



DIVISION OF
CORPORATION FINANCE

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

June 13, 2018

Geoff MacKay
President and Chief Executive Officer
AVROBIO, Inc.
One Kendall Square
Building 300, Suite 201
Cambridge, MA 02139

Re: AVROBIO, Inc.
Amendment No. 2 to Registration Statement on Form S-1
Filed June 11, 2018
Response dated June 1, 2018
File No. 333-225213

Dear Mr. MacKay:

We have reviewed your amended 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

Prospectus Summary, page 1

1. We note your revised disclosure that you have initiated a Phase 2 trial for AVR-RD-01, and that the "Expected Next Milestone" column in your revised pipeline table now states that the next step for this product candidate is to receive the first phase 2 patient data. We also note your disclosure on pages 16-17 that both the Phase 1 and Phase 2 trials for AVR-RD-01 are ongoing and need to be completed. Please revise your pipeline table here and in the Business section to clarify that the Phase 1 trial has not been completed and that the

Geoff MacKay
AVROBIO, Inc.
June 13, 2018
Page 2

expected next milestone includes receiving patient data from both the Phase 1 and Phase 2 trials.

Use of Proceeds, page 59

2. We note your disclosure that you estimate that you will use the proceeds from the offering, together with your existing cash, to advance AVR-RD-01 into Phase 2 clinical trials and to support the phase 1 clinical trial; to advance AVR-RD-02 into Phase 1/2 clinical trials; AVR-RD-03 into preclinical development; etc. Please revise your disclosure to clarify whether you expect to complete any of these trials with the proceeds from the offering and existing cash. If not, please clarify that you do not expect the proceeds to be sufficient to complete any of these phases.

Business

Phase 2 Multinational Clinical Trial, page 99

3. Please explain to us your revised disclosure, which indicates that you commenced your Phase 2 trial in Australia, but that you received regulatory approval to proceed from Canada.

Letter dated June 1, 2018 regarding determination of fair value of the Company's common stock Valuations, page 3

4. Refer to your response to Comment 2 from our June 8, 2018 letter. Please reconcile for us the significant increase in the IPO scenario price per share as of March 31, 2018 as per your June 11, 2018 response to the estimated IPO mid-point price before effecting the reverse stock split.

You may contact Rolf Sundwall at 202-551-3105 or Jim Rosenberg at 202-551-3679 if you have questions regarding comments on the financial statements and related matters. Please contact Dorrie Yale at 202-551-8776 or Suzanne Hayes at 202-551-3675 with any other questions.

Division of Corporation Finance
Office of Healthcare & Insurance

cc: James Xu