINANCE

April 19, 2018

Nagesh K. Mahanthappa
President and Chief Executive Officer
Scholar Rock Holding Corp.
620 Memorial Drive, 2nd Floor
Cambridge, MA 02139

Re: Scholar Rock Holding Corp.
Draft Registration Statement on Form S-1
Submitted March 26, 2018
CIK No. 0001727196

Dear Mr. Mahanthappa:

We have reviewed your 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.

Form S-1 Filed March 26, 2018

Prospectus Summary
Overview, page 1

1. Please balance your statement that you are focused on the discovery and development of innovative medicines for the treatment of serious diseases in which signaling by protein growth factors plays a fundamental role with the fact that you are a clinical stage biopharmaceutical company and that your lead product candidate has yet to begin Phase 1 clinical development.

2. We note your statement that your approach "avoids the historical challenges associated with safely and effectively inhibiting growth factors for therapeutic effect." This statement could imply that your approach is safer and more effective. As efficacy and safety determinations are solely within the FDA's authority, please remove this statement here and in your MD&A and Business overviews.

Our Approach and Proprietary Platform, page 1

3. Please clarify your discussion and provide more detail about what technology or assets comprise your "proprietary platform" beyond the scientific insights already discussed.

Our Pipeline Programs, page 3

4. Please include columns for Phase 2 and Phase 3 in your product pipeline table.

5. To the extent product candidates and indications for your TGF*B*1 and BMP6 programs are known please disclose them on your product pipeline table. If you have not yet identified product candidates and indications relating to these programs, it is premature to present these programs on your product pipeline table. In this regard, we note your disclosure in the risk factor on page 15 that, other than SRK-015, “[a]ll of our other programs are in preclinical development, and we have yet to nominate a clinical candidate from these programs."

Use of Proceeds, page 64

6. We note your disclosure that portions of the proceeds will be allocated to fund research and development activities for SRK-015 and the TGF*B*1 programs. Please expand your disclosure to include your estimate of how far you expect to reach, in the development process, for each program using the funds raised by the offering. In addition, please tell us why there is no allocation for the BMP6 Program.

Management's Discussion and Analysis of Financial Condition and Results of Operations
Overview, page 72

7. Please tell us if your proprietary platform involves a significant software element that should be disclosed in describing how the platform facilitates your activities. Also describe for us how you account for the expenses incurred to develop and maintain your proprietary platform.

Results of Operations
Comparison of the Years Ended December 31, 2016 and 2017, page 76

8. Please provide further detail regarding the "performance obligations under the option and license agreement" that were completed in 2016 and the revenue associated with these performance obligations.

Research and Development, page 76

9. Please disclose the research and development expenses incurred by program for the periods presented. If you do not separately track certain costs, for example internal costs, by programs, disclose that fact.

Business
TGFB1 in Fibrosis, page 102

10. We note your statement that "data suggest that novel approaches for the safe and effective targeting of TGF*B* signaling may have broad applicability to the treatment of fibrotic disease." As efficacy and safety determinations are solely within the FDA's authority, please remove or further qualify this statement as it appears to reference peer-reviewed studies as the basis for the statement. Similarly, please remove or further qualify your statement on page 106 that "liver-selective inhibition of BMP6 signaling could provide a safe and effective way to target a variety of iron-restricted anemias."

License Agreements
License Agreement with Children's Medical Corporation, page 107

11. You state that certain "development and regulatory milestone payments" will be paid in the event that you "realize sales from products covered by the license agreement." Please provide more information regarding which products or programs are covered by the license agreement.

12. Please provide more detail regarding the "diligence milestones" that the CMCC Agreement obligates you to meet.

Intellectual Property, page 108

13. Please disclose whether there are contested proceedings or third-party claims relating to each patent.

14. Please disclose whether there are any issued or pending patents or patent families associated with your BMP6 program.

15. We note your patent family disclosures regarding Myostatin Activation Inhibitors and TGF*B*1 Activation Inhibitors. Please clarify whether any of these patents have been issued.

16. We note your disclosure regarding issued patents associated with your platform. Please provide more detail regarding the patents cited and how they relate to your platform. Please also expand your disclosure regarding your platform, and the patents associated with TGF*B*1, to discuss the type of protection (e.g., composition of matter, use, or process) you have under these patents.

General

17. Please supplementally provide us with copies of all written communications, as defined in Rule 405 under the Securities Act, that you, or anyone authorized to do so on your behalf, present to potential investors in reliance on Section 5(d) of the Securities Act, whether or not they retain copies of the communications.

You may contact Charles Eastman, Staff Accountant, at (202) 551-3794 or Terry French, Accountant Branch Chief, at (202) 551-3828 if you have questions regarding comments on the financial statements and related matters. Please contact William Mastrianna, Attorney Adviser, at (202) 551-3778 or Kathleen Krebs, Special Counsel, at (202) 551-3350 with any other questions.

Division of Corporation Finance
Office of Telecommunications