

AVEO PHARMACEUTICALS INC

Form 424B3

July 01, 2016

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**Filed Pursuant to Rule 424(b)(3)
Registration No. 333-212051**

PROSPECTUS

37,095,777 SHARES OF COMMON STOCK

This prospectus relates to the resale from time to time of up to 37,095,777 shares of common stock of AVEO Pharmaceuticals, Inc. by the selling stockholders listed on page 7, including their transferees, pledgees or donees or their respective successors, which includes shares of our common stock issuable upon the exercise of warrants to purchase shares of common stock, issued to the selling stockholders in private placements. We are registering these shares on behalf of the selling stockholders, to be offered and sold by them from time to time. We will not receive any proceeds from the sale of the shares offered by this prospectus.

We have agreed to bear certain expenses incurred in connection with the registration of these shares. The selling stockholders will pay or assume brokerage commissions and similar charges incurred for the sale of shares of our common stock.

The selling stockholders identified in this prospectus, or their respective pledgees, donees, transferees or other successors-in-interest, may offer the shares from time to time through public or private transactions at prevailing market prices, at prices related to prevailing market prices or at privately negotiated prices. See Plan of Distribution beginning on page 11.

Our common stock is traded on The NASDAQ Global Select Market under the symbol AVEO. On June 14, 2016, the closing sale price of our common stock on The NASDAQ Global Select Market was \$0.97 per share. You are urged to obtain current market quotations for our common stock.

Investing in our common stock involves a high degree of risk. See Risk Factors beginning on page 3.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is June 30, 2016.

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We have not authorized anyone to provide you with information different from that contained or incorporated by reference in this prospectus. The selling stockholders are offering to sell, and seeking offers to buy, shares of our common stock only in jurisdictions where offers and sales are permitted. The information contained in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of this prospectus or of any sale of common stock.

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PROSPECTUS SUMMARY

This summary highlights important features of this offering and the information included or incorporated by reference in this prospectus. This summary does not contain all of the information that you should consider before investing in our common stock. You should read the entire prospectus carefully, especially the risks of investing in our common stock discussed under Risk Factors.

AVEO PHARMACEUTICALS, INC.

AVEO Pharmaceuticals, Inc. is a biopharmaceutical company dedicated to advancing a broad portfolio of targeted therapeutics for oncology and other areas of unmet medical need. We are focused on developing and commercializing our lead candidate tivozanib, a potent, selective, long half-life inhibitor of vascular endothelial growth factor 1, 2 and 3 receptors, in North America as a treatment for renal cell carcinoma and other cancers. We are leveraging multiple partnerships with the goal of developing and commercializing tivozanib in non-oncologic indications worldwide and oncology indications outside of North America, as well as advancing our pipeline of novel therapeutic candidates in cancer and cachexia (wasting syndrome).

Corporate Information

We were incorporated in Delaware on October 19, 2001 as GenPath Pharmaceuticals, Inc. and changed our name to AVEO Pharmaceuticals, Inc. on March 1, 2005. Our principal executive offices are located at One Broadway, 14th Floor, Cambridge, Massachusetts 02142, and our telephone number is (617) 588-1960. Our website is located at www.aveooncology.com. Information found on, or accessible through, our website is not a part of, and is not incorporated into, this prospectus, and you should not consider it part of this prospectus. Our website address is included in this document as an inactive textual reference only. Unless the context otherwise requires, references in this prospectus to AVEO, we, us, and our refer to AVEO Pharmaceuticals, Inc.

The trademarks, trade names and service marks appearing in this prospectus are the property of their respective owners.

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THE OFFERING

Common stock offered by selling
stockholders 37,095,777 shares

Use of proceeds We will not receive any proceeds from the sale of shares in this offering.

NASDAQ Global Select Market symbol AVEO

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RISK FACTORS

An investment in our common stock involves a high degree of risk. Before deciding whether to invest in our common stock, you should consider carefully the risks and uncertainties described under the section captioned Risk Factors contained in our most recent Annual Report on Form 10-K and other filings we make with the SEC from time to time, which are incorporated by reference herein in their entirety, together with other information in this prospectus and in the documents incorporated by reference in this prospectus. We caution you that the risks and uncertainties we have described, among others, could cause our actual results to differ materially from those expressed in forward-looking statements made by us or on our behalf in filings with the SEC, press releases, communications with investors and oral statements. We undertake no obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise. You are advised, however, to consult any further disclosure we make in our reports filed with the SEC.

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CAUTIONARY NOTE REGARDING FORWARD-LOOKING INFORMATION

We caution you that this prospectus and the documents we incorporate by reference herein and therein include forward-looking statements. Any statement contained in this prospectus or in the documents we incorporate by reference herein other than a statement of historical fact, may be a forward-looking statement, including statements regarding our strategy, future operations, future financial position, future revenue, projected costs, prospects, plans and objectives of management. In some cases, you can identify forward-looking statements by such terms as anticipate, believe, could, estimate, expect, intend, may, plan, project, should, will, would, uncertainty of future events or outcomes to identify these forward-looking statements. Forward-looking statements may include, but are not limited to, statements about:

the initiation, timing, progress and results of future clinical trials, and our development programs;

our plans to develop and commercialize our product candidates;

our ability to secure new collaborations, maintain existing collaborations or obtain additional funding;

the timing or likelihood of regulatory filings and approvals;

the implementation of our business model, strategic plans for our business, product candidates and technology;

our commercialization, marketing and manufacturing capabilities and strategy;

the rate and degree of market acceptance and clinical utility of our products;

our competitive position;

our intellectual property position;

developments and projections relating to our competitors and our industry;

our estimates of the period in which we anticipate that existing cash, cash equivalents and investments will enable us to fund our current and planned operations; and

our estimates regarding expenses, future revenue, capital requirements and needs for additional financing. Our actual results may differ materially from those indicated by these forward-looking statements as a result of various important factors, including risks relating to:

our ability to maintain our third party collaboration agreements and our ability, and the ability of our licensees, to achieve development and commercialization objectives under these arrangements;

our ability, and the ability of our licensees, to demonstrate to the satisfaction of applicable regulatory agencies the safety, efficacy and clinically meaningful benefit of our product candidates;

our ability to successfully enroll and complete clinical trials of our product candidates, including our TIVO-3 study;

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our ability to achieve and maintain compliance with all regulatory requirements applicable to our product candidates;

our ability to obtain and maintain adequate protection for intellectual property rights relating to our product candidates and technologies;

developments, expenses and outcomes related to our ongoing shareholder litigation;

our ability to successfully implement our strategic plans;

our ability to raise the substantial additional funds required to achieve our goals;

unplanned capital requirements;

adverse general economic and industry conditions;

competitive factors; and

those risks discussed (i) under the heading "Risk Factors" on page 3 of this prospectus, (ii) in the section titled "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2015 and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2016, each as filed with the SEC, and (iii) in other filings we make with the SEC from time to time.

If one or more of these factors materialize, or if any underlying assumptions prove incorrect, our actual results, performance or achievements may vary materially from any future results, performance or achievements expressed or implied by the forward-looking statements we make.

You should consider these factors and the other cautionary statements made in this prospectus and the documents we incorporate by reference herein as being applicable to all related forward-looking statements wherever they appear in this prospectus or the documents incorporated by reference. While we may elect to update forward-looking statements wherever they appear in this prospectus or the documents incorporated by reference herein, we do not assume, and specifically disclaim, any obligation to do so, whether as a result of new information, future events or otherwise.

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USE OF PROCEEDS

We will not receive any proceeds from the sale of the shares offered pursuant to this prospectus. The selling stockholders will receive all of the proceeds from the sale of the shares of common stock offered by this prospectus. However, assuming exercise of all of the warrants for cash in full, the selling stockholders would pay us an aggregate of \$19,388,324. The proceeds to us of such warrant exercises, if any, will not be subject to any restrictions. Under certain conditions set forth in the warrants, the warrants are exercisable on a cashless basis. If the warrants are exercised on a cashless basis, we would not receive any cash payment from the selling stockholders upon any exercise of the warrants. For information about the selling stockholders, see [Selling Stockholders](#).

The selling stockholders will pay any underwriting discounts and commissions and expenses incurred by the selling stockholders for brokerage or legal services or any other expenses incurred by the selling stockholders in disposing of the shares. We will bear all other costs, fees and expenses incurred in effecting the registration of the shares covered by this prospectus, including all registration and filing fees and fees and expenses of our counsel and accountants.

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On May 17, 2016, we sold 17,642,482 units, each consisting of one share of our common stock (for an aggregate of 17,642,482 shares of common stock), and one warrant (for an aggregate of warrants for 17,642,482 shares of our common stock), in a private placement to qualified institutional buyers and accredited and institutional accredited investors in connection with our execution of a securities purchase agreement with such parties, which we refer to herein as the securities purchase agreement. On September 24, 2014 and May 13, 2016, we issued to Hercules Capital, Inc. warrants to purchase 608,696 shares of common stock and 1,202,117 shares of common stock, respectively, in connection with a loan transaction with Hercules. See Relationships with the Selling Stockholders below. The table below sets forth, to our knowledge, information concerning the beneficial ownership of shares of our common stock by the selling stockholders as of May 17, 2016.

The information in the table below with respect to the selling stockholders has been obtained from the selling stockholders. When we refer to the selling stockholders in this prospectus, we mean the selling stockholders listed in the table below as offering shares, as well as their respective pledgees, donees, transferees or other successors-in-interest.

We do not know if, when or in what amounts the selling stockholders may offer their shares for sale. The selling stockholders may sell some, all or none of the shares offered by this prospectus. Because the number of shares the selling stockholders may offer and sell is not presently known, and because there are currently no agreements, arrangements or understandings with respect to the sale of any of the shares, we cannot estimate the number of shares that will be held by each selling stockholder after completion of this offering. This table, however, presents the maximum number of shares of common stock that the selling stockholders may offer pursuant to this prospectus and the number of shares of common stock that would be beneficially owned after the sale of the maximum number of shares of common stock by each selling stockholder.

Beneficial ownership is determined in accordance with the rules of the SEC, and includes voting or investment power with respect to shares. Unless otherwise indicated below, to our knowledge, each selling stockholder named in the table has sole voting and investment power with respect to the shares of common stock beneficially owned by it. The inclusion of any shares in this table does not constitute an admission of beneficial ownership for any selling stockholder named below.

Name of Selling Stockholder	Shares of Common Stock		Number of Shares of Common Stock Being Offered (1)	Shares of Common Stock to be Beneficially Owned After Offering	
	Beneficially Owned Prior to Offering			Number	Percentage (2)
	Number (1)	Percentage (2)	Offered (1)		
Growth Equity Opportunities Fund IV, LLC (3)	20,725,388	24.05%	20,725,388	0	*
Perceptive Life Sciences Master Fund Ltd. (4)	6,217,616	7.88%	6,217,616	0	*
New Leaf Growth Fund I, L.P. (5)	5,181,346	6.61%	5,181,346	0	*
Hercules Capital, Inc. (6)	2,496,811	3.21%	2,328,947	167,864	*
NEXTERA Capital Master Fund LP (7)	1,036,268	1.36%	1,036,268	0	*

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DAFNA Lifescience LP (8)	310,880	*	310,880	0	*
DAFNA Lifescience Select LP (9)	207,254	*	207,254	0	*
Anthony B. Evnin (10)	1,597,670	2.10%	259,066	1,338,604	1.76%
Henri A. Termeer (11)	757,708	*	518,134	239,574	*
Michael P. Bailey (12)	929,577	1.21%	103,626	825,951	1.08%
Keith S. Ehrlich (13)	253,979	*	103,626	150,353	*
Michael N. Needle (14)	314,126	*	103,626	210,500	*

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* Less than one percent.

- (1) The number of shares reported in this column includes shares issuable upon exercise of warrants issued pursuant to the securities purchase agreement, dated May 13, 2016, that we entered into with the selling stockholders.
- (2) Based on 75,824,197 shares of our common stock outstanding on May 17, 2016.
- (3) Consists of 10,362,694 shares of common stock and 10,362,694 warrants issued pursuant to the securities purchase agreement, dated May 13, 2016, that we entered into with the selling stockholders. The shares and warrants directly held by Growth Equity Opportunities Fund IV, LLC (GEO) are indirectly held by New Enterprise Associates 15, L.P. (NEA 15), which is the sole member of GEO; NEA Partners 15, L.P. (NEA Partners 15), which is the sole general partner of NEA 15; NEA 15 GP, LLC (NEA 15 LLC), which is the sole general partner of NEA Partners 15; and each of the individual managers of NEA 15 LLC. The individual Managers of NEA 15 LLC (the NEA 15 Managers) are Peter J. Barris, Forest Baskett, Anthony A. Florence, Krishna Kittu Kolluri, Josh Makower, David M. Mott, Scott D. Sandell, Ravi Viswanathan, Jon Sakoda, Peter Sonsini and Harry R. Weller. NEA 15, NEA Partners 15, NEA 15 LLC, and the NEA 15 Managers share voting and dispositive power with regard to the shares owned directly by GEO. All indirect holders of the above referenced shares and warrants disclaim beneficial ownership of all applicable shares and warrants except to the extent of their actual pecuniary interest therein.
- (4) Consists of 3,108,808 shares of common stock and 3,108,808 warrants issued pursuant to the securities purchase agreement, dated May 13, 2016, that we entered into with the selling stockholders Perceptive Life Sciences Master Fund Ltd. is an investment fund to which Perceptive Advisors LLC serves as the investment manager. Joseph Edelman is the managing member of Perceptive Advisors LLC. Mr. Edelman and Perceptive Advisors LLC may be deemed to have voting and investment power with respect to the shares held by Perceptive Life Sciences Master Fund Ltd.
- (5) Consists of 2,590,673 shares of common stock and 2,590,673 warrants issued pursuant to the securities purchase agreement, dated May 13, 2016, that we entered into with the selling stockholders New Leaf Growth Associates I, L.P. (NLGA-I LP) is the general partner of New Leaf Growth Fund I, L.P. (NLGF-I). New Leaf Venture Management III, L.L.C. (NLVM-III LLC) is the General Partner of NLGA-I LP. Philippe O. Chambon, Jeani Delagardelle, Ronald M. Hunt, Vijay K. Lathi, and Liam Ratcliffe are individual members of NLVM-III LLC (the Individual Members). NLGA-I LP and NLVM-III LLC disclaim beneficial ownership of such shares, except to the extent of their pecuniary interest therein. As one of five individual members, each of the Individual Members disclaims beneficial ownership over the shares, and in all events disclaims pecuniary interest except to the extent of his or her economic interest.
- (6) Consists of (a) 259,067 shares of common stock and 259,067 warrants issued pursuant to the securities purchase agreement, dated May 13, 2016, that we entered into with the selling stockholders, (b) 167,864 shares of common stock held prior to May 13, 2016 and (c) 1,810,813 warrants issued prior to May 13, 2016.
- (7) Consists of 518,134 shares of common stock and 518,134 warrants issued pursuant to the securities purchase agreement, dated May 13, 2016, that we entered into with the selling stockholders. Ori Hershkovitz may be deemed to have voting and investment power with respect to the shares held by NEXTERA Capital Master Fund LP.
- (8) Consists of 155,440 shares of common stock and 155,440 warrants issued pursuant to the securities purchase agreement, dated May 13, 2016, that we entered into with the selling stockholders. Fariba Ghodsian and Nathan Fischel may be deemed to have voting and investment power with respect to the shares held by DAFNA Lifescience LP.

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- (9) Consists of 103,627 shares of common stock and 103,627 warrants issued pursuant to the securities purchase agreement, dated May 13, 2016, that we entered into with the selling stockholders. Fariba Ghodsian and Nathan Fischel may be deemed to have voting and investment power with respect to the shares held by DAFNA Lifescience Select LP.
- (10) Consists of (a) 129,533 shares of common stock and 129,533 warrants issued to Dr. Evnin pursuant to the securities purchase agreement, dated May 13, 2016, that we entered into with the selling stockholders, (b) 206,452 shares of common stock held by Venrock Associates, or VA, (c) 917,569 shares of common stock held by Venrock Associates III, L.P., or VA III, (d) 22,938 shares of common stock held by Venrock Entrepreneurs Fund III, L.P., or VEF III, (e) 109 shares of common stock held by VEF Management III, LLC, or VEFM III, (f) 38,881 shares of common stock held directly by Anthony Evnin prior to May 13, 2016, (g) 35,000 shares of common stock issuable upon exercise of stock options held by Dr. Evnin on behalf and for the sole benefit of VR Management, LLC that are exercisable within 60 days of May 17, 2016 and (h) 82,655 shares of common stock issuable upon exercise of stock options held directly by Dr. Evnin that are exercisable within 60 days of May 17, 2016. Dr. Evnin is a General Partner of VA. Venrock Management III, LLC, or VM III, is the sole General Partner of VA III. VEFM III, is the sole General Partner of VEF III. Dr. Evnin is a Member of VM III and VEFM III and is a partner of VR Management, LLC, an affiliate of VA, VA III, VEF III, VM III and VEFM III. Dr. Evnin expressly disclaims beneficial ownership over all shares held by or on behalf of VA, VA III, VEF III, VM III, VEFM III and VR Management, LLC, except to the extent of his indirect pecuniary interest therein. VM III and VEFM III expressly disclaim beneficial ownership over all shares held by VA, VA III and VEF III, except to the extent of their indirect pecuniary interest therein.
- (11) Consists of (a) 259,067 shares of common stock and 259,067 warrants issued pursuant to the securities purchase agreement, dated May 13, 2016, that we entered into with the selling stockholders, (b) 126,919 shares of common stock held by Mr. Termeer prior to May 13, 2016 and (c) 112,655 shares of common stock issuable upon exercise of stock options that are exercisable within 60 days of May 17, 2016.
- (12) Consists of (a) 51,813 shares of common stock and 51,813 warrants issued pursuant to the securities purchase agreement, dated May 13, 2016, that we entered into with the selling stockholders, (b) 17,035 shares of common stock held by Mr. Bailey prior to May 13, 2016 and (c) 808,916 shares of common stock issuable upon exercise of stock options that are exercisable within 60 days of May 17, 2016.
- (13) Consists of (a) 51,813 shares of common stock and 51,813 warrants issued pursuant to the securities purchase agreement, dated May 13, 2016, that we entered into with the selling stockholders, and (b) 150,353 shares of common stock issuable upon exercise of stock options that are exercisable within 60 days of May 17, 2016.
- (14) Consists of (a) 51,813 shares of common stock and 51,813 warrants issued pursuant to the securities purchase agreement, dated May 13, 2016, that we entered into with the selling stockholders and (b) 210,500 shares of common stock issuable upon exercise of stock options that are exercisable within 60 days of May 17, 2016.

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Relationships with the Selling Stockholders

2016 Private Placement

On May 13, 2016, we entered into a securities purchase agreement with the selling stockholders for a private placement of 17,642,482 units, at a price of \$0.965 per unit, for gross proceeds of approximately \$17,025,000, before deducting placement agent fees and estimated offering expenses. Each unit consists of one share of our common stock, or an aggregate of 17,642,482 shares, and a warrant to purchase one share of our common stock, or an aggregate of warrants to purchase 17,642,482 shares of our common stock. The warrants have an exercise price of \$1.00 per share and will be exercisable for a period of five years from the date of issuance. Under the securities purchase agreement, we agreed to use the net proceeds to fund our planned Phase 3 clinical trial of tivozanib for the treatment of renal cell carcinoma for patients in the third-line setting, to fund a combination trial of tivozanib with a PD-1 inhibitor and for general corporate purposes. We closed the transaction on May 17, 2016.

On May 13, 2016, in connection with the private placement financing, we entered into a registration rights agreement with the selling stockholders relating to the registration for resale of the shares of our common stock purchased by the selling stockholders in the private placement, including the shares of our common stock that may be issued upon the exercise of warrants purchased by the selling stockholders in the financing. The registration rights agreement contains customary covenants and agreements by us, and customary indemnification obligations of us and the selling stockholders, including for liabilities under the Securities Act.

The registration statement of which this prospectus is a part has been filed in accordance with the registration rights agreement.

The foregoing summary descriptions of the securities purchase agreement and the registration rights agreement do not purport to be complete and are qualified in their entirety by reference to the full text of such agreements, which were filed as exhibits to our Current Report on Form 8-K, dated May 13, 2016, and are incorporated by reference herein.

Directors and Officers

Anthony B. Evnin and Henri A. Termeer, who are members of our board of directors, are selling stockholders. Dr. Evnin was initially elected to our board of directors pursuant to a voting agreement between us and our preferred stockholders, which terminated upon the consummation of our initial public offering in March 2010. Michael P. Bailey, our President and Chief Executive Officer, Keith S. Ehrlich, our Chief Financial Officer, and Michael N. Needle, our Chief Medical Officer also are selling stockholders.

Loan Agreement

We are a party to a Loan and Security Agreement, dated as of May 28, 2010, as amended to date, with Hercules Capital, Inc. (Hercules) and the other parties thereto (the Loan Agreement). The Loan Agreement, as well as several amendments thereto, are described under the section captioned Management s Discussion and Analysis of Financial Condition and Results of Operations Credit Facilities contained in our Annual Report on Form 10-K for the year ended December 31, 2015, which is incorporated by reference herein, and which Loan Agreement and its several amendments are filed as exhibits thereto by incorporation by reference. On May 13, 2016, we entered into Amendment No. 4 to the Loan Agreement, which amendment is described under the heading Amendment to Hercules Loan Agreement contained in our Current Report on Form 8-K, which we filed on May 13, 2016, and which is incorporated by reference herein, and which Amendment No. 4 is filed as an exhibit thereto. In connection with the Loan Agreement, we entered into warrant agreements with Hercules dated September 24, 2014, as amended, and May

13, 2016, pursuant to which we issued to Hercules warrants to purchase 608,696 shares of common stock and 1,202,117 shares of common stock, respectively.

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PLAN OF DISTRIBUTION

We are registering the shares of common stock issued to the selling stockholders and issuable upon exercise of the warrants issued to the selling stockholders to permit the resale of these shares of common stock by the holders of the shares of common stock and warrants from time to time after the date of this prospectus. We will not receive any of the proceeds from the sale by the selling stockholders of the shares of common stock. We will bear all fees and expenses incident to our obligation to register the shares of common stock.

The selling stockholders may sell all or a portion of the shares of common stock beneficially owned by them and offered hereby from time to time directly or through one or more underwriters, broker-dealers or agents. If the shares of common stock are sold through underwriters or broker-dealers, the selling stockholders will be responsible for underwriting discounts or commissions or agent's commissions. The shares of common stock may be sold on any national securities exchange or quotation service on which the securities may be listed or quoted at the time of sale, in the over-the-counter market or in transactions otherwise than on these exchanges or systems or in the over-the-counter market and in one or more transactions at fixed prices, at prevailing market prices at the time of the sale, at varying prices determined at the time of sale, or at negotiated prices. These sales may be effected in transactions, which may involve crosses or block transactions. The selling stockholders may use any one or more of the following methods when selling shares:

ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;

block trades in which the broker-dealer will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;

purchases by a broker-dealer as principal and resale by the broker-dealer for its account;

an exchange distribution in accordance with the rules of the applicable exchange;

privately negotiated transactions;

settlement of short sales entered into after the effective date of the registration statement of which this prospectus is a part;

broker-dealers may agree with the selling stockholders to sell a specified number of such shares at a stipulated price per share;

through the writing or settlement of options or other hedging transactions, whether such options are listed on an options exchange or otherwise;

a combination of any such methods of sale; and

any other method permitted pursuant to applicable law.

The selling stockholders also may resell all or a portion of the shares in open market transactions in reliance upon Rule 144 under the Securities Act, as permitted by that rule, or Section 4(1) under the Securities Act, if available, rather than under this prospectus, provided that they meet the criteria and conform to the requirements of those provisions.

Broker-dealers engaged by the selling stockholders may arrange for other broker-dealers to participate in sales. If the selling stockholders effect such transactions by selling shares of common stock to or through underwriters, broker-dealers or agents, such underwriters, broker-dealers or agents may receive commissions in the form of discounts, concessions or commissions from the selling stockholders or commissions from purchasers of the shares of common stock for whom they may act as agent or to whom they may sell as principal. Such commissions will be in amounts to be negotiated, but, except as set forth in a supplement to this Prospectus, in the case of an agency transaction will not be in excess of a customary brokerage commission in compliance with FINRA Rule 2121; and in the case of a principal transaction a markup or markdown in compliance with FINRA Rule 2121.01.

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In connection with sales of the shares of common stock or otherwise, the selling stockholders may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of the shares of common stock in the course of hedging in positions they assume. The selling stockholders may also sell shares of common stock short and if such short sale shall take place after the date that this registration statement is declared effective by the Commission, the selling stockholders may deliver shares of common stock covered by this prospectus to close out short positions and to return borrowed shares in connection with such short sales. The selling stockholders may also loan or pledge shares of common stock to broker-dealers that in turn may sell such shares, to the extent permitted by applicable law. The selling stockholders may also enter into option or other transactions with broker-dealers or other financial institutions or the creation of one or more derivative securities which require the delivery to such broker-dealer or other financial institution of shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction). Notwithstanding the foregoing, the selling stockholders have been advised that they may not use shares registered on this registration statement to cover short sales of our common stock made prior to the date the registration statement, of which this prospectus forms a part, has been declared effective by the SEC.

The selling stockholders may, from time to time, pledge or grant a security interest in some or all of the warrants or shares of common stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell the shares of common stock from time to time pursuant to this prospectus or any amendment to this prospectus under Rule 424(b)(3) or other applicable provision of the Securities Act of 1933, as amended, amending, if necessary, the list of selling stockholders to include the pledgee, transferee or other successors in interest as selling stockholders under this prospectus. The selling stockholders also may transfer and donate the shares of common stock in other circumstances in which case the transferees, donees, pledgees or other successors in interest will be the selling beneficial owners for purposes of this prospectus.

The selling stockholders and any broker-dealer or agents participating in the distribution of the shares of common stock may be deemed to be underwriters within the meaning of Section 2(11) of the Securities Act in connection with such sales. In such event, any commissions paid, or any discounts or concessions allowed to, any such broker-dealer or agent and any profit on the resale of the shares purchased by them may be deemed to be underwriting commissions or discounts under the Securities Act. Selling Stockholders who are underwriters within the meaning of Section 2(11) of the Securities Act will be subject to the applicable prospectus delivery requirements of the Securities Act including Rule 172 thereunder and may be subject to certain statutory liabilities of, including but not limited to, Sections 11, 12 and 17 of the Securities Act and Rule 10b-5 under the Securities Exchange Act of 1934, as amended, or the Exchange Act.

Each selling stockholder has informed the Company that it is not a registered broker-dealer and does not have any written or oral agreement or understanding, directly or indirectly, with any person to distribute the common stock. Upon the Company being notified in writing by a selling stockholder that any material arrangement has been entered into with a broker-dealer for the sale of common stock through a block trade, special offering, exchange distribution or secondary distribution or a purchase by a broker or dealer, a supplement to this prospectus will be filed, if required, pursuant to Rule 424(b) under the Securities Act, disclosing (i) the name of each such selling stockholder and of the participating broker-dealer(s), (ii) the number of shares involved, (iii) the price at which such the shares of common stock were sold, (iv) the commissions paid or discounts or concessions allowed to such broker-dealer(s), where applicable, (v) that such broker-dealer(s) did not conduct any investigation to verify the information set out or incorporated by reference in this prospectus, and (vi) other facts material to the transaction. In no event shall any broker-dealer receive fees, commissions and markups, which, in the aggregate, would exceed eight percent (8.0%).

Under the securities laws of some states, the shares of common stock may be sold in such states only through registered or licensed brokers or dealers. In addition, in some states the shares of common stock may not be sold

unless such shares have been registered or qualified for sale in such state or an exemption from registration or qualification is available and is complied with.

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There can be no assurance that any selling stockholder will sell any or all of the shares of common stock registered pursuant to the shelf registration statement, of which this prospectus forms a part.

Each selling stockholder and any other person participating in such distribution will be subject to applicable provisions of the Exchange Act and the rules and regulations thereunder, including, without limitation, to the extent applicable, Regulation M of the Exchange Act, which may limit the timing of purchases and sales of any of the shares of common stock by the selling stockholder and any other participating person. To the extent applicable, Regulation M may also restrict the ability of any person engaged in the distribution of the shares of common stock to engage in market-making activities with respect to the shares of common stock. All of the foregoing may affect the marketability of the shares of common stock and the ability of any person or entity to engage in market-making activities with respect to the shares of common stock.

We will pay all expenses of the registration of the shares of common stock pursuant to the registration rights agreement, including, without limitation, Securities and Exchange Commission filing fees and expenses of compliance with state securities or blue sky laws; *provided, however*, that each selling stockholder will pay all underwriting discounts and selling commissions, if any and any related legal expenses incurred by it. We will indemnify the selling stockholders against certain liabilities, including some liabilities under the Securities Act, in accordance with the registration rights agreement, or the selling stockholders will be entitled to contribution. We may be indemnified by the selling stockholders against civil liabilities, including liabilities under the Securities Act, that may arise from any written information furnished to us by the selling stockholders specifically for use in this prospectus, in accordance with the related registration rights agreements, or we may be entitled to contribution.

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LEGAL MATTERS

The validity of the shares offered by this prospectus has been passed upon by Wilmer Cutler Pickering Hale and Dorr LLP.

EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2015, and the effectiveness of our internal control over financial reporting as of December 31, 2015, as set forth in their reports, which are incorporated by reference in this prospectus and elsewhere in the registration statement. Our financial statements are incorporated by reference in reliance on Ernst & Young LLP's reports, given on their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and current reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at <http://www.sec.gov>. Copies of certain information filed by us with the SEC are also available on our website at <http://www.aveooncology.com/>. Our website is not a part of this prospectus and is not incorporated by reference in this prospectus. You may also read and copy any document we file at the SEC's Public Reference Room, 100 F Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the operation of the Public Reference Room.

This prospectus is part of a registration statement we filed with the SEC. This prospectus omits some information contained in the registration statement in accordance with SEC rules and regulations. You should review the information and exhibits in the registration statement for further information about us and our consolidated subsidiaries and the securities we are offering. Statements in this prospectus concerning any document we filed as an exhibit to the registration statement or that we otherwise filed with the SEC are not intended to be comprehensive and are qualified by reference to these filings. You should review the complete document to evaluate these statements.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to incorporate by reference into this prospectus much of the information we file with the SEC, which means that we can disclose important information to you by referring you to those publicly available documents. The information that we incorporate by reference in this prospectus is considered to be part of this prospectus. Because we are incorporating by reference future filings with the SEC, this prospectus is continually updated and those future filings may modify or supersede some of the information included or incorporated in this prospectus. This means that you must look at all of the SEC filings that we incorporate by reference to determine if any of the statements in this prospectus or in any document previously incorporated by reference have been modified or superseded. This prospectus incorporates by reference the documents listed below (File No. 001-35655) and any future filings we make with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act (in each case, other than those documents or the portions of those documents not deemed to be filed) between the date of the initial registration statement and the effectiveness of the registration statement and following the effectiveness of the registration statement until the offering of the securities under the registration statement is terminated or completed:

(1)

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Our Annual Report on Form 10-K for the year ended December 31, 2015, including the information specifically incorporated by reference into the Annual Report on Form 10-K from our definitive proxy statement for the 2016 Annual Meeting of Stockholders;

- (2) Our Quarterly Report on Form 10-Q for the quarter ended March 31, 2016;
- (3) Our Current Reports on Form 8-K dated March 21, 2016; March 24, 2016; April 4, 2016; May 11, 2016; May 13, 2016; May 18, 2016; May 31, 2016; and June 15, 2016;
- (4) The description of our common stock contained in our registration statement on Form 8-A filed on March 9, 2010, including any amendments or reports filed for the purpose of updating such description; and

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(5) All of our filings pursuant to the Exchange Act after the date of filing the initial registration statement and prior to the effectiveness of the registration statement.

You may request a copy of these documents, which will be provided to you at no cost, by writing or telephoning us using the following contact information below. We will provide copies of the exhibits to these filings only if they are specifically incorporated by reference in these filings

AVEO Pharmaceuticals, Inc.

One Broadway, 14th Floor

Cambridge, Massachusetts 02142

Attention: Investor Relations

Telephone: (617) 588-1960

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