



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

DIVISION OF
CORPORATION FINANCE

September 23, 2011

Via E-Mail

C. Richard Lyttle, Ph.D., Chief Executive Officer
Radius Health, Inc.
201 Broadway, 6th Floor
Cambridge, Massachusetts 02139

**Re: Radius Health, Inc.
Amendment No. 1 to Registration Statement on Form S-1
Filed September 1, 2011
File No. 333-175091
Form 8-K Supplemental Response
Filed September 1, 2011
File No. 000-53173**

Dear Dr. Lyttle:

We have reviewed your 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.

Form S-1/A, filed September 1, 2011

General

1. We reissue comment four of our letter dated July 18, 2011. We note that you are registering all or almost all of the common stock outstanding, including the conversion of the preferred stock. It appears that this offering is being conducted by or on behalf of the issuer for purposes of Rule 415(a)(4) of Regulation C under the Securities Act. For these sales to occur "at the market," the provisions of Rule 415(a)(4) must be satisfied. As your offering does not appear to meet these provisions, an "at the market" offering by the selling shareholders is not permissible. As a result, you should set a fixed price for the duration of the offering at which selling security holders will offer and sell the common stock in the proposed offering.

Risk Factors, page 5

2. Please remove the reference to risks and uncertainties set forth elsewhere in the prospectus and in other documents filed with the SEC. The risk factors section should set forth all material risks.
3. We reissue comment seven of our letter dated August 18, 2011. We continue to note the reference to “the possibility of Hatch Waxman extension” in the last risk factor on page 14. We note that you have included a cross-reference to a discussion of the Hatch Waxman Act in the risk factor. However, the discussion in the business section does not explain the extension process and how it would apply to your patents.

Description of Business, page 19

4. Please revise the discussions relating to competition to clearly reflect that many of your competitors have longer operating histories and greater financial resources than you.

Results of Operations, page 62

5. We note your disclosure that for the six months ended June 30, 2011, you incurred expenses for the development of BA058 Injection of \$16,774,000 compared to \$661,000 for the six months ended June 30, 2010. We note the increase was primarily the result of expenses incurred to initiate your Phase 3 study which began dosing of patients in April 2011. Please provide investors additional insight into the potential variability in the expenses, for example, if you expect the higher expenses at initiation of a study or does management expect this level of expense to recur each quarter during Phase 3 study.

License Agreement Obligations, page 67

6. We partially reissue comment 10 of our letter dated August 18, 2011. Please disclose the material terms of the royalty and license agreements. This would include the duration. Your response indicates that such disclosure would cause competitive and commercial harm. However, it does not appear that the duration terms are subject to the confidential treatment request, and to the extent they are, confidential treatment is not available for material information that must be disclosed by Regulation S-K.

Changes in and Disagreements with Accountants on Accounting and Financial Disclosure, page 69

7. We note your disclosure in paragraph two on the reports of REMC on the Company’s financial statements for the period ended December 31, 2010. Please revise to clarify the time period of the reports of REMC. See Item 304(a)(1)(ii) of Regulation S-K.

Transactions with Related Persons, page 75

8. We reissue comment 12 of our letter dated August 18, 2011. Please revise to clarify the dollar amount of “certain costs” reimbursed in connection with the MPM Asset Management LLC share repurchase.
9. We reissue comment 15 of our letter dated August 18, 2011. We note the employment agreements filed as exhibits. Please disclose the material terms of the employment agreement for each named executive officer. The only disclosure provided relates to severance and termination provisions. Also, we note that some of the salary and bonus provisions of the employment agreements appear to be different from the amounts set forth in the table. Please clarify in the disclosure.
10. We reissue comment 19 of our letter dated August 18, 2011. Please revise to provide a different column for the different terminations. For instance, the table only currently discusses termination other than for cause after a change in control. We also note the provisions relating to termination other than cause without a change in control. Lastly, include disclosure in the change in control column to include consideration due to the vesting provision.

Security Ownership of Certain Beneficial Owners and Management, page 88

11. We reissue comment 22 of our letter dated August 18, 2011. Please disclose the control person(s) for each entity listed in the table.

Selling Stockholders, page 98

12. Please clarify whether the broker(s) listed in the selling shareholders table received their securities as compensation for underwriting services.
13. Please clarify whether the affiliates of broker-dealers purchased their shares in the ordinary course of business and at the time of the purchase of securities to be resold, the seller had no agreements or understandings, directly or indirectly, with any person to distribute the securities.
14. We reissue comment 13 of our letter dated July 18, 2011. Please disclose the control person(s) for each entity listed in the selling shareholders table.
15. Please revise the number of outstanding common shares offered by selling stockholders total of 555,594 on page 100 to reconcile with the 592,581 common shares listed on your cover page and elsewhere in the document.

Terms of Conversion, page 106

16. We note your revised disclosure in response to comment 25 of our letter dated August 18, 2011 and we partially reissue the comment. The resulting impact to the conversion terms of the preferred stock upon a change in conversion price remains unclear. Please revise your disclosure to clarify.

Financial Statements, page F-1

Notes to Financial Statements, page F-33

6. Marketable Securities, page F-42

17. We note that you sold all of your marketable securities during the six months ended June 30, 2011. Please revise to include the disclosures required by FASB ASC 320-10-50-9 for the sale of available-for-sale securities, if material. Additionally, please provide disclosure in your liquidity discussion to clarify your policy on your intent to hold marketable securities through maturity, for known or foreseeable events and trends.

Exhibits

18. We reissue comment 16 of our letter dated July 18, 2011. We note that you will file several exhibits by amendment. Please file the exhibits as soon as possible, as we may have additional comments upon review of these exhibits.
19. We reissue comment 26 of our letter dated August 18, 2011. Exhibits 4.1, 10.1, 10.2, 10.4, 10.6, 10.10, 10.11, 10.12, 10.20, 10.21, 10.25, 10.26, 10.51, 10.63, and 10.64 are missing exhibits, schedules and/or attachments. We also note that Exhibit 10.1 to the Form 8-K filed on April 29, 2011, Exhibit 10.1 to the Form 8-K filed on August 11, 2011, and Exhibit 10.5 to the Form 10-Q filed on August 12, 2011 are missing exhibits, scheduled and/or attachments. Please file these exhibits in their entirety, as required by Item 601(b)(10) of Regulation S-K.
20. We reissue comment 28 of our letter dated August 18, 2011. We note that you have included the articles of incorporation and bylaws of the company pre-merger. It appears that in light of the merger there are amendments to these agreements, as noted in your exhibits index where you list exhibits 3.1 and 3.3 as amendments to the original certificate of incorporation. We note that the bylaws incorporated by reference does not reflect the name change, the preferred stock, or other changes as a result of the merger, such as the voting and other rights of shareholders that are typically found in such documents. Please file such agreements. We again direct your attention to Item 601(b)(3) of Regulation S-K. Whenever the company files an amendment to the articles or bylaws, it must file a complete copy as amended.

September 1, 2011 Supplemental Response
Form 8-K

General

21. To the extent applicable, please amend your Form 8-K to comply with the Staff's comments pertaining to the company's Form S-1/A, filed with the Commission on September 1, 2011.

Description of Business of Radius Health, Inc., page 2

22. We reissue comment four of our letter dated August 18, 2011. Please provide the disclosure regarding research and development, as required by Item 101(h)(4)(x) of Regulation S-K.

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 36

23. Please explain why your disclosure on page 66 of the Form S-1 regarding your research and development agreement with Nordic Bioscience has not been included in your Form 8-K.

Item 4.01 Changes in and Disagreements with Accountants on Accounting and Financial Disclosure, page 77

24. We refer you to paragraph two. Please revise to disclose the reports of REMC on the Company's financial statements were for the two years ended December 31, 2010. See Item 304(a)(1)(ii) of Regulation S-K.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Act of 1933 and all applicable Securities Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

Notwithstanding our comments, in the event you request acceleration of the effective date of the pending registration statement please provide a written statement from the company acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;

- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and
- the company may not assert staff comments and the declaration of effectiveness as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Please refer to Rules 460 and 461 regarding requests for acceleration. We will consider a written request for acceleration of the effective date of the registration statement as confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. Please allow adequate time for us to review any amendment prior to the requested effective date of the registration statement.

You may contact Brian McAllister at (202) 551-3341 or Nasreen Mohammed at (202) 551-3773 if you have questions regarding comments on the financial statements and related matters. Please contact Erin Wilson at (202) 551-6047 or Pamela Howell at (202) 551-3357 with any other questions.

Sincerely,

/s/ Pamela Howell
for

John Reynolds
Assistant Director