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

DIVISION OF
CORPORATION FINANCE

July 11, 2013

Via E-mail
Lewis T. Williams, M.D., Ph.D.
President and Chief Executive Officer
Five Prime Therapeutics, Inc.
Two Corporate Drive
South San Francisco, CA 94080

Re: Five Prime Therapeutics, Inc.
Confidential Draft Registration Statement on Form S-1
Submitted June 14, 2013
CIK No. 0001175505

Dear Dr. Williams:

We have reviewed your confidential 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 confidential 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 confidential draft registration statement or filed registration statement, we may have additional comments.

General

1. Please submit all outstanding exhibits as soon as practicable. We may have further comments upon examination of these exhibits.

2. Please provide us proofs of all graphic, visual or photographic information you will provide in the printed prospectus prior to its use, for example in a preliminary prospectus. Please note that we may have comments regarding this material.

3. 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. Similarly, please supplementally provide us with any research reports about you that are published or distributed in reliance upon Section 2(a)(3) of the Securities Act of 1933 added by Section 105(a) of the Jumpstart Our Business Startups Act by any broker or dealer that is participating or will participate in your offering.

4. We note that you intend to submit an application for confidential treatment relating to certain of your exhibits. Please be advised that we will be performing a separate review of this application and that the review of your registration statement will not be complete until all comments concerning your confidential treatment request, if any, have been cleared.

Prospectus Summary, pages 1-2

5. Please define the term "protein therapeutic" the first time it is used in your prospectus summary and summarize in general terms how protein therapeutics may be used to treat conditions such as cancer and inflammatory disease.

6. We note that you identify new targets for your protein therapeutic candidates with a "high-throughput screening" technology. We also note your statement that you spent seven years developing your platform to improve and accelerate the protein therapeutic discovery process. Please expand your summary to briefly explain how your screening technology is able to determine the best protein targets in your existing library and to clarify how the technology improves and accelerates the discovery process.

7. Please define the terms "fibroblast growth factor," "fibroblast growth factor receptor," and "colony stimulating factor-1 receptor."

Risk Factors
We may not succeed in maintaining our current discovery collaborations…," page 25

8. We note your reference in this section to discovery collaborations with Boehringer Ingelheim, Centocor Ortho Biotech, and Pfizer. Please expand this risk factor to state, if true, that any related agreements with these companies have ended and that the registrant is no longer receiving revenue attributable to these collaborations. Please additionally disclose this information on page 80 where you reference these collaborations.

Management's Discussion and Analysis of Financial Condition and Results of Operations
Critical Accounting Policies and Use of Estimates
Stock-Based Compensation, page 47

9. Please clarify in your disclosure if your valuations were performed retrospectively or contemporaneously.

10. To gain a better understanding of your determination of the fair market value of your common stock at each valuation date, please provide us the following information in revised disclosure, as applicable:
    - For each valuation date, tell us the guideline public companies that you selected and what similarities existed between you and the guideline public companies selected such as number of products, types of products, size, working capital, liquidity, etc. Specify any adjustments that were made to reflect differences between you and the public companies selected;
    - Disclose the methodology used to determine your expected volatility factor from the data obtained for the selected companies; and
    - For each valuation date, disclose how you determined the discount for lack of marketability assumption and why the discount is appropriate.

11. Please note the following once your IPO price has been determined:
    - Please revise your disclosure to present the intrinsic value of outstanding vested and unvested options as of the most recent balance sheet date based on the estimated IPO price.
    - Please provide quantitative and qualitative disclosures explaining the difference between the estimated offering price and the fair value of each equity issuance.
    - Confirm that no additional equity issuances were made subsequent to the latest balance sheet or provide additional disclosure in that regard.
    - We may have additional comments on your accounting for stock compensation and related disclosure once you have disclosed an estimated offering price.

Contractual Obligations and Contingent Liabilities, page 64

12. Please quantify in the aggregate the potential future milestone payments to third parties as part of your collaboration and in-licensing agreements.

Business
Product Pipeline, page 70

13. Please clarify the role of the antibody called the Fc region and explain the significance of its stabilizing effect on FP-1039.

14. We note your discussion on this page of a completed Phase 1 clinical trial for FP-1039. Please disclose whether you or a third party filed an investigational new drug application (IND) for FP-1039. If an IND for this compound has been filed, please disclose the identity of the filer and the date the application was filed. Please additionally disclose in your subsequent discussions of FPA008 and FPA144 whether you have filed INDs for these product candidates.

FPA008, page 76

15. We note your statement that you plan to identify a "companion diagnostic" during Phase 1 and 2 trials of FPA008 to use in Phase 3 testing. We also note your disclosure on page 16 that if you are unable to successfully develop companion diagnostics for your product candidates, you may not achieve marketing approval or successful commercialization. In light of these statements, please expand on the exact role that companion diagnostics will play for each of your primary product candidates. Specifically, please clarify what patient population the diagnostics will identify, what role such identification will play in completing successful clinical trials, and what stage of clinical trials require use of such diagnostics. In addition, where third parties will be required to develop such companion diagnostics for a product candidate, please disclose the identity of the third party and the terms of any related agreement.

Protein Library, page 79

16. Please define cDNA in this section and explain its importance to your research. In particular, please clarify cDNA's relationship to the production of your protein collections.

17. Please explain the basis for your belief that "protein libraries developed by other companies are incomplete because many of the cDNAs do not include the 5 prime end." In particular, please clarify how you are able to incorporate and use the 5 prime end of the DNA necessary to produce fully functional proteins while other companies are not.

18. Since it appears that you employ DNA-based science in order to produce the proteins that are the basis for your discovery platform, please tell us in your response what effect, if any, the U.S. Supreme Court's decision in Association for Molecular Pathology v. Myriad Genetics has had or will have on your research and your ability to protect your intellectual property. Please provide any related disclosure involving the decision, to the extent applicable, in the relevant risk factor on pages 27-28.

Novel Technologies to Produce and Screen the Library in High Throughput, pages 79-80

19. We note your disclosure on page 80 that your high-throughput production system includes "proprietary technologies," and that your screening system was "designed and built in-house and analyzed using software developed by us." To the extent that your technologies used to produce, screen, and test your protein library are protected intellectual property, please disclose that fact and include a discussion of any material patents. Please be sure to address each of the technologies you have discussed on page 80, including your protein library, your cell-based discovery platform, your rapid in vivo protein production system (RIPPS), and your receptor-ligand matching technology. Please also clarify whether you license any of the technology from third parties, and if so, describe the material terms of the related license agreements. Please also identify any

such licensors and technologies licensed, if applicable, in the relevant risk factor on page 29.

Collaborations, pages 80-84

20. We note your statement that the licenses for the following agreements will terminate upon the expiration of the royalty terms: FP-1039 License and Collaboration with GSK-HGS, BSK US Muscle Diseases Collaboration, GSK UK Respiratory Diseases Collaboration, and UCB Fibrosis and CNS Collaboration. Please specify the duration of the royalty terms covering the product candidates under each of these agreements.

License Agreement with Galaxy, page 84

21. We note your discussion of a license agreement with Galaxy. Please expand disclosure of this agreement to include the duration provisions, termination provisions, and any other material rights and obligations under the agreement.

Intellectual Property, pages 84-85

22. As to each issued patent covering FP-1039, please provide the following information:
    - the expiration date;
    - the jurisdiction covered by each patent;
    - the nature of protection provided by each patent;
    - whether each patent is owned by or licensed to the company.

23. We note that you license some patents in the FP-1039 portfolio from the Regents of the University of California, including a patent covering composition of matter. Please disclose all material terms of this license agreement in your discussion of collaborations, including:
    - the material rights and obligations conferred on both parties to the agreement;
    - the particular intellectual property transferred or licensed to you;
    - any related milestone payments in the agreement;
    - the provisions of the agreement regarding royalties, if any;
    - the duration and termination provisions of the agreement; and
    - any additional material provisions.

Manufacturing, page 86

24. Please expand the discussion of FPA008 manufacturing to include all material terms of the agreements with your third-party manufacturers and file the agreements as exhibits to your registration statement pursuant to Item 601(b)(10) of Regulation S-K. Alternately, if you do not believe you are substantially dependent on these agreements, please advise us at to the basis of your conclusions.

25. Please clarify whether the manufacturing agreements also cover the supply of raw materials required to manufacture your drug product. If these agreements do not cover supply, please disclose how you or your manufacturers are supplied with such raw materials. Please also expand this section to clarify whether the raw materials necessary for the manufacturing of FPA008 and FPA144 are available from more than one source.

Shares Eligible for Future Sale, page 126

26. Once available, please file the form of lock-up agreement as an exhibit to your registration statement.

Note 9. Collaborative Research and Development Agreements, page F-23

27. In your agreement with Pfizer Inc., and both agreements with Glaxosmithkline, you recorded revenue for the amount that exceeded the estimated fair value of convertible preferred shares issued. Please tell us the accounting guidance you relied on to support your accounting treatment. In addition, please tell us how the fair values were determined in connection with calculating the premium recorded and why the cash price paid did not determine the fair value.

28. You disclosed on page F-27 that you identified two deliverables under this agreement and concluded that these deliverables were substantive. Please tell us your accounting basis to support recognizing the entire upfront payment received under this collaboration agreement in the year ended December 31, 2011 when it appears that you agreed to continue conducting a number of research, preclinical, and clinical development activities and provide the clinical data in the form of final study reports and that $.9 million of research and development services were performed in 2012. Also refer to your discussion on pages 54 and 81. In this regard, tell us what "certain development services" relate to and why you determined that these services were substantive. Tell us how these "certain development services" differ from R&D performed on behalf of GSK-HGS which you are reimbursed. In addition, confirm that the final study reports were delivered to GSK-HGS on or before December 31, 2011.

Financial Statements for the three months ended March 31, 2013
4. Collaborative Research and Development Agreements
UCB Pharma SA, page F-40

29. Please clarify why the deferred revenue is being recognized over five years when your disclosure indicates the research term is expected to end in March 2016. In this regard, please disclose all significant terms of the agreement.

If you intend to respond to these comments with an amended draft registration statement, please submit it and any associated correspondence in accordance with the guidance we provide in the Division's October 11, 2012 announcement on the SEC website at

http://www.sec.gov/divisions/corpfin/cfannouncements/drsfilingprocedures101512.htm.

Please keep in mind that we may publicly post filing review correspondence in accordance with our December 1, 2011 policy (http://www.sec.gov/divisions/corpfin/cfannouncements/edgarcorrespondence.htm). If you intend to use Rule 83 (17 CFR 200.83) to request confidential treatment of information in the correspondence you submit on EDGAR, please properly mark that information in each of your confidential submissions to us so we do not repeat or refer to that information in our comment letters to you.

You may contact Sasha Parikh at (202) 551-3627 or Mary Mast at (202) 551-3613 if you have questions regarding comments on the financial statements and related matters. Please contact Austin Stephenson at (202) 551-3192 or me at (202) 551-3715 with any other questions.

Sincerely,

/s/ Jeffrey P. Riedler

Jeffrey P. Riedler
Assistant Director

cc: Via E-mail
Jaime Chase, Esq.
Hogan Lovells US LLP