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

DIVISION OF
CORPORATION FINANCE

Mail Stop 4546

February 13, 2017

Paula Soteropoulos
President and Chief Executive Officer
Akcea Therapeutics, Inc.
55 Cambridge Parkway, Suite 100
Cambridge, MA 02142

Re: Akcea Therapeutics, Inc.
Amendment No. 1 to
Draft Registration Statement on Form S-1
Submitted January 19, 2017
CIK No. 0001662524

Dear Ms. Soteropoulos:

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.

Prospectus Cover

1. If you anticipate that Ionis will retain voting control following the offering, please disclose this information prominently and include the percentage of the outstanding shares of common stock it will hold.

Prospectus Summary, page 1

2. Your Summary should be a brief, concise overview of your offering and operations. Please consolidate your description of your agreement with Novartis and eliminate the redundant disclosures.

Overview, page 1

3. Your statement that your strategic collaboration with Novartis has a potential aggregate value of over $1.0 billion, plus royalties is speculative and therefore not appropriate disclosure for the Summary. To the extent you continue to disclose the potential value of the agreement in the Business section of your document, disclose and quantify each of the assumptions underlying this estimated aggregate value, including clarification that it assumes Novartis exercises all of its options; all milestones are met; quantify the amount of such milestones; FDA approval of both product candidates; quantify the sales thresholds and related commercial milestone payments; and assumed royalty payments.

4. We note your statement that you expect to receive an upfront option payment of $75 million from Novartis. Please clarify when you expect to receive it and whether it is contingent on any events or achievements.

5. We note your response to comment 2. However, your disclosure that the arrows included in the graphic depictions of your pipeline do not designate the extent of completion of the study is not sufficient to address our concern that the graphic representation in not consistent with the discussion related to each product candidate's current progress with respect to the current phase of clinical trials. Therefore, we reissue our comment requesting revisions to the table on pages 2 and 91.

Clinical Pipeline, page 3

6. Please limit the summary discussion of your results to whether the candidate met the primary end points, the description of the primary endpoints and disclosure of any serious adverse effects. The discussion of the n and p values is more appropriate for the Business discussion, where you should also discuss the meaning of these values and how they relate to the FDA's evidentiary standards of efficacy.

Commercial Approach, page 6

7. Please explain how you intend to build a database of identified patients, how you intend to use it and identify any potential difficulties presented by the Health Insurance Portability and Accountability Act of 1996 and other regulations protecting patient confidentiality.

Our strategy, page 6

8. Please explain the term "high touch patient" experience.

Concurrent Private Placement, page 8

9. We note your statement that Novartis has agreed to purchase $50 million of your common stock in a private placement. We note that in Ionis' and Akcea's joint press release regarding the collaboration, it stated that Novartis had an obligation to make a $50 million equity investment in either Ionis or in Akcea. Please clarify whether Novartis has definitively agreed to make the $50 million investment in Akcea.

We plan to substantially depend on our collaboration with Novartis…, page 27

10. We note your disclosure that Novartis is able to pursue other technologies or develop other drugs to treat the same diseases you and Novartis plan to treat. Please disclose whether Novartis can pursue the development of other drugs designed to treat the same drugs simultaneously with the development of the product candidates that are the subject of your agreement? Additionally, disclose whether they are under any obligation to inform you that they are developing a product designed to treat the same indications.

Use of Proceeds, page 54

11. Please revise your disclosure to separately disclose the estimated amounts you intend to use to complete the Phase 2 studies of AKCEA-APO(a)-L and AKCEA-ANGPTL3-L and the Phase 1/2 study of AKCEA-APOCIII-L.

Management's Discussion and Analysis of Financial Position and Results of Operations
Overview, page 65

12. Please revise the disclosure indicating that you are eligible to receive milestone payments to clarify that these payments are contingent on Novartis exercising its options and achieving certain results.

Business, page 82

13. Please clarify whether the results for the subset of FCS patients in the COMPASS study are statistically significant.

Commercial Approach, page 85

14. Please explain your approach for providing reimbursement assistance.

Integrated Development and Commercial Opportunities, page 85

15. We note your disclosure that you focused on developing effective therapies for orphan indications and that your collaboration with Novartis will allow for development of these

drugs in larger populations. Does the agreement with Novartis contemplate expanding the use of these product candidates to address different indications? If not, explain how they qualified for orphan drug status and why you believe the potential patient population can be expanded.

Our Strategic Collaboration with Novartis, page 87

16. Your disclosure of Novartis as a world leader and that the collaboration agreement "validates" the strength of Ionis' technology platform and your strategy is not appropriate as the statements appear to imply that the product candidates' outlook for approval are stronger due to Novartis' endorsement. Please delete the statement that the collaboration validates the strength of the technology and your strategy.

AKCEA-ANGPTL3-LRx, page 104

17. We refer to your statements on pages 5 and 105 that the Phase 1/2 study for AKCEA-ANGPTL3-LRx displayed a "favorable safety and tolerability profile," and that there were no discontinuations due to adverse events. While we will not object to a statement that your drug candidate was well tolerated, a safety determination is solely within the FDA's authority. Please remove the statement that the study results displayed a favorable safety profile or trials demonstrated or established safety. Additionally, disclose all serious adverse events, even if they did not lead to discontinuation of the trial.

Our Strategic Collaboration with Novartis, page 114

18. We note that if Novartis does not exercise its option or stops developing or commercializing the drug, you may have potential reverse royalty payments. Please expand your disclosure to briefly explain what conditions may trigger these payment obligations and provide additional information about the size of the payments.

Notes to the Consolidated Financial Statements
Subsequent Events, page F-30

19. Please separately disclose each type of milestone. In addition, please disclose if the milestones are substantive and the factors considered in determining whether the milestones are substantive. Refer to ASC 605-28-50-2.

You may contact James Peklenk at 202-551-3661 or Mary Mast at 202-551-3613 if you have questions regarding comments on the financial statements and related matters. Please contact Dorrie Yale at 202-551-8776 or me at 202-551-3675 with any other questions.

Sincerely,

/s/ Suzanne Hayes

Suzanne Hayes
Assistant Director
Office of Healthcare and Insurance

cc: Nicole Brookshire – Cooley LLP