

October 13th, 2022

VIA EDGAR AND FEDERAL EXPRESS

United States Securities and Exchange Commission
Division of Corporation Finance
Office of Life Sciences
100 F. Street, N.E.
Washington, D.C. 20549
Attention: Dillon Hagius, Tim Buchmiller, Tracey Houser and Angela Connell

**Re: Prime Medicine, Inc.
Registration Statement on Form S-1
Filed September 23, 2022
File No. 333-267579**

Dear Ladies and Gentlemen:

This letter is submitted on behalf of Prime Medicine, Inc. (the “**Company**”), in response to the comments of the staff of the Division of Corporation Finance (the “**Staff**”) of the U.S. Securities and Exchange Commission (the “**Commission**”) with respect to the Company’s Registration Statement on Form S-1, publicly filed on September 23, 2022 (the “**Registration Statement**”), as set forth in the Staff’s letter, dated September 30, 2022, addressed to Keith Gottesdiener, M.D. (the “**Comment Letter**”). The Company is concurrently filing Amendment No. 1 to the Registration Statement (“**Amendment No. 1**”), which includes changes to reflect responses to the Staff’s comments and other updates.

For reference purposes, the text of the Comment Letter has been reproduced herein with responses below each numbered comment. For your convenience, we have italicized the reproduced Staff comments from the Comment Letter. Unless otherwise indicated, page references in the descriptions of the Staff’s comments refer to the Registration Statement, and page references in the responses refer to Amendment No. 1. All capitalized terms used and not otherwise defined herein shall have the meanings set forth in Amendment No. 1.

Amendment No. 1 to Form S-1

Prospectus Summary
Overview, page 1

- 1. We note your disclosure on page 48, that your “licensors retain control of preparation, filing, prosecution and maintenance of their wholly-owned patents and patent applications” and your disclosure on page 206 that the ‘770 Patent was “issued by the USPTO to Broad Institute.” Given these disclosures, please place your disclosure in the penultimate paragraph of this section in context to clarify, for example, if true, that the inventions underlying the ‘770 Patent were developed at Broad Institute and to clarify which party pursued the preparation, filing and prosecution of this patent.*

RESPONSE: The Company respectfully advises the Staff that it has revised the disclosure on pages 1 and 206 of Amendment No. 1 in response to the Staff's comment.

Friedreich's Ataxia: Correcting Repeat Expansions in the FXN Gene, page 8

2. *Please remove the statement on this page and on page 182 that "[y]our Prime Editors can restore normal function of patient sensory neurons." Efficacy determinations are in the exclusive purview of the FDA or other regulators. In this regard, we note your statement on page 1 that "[g]ene editing, including platforms such as Prime Editing, is a novel technology that is not yet clinically validated for human therapeutic use."*

RESPONSE: The Company respectfully advises the Staff that it has revised the disclosure on pages 8 and 183 of Amendment No. 1 in response to the Staff's comment.

Principal Stockholders, page 256

3. *Please identify in a footnote to the table all natural persons who have voting and/or investment power over the shares held by F-Prime Capital Partners Life Sciences Fund VI LP.*

RESPONSE: The Company respectfully advises the Staff that it has revised the disclosure on page 259 of Amendment No. 1 in response to the Staff's comment.

If you should have any questions concerning the enclosed matters, please contact the undersigned at (617) 570-1329.

Sincerely,

/s/ Gabriela Morales-
Rivera

Gabriela Morales-
Rivera, Esq.

Enclosures

cc: Keith Gottesdiener, M.D, Prime Medicine, Inc.
Kingsley L. Taft, Esq, *Goodwin Procter LLP*