

January 27, 2021

Robert Ang, M.B.B.S.
President and Chief Executive Officer
Vor Biopharma Inc.
100 Cambridgepark Drive
Suite 400
Cambridge, MA 02140

Re: Vor Biopharma Inc.
Registration

Statement on Form S-1
2021

Filed January 15,
File No. 333-252175

Dear Dr. Ang:

We have reviewed your 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 amending your registration statement and providing the requested information. 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 any amendment to your registration statement and the information you provide in response to these comments, we may have additional comments.

Registration Statement on Form S-1, Filed January 15, 2021

Summary, page 1

1. The revised disclosure on page 2 and elsewhere concerning your VCAR33 program indicates that VCAR33 is not the subject of an on-going clinical trial but rather that a third-party is conducting a Phase 1/2 trial of a T cell therapy that uses the same CAR construct as VCAR33. In light of this revision, it is inappropriate to: (i) identify yourself as a clinical-stage company, (ii) to highlight this third-party study in your pipeline table and (iii) to refer to the third-party trial/program throughout the prospectus as VCAR33. With reference to your risk factor disclosure on page 27, also revise page 2 to explain that FDA may disagree with the sufficiency of your right of reference to the preclinical, manufacturing or clinical data generated by the third-party trial.

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We remind you that the company and its management are responsible for the accuracy and adequacy of their disclosures, notwithstanding any review, comments, action or absence of action by the staff.

Refer to Rules 460 and 461 regarding requests for acceleration. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

You may contact Eric Atallah at 202-551-3663 or Kevin Kuhar at 202-551-3662 if you have questions regarding comments on the financial statements and related matters. Please contact Margaret Schwartz at 202-551-7153 or Joe McCann at 202-551-6262 with any other questions.

FirstName LastNameRobert Ang, M.B.B.S.

Corporation Finance
Comapany NameVor Biopharma Inc.

Sciences
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cc: Richard Segal, Esq.
FirstName LastName

Sincerely,
Division of
Office of Life