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

DIVISION OF
CORPORATION FINANCE

October 31, 2013

Via E-Mail
Shalini Sharp
Chief Financial Officer
Ultragenyx Pharmaceutical, Inc.
60 Leveroni Court
Novato, CA 94949

Re: Ultragenyx Pharmaceutical, Inc.
Confidential Draft Registration Statement on Form S-1
Submitted October 4, 2013
CIK No. 0001515673

Dear Ms. Sharp:

We have reviewed your 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.

General

1. If our comments are applicable to portions of the filings that we have not cited as examples, please make the appropriate changes elsewhere in the filing in accordance with our comments.

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

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 submitted a confidential treatment request on October 4, 2013. We will provide any comments in relation to any such confidential treatment request and the related disclosure in a separate comment letter.

Risk Factors
Risks Related to Our Financial Condition and Capital Requirements
"We are a development-stage company …" page 10

5. Please expand this risk factor or include a standalone risk factor that discusses the risks associated with the fact that the potential markets in which your product candidates may ultimately receive regulatory approval are very small, such that even with a significant market share and acceptance, your products may not become profitable.

"Even if this offering is successful, we expect that we will need to raise additional funding…" page 12

6. Please revise this risk factor and the related discussion on page 65 to clarify whether your existing funds that you expect to be sufficient to fund your operations for the next 12 months include the proceeds from this offering.

"We are subject to a multitude of manufacturing risks…" page 20

7. To the extent you have experienced any significant costs, delays or other difficulties to date as a result of contamination, equipment failure, or similar events, please revise this risk factor to include a brief description of those costs, delays or difficulties.

"We may be involved in lawsuits to protect or enforce our patents…" page 32
"We may be subject to claims that our employees…" page 32
"We may be subject to claims challenging the inventorship of our patents…" page 33

8. Please revise the text, and, if applicable, the headings of these risk factors to clarify the extent to which you are currently a party to or involved in the type of lawsuits or claims described.

Management's Discussion and Analysis of Financial Condition and Results of Operations
Critical Accounting Policies and Significant Judgments and Estimates
Stock-based Compensation, pages 57-61

9. On pages 57 through 61 of your discussion about the fair value of stock option grants, you indicate that you utilized and assumed an annual volatility rate based on "comparable

publicly traded biopharmaceutical companies." Please tell us the name of these companies and explain to us why you deemed them to be comparable to you. In your response, for each of these companies, tell us the following information at your valuation dates:

- annual revenues;
- annual product revenues;
- net income/loss;
- assets;
- equity;
- number of products in development and their stages of development;
- number of marketed products;
- market capitalization; and
- volatility.

10. Please provide in your filing containing the IPO price range, a discussion of each significant factor contributing to the difference between the fair value as of the date of each grant and the estimated IPO price range. Please reconcile and explain the differences between the mid-point of your estimated offering price range and the fair values included in your analysis.

11. Please confirm that you have not issued any additional equity issuances including stock options, warrants, convertible preferred stock and debt since the latest balance sheet date or provide additional disclosure through the date of effectiveness.

Results of Operations
Research and Development Expenses, pages 62 and 63

12. Please expand your tables of Research & Development costs by project to include a column for total Research & Development expenses incurred for each project since inception.

Business
Product Candidates
Biologics product candidates—rhPPCA, page 75

13. Please expand your discussion in this section to disclose your plans to continue preclinical development of rhPPCA.

Small-molecule product candidates
Triheptanoin for the treatment of LC-FAOD—Triheptanoin background and clinical development, page 78

14. Please expand your discussion on page 78 to provide a brief description of the serious adverse events and identify those that were considered related to triheptanoin treatment.

Triheptanoin for the treatment of Glut1 DS, page 80

15. Please revise your disclosure to explain what you mean by an "adaptive Phase 2 study."

SA-ER for the treatment of HIBM
SA-ER background and clinical development, page 83

16. Please expand your disclosure to describe briefly the nature of the debate in the literature regarding HIBM and how any alternative evidence or theory may affect the development of your product candidate.

17. You state that improvement demonstrated in your Phase 2 study was statistically significant or trended towards statistical significance. Please explain what you mean by trended towards statistical significance. In addition, please expand your discussion to identify the p-values and to explain what the p-values measure.

License Agreements
Kyowa Hakko Kirin, page 85

18. Please expand your description of your agreement with KHK:
    - to describe the applicable transition date; and
    - to disclose the range of royalties to which you may be entitled, expressed as a percentage within ten percent.

Intellectual Property, page 90

19. Please revise your discussion of your patents to specify the expiration dates for your material issued patents rather than grouping such dates with the estimated expiration dates of pending patent applications.

Manufacturing, page 91

20. Please expand your descriptions of your agreements with Rentschler and Cremer Oleo to describe the duration and termination provisions of such agreements.

Management
Non-Employee Directors, page 106

21. Please specify the directorships held by Mr. Aliski, including any held during the past five years pursuant to Item 401(e)(2) of Regulation S-K.

Description of Capital Stock, page 132

22. We note your disclosure entitled "Exclusive Jurisdiction of Certain Actions" on page 132. Several lawsuits are currently challenging the validity of choice of forum provisions in certificates of incorporation. Please disclose that although you have included a choice of forum clause in your amended and restated certification of incorporation, it is possible that a court could rule that such provision is inapplicable or unenforceable.

Financial Statements
Note 12. Stock-Based Awards, page F-25

23. Tell us why expected volatility declined to 67% in 2012 from 75% in 2011 and then increased to 75% in 2013 (page F-41).

Item 16. Exhibits and financial statement schedules.
(a) Exhibits, page II-5

24. Please file a copy of the form of lock-up agreement as an exhibit to your registration statements.

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 James Peklenk at (202) 551-3661 or Lisa Vanjoske at (202) 551-3614 if you have questions regarding comments on the financial statements and related matters. Please contact Amy Reischauer at (202) 551-3793, Daniel Greenspan at (202) 551-3623, or me at (202) 551-3715 with any other questions.

Sincerely,

/s/ Daniel Greenspan for

Jeffrey P. Riedler
Assistant Director

cc: Via E-Mail
Lisa Kahle
Ropes & Gray LLP
Three Embarcadero Center
San Francisco, CA 94111-4006