

SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-1
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

AVEO PHARMACEUTICALS, INC.

(Exact Name of Registrant as Specified in its Charter)

Delaware
(State or Other Jurisdiction of
Incorporation or Organization)

2834
(Primary Standard Industrial
Classification Code Number)

04-3581650
(I.R.S. Employer
Identification Number)

75 Sidney Street
Cambridge, Massachusetts 02139
(617) 299-5000

(Address, Including Zip Code, and Telephone Number, Including Area Code, of Registrant's Principal Executive Offices)

Tuan Ha-Ngoc
Chief Executive Officer
AVEO Pharmaceuticals, Inc.
75 Sidney Street
Cambridge, Massachusetts 02139
(617) 299-5000

(Name, Address, Including Zip Code, and Telephone Number, Including Area Code, of Agent for Service)

Copies to:

Steven D. Singer, Esq.
Cynthia T. Mazareas, Esq.
Wilmer Cutler Pickering Hale and Dorr LLP
60 State Street
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(617) 526-6000

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75 Sidney Street
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Patrick O'Brien, Esq.
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One International Place
Boston, Massachusetts 02110
(617) 951-7000

Approximate date of commencement of proposed sale to the public: As soon as practicable after this Registration Statement becomes effective.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box.

If this Form is filed to register additional securities for an offering pursuant Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. 333-163778

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

Indicate by check mark whether the Registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer

Accelerated filer

Non-accelerated filer (Do not check if a smaller reporting company)

Smaller reporting company

CALCULATION OF REGISTRATION FEE

Title of each class of securities to be registered	Amount to be registered (1)	Proposed maximum offering price per share (2)	Proposed maximum aggregate offering price (2)	Amount of registration fee
Common Stock, \$0.001 par value per share	2,300,000 shares	\$9.00	\$20,700,000	\$1,476

(1) Includes 300,000 shares which the Underwriters have the option to purchase from the Registrant to cover over-allotments, if any.

(2) Estimated in accordance with Rule 457(a).

EXPLANATORY NOTE AND INCORPORATION BY REFERENCE

This registration statement is being filed with respect to the registration of additional shares of common stock, par value \$0.001 per share, of AVEO Pharmaceuticals, Inc., a Delaware corporation, pursuant to Rule 462(b) under the Securities Act of 1933, as amended. The contents of the earlier registration statement on Form S-1 (File No. 333-163778), which was declared effective by the Commission on March 11, 2010, are incorporated in this registration statement by reference.

The required opinions and consents are listed on an Exhibit Index attached hereto and filed herewith.

EXHIBIT INDEX

<u>Exhibit No.</u>	<u>Description</u>
5.1	Opinion of WilmerHale
23.1	Consent of WilmerHale (included in Exhibit 5.1)
23.2	Consent of Ernst & Young LLP
24.1*	Powers of Attorney

* Filed as Exhibit 24.1 to the Registrant's Registration Statement on Form S-1 (File No. 333-163778) filed with the Commission on December 16, 2009.

WILMERHALE

March 11, 2010

AVEO Pharmaceuticals, Inc.
75 Sidney Street
Cambridge, Massachusetts 02139

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+1 212 230 8888 (f)
wilmerhale.com

Re: Registration Statement on Form S-1

Ladies and Gentlemen:

This opinion is furnished to you in connection with a Registration Statement on Form S-1 (the "Registration Statement") filed with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Securities Act"), pursuant to Rule 462(b) of the Securities Act, for the registration of 2,300,000 shares of Common Stock, \$0.001 par value per share (the "Shares"), of AVEO Pharmaceuticals, Inc., a Delaware corporation (the "Company"), including 300,000 Shares issuable upon exercise of an over-allotment option granted by the Company.

The Shares are to be sold by the Company pursuant to an underwriting agreement (the "Underwriting Agreement") to be entered into by and among the Company and J.P. Morgan Securities Inc. and Morgan Stanley & Co. Incorporated, as representatives of the several underwriters named in the Underwriting Agreement, the form of which has been filed as Exhibit 1.1 to the Registration Statement.

We are acting as counsel for the Company in connection with the issue and sale by the Company of the Shares. We have examined signed copies of the Registration Statement as filed with the Commission. We have also examined and relied upon the Underwriting Agreement, minutes of meetings of the stockholders and the Board of Directors of the Company as provided to us by the Company, stock record books of the Company as provided to us by the Company, the Certificate of Incorporation and By-Laws of the Company, each as restated and/or amended to date, and such other documents as we have deemed necessary for purposes of rendering the opinions hereinafter set forth.

In our examination of the foregoing documents, we have assumed the genuineness of all signatures, the authenticity of all documents submitted to us as originals, the conformity to original documents of all documents submitted to us as copies, the authenticity of the originals of such latter documents and the legal competence of all signatories to such documents.

We express no opinion herein as to the laws of any state or jurisdiction other than the state laws of the Commonwealth of Massachusetts, the General Corporation Law of the State of Delaware and the federal laws of the United States of America.

Based upon and subject to the foregoing, we are of the opinion that the Shares have been duly authorized for issuance and, when the Shares are issued and paid for in accordance with the terms and conditions of the Underwriting Agreement, the Shares will be validly issued, fully paid and nonassessable.

Wilmer Cutler Pickering Hale and Dorr LLP, 399 Park Avenue, New York, New York 10022

Beijing Berlin Boston Brussels Frankfurt London Los Angeles New York Oxford Palo Alto Waltham Washington

March 11, 2010

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Please note that we are opining only as to the matters expressly set forth herein, and no opinion should be inferred as to any other matters. This opinion is based upon currently existing statutes, rules, regulations and judicial decisions, and we disclaim any obligation to advise you of any change in any of these sources of law or subsequent legal or factual developments which might affect any matters or opinions set forth herein.

We hereby consent to the filing of this opinion with the Commission as an exhibit to the Registration Statement in accordance with the requirements of Item 601(b)(5) of Regulation S-K under the Securities Act and to the use of our name therein and in the related Prospectus under the caption "Legal Matters." In giving such consent, we do not hereby admit that we are in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission.

Very truly yours,

WILMER CUTLER PICKERING
HALE AND DORR LLP

By: /s/ Steven D. Singer
Steven D. Singer, a Partner

Consent of Independent Registered Public Accounting Firm

We consent to the reference to our firm under the caption "Experts" and to the incorporation by reference of our report dated February 8, 2010 (except Notes 11 and 16, as to which the date is February 18, 2010), included in the Registration Statement on Form S-1 (No. 333-163778) and related Prospectus of AVEO Pharmaceuticals, Inc., in this Registration Statement on Form S-1 filed pursuant to Rule 462(b) of the Securities Act of 1933, dated March 11, 2010.

/s/ Ernst & Young LLP

Boston, Massachusetts
March 8, 2010