Avinger Inc Form S-1/A February 12, 2018

Use these links to rapidly review the document <u>TABLE OF CONTENTS</u> <u>INDEX TO FINANCIAL STATEMENTS</u> <u>INDEX TO UNAUDITED FINANCIAL STATEMENTS</u>

Table of Contents

As filed with the Securities and Exchange Commission on February 12, 2018

Registration No. 333-222517

# UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

AMENDMENT NO. 2

# то FORM S-1

REGISTRATION STATEMENT Under The Securities Act of 1933

# AVINGER, INC.

(Exact name of Registrant as specified in its charter)

Delaware

(State or other jurisdiction of incorporation or organization)

3841 (Primary Standard Industrial Classification Code Number) 400 Chesapeake Drive

Redwood City, California 94063

20-8873453 (I.R.S. Employer Identification Number)

(650) 241-7900 (Address, including zip code, and telephone number, including area code, of Registrant's principal executive offices)

> Jeffrey M. Soinski Chief Executive Officer Avinger, Inc. 400 Chesapeake Drive Redwood City, CA 94063 (650) 241-7900

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to: Philip H. Oettinger Wilson Sonsini Goodrich & Rosati Professional Corporation 650 Page Mill Road Palo Alto, California 94304 (650) 493-9300

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

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

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. o

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. o

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a 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 o	Accelerated filer o	Non-accelerated filer o	Smaller reporting company ý
		(Do not check if a	
		smaller reporting	Emerging growth company ý
		company)	
n emerging growth company indi	rate by check mark if the registr	ant has elected not to use the extended	d transition period for complying with an

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.  $\circ$ 

#### CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered(1)	Proposed Maximum Aggregate Offering Price(1)	Amount of Registration Fee
Series B Convertible Preferred Stock	\$15,000,000	\$1,867.50
Common Stock issuable upon conversion of Series B Convertible Preferred Stock(2)		
Warrants to purchase common stock(2)		
Common stock issuable upon exercise of Series 1 Warrants and Series 2 Warrants	\$29,948,400	\$3,728.58
Total	\$44,948,400	\$5,596.08(3)

(1)

Estimated solely for the purpose of computing the amount of the registration fee pursuant to Rule 457(o) under the Securities Act of 1933, as amended (the "Securities Act").

(2)

No separate fee is required pursuant to Rule 457(i) under the Securities Act.

The Registrant previously paid \$4,290.48 of the registration fee with the prior filing of this Registration Statement.

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.

The information in this preliminary 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 declared effective. This preliminary prospectus is not an offer to sell these securities and we are not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.

Subject to Completion, dated February 12, 2018

# Avinger, Inc.

# 15,000 Shares of Series B Convertible Preferred Stock (and 3,540,000 Shares of Common Stock Underlying the Series B Convertible Preferred Stock) Warrants to Purchase up to 7,080,000 Shares of Common Stock (and 7,080,000 Shares of Common Stock Issuable Upon Exercise of Warrants)

We are offering 15,000 shares of Series B convertible preferred stock, and 7,080,000 warrants each exercisable for one share of our common stock, which number of warrants equals 200% of the number of shares of our common stock issuable upon conversion of the shares of Series B convertible preferred stock at the conversion price, at an exercise price per share equal to \$ . This prospectus also covers up to 3,540,000 shares of common stock issuable upon conversion of the warrants.

Each share of Series B convertible preferred stock will be sold with one warrant that expires on the seventh anniversary of the date of issuance to purchase up to 236 shares of common stock (referred to as "Series 1 warrants") and one warrant that expires on the earlier of (i) the seventh anniversary of the date of issuance or (ii) the 60th calendar day following the receipt and announcement of FDA clearance of our Pantheris below-the-knee ("BTK") device (or the same or similar product with a different name) to purchase up to 236 shares of common stock; provided, however, if at any time during such 60-day period the volume weighted average price for any trading day is less than the then effective exercise price, the termination date shall be extended to the seven year anniversary of the initial exercise date (referred to as "Series 2 warrants"), and collectively will be sold, at the public offering price of \$1,000 per share of Series B convertible preferred stock and related warrants are immediately separable and will be issued separately. Subject to certain ownership limitations, the Series B convertible preferred stock is convertible at any time at the option of the holder into shares of our common stock at an initial assumed conversion price per share equal to \$4.23. Subject to certain ownership limitations, the warrants are immediately exercisable.

For a more detailed description of the Series B convertible preferred stock, see the section entitled "Description of Securities We Are Offering Preferred Stock" beginning on page 104. For a more detailed description of the warrants, see the section entitled "Description of Securities We Are Offering Series 1 and Series 2 Warrants Being Offered" beginning on page 106 of this prospectus. For a more detailed description of our common stock, see the section entitled "Description of Securities We Are Offering Common Stock" beginning on page 103 of this prospectus. We refer to the Series B convertible preferred stock issued hereunder, the warrants to purchase common stock issued hereunder and the shares of common stock issuable upon conversion of the Series B convertible preferred stock and upon exercise of the warrants issued hereunder, collectively, as the securities.

Our common stock is listed on the Nasdaq Capital Market under the symbol "AVGR." On February 7, 2018, the last reported sales price of our common stock was \$4.23 per share. We do not intend to apply for listing of the warrants offered hereby or the shares of Series B Preferred Stock on any securities exchange or trading system. All share amounts in this prospectus are based on an assumed conversion price of \$4.23 per share of common stock, the last reported sales of our common stock on February 7, 2018.

We are an "emerging growth company" as defined under the federal securities laws. Investing in our securities involves a high degree of risk. Please see the section entitled "Risk Factors" starting on page 13 of this prospectus to read about risks you should

consider carefully before making any investment in these securities.

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.

Per Share of Series B Convertible Preferred Stock and Accompanying Warrants

Total

Public Offering Price(1)

Underwriting Discount(2)

Proceeds, before expenses, to Avinger, Inc.

(1)

The public offering price and underwriting discount corresponds to a public offering price per share of Series B Preferred Stock of \$ , a public offering price per Series 1 warrant of \$ (or \$ for Series 1 warrants to purchase 236 shares of common stock), and a public offering price per Series 2 warrant of \$ (or \$ for Series 2 warrants to purchase 236 shares of common stock).

(2)

We have also agreed to reimburse the underwriter for certain expenses. See "Underwriting."

# Ladenburg Thalmann

The date of this prospectus is

, 2018

#### TABLE OF CONTENTS

Prospectus Summary1Risk Factors13Cautionary Notes Regarding Forward-Looking Statements48Market, Industry and Other Data50Use of Proceeds50Price Range of Our Common Stock and Dividend Policy51Capitalization52Dilution54Management's Discussion and Analysis of Financial Condition and Results of Operations56Business67Management85
Cautionary Notes Regarding Forward-Looking Statements48Market, Industry and Other Data50Use of Proceeds50Price Range of Our Common Stock and Dividend Policy51Capitalization52Dilution54Management's Discussion and Analysis of Financial Condition and Results of Operations56Business67
Cautionary Notes Regarding Forward-Looking Statements48Market, Industry and Other Data50Use of Proceeds50Price Range of Our Common Stock and Dividend Policy51Capitalization52Dilution54Management's Discussion and Analysis of Financial Condition and Results of Operations56Business67
Market, Industry and Other Data   50     Use of Proceeds   50     Price Range of Our Common Stock and Dividend Policy   51     Capitalization   52     Dilution   54     Management's Discussion and Analysis of Financial Condition and Results of Operations   56     Business   67
Use of Proceeds     50       Price Range of Our Common Stock and Dividend Policy     51       Capitalization     52       Dilution     54       Management's Discussion and Analysis of Financial Condition and Results of Operations     56       Business     67
Price Range of Our Common Stock and Dividend Policy     51       Capitalization     52       Dilution     54       Management's Discussion and Analysis of Financial Condition and Results of Operations     56       Business     67
Capitalization     52       Dilution     54       Management's Discussion and Analysis of Financial Condition and Results of Operations     56       Business     67
Dilution     54       Management's Discussion and Analysis of Financial Condition and Results of Operations     56       Business     67
Management's Discussion and Analysis of Financial Condition and Results of Operations       56         Business       67
Management 85
Management
Executive Compensation 95
Security Ownership of Certain Beneficial Owners and Management 101
Description of Securities We Are Offering 103
Underwriting <u>111</u>
Certain Material U.S. Federal Income Tax Considerations 114
Legal Matters 120
Experts 120
Where You Can Find More Information 120

You should rely only on the information contained in this prospectus or contained in any free writing prospectus prepared by or on behalf of us. Neither we nor the underwriters have authorized anyone to provide any information or to make any representations other than those contained in this prospectus or in any free writing prospectuses prepared by or on behalf of us or to which we have referred you. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. This prospectus is an offer to sell only the securities offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. The information contained in this prospectus is accurate only as of its date regardless of the time of delivery of this prospectus or of any sale of securities.

You should also read and consider the information in the documents to which we have referred you under the captions "Where You Can Find More Information" and "Information Incorporated by Reference" in this prospectus.

For investors outside the United States, neither we nor the underwriters have done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the U.S. Persons who come into possession of this prospectus and any free writing prospectus related to this offering in jurisdictions outside the U.S. are required to inform themselves about and to observe any restrictions as to this offering and the distribution of this prospectus and any such free writing prospectus applicable to that jurisdiction.

i

#### PROSPECTUS SUMMARY

This summary highlights selected information contained in greater detail elsewhere in this prospectus or incorporated by reference herein and does not contain all of the information that you should consider in making your investment decision. Before investing in our securities, you should carefully read the entire prospectus, including "Risk Factors" beginning on page 13, as well as the other information in this prospectus and other information incorporated by reference herein. As used in this prospectus, references to "we," "our," "us" and "Avinger" refer to Avinger, Inc. unless the context requires otherwise. This prospectus includes trademarks, service marks and trade names owned by us or other companies. All trademarks, service marks and trade names included in this prospectus are the property of their respective owners.

#### **Company Overview**

We are a commercial-stage medical device company that designs, manufactures and sells image-guided, catheter-based systems that are used by physicians to treat patients with peripheral artery disease, or PAD. Patients with PAD have a build-up of plaque in the arteries that supply blood to areas away from the heart, particularly the pelvis and legs. Our mission is to significantly improve the treatment of vascular disease through the introduction of products based on our Lumivascular platform, the only intravascular image-guided system available in this market. We manufacture and sell a suite of products in the United States and select international markets. Our current products include our Lightbox imaging console, the Ocelot family of catheters, which are designed to allow physicians to penetrate a total blockage in an artery, known as a chronic total occlusion, or CTO, and Pantheris, our image-guided atherectomy device which is designed to allow physicians to precisely remove arterial plaque in PAD patients. In October 2015 we received 510(k) clearance from the U.S. Food and Drug Administration, or FDA, for commercialization of Pantheris, and we received an additional 510(k) clearance for an enhanced version of Pantheris in March 2016 and commenced sales of Pantheris in the United States and select European countries promptly thereafter. We also offer the Wildcat and Kittycat 2 catheters, which are used for crossing CTOs but do not contain on-board imaging technology.

Current treatments for PAD, including bypass surgery, can be costly and may result in complications, high levels of post-surgery pain and lengthy hospital stays and recovery times. Minimally invasive, or endovascular, treatments for PAD include stenting, angioplasty, and atherectomy, which is the use of a catheter-based device for the removal of plaque. These treatments all have limitations in their safety or efficacy profiles and frequently result in recurrence of the disease, also known as restenosis. We believe one of the main contributing factors to high restenosis rates for PAD patients treated with endovascular technologies is the amount of vascular injury that occurs during an intervention. Specifically, these treatments often disrupt the membrane between the outermost layers of the artery, which is referred to as the external elastic lamina, or EEL.

Our Lumivascular platform is the only technology that offers real-time visualization of the inside of the artery during PAD treatment through the use of optical coherence tomography, or OCT, a high resolution, light-based, radiation-free imaging technology. Our Lumivascular platform provides physicians with real-time OCT images from the inside of an artery, and we believe Ocelot and Pantheris are the first products to offer intravascular visualization during CTO crossing and atherectomy, respectively. We believe this approach will significantly improve patient outcomes by providing physicians with a clearer picture of the artery using radiation-free image guidance during treatment, enabling them to better differentiate between plaque and healthy arterial structures. Our Lumivascular platform is designed to improve patient safety by enabling physicians to direct treatment towards the plaque, while avoiding damage to healthy portions of the artery.

During the first quarter of 2015, we completed enrollment of patients in VISION, a clinical trial designed to support our August 2015 510(k) filing with the FDA for our Pantheris atherectomy device. VISION was designed to evaluate the safety and efficacy of Pantheris to perform atherectomy using intravascular imaging and successfully achieved all primary and secondary safety and efficacy endpoints. We believe the data from VISION allows us to demonstrate that avoiding damage to healthy arterial structures, and in particular disruption of the external elastic lamina, which is the membrane between the outermost layers of the artery, reduces the likelihood of restenosis, or re-narrowing, of the diseased artery. Although the original VISION study protocol was not designed to follow patients beyond six months, we have worked with 18 of the 20 VISION sites to re-solicit consent from previous clinical trial patients in order to evaluate patient outcomes through 12 and 24 months following initial treatment. Data collection for the patients from participating sites was completed in May 2017, and we released the final 12 and 24-month results for a total of 89 patients in July 2017. We commenced commercialization of Pantheris as part of our Lumivascular platform in the United States and in select international markets in March 2016, after obtaining the required marketing authorizations. During the fourth quarter of 2017, we began enrolling patients in INSIGHT, a clinical trial designed to support a filing with the FDA to expand the indication for our Pantheris atherectomy device to include in-stent restenosis.

Name	Clinical Indication	Regulatory Status	Original Clearance Date
NEXT GENERATION PRODUCTS	Indication	Regulatory Status	Clear ance Date
Pantheris 3.0	Atherectomy	FDA 510(k) submitted	
Pantheris BTK	Atherectomy	FDA 510(k) planned	
PRODUCTS			
Lightbox(1)	OCT Imaging	FDA Cleared	November 2012
		CE Mark	September 2011
Pantheris 8F	Atherectomy	FDA Cleared	October 2015
		CE Mark	June 2015
Pantheris 7F	Atherectomy	FDA Cleared	March 2016
		CE Mark	June 2015
Ocelot(2)	CTO Crossing	FDA Cleared	November 2012
		CE Mark	September 2011
Ocelot MVRX(2)	CTO Crossing	FDA Cleared	December 2012
Ocelot PIXL(2)	CTO Crossing	FDA Cleared	December 2012
		CE Mark	October 2012

We are developing two next-generation versions of our Pantheris atherectomy device, Pantheris 3.0 and a lower profile Pantheris, that we believe represent significant improvements over our existing

#### Table of Contents

product. Pantheris 3.0 includes new features and design improvements to the handle, shaft, balloon and nose cone that we believe will improve usability and reliability, while the lower profile Pantheris has a smaller diameter and longer length that we believe will optimize it for use in smaller vessels and below-the-knee ("BTK") applications. We filed a 510(k) submission for Pantheris 3.0 in December 2017, and we plan to make a 510(k) submission for Pantheris BTK in mid-2018. On January 3, 2017, we announced the successful treatment of the first seven patients to be treated with Pantheris 3.0 by a vascular surgeon in Münster, Germany. The Pantheris 3.0 is available in limited supply for commercial sale in the EU; it is not available commercially in the United States at this time.

We have assembled a team with extensive medical device development and commercialization capabilities. In addition to the commercialization of Pantheris in the United States and select international markets in March 2016, we began commercializing our initial non-Lumivascular platform products in 2009 and introduced our Lumivascular platform products in the United States in late 2012. We generated revenues of \$11.2 million in 2014, \$10.7 million in 2015, \$19.2 million in 2016, and \$8.0 million for the nine months ended September 30, 2017.

#### **Recent Developments**

#### **CRG Debt Conversion**

Concurrently with the pricing of this offering, we expect to enter into an agreement with CRG Partners III L.P. and certain of its affiliated funds (collectively "CRG") pursuant to which CRG will agree to convert \$38.0 million of the outstanding principal amount of the senior secured term loan (plus the back-end fee and prepayment premium applicable thereto) into a newly authorized Series A convertible preferred stock (the "Series A preferred stock"), which would be convertible into our common stock at a price per share equal to the lower of (a) the closing price of our common stock on date of the entry into the underwriting agreement for this offering and (b) the initial Series B preferred stock conversion price. Such conversion of debt (the "CRG Conversion") would be contingent upon the closing of this offering with at least \$12 million in gross equity proceeds (the "Offering").

Under the terms of such agreement, the holders of the Series A preferred stock would be entitled to receive annual accruing dividends at a rate of 8%, payable in additional shares of Series A preferred stock or cash, at our option. The shares of Series A preferred stock would have no voting rights and would rank senior to all other classes and series of our equity in terms of repayment and certain other rights. The Series A preferred stock and any of our common stock issued upon conversion of the Series A preferred stock would be subject to a lockup agreement for one year following the date of the underwriting agreement for this offering. We may be required to file a resale registration statement for the shares of common stock issuable upon the conversion of the Series A preferred stock (the "Conversion Shares") at the request of CRG at any time after 90 days of the CRG Conversion. In

#### Table of Contents

addition, the issuance of Conversion Shares would be subject to shareholder approval if and to the extent they exceed 19.99% of our pre-transaction outstanding common stock. The summary of terms of the Series A preferred stock above is qualified in its entirety by the Certificate of Designation of Series A preferred stock (the "Series A Certificate of Designation") and the related registration rights agreement. Please refer to the Series A Certificate of Designation and the related registration rights agreement for more information on the preferences, rights and limitations of Series A preferred stock, which certificate and agreement are filed as exhibits to the registration statement of which this prospectus forms a part.

In connection with the CRG Conversion, we expect that certain terms in the Term Loan Agreement we had entered into with CRG on September 22, 2015 (the "Loan Agreement") will be amended. The cash payments for interest due on the remaining amount of CRG debt under the Loan Agreement for an additional two year period could be deferred, and we could instead pay the 12.5% interest in the form of payment in kind ("PIK") loans. The interest-only period under the Loan Agreement would be extended to June 30, 2021, and the maturity date of the debt under the Loan Agreement would be extended to June 30, 2023.

#### **2017 Financial Information**

The preliminary 2017 financial information included in this prospectus supplement reflects management's estimates based solely upon information available to us as of the date of this submission and is the responsibility of management. The preliminary financial results presented below are not a comprehensive statement of our financial results for fiscal year 2017. In addition, the preliminary financial results presented above have not been audited, reviewed, or compiled by our independent registered public accountant. Based on our preliminary, unaudited results, we estimate that (i) our total revenue will be within a range of \$9.8 million to \$9.9 million for the year ended December 31, 2017, as compared to \$19.2 million for the year ended December 31, 2016, (ii) our cash and cash equivalents as of December 31, 2017 were \$5.4 million, as compared to \$36.1 million at December 31, 2016 and \$10.2 million as of September 30, 2017.

#### **Reverse Stock Split**

In December 2017 and January 2018, our board of directors and stockholders, respectively, approved a reverse stock split of our shares of common stock at a ratio of between one-for-twenty and one-for-forty, with the exact ratio to be chosen within that range at the discretion of our board of directors. On January 30, 2018, we effected a one-for-40 reverse stock split of our shares of common stock (the "2018 Reverse Stock Split") at the direction of our board of directors. As a result of the 2018 Reverse Stock Split, every forty (40) shares of our common stock outstanding was automatically changed and reclassified into one (1) new share of common stock. Stockholders of fractional shares of common stock otherwise issuable pursuant to the 2018 Reverse Stock Split were paid cash in lieu of such fractional shares. The 2018 Reverse Stock Split did not change the par value of our stock or the number of common shares or preferred shares authorized by our certificate of incorporation. All share and per share amounts in this prospectus have been retroactively adjusted to reflect the 2018 Reverse Stock Split for all periods presented. As of January 31, 2018, we had 877,159 shares of common stock outstanding, as adjusted by the 2018 Reverse Stock Split.

After the completion of this offering, we expect that our board of directors will approve and recommend to our stockholders an increase to the number of shares of common stock reserved for issuance under our 2015 Equity Incentive Plan, or the creation of a new stock incentive plan with additional shares. Shares reserved for issuance under any such plans, if approved by stockholders to the extent required by applicable laws and regulations, may be issued by the board of directors, or a committee of the board of directors, to our employees, consultants and directors, including our current officers and directors. The amount of such increase has not been determined, but could equal up to

#### 4

20% or more of our total number of shares outstanding or issuable after this offering, including shares issuable upon the exercise of options and warrants or conversion of preferred stock into common stock. The final determination of the amount of such increase will be made by the board of directors or a committee thereof and will be subject to stockholder approval to the extent required by applicable laws or regulations. Any issuance of such shares would dilute the ownership of our other stockholders.

#### **Lincoln Park Purchase Agreement**

We entered into a purchase agreement (the "Purchase Agreement") with Lincoln Park Capital Fund, L.P. ("Lincoln Park") on November 3, 2017, pursuant to which Lincoln Park has agreed to purchase from us up to an aggregate of \$15.0 million of our common stock (subject to certain limitations) from time to time over the thirty-month term of the Purchase Agreement. At the time we signed the Purchase Agreement, we issued 23,584 shares of our common stock to Lincoln Park as consideration for its commitment to purchase shares of our common stock under the Purchase Agreement. Our board of directors unanimously approved this transaction in November 2017, and our stockholders approved the issuance under the Purchase Agreement of more than 19.99% of our outstanding common stock at a special meeting of stockholders on January 29, 2018. The Purchase Agreement may be terminated by us at any time at its discretion without any cost to us. As of the date of this prospectus, we have sold an aggregate of 65,000 shares of our common stock under the Purchase Agreement for approximately \$0.5 million of gross proceeds.

#### **Nasdaq Compliance**

On April 20, 2017, we received a letter from the Listing Qualifications Department of the NASDAQ Stock Market ("Nasdaq") notifying us that we were not in compliance with Nasdaq Listing Rule 5450(b)(2)(A) as the market value of the Company's listed securities, or MVLS, was below the minimum \$50 million for the previous 30 consecutive business days. This letter also informed us that we were not in compliance with Nasdaq Listing Rule 5450(b)(3)(A), as we did not have total assets and total revenue of at least \$50 million each for the most recently completed fiscal year. We did not regain compliance with these rules in the 180-day period ended October 17, 2017.

In addition, on May 24, 2017, we received a second letter from the Listing Qualifications Department of Nasdaq notifying us that we were not in compliance with Nasdaq Listing Rule 5450(a)(1), as the minimum bid price for our listed securities was less than \$1 for the previous 30 consecutive business days. This letter also informed us that we were not in compliance with Nasdaq Listing Rule 5450(b)(2)(C), as the market value of our publicly held shares, or MVPHS, was less than \$15 million for the previous 30 consecutive business days. We had a period of 180 calendar days, or until November 20, 2017, to regain compliance with these rules. To regain compliance, during the 180-day period, the bid price of our common stock must close at \$1 or more and/or our MVPHS must close at \$15 million or more, in each case for a minimum of ten consecutive business days. We did not regain compliance with these rules in the prescribed periods.

On October 24, 2017, we received another letter from Nasdaq indicating that, based upon non-compliance with the MVLS requirement, our securities would be subject to delisting from Nasdaq unless we timely requested a hearing before a Nasdaq Hearings Panel, or the Panel. We requested a hearing before the Panel and were granted a hearing date in January 2018, which stayed any delisting action by Nasdaq at least pending the ultimate outcome of the hearing and any extension granted by the Panel.

On January 11, 2018, management presented to the Panel regarding the actions we have taken and plans to take to regain compliance, including raising additional equity capital through this Registration Statement and the implementation of the 2018 Reverse Stock Split. On January 17, 2018, we received formal notification from Nasdaq that the Panel had determined to grant the Company's request for the transfer of its listing from the Nasdaq Global Market to the Nasdaq Capital Market, pursuant to an

#### Table of Contents

extension through March 31, 2018 to evidence compliance with all applicable requirements for continued listing on Nasdaq. We are taking definitive steps to timely evidence compliance with the terms of the Panel's decision.

There can be no guarantee that we will be able to regain compliance with the stockholders' equity requirement or minimum bid requirement prior to being delisted, or at all. Any failure to maintain the Nasdaq listing of our common stock could have a material adverse effect on the secondary trading of shares of our common stock.

#### **Risks Associated with Our Business**

Our business is subject to numerous risks, as more fully described in the section entitled "Risk Factors" immediately following this prospectus summary. These risks include, among others:

We may not be able to secure additional financing on favorable terms, or at all, to meet our future capital needs and our failure to obtain additional financing when needed could force us to delay, reduce or eliminate our product development programs and commercialization efforts or cause us to become insolvent;

We have a significant amount of debt, which may affect our ability to operate our business and secure additional financing in the future;

Nasdaq may delist our securities from its exchange, which could harm our business and limit our stockholders' liquidity;

Our quarterly and annual results may fluctuate significantly, may not fully reflect the underlying performance of our business and may result in decreases in the price of our common stock;

We have a history of net losses and we may not be able to achieve or sustain profitability;

Our limited commercialization experience and number of approved products makes it difficult to evaluate our current business, predict our future prospects, assess the long-term performance of our products, and forecast our financial performance;

Our success depends in large part on a limited number of products, particularly Pantheris, all of which have a limited commercial history. If these products fail to gain, or lose, market acceptance, our business will suffer;

We rely heavily on our sales professionals to market and sell our products. If we are unable to hire, effectively train, manage, improve the productivity of, and retain our sales professionals, our business will be harmed, which would impair our future revenue and profitability. Reductions in the size of our sales force may adversely impact our business;

If our revenue does not improve, or if our cost of revenue and/or operating expenses increase by a greater percentage than our revenue, our gross margins and operating margins may be adversely impacted, our loss from operations will increase, and our cash used in operating activities will increase, which could reduce our assets and have a material adverse effect on our stock price;

We may in the future be a party to intellectual property litigation or administrative proceedings that could be costly and could interfere with our ability to sell our Lumivascular platform products;

Management will have broad discretion as to the use of proceeds from this offering and we may use the net proceeds in ways with which you may disagree;

The offering price will be set by our board of directors and does not necessarily indicate the actual or market value of our common stock;

The Series B Preferred Stock and the warrants are unlisted securities and there is no public market for these securities; and

The warrants may not have any value.

#### **Company Information**

We were incorporated in Delaware on March 8, 2007. Our principal executive offices are located at 400 Chesapeake Drive, Redwood City, CA 94063, and our telephone number is (650) 241-7900. Our website address is www.avinger.com. The information on, or that may be accessed through, our website is not incorporated by reference into this prospectus and should not be considered a part of this prospectus.

"Avinger," "Pantheris" and "Lumivascular" are trademarks of our company. Our logo and our other trade names, trademarks and service marks appearing in this prospectus supplement and accompanying prospectus are our property. Other trade names, trademarks and service marks appearing in this prospectus are the property of their respective owners. Solely for convenience, our trademarks and tradenames referred to in this prospectus and accompanying prospectus appear without the symbol, but those references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights, or the right of the applicable licensor to these trademarks and tradenames.

#### **Implications of Being an Emerging Growth Company**

We qualify as an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. An emerging growth company may take advantage of relief from certain reporting requirements and other burdens that are otherwise applicable generally to public companies. As an emerging growth company:

we have availed ourselves of the exemption from the requirement to obtain an attestation and report from our auditors on the assessment of our internal control over financial reporting pursuant to the Sarbanes-Oxley Act of 2002;

we will provide less extensive disclosure about our executive compensation arrangements; and

we will not require shareholder non-binding advisory votes on executive compensation or golden parachute arrangements.

We may use these provisions until the last day of our fiscal year following the fifth anniversary of our initial public offering, or December 31, 2020. However, if certain events occur prior to the end of such five-year period, including if we become a "large accelerated filer," our annual gross revenues exceed \$1.07 billion or we issue more than \$1.0 billion of non-convertible debt in any three-year period, we will cease to be an emerging growth company prior to the end of such five-year period. We may choose to take advantage of some but not all of these reduced burdens. To the extent that we take advantage of these reduced burdens, the information that we provide stockholders may be different than you might obtain from other public companies in which you hold equity interests.

#### **Available Information**

We file electronically with the Securities and Exchange Commission, or SEC, our annual reports on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K pursuant to Section 13(a) or 15(d) of the Exchange Act. We make available on our website at www.avinger.com, free of charge, copies of these reports, as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC.

The public may read or copy any materials we file with the SEC at the SEC's Public Reference Room at 100 F Street NE, Washington, D.C. 20549. The public may obtain information on the

#### Table of Contents

operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC maintains a website that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC. The address of that website is www.sec.gov.

The information in or accessible through the websites referred to above are not incorporated into, and are not considered part of, this filing. Further, our references to the URLs for these websites are intended to be inactive textual references only.

# THE OFFERING

Securities offered by us	We are offering 15,000 shares of Series B convertible preferred stock. Each share will be accompanied by (a) Series 1 warrants to purchase a number of shares of common stock equal to 100% of the shares of common stock initially issuable upon conversion of the Series B convertible preferred stock, as described below, and (b) Series 2 warrants to purchase a number of shares of common stock equal to 100% of the shares of common stock initially issuable upon conversion of the Series B convertible preferred stock, as described below. This prospectus also relates to the offering of the shares of common stock issuable upon conversion of the Series B convertible preferred stock and exercise of the Series 1 warrants and Series 2 warrants.
Description of Series B preferred stock	The Series B preferred stock has a liquidation preference of \$0.001 per share, full ratchet price based anti-dilution protection, and is subject to certain ownership limitations. See the section entitled "Description of Securities We Are Offering Preferred Stock" beginning on page 104. This prospectus also relates to the offering of shares of common stock issuable upon conversion of the Series B preferred stock at its initial conversion price.
Conversion of Series B preferred stock	\$4.23 per share (subject to adjustment as described in this prospectus). Until the volume weighted average price of our common stock exceeds 300% of the conversion price of the Series B preferred stock for any 30 consecutive trading days and the daily dollar trading volume for each trading day during such period exceeds \$500,000 per trading day, the Series B preferred stock has full ratchet price based antidilution protection, subject to customary carve-outs, in the event of a down-round financing below the Series B conversion price.
Shares of common stock underlying the Series B preferred stock	3,540,000 (Based on an assumed Series B preferred stock conversion price of \$4.23 per share, which was the closing price of our common stock on the Nasdaq Capital Market on February 7, 2018.)

9

Limitations on beneficial ownership

Series 1 warrants

Series 2 warrants

Shares of common stock underlying the warrants Shares of common stock outstanding before this offering Shares of common stock outstanding after this offering

Shares of Series B Preferred Stock outstanding before this offering Shares of Series B Preferred Stock outstanding after this offering Notwithstanding anything herein to the contrary, no holder will be permitted to convert its Series B preferred stock or exercise its warrants if, after such conversion or exercise, such holder would beneficially own more than 4.99% of the shares of common stock then outstanding or, upon election by a holder prior to the issuance of any shares of Series B preferred stock, 9.99%; provided, however, that upon notice to the Company, a holder may increase or decrease its beneficial ownership limitation, provided that in no event shall the beneficial ownership limitation exceed 9.99% and any increase in the beneficial ownership limitation will not be effective until 61 days following notice of such increase from the holder to us. The Series 1 warrants will be exercisable beginning on the date of issuance and expire on the seven (7) year anniversary of the date of issuance at an initial exercise price per share equal to , subject to appropriate adjustment in the event of recapitalization events, stock dividends, stock splits, stock combinations, reclassifications, reorganizations or similar events affecting our common stock. The Series 2 warrants will be exercisable beginning on the date of issuance and expire on the earlier of (1) the 60th calendar day following the receipt and announcement of FDA clearance to market our Pantheris BTK device (or the same or similar product with a different name), and (2) the seven (7) year anniversary of the date of issuance at an initial exercise price per share equal to , subject to appropriate adjustment in the event of recapitalization events, stock dividends, stock splits, stock combinations, reclassifications, reorganizations or similar events affecting our common stock. The Series 1 warrants and the Series 2 warrants are collectively referred to as the "warrants." The forms of warrant are filed as an exhibit to the registration statement of which this prospectus forms a part.

7,080,000 shares.

788,575 shares as of September 30, 2017. 788,575 shares (4,328,575 shares on an as-converted basis, assuming the conversion of the Series B Preferred Stock). None. 15,000 shares.

10

Use of proceeds	We estimate that the net proceeds to us from this offering will be approximately \$13.3 million, after deducting the underwriting discounts and commissions and estimated offering expenses payable by us. We intend to use the net proceeds from this offering for working capital and general corporate purposes, which may include development of our Lumivascular platform products, expansion of our sales and marketing organizations, intellectual property protection and enforcement, capital expenditures, investments, in-licenses and acquisitions of complementary products, technologies or businesses. We may also use a portion of the net proceeds from this offering in order to resolve legal proceedings that are more fully described in the section of this prospectus titled "Business Legal Proceedings," in an amount not to exceed \$1.6 million. See "Use of Proceeds" on page 50 of this prospectus.
Risk Factors	You should carefully read and consider the information set forth under "Risk Factors" on page 13 of this prospectus and the documents incorporated by reference herein before deciding to invest in our securities.
NASDAQ Capital Market symbol	"AVGR".
No listing of Series B Preferred Stock or warrants	We do not intend to apply for listing of the shares of the Series B preferred stock or warrants on any securities exchange or trading system.
The number of shares of common stock that will be outstanding	g after this offering is based on 788,575 shares outstanding as of

September 30, 2017, and excludes:

91,939 shares of common stock issuable upon the exercise of stock options outstanding as of September 30, 2017 with a weighted average exercise price of \$303.76 per share;

53,715 shares of common stock issuable upon exercise of outstanding warrants;

43,041 shares of common stock reserved for future issuance under our 2015 Equity Incentive Plan, or our 2015 Plan, and any additional shares that become available under our 2015 Plan pursuant to provisions thereof that automatically increase the share reserve under the plan each year;

19,095 shares of common stock reserved for future issuance under our 2015 Employee Stock Purchase Plan, or ESPP, and any additional shares that become available under our ESPP pursuant to provisions thereof that automatically increase the share reserve under the plan each year;

shares of common stock issuable under the Purchase Agreement with Lincoln Park, including the 23,584 Shares we issued as a commitment fee to Lincoln Park in November 2017 and 65,000 Shares we have sold to date under the Purchase Agreement;

shares of common stock issuable upon conversion or exercise, as the case may be, of the Series B Preferred Stock and warrants in this offering; and

shares of Series A Preferred Stock and the common stock issuable upon conversion of the Series A Preferred Stock issued to CRG in connection with the CRG Conversion.

Except as otherwise indicated, all information in this prospectus assumes:

a 1-for- 40 reverse stock split of our common stock, which became effective as of January 30, 2018;

no additional issuances of common stock to Lincoln Park under the Purchase Agreement; and

no exercise of options or warrants outstanding as of the date of this prospectus.

### 12

#### **RISK FACTORS**

Investing in our securities involves a high degree of risk. You should carefully consider the risks and uncertainties described below, together with all of the other information in this prospectus, including the financial statements and the related notes incorporated by reference in this prospectus, before deciding whether to invest in shares of our common stock. If any of the following risks or other risks actually occur, our business, financial condition, results of operations and future prospects could be materially harmed. In that event, the market price of our common stock could decline, and you could lose all or part of your investment. Please also see "Cautionary Notes Regarding Forward-Looking Statements."

#### **Risks Related to Our Business**

# Our quarterly and annual results may fluctuate significantly, may not fully reflect the underlying performance of our business and may result in decreases in the price of our common stock.

Our quarterly and annual results of operations, including our revenues, profitability and cash flow, may vary significantly in the future and period-to-period comparisons of our operating results may not be meaningful. Accordingly, the results of any one quarter or period should not be relied upon as an indication of future performance. Our quarterly and annual financial results may fluctuate as a result of a variety of factors, many of which are outside our control and, as a result, may not fully reflect the underlying performance of our business. Fluctuation in quarterly and annual results may decrease the value of our common stock. Factors that may cause fluctuations in our quarterly and annual results include, without limitation:

our ability to obtain and maintain FDA clearance and approval from foreign regulatory authorities for our products, and the timing of such clearances and approvals, particularly with respect to current and future generations of Pantheris;

market acceptance of our Lumivascular platform and products, including Pantheris;

the availability of reimbursement for our Lumivascular platform products;

our ability to attract new customers and increase the amount of business we generate from existing customers;

results of our clinical trials;

the timing and success of new product and feature introductions by us or our competitors or any other change in the competitive dynamics of our industry, including consolidation among competitors, customers or strategic partners;

the amount and timing of costs and expenses related to the maintenance and expansion of our business and operations;

changes in our pricing policies or those of our competitors;

general economic, political, industry and market conditions, including economic and political uncertainty caused by the recent U.S. presidential election;

the regulatory environment;

the hiring, training and retention of key employees, including our sales team;

the ability of our remaining sales and marketing personnel to maintain and increase our revenues after the April 2017 organizational realignment and September 2017 cost reduction plan;

the cost and potential outcomes of existing and future litigation, including, without limitation, the purported stockholder class action described below under "*Risks Related to Ownership of our* 

Common Stock Our stock price may be volatile, and purchasers of our common stock could incur substantial losses.";

our ability to obtain additional financing; and

advances and trends in new technologies and industry standards.

#### We have a history of net losses and we may not be able to achieve or sustain profitability.

We have incurred significant losses in each period since our inception in 2007. We incurred net losses of \$32.0 million in 2014, \$47.3 million in 2015, \$56.1 million in 2016, and \$38.6 million for the nine months ended September 30, 2017. As of September 30, 2017, we had an accumulated deficit of approximately \$291.2 million. These losses and our accumulated deficit reflect the substantial investments we have made to develop our Lumivascular platform and acquire customers.

We expect our losses to continue for the foreseeable future as we continue to make significant future expenditures to develop and expand our business. In addition, as a public company, we will continue to incur significant legal, accounting and other expenses. Accordingly, we cannot assure you that we will achieve profitability in the future or that, if we do become profitable, we will sustain profitability. Our failure to achieve and sustain profitability would negatively impact the market price of our common stock.

We may not be able to secure additional financing on favorable terms, or at all, to meet our future capital needs and our failure to obtain additional financing when needed could force us to delay, red