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

DIVISION OF
CORPORATION FINANCE

June 25, 2014

Via E-mail
Thomas W. Chalberg, Jr., Ph.D.
President and Chief Executive Officer
Avalanche Biotechnologies, Inc.
1035 O'Brien Drive, Suite A
Menlo Park, CA 94025

Re: Avalanche Biotechnologies, Inc.
Draft Registration Statement on Form S-1
Submitted May 30, 2014
CIK No. 0001501756

Dear Dr. Chalberg:

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. We note that there are a number of additional exhibits that you have not filed. Please provide these exhibits as promptly as possible. Please note that we may have comments on these materials once they are provided.

2. We note that you intend to request confidential treatment for portions of information contained in your exhibits. If you have not done so, please submit your application for confidential treatment as soon as possible so that we may begin our review of your request. Any staff comments to your application will be sent separately from comments to your draft registration statement.

3. 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.

4. 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.

Prospectus Summary
Overview, page 1

5. Where the following terms first appear in the Prospectus Summary, please give the meaning and significance of such terms in plain language that may be understood by a lay reader not acquainted with the relevant industry or scientific field:

    - anti-vascular endothelial growth factor (VEGF);
    - adeno associated virus (AAV); and
    - baculovirus expression system (BVES).

6. You mention in this section and elsewhere that the worldwide market for Wet AMD is $6 billion. If you expect that your potential market for AVA-101 will be smaller than $6 billion based upon the geographic area in which you plan to initially market the product or the subset of patients for whom the product might be medically indicated, please eliminate the references to the $6 billion and provide market data based on that smaller population of potential users.

7. We note the inclusion of AVA-322 and AVA-323 in the pipeline table. If the registrant has not yet identified a molecule and a medical indication for these products, please eliminate them from the table. They would be too preliminary to be considered true pipeline products.

8. In the third paragraph on page 2 you mention that under the agreement with Regeneron the registrant may receive potential milestone payments of $640 million. This relates to a potential of eight therapeutic targets that could occur under the collaboration. However, to date the registrant and Regeneron have identified only one such target, AVA-311. Please provide the potential milestones the registrant may receive under the Regeneron agreement from its one identified therapeutic target, AVA-311. Please provide this information herein and elsewhere as may be appropriate throughout the prospectus.

Experience in Ophthalmology and Gene Therapy, page 3

9. Please identify the members of your executive management team to whom you are referring in the last paragraph of this section and on page 70.

Risks Associated with Our Business, page 4

10. Please include a bullet discussing the risk of adverse events or the perception that adverse events could occur because the registrant's products use virus particles to deliver gene therapy.

11. Please expand the ninth bullet or provide a separate bullet disclosing that the intellectual property you license related to gene delivery vectors are also licensed to Chiron and that Chiron is free to sub-license this intellectual property to other companies.

Concurrent Private Placement, page 5

12. You disclose in this section that the private placement and the public offering are not conditioned upon each other. However, on page 47 you disclose that the private placement is contingent upon the closing of the public offering. Please eliminate this apparent inconsistency and clarify throughout the prospectus whether Regeneron is contractually obligated to close the private placement if the public offering closes. If not, it would not be appropriate to discuss the use of the proceeds of the private placement in conjunction with the use of the proceeds of the public offering without qualifying the information. Please advise us and revise as may be appropriate throughout the prospectus.

Summary Consolidated Financial Data
Subsequent Events Pro Forma, page 9

13. Please tell us why you believe it is appropriate to include the receipt of the $8.0 million upfront payment in connection with the research collaboration and license agreement entered into with Regeneron in May 2014 as a subsequent event adjustment for your capitalization in this table and in the capitalization table on page 50.

If we encounter difficulties enrolling subjects in our clinical trials, our clinical…, page 15

14. In addition to leukemia, please identify the other well-publicized adverse events that have occurred during trials using early versions of retroviral vectors, which integrate with, and thereby alter, the host cell's DNA.

Risks Related to Our Intellectual Property
Our rights to develop and commercialize our product candidates are subject…, page 32

15. Please revise your disclosure in this risk factor to state that you license patent rights from Regeneron and briefly describe the nature of the intellectual property licensed. Also, please clarify which agreements require you to obtain consent from the licensor before you can enforce patent rights.

Use of Proceeds, page 49

16. In your second bullet point, please identify the other product candidates for which you intend to allocate funds for direct Phase 1/2 research and development expenses and provide the amounts to be allocated to each additional product you identify.

17. Disclose how far in the Phase 3 trials and Phase 1/2 trials of AVA-101 and your other product candidates, respectively, you estimate the net proceeds from this offering will enable you to reach. In this regard you should also clarify whether the application of the proceeds to AVA-101 will actually enable you to commence a Phase III trial.

Critical Accounting Policies and Significant Judgments and Use of Estimates
Stock-Based Compensation Expense
Fair value of common stock, page 61

18. We may have additional comments on your accounting for stock compensation once you have disclosed an estimated offering price. Please supplementally provide us with a quantitative and qualitative analysis explaining the difference between the estimated offering price and the fair value of each equity issuance through the date of effectiveness for the preceding twelve months.

Manufacturing, page 85

19. We note that you have a manufacturing agreement with Lonza Houston, Inc. to manufacture your product candidates. Please expand your disclosure to provide the material terms of the agreement, including the parties' rights and obligations under the agreement, the duration of the agreement, termination provisions and any payment provisions. Also, please file the agreement as an exhibit pursuant to Item 601(b)(10) of Regulation S-K.

License and Collaboration Agreements
Regeneron Research Collaboration and License Agreement, page 87

20. We note that the duration of the agreement with Regeneron continues until the expiration of the option period unless Regeneron exercises an option as to a product, in which case the duration continues on a country-by-country basis until the expiration of all payment

obligations. Please revise your discussion regarding the duration of the agreement to disclose the duration of the option period and how the duration of all payment obligations under the agreement will be determined if Regeneron exercises an option.

University of California License Agreement, page 89

21. Please revise your disclosure regarding the University of California License Agreement to provide all information as may be material, including;
    - the nature of the intellectual property and patent rights transferred,
    - the amount of the initial license fee paid,
    - the annual license maintenance fee,
    - aggregate milestone payments and the minimum annual royalty payment,
    - the royalty term and
    - the duration of the agreement.

    In regard to the duration of the agreement and the royalty term, we note that they are conditioned on the expiration of the licensed patents. Accordingly, please provide the expiration dates of the licensed patents.

Intellectual Property, page 89

22. We note that you have 12 issued patents and 27 pending patent applications in the United States or foreign jurisdictions Please expand your disclosure to discuss for each of your material patents and patent applications;
    - the specific products and technologies to which such patents and patent applications relate,
    - whether the patents are owned or licensed from third parties and, if so, from whom,
    - the type of patent protection such as composition of matter, use or process, etc.,
    - patent expiration dates for your issued patents and expected expiration dates for patents pending approval,
    - jurisdictions where patent are issued or pending.

Management
Executive Officers, page 97

23. Please provide Dr. Mehdi Gasmi's experience from December 2011 through November 2013.

Indemnification Agreements and Directors' and Officers' Liability Insurance, page 116

24. We note that you have entered into indemnification agreements with each of your directors and will enter into indemnification agreements with each of your executive officers. Please file the form of indemnification agreement as an exhibit.

Principal Stockholders, page 117

25. Please disclose the natural persons who have voting and dispositive rights over the shares held of record by Zygtech, LLC.

Notes to Consolidated Financial Statements
Research and Development Expenses, page F-10

26. Please tell us why you account for the refundable research and development tax credits received from Australian tax authorities as a reduction in research and development. Refer to any relevant accounting guidance.

Note 4. Significant Agreements, page F-14

27. Please disclose the aggregate amount of potential future milestone payments you could pay to Regents under the license 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 Dana Hartz at (202) 551-3648 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) 551-3715 with any other questions.

Sincerely,

/s/ Jeffrey P. Riedler

Jeffrey P. Riedler
Assistant Director

cc: Via E-mail
Alan C. Mendelson, Esq.
Latham & Watkins LLP