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

DIVISION OF
CORPORATION FINANCE

Mail Stop 4720

September 22, 2015

Via E-mail
Herriot Tabuteau, M.D.
Chief Executive Officer
Axsome Therapeutics, Inc.
25 Broadway
New York, New York 10004

Re: Axsome Therapeutics, Inc.
Draft Registration Statement on Form S-1
Submitted August 25, 2015
CIK No. 0001579428

Dear Dr. Tabuteau:

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.

Prospectus Summary
Overview, page 1

1. Please describe the meaning and significance of the following terms the first time you use them in this section:

   - Osteoclast inhibitor;
   - Zoledronic acid; and
   - Bone resorption markers.

Our Pipeline, page 3

2. On page 5, you state that you plan to request a meeting with the FDA in 2016 to discuss your development plans for AXS-05 for the treatment of agitation in patients with AD. Your table should clearly indicate which phases of clinical trials have been completed. As your discussion states that you have completed phase 1 clinical trials, please revise your pipeline table to remove the gray portion of the arrow.

AXS-02, page 3

3. At your first reference to the 505(b)(2) regulatory development pathway, please expand your disclosure to describe this process and its significance to your development of AXS-02 and AXS-05. Similarly, please provide the meaning and significance of FDA Fast Track designation the first time you refer to it on page 3.

Risk Factors, page 13

4. Under an appropriately titled risk factor, please discuss Dr. Tabuteau's conflicts of interest as your CEO and owner of Antecip. The discussions should address conflicts relating to the license agreements; his roles as your CEO and Chairman of the Board and managing member of Antecip; and the allocation of his time between these roles.

Risks Related to Intellectual Property
Obtaining and maintaining our patent protection depends on compliance with…, page 47

5. The title of this risk factor references compliance with various procedural, documentary, fee payment, and other requirements imposed by governmental patent agencies in order to obtain and maintain your patent protection; however, your risk factor disclosure does not discuss any of these requirements and the risks associated with them. Please revise your risk factor disclosure to discuss the referenced requirements, which government agencies have imposed them and the risk of non-compliance with the requirements.

We may be involved in lawsuits to protect or enforce our patents or the patents…, page 49

6. Please expand your risk factor disclosure to describe whether you or Anticep is responsible for enforcement of the patents you license from Anticep.

Use of Proceeds, page 66

7. Please revise your disclosure in the first two bullet points to describe how far in the development process of AXS-02 and AXS-05 you estimate the allocated proceeds from this offering will enable you to reach for each of the listed indications.

Management's Discussion and Analysis of Financial Condition and Results of Operations
Critical Accounting Policies and Significant Judgments and Estimates
Stock-Based Compensation and Fair Market Value of Stock, page 73

8. We may have additional comments on your accounting for equity issuances including stock based compensation. Once you have an estimated offering price, please provide us an analysis explaining the reasons for the differences between the recent valuations of your common stock leading up to the IPO and the estimated offering price.

Business
Overview, page 86

9. Please identify the one product that is approved in the United States for the treatment of TRD.

AXS-02, page 89

10. Under the appropriate subsection for AXS-02, please disclose when an investigational new drug application ("IND") was filed for the commencement of clinical trials for the product candidate, the name of the trial sponsor and the subject of the IND.

Rationale for the Use of AXS-02 in CPRS
Effects of AXS-02 in the rat tibia fracture model of CRPS, page 92

11. We note your disclosure in the first full paragraph on page 93 that oral administration of AXS-02 "significantly" reversed pain, improved weight bearing and prevented edema as compared to placebo in the rat tibia fracture model of CRPS and the related p-values shown in the accompanying figure. Please revise your disclosure to clarify that the improvement in pain, weight bearing and edema was statistically significant. In addition, please explain the relationship between "statistical significance" and "p-values" and the significance of p-values to the FDA's evidentiary standards of efficacy.

12. Please expand your disclosure regarding the second study using the same rat tibia model where the results of the study showed a "significant" reduction in pain and "improvement" in weight bearing to provide the results of the trial which led to this conclusion. If the reduction in pain was also "statistically significant" in this study, please revise your disclosure to use the term "statistically significant" rather than the term "significant." Please also make similar revisions to your disclosure for the other clinical trials discussed in your prospectus to use the term "statistically significant" rather than "significant" where appropriate.

AXS-05
Overview, page 101

13. Please revise your diagram on page 102 to define the acronym DXO.

Treatment Resistant Depression
Rationale for the Development of AXS-05 in Agitation in Patients with AD, page 105

14. We note that a significantly greater reduction for active treatment as compared to placebo in the agitation/aggression domain of the NPI was seen in both stage 1 and stage 2 of the study discussed in this section. Please expand your disclosure to also provide the results of stage 2 of the study which support this conclusion.

Preclinical Programs, page 108

15. We note your disclosure on pages 17 and 108 that AXS-04 is a product candidate that is currently in early-stage development. If this product candidate is in preclinical development, please expand your disclosure in this section and throughout your prospectus as appropriate to describe AXS-04. Otherwise, please advise us supplementally if you have not yet identified an indication for this product candidate and have therefore concluded that it is premature to include it in your preclinical program discussion.

Intellectual Property, page 109

16. Please revise your disclosure for your patent portfolio for AXS-02 and AXS-05 to provide the following information:

    - whether the patents are owned or licensed from Anticep;
    - the expiration date of issued patents separate from the expected expiration dates if your patent applications are approved;
    - the foreign jurisdictions where your AXS-02 patents are issued and patent applications are pending; and
    - the jurisdictions where your AXS-05 patent is issued and patent applications are pending.

Certain Relationships and Related Party Transactions
Consulting Agreement with Mark Coleman, M.D.

17. Please file the consulting agreement with Mr. Coleman as an exhibit.

Other Comments

18. We note that there are a number of additional exhibits that still need to be filed. Please provide these exhibits as promptly as possible. Please note that we may have comments on these materials once they are provided.

19. Please confirm that the graphics included in your registration statement are the only graphics you will use in your prospectus. If those are not the only graphics, please provide any additional graphics prior to their use for our review.

20. 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.

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 Keira Nakada at (202) 551-3659 or James Rosenberg at (202) 551-3679 if you have questions regarding comments on the financial statements and related matters. Please contact Johnny Gharib at (202) 551-3170 or me at (202) 551-3675 with any other questions.

Sincerely,

/s/ Suzanne Hayes
Suzanne Hayes
Assistant Director

cc: Via E-mail
Emilio Ragosa, Esq.
Morgan, Lewis & Bockius LLP