

Mail Stop 4720

February 17, 2010

Tuan Ha-Ngoc
Chief Executive Officer
AVEO Pharmaceuticals, Inc.
75 Sidney Street
Cambridge, Massachusetts 02139

**Re: AVEO Pharmaceuticals, Inc.
Amendment No. 2 to
Registration Statement on Form S-1, filed February 8, 2010
File No. 333-163778**

Dear Mr. Ha-Ngoc:

We have reviewed your filing and have the following comments. Where indicated, we think you should revise your document in response to these comments. If you disagree, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with supplemental information so we may better understand your disclosure. After reviewing this information, we may or may not raise additional comments.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. We welcome any questions you may have about our comments or on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

General

1. We note your intent, as indicated in your letter dated February 10, 2010, to reflect the estimated price range and reverse stock split in an amendment to your Form S-1.

Critical Accounting Policies and Significant Judgments and Estimates, page 53
Stock-Based Compensation, page 55

2. We note your intent to reflect the proposed disclosure included in Appendix A to your letter dated February 10, 2010 in your next amendment to your Form S-1.

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Executive and Director Compensation, page 122
Compensation Discussion and Analysis, page 122
Annual Cash Incentive Program, page 125

3. We note your revised disclosure describing the achievement score for each 2009 corporate goal. We also note your description indicating that named executive officers achieved 100% of their individual goals (other than Mr. Ezickson). Please expand your disclosure with respect to each corporate and individual goal to explain what factors or achievements led your compensation committee to conclude that those corporate and individual goals had been achieved at the level described in your prospectus.

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As appropriate, please amend your filing in response to these comments. You may wish to provide us with marked copies of the amendment to expedite our review. Please furnish a cover letter with your amendment that keys your responses to our comments and provides any requested supplemental information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

You may contact Staci Shannon at (202) 551-3374 or Mary Mast at (202) 551-3613 if you have questions regarding comments on the financial statements and related matters. Please contact Sebastian Gomez Abero at (202) 551-3578 or Dan Greenspan at (202) 551-3623 with any other questions.

Sincerely,

Jeffrey P. Riedler
Assistant Director

cc: Steven D. Singer, Esq.
Cynthia T. Mazareas, Esq.
Wilmer Cutler Pickering Hale and Dorr LLP
60 State Street
Boston, Massachusetts 02109