

AVEO PHARMACEUTICALS INC

Form S-3

July 16, 2018

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As filed with the Securities and Exchange Commission on July 16, 2018

Registration No. 333-

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

FORM S-3
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)

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

**One Broadway, 14th Floor
Cambridge, Massachusetts 02142**

(617) 588-1960

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

Matthew Dallas

Chief Financial Officer

AVEO Pharmaceuticals, Inc.

**One Broadway, 14th Floor
Cambridge, Massachusetts 02142**

(617) 588-1960

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

Copy to:

Steven D. Singer, Esq.

Cynthia T. Mazareas, Esq.

Wilmer Cutler Pickering Hale and Dorr LLP

60 State Street

Boston, Massachusetts 02109

(617) 526-6000

Approximate date of commencement of proposed sale to the public: From time to time after this registration statement becomes effective.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

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, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box.

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please 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(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 registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of large accelerated filer, accelerated filer, smaller reporting company, and emerging growth company in Rule 12b-2 of the Exchange Act.

| | | |
|-------------------------|---|---------------------------|
| Large accelerated filer | | Accelerated filer |
| Non-accelerated filer | (Do not check if a smaller reporting company) | Smaller reporting company |
| | | Emerging growth company |

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

CALCULATION OF REGISTRATION FEE

| Title of each class of securities to be registered | Amount to be | Proposed Maximum | Proposed Maximum | Amount of Registration Fee |
|--|--------------|------------------|------------------|----------------------------|
|--|--------------|------------------|------------------|----------------------------|

| | Registered(1) | Offering Price | Aggregate | |
|---|---------------|----------------|-------------------|----------|
| | | Per Share(2) | Offering Price(2) | |
| Common Stock, \$0.001 par value per share | 2,000,000 | \$3.00 | \$6,000,000 | \$747.00 |

(1) Pursuant to Rule 416 under the Securities Act of 1933, as amended (the Securities Act), this registration statement also covers any additional securities issuable upon stock splits, stock dividends, dividends or other distribution, recapitalization or similar events with respect to the shares of common stock being registered pursuant to this registration statement.

(2) Estimated solely for purposes of calculating the registration fee pursuant to Rule 457(g) under the Securities Act, based on a warrant exercise price of \$3.00 per share with respect to shares of common stock issuable upon exercise of warrants to acquire 2,000,000 shares of common stock of AVEO Pharmaceuticals, Inc.

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the Registration Statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

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The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities, and we are not soliciting offers to buy these securities in any jurisdiction where the offer or sale is not permitted.

Subject to completion, dated July 16, 2018

PROSPECTUS

2,000,000 SHARES OF COMMON STOCK

This prospectus relates to proposed issuance of up to 2,000,000 shares (the **Shares**) of our common stock, \$0.001 par value per share, issuable upon the exercise of 2,000,000 warrants (each, a **Warrant**, and collectively the **Warrants**) issued pursuant to a Warrant Agreement, dated as of July 16, 2018, among AVEO Pharmaceuticals, Inc. (**we**, **us**, **our**, or **AVEO**) and Computershare Inc. and Computershare Trust Company, N.A., jointly as Warrant Agent (the **Warrant Agreement**). The Warrant Agreement was entered into in connection with the settlement of a securities class action lawsuit, captioned *In re AVEO Pharmaceuticals, Inc. Securities Litigation et al.*, No. 1:13-cv-11157-DJC (the **Class Action**) in accordance with a definitive stipulation of settlement (the **Stipulation of Settlement**), dated as of January 29, 2018, by and among us, certain of our former officers (the **Individual Defendants**), and class representatives Robert Levine and William Windham (the **Plaintiffs**).

On July 16, 2018 (the **Issue Date**), we issued the Warrants to the class of stockholders who purchased our common stock between May 16, 2012 and May 1, 2013 (the **Class**) in satisfaction of certain of our obligations under the Stipulation of Settlement. We issued the Warrants pursuant to the exemption from registration provided by Section 3(a)(10) of the Securities Act of 1933, as amended (the **Securities Act**). In addition to the Warrants, our and the Individual Defendants' insurance carriers provided to the Class a cash payment of \$15,000,000 (the **Settlement Cash** and, collectively with the Warrants, the **Settlement Payment**), which included the cash amount of attorneys' fees and litigation expenses awarded to Plaintiffs' counsel and costs Plaintiffs incurred in administering and providing notice of the proposed settlement. In consideration of the Settlement Payment, the Plaintiffs have agreed to dismiss the Class Action with prejudice and to release all claims by the Class against us and the Individual Defendants.

Subject to the terms and conditions of the Warrant Agreement, the Warrants are exercisable from time to time on any business day from the date the registration statement of which this prospectus forms a part becomes effective until 5:00 p.m., New York City time, on July 15, 2019 (such date, the **Warrant Expiration Date**), provided that the registration statement of which this prospectus forms a part continues to be effective and that the shares of common stock issuable upon exercise of the Warrants are qualified for sale or exempt from qualification under the applicable securities laws of the states or other jurisdictions in which the holders of the Warrants reside. Each Warrant entitles the holder thereof, subject to adjustment pursuant to the terms of the Warrant Agreement, to purchase one share of our common stock at an exercise price of \$3.00 per share.

We will receive proceeds from the exercise of the Warrants if the holders decide to exercise the Warrants, but not from any resale of the underlying common stock. Assuming the exercise of all Warrants, we will receive gross proceeds of \$6,000,000.

Our common stock is traded on the Nasdaq Capital Market under the symbol AVEO. On July 13, 2018, the closing sale price of our common stock on the Nasdaq Capital Market was \$2.90 per share. You are urged to obtain current market quotations for the 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 _____, 2018.

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement we filed with the Securities and Exchange Commission (the SEC). We may, from time to time, sell the shares of common stock described in this prospectus in one or more transactions upon exercise of the Warrants. This prospectus provides a general description of the shares of common stock that may be sold by us. You should read both this prospectus together with additional information and documents described under the headings Where You Can Find More Information and Incorporation of Certain Documents by Reference.

You should rely only on the information contained or incorporated by reference in this prospectus. We have not authorized anyone to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We are not making an offer to sell the offered securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information in this prospectus is accurate only as of its date. Our business, financial position, results of operations and prospects may have changed since that date.

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 this entire prospectus, including the documents incorporated by reference herein, carefully, especially the risks of investing in our common stock discussed under Risk Factors.

Company Overview

We are a biopharmaceutical company dedicated to advancing a broad portfolio of targeted medicines for oncology and other areas of unmet medical need. Our strategy is to retain North American rights to our oncology portfolio while securing partners in development and commercialization outside of North America. We are working to develop and commercialize our lead candidate tivozanib in North America as a treatment for renal cell carcinoma (RCC). We have outlicensed tivozanib (FOTIVDA®) for oncology in Europe and other territories outside of North America, and it is approved in the European Union, as well as Norway and Iceland, for the first-line treatment of adult patients with advanced RCC (aRCC) and for adult patients who are vascular endothelial growth factor receptor and mTOR pathway inhibitor-naïve following disease progression after one prior treatment with cytokine therapy for aRCC. We have entered into partnerships to fund the development and commercialization of AV-203 and ficlatuzumab, both clinical-stage assets in oncology. We are currently seeking a partner to develop our preclinical AV-353 platform in pulmonary arterial hypertension. We previously partnered with Novartis International Pharmaceutical Ltd. (Novartis) to develop our AV-380 program in cachexia and other indications, but Novartis has notified us that it is terminating our collaboration without cause. Accordingly, effective August 28, 2018, we expect to regain the rights to AV-380 and are considering a variety of options to continue the program's development.

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.

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 us | Up to 2,000,000 shares of our common stock underlying Warrants with an exercise price of \$3.00 per share. |
| Warrant Expiration Date | Subject to the terms and conditions of the Warrant Agreement, each Warrant is exercisable from the date the registration statement of which this prospectus forms a part becomes effective until 5:00 p.m., New York City time, on July 15, 2019. |
| Exercise price | Each Warrant entitles its holder to purchase one share of our common stock at an exercise price of \$3.00, subject to adjustment as described in this prospectus and in the Warrant Agreement. See Description of Securities Description of Warrants Exercise of Warrants. |
| Common stock outstanding after this offering | Up to 120,989,147 shares, assuming the exercise of the Warrants in full, based on the number of shares of common stock outstanding as of May 31, 2018. |
| Use of proceeds | Assuming the exercise of the Warrants in full at \$3.00 per share, we will receive gross proceeds of \$6,000,000, subject to any adjustment pursuant to the Warrant Agreement. We intend to use the proceeds from the exercise of Warrants, if any, for working capital and general corporate purposes, including development expenses and general and administrative expenses. See Use of Proceeds. |
| Risk factors | See Risk Factors beginning on page 3 and the other information included in, or incorporated by reference into, this prospectus for a discussion of certain factors you should carefully consider before deciding to invest in shares of our common stock. |

Nasdaq Capital Market symbol

AVEO

The number of shares of our common stock to be outstanding after this offering is based on 118,989,147 shares of our common stock outstanding as of May 31, 2018. The number of shares of our common stock to be outstanding as used throughout this prospectus, unless otherwise indicated, excludes:

9,852,456 shares of common stock issuable upon exercise of stock options outstanding as of May 31, 2018 at a weighted-average exercise price of \$2.24 per share;

16,865,281 shares of common stock issuable upon exercise of warrants outstanding as of May 31, 2018 at a weighted-average exercise price of \$1.00 per share;

1,089,542 shares of common stock reserved as of May 31, 2018 for future issuance under our equity incentive plans; and

307,282 shares of common stock reserved as of May 31, 2018 for future issuance under our 2010 employee stock purchase plan.

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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 below and those described under the caption entitled **Risk Factors** contained in our most recent Annual Report on Form 10-K for the fiscal year ended December 31, 2017 and our most recent Quarterly Report on Form 10-Q, each as filed with the SEC, 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.*

Risks Related to our Common Stock and the Warrants

We may be deprived of favorable opportunities to secure additional equity capital due to the Warrant holders' ability to exercise their Warrants.

For the life of the Warrants, the Warrant holders are given the opportunity to profit from the rise in the market value of shares of our common stock, if any, at the expense of the common stockholders, and we might be deprived of favorable opportunities to secure additional equity capital, if it should then be needed, for the purpose of our business. A Warrant holder may be expected to exercise the Warrants at a time when we, in all likelihood, would be able to obtain equity capital, if we needed capital then, by a public sale of a new offering on terms more favorable than those provided in the Warrants.

If we fail to meet the requirements for continued listing on the Nasdaq Capital Market, our common stock could be delisted from trading, which would decrease the liquidity of our common stock and our ability to raise additional capital.

Our common stock is currently listed for quotation on the Nasdaq Capital Market. We are required to meet specified requirements to maintain our listing on the Nasdaq Capital Market, including, among other things, a minimum bid price of \$1.00 per share. If we fail to satisfy the Nasdaq Capital Market's continued listing requirements, we may transfer to the OTC Bulletin Board. Having our common stock trade on the OTC Bulletin Board could adversely affect the liquidity of our common stock. Any such transfer could make it more difficult to dispose of, or obtain accurate quotations for the price of, our common stock, and there also would likely be a reduction in our coverage by securities analysts and the news media, which could cause the price of our common stock to decline further. We may also face other material adverse consequences in such event, such as negative publicity, a decreased ability to obtain additional financing, diminished investor and/or employee confidence, and the loss of business development opportunities, some or all of which may contribute to a further decline in our stock price.

The market price of our common stock has been, and is likely to be, highly volatile, and could fall below the price you paid. A significant decline in the value of our stock price could also result in securities class-action litigation against us.

The market price of our common stock has been, and is likely to continue to be, highly volatile and subject to wide fluctuations in price in response to various factors, many of which are beyond our control, including:

new products, product candidates or new uses for existing products introduced or announced by our strategic partners, or our competitors, and the timing of these introductions or announcements;

actual or anticipated results from and any delays in our clinical trials;

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results of regulatory reviews relating to our product candidates;

the results of our efforts to develop, acquire or in-license additional product candidates or products;

disputes or other developments relating to proprietary rights, including patents, litigation matters and our ability to obtain patent protection for our technologies;

announcements by us of material developments in our business, financial condition and/or operations;

announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures and capital commitments;

additions or departures of key scientific or management personnel;

conditions or trends in the biotechnology and biopharmaceutical industries;

actual or anticipated changes in earnings estimates, development timelines or recommendations by securities analysts;

general economic and market conditions and other factors that may be unrelated to our operating performance or the operating performance of our competitors, including changes in market valuations of similar companies; and

sales of common stock by us or our stockholders in the future, as well as the overall trading volume of our common stock.

In addition, the stock market in general and the market for biotechnology and biopharmaceutical companies in particular have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of those companies. These broad market and industry factors may seriously harm the market price of our common stock, regardless of our operating performance.

Periods of volatility in the market for a company's stock are often followed by litigation against the company. For example, since our May 2, 2013 announcement regarding the vote of the Oncologic Drugs Advisory Committee of the FDA, we and certain of our former officers and directors have been involved in a number of legal proceedings, including those described under the heading "Legal Proceedings" in our quarterly and annual reports. These proceedings and other similar litigation, if instituted against us, could result in substantial costs and diversion of management's attention and resources, which could materially and adversely affect our business and financial condition.

We and our current and potential future collaborators may not achieve development and commercialization goals in the time frames that we publicly estimate, which could have an adverse impact on our business and could cause

our stock price to decline.

We set goals and make public statements regarding our expected timing for certain accomplishments, such as statements we have made about the initiation and completion of clinical trials, filing and approval of regulatory applications and other developments and milestones under our research and development programs and those of our partners and current and potential future collaborators for tivozanib, ficlatuzumab, AV-203, AV-380 and the AV-353 platform. The actual timing of these events can vary significantly due to a number of factors, including, without limitation, delays or failures in our preclinical studies or clinical trials, the amount of time, effort and resources committed to our programs and the uncertainties inherent in the regulatory approval process. As a result, there can be no assurance that our preclinical studies and clinical trials will advance or be completed in the time frames we expect or announce, that we will make regulatory submissions or receive regulatory approvals as planned or that we will be able to adhere to our current schedule for the achievement of key milestones under any of our programs. If we fail to achieve one or more of the milestones described above as planned, our business could be materially adversely affected, and the price of our common stock could decline.

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Our management has broad discretion over our use of available cash and cash equivalents and might not spend our available cash and cash equivalents in ways that increase the value of your investment.

Our management has broad discretion on where and how to use our cash and cash equivalents and you will be relying on the judgment of our management regarding the application of our available cash and cash equivalents to fund our operations. Our management might not apply our cash and cash equivalents in ways that increase the value of your investment. We expect to use a substantial portion of our cash to fund existing and future research and development of our preclinical and clinical product candidates, with the balance, if any, to be used for working capital and other general corporate purposes, which may in the future include investments in, or acquisitions of, complementary businesses, joint ventures, partnerships, services or technologies. Our management might not be able to yield a significant return, if any, on any investment of this cash. You will not have the opportunity to influence our decisions on how to use our cash reserves.

Fluctuations in our quarterly operating results could adversely affect the price of our common stock.

Our operating results may fluctuate significantly period-to-period. Some of the factors that may cause our operating results to fluctuate on a period-to-period basis include:

the status of our clinical development programs;

the level of expenses incurred in connection with our clinical development programs, including development and manufacturing costs relating to our clinical development candidates;

the implementation of restructuring and cost-savings strategies;

the implementation or termination of collaboration, licensing, manufacturing or other material agreements with third parties, and non-recurring revenue or expenses under any such agreement;

costs associated with lawsuits against us or other litigation in which we may become involved, including those described under the heading *Legal Proceedings* in our quarterly and annual reports;

changes in our loan agreement with Hercules Capital Inc. and its affiliates, including the existence of any event of default that may accelerate payments due thereunder;

non-cash changes in fair value related to re-valuations of our liability associated with warrants issued in connection with our 2016 PIPE and the Warrants, as a result of fluctuations in our stock price; and

compliance with regulatory requirements.

Period-to-period comparisons of our historical and future financial results may not be meaningful, and investors should not rely on them as an indication of future performance. Our fluctuating results may fail to meet the expectations of securities analysts or investors. Our failure to meet these expectations may cause the price of our common stock to decline.

Unstable market and economic conditions may have serious adverse consequences on our business, financial condition and stock price.

As widely reported, global credit and financial markets have been experiencing extreme volatility, and in some cases, disruptions, over the past several years. Although certain of these trends have recently showed signs of reversing, there can be no assurance that rapid or extended periods of deterioration in credit and financial markets and confidence in economic conditions will not occur. Our general business strategy may be adversely affected by external economic conditions and a volatile business environment or unpredictable and unstable market conditions. If the equity and credit markets are not favorable at any time we seek to raise capital, it may make any necessary debt or equity financing more difficult, more costly, and more dilutive. Failure to secure any necessary financing in a timely manner and on favorable terms could have a material adverse effect on our growth strategy, financial performance and stock price and could require us to delay or abandon clinical

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development plans. In addition, there is a risk that one or more of our current service providers, manufacturers or other partners may not survive economically turbulent times, which could directly affect our ability to attain our operating goals on schedule and on budget.

At March 31, 2018, we had approximately \$27.0 million of cash, cash equivalents and marketable securities consisting of cash on deposit with banks, a U.S. government money market fund, corporate debt securities, including commercial paper, and U.S. government agency securities. As of May 31, 2018, we are not aware of any downgrades, material losses, or other significant deterioration in the fair value of our cash equivalents. However, no assurance can be given that deterioration in conditions of the global credit and financial markets would not negatively impact our current portfolio of cash equivalents or our ability to meet our financing objectives. Dislocations in the credit market may adversely impact the value and/or liquidity of cash equivalents owned by us.

There is a possibility that our stock price may decline because of volatility of the stock market and general economic conditions.

If you exercise your Warrants to purchase common stock, you may suffer immediate dilution of your investment.

If you exercise your Warrants to purchase common stock, you will incur immediate dilution if our net tangible book value per share after giving effect to such exercise is less than the \$3.00 exercise price per share of your Warrants. As of March 31, 2018, our net tangible book value per share was \$(0.42). Moreover, as of May 31, 2018, there were 9,852,456 shares of common stock subject to outstanding options at a weighted-average exercise price of \$2.24 per share and 16,865,281 shares of common stock underlying outstanding warrants at a weighted-average exercise price of \$1.00 per share. To the extent that these outstanding options and warrants are ultimately exercised, you may incur further dilution. For a further description of the dilution you may experience immediately after your exercise, see Dilution.

Future sales of shares of our common stock, including shares issued upon the exercise of currently outstanding options and warrants, could negatively affect our stock price.

A substantial portion of our outstanding common stock can be traded without restriction at any time. Some of these shares are currently restricted as a result of securities laws, but will be able to be sold, subject to any applicable volume limitations under federal securities laws with respect to affiliate sales, in the near future. As such, sales of a substantial number of shares of our common stock in the public market could occur at any time. These sales, or the perception in the market that the holders of a large number of shares intend to sell such shares, could adversely affect the market price of our common stock. In addition, we have a significant number of shares that are subject to outstanding options and warrants. The exercise of these options or warrants and the subsequent sale of the underlying common stock could cause a further decline in our stock price. These sales, or the perception in the market that such sales could occur, also might encourage short selling or otherwise make it difficult for us to sell equity securities in the future at a time and at a price that we deem appropriate.

If securities or industry analysts do not publish research or publish inaccurate or unfavorable research about our business, our share price and trading volume could decline.

The trading market for our common stock may depend in part on the research and reports that securities or industry analysts publish about us or our business. We do not have any control over these analysts. There can be no assurance that analysts will cover us or provide favorable coverage. A lack of research coverage may negatively impact the market price of our common stock. To the event we do have analyst coverage, if one or more analysts downgrade our stock or change their opinion of our stock, our share price would likely decline. In addition, if one or more analysts

cease coverage of our company or fail to regularly publish reports on us, we could lose visibility in the financial markets, which could cause our share price or trading volume to decline.

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A decline in our stock price may affect future fundraising efforts.

We currently have no product revenues and depend entirely on funds raised through other sources. One source of such funding is future debt and/or equity offerings. Our ability to raise funds in this manner depends upon, among other things, our stock price, which may be affected by capital market forces, evaluation of our stock by securities analysts, product development success (or failure), and internal management operations and controls.

Provisions in our certificate of incorporation, our by-laws or Delaware law might discourage, delay or prevent a change in control of our company or changes in our management and, therefore, depress the market price of our common stock.

Provisions of our restated certificate of incorporation, as amended (the Certificate of Incorporation), our second amended and restated by-laws (the By-laws) or Delaware law may have the effect of deterring unsolicited takeovers or delaying or preventing a change in control of our company or changes in our management, including transactions in which our stockholders might otherwise receive a premium for their shares over then current market prices. In addition, these provisions may limit the ability of stockholders to approve transactions that they may deem to be in their best interest. These provisions include:

advance notice requirements for stockholder proposals and nominations;

the inability of stockholders to act by written consent or to call special meetings;

the ability of our board of directors to make, alter or repeal our By-laws; and

the ability of our board of directors to designate the terms of and issue new series of preferred stock without stockholder approval, which could be used to institute a rights plan, or a poison pill, that would work to dilute the stock ownership of a potential hostile acquirer, likely preventing acquisitions that have not been approved by our board of directors.

In addition, Section 203 of the General Corporation Law of the State of Delaware (the DGCL) prohibits a publicly-held Delaware corporation from engaging in a business combination with an interested stockholder, generally a person which together with its affiliates owns, or within the last three years has owned, 15% of our voting stock, for a period of three years after the date of the transaction in which the person became an interested stockholder, unless the business combination is approved in a prescribed manner.

The existence of the foregoing provisions and anti-takeover measures could limit the price that investors might be willing to pay in the future for shares of our common stock. They could also deter potential acquirers of our company, thereby reducing the likelihood that a stockholder could receive a premium for shares of our common stock held by a stockholder in an acquisition.

Our business could be negatively affected as a result of the actions of activist stockholders.

Proxy contests have been waged against companies in the biopharmaceutical industry over the last few years. If faced with a proxy contest, we may not be able to successfully respond to the contest, which would be disruptive to our

business. Even if we are successful, our business could be adversely affected by a proxy contest because:

responding to proxy contests and other actions by activist stockholders may be costly and time-consuming, and may disrupt our operations and divert the attention of management and our employees;

perceived uncertainties as to the potential outcome of any proxy contest may result in our inability to consummate potential acquisitions, collaborations or in-licensing opportunities and may make it more difficult to attract and retain qualified personnel and business partners; and

if individuals that have a specific agenda different from that of our management or other members of our board of directors are elected to our board as a result of any proxy contest, such an election may adversely affect our ability to effectively and timely implement our strategic plan and create additional value for our stockholders.

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Failure to maintain effective internal controls in accordance with Section 404 of the Sarbanes-Oxley Act could have a material adverse effect on our ability to produce accurate financial statements and on our stock price.

Section 404 of the Sarbanes-Oxley Act of 2002 requires us, on an annual basis, to review and evaluate our internal controls, and requires our independent registered public accounting firm to attest to the effectiveness of our internal controls. Despite our efforts, we can provide no assurance as to our, or our independent registered public accounting firm's, conclusions with respect to the effectiveness of our internal control over financial reporting under Section 404. There is a risk that neither we nor our independent registered public accounting firm will be able to conclude within the prescribed timeframe that our internal control over financial reporting is effective as required by Section 404. This could result in an adverse reaction in the financial markets due to a loss of confidence in the reliability of our financial statements.

If we are unable to successfully remediate any material weaknesses in our internal control, the accuracy and timing of our financial reporting may be adversely affected, we may be unable to maintain compliance with securities law requirements regarding timely filing of periodic reports in addition to applicable stock exchange listing requirements, investors may lose confidence in our financial reporting, and our stock price may decline as a result. We also could become subject to investigations by Nasdaq, the SEC, or other regulatory authorities.

We do not expect to pay any cash dividends for the foreseeable future.

You should not rely on an investment in our common stock to provide dividend income. We do not anticipate that we will pay any cash dividends to holders of our common stock in the foreseeable future. Instead, we plan to retain any earnings to maintain and expand our existing operations. In addition, our ability to pay cash dividends is currently prohibited by the terms of our debt financing arrangements and any future debt financing arrangement may contain terms prohibiting or limiting the amount of dividends that may be declared or paid on our common stock. Accordingly, investors must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize any return on their investment. As a result, investors seeking cash dividends should not purchase our common stock.

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CAUTIONARY NOTE REGARDING FORWARD-LOOKING INFORMATION

We caution you that this prospectus and the documents we incorporate by reference herein include forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Securities Exchange Act of 1934, as amended (the Exchange Act). 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 and our collaborators' future discovery, development and commercialization efforts, 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, forecast, intend, may, plan, project, should, target, will, would or other words that convey 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;

our estimates regarding expenses, future revenue, capital requirements and needs for additional financing;
and

our ability to continue as a going concern.

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 phase 3 clinical trial of tivozanib in the third-line treatment of patients with aRCC, which we refer to as the TIVO-3 trial;

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;

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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;

our ability to continue as a going concern; and

those risks discussed (i) under the heading "Risk Factors" appearing above in this prospectus, (ii) in the section titled "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2017 and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2018, 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, unless required by law.

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USE OF PROCEEDS

Assuming the exercise of the Warrants in full, we will receive gross proceeds of \$6,000,000, subject to any adjustment pursuant to the Warrant Agreement. We intend to use the proceeds from the exercise of the Warrants, if any, for working capital and general corporate purposes, including development expenses and general and administrative expenses. There can be no assurance that any or all of the holders of the Warrants will elect to exercise their Warrants in whole or in part prior to the date the Warrants expire.

We will bear all of the costs, fees and expenses incurred by us in effecting the registration of the issuance of the shares covered by this prospectus, including without limitation all registration and filing fees, Nasdaq Capital Market listing fees and fees and expenses of our counsel and accountants. We will not receive proceeds from any resale of the shares of our common stock acquired upon exercise of the Warrants, and the Warrant holders will pay any selling commissions and expenses incurred by them for brokerage, accounting, tax or legal services or any other expenses incurred in connection with any such resale.

Table of Contents**PRICE RANGE OF COMMON STOCK**

Our common stock was listed on the Nasdaq Global Select Market under the symbol AVEO until April 12, 2017. Effective as of April 13, 2017, our common stock has been listed on the Nasdaq Capital Market under the same symbol. The following table sets forth the high and low sales prices per share of our common stock as reported on the Nasdaq Global Select Market and the Nasdaq Capital Market, as applicable, for the periods indicated:

| | High | Low |
|---------------------------------------|-------------|------------|
| Year Ended December 31, 2016 | | |
| First Quarter | \$ 1.27 | \$ 0.82 |
| Second Quarter | \$ 1.15 | \$ 0.84 |
| Third Quarter | \$ 1.09 | \$ 0.81 |
| Fourth Quarter | \$ 0.89 | \$ 0.54 |
| Year Ended December 31, 2017 | | |
| First Quarter | \$ 0.98 | \$ 0.50 |
| Second Quarter | \$ 2.42 | \$ 0.55 |
| Third Quarter | \$ 4.24 | \$ 2.12 |
| Fourth Quarter | \$ 4.15 | \$ 2.56 |
| Year Ending December 31, 2018 | | |
| First Quarter | \$ 3.29 | \$ 2.53 |
| Second Quarter | \$ 2.93 | \$ 1.91 |
| Third Quarter (through July 13, 2018) | \$ 2.97 | \$ 2.16 |

On July 13, 2018, the last sale price of our common stock, as reported on the Nasdaq Capital Market, was \$2.90 per share. As of July 13, 2018, we had approximately 48 holders of record of our common stock. The actual number of stockholders is greater than this number of record holders and includes stockholders who are beneficial owners but whose shares are held in street name by brokers and other nominees.

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DIVIDEND POLICY

To date, we have paid no cash dividends to our stockholders, and we do not intend to pay cash dividends in the foreseeable future. In addition, the terms of our current debt agreement with Hercules Funding III, LLC and Hercules Capital, Inc., preclude us from paying cash dividends without our lender's prior written consent.

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DETERMINATION OF OFFERING PRICE

The offering price of the shares of common stock offered hereby is determined by reference to the exercise price of the Warrants. The exercise price of the Warrants is \$3.00 per share, subject to any adjustment pursuant to the Warrant Agreement. See Description of Securities Description of Warrants Adjustments. Such exercise price was established in the Stipulation of Settlement by reference to the closing price of the common stock on December 22, 2017, a reference date agreed upon by us and the Plaintiffs.

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Table of Contents**DILUTION**

If you exercise your Warrants to purchase our common stock in this offering, your ownership interest will be diluted immediately to the extent of the difference between the \$3.00 exercise price per share of your Warrants and the tangible book value per share of our common stock immediately after giving effect to such exercise. We calculate net tangible book value per share of our common stock by dividing the net tangible book value, which is tangible assets less total liabilities, by the number of outstanding shares of our common stock. Our historical net tangible book value as of March 31, 2018 was \$(50.2) million, or \$(0.42) per share of our common stock.

Assuming the exercise in full of the Warrants and the sale by us of all 2,000,000 shares offered pursuant to this prospectus, at the exercise price of \$3.00 per share, and after deducting estimated aggregate offering expenses payable by us, our as adjusted net tangible book value as of March 31, 2018 would have been \$(42.1) million, or \$(0.35) per share of our common stock. This would represent an immediate increase in the as adjusted net tangible book value of \$0.07 per share to our existing stockholders and an immediate dilution in as adjusted net tangible book value of \$3.35 per share to Warrant holders purchasing shares in this offering. Such dilution per share to Warrant holders purchasing shares, assuming exercise in full of the Warrants, is determined by subtracting as adjusted net tangible book value per share after this offering from the exercise price of \$3.00 per share of the Warrants. The following table illustrates this dilution on a per-share basis:

| | |
|--|----------|
| Exercise price per share of the Warrants | \$ 3.00 |
| Historical net tangible book value per share as of March 31, 2018 | \$(0.42) |
| Increase per share attributable to exercises in full of the Warrants | \$ 0.07 |
| As adjusted net tangible book value per share as of March 31, 2018, immediately after giving effect to exercises in full of the Warrants | \$(0.35) |
| Dilution per share to Warrant holders purchasing shares in this offering, assuming exercise in full of the Warrants | \$ 3.35 |

To the extent the Warrants are not exercised in full, the Warrant holders that exercise their Warrants will experience greater dilution.

The above discussion and table are based on 118,867,471 shares of our common stock issued and outstanding as of March 31, 2018 and excludes the following:

10,029,132 shares of common stock issuable upon exercise of stock options outstanding as of March 31, 2018 at a weighted-average exercise price of \$2.28 per share;

16,865,281 shares of common stock issuable upon exercise of warrants outstanding as of March 31, 2018 at a weighted-average exercise price of \$1.00 per share;

1,034,542 shares of common stock reserved as of March 31, 2018 for future issuance under our equity incentive plans; and

307,282 shares of common stock reserved as of March 31, 2018 for future issuance under our 2010 employee stock purchase plan.

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PLAN OF DISTRIBUTION

This prospectus covers the offer and sale of common stock by us to the holders of the Warrants upon exercise of the Warrants. This prospectus does not cover any resales of shares of common stock that are received by the Warrant holders upon exercise of the Warrants. No underwriter is being utilized in connection with this offering or with the exercise of the Warrants. We will issue the shares of common stock directly to the holders of Warrants, upon exercise of the Warrants, from time to time after the date of this prospectus until the earlier of the exercise of all of the Warrants or the expiration of the Warrants at 5:00 p.m., New York City time, on July 15, 2019, the Warrant Expiration Date.

Pursuant to the terms of the Warrants, the shares of common stock will be issued by us to those Warrant holders who timely provide a properly completed and delivered exercise form and pay the exercise price. The exercise price will be payable to the Warrant Agent, at the option of each Warrant holder, (a) by certified check, official bank check or bank cashiers check payable to us, or (b) by wire transfer of funds to an account of the Warrant Agent specified by the Warrant Agent for such purpose. See Description of Securities Description of Warrants Exercise of Warrants.

We will bear all of the costs, fees and expenses incurred by us in connection with the issuance of the shares of common stock to the Warrant holders, which are estimated to be approximately \$0.1 million. Any shares of common stock issued upon exercise of the Warrants will be listed on the Nasdaq Capital Market.

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DESCRIPTION OF SECURITIES

We are registering the offer and sale of shares of our common stock issuable upon exercise of the Warrants issued pursuant to the Warrant Agreement.

Description of Warrants

On July 16, 2018, we entered into the Warrant Agreement, pursuant to which we issued 2,000,000 Warrants in connection with our obligations under the Stipulation of Settlement. We issued the Warrants pursuant to the exemption from registration provided by Section 3(a)(10) of the Securities Act.

The following is a summary of certain provisions of the Warrant Agreement and the Warrants. The following summary of the Warrant Agreement and the Warrants does not purport to be complete and is subject to, and qualified in its entirety by reference to, the Warrant Agreement, including the exhibits thereto, a copy of which was filed as Exhibit 4.1 to our Current Report on Form 8-K filed with the SEC on July 16, 2018 and has been filed as an exhibit to the registration statement of which this prospectus forms a part.

Exercise of Warrants

Each Warrant entitles its holder to purchase one share of our common stock at an exercise price of \$3.00 per share, subject to adjustment in accordance with the provisions of the Warrant Agreement as described below. The holder of each Warrant will be able to exercise the Warrant, in whole or in part, by timely delivering to the Warrant Agent the exercise notice properly completed and executed and the payment of the aggregate exercise price for the number of shares of common stock as to which the Warrant is being exercised. The exercise price will be payable, at the option of each Warrant holder, (a) by certified check, official bank check or bank cashiers check payable to us or (b) by wire transfer of funds to an account of the Warrant Agent specified by the Warrant Agent for such purpose.

Each Warrant is exercisable at any time on any business day until 5:00 p.m., New York City time, on the Warrant Expiration Date, which is July 15, 2019. Each Warrant may be exercised at any time in whole or in part at the applicable exercise price from the date the registration statement of which this prospectus forms a part becomes effective until the Warrant Expiration Date provided that the registration statement of which this prospectus forms a part remains effective or another registration statement covering the issuance of the shares of common stock underlying the Warrants is effective. We have agreed to use our reasonable best efforts to maintain an effective registration statement until the earlier of (i) such time as all Warrants have been exercised or (ii) the Warrant Expiration Date. We are not required to and we will not issue fractional shares of our common stock upon the exercise of the Warrants. In lieu of issuing fractional shares, we will pay the holder an amount in cash equal to the Market Price per share of common stock, as determined on the day immediately preceding the date on which the holder delivered the related warrant exercise notice, multiplied by such fraction, computed to the nearest whole U.S. cent.

As used in the Warrant Agreement, the *Market Price* of the common stock is (i) the average closing price of a share of our common stock as reported on the principal national securities exchange on which the shares of common stock are listed or admitted for trading, (ii) if our common stock is not listed or admitted for trading on any national securities exchange, the average of the closing bid and asked prices of a share of common stock in the over-the-counter market as reported by a reputable quotation service selected by our board of directors, or (iii) in all other cases, as determined in good faith by our board of directors following the receipt of a valuation by an independent investment bank of national standing selected by our board. In each case, the average closing price is averaged over a period of 21 consecutive trading days, consisting of the day immediately preceding the day for which the Market Price is being determined and the 20 consecutive trading days prior to such day. Our shares of common stock are currently listed on

the Nasdaq Capital Market under the symbol AVEO.

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In accordance with the Warrant Agreement, a Warrant shall be deemed to have been exercised immediately prior to the close of business on the date of the surrender of the Warrant to the Warrant Agent. The individual or entity entitled to receive shares of our common stock upon such exercise shall be deemed to be the holder of such shares of record as of the close of business on such date. However, if on such date, our transfer books are closed and we have provided notice of such closure to the Warrant holder in accordance with the requirements set forth in the Warrant Agreement, the shares issuable upon the exercise of such Warrant shall be issuable as of the first date on which our transfer books shall next be open, which, unless otherwise required by law, will be no later than a maximum of five calendar days thereafter. Until such date, subject to certain conditions, we shall have no obligation to deliver such shares. Pursuant to the Warrant Agreement, any Warrant delivered to the Warrant Agent subsequent to 5:00 p.m., New York City time, shall be deemed as exercised on the following day.

Upon exercise of each Warrant and as soon as practicable thereafter, subject to specified conditions in the Warrant Agreement, we shall issue, or otherwise deliver or cause to be issued or delivered, to the holder of the Warrants, either:

if the holder holds the Warrants being exercised through the book-entry transfer facilities of The Depository Trust Company (the Depository), by same-day or next-day credit to the Depository for the account of such holder or for the account of a participant in the Depository the number of shares to which such holder is entitled, in each case registered in such name and delivered to such account as directed in the Warrant exercise notice by such holder or by the direct participant in the Depository through which such holding is acting, or

if such holder holds the Warrants being exercised in the form of book-entry Warrants, a book-entry interest in the shares registered on the books of our transfer agent or, at our option, by delivery to the address designated by such holder in its Warrant exercise notice of a physical certificate representing the number of shares to which such holder is entitled, in fully registered form, registered in such name or names as may be directed by such holder.

Adjustments

The exercise price of each Warrant and/or the number of shares of our common stock purchasable upon the exercise of each Warrant will be subject to adjustment upon the occurrence of certain events. The exercise price of each Warrant and/or the number of shares of our common stock purchasable upon the exercise of each Warrant shall be adjusted if we at any time or from time to time shall:

pay a dividend in shares of common stock or make a distribution on our common stock consisting of shares of common stock;

subdivide our outstanding shares of common stock into a greater number of shares of common stock;
or

combine our outstanding shares of common stock into a smaller number of shares of common stock.

If we distribute to all holders of our common stock any assets other than dividends paid in cash or in common stock as described above or in connection with the types of transactions described below, we will also adjust the Warrants so that each Warrant holder shall be entitled to receive, upon exercise, such assets as he, she or it would have received in such distribution, with respect to the number of shares of common stock issuable upon exercise of such Warrant, in addition to the shares of our common stock then issuable upon such exercise.

In addition, in the case of any recapitalization, reorganization, reclassification, consolidation, merger, sale of all or substantially all of our assets or other similar transaction, in each case which is effected at any time prior to the expiration of the Warrants, in such a way that the holders of our common stock are entitled to receive (either directly or upon subsequent liquidation) stock, securities or assets with respect to or in exchange for such

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common stock (each, a Fundamental Transaction), each of the holders of Warrants will be entitled to receive, upon exercise of such Warrants and payment of the exercise price and in lieu of or in addition to (as the case may be) the shares of our common stock immediately theretofore acquired and receivable upon the exercise of such holders Warrants such shares of stock, securities or assets as may be issued or payable in the Fundamental Transaction with respect to or in exchange for the number of shares of any common stock immediately theretofore acquired and receivable upon exercise of such holders Warrants had such transaction not taken place. Pursuant to the Warrant Agreement, we are prohibited from entering into any such Fundamental Transaction unless, prior to the consummation thereof, the successor entity (if other than our company) assumes by written instrument the obligation to deliver to each holder of Warrants such stock, securities or assets as such holder may be entitled to acquire in accordance with the foregoing.

Warrant Holder Not a Stockholder

Prior to the exercise of any Warrant, holders of the Warrants are not entitled to the rights of our stockholders, including without limitation the right to vote, receive dividends or other distributions, or consent to or receive notice of the meetings of stockholders or any other matter.

Redemption

The Warrants are not redeemable by us or any other person.

Registration of Common Stock with the SEC

Pursuant to the Warrant Agreement and the terms of the Stipulation of Settlement under which we entered into the Warrant Agreement, we are required to file a registration statement with the SEC under the Securities Act registering the issuance of the shares of our common stock to the holders of the Warrants. We filed the registration statement of which this prospectus forms a part pursuant to this obligation. Furthermore, pursuant to the Warrant Agreement, we are required to use our reasonable best efforts to keep such registration statement effective until the earlier of (i) such time as all Warrants have been exercised or (ii) the Warrant Expiration Date, which is July 15, 2019.

Warrant Agent

Computershare, Inc. and its wholly owned subsidiary, Computershare Trust Company, N.A., acting together, serve as the Warrant Agent.

Description of Capital Stock

The following description of our capital stock is intended as a summary only and therefore is not a complete description of our capital stock. This description is based upon, and is qualified by reference to, our Certificate of Incorporation, our By-laws, and applicable provisions of Delaware corporate law. You should read our Certificate of Incorporation and By-laws, which are filed as exhibits to the registration statement of which this prospectus forms a part, for the provisions that are important to you.

Our authorized capital stock consists of 250,000,000 shares of common stock, par value \$0.001 per share, and 5,000,000 shares of preferred stock, par value \$0.001 per share.

Common Stock

Annual Meeting. Annual meetings of our stockholders are held on the date designated in accordance with our By-laws. Written notice must be mailed to each stockholder entitled to vote not less than ten nor more than 60 days before the date of the meeting. The presence in person or by proxy of the holders of record of a majority

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in voting power of our issued and outstanding shares entitled to vote at such meeting constitutes a quorum for the transaction of business at meetings of the stockholders. Special meetings of the stockholders, unless otherwise prescribed by statute or by our Certificate of Incorporation, may be called for any purpose or purposes, by the chairman of our board of directors, our board of directors, or our chief executive officer. Except as may be otherwise provided by applicable law, our Certificate of Incorporation or our By-laws, all elections, other than elections of directors, and all other questions shall be decided by the affirmative vote of the holders of a majority in voting power of the shares of our stock which are present in person or by proxy and voting affirmatively or negatively on such matter. Except as may be provided by applicable law, our Certificate of Incorporation or our By-laws, each director shall be elected by the vote of the plurality of the votes cast by the stockholders entitled to vote with respect to that director's election at any meeting for the election of directors at which a quorum is present.

Voting Rights. Each holder of common stock is entitled to one vote for each share held of record on all matters to be voted upon by stockholders.

Dividends. Subject to the rights, powers and preferences of any outstanding preferred stock, and except as provided by law or in our Certificate of Incorporation, dividends may be declared and paid or set aside for payment on the common stock out of legally available assets or funds when and as declared by the board of directors.

Liquidation, Dissolution and Winding Up. Subject to the rights, powers and preferences of any outstanding preferred stock, in the event of our liquidation, dissolution or winding up, our net assets will be distributed pro rata to the holders of our common stock.

Other Rights. Holders of the common stock have no right to:

convert the stock into any other security;

have the stock redeemed;

purchase additional stock; or

maintain their proportionate ownership interest.

The common stock does not have cumulative voting rights. Holders of shares of the common stock are not required to make additional capital contributions.

Transfer Agent and Registrar. Computershare Trust Company, N.A. is transfer agent and registrar for the common stock.

Our common stock is traded on the Nasdaq Capital Market under the symbol **AVEO**.

Preferred Stock

We are authorized to issue blank check preferred stock, which may be issued in one or more series upon authorization of our board of directors. Our board of directors is authorized to fix the designations, powers, preferences and the

relative, participating, optional or other special rights and any qualifications, limitations and restrictions of the shares of each series of preferred stock. The authorized shares of our preferred stock are available for issuance without further action by our stockholders unless such action is required by applicable law or the rules of any stock exchange on which our securities may be listed. Under our Certificate of Incorporation, the number of authorized preferred stock may be increased or decreased (but not below the number of shares outstanding) by the affirmative vote of the holders of a majority of the voting power of the capital stock entitled to vote thereon, voting as a single class. If the approval of our stockholders is not required for the issuance of shares of our preferred stock, our board may determine not to seek stockholder approval.

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A series of our preferred stock could, depending on the terms of such series, impede the completion of a merger, tender offer or other takeover attempt. Our board of directors will make any determination to issue preferred shares based upon its judgment as to the best interests of our stockholders. Our directors, in so acting, could issue preferred stock having terms that could discourage an acquisition attempt through which an acquirer may be able to change the composition of our board of directors, including a tender offer or other transaction that some, or a majority, of our stockholders might believe to be in their best interests or in which stockholders might receive a premium for their stock over the then-current market price of the stock.

Effects of Authorized but Unissued Stock

Authorized but unissued shares of common stock and preferred stock are available for future issuance without stockholder approval, subject to any limitations imposed by the listing standards of the Nasdaq Capital Market. These additional shares may be used for a variety of corporate finance transactions, acquisitions and employee benefit plans. The existence of authorized but unissued and unreserved common stock and preferred stock could make more difficult or discourage an attempt to obtain control of us by means of a proxy contest, tender offer, merger or otherwise. In addition, if we issue preferred stock, the issuance could adversely affect the voting power of holders of common stock and the likelihood that such holders will receive dividend payments and payments upon liquidation.

Provisions of Our Certificate of Incorporation and By-laws and Delaware Law That May Have Anti-Takeover Effects

Board of Directors. We do not have a classified board of directors. All of our directors are elected annually. The number of directors comprising our board of directors is fixed from time to time by the board of directors.

Removal of Directors by Stockholders. Members of our board of directors may be removed from office at any time with or without cause by the affirmative vote of the holders of a majority of the outstanding shares entitled to vote at an election of directors.

Stockholder Nomination of Directors. Our By-laws provide that a stockholder must notify us in writing of any stockholder nomination of a director not earlier than the close of business on the 120th day, and not later than the close of business on the 90th day prior to the first anniversary of the preceding year's annual meeting; provided, that, in the case of the annual meeting of stockholders, if the date of the annual meeting is more than 20 days before or more than 60 days after such anniversary date, notice by the stockholder to be timely must be so delivered not earlier than the close of business on the 120th day prior to the date of such annual meeting and not later than the close of business on the later of (x) the 90th day prior to such annual meeting and (y) the 10th day following the day on which public announcement of the date of such annual meeting is first made by us. Our By-laws also provide that, subject to certain limitations, if a stockholder (or a qualified representative of the stockholder) does not appear at a meeting of stockholders to present a nomination, such nomination shall be disregarded, notwithstanding that proxies in respect of such vote may have been received by us.

No Action By Written Consent. Our Certificate of Incorporation and our By-laws provide that our stockholders may not act by written consent and may only act at duly called meetings of stockholders.

Delaware Business Combination Statute. Section 203 of the DGCL is applicable to us. Section 203 of the DGCL restricts some types of transactions and business combinations between a corporation and a 15% stockholder. A 15% stockholder is generally considered by Section 203 to be a person owning 15% or more of the corporation's outstanding voting stock. Section 203 refers to a 15% stockholder as an interested stockholder. Section 203 restricts these transactions for a period of three years from the date the stockholder acquires 15% or more of our outstanding

voting stock. With some exceptions, unless the transaction is approved

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by the board of directors and the holders of at least two-thirds of the outstanding voting stock of the corporation, Section 203 prohibits significant business transactions such as:

a merger with, disposition of significant assets to or receipt of disproportionate financial benefits by the interested stockholder, and

any other transaction that would increase the interested stockholder's proportionate ownership of any class or series of our capital stock.

The shares held by the interested stockholder are not counted as outstanding when calculating the two-thirds of the outstanding voting stock needed for approval.

The prohibition against these transactions does not apply if:

prior to the time that any stockholder became an interested stockholder, the board of directors approved either the business combination or the transaction in which such stockholder acquired 15% or more of our outstanding voting stock, or

the interested stockholder owns at least 85% of our outstanding voting stock as a result of a transaction in which such stockholder acquired 15% or more of our outstanding voting stock. Shares held by persons who are both directors and officers or by some types of employee stock plans are not counted as outstanding when making this calculation.

Super-Majority Voting. The DGCL provides generally that the affirmative vote of a majority of the shares entitled to vote on any matter is required to amend a corporation's certificate of incorporation or by-laws, unless a corporation's certificate of incorporation or by-laws, as the case may be, requires a greater percentage. Our By-laws may be amended or repealed by a majority vote of our board of directors or the affirmative vote of the holders of at least 75% of the votes that all our stockholders would be entitled to cast in any annual election of directors. In addition, the affirmative vote of the holders of at least 75% of the votes that all our stockholders would be entitled to cast in any annual election of directors is required to amend or repeal or to adopt any provisions inconsistent with any of the provisions of our Certificate of Incorporation described in this paragraph.

Directors' Liability

Our Certificate of Incorporation limits the personal liability of directors for breach of fiduciary duty to the maximum extent permitted by the DGCL. Our Certificate of Incorporation provides that no director will have personal liability to us or to our stockholders for monetary damages for breach of fiduciary duty or other duty as a director. However, these provisions do not eliminate or limit the liability of any of our directors:

for any breach of their duty of loyalty to us or our stockholders;

for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law;

for voting or assenting to unlawful payments of dividends or other distributions; or

for any transaction from which the director derived an improper personal benefit.

Any amendment to or repeal of these provisions will not eliminate or reduce the effect of these provisions in respect of any act or failure to act, or any cause of action, suit or claim that would accrue or arise prior to any amendment or repeal or adoption of an inconsistent provision. If the DGCL is amended to provide for further limitations on the personal liability of directors of corporations, then the personal liability of our directors will be further limited to the greatest extent permitted by the DGCL.

In addition, our Certificate of Incorporation provides that we must indemnify our directors and officers and we must advance expenses, including attorneys' fees, to our directors and officers in connection with legal proceedings, subject to very limited exceptions.

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MATERIAL U.S. FEDERAL TAX CONSIDERATIONS FOR NON-U.S.

HOLDERS OF COMMON STOCK

The following is a discussion of material U.S. federal income and estate tax considerations relating to ownership and disposition of our common stock by a non-U.S. holder. For purposes of this discussion, the term non-U.S. holder means a beneficial owner (other than a partnership or other pass-through entity) of our common stock that is not, for U.S. federal income tax purposes:

an individual who is a citizen or resident of the United States;

a corporation, or other entity treated as a corporation for U.S. federal income tax purposes, created or organized in or under the laws of the United States, any state thereof or the District of Columbia;

an estate the income of which is subject to U.S. federal income taxation regardless of its source; or

a trust if (1) a U.S. court is able to exercise primary supervision over the administration of the trust and one or more U.S. persons (as defined in the U.S. Internal Revenue Code of 1986, as amended (the Code)) have authority to control all substantial decisions of the trust or (2) the trust has a valid election in effect under applicable U.S. Treasury Regulations to be treated as a U.S. person.

This discussion does not address the tax treatment of partnerships or other entities that are pass-through entities for U.S. federal income tax purposes or persons who hold their common stock through partnerships or other pass-through entities. A partner in a partnership or other pass-through entity that will hold our common stock should consult his, her or its own tax advisor regarding the tax consequences of the ownership and disposition of our common stock through a partnership or other pass-through entity, as applicable.

This discussion is based on current provisions of the Code, existing and proposed U.S. Treasury Regulations promulgated thereunder, current administrative rulings and judicial decisions, all as in effect as of the date of this prospectus and all of which are subject to change or to differing interpretation, possibly with retroactive effect. Any change or differing interpretation could alter the tax consequences to non-U.S. holders described in this prospectus. There can be no assurance that the Internal Revenue Service, or the IRS, will not challenge one or more of the tax consequences described in this prospectus.

We assume in this discussion that each non-U.S. holder holds shares of our common stock as a capital asset within the meaning of the Code (generally, property held for investment) for U.S. federal income tax purposes. This discussion does not address all aspects of U.S. federal income and estate taxation that may be relevant to a particular non-U.S. holder in light of that non-U.S. holder's individual circumstances nor does it address any aspects of U.S. state, local or non-U.S. taxes, the alternative minimum tax, or the Medicare tax on net investment income. This discussion also does not consider any specific facts or circumstances that may apply to a non-U.S. holder and does not address the special tax rules applicable to particular non-U.S. holders, such as:

financial institutions;

brokers or dealers in securities;

tax-exempt organizations;

pension plans;

owners that hold our common stock as part of a straddle, hedge, conversion transaction, synthetic security or other integrated investment or who have elected to mark securities to market;

insurance companies;

controlled foreign corporations;

passive foreign investment companies;

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non-U.S. governments; and

certain U.S. expatriates.

THIS DISCUSSION IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT, AND IS NOT INTENDED TO BE, LEGAL OR TAX ADVICE. PROSPECTIVE INVESTORS SHOULD CONSULT THEIR OWN TAX ADVISORS REGARDING THE U.S. FEDERAL, STATE, LOCAL AND NON-U.S. INCOME, ESTATE AND OTHER TAX CONSIDERATIONS OF ACQUIRING, HOLDING AND DISPOSING OF OUR COMMON STOCK.

Distributions

If we make distributions in respect of our common stock, those distributions generally will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles, subject to the tax treatment described in this section. If a distribution exceeds our current and accumulated earnings and profits, the excess will be treated as a tax-free return of the non-U.S. holder's investment, up to the holder's tax basis in the common stock. A holder's tax basis in the common stock generally will equal the holder's tax basis in the Warrant exercised to acquire the stock plus the exercise price of the Warrant. Any remaining excess will be treated as capital gain, subject to the tax treatment described below under the heading "Gain on Sale, Exchange or Other Taxable Disposition of Our Common Stock." Any such distributions will also be subject to the discussions below under the headings "Information Reporting and Backup Withholding" and "FATCA."

Dividends paid to a non-U.S. holder generally will be subject to withholding of U.S. federal income tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence.

Dividends that are treated as effectively connected with a trade or business conducted by a non-U.S. holder within the United States, and, if an applicable income tax treaty so provides, that are attributable to a permanent establishment or a fixed base maintained by the non-U.S. holder within the United States, are generally exempt from the 30% withholding tax if the non-U.S. holder satisfies applicable certification and disclosure requirements (generally including provision of a valid IRS Form W-8ECI (or applicable successor form) certifying that the dividends are effectively connected with the non-U.S. holder's conduct of a trade or business within the United States). However, such U.S. effectively connected income, net of specified deductions and credits, is taxed in the hands of the non-U.S. holder at the same graduated U.S. federal income tax rates as would apply if such holder were a U.S. person (as defined in the Code). Any U.S. effectively connected income received by a non-U.S. holder that is classified as a corporation for U.S. federal income tax purposes may also, under certain circumstances, be subject to an additional branch profits tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence.

A non-U.S. holder of our common stock who claims the benefit of an applicable income tax treaty between the United States and such holder's country of residence generally will be required to provide a properly executed IRS Form W-8BEN or W-8BEN-E (or successor form) and satisfy applicable certification and other requirements. Non-U.S. holders are urged to consult their own tax advisors regarding their entitlement to benefits under a relevant income tax treaty and the specific methods available to them to satisfy these requirements.

A non-U.S. holder that is eligible for a reduced rate of U.S. withholding tax under an income tax treaty may obtain a refund or credit of any excess amounts withheld by timely filing an appropriate claim for a refund with the IRS.

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Gain on Sale, Exchange or Other Taxable Disposition of Our Common Stock

Subject to the discussions below under the headings Information Reporting and Backup Withholding and FATCA, a non-U.S. holder generally will not be subject to U.S. federal income tax or withholding tax on any gain realized upon such non-U.S. holder's sale, exchange or other disposition of our common stock unless:

the gain is effectively connected with the non-U.S. holder's conduct of a trade or business in the United States, and, if an applicable income tax treaty so provides, the gain is attributable to a permanent establishment or fixed base maintained by the non-U.S. holder in the United States; in these cases, the non-U.S. holder generally will be taxed on a net income basis at the graduated U.S. federal income tax rates and in the manner applicable to U.S. persons (as defined in the Code), and, if the non-U.S. holder is a foreign corporation, an additional branch profits tax described above under the heading Distributions may also apply;

the non-U.S. holder is a non-resident alien present in the United States for 183 days or more in the taxable year of the disposition and certain other requirements are met, in which case the non-U.S. holder will be subject to a 30% tax (or such lower rate as may be specified by an applicable income tax treaty between the United States and such holder's country of residence) on the net gain derived from the disposition, which may be offset by certain U.S.-source capital losses of the non-U.S. holder, if any; or

we are or have been, at any time during the five-year period preceding such disposition (or the non-U.S. holder's holding period, if shorter) a U.S. real property holding corporation unless our common stock is regularly traded on an established securities market and the non-U.S. holder held no more than 5% of our outstanding common stock, directly or indirectly, during the shorter of the five-year period ending on the date of the disposition or the period that the non-U.S. holder held our common stock. Generally, a corporation is a U.S. real property holding corporation if the fair market value of its U.S. real property interests (as defined in the Code and applicable regulations) equals or exceeds 50% of the sum of the fair market value of its worldwide real property interests plus its other assets used or held for use in a trade or business. Although there can be no assurance, we believe that we are not currently, and we do not anticipate becoming, a U.S. real property holding corporation for U.S. federal income tax purposes. If we are a U.S. real property holding corporation and either our common stock is not regularly traded on an established securities market or a non-U.S. holder holds more than 5% of our outstanding common stock, directly or indirectly, during the applicable testing period, such non-U.S. holder's gain on the disposition of shares of our common stock generally will be taxed in the same manner as gain that is effectively connected with the conduct of a U.S. trade or business, except that the branch profits tax generally will not apply.

U.S. Federal Estate Tax

Shares of our common stock that are owned or treated as owned by an individual who is not a citizen or resident of the United States (as specially defined for U.S. federal estate tax purposes) at the time of death are considered U.S. situs assets and will be included in the individual's gross estate for U.S. federal estate tax purposes. Such shares, therefore, may be subject to U.S. federal estate tax, unless an applicable estate tax or other treaty provides otherwise.

Information Reporting and Backup Withholding

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We must report annually to the IRS and to each non-U.S. holder the gross amount of the distributions on our common stock paid to such holder and the tax withheld, if any, with respect to such distributions. Non-U.S. holders generally will have to comply with specific certification procedures to establish that the holder is not a U.S. person (as defined in the Code) in order to avoid backup withholding at the applicable rate with respect to dividends on our common stock. Generally, a holder will comply with such procedures if it provides a properly executed IRS Form W-8BEN or W-8BEN-E (or other applicable Form W-8), or otherwise meets documentary

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evidence requirements for establishing that it is a non-U.S. holder, or otherwise establishes an exemption. Dividends paid to non-U.S. holders subject to withholding of U.S. federal income tax, as described above under Distributions, will generally be exempt from U.S. backup withholding.

Information reporting and backup withholding generally will apply to the proceeds of a disposition of our common stock by a non-U.S. holder effected by or through the U.S. office of any broker, U.S. or non-U.S., unless the holder certifies its status as a non-U.S. holder and satisfies certain other requirements, or otherwise establishes an exemption. Generally, information reporting and backup withholding will not apply to a payment of disposition proceeds to a non-U.S. holder where the transaction is effected outside the United States through a non-U.S. office of a broker. However, for information reporting purposes, dispositions effected through a non-U.S. office of a broker with substantial U.S. ownership or operations generally will be treated in a manner similar to dispositions effected through a U.S. office of a broker. Non-U.S. holders should consult their own tax advisors regarding the application of the information reporting and backup withholding rules to them.

Copies of information returns may be made available to the tax authorities of the country in which the non-U.S. holder resides or is incorporated under the provisions of a specific treaty or agreement.

Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules from a payment to a non-U.S. holder can be refunded or credited against the non-U.S. holder's U.S. federal income tax liability, if any, provided that an appropriate claim is timely filed with the IRS.

FATCA

Provisions of the Code commonly known as the Foreign Account Tax Compliance Act (FATCA), generally impose a 30% withholding tax on dividends on, and gross proceeds from the sale or disposition of, our common stock if paid to a foreign entity unless (1) if the foreign entity is a foreign financial institution, the foreign entity undertakes certain due diligence, reporting, withholding, and certification obligations, (2) if the foreign entity is not a foreign financial institution, the foreign entity identifies certain of its U.S. investors, or (iii) the foreign entity is otherwise exempt under FATCA.

Withholding under FATCA generally (1) applies to payments of dividends on our common stock, and (2) will apply to payments of gross proceeds from a sale or other disposition of our common stock made after December 31, 2018. An intergovernmental agreement between the United States and an applicable foreign country may modify the requirements described in this section. Under certain circumstances, a non-U.S. holder may be eligible for refunds or credits of the tax. Non-U.S. holders should consult their own tax advisors regarding the possible implications of FATCA on their investment in our common stock, including, without limitation, the process and deadlines for meeting the applicable requirements to prevent the imposition of the 30% withholding tax under FATCA.

THE PRECEDING DISCUSSION OF MATERIAL U.S. TAX CONSIDERATIONS IS FOR INFORMATIONAL PURPOSES ONLY. IT IS NOT LEGAL OR TAX ADVICE. PROSPECTIVE INVESTORS SHOULD CONSULT THEIR OWN TAX ADVISORS REGARDING THE PARTICULAR U.S. FEDERAL, STATE, LOCAL AND NON-U.S. TAX CONSEQUENCES OF PURCHASING, HOLDING AND DISPOSING OF OUR COMMON STOCK, INCLUDING THE CONSEQUENCES OF ANY PROPOSED CHANGES IN APPLICABLE LAWS.

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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, 2017, and the effectiveness of our internal control over financial reporting as of December 31, 2017, 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 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. 001-34655) 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 filing of the 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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Annual Report on Form 10-K for the year ended December 31, 2017, including the information specifically incorporated by reference into the Annual Report on Form 10-K from our Definitive Proxy Statement on Schedule 14A, filed with the SEC on April 27, 2018;

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- (2) Quarterly Report on Form 10-Q for the quarter ended March 31, 2018;
- (3) Current Reports on Form 8-K filed on January 2, 2018; February 2, 2018; February 16, 2018; June 21, 2018; July 3, 2018; and July 16, 2018; and

(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. A statement contained in a document incorporated by reference into this prospectus shall be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus or in any other subsequently filed document which is also incorporated in this prospectus modifies or replaces such statement. Any statements so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus.

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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The following table sets forth the various expenses to be incurred in connection with the sale and distribution of the securities being registered hereby, all of which will be borne by us. All amounts shown are estimates except the SEC registration fee.

| | |
|---------------------------------|------------------|
| SEC registration fee | \$ 747 |
| Legal fees and expenses | \$ 75,000 |
| Accounting fees and expenses | \$ 5,000 |
| Warrant Agent fees and expenses | \$ 10,000 |
| Printing fees and expenses | \$ 5,000 |
| Miscellaneous expenses | \$ 0 |
| Total expenses | \$ 95,747 |

Item 15. Indemnification of Directors and Officers.

Section 145 of the DGCL provides, generally, that a corporation shall have the power to indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding (except actions by or in the right of the corporation) by reason of the fact that such person is or was a director, officer, employee or agent of the corporation against all expenses, judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the corporation and, with respect to any criminal action or proceeding, had no reasonable cause to believe his or her conduct was unlawful. A corporation may similarly indemnify such person for expenses actually and reasonably incurred by such person in connection with the defense or settlement of any action or suit by or in the right of the corporation, *provided* that such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the corporation, and, in the case of claims, issues and matters as to which such person shall have been adjudged liable to the corporation, *provided* that a court shall have determined, upon application, that, despite the adjudication of liability but in view of all of the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses which such court shall deem proper.

Section 102(b)(7) of the DGCL provides, generally, that our Certificate of Incorporation may contain a provision eliminating or limiting the personal liability of a director to the corporation or its stockholders for monetary damages for breach of fiduciary duty as a director, *provided* that such provision may not eliminate or limit the liability of a director (i) for any breach of the director's duty of loyalty to the corporation or its stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) under section 174 of the DGCL, or (iv) for any transaction from which the director derived an improper personal benefit. No such provision may eliminate or limit the liability of a director for any act or omission occurring prior to the date when such provision became effective.

Our Certificate of Incorporation provides that we will indemnify each person who was or is a party or threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of us) by reason of the fact that he or she is or was, or has agreed to become, our director or officer, or is or was serving, or has agreed to serve, at our request as a director, officer, partner, employee or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise (including any employee benefit plan) (all such persons being referred to as an Indemnitee), or by reason of any action alleged to have been taken or omitted in

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such capacity, against all expenses (including attorneys' fees), liabilities, losses judgments, fines (including excise taxes and penalties arising under the Employee Retirement Income Security Act of 1974), and amounts paid in settlement actually and reasonably incurred by the Indemnitee or on his or her behalf in connection with such action, suit or proceeding and any appeal therefrom, if such Indemnitee acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interests, and, with respect to any criminal action or proceeding, he or she had no reasonable cause to believe his or her conduct was unlawful. The termination of any action, suit or proceeding by judgment, order, settlement, conviction or upon a plea of nolo contendere or its equivalent, shall not, of itself, create a presumption that the Indemnitee did not act in good faith and in a manner which the Indemnitee reasonably believed to be in, or not opposed to, our best interests, and, with respect to any criminal action or proceeding, had reasonable cause to believe that his or her conduct was unlawful.

Our Certificate of Incorporation also provides that we will indemnify any Indemnitee who was or is a party to, or threatened to be made a party to any threatened, pending or completed action or suit by or in the right of us to procure a judgment in our favor by reason of the fact that the Indemnitee is or was, or has agreed to become, our director or officer, or is or was serving, or has agreed to serve, at our request as a director, officer, partner, employee or trustee of, or in a similar capacity with, another corporation, partnership, joint venture, trust or other enterprise (including any employee benefit plan), or by reason of any action alleged to have been taken or omitted in such capacity, against all expenses (including attorneys' fees) and, to the extent permitted by law, amounts paid in settlement actually and reasonably incurred in connection with such action, suit or proceeding, and any appeal therefrom, if the Indemnitee acted in good faith and in a manner he or she reasonably believed to be in, or not opposed to, our best interests, except that no indemnification shall be made with respect to any claim, issue or matter as to which such person shall have been adjudged to be liable to us, unless and only to the extent that a court determines that, despite such adjudication but in view of all of the circumstances, he or she is entitled to indemnification for such expenses. Notwithstanding the foregoing, to the extent that any Indemnitee has been successful, on the merits or otherwise, he or she will be indemnified by us against all expenses (including attorneys' fees) actually and reasonably incurred by him or her or on his or her behalf in connection therewith. If we don't assume the defense, expenses must be advanced to an Indemnitee under certain circumstances.

We maintain a general liability insurance policy which covers certain liabilities of our directors and officers arising out of claims based on acts or omissions in their capacities as directors or officers.

Certain of our non-employee directors may, through their relationships with their employers, be insured and/or indemnified against certain liabilities in their capacity as members of our board of directors.

Item 16. Exhibits

The exhibits listed in the Exhibit Index immediately preceding the required signatures to this registration statement are filed as part of this registration statement on Form S-3.

Item 17. Undertakings.

The undersigned registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act;

(ii) To reflect in the prospectus any facts or events arising after the effective date of this registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in this registration statement.

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Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the SEC pursuant to Rule 424(b) if, in the aggregate, the changes in the volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the Calculation of Registration Fee table in the effective registration statement; and

(iii) To include any material information with respect to the plan of distribution not previously disclosed in this registration statement or any material change to such information in this registration statement;

provided, however, that paragraphs (1)(i), (1)(ii) and (1)(iii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the SEC by the registrant pursuant to Section 13 or Section 15(d) of the Exchange Act, that are incorporated by reference in this registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of this registration statement.

(2) That, for the purposes of determining any liability under the Securities Act, each post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at the time shall be deemed to be the initial *bona fide* offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of the registrant's annual report pursuant to Section 13(a) or 15(d) of the Exchange Act (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in this registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant pursuant to the indemnification provisions described herein, or otherwise, the registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

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EXHIBIT INDEX

| EXHIBIT NUMBER | DESCRIPTION |
|-------------------|--|
| 4.1 | <u>Restated Certificate of Incorporation of the Registrant, as amended (incorporated by reference to Exhibit 3.1 to the Registrant's Quarterly Report on Form 10-Q filed on August 9, 2017 (File No. 001-34655)).</u> |
| 4.2 | <u>Second Amended and Restated By-laws of the Registrant (incorporated by reference to Exhibit 3.5 to the Registrant's registration statement on Form S-1/A filed on February 8, 2010 (File No. 333-163778)).</u> |
| 4.3 | <u>Specimen Stock Certificate evidencing the shares of common stock (incorporated by reference to Exhibit 4.1 to the Registrant's registration statement on Form S-1/A filed on March 9, 2010 (File No. 333-163778)).</u> |
| 4.4 | <u>Warrant Agreement, dated July 16, 2018, among the Registrant and Computershare Inc. and Computershare Trust Company, N.A., jointly as Warrant Agent, including the exhibits thereto (incorporated by reference to Exhibit 4.1 to our Current Report on Form 8-K filed on July 16, 2018 (File No. 001-34655)).</u> |
| 5.1* | <u>Opinion of Wilmer Cutler Pickering Hale and Dorr LLP.</u> |
| 23.1* | <u>Consent of Ernst & Young LLP.</u> |
| 23.2* | <u>Consent of Wilmer Cutler Pickering Hale and Dorr LLP, included in Exhibit 5.1 filed herewith.</u> |
| 24.1* | <u>Power of Attorney (included on the signature page to this registration statement).</u> |

* Filed herewith.

Table of Contents**SIGNATURES**

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Cambridge, Commonwealth of Massachusetts, on July 16, 2018.

AVEO PHARMACEUTICALS, INC.

By: /s/ Michael Bailey

Name: Michael Bailey

Title: President & Chief Executive Officer

SIGNATURES AND POWER OF ATTORNEY

We, the undersigned officers and directors of AVEO Pharmaceuticals, Inc., hereby severally constitute and appoint Michael Bailey and Matthew Dallas, and either of them singly, our true and lawful attorneys with full power to either of them, and to either of them singly, to sign for us and in our names in the capacities indicated below the registration statement on Form S-3 filed herewith and any and all pre-effective and post-effective amendments to said registration statement and generally to do all such things in our name and behalf in our capacities as officers and directors to enable AVEO Pharmaceuticals, Inc. to comply with the provisions of the Securities Act of 1933, as amended, and all requirements of the Securities and Exchange Commission, hereby ratifying and confirming our signatures as they may be signed by our said attorneys, or either of them, to said registration statement and any and all amendments thereto.

Pursuant to the requirements of the Securities Act of 1933, as amended, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

| Signature | Title | Date |
|--|---|---------------|
| /s/ Michael Bailey Michael Bailey | President, Chief Executive Officer and Director (<i>Principal Executive Officer</i>) | July 16, 2018 |
| /s/ Matthew Dallas Matthew Dallas | Chief Financial Officer (<i>Principal Financial and Accounting Officer</i>) | July 16, 2018 |
| /s/ Kenneth M. Bate Kenneth M. Bate | Director | July 16, 2018 |
| /s/ Anthony B. Evnin Anthony B. Evnin | Director | July 16, 2018 |

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| | | |
|---------------------|----------|---------------|
| /s/ John H. Johnson | Director | July 16, 2018 |
| John H. Johnson | | |
| /s/ Robert C. Young | Director | July 16, 2018 |
| Robert C. Young | | |

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