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

DIVISION OF
CORPORATION FINANCE

February 10, 2021

Mark C. McKenna
President and Chief Executive Officer
Prometheus Biosciences, Inc.
9410 Carroll Park Drive
San Diego, California 92121

Re: Prometheus Biosciences, Inc.
Amendment No. 1 to
Draft Registration Statement on Form S-1
Submitted January 15, 2021
CIK No.0001718852

Dear Mr. McKenna:

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 January 15, 2021

Prospectus Summary, page 1

1. We note your response to our prior comment number 6. In certain places you state that you will collaborate with Takeda "to develop a therapeutic candidate for the TPR15 program." However, in other places it appears that the Company is solely responsible for developing a companion diagnostic product for a drug that Takeda is solely responsible for developing and commercializing. Please reconcile this disclosure, and to the extent you are solely responsible for developing a companion diagnostic and not any drug candidate, please tell us why you feel it is appropriate to include TPR15 in your pipeline table.

Use of Proceeds, page 76

2. We note your response to our prior comment number 8. We note your disclosure that you intend to use a portion of the net proceeds to fund the clinical development of PRA023 and PR600. Please revise page 74 to specify how far in the clinical development of your product candidates you expect to reach with the net proceeds for each indication.

Business, page 100

3. Please revise page 102 to describe the meaning of p-values and how they relate to the FDA's standards of efficacy.

4. We note your response to our prior comment number 12. Please revise page 110 to disclose the number of subjects and duration of the two mouse models of IBD conducted by Cedars-Sinai. Please also further explain or quantify the "substantial reduction" observed.

5. We note your response to our prior comment number 13. Please revise to provide a definition for the terms endoscopic improvement, clinical remission and disease biomarkers.

6. We note your response to our prior comment number 14. Please revise page 111 to provide more context for, and clearly explain, your statement that your companion diagnostic achieved 4-times greater probability of identifying patients with increased TL1A expression over IBD patients with lowered TL1A expression. If this is a metric, such as positive predictive value, then please also explain the metric.

You may contact Ameen Hamady at 202-551-3891 or Daniel Gordon at 202-551-3486 if you have questions regarding comments on the financial statements and related matters. Please contact Margaret Schwartz at 202-551-7153 or Mary Beth Breslin at 202-551-3625 with any other questions.

Sincerely,

Division of Corporation Finance
Office of Life Sciences

cc: Matthew T. Bush