

SECURITIES & EXCHANGE COMMISSION EDGAR FILING

Avinger Inc

Form: 424B5

Date Filed: 2021-02-01

Corporate Issuer CIK: 1506928

PROSPECTUS SUPPLEMENT
(to Prospectus dated March 29, 2019)



10,000,000 Shares of Common Stock

Avinger, Inc. is offering 10,000,000 shares of its common stock pursuant to this prospectus supplement and the accompanying prospectus. The shares of common stock will be sold for a purchase price equal to \$1.44 per share of common stock. Our common stock is quoted on the Nasdaq Capital Market under the symbol "AVGR." On January 28, 2021, the last reported sale price of our common stock on the Nasdaq Capital Market was \$1.61 per share.

The offering is being underwritten on a firm commitment basis. The underwriter may offer the shares of common stock from time to time to purchasers directly or through agents, or through brokers in brokerage transactions on the Nasdaq Capital Market, or to dealers in negotiated transactions or in a combination of such methods of sale, or otherwise, at a fixed price or prices, which may be changed, or at market prices prevailing at the time of sale, at prices related to such prevailing market prices, or at negotiated prices.

You should read this prospectus supplement and the accompanying prospectus and the documents incorporated by reference in this prospectus supplement carefully before you invest.

INVESTING IN OUR SECURITIES INVOLVES SIGNIFICANT RISKS. YOU SHOULD REVIEW CAREFULLY THE "RISK FACTORS" BEGINNING ON PAGE S-11 OF THIS PROSPECTUS SUPPLEMENT AND PAGE 4 OF THE ACCOMPANYING PROSPECTUS, AS WELL AS THE RISK FACTORS DESCRIBED UNDER THE SECTION ENTITLED "RISK FACTORS" CONTAINED IN OUR ANNUAL REPORT ON FORM 10-K FOR THE YEAR ENDED DECEMBER 31, 2019 AND IN OUR QUARTERLY REPORTS ON FORM 10-Q FOR THE THREE MONTHS ENDED MARCH 31, 2020, JUNE 30, 2020, AND SEPTEMBER 30, 2020, BEFORE INVESTING IN OUR SECURITIES.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus supplement. Any representation to the contrary is a criminal offense.

	PER SHARE	TOTAL
Public offering price	\$1.4400	\$14,400,000
Underwriting discounts and commissions(1)	\$0.1008	\$1,008,000
Proceeds to Avinger, before expenses	\$1.3392	\$13,392,000

(1) We have also agreed to pay the underwriters a non-accountable expense allowance equal to 1% of the gross proceeds of this offering, and to reimburse them for certain other expenses. See the section entitled "Underwriting."

Delivery of the common stock is expected to be made on or about February 2, 2021.

Sole Book-Running Manager

Aegis Capital Corp.

The date of this prospectus supplement is January 28, 2021

TABLE OF CONTENTS

Prospectus Supplement

	Page
About this Prospectus Supplement	S-i
Prospectus Supplement Summary	S-1
Risk Factors	S-10
Cautionary Note Regarding Forward-Looking Statements	S-15
Use of Proceeds	S-17
Capitalization	S-18
Dilution	S-20
Certain Material United States Federal Income Tax Considerations	S-22
Description of the Securities We are Offering	S-26
Underwriting	S-27
Legal Matters	S-30
Experts	S-30
Where You Can Find More Information	S-30
Information Incorporated by Reference	S-30

Prospectus

	Page
About this Prospectus	i
Prospectus Summary	1
Risk Factors	4
Forward-Looking Statements	4
Use of Proceeds	4
Description of Capital Stock	5
Description of Depositary Shares	20
Description of Warrants	23
Description of Debt Securities	26
Description of Subscription Rights	37
Description of Units	38
Selling Security Holders	39
Plan of Distribution	40
Legal Matters	43
Experts	43
Where You Can Find More Information	43
Information Incorporated by Reference	43

ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and accompanying prospectus relates to the offering of our common stock. Before buying any of the securities that we are offering, we urge you to carefully read this prospectus supplement, the accompanying prospectus, any free writing prospectus that we have authorized for use in connection with this offering, and the information incorporated by reference as described under the headings "Where You Can Find More Information" and "Information Incorporated by Reference" in this prospectus supplement. These documents contain important information that you should consider when making your investment decision.

This document is comprised of two parts. The first part is this prospectus supplement, which describes the specific terms of this offering and also adds to, and updates information contained in, the accompanying prospectus and the documents incorporated by reference into this prospectus supplement and the accompanying prospectus. The second part, the accompanying prospectus, including the documents incorporated by reference into the accompanying prospectus, provides more general information, some of which may not apply to this offering. Generally, when we refer to this prospectus, we are referring to the combined document consisting of this prospectus supplement and the accompanying prospectus. In this prospectus supplement, as permitted by law, we "incorporate by reference" information from other documents that we file with the Securities and Exchange Commission, or the SEC. This means that we can disclose important information to you by referring to those documents. The information incorporated by reference is considered to be a part of this prospectus supplement and the accompanying prospectus and should be read with the same care. When we make future filings with the SEC to update the information contained in documents that have been incorporated by reference, the information included or incorporated by reference in this prospectus supplement is considered to be automatically updated and superseded. In other words, in case of a conflict or inconsistency between information contained in this prospectus supplement and information in the accompanying prospectus or incorporated by reference into this prospectus supplement, you should rely on the information contained in the document that was filed later.

This prospectus supplement and the accompanying prospectus are part of a registration statement on Form S-3 that we filed on March 7, 2019 with the SEC using a "shelf" registration process with respect to up to \$50,000,000 in securities that may be sold thereunder. The shelf registration statement was declared effective by the SEC on March 29, 2019.

Under the shelf registration process, we may offer and sell any combination of securities described in the accompanying prospectus in one or more offerings. The purpose of this prospectus supplement is to provide supplemental information regarding us in connection with this offering of common stock.

You should rely only on the information contained in, or incorporated by reference into, this prospectus supplement, the accompanying prospectus, and in any free writing prospectus that we have authorized for use in connection with this offering. We have not authorized any other person to provide you with different information. We are not making an offer to sell or soliciting an offer to buy our securities in any jurisdiction in which an offer or solicitation is not authorized or in which the person making that offer or solicitation is not qualified to do so or to anyone to whom it is unlawful to make an offer or solicitation. You should assume that the information appearing in this prospectus supplement, the accompanying prospectus, the documents incorporated by reference into this prospectus supplement and the accompanying prospectus, and in any free writing prospectus that we have authorized for use in connection with this offering, is accurate only as of the date of those respective documents. Our business, financial condition, results of operations, and prospects may have changed since those dates.

PROSPECTUS SUPPLEMENT SUMMARY

This summary description about us and our business highlights selected information contained elsewhere in this prospectus supplement or the accompanying prospectus, or incorporated in this prospectus supplement or the accompanying prospectus by reference. This summary does not contain all of the information you should consider before buying securities in this offering. You should carefully read this entire prospectus supplement and the accompanying prospectus, including each of the documents incorporated herein or therein by reference, before making an investment decision. Unless the context otherwise requires, the terms "Avinger," "the Company," "we," "us" and "our" in this prospectus supplement and accompanying prospectus refer to Avinger, Inc., and its subsidiaries.

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. We received CE marking for our original Ocelot product in September 2011 and received U.S. Food and Drug Administration, or FDA, 510(k) clearance in November 2012. We received 510(k) clearance from the FDA for commercialization of Pantheris in October 2015. 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. In May 2018, we also received 510(k) clearance from the FDA for our current next-generation version of Pantheris. In April 2019, we received 510(k) clearance from the FDA for our Pantheris SV, a version of Pantheris targeting smaller vessels, and commenced sales in July 2019. The Pantheris SV has a smaller diameter and longer length that we believe will optimize it for its targeted use.

In September of 2020, we received 510(k) clearance of Ocelaris ("Tigereye"), a next generation CTO crossing system utilizing Avinger's proprietary image-guided technology platform. Tigereye is a product line extension of Avinger's Ocelot family of image-guided CTO crossing catheters. Its design elements include an upgrade of the image capture rate to provide high definition, real-time intravascular imaging similar to the company's Pantheris image-guided atherectomy system and a user-controlled deflectable tip designed to assist in steerability within the lumen. Tigereye also features a new distal tip configuration with faster rotational speeds designed to penetrate challenging lesions. The Tigereye catheter has a working length of 140 cm and 5 French sheath compatibility for treatment of lesions in the peripheral vessels both above and below the knee. The product became available in the fourth quarter of 2020 for first cases in the U.S. and full commercial launch was initiated in January 2021.

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.

We believe 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) submission to 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 worked with 18 of the VISION sites to re-solicit consent from previous clinical trial patients in order for them to evaluate patient outcomes through 12 and 24 months following initial treatment. Data collection for the remaining 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.

During the fourth quarter of 2017, we began enrolling patients in INSIGHT, a clinical trial designed to support a submission to the FDA to expand the indication for our Pantheris atherectomy device to include in-stent restenosis. Patient enrollment began in October 2017 and is expected to continue through 2021. Patient outcomes will be evaluated at thirty days, six months and one year following treatment. We plan to submit a 510(k) application with the FDA seeking a specific indication for treating in-stent restenosis with Pantheris once the trial is fully enrolled and follow-up data through six months are available and analyzed.

We continue development efforts on the next generation of the Lightbox imaging console, the L300, which is being designed to provide enhanced imaging capabilities in a much smaller form factor and to be available to users at a lower cost. We anticipate filing a 510(k) submission for the L300 in the first half of 2021.

We focus our direct sales force, marketing efforts and promotional activities on interventional cardiologists, vascular surgeons, and interventional radiologists. We also work on developing strong relationships with physicians and hospitals that we have identified as key opinion leaders. Although our sales and marketing efforts are directed at these physicians because they are the primary users of our technology, we consider the hospitals and medical centers where the procedure is performed to be our customers, as they typically are responsible for purchasing our products. We are designing future products to be compatible with our Lumivascular platform, which we expect to enhance the value proposition for hospitals to invest in our technology. Pantheris qualifies for existing reimbursement codes currently utilized by other atherectomy products, further facilitating adoption of our products.

We have assembled a team with extensive medical device development and commercialization experience in both start-up and large, multi-national medical device companies. We assemble all of our products at our manufacturing facility but certain critical processes, such as coating and sterilization, are performed by outside vendors. We expect our current manufacturing facility in California will be sufficient through at least 2021. We generated revenues of \$7.9 million in 2018, and \$9.1 million in 2019. The growth experienced in 2019 was largely due to our next generation Pantheris and the launch of Pantheris SV.

Revenue generated by our Pantheris products increased year-over-year ("YoY"), compared to the same quarter from the prior year, for seven out of the last eight quarters (in thousands).

	Three Months Ended (unaudited)							
	December 31, 2018	March 31, 2019	June 30, 2019	September 30, 2019	December 31, 2019	March 31, 2020	June 30, 2020	September 30, 2020
Revenue	\$ 1,032	\$ 915	\$ 1,069	\$ 1,584	\$ 1,748	\$ 1,603	\$ 926	\$ 1,585
YoY Growth	74%	46%	40%	81%	69%	75%	(13%)	0%

Recent Developments

Nasdaq Delisting Notice

On March 10, 2020, we received a letter from the Listing Qualifications Department of The NASDAQ Stock Market, LLC ("Nasdaq") notifying us that the Company was not in compliance with Nasdaq Listing Rule 5550(a)(2), as the minimum bid price for our common stock was less than \$1 for the previous 30 consecutive business days. We initially had a period of 180 calendar days, or until September 8, 2020, to regain compliance with the rule referred to in this paragraph. On April 20, 2020, we received a subsequent written notice from Nasdaq indicating that Nasdaq filed an immediately effective rule change with SEC on April 16, 2020, pursuant which the compliance periods for bid price and market value of publicly held shares requirements were tolled through June 30, 2020. As a result, we had until November 20, 2020, to regain compliance with Nasdaq's minimum bid price requirement. We did not regain compliance with the minimum bid price requirement by November 20, 2020. In accordance with Nasdaq Listing Rule 5810(c)(3)(A), we provided written notice to Nasdaq of our intent to cure the deficiency and, on November 24, 2020, we received notice that Nasdaq granted us an additional 180 calendar days, or until May 19, 2021, to regain compliance.

On January 26, 2021, we received a letter from Nasdaq notifying us that Nasdaq had determined that the closing bid price of our common stock had been at \$1.00 per share or greater for at least 10 consecutive business days and, accordingly, that we had regained compliance with the minimum bid price requirement for continued listing on the Nasdaq Stock Market and that the matter is now closed. While we have regained compliance with the minimum bid price requirement, there can be no assurance that we will be able to maintain compliance with the minimum bid price requirement in the future.

Preferred Stock Dividend

In December 2020, we paid Series A preferred stock dividends of \$3.9 million through the issuance of 3,866 shares of Series A preferred stock. The additional shares of Series A preferred stock are, subject to certain conditions, convertible into 193,300 shares of common stock.

Amendment to Loan Agreement

On January 22, 2021, we entered into an amendment to our existing Term Loan Agreement dated September 22, 2015 between us, CRG Partners III L.P., and the other lender parties (as amended, the "Loan Agreement"). Under the amendment, which became effective on January 22, 2021, the paid-in-kind interest only period and maturity date of the term loan were extended by 2.5 years. The paid-in-kind interest only period was extended from June 30, 2021 to December 31, 2023. The maturity date was extended from June 30, 2023 to December 31, 2025. In addition, the amendment amended the on-going stand-alone representation and stand-alone event of default regarding "material adverse change" such that any adverse change in or effect upon the revenue of the Company and its subsidiaries due to the outbreak of COVID-19, to the extent disclosed to the Lenders, will not constitute a material adverse change; changed the date under the on-going stand-alone representation regarding no material adverse change to December 31, 2020; and adjusted the minimum revenue requirements set forth in the Loan Agreement.

Future Special Meeting of Stockholders

After the closing of this offering, there will be a limited number of authorized but unissued shares of common stock available under our amended and restated certificate of incorporation. We anticipate that, following this offering, we may hold a special meeting of stockholders to vote on a proposal to either effect a reverse stock split of our common stock, or amend our amended and restated certificate of incorporation to increase the number of authorized shares of common stock.

Risks Associated with Our Business

Our business is subject to numerous risks. These risks are described more fully in our Annual Report on Form 10-K for the year ended December 31, 2019 and our Quarterly Reports on Form 10-Q for the quarterly periods ended March 31, 2020, June 30, 2020, and September 30, 2020 in the sections entitled "Risk Factors," which are incorporated by reference into this prospectus supplement. These risks include, among other things:

- 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.
- 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 adversely affect our ability to operate our business and our financial position and our ability to secure additional financing in the future.
- Covenants under the Loan Agreement will restrict our business in many ways.
- We may not be able to generate sufficient cash to service our credit facility with CRG Partners III L.P. ("CRG") and certain of its affiliated funds. If we fail to comply with the obligations under our credit facility, the lender may be able to accelerate amounts owed under the facility and may foreclose upon the assets securing our obligations.
- 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 (including SV), 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.
- 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.
- Our ability to compete is highly dependent on demonstrating the benefits of our Lumivasular platform to physicians, hospitals and patients.
- The use, misuse or off-label use of the products in our Lumivasular platform may result in injuries that lead to product liability suits, which could be costly to our business.
- The expense and potential unavailability of insurance coverage for liabilities resulting from our products could harm us and our ability to sell our Lumivasular platform products.
- Our ability to compete depends on our ability to innovate successfully.
- We compete against companies that have longer operating histories, more established products and greater resources, which may prevent us from achieving significant market penetration, increasing our revenues or becoming profitable.
- If our clinical trials are unsuccessful or significantly delayed, or if we do not complete our clinical trials, our business may be harmed.
- From time to time, we engage outside parties to perform services related to certain of our clinical studies and trials, and any failure of those parties to fulfill their obligations could increase costs and cause delays.
- We have limited long-term data regarding the safety and efficacy of our Lumivasular platform products, including Pantheris. Any long-term data that is generated by clinical trials involving our Lumivasular platform may not be positive or consistent with our short-term data, which would harm our ability to obtain clearance to market and sell our products.
- Our ability to market our current products in the United States is limited to use in peripheral vessels, and if we want to market our products for other uses, we will need to file for FDA clearances or approvals and may need to conduct trials to support expanded use, which would be expensive, time-consuming and may not be successful.
- Our ability to develop, market, and sell our products depends in part upon our working relationships with physicians, and any events that damage those relationships, or make it more difficult to build and maintain those relationships, could harm our business.

- We have limited experience manufacturing our Lumivasular platform products in commercial quantities, which could harm our business.
- If our manufacturing facility becomes damaged or inoperable, or we are required to vacate the facility, or our electronic systems are compromised, our ability to manufacture and sell our Lumivasular platform products and to pursue our research and development efforts may be jeopardized.
- We depend on third-party vendors to manufacture some of our components and sub-assemblies, which could make us vulnerable to supply shortages and price fluctuations that could harm our business.
- We depend on single and limited source suppliers for some of our product components and sub-assemblies, and if any of those suppliers are unable or unwilling to produce these components and sub-assemblies or supply them in the quantities that we need, we would experience manufacturing delays.
- Our future growth depends on physician adoption of our Lumivasular platform products, which may require physicians to change their current practices.
- We depend on our senior management team and the loss of one or more key employees or an inability to attract and retain highly skilled employees could harm our business.
- We do not currently intend to devote significant additional resources in the near-term to market our Lumivasular platform internationally, which will limit our potential revenues from our Lumivasular platform products.
- Our ability to utilize our net operating loss carryforwards may be limited.
- We may acquire other companies or technologies or be the target of strategic transactions, which could divert our management's attention, result in additional dilution to our stockholders and otherwise disrupt our operations and harm our operating results.
- If our technology infrastructure is compromised, damaged or interrupted by a cybersecurity incident, data security breach or other security problems, our operating results and financial condition could be adversely affected.
- The ongoing COVID-19 pandemic and responses thereto have adversely affected and we expect will continue to adversely affect our supply chain, workforce, approval process, and business operations.
- Customer demand for and our ability to sell and market our products have been and we expect will continue to be adversely affected by the COVID-19 pandemic and responses thereto.
- We may not be eligible to participate in the relief programs provided under the recently adopted Coronavirus Aid Relief, and Economic Security (CARES) Act and even if we are eligible we may not realize any material benefits from participating in such programs.
- We may not be entitled to forgiveness of our recently received PPP Loan, and our application for the PPP Loan could in the future be determined to have been impermissible or could result in damage to our reputation.
- 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 Lumivasular platform products.
- We are aware of patents held by third parties that may be asserted against us in litigation that could be costly and could limit our ability to sell our Lumivasular platform products.
- Intellectual property rights may not provide adequate protection, which may permit third parties to compete against us more effectively.
- Failure to comply with laws and regulations could harm our business.
- If we fail to obtain and maintain necessary regulatory clearances or approvals for our Lumivasular platform products, or if clearances or approvals for future products and indications are delayed or not issued, our commercial operations would be harmed.

- Material modifications to our Lumivascular platform products may require new 510(k) clearances or pre-market approvals or may require us to recall or cease marketing our Lumivascular platform products until clearances or approvals are obtained.
- If we or our suppliers fail to comply with the FDA's QSR, our manufacturing operations could be delayed or shut down and Lumivascular platform sales could suffer.
- Our Lumivascular platform products may in the future be subject to product recalls that could harm our reputation.
- Changes in coverage and reimbursement for procedures using our Lumivascular platform products could affect the adoption of our Lumivascular platform and our future revenues.
- Healthcare reform measures could hinder or prevent our planned products' commercial success.
- If we fail to comply with healthcare regulations, we could face substantial penalties and our business, operations and financial condition could be adversely affected.
- Compliance with environmental laws and regulations could be expensive. Failure to comply with environmental laws and regulations could subject us to significant liability.
- Regulations related to "conflict minerals" may force us to incur additional expenses, may result in damage to our business reputation and may adversely impact our ability to conduct our business.
- Our stock price may be volatile, and purchasers of our common stock could incur substantial losses.
- We may fail to meet our publicly announced guidance or other expectations about our business and future operating results, which would cause our stock price to decline.
- If securities or industry analysts do not publish research or reports about our business, or publish negative reports about our business, our share price and trading volume could decline.
- Sales of a substantial number of shares of our common stock in the public market, including by our existing stockholders, could cause our stock price to fall.
- Our 2019 financial statements contain disclosure that there is substantial doubt about our ability to continue as a going concern, and we will need additional financing to execute our business plan, to fund our operations and to continue as a going concern.
- The requirements of being a public company may strain our resources, divert management's attention and affect our ability to attract and retain executive management and qualified board members.
- Nasdaq may delist our securities from its exchange, which could harm our business and limit our stockholders' liquidity.
- Anti-takeover provisions in our amended and restated certificate of incorporation and bylaws and Delaware law could discourage a takeover.
- Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware will be the sole and exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees.
- We have not paid dividends on our common stock in the past and do not expect to pay dividends in the future, and any return on investment may be limited to the value of our stock.
- CRG has the ability to exert significant control over matters pursuant to the protective provisions therein as well as the covenants and other restrictions in the Loan Agreement.
- The Series A preferred stock has a liquidation preference senior to our common stock and the Series B preferred stock.

In addition to the risks associated with our business, you should also consider the following risks associated with this offering, which are more fully described in the section of this prospectus supplement entitled "Risk Factors" beginning on page S-11.

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", "Lumivascular", and "Tigereye" 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 TM 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.

Available Information

We make available, free of charge on our corporate website at www.avinger.com, copies of our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, Proxy Statements, and all amendments to these reports, as soon as reasonably practicable after such material is electronically filed with or furnished to the Securities and Exchange Commission, or the SEC, pursuant to Section 13(a) or 15(d) of the Securities Exchange Act. We also show detail about stock trading by corporate insiders by providing access to SEC Forms 3, 4 and 5. 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 10,000,000 shares.

Common Stock to be Outstanding Immediately after this Offering 94,921,079 shares.

Use of Proceeds

We intend to use the net proceeds from this offering for working capital and general corporate purposes, which may include research and development of our Lumivascular platform products, preclinical and clinical trials and studies, regulatory submissions, expansion of our sales and marketing organizations and efforts, intellectual property protection and enforcement and capital expenditures. We may use a portion of the net proceeds to acquire complementary products, technologies or businesses or to repay principal on our debt; however, we currently have no binding agreements or commitments to complete any such transactions or to make any such principal repayments from the proceeds of this offering, although we do look for such acquisition opportunities. See "Use of Proceeds" on page S-22.

Risk Factors

Investing in our common stock involves significant risks. You should read the "Risk Factors" section beginning on page S-11 of this prospectus supplement and in the documents incorporated by reference in this prospectus supplement and accompanying prospectus, including the risk factors described under the section entitled "Risk Factors" contained in our Annual Report on Form 10-K for the year ended December 31, 2019 and in our Quarterly Reports on Form 10-Q for the quarterly periods ended March 31, 2020, June 30, 2020, and September 30, 2020 for a discussion of factors to consider before deciding to purchase shares of our common stock.

Nasdaq Capital Market common stock symbol "AVGR."

There were 48,325 shares of Series A preferred stock and 178 shares of Series B preferred stock outstanding as of September 30, 2020. The number of shares of common stock in the table above is based on 84,921,079 shares outstanding as of September 30, 2020, and excludes (in each case as of September 30, 2020):

- 6,826 shares of common stock issuable upon the exercise of stock options outstanding with a weighted average exercise price of \$1,241.89 per share;
- 3,128,250 shares of common stock issuable upon conversion of outstanding preferred stock, comprised of 2,416,250 shares of common stock issuable upon conversion of outstanding Series A preferred stock and 712,000 shares of common stock issuable upon conversion of outstanding Series B preferred stock;
- 2,753,999 shares of common stock issuable upon exercise of outstanding warrants, comprised of 1,768,850 shares of common stock issuable upon exercise of outstanding Series B Warrants, 108,309 shares of common stock issuable upon exercise of outstanding warrants issued in July 2018, and 876,840 shares of common stock issuable upon exercise of outstanding warrants issued in November 2018;

- 440,192 unvested restricted stock units;
- 202,544 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;
- 92,170 shares of common stock reserved for future issuance under our Officer and Director Share Purchase Plan, or ODPP; and
- the effect of the “full-ratchet” anti-dilution adjustment of the conversion price of our outstanding Series B preferred stock.

Except as otherwise indicated, all share and per share information in this prospectus supplement gives effect to a 1-for-10 reverse stock split of our common stock, which became effective as of June 21, 2019.

Unless otherwise indicated, the information in this prospectus supplement, including the number of shares outstanding after this offering, does not reflect any of the following transactions or events that occurred after September 30, 2020:

- the issuance of 3,866 shares of Series A preferred stock in payment of dividends payable on outstanding shares of Series A preferred stock issued in December 2020; and
- the issuance, exercise, vesting, expiration or forfeiture of any additional equity awards under our equity incentive plans or stock purchase plans.

RISK FACTORS

You should carefully consider the risk factors set forth below, under the caption "Risk Factors" in the accompanying prospectus and under the caption "Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2019 and our Quarterly Reports on Form 10-Q for the quarterly periods ended March 31, 2020, June 30, 2020, and September 30, 2020 which are incorporated by reference in this prospectus supplement and the accompanying prospectus. See "Where You Can Find More Information" and "Incorporation by Reference." Before making any investment decision, you should carefully consider these risks as well as other information we include or incorporate by reference in this prospectus supplement and the accompanying prospectus. The risks and uncertainties we describe are not the only ones facing us. Additional risks and uncertainties that we are unaware of or that we believe are not material at the time could also materially adversely affect our business, financial condition or results of operations. In any case, the value of our common stock could decline, and you could lose all or part of your investment. See also the information contained under the heading "Cautionary Note Regarding Forward-Looking Statements" immediately below.

Risks Related to this Offering

The market price of our common stock may be volatile, and the value of your investment could decline significantly.

The trading price for our common stock has been, and we expect it to continue to be, volatile. The price at which our common stock trades depends upon a number of factors, including our historical and anticipated operating results, our ability to meet our own financial projections or those of analysts who follow our company, our financial situation, announcements of technological innovations or new products by us or our competitors, our ability or inability to raise the additional capital we may need and the terms on which we raise it, and general market and economic conditions, some of which are beyond our control. These broad market fluctuations may lower the market price of our common stock and affect the volume of trading in our stock.

We have broad discretion in the use of the net proceeds from this offering and may not use them effectively.

Our management will have broad discretion in the application of the net proceeds from this offering and could spend the proceeds in ways with which you may not agree. Accordingly, you will be relying on the judgment of our management with regard to the use of these net proceeds, and you will not have the opportunity, as part of your investment decision, to assess whether the proceeds are being used appropriately. It is possible that the proceeds will be invested or otherwise used in a way that does not yield a favorable, or any, return for our company. See the section entitled "Use of Proceeds" in this prospectus supplement for a more detailed discussion of our expected use of the net proceeds from this offering.

You will experience immediate and substantial dilution in the net tangible book value per share of the common stock you purchase.

Since the price per share of our common stock being offered is higher than the net tangible book value per share of our common stock, you will suffer substantial dilution in the net tangible book value of the common stock you purchase in this offering. Based on the public offering price of \$1.44 per share, and after deducting the underwriting discount and estimated offering expenses payable by us, if you purchase shares of common stock in this offering, you will suffer immediate and substantial dilution of \$1.15 per share in the net tangible book value of the common stock. See the section entitled "Dilution" in this prospectus supplement for a more detailed discussion of the dilution you will incur if you purchase common stock in this offering.

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 believe that our cash and cash equivalents at September 30, 2020, and expected revenues from operations, will be sufficient to satisfy our capital requirements and fund our operations through at least the fourth quarter of 2021. Even though we received net proceeds of approximately \$8 million from the issuance of common stock upon the exercise of warrants during April and May of 2019, net proceeds of \$3.8 million from the sales of our common stock in our August 2019 offering, \$3.9 million from the sale of our common stock in our January 2020 offering, \$2.3 million of loan proceeds in April 2020 pursuant to the Paycheck Protection Program (“PPP”) under the Coronavirus Aid, Relief and Economic Security (“CARES”) Act, \$3.0 million from the sale of our common stock in April and May 2020, \$5.5 million from the sale of our common stock in June and July 2020 and \$11.3 million from the sale of our common stock in August and September 2020, the Company will need to raise additional funds through future equity or debt financings within the next twelve months to meet its operational needs and capital requirements for product development, clinical trials and commercialization and may subsequently require additional fundraising.

To date, we have financed our operations primarily through sales of our products and net proceeds from the issuance of our preferred stock and debt financings, our “at-the-market” program, our initial public offering, or IPO, and our follow-on public offerings. The warrants issued in connection with the Series B and Series C preferred stock offering in February 2018 prohibit us from entering into certain transactions involving the issuance of securities for a variable price determined by reference to the trading price of our common stock or otherwise subject to modification following the date of issuance, in each case until February 17, 2021. This prohibition may be waived by holders of two-thirds of the outstanding Series 1 and Series 2 warrants at any time. We do not know when or if our operations will generate sufficient cash to fund our ongoing operations. We cannot be certain that additional capital will be available as needed on acceptable terms, or at all. In the future, we may require additional capital in order to (i) continue to conduct research and development activities, (ii) conduct post-market clinical studies, as well as clinical trials to obtain regulatory clearances and approvals necessary to commercialize our Lumivascular platform products, (iii) expand our sales and marketing infrastructure and (iv) acquire complementary businesses, technologies or products; or (v) respond to business opportunities, challenges, a decline in sales, increased regulatory obligations or unforeseen circumstances. Our future capital requirements will depend on many factors, including:

- the degree of success we experience in commercializing our Lumivascular platform products, particularly Pantheris, and any future versions of such products;
- the costs, timing and outcomes of clinical trials and regulatory reviews associated with our future products;
- the costs and expenses of maintaining or expanding our sales and marketing infrastructure and our manufacturing operations;
- the costs and timing of developing variations of our Lumivascular platform products, especially Pantheris and, if necessary, obtaining FDA clearance of such variations;
- the extent to which our Lumivascular platform is adopted by hospitals for use by interventional cardiologists, vascular surgeons and interventional radiologists in the treatment of PAD;
- the number and types of future products we develop and commercialize;
- the costs of defending ourselves against future litigation;
- the costs of preparing, filing and prosecuting patent applications and maintaining, enforcing and defending intellectual property-related claims; and
- the extent and scope of our general and administrative expenses.

We may raise additional funds in equity or debt financings or enter into credit facilities in order to access funds for our capital needs. Any debt financing obtained by us in the future would cause us to incur additional debt service expenses and could include restrictive covenants relating to our capital raising activities and other financial and operational matters, which may make it more difficult for us to obtain additional capital and pursue business opportunities. In addition, due to our current level of debt, future equity investors may require that we convert all or a portion of our debt to equity, and our debtholders may not agree to such terms. If we raise additional funds through further issuances of equity or convertible debt securities, and/or if we convert all or a portion of our existing debt to equity, our existing stockholders could suffer significant dilution in their percentage ownership of our company, and any new equity securities we issue could have rights, preferences and privileges senior to those of holders of our common stock. If we are unable to obtain adequate financing or financing on terms satisfactory to us when we require it, we may terminate or delay the development of one or more of our products, delay clinical trials necessary to market our products, delay establishment of sales and marketing capabilities or other activities necessary to commercialize our products, and significantly scale back our operations, or we may become insolvent. If this were to occur, our ability to continue to grow and support our business and to respond to business challenges could be significantly limited.

We have outstanding shares of convertible preferred stock, some of which contain full-ratchet anti-dilution protection, which may cause significant dilution to our stockholders.

As of September 30, 2020, we had outstanding 84,921,079 shares of common stock. As of that date we had outstanding 178 shares of Series B convertible preferred stock convertible into an aggregate of 712,000 shares of common stock and 48,325 shares of Series A convertible preferred stock convertible, subject to certain conditions, into an aggregate of 2,416,250 shares of common stock. The issuance of shares of common stock upon the conversion of such shares of preferred stock would dilute the percentage ownership interest of all stockholders, might dilute the book value per share of our common stock and would increase the number of our publicly traded shares, which could depress the market price of our common stock.

The shares of Series B preferred stock contain full-ratchet anti-dilution provisions which, subject to limited exceptions, would reduce the conversion price of the Series B preferred stock (and increase the number of shares issuable) in the event that we in the future issue common stock, or securities convertible into or exercisable to purchase common stock, at price per share lower than the conversion price then in effect, to such lower price. Our outstanding 178 shares of Series B preferred stock are, prior to this offering, convertible into 712,000 shares of common stock at a conversion price of \$0.25 per share. This full ratchet anti-dilution provision would be triggered by the future issuance by us of shares of our common stock or common stock equivalents at a price per share below the then-conversion price of the Series B preferred stock, subject to limited exceptions.

The certificate of designation for our Series A preferred stock currently provides that shares of such Series A preferred stock will not be convertible into shares of our common stock until our stockholders have approved an amendment to our Amended and Restated Certificate of Incorporation to increase the number of authorized shares of common stock from 100,000,000 to 125,000,000. Our Board of Directors may determine to remove this requirement. If our stockholders approve such amendment to our Amended and Restated Certificate of Incorporation or if our Board of Directors otherwise determines to amend the certificate of designation for our Series A preferred to remove such requirement, shares of Series A preferred stock may be converted into shares of our common stock, which will result in dilution to our stockholders.

The Series A preferred stock has a liquidation preference senior to our common stock and Series B preferred stock.

Our Series A preferred stock has a liquidation preference that gets paid prior to any payment on our common stock (including shares issuable upon the exercise of our outstanding warrants) and Series B preferred stock. As a result, if we were to dissolve, liquidate, merge with another company or sell our assets, the holders of our Series A preferred stock would have the right to receive up to approximately \$52.2 million, plus any unpaid dividends from any such transaction before any amount is paid to the holders of our Series B preferred stock or common stock or pursuant to the redemption rights in the warrants for fundamental transactions. The payment of the liquidation preferences could result in common stockholders, Series B preferred stockholders and warrant holders not receiving any consideration if we were to liquidate, dissolve or wind up, either voluntarily or involuntarily. In January 2019, we paid Series A preferred stock dividends of \$2.9 million through the issuance of 2,945 shares of Series A preferred stock, in December 2019 we paid Series A preferred stock dividends of \$3.6 million through the issuance of 3,580 shares of Series A preferred stock, and in December 2020 we paid Series A preferred stock dividends of \$3.9 million through the issuance of 3,866 shares of Series A preferred stock.

The existence of the liquidation preferences may reduce the value of our common stock, make it harder for us to sell shares of common stock in offerings in the future, or prevent or delay a change of control.

You may experience future dilution as a result of future equity offerings or acquisitions.

To the extent that we raise additional funds through the sale of equity or convertible debt securities or issue equity in connection with potential acquisitions, the issuance of such securities will result in dilution to our stockholders. We may sell shares or other securities in any other offering at a price per share that is less than the price per share paid by investors in this offering, and investors purchasing shares or other securities in the future could have rights superior to existing stockholders. The price per share at which we sell additional shares of our common stock, or securities convertible or exchangeable into common stock, in future transactions may be higher or lower than the price per share paid by investors in this offering. Future sales at a per share price less than that paid in this offering could cause further anti-dilution adjustments to our Series B preferred Stock, if any remains outstanding.

Future sales of our common stock in the public market could cause our stock price to fall.

Sales of a substantial number of shares of our common stock in the public market, or the perception that these sales might occur, could depress the market price of our common stock and could impair our ability to raise capital through the sale of additional equity securities. As of September 30, 2020, we had 84,921,079 shares of common stock outstanding, all of which shares were, and continue to be, eligible for sale in the public market, subject in some cases to compliance with the requirements of Rule 144, including the volume limitations and manner of sale requirements. In addition, all of the shares offered under this prospectus will be freely tradable without restriction or further registration upon issuance.

Risks Related to Our Common Stock

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

Our common stock is currently listed on the Nasdaq Capital Market, which has qualitative and quantitative listing criteria. However, we cannot assure you that our common stock will continue to be listed on Nasdaq in the future. In order to continue listing our common stock on Nasdaq, we must maintain certain financial, distribution and stock price levels. Generally, we must maintain a minimum amount in stockholders' equity and a minimum number of holders of our common stock.

On March 10, 2020, we received a letter from Nasdaq's Listing Qualifications Department notifying us that the Company was not in compliance with Nasdaq Listing Rule 5550(a)(2), as the minimum bid price for the Company's listed securities was less than \$1 for the previous 30 consecutive business days. The Company initially had a period of 180 calendar days, or until September 8, 2020, to regain compliance with the rule referred to in this paragraph. On April 20, 2020, we received a subsequent written notice from Nasdaq indicating that Nasdaq filed an immediately effective rule change with SEC on April 16, 2020, pursuant which the compliance periods for bid price and market value of publicly held shares requirements were tolled through June 30, 2020. As a result, the Company had until November 20, 2020 to regain compliance with Nasdaq's minimum bid price requirement referred to in this paragraph. We did not regain compliance with the minimum bid price requirement by November 20, 2020. In accordance with Nasdaq Listing Rule 5810(c)(3)(A), we provided written notice to Nasdaq of its intent to cure the deficiency and, on November 24, 2020, we received notice that Nasdaq granted the Company an additional 180 calendar days, or until May 19, 2021, to regain compliance.

On January 26, 2021, the Company received a letter from Nasdaq notifying the Company that the Staff had determined that the closing bid price of the Company's common stock had been at \$1.00 per share or greater for at least 10 consecutive business days and, accordingly, that the Company had regained compliance with the Minimum Bid Price Requirement for continued listing on the Nasdaq Stock Market and that the matter is now closed. While the Company has regained compliance with the Minimum Bid Price Requirement, there can be no assurance that the Company will be able to maintain compliance with the Minimum Bid Price Requirement in the future.

In the event that that Nasdaq does, in the future, delist our common stock and we are not able to list our securities on another national securities exchange, we expect our securities could be quoted on an over-the-counter market. If this were to occur, we could face significant material adverse consequences, including:

- a limited availability of market quotations for our securities;
- reduced liquidity for our securities;

- a determination that our common stock is a “penny stock” which will require brokers trading in our common stock to adhere to more stringent rules and possibly result in a reduced level of trading activity in the secondary trading market for our securities;
- a limited amount of news and analyst coverage; and
- a decreased ability to issue additional securities or obtain additional financing in the future.

The National Securities Markets Improvement Act of 1996, which is a federal statute, prevents or preempts the states from regulating the sale of certain securities, which are referred to as “covered securities.” If our common stock continues to be listed on NASDAQ, our common stock will be a covered security. Although the states are preempted from regulating the sale of our securities, the federal statute does allow the states to investigate companies if there is a suspicion of fraud, and, if there is a finding of fraudulent activity, then the states can regulate or bar the sale of covered securities in a particular case.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware will be the sole and exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders’ ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees.

Our amended and restated certificate of incorporation provides that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware is the sole and exclusive forum for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim of breach of fiduciary duty owed by any of our directors, officers or other employees to us or to our stockholders, (iii) any action asserting a claim arising pursuant to the Delaware General Corporation Law or our certificate of incorporation or bylaws (iv) any action to interpret, apply, enforce or determine the validity of our certificate of incorporation or bylaws, or (v) any action asserting a claim governed by the internal affairs doctrine. This exclusive forum provision would not apply to suits brought to enforce any liability or duty created by the Securities Act or the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction. To the extent that any such claims may be based upon federal law claims, Section 27 of the Exchange Act creates exclusive federal jurisdiction over all suits brought to enforce any duty or liability created by the Exchange Act or the rules and regulations thereunder. Furthermore, Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all suits brought to enforce any duty or liability created by the Securities Act or the rules and regulations thereunder.

This choice of forum provision may limit a stockholder’s ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or employees, which may discourage such lawsuits against us and our directors, officers or employees. If a court were to find the choice of forum provision contained in our certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could have a material adverse effect on our business, financial condition, results of operations and prospects.

CAUTIONARY NOTES REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus, the documents we have filed with the SEC that are incorporated by reference in this prospectus supplement and accompanying prospectus and any free writing prospectus that we have authorized for use in connection with this offering contain “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, or the Exchange Act, concerning our business, operations and financial performance and condition. In some cases, you can identify forward-looking statements by terminology such as “anticipate,” “assume,” “believe,” “contemplate,” “continue,” “could,” “due,” “estimate,” “expect,” “goal,” “intend,” “may,” “objective,” “plan,” “predict,” “potential,” “positioned,” “seek,” “should,” “target,” “will,” “would” and other similar expressions that are predictions of or indicate future events and future trends, or the negative of these terms or other comparable terminology. These forward-looking statements include, but are not limited to, statements about:

- the outcome of and expectations regarding our current clinical studies and any additional clinical studies we initiate;
- our plans to modify our current products, or develop new products, to address additional indications;
- our ability to obtain additional financing through future equity or debt financings;
- the expected timing of 510(k) clearances by the FDA, for enhanced versions of Pantheris and Ocelot;
- the expected timing of 510(k) submission to FDA, and associated marketing clearances by FDA, for enhanced versions of Pantheris and Ocelot;
- the expected growth in our business and our organization;
- our expectations regarding government and third-party payor coverage and reimbursement, including the ability of Pantheris to qualify for reimbursement codes used by other atherectomy products;
- our ability to continue as a going concern;
- our ability to remain in compliance with the listing requirements of the Nasdaq Capital Market;
- our ability to retain and recruit key personnel, including the continued development of our sales and marketing infrastructure;
- our ability to obtain and maintain intellectual property protection for our products;
- our estimates of our expenses, ongoing losses, future revenue, capital requirements and our needs for additional financing;
- our expectations regarding revenue, cost of revenue, gross margins, and expenses, including research and development and selling, general and administrative expenses;
- our ability to identify and develop new and planned products and acquire new products;
- our financial performance;
- the effects of the COVID-19 outbreak on our business and results of operations;
- our ability to remain in compliance with laws and regulations that currently apply or become applicable to our business, both in the United States and internationally; and

- developments and projections relating to our competitors or our industry.

We believe that it is important to communicate our future expectations to our investors. However, there may be events in the future that we are not able to accurately predict or control and that may cause our actual results to differ materially from the expectations we describe in our forward-looking statements. These forward-looking statements are based on management's current expectations, estimates, forecasts and projections about our business and the industry in which we operate and management's beliefs and assumptions and are not guarantees of future performance or development and involve known and unknown risks, uncertainties and other factors that are in some cases beyond our control. As a result, any or all of our forward-looking statements in this prospectus supplement, the accompanying prospectus, the documents that are incorporated by reference in this prospectus supplement and accompanying prospectus, and any free writing prospectus that we have authorized for use in connection with this offering may turn out to be inaccurate. Factors that may cause actual results to differ materially from current expectations include, among other things, those listed under "Risk Factors" beginning on page S-11 of this prospectus supplement and elsewhere in the accompanying prospectus and our other filings with the SEC incorporated herein by reference. Potential investors are urged to consider these factors carefully in evaluating the forward-looking statements. These forward-looking statements speak only as of the date of this prospectus. We assume no obligation to update or revise these forward-looking statements for any reason, even if new information becomes available in the future.

You should not rely upon forward-looking statements as predictions of future events. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee that the future results, levels of activity, performance or events and circumstances reflected in the forward-looking statements will be achieved or occur. Except as required by law, we undertake no obligation to update publicly any forward-looking statements for any reason after the date of this prospectus to conform these statements to actual results or to changes in our expectations.

You should read this prospectus supplement, the accompanying prospectus, the documents incorporated by reference in this prospectus supplement and accompanying prospectus and any free writing prospectus that we have authorized for use in connection with this offering completely and with the understanding that our actual future results, levels of activity, performance and events and circumstances may be materially different from what we expect.

USE OF PROCEEDS

We estimate that the net proceeds from this offering will be approximately \$13.0 million, after deducting the commissions and estimated offering expenses payable by us.

We intend to use net proceeds from this offering for working capital and general corporate purposes, which may include research and development of our Lumivascular platform products, preclinical and clinical trials and studies, regulatory submissions, expansion of our sales and marketing organizations and efforts, intellectual property protection and enforcement and capital expenditures. We have not yet determined the amount of net proceeds to be used specifically for any particular purpose or the timing of these expenditures. We may use a portion of the net proceeds to acquire complementary products, technologies or businesses or to repay principal on our debt; however, we currently have no binding agreements or commitments to complete any such transactions or to make any such principal repayments from the proceeds of this offering, although we do look for such acquisition opportunities. Accordingly, our management will have significant discretion and flexibility in applying the net proceeds from the sale of these securities.

CAPITALIZATION

The following table sets forth our cash, cash equivalents and capitalization as of September 30, 2020:

- on an actual basis; and
- on an as adjusted basis to give effect to the sale by us of 10,000,000 shares of our common stock in this offering at a public offering price of \$1.44 per share, after deducting underwriting discounts and estimated offering expenses payable by us.

You should read this table together with the section entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our financial statements and related notes included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2019 and in our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2020, June 30, 2020, and September 30, 2020 each of which is incorporated by reference into this prospectus.

(unaudited, amounts in thousands except for share and per share information)	As of September 30, 2020	
	Actual	As Adjusted
Cash and cash equivalents	\$ 25,326	\$ 38,335
Borrowings	\$ 12,543	\$ 12,543
Stockholders' equity		
Preferred stock, \$0.001 par value; 5,000,000 shares authorized, 48,503 shares issued and outstanding, actual, and as adjusted	--	--
Common stock, \$0.001 par value; 100,000,000 shares authorized; 84,921,079 shares issued and outstanding (actual); 94,921,079 shares (as adjusted)	85	95
Additional paid-in capital	377,080	390,079
Accumulated deficit	(362,711)	(362,711)
Total stockholders' equity	14,454	27,463
Total capitalization	\$ 26,997	\$ 40,006

There were 48,325 shares of Series A preferred stock and 178 shares of Series B preferred stock outstanding as of September 30, 2020. The number of shares of common stock in the table above is based on 84,921,079 shares outstanding as of September 30, 2020, and excludes (in each case as of September 30, 2020):

- 6,826 shares of common stock issuable upon the exercise of stock options outstanding with a weighted average exercise price of \$1,241.89 per share;
- 3,128,250 shares of common stock issuable upon conversion of outstanding preferred stock, comprised of 2,416,250 shares of common stock issuable upon conversion of outstanding Series A preferred stock and 712,000 shares of common stock issuable upon conversion of outstanding Series B preferred stock;
- 2,753,999 shares of common stock issuable upon exercise of outstanding warrants, comprised of 1,768,850 shares of common stock issuable upon exercise of outstanding Series B Warrants, 108,309 shares of common stock issuable upon exercise of outstanding warrants issued in July 2018, and 876,840 shares of common stock issuable upon exercise of outstanding warrants issued in November 2018;

- 440,192 unvested restricted stock units;
- 202,544 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;
- 92,170 shares of common stock reserved for future issuance under our Officer and Director Share Purchase Plan, or ODPP; and
- the effect of the “full-ratchet” anti-dilution adjustment of the conversion price of our outstanding Series B preferred stock.

Except as otherwise indicated, all information in this prospectus gives effect to a 1-for-10 reverse stock split of our common stock, which became effective as of June 21, 2019.

Unless otherwise indicated, the information in this prospectus supplement, including the number of shares outstanding after this offering, does not reflect any of the following transactions or events that occurred after September 30, 2020:

- the issuance of 3,866 shares of Series A preferred stock in payment of dividends payable on outstanding shares of Series A preferred stock issued in December 2020; and
- the issuance, exercise, vesting, expiration or forfeiture of any additional equity awards under our equity incentive plans or stock purchase plans.

DILUTION

A purchaser of our securities in this offering will be diluted to the extent of the difference between the price per share of our common stock in this offering and the net tangible book value per share of our common stock after this offering. As of September 30, 2020, our historical net tangible book value was \$14.5 million, or \$0.17 per share of common stock, based on 84,921,079 shares of common stock outstanding.

After giving effect to our sale in this offering of 10,000,000 shares of our common stock at a public offering price of \$1.44 per share, and after deducting underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of September 30, 2020 would have been \$27.5 million, or \$0.29 per share of our common stock. This amount results in an immediate increase of net tangible book value to our existing stockholders of \$0.12 per share, and an immediate dilution of \$1.15 per share to the new investors purchasing securities in this offering. The dilution information discussed below is illustrative only and will change based on the actual public offering price and other terms of this offering determined at pricing. The following table illustrates this dilution:

Public offering price per share		\$ 1.44
Net tangible book value per share as of September 30, 2020	\$ 0.17	
Increase in net tangible book value per share attributable to new investors in this offering	<u>\$ 0.12</u>	
Pro forma as adjusted net tangible book value per share after the offering		\$ 0.29
Dilution per share to investors in this offering		<u>\$ 1.15</u>

There were 48,325 shares of Series A preferred stock, 178 shares of Series B preferred stock, and no shares of Series C preferred stock outstanding as of September 30, 2020. The number of shares of common stock in the table above is based on 84,921,079 shares outstanding as of September 30, 2020, and excludes (in each case as of September 30, 2020):

- 6,826 shares of common stock issuable upon the exercise of stock options outstanding with a weighted average exercise price of \$1,241.89 per share;
- 3,128,250 shares of common stock issuable upon conversion of outstanding preferred stock, comprised of 2,416,250 shares of common stock issuable upon conversion of outstanding Series A preferred stock and 712,000 shares of common stock issuable upon conversion of outstanding Series B preferred stock;
- 2,753,999 shares of common stock issuable upon exercise of outstanding warrants, comprised of 1,768,850 shares of common stock issuable upon exercise of outstanding Series B Warrants, 108,309 shares of common stock issuable upon exercise of outstanding warrants issued in July 2018, and 876,840 shares of common stock issuable upon exercise of outstanding warrants issued in November 2018;
- 440,192 unvested restricted stock units;
- 202,544 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;
- 92,170 shares of common stock reserved for future issuance under our Officer and Director Share Purchase Plan, or ODPP; and
- the effect of the “full-ratchet” anti-dilution adjustment of the conversion price of our outstanding Series B preferred stock.

Unless otherwise indicated, the information in this prospectus supplement, including the number of shares outstanding after this offering, does not reflect any of the following transactions or events that occurred after September 30, 2020:

- the issuance of 3,866 shares of Series A preferred stock in payment of dividends payable on outstanding shares of Series A preferred stock issued in December 2020; and
- the issuance, exercise, vesting, expiration or forfeiture of any additional equity awards under our equity incentive plans or stock purchase plans.

To the extent that outstanding options or warrants are exercised or our preferred stock is converted, you will experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations, even if we believe that we have sufficient funds for our current or future operating plans. In the event that additional capital is raised through the sale of equity, our stockholders will be further diluted.

CERTAIN MATERIAL U.S. FEDERAL INCOME TAX CONSIDERATIONS

The following is a general discussion of certain material U.S. federal income tax considerations relating to the purchase, ownership and disposition of our common stock. This discussion is based on current provisions of the Internal Revenue Code of 1986, as amended (the "Internal Revenue Code"), existing and proposed U.S. Treasury Regulations promulgated or proposed thereunder and current administrative and judicial interpretations thereof, all as in effect as of the date of this prospectus supplement and all of which are subject to change or to differing interpretations, possibly with retroactive effect. We have not sought and will not seek any rulings from the Internal Revenue Service (the "IRS"), or opinion of counsel, regarding the matters discussed below. There can be no assurance that the IRS or a court will not take a contrary position.

This discussion is limited to U.S. holders and non-U.S. holders who hold our common stock as a capital asset within the meaning of Section 1221 of the Internal Revenue Code (generally, as property held for investment). This discussion does not address all aspects of U.S. federal income taxation, such as the U.S. alternative minimum income tax and the additional tax on net investment income, nor does it address any aspect of state, local or non-U.S. taxes, or U.S. federal taxes other than income taxes, such as federal estate and gift taxes. This discussion does not consider any specific facts or circumstances that may apply to a holder and does not address the special tax considerations that may be applicable to particular holders, such as:

- insurance companies;
- tax-exempt organizations;
- banks or other financial institutions;
- brokers or dealers in securities or foreign currency;
- traders in securities who elect to apply a mark-to-market method of accounting;
- real estate investment trusts, regulated investment companies or mutual funds;
- pension plans;
- controlled foreign corporations;
- passive foreign investment companies;
- persons that own (directly, indirectly or constructively) more than 5% of the total voting power or total value of our common stock;
- corporations that accumulate earnings to avoid U.S. federal income tax;
- certain former citizens or long-term residents of the United States;
- persons that have a "functional currency" other than the U.S. dollar;
- persons that acquire our common stock as compensation for services;
- owners that hold our stock as part of a straddle, hedge, conversion transaction, synthetic security or other integrated investment;
- holders subject to special accounting rules; and
- partnerships or other entities treated as partnerships for U.S. federal income tax purposes.

If any entity taxable as a partnership for U.S. federal income tax purposes holds our common stock, the U.S. federal income tax treatment of a partner in the partnership generally will depend on the status of the partner, the activities of the partnership and certain determinations made at the partner level. A partner in a partnership or other pass-through entity that holds our common stock should consult his, her or its own tax advisor regarding the applicable tax consequences.

For purposes of this discussion, the term "U.S. holder" means a beneficial owner of our common stock that is, for U.S. federal income tax purposes:

- an individual who is a citizen or resident of the United States;
- a corporation 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 have authority to control all substantial decisions of the trust or (2) the trust has a valid election to be treated as a U.S. person under applicable U.S. Treasury Regulations.

A "non-U.S. holder" is a beneficial owner of our common stock that is neither a U.S. holder nor a partnership (or other entity treated as a partnership for U.S. federal income tax purposes).

Prospective investors should consult their own tax advisors regarding the U.S. federal, state, local and non-U.S. income and other tax considerations of the purchase, ownership and disposition of our common stock.

U.S. Holders

Distributions on Common Stock

If we pay distributions of cash or property with respect to 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. If a distribution exceeds our current and accumulated earnings and profits, the excess will be treated as a tax-free return of the U.S. holder's investment, up to such holder's adjusted tax basis in its shares of our common stock. Any remaining excess will be treated as capital gain, subject to the tax treatment described below under the heading "U.S. Holders—Gain on Sale, Exchange or Other Taxable Disposition."

Dividends we pay to a U.S. holder that is a taxable corporation generally will qualify for the dividends received deduction if the requisite holding period is satisfied. With certain exceptions (including, but not limited to, dividends treated as investment income for purposes of investment interest deduction limitations), and provided certain holding period requirements are met, dividends we pay to a non-corporate U.S. holder generally will constitute "qualified dividends" that will be subject to tax at the maximum tax rate accorded to long-term capital gains.

Gain on Sale, Exchange or Other Taxable Disposition

Upon the sale or other taxable disposition of common shares, a U.S. holder generally will recognize capital gain or loss in an amount equal to the difference between (a) the amount of cash plus the fair market value of any property received and (b) such U.S. holder's tax basis in such common shares sold or otherwise disposed of. Such gain or loss generally will be long-term capital gain or loss if, at the time of the sale or other disposition, the common shares have been held by the U.S. holder for more than one year. Preferential tax rates may apply to long-term capital gain of a U.S. holder that is an individual, estate, or trust. Deductions for capital losses are subject to significant limitations.

Non-U.S. Holders

Distributions on Common Stock

If we pay distributions of cash or property with respect to 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. 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 such holder's tax basis in its shares of our common stock. Any remaining excess will be treated as capital gain, subject to the tax treatment described below under the heading "Non-U.S. Holders—Gain on Sale, Exchange or Other Taxable Disposition." 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. In the case of any constructive distribution, it is possible that this tax would be withheld from any amount owed to the non-U.S. holder, including, but not limited to, distributions of cash, common stock or sales proceeds subsequently paid or credited to that holder. If we are unable to determine, at the time of payment of a distribution, whether the distribution will constitute a dividend, we may nonetheless choose to withhold any U.S. federal income tax on the distribution as permitted by U.S. Treasury Regulations.

Distributions that are treated as effectively connected with a trade or business conducted by a non-U.S. holder within the United States are generally not subject to the 30% withholding tax if the non-U.S. holder provides a properly executed IRS Form W-8ECI stating that the distributions are not subject to withholding because they are effectively connected with the non-U.S. holder's conduct of a trade or business in the United States. If a non-U.S. holder is engaged in a trade or business in the United States and the distribution is effectively connected with the conduct of that trade or business, the distribution will generally have the consequences described above for a U.S. holder (subject to any modification provided under an applicable income tax treaty). Any U.S. effectively connected income received by a non-U.S. holder that is treated 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).

A non-U.S. holder 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, as applicable, and satisfy applicable certification and other requirements. A non-U.S. holder that is eligible for a reduced rate of U.S. withholding tax under an income tax treaty generally may obtain a refund or credit of any excess amounts withheld by timely filing an appropriate claim with the IRS. Non-U.S. holders should consult their own tax advisors regarding their entitlement to benefits under a relevant income tax treaty.

Gain on Sale, Exchange or Other Taxable Disposition

Subject to the discussions below in "—Information Reporting and Backup Withholding" and "—Foreign Account Tax Compliance Act," a non-U.S. holder generally will not be subject to U.S. federal income tax on gain recognized on a sale, exchange or other taxable 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 maintained by the non-U.S. holder in the United States; in these cases, the non-U.S. holder will be taxed on a net income basis at the regular graduated rates and in the manner applicable to a U.S. holder, and, if the non-U.S. holder is a corporation, an additional branch profits tax at a rate of 30%, or a lower rate as may be specified by an applicable income tax treaty, may also apply;
- the non-U.S. holder is an individual present in the United States for 183 days or more in the taxable year of the disposition and certain other conditions 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) on the amount by which such non-U.S. holder's capital gains allocable to U.S. sources exceed capital losses allocable to U.S. sources during the taxable year of the disposition; or
- our common stock constitutes "U.S. real property interests" by reason of our being or having been a "U.S. real property holding corporation" 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 domestic corporation is a "U.S. real property holding corporation" if the fair market value of its "U.S. real property interests" (within the meaning of the Internal Revenue Code) equals or exceeds 50% of the sum of the fair market value of its U.S. and worldwide real property interests plus its other assets used or held for use in a trade or business. 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. However, because the determination of whether we are a U.S. real property holding corporation depends on the fair market value of our U.S. real property interests relative to the fair market value of our U.S. and worldwide real property interests plus our other assets used or held for use in a trade or business, there can be no assurance that we will not become a U.S. real property holding corporation in the future. Even if we become a U.S. real property holding corporation, as long as our common stock is regularly traded on an established securities market, common stock held by a non-U.S. holder will be treated as U.S. real property interests only if such non-U.S. holder actually (directly or indirectly) or constructively holds more than five percent of the total voting power or total value of such regularly traded common stock at any time during the shorter of the five-year period preceding such non-U.S. holder's disposition of, or holding period for, our common stock.

Information Reporting and Backup Withholding

Distributions on, and the payment of the proceeds of a disposition of, our common stock generally will be subject to information reporting if made within the United States or through certain U.S.-related financial intermediaries. Information returns are required to be filed with the IRS and copies of information returns may be made available to the tax authorities of the country in which a holder resides or is incorporated under the provisions of a specific treaty or agreement.

Backup withholding may also apply if the holder fails to provide certification of exempt status or a correct U.S. taxpayer identification number and otherwise comply with the applicable backup withholding requirements. Generally, a holder will not be subject to backup withholding if it provides a properly completed and executed IRS Form W-9 or appropriate IRS Form W-8, as applicable. Backup withholding is not an additional tax. Amounts withheld under the backup withholding rules may be refunded or credited against the holder's U.S. federal income tax liability, if any, provided certain information is timely filed with the IRS.

Foreign Account Tax Compliance Act

Legislation commonly referred to as the Foreign Account Tax Compliance Act, or FATCA, generally imposes a U.S. federal withholding tax of 30% on payments to certain non-U.S. entities (including certain intermediaries) unless such persons comply with FATCA's information reporting and withholding regime. This regime and its requirements are different from, and in addition to, the certification requirements described elsewhere in this discussion. The FATCA withholding rules apply to dividend payments and, in the case of certain sales or other dispositions (including a distribution to the extent it is treated as a return of capital or capital gain), the gross proceeds of such disposition. Pursuant to Treasury Regulations proposed under Sections 1471 through 1474 of the Code, the U.S. Treasury Department and the IRS have proposed to eliminate the application of the FATCA withholding rules to gross proceeds from the sale or other disposition of any property of a type which can produce interest or dividends from U.S. sources. Taxpayers may rely on such proposed Treasury Regulations until final Treasury Regulations are issued.

The United States has entered into, and continues to negotiate, intergovernmental agreements (each, an "IGA") with a number of other jurisdictions to facilitate the implementation of FATCA. An IGA may significantly alter the application of FATCA and its information reporting and withholding requirements with respect to any particular investor. FATCA is particularly complex and its application remains uncertain. Prospective investors should consult their own tax advisors regarding how these rules may apply in their particular circumstances.

DESCRIPTION OF THE SECURITIES WE ARE OFFERING

In this offering, we are offering 10,000,000 shares of our common stock at the public offering price of \$1.44 per share of common stock. The material terms and provisions of our common stock are described under the captions "Description of Capital Stock" and "Common Stock," each beginning on page 5 of the accompanying prospectus.

UNDERWRITING

Aegis Capital Corp. is acting as the representative of the underwriters of the offering. We have entered into an underwriting agreement dated January 28, 2021 with the representative. Subject to the terms and conditions of the underwriting agreement, we have agreed to sell to the underwriters named below and the underwriters named below have severally agreed to purchase, at the public offering price less the underwriting discounts and commissions set forth on the cover page of this prospectus, the following respective number of shares of our common stock:

Underwriter	Number of Shares
Aegis Capital Corp.	10,000,000

The underwriters are committed to purchase all the shares of common stock offered by us, if they purchase any shares. The obligations of the underwriters may be terminated upon the occurrence of certain events specified in the underwriting agreement. Furthermore, pursuant to the underwriting agreement, the underwriters' obligations are subject to customary conditions, representations and warranties contained in the underwriting agreement, such as receipt by the underwriters of officers' certificates and legal opinions.

The underwriters propose to offer the shares of common stock for sale from time to time in one or more transactions on the NASDAQ Capital Market, in the over-the-counter market, through negotiated transactions or otherwise at market prices prevailing at the time of sale, at prices related to prevailing market prices or at negotiated prices, subject to receipt of acceptance by them and subject to their right to reject any order in whole or in part. The underwriter effects such transactions by selling the shares of common stock to or through dealers, and such dealers may receive compensation in the form of discounts, concessions or commissions from the underwriters and/or purchasers of shares of common stock for whom they may act as agents or to whom they may sell as principal. The difference between the price at which the underwriters purchase shares of common stock and the price at which the underwriters resell such shares of common stock may be deemed underwriting compensation.

We have agreed to indemnify the underwriters against specified liabilities, including liabilities under the Securities Act of 1933, as amended, and to contribute to payments the underwriters may be required to make in respect thereof.

The underwriters are offering the common stock, subject to prior sale, when, as and if issued to and accepted by them, subject to approval of legal matters by their counsel and other conditions specified in the underwriting agreement. The underwriters reserve the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

The underwriters propose to offer the common stock offered by us to the public at the public offering price set forth on the cover of this prospectus supplement. In addition, the underwriters may offer some of the common stock to other securities dealers at such price less a concession of \$0.0504 per share. After the initial offering, the public offering price and concession to dealers may be changed.

Discounts and Commissions. The following table shows the public offering price, underwriting discount and proceeds, before expenses, to us.

	Per Share	Total
Public offering price	\$ 1.44	\$ 14,400,000
Underwriting discount (7%)	\$ 0.1008	\$ 1,008,000
Non-accountable expenses (1%)	\$ 0.0144	\$ 144,000
Proceeds, before expenses, to us	\$ 1.3248	\$ 13,248,000

We have also agreed to pay all expenses relating to the offering, including (a) all filing fees and expenses relating to the registration of the shares to be sold in the offering with the Securities and Exchange Commission; (b) all fees associated with the review of the offering by FINRA; (c) all fees and expenses relating to the listing of such shares on the NASDAQ Capital Market; (d) all fees, expenses and disbursements relating to the registration, qualification or exemption of securities offered under the "blue sky" securities laws designated by the underwriters; (e) all fees, expenses and disbursements relating to the registration, qualification or exemption of securities offered under the securities laws of foreign jurisdictions designated by the underwriters; (f) the costs of all mailing and printing of the offering documents; (g) transfer and/or stamp taxes, if any, payable upon the transfer of the shares from the Company to the representative; (h) fees and expenses of our legal counsel and accountants; and (i) "road show" expenses, diligence fees and the fees and expenses of the representative's legal counsel not to exceed \$65,000.

We estimate that the total expenses of the offering, excluding the underwriting discount, will be approximately \$240,000.

Discretionary Accounts. The underwriters do not intend to confirm sales of the securities offered hereby to any accounts over which they have discretionary authority.

Lock-Up Agreements. Pursuant to certain "lock-up" agreements, (a) our executive officers and directors as of the pricing date of the offering, have agreed, subject to certain exceptions, not to offer, issue, sell, contract to sell, encumber, grant any option for the sale of or otherwise dispose of any securities of the company without the prior written consent of the representative, for a period of 60 days from the date of the offering, and (b) we, and any successor, have agreed, subject to certain exceptions, not to for a period of 60 days from the date of the offering (1) offer, sell or otherwise transfer or dispose of, directly or indirectly, any shares of capital stock of the Company or (2) file or caused to be filed any registration statement with the SEC relating to the offering of any shares of our capital stock or any securities convertible into or exercisable or exchangeable for shares of our capital stock.

This lock-up provision applies to common stock and to securities convertible into or exchangeable or exercisable for common stock. It also applies to common stock owned now or acquired later by the person executing the agreement or for which the person executing the agreement later acquires the power of disposition. The exceptions permit, among other things and subject to restrictions, the issuance of common stock upon the exercise of outstanding stock options and warrants or other outstanding convertible securities.

Right of First Refusal. For a period of six months after the closing date of the offering, the representative shall have a right of first refusal to act as lead managing underwriter and/or lead placement agent for any and all future public or private equity, equity-linked or debt (excluding commercial bank debt) offerings during such six month period of the Company or any subsidiary of the Company. Such right of first refusal will not apply to any offering conducted in conjunction with a merger, business combination or similar-type transaction or to the issuance by the Company of stock options, shares of capital stock of the Company or other awards under any equity compensation plan of the Company.

Electronic Offer, Sale and Distribution of Shares. A prospectus supplement in electronic format may be made available on the websites maintained by one or more of the underwriters or selling group members, if any, participating in this offering and one or more of the underwriters participating in this offering may distribute prospectus supplements electronically. The representative may agree to allocate a number of shares to underwriters and selling group members for sale to their online brokerage account holders. Internet distributions will be allocated by the underwriters and selling group members that will make internet distributions on the same basis as other allocations. Other than the prospectus supplement in electronic format, the information on these websites is not part of this prospectus supplement or the registration statement of which this prospectus supplement forms a part, has not been approved or endorsed by us or any underwriter in its capacity as underwriter, and should not be relied upon by investors.

Other Relationships. Certain of the underwriters and their affiliates may in the future provide various investment banking, commercial banking and other financial services for us and our affiliates for which they may receive customary fees; however, except as disclosed in this prospectus supplement, we have no present arrangements with any of the underwriters for any further services.

Stabilization. In connection with this offering, the underwriter may engage in stabilizing transactions, syndicate covering transactions, and penalty bids in connection with our common stock.

Stabilizing transactions permit bids to purchase shares of common stock so long as the stabilizing bids do not exceed a specified maximum.

Syndicate covering transactions involve purchases of common stock in the open market after the distribution has been completed in order to cover syndicate short positions. Such a naked short position would be closed out by buying securities in the open market. A naked short position is more likely to be created if the underwriter is concerned that there could be downward pressure on the price of the securities in the open market after pricing that could adversely affect investors who purchase in the offering.

Penalty bids permit the underwriter to reclaim a selling concession from a syndicate member when the securities originally sold by the syndicate member are purchased in a stabilizing or syndicate cover transaction to cover syndicate short positions. These stabilizing transactions, syndicate covering transactions and penalty bids may have the effect of raising or maintain the market price of our common stock or preventing a decline in the market price of our common stock. As a result, the price of our common stock in the open market may be higher than it would otherwise be in the absence of these transactions. Neither we nor the underwriter makes any representation or prediction as to the effect that the transactions described above may have on the price of our common stock. These transactions may be effected on the NASDAQ Capital Market, in the over-the-counter market or otherwise and, if commenced, may be discontinued at any time.

Passive market making. In connection with this offering, underwriters and selling group members may engage in passive market making transactions in our common stock in accordance with Rule 103 of Regulation M under the Exchange Act, during a period before the commencement of offers or sales of the shares and extending through the completion of the distribution. A passive market maker must display its bid at a price not in excess of the highest independent bid of that security. However, if all independent bids are lowered below the passive market maker's bid, that bid must then be lowered when specified purchase limits are exceeded.

Offer restrictions outside the United States

Other than in the United States, no action has been taken by us or the underwriters that would permit a public offering of the securities offered by this prospectus supplement in any jurisdiction where action for that purpose is required. The securities offered by this prospectus supplement may not be offered or sold, directly or indirectly, nor may this prospectus supplement or any other offering material or advertisements in connection with the offer and sale of any such securities be distributed or published in any jurisdiction, except under circumstances that will result in compliance with the applicable rules and regulations of that jurisdiction. Persons into whose possession this prospectus supplement comes are advised to inform themselves about and to observe any restrictions relating to the offering and the distribution of this prospectus supplement. This prospectus supplement does not constitute an offer to sell or a solicitation of an offer to buy any securities offered by this prospectus supplement in any jurisdiction in which such an offer or a solicitation is unlawful.

Listing

Our common stock is listed on the NASDAQ Capital Market under the symbol "AVGR."

Transfer Agent

The transfer agent for our common stock is American Stock Transfer & Trust Company, LLC.

LEGAL MATTERS

The validity of the issuance of the shares of common stock offered by us in this offering will be passed upon for us by Dorsey & Whitney, LLP, Salt Lake City, Utah. The underwriters are represented in this offering by Sichenzia Ross Ference LLP, New York, New York.

EXPERTS

The financial statements of Avinger, Inc. as of December 31, 2019 and 2018 and for the years then ended, have been audited by Moss Adams LLP, an independent registered public accounting firm, as stated in their report, which is incorporated herein by reference. Such financial statements have been incorporated by reference in this prospectus in reliance upon the report of such firm (which report expresses an unqualified opinion and includes explanatory paragraphs regarding a going concern emphasis and the adoption of Accounting Standards Codification Topics No. 606, Revenue Recognition in 2018 and No. 842, Leases in 2019) given upon their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and other 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>. Our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K, including any amendments to those reports, and other information that we file with or furnish to the SEC pursuant to Section 13(a) or 15(d) of the Exchange Act can also be accessed free of charge through the Internet. These filings will be available as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC.

We have filed with the SEC a registration statement under the Securities Act of 1933 relating to the offering of these securities. The registration statement, including the attached exhibits, contains additional relevant information about us and the securities. This prospectus supplement and the accompanying prospectus do not contain all of the information set forth in the registration statement. You can obtain a copy of the registration statement, at prescribed rates, from the SEC at the address listed above. The registration statement and the documents referred to below under "Information Incorporated by Reference" are also available on our Internet website, www.avinger.com. We have not incorporated by reference into this prospectus supplement or the accompanying prospectus the information on our website, and you should not consider it to be a part of this prospectus supplement or the accompanying prospectus.

INFORMATION INCORPORATED BY REFERENCE

The SEC allows us to incorporate by reference into this prospectus supplement and the accompanying prospectus certain information we file with it, which means that we can disclose important information by referring you to those documents. The information incorporated by reference is considered to be a part of this prospectus supplement and the accompanying prospectus, and information that we file later with the SEC will automatically update and supersede information contained in this prospectus supplement and the accompanying prospectus. We incorporate by reference the documents listed below that we have previously filed with the SEC (excluding any portions of any Form 8-K that are not deemed "filed" pursuant to the General Instructions of Form 8-K):

- our Annual Report on [Form 10-K](#) for the fiscal year ended December 31, 2019, filed with the SEC on March 6, 2020;
- our Quarterly Reports on Form 10-Q for the quarterly periods ended [March 31, 2020](#), filed with the SEC on May 13, 2020; ended [June 30, 2020](#), filed with the SEC on July 30, 2020, and ended [September 30, 2020](#), filed with the SEC on November 10, 2020;
- our Current Reports on Form 8-K filed with the SEC on [January 30, 2020](#), [January 31, 2020](#), [March 13, 2020](#), [April 15, 2020](#) (with respect to Item 5.02 and Item 8.01 only), [April 24, 2020](#) (with respect to Item 2.03 and Item 3.01 only), [April 29, 2020](#), [June 25, 2020](#), [August 4, 2020](#), [August 21, 2020](#), [September 11, 2020](#) (with respect to Item 5.02 and Item 8.01 only), [October 6, 2020](#), [November 25, 2020](#), [December 11, 2020](#), [December 23, 2020](#), [December 23, 2020](#), [January 26, 2021](#) (other than with respect to Item 7.01), and [January 27, 2021](#); and

- the description of our common stock, which is contained in the Registration Statement on [Form 8-A](#), as filed with the SEC on January 27, 2015, as updated by the description of our common stock contained in [Exhibit 4.5](#) to our Annual Report on Form 10-K for the fiscal year ended December 31, 2019, filed with the SEC on March 6, 2020.

We also incorporate by reference into this prospectus supplement and the accompanying prospectus all documents that we file with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the completion or termination of the offering. Notwithstanding the foregoing, we are not incorporating by reference information furnished under Items 2.02 and 7.01 of any Current Report on Form 8-K, including the related exhibits, nor in any documents or other information that is deemed to have been “furnished” to and not “filed” with the SEC.

Any statements contained in a previously filed document incorporated by reference into this prospectus supplement and the accompanying prospectus is deemed to be modified or superseded for purposes of this prospectus supplement and the accompanying prospectus to the extent that a statement contained in this prospectus supplement and the accompanying prospectus, or in a subsequently filed document also incorporated by reference herein, modifies or supersedes that statement.

This prospectus supplement and the accompanying prospectus may contain information that updates, modifies or is contrary to information in one or more of the documents incorporated by reference in this prospectus supplement and the accompanying prospectus. You should rely only on the information incorporated by reference or provided in this prospectus supplement and the accompanying prospectus. We have not authorized anyone else to provide you with different information. You should not assume that the information in this prospectus supplement or the accompanying prospectus is accurate as of any date other than the date of this prospectus supplement or the accompanying prospectus or the date of the documents incorporated by reference in this prospectus supplement and the accompanying prospectus.

We will provide to each person, including any beneficial owner, to whom this prospectus supplement and the accompanying prospectus is delivered, upon written or oral request, at no cost to the requester, a copy of any and all of the information that is incorporated by reference in this prospectus supplement and the accompanying prospectus.

Requests for such documents should be directed to:

Avinger, Inc.
400 Chesapeake Drive
Redwood City, CA 94063
Attention: Secretary
Phone: (650) 241-7900
E-mail: stockadmin@avinger.com
mweinswig@avinger.com

You may also access the documents incorporated by reference in this prospectus supplement and the accompanying prospectus through our website at www.avinger.com. Except for the specific incorporated documents listed above, no information available on or through our website shall be deemed to be incorporated in this prospectus supplement and the accompanying prospectus or the registration statement of which they form a part.

PROSPECTUS



\$50,000,000

Avinger, Inc.

**Common stock
Preferred stock
Depositary shares
Warrants
Debt securities
Subscription Rights
Units**

**8,705 Shares of Common Stock
Offered by the Selling Stockholders**

Avinger, Inc., a Delaware corporation ("Avinger"), may offer and sell from time to time, in one or more series or issuances and on terms that we will determine at the time of the offering, any combination of the securities described in this prospectus, up to an aggregate amount of \$50,000,000. In addition, the selling stockholders may from time to time offer and sell up to 8,705 shares of our common stock. We will not receive any of the proceeds from the sale of our common stock by the selling stockholders.

We will provide specific terms of any offering in a supplement to this prospectus. Any prospectus supplement may also add, update or change information contained in this prospectus. You should carefully read this prospectus and the applicable prospectus supplement as well as the documents incorporated or deemed to be incorporated by reference in this prospectus before you purchase any of the securities offered hereby.

These securities may be offered and sold in the same offering or in separate offerings; to or through underwriters, dealers and agents; or directly to purchasers. The names of any underwriters, dealers or agents involved in the sale of our securities, their compensation and any over-allotment options held by them will be described in the applicable prospectus supplement. See the section titled "Plan of Distribution."

Our common stock is listed on The NASDAQ Capital Market under the symbol "AVGR". We will provide information in any applicable prospectus supplement regarding any listing of securities other than shares of our common stock on any securities exchange.

We are an "emerging growth company" as defined under the federal securities laws and, as such, have elected to comply with certain reduced public company reporting requirements.

INVESTING IN OUR SECURITIES INVOLVES SIGNIFICANT RISKS. YOU SHOULD REVIEW CAREFULLY THE "RISK FACTORS" ON PAGE 4 OF THIS PROSPECTUS AND IN THE APPLICABLE PROSPECTUS SUPPLEMENT BEFORE INVESTING IN OUR SECURITIES.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus is March 29, 2019

Table of Contents

	Page
About this Prospectus	i
Prospectus Summary	1
Risk Factors	4
Forward-Looking Statements	4
Use of Proceeds	4
Description of Capital Stock	5
Description of Depositary Shares	20
Description of Warrants	23
Description of Debt Securities	26
Description of Subscription Rights	37
Description of Units	38
Selling Security Holders	39
Plan of Distribution	40
Legal Matters	43
Experts	43
Where You Can Find More Information	43
Information Incorporated by Reference	43

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the United States Securities and Exchange Commission, or the SEC, using a “shelf” registration process. Under this shelf process, we may, from time to time, sell any combination of the securities described in this prospectus in one or more offerings up to a total amount of \$50,000,000. In addition, under this shelf process, the selling stockholders named in this prospectus may sell from time to time up to 8,705 shares of Avinger common stock.

This prospectus provides you with a general description of the securities we or the selling stockholders may offer. Each time we or the selling stockholders sell securities, we will provide a prospectus supplement that will contain specific information about the terms of that offering. The prospectus supplement may also add to, update or change information contained in the prospectus and, accordingly, to the extent inconsistent, information in this prospectus is superseded by the information in the prospectus supplement.

The prospectus supplement to be attached to the front of this prospectus may describe, as applicable: the terms of the securities offered; the public offering price; the price paid for the securities; net proceeds; and the other specific terms related to the offering of the securities.

You should only rely on the information contained or incorporated by reference in this prospectus and any prospectus supplement or free writing prospectus relating to a particular offering. No person has been authorized to give any information or make any representations in connection with this offering other than those contained or incorporated by reference in this prospectus, any accompanying prospectus supplement and any related free writing prospectus in connection with the offering described herein and therein, and, if given or made, such information or representations must not be relied upon as having been authorized by us. Neither this prospectus nor any prospectus supplement nor any related free writing prospectus shall constitute an offer to sell or a solicitation of an offer to buy offered securities in any jurisdiction in which it is unlawful for such person to make such an offering or solicitation. This prospectus does not contain all of the information included in the registration statement. For a more complete understanding of the offering of the securities, you should refer to the registration statement, including its exhibits.

You should read the entire prospectus and any prospectus supplement and any related free writing prospectus, as well as the documents incorporated by reference into this prospectus or any prospectus supplement or any related free writing prospectus, before making an investment decision. Neither the delivery of this prospectus or any prospectus supplement or any free writing prospectus nor any sale made hereunder shall under any circumstances imply that the information contained or incorporated by reference herein or in any prospectus supplement or free writing prospectus is correct as of any date subsequent to the date hereof or of such prospectus supplement or free writing prospectus, as applicable. You should assume that the information appearing in this prospectus, any prospectus supplement or any document incorporated by reference is accurate only as of the date of the applicable documents, regardless of the time of delivery of this prospectus or any sale of securities. Our business, financial condition, results of operations and prospects may have changed since that date.

“Avinger,” “Pantheris” and “Lumivascular” are trademarks of our company. Our logo and our other trade names, trademarks and service marks appearing in this 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 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.

PROSPECTUS SUMMARY

This summary description about us and our business highlights selected information contained elsewhere in this prospectus or incorporated in this prospectus by reference. This summary does not contain all of the information you should consider before buying securities in this offering. You should carefully read this entire prospectus and any applicable prospectus supplement, including each of the documents incorporated herein or therein by reference, before making an investment decision. Unless the context otherwise requires, the terms “Avinger,” “the Company,” “we,” “us” and “our” in this prospectus refer to Avinger, Inc., and its subsidiaries.

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 additional 510(k) clearances for enhanced versions of Pantheris in March 2016 and May 2018 and commenced sales of Pantheris in the United States and select European countries promptly thereafter. We also offer the Wildcat and Kittykat 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 specifically include in-stent restenosis. We received CE Marking in December 2017 and 510(k) clearance in May 2018 for a next-generation version of our Pantheris atherectomy device, which we believe represents a significant improvement over our prior product. This next-generation version of Pantheris includes new features and design improvements to the handle, shaft, balloon and nose cone that we believe improve usability and reliability of the device. The next-generation Pantheris atherectomy device is available for commercial sale in the United States and select international markets. On December 13, 2018 we announced the 500th patient treated with the next-generation Pantheris. All previous versions of Pantheris have been discontinued.

We are developing a line extension of our Pantheris image-guided atherectomy platform, Pantheris SV (Small Vessel), a lower profile version of Pantheris. The lower profile Pantheris has a smaller diameter and longer length that we believe will optimize it for use in smaller vessels. We submitted a 510(k) application for Pantheris SV in August 2018 and received CE Marking approval in October 2018. On November 15, 2018 we announced the successful treatment of the first patients globally with Pantheris SV by a vascular surgeon in Münster, Germany. Pantheris SV is available in limited supply for commercial sale in the EU; it is not available for commercial sale 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 \$10.7 million in 2015, \$19.2 million in 2016, \$9.9 million in 2017 and \$7.9 million in 2018.

Corporate Information

We were incorporated in Delaware on March 8, 2007. Our principal executive offices are located at 400 Chesapeake Drive, Redwood City, California 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.

The Securities We May Offer

We may offer up to \$50,000,000 of common stock, preferred stock, depositary shares, warrants, debt securities, subscription rights and units in one or more offerings and in any combination. In addition, the selling stockholders may sell up to 8,705 shares of our common stock from time to time in one or more offerings. This prospectus provides you with a general description of the securities we and the selling stockholders may offer. A prospectus supplement, which we will provide each time we offer securities, will describe the specific amounts, prices and terms of these securities.

Common Stock

Holders of our common stock are entitled to one vote for each share held on all matters submitted to a vote of stockholders. Our amended and restated certificate of incorporation does not provide for cumulative voting rights. Subject to preferences that may apply to any shares of preferred stock outstanding at the time, the holders of our common stock are entitled to receive dividends out of funds legally available if our board of directors, in its discretion, determines to issue dividends and then only at the times and in the amounts that our board of directors may determine. If we become subject to a liquidation, dissolution or winding-up, the assets legally available for distribution to our stockholders would be distributable ratably among the holders of our common stock and any participating preferred stock outstanding at that time, subject to prior satisfaction of all outstanding debt and liabilities and the preferential rights of and the payment of liquidation preferences, if any, on any outstanding shares of preferred stock.

Preferred Stock and Depositary Shares

Our board of directors has the authority, subject to limitations prescribed by Delaware law, to issue preferred stock in one or more series, to establish from time to time the number of shares to be included in each series, and to fix the designation, powers, preferences and rights of the shares of each series and any of its qualifications, limitations or restrictions, in each case without further vote or action by our stockholders.

We may also issue fractional shares of preferred stock that will be represented by depositary shares and depositary receipts.

Each series of preferred stock, depositary shares or depositary receipts, if issued, will be more fully described in the particular prospectus supplement that will accompany this prospectus, including redemption provisions, rights in the event of our liquidation, dissolution or winding-up, voting rights and rights to convert into common stock. We have no present plans to issue any shares of preferred stock, depositary shares or depositary receipts nor are any shares of our preferred stock, depositary shares or depositary receipts presently outstanding.

Warrants

We may issue warrants for the purchase of common stock, preferred stock or debt securities. We may issue warrants independently or together with other securities.

Debt Securities

We may offer secured or unsecured obligations in the form of one or more series of senior or subordinated debt. The senior debt securities and the subordinated debt securities are together referred to in this prospectus as the “debt securities.” The subordinated debt securities generally will be entitled to payment only after payment of our senior debt. Senior debt generally includes all debt for money borrowed by us, except debt that is stated in the instrument governing the terms of that debt to be not senior to, or to have the same rank in right of payment as, or to be expressly junior to, the subordinated debt securities. We may issue debt securities that are convertible into shares of our common stock.

The senior and subordinated debt securities will be issued under separate indentures between us and a trustee. We have summarized the general features of the debt securities to be governed by the indentures. These indentures have been filed as exhibits to the registration statement of which this prospectus forms a part. We encourage you to read these indentures. Instructions on how you can get copies of these documents are provided in the section titled “Where You Can Find More Information.”

Subscription Rights

We may issue subscription rights to purchase our common stock, preferred stock or debt securities. These subscription rights may be offered independently or together with any other security offered hereby and may or may not be transferable by the stockholder receiving the subscription rights in such offering.

Units

We may issue units comprised of one or more of the other classes of securities issued by us as described in this prospectus in any combination. Each unit will be issued so that the holder of the unit is also the holder of each security included in the unit.

RISK FACTORS

An investment in our securities involves a high degree of risk. The prospectus supplement applicable to each offering of our securities will contain a discussion of the risks applicable to an investment in our securities. Prior to making a decision about investing in our securities, you should carefully consider the specific factors discussed in the section titled “Risk Factors” in the applicable prospectus supplement, together with all of the other information contained or incorporated by reference in the prospectus supplement or appearing or incorporated by reference in this prospectus. You should also consider the risks, uncertainties and assumptions discussed under “Part I—Item 1A—Risk Factors” in our Annual Report on Form 10-K for the fiscal year ended December 31, 2018, which is incorporated herein by reference, and as may be amended, supplemented or superseded from time to time by other reports we file with the SEC in the future and any prospectus supplement related to a particular offering. The risks and uncertainties we have described are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect our operations. The occurrence of any of these known or unknown risks might cause you to lose all or part of your investment in the offered securities.

FORWARD-LOOKING STATEMENTS

This prospectus, each prospectus supplement and the information incorporated by reference in this prospectus and each prospectus supplement contain certain statements that constitute “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. The words “anticipate,” “could,” “expect,” “believe,” “goal,” “plan,” “intend,” “estimate,” “may,” “seek,” “potential,” “predict,” “project,” “should,” “would,” “will,” and similar expressions and variations thereof are intended to identify forward-looking statements, but are not the exclusive means of identifying such statements. Those statements appear in this prospectus, any accompanying prospectus supplement and the documents incorporated herein and therein by reference, particularly in the sections entitled “Prospectus Summary,” “Risk Factors,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and “Business,” and include statements regarding the intent, belief or current expectations of the company and management that are subject to known and unknown risks, uncertainties and assumptions and other factors that could cause actual results and the timing of certain events to differ materially from future results expressed or implied by such forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to those discussed in the section titled “Risk Factors” set forth above.

This prospectus, any prospectus supplement and the information incorporated by reference in this prospectus and any prospectus supplement also contain statements that are based on management’s current expectations and beliefs, including estimates and projections about our company, industry, financial condition, results of operations and other matters. These statements are not guarantees of future performance and are subject to numerous risks, uncertainties, and assumptions that are difficult to predict.

Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified, you should not rely upon forward-looking statements as predictions of future events. The events and circumstances reflected in the forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. Except as required by applicable law, including the securities laws of the United States and the rules and regulations of the SEC, we do not plan to publicly update or revise any forward-looking statements contained herein after we distribute this prospectus, whether as a result of any new information, future events or otherwise.

USE OF PROCEEDS

Unless otherwise indicated in the prospectus supplement, we will use the net proceeds from the sale of securities offered by this prospectus for general corporate purposes, which may include working capital, capital expenditures, other corporate expenses and acquisitions of complementary products, technologies or businesses. We do not have agreements or commitments for any specific acquisitions at this time. The timing and amount of our actual expenditures will be based on many factors, including cash flows from operations and the anticipated growth of our business. As a result, unless otherwise indicated in the prospectus supplement, our management will have broad discretion to allocate the net proceeds of the offerings. Pending their ultimate use, we intend to invest the net proceeds in short-term, investment-grade, interest-bearing instruments.

We will not receive any proceeds from the sale of shares of our common stock by the selling stockholders.

DESCRIPTION OF CAPITAL STOCK

The following description summarizes the most important terms of our capital stock and does not purport to be complete and is qualified in its entirety by the provisions of our amended and restated certificate of incorporation and amended and restated bylaws, which documents are incorporated by reference as exhibits to the registration statement of which this prospectus is a part, and the applicable provisions of the Delaware General Corporation Law (the "DGCL").

General

Our authorized capital stock consists of one hundred million (100,000,000) shares of common stock, \$0.001 par value per share, and five million (5,000,000) shares of undesignated preferred stock, \$0.001 par value per share.

Common Stock

Outstanding Shares

As of December 31, 2018, there were 34,921,999 shares of common stock outstanding, held of record by 169 stockholders. Our board of directors is authorized, without stockholder approval, to issue additional shares of our common stock.

As of December 31, 2018, there were 47,575,393 shares of common stock subject to the exercise of outstanding warrants, 30,557,500 shares of common stock subject to the conversion of outstanding preferred stock, and 3,020,207 shares of common stock subject to outstanding equity awards.

Dividend Rights

Subject to preferences that may be applicable to any then outstanding preferred stock, holders of our common stock are entitled to receive dividends, if any, as may be declared from time to time by our board of directors out of legally available funds. We have never declared or paid cash dividends on any of our capital stock and currently do not anticipate paying any cash dividends after this offering or in the foreseeable future.

Voting Rights

There are 100,000,000 shares of common stock authorized for issuance. Pursuant to our amended and restated certificate of incorporation, each holder of our common stock is entitled to one vote for each share on all matters submitted to a vote of stockholders; provided, however, that, except as otherwise required by law, holders of our common stock, as such, shall not be entitled to vote on any amendment to our amended and restated certificate of incorporation that relates solely to the terms of one or more outstanding series of preferred stock if the holders of such affected series are entitled, either separately or together with the holders of one or more other such series, to vote thereon pursuant to our amended and restated certificate of incorporation. Pursuant to our amended and restated certificate of incorporation and amended and restated bylaws, corporate actions can generally be taken by a majority of our board and/or stockholders holding a majority of our outstanding shares, except as otherwise indicated in the section entitled "Anti-takeover Effects of Delaware Law and Our Certificate of Incorporation and Bylaws," where certain amendments to our amended and restated certificate of incorporation and amended and restated bylaws require the vote of at least 66 2/3% of our then outstanding voting securities. Additionally, our stockholders do not have cumulative voting rights in the election of directors. Accordingly, holders of a plurality of the votes cast at a meeting of stockholders will be able to elect all of the directors then standing for election.

Right to Receive Liquidation Distributions

In the event of our liquidation, dissolution or winding up, holders of our common stock are entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities and the satisfaction of any liquidation preference granted to the holders of any then outstanding shares of preferred stock.

Rights and Preferences

Holders of our common stock have no preemptive, conversion, subscription or other rights, and there are no redemption or sinking fund provisions applicable to our common stock. The rights, preferences and privileges of the holders of our common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of our preferred stock that we may designate in the future.

Fully Paid and Nonassessable

All of our outstanding shares of common stock are, and the shares of common stock to be issued pursuant to this offering, when paid for, will be, fully paid and nonassessable.

Preferred Stock

Under our amended and restated certificate of incorporation, we have authority, subject to any limitations prescribed by law and without further stockholder approval, to issue from time to time up to 5,000,000 shares of preferred stock, par value \$0.001 per share, in one or more series. As of December 31, 2018, 60,000 shares of preferred stock were designated Series A preferred stock, 18,000 shares of preferred stock were designated Series B preferred stock and 8,586 shares of preferred stock were designated Series C preferred stock. As of December 31, 2018, 41,800 shares of Series A preferred stock were issued and outstanding, 1,701 shares of Series B preferred stock were issued and outstanding and 2,170 shares of Series C preferred stock were issued and outstanding. Subsequent to December 31, 2018, all shares of Series C preferred stock were converted into common stock and therefore there are no longer any shares of Series C preferred stock outstanding.

Pursuant to our amended and restated certificate of incorporation, we are authorized to issue "blank check" preferred stock, which may be issued from time to time in one or more series upon authorization by our board of directors. Our board of directors, without further approval of the stockholders, is authorized to fix the designation, powers, preferences, relative, participating optional or other special rights, and any qualifications, limitations and restrictions applicable to each series of the preferred stock. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes could, among other things, adversely affect the voting power or rights of the holders of our common stock and, under certain circumstances, make it more difficult for a third party to gain control of us, discourage bids for our common stock at a premium or otherwise adversely affect the market price of the common stock.

Series A Convertible Preferred Stock

The preferences and rights of the Series A preferred stock are as set forth in a Certificate of Designation of Preferences, Rights and Limitations of Series A Convertible Preferred Stock, or the Series A Certificate of Designation, filed as Exhibit 3.1 to our Current Report on Form 8-K, filed with the SEC on February 23, 2018, as well as the Certificate of Amendment to the Series A Certificate of Designation, filed as Exhibit 3.1 to our Current Report on Form 8-K, filed with the SEC on November 6, 2018. The following is a summary of the material terms of our Series A preferred stock and is qualified in its entirety by the Series A Certificate of Designation. Please refer to the Series A Certificate of Designation for more information on the preferences, rights and limitations of Series A preferred stock.

Liquidation. Upon any dissolution, liquidation or winding up, whether voluntary or involuntary, holders of Series A preferred stock will be entitled to receive distributions out of our assets, whether capital or surplus, of the greater of (i) an amount equal to \$1,000 per share plus accrued and unpaid dividends thereon or (ii) such amount as would be payable if the Series A preferred stock had been converted to common stock. Amounts payable to the Series A preferred stock upon any dissolution, liquidation or winding up are payable prior and in preference to the payment of any amounts to the holders of Series B preferred stock, Series C preferred stock or common stock.

Dividends. Holders of the Series A preferred stock are entitled to receive accruing dividends of 8% per annum, which dividends are cumulative and annually compounded. The holders of Series A preferred stock will be entitled to receive an amount equal (on an "as converted to common stock" basis) to and in the same form as dividends actually paid on shares of our common stock when, as and if such dividends are paid on shares of our common stock. We have an option to pay the Series A preferred stock's accruing dividend in additional shares of Series A preferred stock and have utilized this option in the past.

Conversion. Each share of Series A preferred stock is convertible, at any time and from time to time at the option of the holder thereof, into that number of shares of common stock determined by dividing \$1,000 by the conversion price of \$2.00 (subject to adjustment as described below). This right to convert is limited by the beneficial ownership limitation described below.

CRG Partner III L.P. and certain of its affiliated funds, collectively referred to as CRG, are the majority holder of the Series A preferred stock and has agreed to suspend the conversion of its Series A preferred stock into common stock until such time as our stockholders have approved an amended and restated certificate of incorporation authorizing at least 125 million shares of common stock. The Company has agreed to call a meeting of the Company's stockholders on or before June 30, 2019, and to use its reasonable best efforts (including the hiring of a proxy solicitor), to obtain approval from the stockholders of the Company for an amended and restated certificate of incorporation that increases the number of authorized shares to at least 125 million shares (or such larger number of shares as is necessary) in order to allow for the conversion of the outstanding Series A preferred stock into common stock. In this regard, the Company shall include approval of an amended and restated certificate of incorporation as a proposal to be voted on by the stockholders in such stockholders meeting. If such proposal is not approved in the next stockholders meeting the Company shall include a similar proposal on its agenda for following stockholders meetings and continue to use reasonable best efforts to obtain its approval until such proposal is approved.

Forced Conversion. If the Company's average market capitalization is at least \$100,000,000 both (i) on a given date, based on the closing price and number of shares outstanding and (ii) for the prior quarter, based on the volume-weighted average closing price during such quarter and number of shares outstanding on the last day of such quarter, the Series A preferred stock is subject to mandatory conversion (subject to the beneficial ownership limitation below).

Beneficial Ownership Limitation. A holder shall have no right to convert any portion of Series A preferred stock, to the extent that, after giving effect to such conversion, such holder, together with such holder's affiliates, and any persons acting as a group together with such holder or any such affiliate, would beneficially own in excess of 4.99% (or, upon election by a holder any higher or lower percentage) of the number of shares of common stock outstanding immediately after giving effect to the issuance of shares of common stock upon such conversion. A holder of Series A preferred stock may adjust the percentage of the beneficial ownership upon not less than 61 days prior notice. Beneficial ownership of the holder and its affiliates will be determined in accordance with Section 13(d) of the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder. Holders of Series B preferred stock who are subject to such beneficial ownership limitation are and will remain responsible for ensuring their own compliance with Regulation 13D-G promulgated under the Securities Exchange Act of 1934, as amended, consistent with their individual facts and circumstances. In addition, pursuant to Rule 13d-3(d)(1)(i) promulgated under the Securities Exchange Act of 1934, as amended, any person who acquires Series A preferred stock with the purpose or effect of changing or influencing the control of our company, or in connection with or as a participant in any transaction having such purpose or effect, immediately upon such acquisition will be deemed to be the beneficial owner of the underlying common stock.

Optional Redemption. Subject to the terms of the certificate of designation, the Company holds an option to redeem some or all the Series A preferred stock for the amount per share otherwise payable upon a liquidation, dissolution or winding up of the Company, upon 30 days prior written notice to the holder of the Series A preferred stock.

Stock Dividends and Stock Splits. If we pay a stock dividend or otherwise make a distribution payable in shares of common stock on shares of common stock or any other common stock equivalents, subdivide or combine outstanding common stock, or reclassify common stock, the conversion price will be adjusted by multiplying the then effective conversion price by a fraction, the numerator of which shall be the number of shares of common stock (including shares issuable upon conversion of the Series B preferred stock and Series C preferred stock) outstanding immediately before such event, and the denominator of which shall be the number of shares outstanding immediately after such event (assuming conversion of the Series B preferred stock and Series C preferred stock).

Fundamental Transaction. In the event we consummate a merger or consolidation with or into another person or other reorganization event in which our common stock is converted or exchanged for securities, cash or other property, or we sell, lease, license, assign, transfer, convey or otherwise dispose of all or substantially all of our assets or we or another person acquire 50% or more of our outstanding shares of common stock, then following such event, the holders of the Series A preferred stock will be entitled to receive upon conversion of the Series A preferred stock the same kind and amount of securities, cash or property which the holders would have received had they converted the Series A preferred stock immediately prior to such fundamental transaction.

Voting Rights, etc. Except as otherwise provided in the Series A Certificate of Designation or required by law, the Series A preferred stock has no voting rights. However, as long as any shares of Series A preferred stock are outstanding, we may not, without the affirmative vote of the holders of a majority of the then outstanding shares of the Series A preferred stock, (i) liquidate, dissolve, or wind up the Company; (ii) alter or amend the certificate of incorporation, Series A Certificate of Designation or bylaws of the Company in a manner adverse to the Series A preferred stock; (iii) create, or amend the terms of any securities so as to create, securities *pari passu* or senior to the Series A preferred stock; (iv) purchase, redeem or make any dividend upon shares of capital stock other than certain limited exceptions; or (v) issue any additional Series A preferred stock.

Fractional Shares. No fractional shares of common stock will be issued upon conversion of Series A preferred stock. Rather, we shall pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the fair market value of a share of common stock.

The Series A preferred stock was issued in book-entry form under a preferred stock agent agreement between American Stock Transfer & Trust as preferred stock agent, and us, and was initially represented by one or more book-entry certificates deposited with The Depository Trust Company, or DTC, and registered in the name of Cede & Co., a nominee of DTC, or as otherwise directed by DTC. There is no established public trading market for the Series A preferred stock and we do not expect a market to develop. We do not plan on applying to list the Series A preferred stock on The Nasdaq Capital Market, any other national securities exchange or any other nationally recognized trading system.

The transfer agent for our Series A preferred stock is American Stock Transfer & Trust Company, LLC.

Series B Convertible Preferred Stock

The preferences and rights of the Series B preferred stock are as set forth in a Certificate of Designation of Preferences, Rights and Limitations of Series B Convertible Preferred Stock, or the Series B Certificate of Designation, filed as Exhibit 3.2 to our Current Report on Form 8-K, filed with the SEC on February 23, 2018. The following is a summary of the material terms of our Series B preferred stock and is qualified in its entirety by the Series B Certificate of Designation. Please refer to the Series B Certificate of Designation for more information on the preferences, rights and limitations of Series B preferred stock.

Liquidation. Upon any dissolution, liquidation or winding up, whether voluntary or involuntary, holders of Series B preferred stock will be entitled to receive distributions out of our assets, whether capital or surplus, of an amount equal to \$0.001 per share of Series B preferred stock before any distributions shall be made on the common stock or any series of preferred stock ranked junior to the Series B preferred stock, but after distributions shall be made on any outstanding Series A preferred stock and any of our existing or future indebtedness.

Dividends. Holders of the Series B preferred stock will be entitled to receive dividends equal (on an "as converted to common stock" basis) to and in the same form as dividends actually paid on shares of our common stock when, as and if such dividends are paid on shares of our common stock. No other dividends will be paid on shares of Series B preferred stock.

Conversion. Each share of Series B preferred stock is convertible, at any time and from time to time at the option of the holder thereof, into that number of shares of common stock determined by dividing \$1,000 by the conversion price of \$0.40 (subject to adjustment as described below). This right to convert is limited by the beneficial ownership limitation described below.

Forced Conversion. Subject to certain ownership limitations as described below and certain equity conditions being met, until such time that during any 30 consecutive trading days, the volume weighted average price of our common stock exceeds 300% of the conversion price and the daily dollar trading volume during such period exceeds \$500,000 per trading day, we shall have the right to force the conversion of the Series B preferred stock into common stock.

Beneficial Ownership Limitation. A holder shall have no right to convert any portion of Series B preferred stock, to the extent that, after giving effect to such conversion, such holder, together with such holder's affiliates, and any persons acting as a group together with such holder or any such affiliate, would beneficially own in excess of 4.99% (or, upon election by a holder prior to the issuance of any shares of Series B preferred stock, 9.99%) of the number of shares of common stock outstanding immediately after giving effect to the issuance of shares of common stock upon such conversion (subject to the right of the holder to increase such beneficial ownership limitation upon not less than 61 days prior notice provided that such limitation can never exceed 9.99% and such 61 day period cannot be waived). Beneficial ownership of the holder and its affiliates will be determined in accordance with Section 13(d) of the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder. Holders of Series B preferred stock who are subject to such beneficial ownership limitation are and will remain responsible for ensuring their own compliance with Regulation 13D-G promulgated under the Securities Exchange Act of 1934, as amended, consistent with their individual facts and circumstances. In addition, pursuant to Rule 13d-3(d)(1)(i) promulgated under the Securities Exchange Act of 1934, as amended, any person who acquires Series B preferred stock with the purpose or effect of changing or influencing the control of our company, or in connection with or as a participant in any transaction having such purpose or effect, immediately upon such acquisition will be deemed to be the beneficial owner of the underlying common stock.

Optional Redemption. Subject to the terms of the certificate of designation, the Company holds an option to redeem some or all the Series B preferred stock six months after its issuance date at a 200% premium to the stated value of the Series B preferred stock subject to the redemption, upon 30 days prior written notice to the holder of the Series B preferred stock. The Series B preferred stock would be redeemed by the Company for cash.

Subsequent Equity Sales. The Series B preferred stock has full-ratchet price based anti-dilution protection, subject to customary carve-outs, in the event of a down-round financing at a price per share below the conversion price of the Series B preferred stock. If during any 20 of 30 consecutive trading days the volume weighted average price of our common stock exceeds 300% of the then-effective conversion price of the Series B preferred stock and the daily dollar trading volume for each trading day during such 30 day period exceeds \$500,000, the anti-dilution protection in the Series B preferred stock will expire and cease to apply.

Stock Dividends and Stock Splits. If we pay a stock dividend or otherwise make a distribution payable in shares of common stock on shares of common stock or any other common stock equivalents, subdivide or combine outstanding common stock, or reclassify common stock, the conversion price will be adjusted by multiplying the then conversion price by a fraction, the numerator of which shall be the number of shares of common stock outstanding immediately before such event, and the denominator of which shall be the number of shares outstanding immediately after such event.

Fundamental Transaction. In the event we consummate a merger or consolidation with or into another person or other reorganization event in which our common stock is converted or exchanged for securities, cash or other property, or we sell, lease, license, assign, transfer, convey or otherwise dispose of all or substantially all of our assets or we or another person acquire 50% or more of our outstanding shares of common stock, then following such event, the holders of the Series B preferred stock will be entitled to receive upon conversion of the Series B preferred stock the same kind and amount of securities, cash or property which the holders would have received had they converted the Series B preferred stock immediately prior to such fundamental transaction. Any successor to us or surviving entity shall assume the obligations under the Series B preferred stock.

Voting Rights, etc. Except as otherwise provided in the Series B Certificate of Designation or required by law, the Series B preferred stock has no voting rights. However, as long as any shares of Series B preferred stock are outstanding, we may not, without the affirmative vote of the holders of a majority of the then outstanding shares of the Series B preferred stock, materially alter or change adversely the powers, preferences or rights given to the Series B preferred stock, materially amend the Series B Certificate of Designation, amend our certificate of incorporation or other charter documents in any manner that adversely affects any rights of the holders, increase the number of authorized shares of Series B preferred stock, or enter into any agreement with respect to any of the foregoing. The Series B Certificate of Designation provides that if any party commences an action or proceeding to enforce any provisions thereunder, then the prevailing party in such action or proceeding shall be reimbursed by the other party for its attorneys' fees and other costs and expenses incurred in the investigation, preparation and prosecution of such action or proceeding. This provision may, under certain circumstances, be inconsistent with federal securities laws and Delaware general corporation law.

Fractional Shares. No fractional shares of common stock will be issued upon conversion of Series B preferred stock. Rather, we shall pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the conversion price.

The Series B preferred stock was issued in book-entry form under a preferred stock agent agreement between American Stock Transfer & Trust as preferred stock agent, and us, and was initially represented by one or more book-entry certificates deposited with The Depository Trust Company, or DTC, and registered in the name of Cede & Co., a nominee of DTC, or as otherwise directed by DTC. There is no established public trading market for the Series B preferred stock and we do not expect a market to develop. We do not plan on applying to list the Series B preferred stock on The Nasdaq Capital Market, any other national securities exchange or any other nationally recognized trading system.

The transfer agent for our Series B preferred stock is American Stock Transfer & Trust Company, LLC.

Series C Convertible Preferred Stock

The preferences and rights of the Series C preferred stock are as set forth in a Certificate of Designation of Preferences, Rights and Limitations of Series C Convertible Preferred Stock, or the Series C Certificate of Designation filed as Exhibit 3.2 to our Current Report on Form 8-K, filed with the SEC on November 6, 2018. The following is a summary of the material terms of our Series C preferred stock and is qualified in its entirety by the Series C Certificate of Designation. Please refer to the Series C Certificate of Designation for more information on the preferences, rights and limitations of Series C preferred stock.

Liquidation. Upon any dissolution, liquidation or winding up, whether voluntary or involuntary, holders of Series C preferred stock will be entitled to receive distributions out of our assets, whether capital or surplus, of an amount equal to \$0.001 per share of Series C preferred stock before any distributions shall be made on the common stock or any series of preferred stock ranked junior to the Series C preferred stock, but after distributions shall be made on any outstanding Series A preferred stock and any of our existing or future indebtedness.

Dividends. Holders of the Series C preferred stock will be entitled to receive dividends equal (on an as-converted-to-common-stock basis) to and in the same form as dividends actually paid on shares of our common stock when, as and if such dividends are paid on shares of our common stock. No other dividends will be paid on shares of Series C preferred stock.

Conversion. Each share of Series C preferred stock is convertible, at any time and from time to time at the option of the holder thereof, into that number of shares of common stock determined by dividing \$1,000 by the conversion price of \$0.40 (subject to adjustment as described below). This right to convert is limited by the beneficial ownership limitation described below.

Forced Conversion. Subject to certain ownership limitations as described below and certain equity conditions being met, until such time that during any 30 consecutive trading days, the volume weighted average price of our common stock exceeds 300% of the conversion price and the daily dollar trading volume during such period exceeds \$500,000 per trading day, we shall have the right to force the conversion of the Series C preferred stock into common stock.

Beneficial Ownership Limitation. A holder shall have no right to convert any portion of Series C preferred stock, to the extent that, after giving effect to such conversion, such holder, together with such holder's affiliates, and any persons acting as a group together with such holder or any such affiliate, would beneficially own in excess of 4.99% (or, upon election by a holder prior to the issuance of any shares of Series C preferred stock, 9.99%) of the number of shares of common stock outstanding immediately after giving effect to the issuance of shares of common stock upon such conversion (subject to the right of the holder to increase such beneficial ownership limitation upon not less than 61 days prior notice provided that such limitation can never exceed 9.99% and such 61 day period cannot be waived). Beneficial ownership of the holder and its affiliates will be determined in accordance with Section 13(d) of the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder. Holders of Series C preferred stock who are subject to such beneficial ownership limitation are and will remain responsible for ensuring their own compliance with Regulation 13D-G promulgated under the Securities Exchange Act of 1934, as amended, consistent with their individual facts and circumstances. In addition, pursuant to Rule 13d-3(d)(1)(i) promulgated under the Securities Exchange Act of 1934, as amended, any person who acquires Series C preferred stock with the purpose or effect of changing or influencing the control of our company, or in connection with or as a participant in any transaction having such purpose or effect, immediately upon such acquisition will be deemed to be the beneficial owner of the underlying common stock.

Stock Dividends and Stock Splits. If we pay a stock dividend or otherwise make a distribution payable in shares of common stock on shares of common stock or any other common stock equivalents, subdivide or combine outstanding common stock, or reclassify common stock, the conversion price will be adjusted by multiplying the then conversion price by a fraction, the numerator of which shall be the number of shares of common stock outstanding immediately before such event, and the denominator of which shall be the number of shares outstanding immediately after such event.

Fundamental Transaction. In the event we consummate a merger or consolidation with or into another person or other reorganization event in which our common stock is converted or exchanged for securities, cash or other property, or we sell, lease, license, assign, transfer, convey or otherwise dispose of all or substantially all of our assets or we or another person acquire 50% or more of our outstanding shares of common stock, then following such event, the holders of the Series C preferred stock will be entitled to receive upon conversion of the Series C preferred stock the same kind and amount of securities, cash or property which the holders would have received had they converted the Series C preferred stock immediately prior to such fundamental transaction. Any successor to us or surviving entity shall assume the obligations under the Series C preferred stock.

Voting Rights, etc. Except as otherwise provided in the Series C Certificate of Designation or required by law, the Series C preferred stock has no voting rights. However, as long as any shares of Series C preferred stock are outstanding, we may not, without the affirmative vote of the holders of a majority of the then outstanding shares of the Series C preferred stock, materially alter or change adversely the powers, preferences or rights given to the Series C preferred stock, materially amend the Series C Certificate of Designation, amend our certificate of incorporation or other charter documents in any manner that adversely affects any rights of the holders, increase the number of authorized shares of Series C preferred stock, or enter into any agreement with respect to any of the foregoing. The Series C Certificate of Designation provides that if any party commences an action or proceeding to enforce any provisions thereunder, then the prevailing party in such action or proceeding shall be reimbursed by the other party for its attorneys' fees and other costs and expenses incurred in the investigation, preparation and prosecution of such action or proceeding. This provision may, under certain circumstances, be inconsistent with federal securities laws and Delaware general corporation law.

Fractional Shares. No fractional shares of common stock will be issued upon conversion of Series C preferred stock. Rather, we shall pay a cash adjustment in respect of such final fraction in an amount equal to such fraction multiplied by the conversion price.

The Series C preferred stock was issued in book-entry form under a preferred stock agent agreement between American Stock Transfer & Trust as preferred stock agent, and us, and was initially represented by one or more book-entry certificates deposited with The Depository Trust Company, or DTC, and registered in the name of Cede & Co., a nominee of DTC, or as otherwise directed by DTC. There is no established public trading market for the Series C preferred stock and we do not expect a market to develop. The Series C preferred stock is not listed on any securities exchange, and we do not plan on applying to list the Series C preferred stock on The Nasdaq Capital Market, any other national securities exchange or any other nationally recognized trading system.

Warrants

As of December 31, 2018, we had outstanding warrants to purchase common stock as follows:

	Total Outstanding and Exercisable	Exercise price per Share	Expiration Date
Warrants issued in November 2018 financing	28,750,000	\$ 0.40	November 2023
Warrants issued in July 2018 financing	1,083,091	\$ 1.58	July 2021
Series 1 Warrants issued in February 2018 financing	8,979,000	\$ 2.00	February 2025
Series 2 Warrants issued in February 2018 financing	8,709,500	\$ 2.00	February 2025
Series E Warrants	53,803	\$ 504.00	September 2019

November 2018 Warrants

The material terms and provisions of the warrants issued in our November 2018 financing (the “November 2018 Warrants”) are summarized below. This summary of some provisions of the November 2018 Warrants is not complete. For the complete terms of the November 2018 Warrants, you should refer to the form of November 2018 Warrant filed as Exhibit 4.16 to the registration statement of which this prospectus forms a part. Pursuant to a warrant agency agreement between us and American Stock Transfer & Trust Company, LLC, as warrant agent, the November 2018 Warrants were issued in book-entry form and were initially represented only by one or more global warrants deposited with the warrant agent, as custodian, on behalf of The Depository Trust Company, or DTC, and registered in the name of Cede & Co., a nominee of DTC, or as otherwise directed by DTC.

Exercise. The November 2018 Warrants have an exercise price equal to \$0.40 per share. The November 2018 Warrants are governed by the terms of a global warrant held in book-entry form. The holder of an November 2018 Warrant is not deemed a holder of our underlying common stock until the November 2018 Warrant is exercised. Subject to certain limitations as described below the November 2018 Warrants expire on November 1, 2023. The holders must pay the exercise price in cash upon exercise of the November 2018 Warrants, unless such holders are utilizing the cashless exercise provision of the November 2018 Warrants. On the expiration date, unexercised November 2018 Warrants will automatically be exercised via the “cashless” exercise provision. Upon the holder’s exercise of an November 2018 Warrant, we will issue the shares of common stock issuable upon exercise of the November 2018 Warrant within two trading days following our receipt of a notice of exercise, provided that payment of the exercise price has been made (unless exercised via the “cashless” exercise provision). Prior to the exercise of any November 2018 Warrants to purchase common stock, holders of the November 2018 Warrants do not have any of the rights of holders of the common stock purchasable upon exercise, including the right to vote, except as set forth therein.

Beneficial Ownership Limitation. Subject to limited exceptions, a holder of November 2018 Warrants does not have the right to exercise any portion of its November 2018 Warrants if the holder (together with such holder’s affiliates, and any persons acting as a group together with such holder or any of such holder’s affiliates) would beneficially own a number of shares of common stock in excess of 4.99% (or, at the election of the purchaser prior to the date of issuance, 9.99%) of the shares of our common stock then outstanding after giving effect to such exercise.

Stock Dividends and Stock Splits. The exercise price and the number of shares issuable upon exercise of the November 2018 Warrants is 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.

Fundamental Transaction. In the event we consummate a merger or consolidation with or into another person or other reorganization event in which our common shares are converted or exchanged for securities, cash or other property, or we sell, lease, license, assign, transfer, convey or otherwise dispose of all or substantially all of our assets or we or another person acquire 50% or more of our outstanding shares of common stock, then following such event, the holders of the November 2018 Warrants will be entitled to receive upon exercise of such November 2018 Warrants the same kind and amount of securities, cash or property which the holders would have received had they exercised their November 2018 Warrants immediately prior to such fundamental transaction. Any successor to us or surviving entity shall assume the obligations under the November 2018 Warrants. Additionally, as more fully described in the November 2018 Warrants, in the event of certain fundamental transactions, the holders of the November 2018 Warrants will be entitled to receive consideration in an amount equal to the Black Scholes value of the November 2018 Warrants on the date of consummation of such transaction.

The November 2018 Warrants are not listed on any securities exchange, and we do not intend to apply for listing of the November 2018 Warrants on any securities exchange or other trading system.

July 2018 Warrants

On July 12, 2018, the Company entered into a securities purchase agreement (the “July 2018 Purchase Agreement”) with the purchasers of the certain shares of common stock. The July 2018 Purchase Agreement provided for a concurrent private placement of warrants to purchase common stock (the “July 2018 Warrants”). The material terms and provisions of the July 2018 Warrants are summarized below. This summary of some provisions of the July 2018 Warrants is not complete. For the complete terms of the July 2018 Warrants, you should refer to the form of July 2018 Warrant filed as Exhibit 4.15 to the registration statement of which this prospectus forms a part.

Exercise. The July 2018 Warrants are exercisable for an aggregate of 1,083,090 shares of common stock. The July 2018 Warrants have an exercise price of \$1.58 per share and expire on July 12, 2021. The holder of a July 2018 Warrant is not deemed a holder of our underlying common stock until the July 2018 Warrant is exercised. Subject to certain limitations as described below, the July 2018 Warrants expire on July 12, 2021. The holders must pay the exercise price in cash upon exercise of the July 2018 Warrants, unless such holders are utilizing the cashless exercise provision of the July 2018 Warrants. On the expiration date, unexercised July 2018 Warrants will automatically be exercised via the “cashless” exercise provision. Upon the holder’s exercise of a July 2018 Warrant, we will issue the shares of common stock issuable upon exercise of the July 2018 Warrant within two trading days following our receipt of a notice of exercise, provided that payment of the exercise price has been made (unless exercised via the “cashless” exercise provision). Prior to the exercise of any July 2018 Warrants to purchase common stock, holders of the July 2018 Warrants do not have any of the rights of holders of the common stock purchasable upon exercise, including the right to vote, except as set forth therein.

Beneficial Ownership Limitation. Subject to limited exceptions, a holder of a July 2018 Warrant does not have the right to exercise any portion of its July 2018 Warrants if the holder, together with its affiliates, would beneficially own in excess of 4.99%, or 9.99% at a holder’s election, of the number of shares of Common Stock outstanding immediately after giving effect to such exercise; provided, however, that upon prior notice to the Company, the holder may increase or decrease the beneficial ownership limitation, provided further 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 to the Company.

Stock Dividends and Stock Splits. The exercise price and the number of shares issuable upon exercise of the July 2018 Warrants is 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.

Fundamental Transaction. In the event we consummate a merger or consolidation with or into another person or other reorganization event in which our common shares are converted or exchanged for securities, cash or other property, or we sell, lease, license, assign, transfer, convey or otherwise dispose of all or substantially all of our assets or we or another person acquire 50% or more of our outstanding shares of common stock, then following such event, the holders of the July 2018 Warrants will be entitled to receive upon exercise of such July 2018 Warrants the same kind and amount of securities, cash or property which the holders would have received had they exercised their July 2018 Warrants immediately prior to such fundamental transaction. Any successor to us or surviving entity shall assume the obligations under the July 2018 Warrants. Additionally, as more fully described in the July 2018 Warrants, in the event of certain fundamental transactions, the holders of the July 2018 Warrants will be entitled to receive consideration in an amount equal to the Black Scholes value of the July 2018 Warrants on the date of consummation of such transaction.

Call Right. The July 2018 Warrants are callable by us in certain circumstances. Subject to certain exceptions, in the event that the July 2018 Warrants are outstanding, if (i) the volume weighted average price of our common stock for each of 30 consecutive trading days, or the Measurement Period, which Measurement Period commences on the closing date, exceeds \$3.95 (subject to adjustment for forward and reverse stock splits, recapitalizations, stock dividends and similar transactions after the initial exercise date), (ii) the average daily trading volume for such Measurement Period exceeds \$100,000 per trading day and (iii) certain other equity conditions are met, and subject to the Beneficial Ownership Limitation, then we may, within one trading day of the end of such Measurement Period, upon notice, or a Call Notice, call for cancellation of all or any portion of the July 2018 Warrants for which a notice of exercise has not yet been delivered, or a Call, for consideration equal to \$0.001 per warrant share. Any portion of a July 2018 Warrant subject to such Call Notice for which a notice of exercise shall not have been received by the Call Date (as hereinafter defined) will be canceled at 6:30 p.m. (New York City time) on the tenth trading day after the date the Call Notice is sent by the Company (such date and time, the Call Date). Our right to call the July 2018 Warrants shall be exercised ratably among the holders based on the then outstanding July 2018 Warrants.

The July 2018 Warrants are not listed on any securities exchange, and we do not intend to apply for listing of the July 2018 Warrants on any securities exchange or other trading system.

Series 1 and Series 2 Warrants

The material terms and provisions of the Series 1 and Series 2 Warrants are summarized below. This summary of some provisions of the Series 1 and Series 2 Warrants is not complete and is qualified in its entirety by the form of warrant filed as Exhibit 4.14 to the registration statement of which this prospectus is a part. Pursuant to a warrant agency agreement between us and American Stock Transfer & Trust Company, LLC, as warrant agent, the warrants were issued in book-entry form and were initially represented only by one or more global warrants deposited with the warrant agent, as custodian on behalf of The Depository Trust Company, or DTC, and registered in the name of Cede & Co., a nominee of DTC, or as otherwise directed by DTC.

Exercise. The Series 1 Warrants are immediately exercisable and expire on the seventh anniversary of the date of issuance. The Series 2 Warrants are immediately exercisable and expire 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 device (or the same or similar product with a different name); 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. Each whole Series 1 or Series 2 Warrant is exercisable to purchase one share of our common stock at an exercise price of \$2.00 per share at any time prior to expiration. The Series 1 and Series 2 Warrants are each governed by the terms of a global warrant certificate deposited with DTC. The holder of a Series 1 or Series 2 Warrant will not be deemed a holder of our underlying common stock until such warrant is exercised, except as set forth in such warrant. The holders Series 1 and Series 2 Warrants must pay the exercise price in cash upon exercise of the Series 1 and Series 2 Warrants, unless such holders are utilizing the cashless exercise provision of the Series 1 and Series 2 Warrants, which is only available in certain circumstances such as if the underlying shares are not registered with the SEC pursuant to an effective registration statement.

Beneficial Ownership Limitation. Subject to limited exceptions, a holder of Series 1 or Series 2 Warrants will not have the right to exercise any portion of its Series 1 or Series 2 Warrants if the holder (together with such holder's affiliates, and any persons acting as a group together with such holder or any of such holder's affiliates) would beneficially own a number of shares of common stock in excess of 4.99% (or, at the election of the holder, 9.99%) of the shares of our common stock then outstanding after giving effect to such exercise; provided, however, that upon notice to the Company, the holder may increase or decrease the 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.

Stock Dividends and Stock Splits. The exercise price and the number of shares issuable upon exercise of the Series 1 and Series 2 Warrants is 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.

Fundamental Transaction. In the event we consummate a merger or consolidation with or into another person or other reorganization event in which our common shares are converted or exchanged for securities, cash or other property, or we sell, lease, license, assign, transfer, convey or otherwise dispose of all or substantially all of our assets or we or another person acquire 50% or more of our outstanding shares of common stock, then following such event, the holders of the Series 1 and Series 2 Warrants will be entitled to receive upon exercise of the Series 1 and Series 2 Warrants the same kind and amount of securities, cash or property which the holders would have received had they exercised the Series 1 and Series 2 Warrants immediately prior to such fundamental transaction. Any successor to us or surviving entity shall assume the obligations under the Series 1 and Series 2 Warrants. Further, as more fully described in the Series 1 and Series 2 Warrants, in the event of certain fundamental transactions, the holders of the Series 1 and Series 2 Warrants will be entitled to receive consideration in an amount equal to the Black Scholes value of the Series 1 or Series 2 Warrants on the date of consummation of such transaction.

Upon the holder's exercise of a Series 1 or Series 2 Warrant, we will issue the shares of common stock issuable upon exercise of the Series 1 or Series 2 Warrant within the earlier of two trading days following our receipt of a notice of exercise or the standard settlement period for the market on which the common stock is then listed, provided that payment of the exercise price has been made (unless exercised via the "cashless" exercise provision). Prior to the exercise of any Series 1 or Series 2 Warrants, holders of the Series 1 or Series 2 Warrants will not have any of the rights of holders of the common stock purchasable upon exercise, including the right to vote, except as set forth therein.

The Series 1 and Series 2 Warrants are not listed on any securities exchange, and we do not intend to apply for listing of the Series 1 and Series 2 Warrants on any securities exchange or other trading system.

Series E Warrants

In connection with the issuance of the Company's Series E Convertible preferred stock in September 2014 through January 2015, the Company issued, to each investor who purchased shares of Series E Convertible preferred stock, warrants (the "Series E Warrants") to purchase up to the number of shares of common stock equal to 50% of the number of shares of the Company's Series E Convertible preferred stock purchased. The Series E Warrants are immediately exercisable, at an exercise price per share of \$504.00, and expire upon the earlier of September 2, 2019 or upon the consummation of a change of control of the Company.

Equity Awards

As of December 31, 2018, there were 3,020,207 shares of our common stock issuable upon exercise of outstanding awards under our 2015 Equity Incentive Plan.

Officers' and Directors' Purchase Plan

As of December 31, 2018, there were 44,012 shares of our common stock issued under our Officer and Director Share Purchase Plan.

Exclusive Jurisdiction

Unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware is the sole and exclusive forum for:

- any derivative action or proceeding brought on behalf of us;
- any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders;
- any action asserting a claim against us arising pursuant to any provision of the DGCL or our amended and restated certificate of incorporation or amended and restated bylaws; or
- any action asserting a claim against us governed by the internal affairs doctrine.

The enforceability of similar choice of forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that, in connection with any action, a court could find the choice of forum provisions contained in our amended and restated certificate of incorporation to be inapplicable or unenforceable in such action.

Registration Rights Under our Amended and Restated Investors' Rights Agreement

The holders of an aggregate of up to 71,877 shares of our common stock, as of December 31, 2018, including shares of common stock issuable upon the exercise of outstanding options and warrants, or their permitted transferees, are entitled to rights with respect to the registration of such shares under the Securities Act. We refer to these shares as "registrable securities." These rights are provided under the terms of our amended and restated investors' rights agreement between us and the holders of registrable securities, and include demand registration rights, "piggyback" registration rights and Form S-3 registration rights.

These registration rights will terminate as to a given holder of registrable securities upon the earliest of (a) five (5) years following the consummation of our initial public offering (b) such time after our initial public offering at which such holder (i) can sell all shares held by it in compliance with Rule 144(b)(1)(i) or (ii) holds one percent (1%) or less of our outstanding Common Stock and all registrable securities held by such holder can be sold in any three (3) month period without registration in compliance with Rule 144 or (c) after the consummation of a Liquidation Event, as that term is defined in our amended and restated certificate of incorporation.

Generally, we are required to pay the registration expenses (other than underwriters' and brokers' discounts and commissions) in connection with the registrations described below, including the reasonable fees and disbursements of one counsel for the selling holder or holders of registrable securities. In an underwritten offering, the underwriters have the right to limit the number of shares registered by the holders of registrable securities for marketing reasons, subject to certain limitations.

Demand Registration Rights

Upon the written request of 50% or more of the then outstanding registrable securities that we file a registration statement under the Securities Act (provided that the anticipated aggregate offering price of such shares is greater than \$25 million), we will be obligated to notify all holders of registrable securities of such request and to use our reasonable best efforts to register the sale of all registrable securities that holders may request to be registered. We are only obligated to file up to two registration statements which are declared or ordered effective in connection with the exercise of these demand registration rights. These demand registration rights are subject to specified conditions and limitations, including the right of the underwriters to limit the number of shares included in any such registration under certain circumstances.

Piggyback Registration Rights

If we propose to register any of our securities under the Securities Act in connection with the public offering of such securities, the holders of registrable securities will be entitled to certain "piggyback" registration rights allowing such holders to include their shares in such registration, subject to certain limitations. As a result, whenever we propose to file a registration statement under the Securities Act, other than with respect to a registration related to either to the sale of securities to our employees pursuant to a stock plan, stock purchase or similar plan or a registration related to a corporate reorganization or transaction under Rule 145 of the Securities Act of registrable securities are entitled to notice of the registration and have the right to include their shares in the registration. These registration rights are subject to specified conditions and limitations, including the right of the underwriters to limit the number of shares included in any such registration statement under certain circumstances.

Form S-3 Registration Rights

Upon the written request from the holders of at least 30% of the outstanding shares of registrable securities, holders of registrable securities have the right to demand that we file a registration statement on Form S-3 so long as the aggregate amount of shares to be offered and sold under such registration statement on Form S-3 is at least \$5 million (net of any underwriters' discounts or commissions). We are not required to effect a registration on Form S-3 if we have already effected two registrations on Form S-3 for the holders pursuant to Form S-3 registration rights within the twelve-month period preceding the date of the request. Additionally, we are not required to effect such registration in any jurisdiction in which we would be required to qualify to do business or execute a general consent of process in effecting such registration.

CRG Registration Rights

In September 2015, we entered into a Securities Purchase Agreement with CRG, pursuant to which we sold 8,705 shares of our common stock to CRG for a purchase price of \$14.357 per share. Under the Purchase Agreement, CRG is entitled to certain rights with respect to the registration of such shares under the Securities Act as described below.

Within 30 business days of our becoming eligible to use Form S-3, we were required to file a registration statement covering the resale of the shares sold to CRG under the Purchase Agreement, which we did on February 3, 2016 and have also done through the registration statement of which this prospectus forms a part. Our failure to maintain the effectiveness of the registration statement would be considered a registration default and would result in penalty payments payable by us to CRG equal to 1% of the aggregate purchase price paid by CRG under the Purchase Agreement for each 30-day period (or portion thereof) in which there is a registration default. During the time that Avinger must maintain the effectiveness of the registration statement, we must comply with other affirmative covenants.

In February 2018, we entered into a Registration Rights Agreement with CRG (the "2018 Registration Rights Agreement"), pursuant to which we agreed to, upon request of the majority holders of the Series A Preferred Stock, effect the registration of all shares of the Series A Preferred Stock. Additionally, the 2018 Registration Rights Agreement provides that the holders of Series A Preferred Stock will be entitled to have their stock included on any Company initiated registration statements, subject to limitations including a reduction in the number of shares included in registration statements based on the discretion of any underwriters. The Company will bear the costs of any registration statement effected pursuant to the 2018 Registration Rights Agreement, and will provide customary indemnification and reimburse legal fees to participating Purchasers. The foregoing description does not purport to be complete and is qualified in its entirety by reference to the 2018 Registration Rights Agreement, a copy of which is filed to Exhibit 4.4 to the registration statement of which this prospectus forms a part.

Anti-Takeover Effects of Delaware Law and Our Certificate of Incorporation and Bylaws

The provisions of Delaware law, our amended and restated certificate of incorporation and our amended and restated bylaws may have the effect of delaying, deferring or discouraging another person from acquiring control of our company. These provisions, which are summarized below, may have the effect of discouraging takeover bids. They are also designed, in part, to encourage persons seeking to acquire control of us to negotiate first with our board of directors. We believe that the benefits of increased protection of our potential ability to negotiate with an unfriendly or unsolicited acquirer outweigh the disadvantages of discouraging a proposal to acquire us because negotiation of these proposals could result in an improvement of their terms.

Delaware Law

We are governed by the provisions of Section 203 of the DGCL. In general, Section 203 prohibits a public Delaware corporation from engaging in a "business combination" with an "interested stockholder" 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. A "business combination" includes mergers, asset sales or other transactions resulting in a financial benefit to the stockholder. An "interested stockholder" is a person who, together with affiliates and associates, owns, or within three years of the date on which it is sought to be determined whether such person is an "interested stockholder," did own, 15% or more of the corporation's outstanding voting stock. These provisions may have the effect of delaying, deferring or preventing a change in our control.

Amended and Restated Certificate of Incorporation and Amended and Restated Bylaw Provisions

Our amended and restated certificate of incorporation and our amended and restated bylaws include a number of provisions that could deter hostile takeovers or delay or prevent changes in control of our management team, including the following:

- *Board of directors vacancies.* Our amended and restated certificate of incorporation and amended and restated bylaws authorize only our board of directors to fill vacant directorships, including newly created seats. In addition, the number of directors constituting our board of directors is permitted to be set only by a resolution adopted by our board of directors. These provisions prevent a stockholder from increasing the size of our board of directors and then gaining control of our board of directors by filling the resulting vacancies with its own nominees. This makes it more difficult to change the composition of our board of directors but promotes continuity of management.
- *Classified board.* Our amended and restated certificate of incorporation and amended and restated bylaws provide that our board is classified into three classes of directors. A third party may be discouraged from making a tender offer or otherwise attempting to obtain control of us as it is more difficult and time consuming for stockholders to replace a majority of the directors on a classified board of directors.
- *Stockholder action; special meeting of stockholders.* Our amended and restated certificate of incorporation provides that our stockholders may not take action by written consent, but may only take action at annual or special meetings of our stockholders. As a result, a holder controlling a majority of our capital stock may not be able to amend our amended and restated bylaws or remove directors without holding a meeting of our stockholders called in accordance with our amended and restated bylaws. Our amended and restated bylaws further provide that special meetings of our stockholders may be called only by our board of directors, the Chairman of our Board of Directors, our Chief Executive Officer or our President, thus prohibiting a stockholder from calling a special meeting. These provisions might delay the ability of our stockholders to force consideration of a proposal or for stockholders controlling a majority of our capital stock to take any action, including the removal of directors.
- *Advance notice requirements for stockholder proposals and director nominations.* Our amended and restated bylaws provide advance notice procedures for stockholders seeking to bring business before our annual meeting of stockholders or to nominate candidates for election as directors at our annual meeting of stockholders. Our amended and restated bylaws also specify certain requirements regarding the form and content of a stockholder's notice. These provisions might preclude our stockholders from bringing matters before our annual meeting of stockholders or from making nominations for directors at our annual meeting of stockholders if the proper procedures are not followed. We expect that these provisions may also discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of our company.
- *No cumulative voting.* The DGCL provides that stockholders are not entitled to the right to cumulate votes in the election of directors unless a corporation's certificate of incorporation provides otherwise. Our amended and restated certificate of incorporation does not provide for cumulative voting.
- *Directors removed only for cause.* Our amended and restated certificate of incorporation provides that stockholders may remove directors only for cause.
- *Amendment of charter provisions.* Any amendment of the above provisions in our amended and restated certificate of incorporation would require approval by holders of at least 66 2/3% of the voting power of our then outstanding voting securities.

- *Issuance of undesignated preferred stock.* Our board of directors will have the authority, without further action by the stockholders, to issue up to 5,000,000 shares of undesignated preferred stock with rights and preferences, including voting rights, designated from time to time by our board of directors. The existence of authorized but unissued shares of preferred stock would enable our board of directors to render more difficult or to discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest or other means.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer & Trust Company, LLC. The transfer agent and registrar's address is 6201 15th Avenue, Brooklyn, NY 11219. Our shares of common stock are issued in uncertificated form only, subject to limited circumstances.

Market Listing

Our common stock is listed on The NASDAQ Capital Market under the symbol "AVGR."

DESCRIPTION OF DEPOSITARY SHARES

General

At our option, we may elect to offer fractional shares of preferred stock, rather than full shares of preferred stock. If we do elect to offer fractional shares of preferred stock, we will issue receipts for depositary shares and each of these depositary shares will represent a fraction of a share of a particular series of preferred stock, as specified in the applicable prospectus supplement. Each owner of a depositary share will be entitled, in proportion to the applicable fractional interest in shares of preferred stock underlying that depositary share, to all rights and preferences of the preferred stock underlying that depositary share. These rights may include dividend, voting, redemption and liquidation rights.

The shares of preferred stock underlying the depositary shares will be deposited with a bank or trust company selected by us to act as depositary, under a deposit agreement by and among us, the depositary and the holders of the depositary receipts. The depositary will be the transfer agent, registrar and dividend disbursing agent for the depositary shares.

The depositary shares will be evidenced by depositary receipts issued pursuant to the depositary agreement. Holders of depositary receipts agree to be bound by the deposit agreement, which requires holders to take certain actions such as filing proof of residence and paying certain charges.

The summary of terms of the depositary shares contained in this prospectus is not complete, and is subject to modification in any prospectus supplement for any issuance of depositary shares. You should refer to the forms of the deposit agreement, our amended and restated certificate of incorporation and the certificate of designation that are, or will be, filed with the SEC for the applicable series of preferred stock.

Dividends

The depositary will distribute cash dividends or other cash distributions, if any, received in respect of the series of preferred stock underlying the depositary shares to the record holders of depositary receipts in proportion to the number of depositary shares owned by those holders on the relevant record date. The relevant record date for depositary shares will be the same date as the record date for the preferred stock.

In the event of a distribution other than in cash, the depositary will distribute property received by it to the record holders of depositary receipts that are entitled to receive the distribution, unless the depositary determines that it is not feasible to make the distribution. If this occurs, the depositary, with our approval, may adopt another method for the distribution, including selling the property and distributing the net proceeds to the holders.

Liquidation Preference

If a series of preferred stock underlying the depositary shares has a liquidation preference, in the event of our voluntary or involuntary liquidation, dissolution or winding up, holders of depositary shares will be entitled to receive the fraction of the liquidation preference accorded each share of the applicable series of preferred stock, as set forth in the applicable prospectus supplement.

Redemption

If a series of preferred stock underlying the depositary shares is subject to redemption, the depositary shares will be redeemed from the proceeds received by the depositary resulting from the redemption, in whole or in part, of the preferred stock held by the depositary. Whenever we redeem any preferred stock held by the depositary, the depositary will redeem, as of the same redemption date, the number of depositary shares representing the preferred stock so redeemed. The depositary will mail the notice of redemption to the record holders of the depositary receipts promptly upon receiving the notice from us and not fewer than 20 or more than 60 days, unless otherwise provided in the applicable prospectus supplement, prior to the date fixed for redemption of the preferred stock.

Voting

Upon receipt of notice of any meeting at which the holders of preferred stock are entitled to vote, the depositary will mail the information contained in the notice of meeting to the record holders of the depositary receipts underlying the preferred stock. Each record holder of those depositary receipts on the record date will be entitled to instruct the depositary as to the exercise of the voting rights pertaining to the amount of preferred stock underlying that holder's depositary shares. The record date for the depositary will be the same date as the record date for the preferred stock. The depositary will, to the extent practicable, vote the preferred stock underlying the depositary shares in accordance with these instructions. We will agree to take all action that may be deemed necessary by the depositary in order to enable the depositary to vote the preferred stock in accordance with these instructions. The depositary will not vote the preferred stock to the extent that it does not receive specific instructions from the holders of depositary receipts.

Withdrawal of Preferred Stock

Owners of depositary shares will be entitled to receive upon surrender of depositary receipts at the principal office of the depositary and payment of any unpaid amount due to the depositary, the number of whole shares of preferred stock underlying their depositary shares.

Partial shares of preferred stock will not be issued. Holders of preferred stock will not be entitled to deposit the shares under the deposit agreement or to receive depositary receipts evidencing depositary shares for the preferred stock.

Amendment and Termination of the Deposit Agreement

The form of depositary receipt evidencing the depositary shares and any provision of the deposit agreement may be amended by agreement between the depositary and us. However, any amendment which materially and adversely alters the rights of the holders of depositary shares, other than fee changes, will not be effective unless the amendment has been approved by at least a majority of the outstanding depositary shares. The deposit agreement may be terminated by the depositary or us only if:

- all outstanding depositary shares have been redeemed; or
- there has been a final distribution of the preferred stock in connection with our dissolution and such distribution has been made to all the holders of depositary shares.

Charges of Depositary

We will pay all transfer and other taxes and governmental charges arising solely from the existence of the depositary arrangement. We will also pay charges of the depositary in connection with:

- the initial deposit of the preferred stock;
- the initial issuance of the depositary shares;
- any redemption of the preferred stock; and
- all withdrawals of preferred stock by owners of depositary shares.

Holders of depositary receipts will pay transfer, income and other taxes and governmental charges and other specified charges as provided in the deposit agreement for their accounts. If these charges have not been paid, the depositary may:

- refuse to transfer depositary shares;
- withhold dividends and distributions; and
- sell the depositary shares evidenced by the depositary receipt.

Miscellaneous

The depositary will forward to the holders of depositary receipts all reports and communications we deliver to the depositary that we are required to furnish to the holders of the preferred stock. In addition, the depositary will make available for inspection by holders of depositary receipts at the principal office of the depositary, and at such other places as it may from time to time deem advisable, any reports and communications we deliver to the depositary as the holder of preferred stock.

Neither the depositary nor we will be liable if either the depositary or we are prevented or delayed by law or any circumstance beyond the control of either the depositary or us in performing our respective obligations under the deposit agreement. Our obligations and the depositary's obligations will be limited to the performance in good faith of our or the depositary's respective duties under the deposit agreement. Neither the depositary nor we will be obligated to prosecute or defend any legal proceeding in respect of any depositary shares or preferred stock unless satisfactory indemnity is furnished. The depositary and we may rely on:

- written advice of counsel or accountants;
- information provided by holders of depositary receipts or other persons believed in good faith to be competent to give such information; and
- documents believed to be genuine and to have been signed or presented by the proper party or parties.

Resignation and Removal of Depositary

The depositary may resign at any time by delivering a notice to us. We may remove the depositary at any time. Any such resignation or removal will take effect upon the appointment of a successor depositary and its acceptance of such appointment. The successor depositary must be appointed within 60 days after delivery of the notice for resignation or removal. The successor depositary must be a bank and trust company having its principal office in the United States of America and having a combined capital and surplus of at least \$50,000,000.

Federal Income Tax Consequences

Owners of the depositary shares will be treated for U.S. federal income tax purposes as if they were owners of the preferred stock underlying the depositary shares. As a result, owners will be entitled to take into account for U.S. federal income tax purposes and deductions to which they would be entitled if they were holders of such preferred stock. No gain or loss will be recognized for U.S. federal income tax purposes upon the withdrawal of preferred stock in exchange for depositary shares. The tax basis of each share of preferred stock to an exchanging owner of depositary shares will, upon such exchange, be the same as the aggregate tax basis of the depositary shares exchanged. The holding period for preferred stock in the hands of an exchanging owner of depositary shares will include the period during which such person owned such depositary shares. You should consult with your own tax advisors regarding the U.S. federal income and other applicable tax consequences of receiving, holding or disposing of depositary shares, and the withdrawal of preferred stock for depositary shares, in light of your own particular circumstances.

DESCRIPTION OF WARRANTS

General

We may issue warrants for the purchase of our debt securities, preferred stock or common stock, or any combination thereof. Warrants may be issued independently or together with our debt securities, preferred stock or common stock and may be attached to or separate from any offered securities. Each series of warrants will be issued under a separate warrant agreement to be entered into between us and a bank or trust company, as warrant agent. The warrant agent will act solely as our agent in connection with the warrants. The warrant agent will not have any obligation or relationship of agency or trust for or with any holders or beneficial owners of warrants. This summary of certain provisions of the warrants is not complete. For the terms of a particular series of warrants, you should refer to the prospectus supplement for that series of warrants and the warrant agreement for that particular series.

Debt Warrants

The prospectus supplement relating to a particular issue of warrants to purchase debt securities will describe the terms of the debt warrants, including the following:

- the title of the debt warrants;
- the offering price for the debt warrants, if any;
- the aggregate number of the debt warrants;
- the designation and terms of the debt securities, including any conversion rights, purchasable upon exercise of the debt warrants;
- if applicable, the date from and after which the debt warrants and any debt securities issued with them will be separately transferable;
- the principal amount of debt securities that may be purchased upon exercise of a debt warrant and the exercise price for the warrants, which may be payable in cash, securities or other property;
- the dates on which the right to exercise the debt warrants will commence and expire;
- if applicable, the minimum or maximum amount of the debt warrants that may be exercised at any one time;
- whether the debt warrants represented by the debt warrant certificates or debt securities that may be issued upon exercise of the debt warrants will be issued in registered or bearer form;
- information with respect to book-entry procedures, if any;
- the currency or currency units in which the offering price, if any, and the exercise price are payable;
- if applicable, a discussion of material U.S. federal income tax considerations;
- the anti-dilution provisions of the debt warrants, if any;
- the redemption or call provisions, if any, applicable to the debt warrants;
- any provisions with respect to the holder's right to require us to repurchase the warrants upon a change in control or similar event; and
- any additional terms of the debt warrants, including procedures, and limitations relating to the exchange, exercise and settlement of the debt warrants.

Debt warrant certificates will be exchangeable for new debt warrant certificates of different denominations. Debt warrants may be exercised at the corporate trust office of the warrant agent or any other office indicated in the prospectus supplement. Prior to the exercise of their debt warrants, holders of debt warrants will not have any of the rights of holders of the debt securities purchasable upon exercise and will not be entitled to payment of principal or any premium, if any, or interest on the debt securities purchasable upon exercise.

Equity Warrants

The prospectus supplement relating to a particular series of warrants to purchase our common stock or preferred stock will describe the terms of the warrants, including the following:

- the title of the warrants;
- the offering price for the warrants, if any;
- the aggregate number of warrants;
- the designation and terms of the common stock or preferred stock that may be purchased upon exercise of the warrants;
- if applicable, the designation and terms of the securities with which the warrants are issued and the number of warrants issued with each security;
- if applicable, the date from and after which the warrants and any securities issued with the warrants will be separately transferable;
- the number of shares of common stock or preferred stock that may be purchased upon exercise of a warrant and the exercise price for the warrants;
- the dates on which the right to exercise the warrants shall commence and expire;
- if applicable, the minimum or maximum amount of the warrants that may be exercised at any one time;
- the currency or currency units in which the offering price, if any, and the exercise price are payable;
- if applicable, a discussion of material U.S. federal income tax considerations;
- the anti-dilution provisions of the warrants, if any;
- the redemption or call provisions, if any, applicable to the warrants;
- any provisions with respect to the holder's right to require us to repurchase the warrants upon a change in control or similar event; and
- any additional terms of the warrants, including procedures, and limitations relating to the exchange, exercise and settlement of the warrants.

Holders of equity warrants will not be entitled:

- to vote, consent or receive dividends;
- to receive notice as stockholders with respect to any meeting of stockholders for the election of our directors or any other matter; or
- to exercise any rights as stockholders of the Company.

The descriptions of the warrants in this prospectus and in any prospectus supplement are summaries of the material provisions of the applicable warrants. These descriptions do not restate those warrants in their entirety and may not contain all the information that you may find useful. We urge you to read the applicable warrants because they, and not the summaries, define your rights as holders of the warrants. For more information, please review the forms of the relevant warrants, which will be filed with the SEC promptly after the offering of warrants and will be available as described in the section titled "Where You Can Find More Information."

DESCRIPTION OF DEBT SECURITIES

The debt securities may be either secured or unsecured and will either be our senior debt securities or our subordinated debt securities. The debt securities will be issued under one or more separate indentures between us and a trustee to be specified in an accompanying prospectus supplement. Senior debt securities will be issued under a senior indenture and subordinated debt securities will be issued under a subordinated indenture. Together, the senior indenture and the subordinated indenture are called indentures in this description. This prospectus, together with the applicable prospectus supplement, will describe the terms of a particular series of debt securities.

The following is a summary of selected provisions and definitions of the indentures and debt securities to which any prospectus supplement may relate. The summary of selected provisions of the indentures and the debt securities appearing below is not complete and is subject to, and qualified entirely by reference to, all of the provisions of the applicable indenture and certificates evidencing the applicable debt securities. For additional information, you should look at the applicable indenture and the certificate evidencing the applicable debt security that is filed as an exhibit to the registration statement that includes the prospectus. In this description of the debt securities, the words "we," "us," or "our" refer only to Avinger, Inc. and not to any of our subsidiaries, unless we expressly state or the context otherwise requires.

The following description sets forth selected general terms and provisions of the applicable indenture and debt securities to which any prospectus supplement may relate. Other specific terms of the applicable indenture and debt securities will be described in the applicable prospectus supplement. If any particular terms of the indenture or debt securities described in a prospectus supplement differ from any of the terms described below, then the terms described below will be deemed to have been superseded by that prospectus supplement.

General

Debt securities may be issued in separate series without limitation as to aggregate principal amount. We may specify a maximum aggregate principal amount for the debt securities of any series.

We are not limited as to the amount of debt securities we may issue under the indentures. Unless otherwise provided in a prospectus supplement, a series of debt securities may be reopened to issue additional debt securities of such series.

The prospectus supplement relating to a particular series of debt securities will set forth:

- whether the debt securities are senior or subordinated;
- the offering price;
- the title;
- any limit on the aggregate principal amount;
- the person who shall be entitled to receive interest, if other than the record holder on the record date;
- the date or dates the principal will be payable;
- the interest rate or rates, which may be fixed or variable, if any, the date from which interest will accrue, the interest payment dates and the regular record dates, or the method for calculating the dates and rates;
- the place where payments may be made;

- any mandatory or optional redemption provisions or sinking fund provisions and any applicable redemption or purchase prices associated with these provisions;
- if issued other than in denominations of U.S. \$1,000 or any multiple of U.S. \$1,000, the denominations in which the debt securities shall be issuable;
- if applicable, the method for determining how the principal, premium, if any, or interest will be calculated by reference to an index or formula;
- if other than U.S. currency, the currency or currency units in which principal, premium, if any, or interest will be payable and whether we or a holder may elect payment to be made in a different currency;
- the portion of the principal amount that will be payable upon acceleration of maturity, if other than the entire principal amount;
- if the principal amount payable at stated maturity will not be determinable as of any date prior to stated maturity, the amount or method for determining the amount which will be deemed to be the principal amount;
- if applicable, whether the debt securities shall be subject to the defeasance provisions described below under "Satisfaction and discharge; defeasance" or such other defeasance provisions specified in the applicable prospectus supplement for the debt securities;
- any conversion or exchange provisions;
- whether the debt securities will be issuable in the form of a global security;
- the deletion, addition or change in any event of default;
- any change or modification to the subordination provisions applicable to the subordinated debt securities if different from those described below under "Subordinated debt securities;"
- any deletion, addition or change in the covenants set forth in Article 10 of the indenture;
- any paying agents, authenticating agents, security registrars or other agents for the debt securities, if other than the trustee;
- any provisions relating to any security provided for the debt securities, including any provisions regarding the circumstances under which collateral may be released or substituted;
- any provisions relating to guaranties for the securities and any circumstances under which there may be additional obligors;
- any provisions granting special rights to holders when a specified event occurs;
- any special tax provisions that apply to the debt securities;
- with respect to the debt securities that do not bear interest, the dates for certain required reports to the applicable trustee;
- any and all additional, eliminated or changed terms that will apply to the debt securities; and
- any other terms of such debt securities.

Unless otherwise specified in the prospectus supplement, the debt securities will be registered debt securities. Debt securities may be sold at a substantial discount below their stated principal amount, bearing no interest or interest at a rate which at time of issuance is below market rates. The U.S. federal income tax considerations applicable to debt securities sold at a discount will be described in the applicable prospectus supplement.

Exchange and Transfer

Debt securities may be transferred or exchanged at the office of the security registrar or at the office of any transfer agent designated by us.

We will not impose a service charge for any transfer or exchange, but we may require holders to pay any tax or other governmental charges associated with any transfer or exchange.

In the event of any partial redemption of debt securities of any series, we will not be required to:

- issue, register the transfer of, or exchange, any debt security of that series during a period beginning at the opening of business 15 days before the day of mailing of a notice of redemption and ending at the close of business on the day of the mailing; or
- register the transfer of or exchange any debt security of that series selected for redemption, in whole or in part, except the unredeemed portion being redeemed in part.

We will appoint the trustee as the initial security registrar. Any transfer agent, in addition to the security registrar initially designated by us, will be named in the prospectus supplement. We may designate additional transfer agents or change transfer agents or change the office of the transfer agent. However, we will be required to maintain a transfer agent in each place of payment for the debt securities of each series.

Global Securities

The debt securities of any series may be represented, in whole or in part, by one or more global securities. Each global security will:

- be registered in the name of a depositary, or its nominee, that we will identify in a prospectus supplement;
- be deposited with the depositary or nominee or custodian; and
- bear any required legends.

No global security may be exchanged in whole or in part for debt securities registered in the name of any person other than the depositary or any nominee unless:

- the depositary has notified us that it is unwilling or unable to continue as depositary or has ceased to be qualified to act as depositary;
- an event of default is continuing with respect to the debt securities of the applicable series; or
- any other circumstance described in a prospectus supplement has occurred permitting or requiring the issuance of any such security.

As long as the depositary, or its nominee, is the registered owner of a global security, the depositary or nominee will be considered the sole owner and holder of the debt securities represented by the global security for all purposes under the indentures. Except in the above limited circumstances, owners of beneficial interests in a global security will not be:

- entitled to have the debt securities registered in their names;

- entitled to physical delivery of certificated debt securities; or
- considered to be holders of those debt securities under the indenture.

Payments on a global security will be made to the depositary or its nominee as the holder of the global security. Some jurisdictions have laws that require that certain purchasers of securities take physical delivery of such securities in definitive form. These laws may impair the ability to transfer beneficial interests in a global security.

Institutions that have accounts with the depositary or its nominee are referred to as “participants.” Ownership of beneficial interests in a global security will be limited to participants and to persons that may hold beneficial interests through participants. The depositary will credit, on its book-entry registration and transfer system, the respective principal amounts of debt securities represented by the global security to the accounts of its participants.

Ownership of beneficial interests in a global security will be shown on and effected through records maintained by the depositary, with respect to participants’ interests, or any participant, with respect to interests of persons held by participants on their behalf.

Payments, transfers and exchanges relating to beneficial interests in a global security will be subject to policies and procedures of the depositary. The depositary policies and procedures may change from time to time. Neither any trustee nor we will have any responsibility or liability for the depositary’s or any participant’s records with respect to beneficial interests in a global security.

Payment and Paying Agents

Unless otherwise indicated in a prospectus supplement, the provisions described in this paragraph will apply to the debt securities. Payment of interest on a debt security on any interest payment date will be made to the person in whose name the debt security is registered at the close of business on the regular record date. Payment on debt securities of a particular series will be payable at the office of a paying agent or paying agents designated by us. However, at our option, we may pay interest by mailing a check to the record holder. The trustee will be designated as our initial paying agent.

We may also name any other paying agents in a prospectus supplement. We may designate additional paying agents, change paying agents or change the office of any paying agent. However, we will be required to maintain a paying agent in each place of payment for the debt securities of a particular series.

All moneys paid by us to a paying agent for payment on any debt security that remain unclaimed for a period ending the earlier of: (1) 10 business days prior to the date the money would be turned over to the applicable state; or (2) at the end of two years after such payment was due, will be repaid to us thereafter. The holder may look only to us for such payment.

No Protection in the Event of a Change of Control

Unless otherwise indicated in a prospectus supplement with respect to a particular series of debt securities, the debt securities will not contain any provisions that may afford holders of the debt securities protection in the event we have a change in control or in the event of a highly leveraged transaction, whether or not such transaction results in a change in control.

Covenants

Unless otherwise indicated in a prospectus supplement with respect to a particular series of debt securities, the debt securities will not contain any financial or restrictive covenants.

Consolidation, Merger and Sale of Assets

Unless we indicate otherwise in a prospectus supplement with respect to a particular series of debt securities, we may not consolidate with or merge into any other person (other than one of our subsidiaries), in a transaction in which we are not the surviving corporation, or convey, transfer or lease our properties and assets substantially as an entirety to, any person (other than a subsidiary of Avinger, Inc.), unless:

- the successor entity, if any, is a U.S. corporation, limited liability company, partnership, trust or other business entity;
- the successor entity assumes our obligations on the debt securities and under the indentures;
- immediately after giving effect to the transaction, no default or event of default shall have occurred and be continuing; and
- certain other conditions specified in the indenture are met.

Events of Default

Unless we indicate otherwise in a prospectus supplement, the following will be events of default for any series of debt securities under the indentures:

- 1) we fail to pay principal of or any premium on any debt security of that series when due;
- 2) we fail to pay any interest on any debt security of that series for 30 days after it becomes due;
- 3) we fail to deposit any sinking fund payment when due;
- 4) we fail to perform any other covenant in the indenture and such failure continues for 90 days after we are given the notice required in the indentures; and
- 5) certain events involving our bankruptcy, insolvency or reorganization.

Additional or different events of default applicable to a series of debt securities may be described in a prospectus supplement. An event of default of one series of debt securities is not necessarily an event of default for any other series of debt securities.

The trustee may withhold notice to the holders of any default, except defaults in the payment of principal, premium, if any, interest, any sinking fund installment on, or with respect to any conversion right of, the debt securities of such series. However, the trustee must consider it to be in the interest of the holders of the debt securities of such series to withhold this notice.

Unless we indicate otherwise in a prospectus supplement, if an event of default, other than an event of default described in clause (5) above, shall occur and be continuing with respect to any series of debt securities, either the trustee or the holders of at least 25% in aggregate principal amount of the outstanding securities of that series may declare the principal amount and premium, if any, of the debt securities of that series, or if any debt securities of that series are original issue discount securities, such other amount as may be specified in the applicable prospectus supplement, in each case together with accrued and unpaid interest, if any, thereon, to be due and payable immediately.

Unless we indicate otherwise in a prospectus supplement, if an event of default described in clause (5) above shall occur, the principal amount and premium, if any, of all the debt securities of that series, or if any debt securities of that series are original issue discount securities, such other amount as may be specified in the applicable prospectus supplement, in each case together with accrued and unpaid interest, if any, thereon, will automatically become immediately due and payable. Any payment by us on the subordinated debt securities following any such acceleration will be subject to the subordination provisions described below under "Subordinated debt securities."

Notwithstanding the foregoing, each indenture will provide that we may, at our option, elect that the sole remedy for an event of default relating to our failure to comply with our obligations described under the section entitled "Reports" below or our failure to comply with the requirements of Section 314(a)(1) of the Trust Indenture Act will for the first 360 days after the occurrence of such an event of default consist exclusively of the right to receive additional interest on the relevant series of debt securities at an annual rate equal to (i) 0.25% of the principal amount of such series of debt securities for the first 180 days after the occurrence of such event of default and (ii) 0.50% of the principal amount of such series of debt securities from the 181st day to, and including, the 360th day after the occurrence of such event of default, which we call "additional interest." If we so elect, the additional interest will accrue on all outstanding debt securities from and including the date on which such event of default first occurs until such violation is cured or waived and shall be payable on each relevant interest payment date to holders of record on the regular record date immediately preceding the interest payment date. On the 361st day after such event of default (if such violation is not cured or waived prior to such 361st day), the debt securities will be subject to acceleration as provided above. In the event we do not elect to pay additional interest upon any such event of default in accordance with this paragraph, the debt securities will be subject to acceleration as provided above.

In order to elect to pay the additional interest as the sole remedy during the first 360 days after the occurrence of any event of default relating to the failure to comply with the reporting obligations in accordance with the preceding paragraph, we must notify all holders of debt securities and the trustee and paying agent of such election prior to the close of business on the first business day following the date on which such event of default occurs. Upon our failure to timely give such notice or pay the additional interest, the debt securities will be immediately subject to acceleration as provided above.

After acceleration, the holders of a majority in aggregate principal amount of the outstanding securities of that series may, under certain circumstances, rescind and annul such acceleration if all events of default, other than the non-payment of accelerated principal, or other specified amounts or interest, have been cured or waived.

Other than the duty to act with the required care during an event of default, the trustee will not be obligated to exercise any of its rights or powers at the request of the holders unless the holders shall have offered to the trustee reasonable indemnity. Generally, the holders of a majority in aggregate principal amount of the outstanding debt securities of any series will have the right to direct the time, method and place of conducting any proceeding for any remedy available to the trustee or exercising any trust or power conferred on the trustee.

A holder of debt securities of any series will not have any right to institute any proceeding under the indentures, or for the appointment of a receiver or a trustee, or for any other remedy under the indentures, unless:

- 1) the holder has previously given to the trustee written notice of a continuing event of default with respect to the debt securities of that series;
- 2) the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series have made a written request and have offered reasonable indemnity to the trustee to institute the proceeding; and
- 3) the trustee has failed to institute the proceeding and has not received direction inconsistent with the original request from the holders of a majority in aggregate principal amount of the outstanding debt securities of that series within 60 days after the original request.

Holders may, however, sue to enforce the payment of principal, premium or interest on any debt security on or after the due date or to enforce the right, if any, to convert any debt security (if the debt security is convertible) without following the procedures listed in (1) through (3) above.

We will furnish the trustee an annual statement from our officers as to whether or not we are in default in the performance of the conditions and covenants under the indenture and, if so, specifying all known defaults.

Modification and Waiver

Unless we indicate otherwise in a prospectus supplement, the applicable trustee and we may make modifications and amendments to an indenture with the consent of the holders of a majority in aggregate principal amount of the outstanding securities of each series affected by the modification or amendment.

We may also make modifications and amendments to the indentures for the benefit of holders without their consent, for certain purposes including, but not limited to:

- to evidence the succession of another person to Avinger, or successive successions, and the assumption by any such successor of the covenants of Avinger in the indentures in compliance with Article 8 of the indentures;
- adding covenants;
- adding events of default;
- making certain changes to facilitate the issuance of the debt securities;
- to add to, change or eliminate any of the provisions of the indentures or more series of securities, provided that any such addition, change or elimination (A) shall neither (i) apply to any security of any series created prior to the execution of such supplemental indenture and entitled to the benefit of such provision nor (ii) modify the rights of the holder of any such security with respect to such provision or (B) shall become effective only when there is no such security outstanding;
- securing the debt securities;
- providing for guaranties of, or additional obligors on, the debt securities;
- to establish the form or term of debt securities as permitted by Sections 2.1 and 3.1 of the indenture;
- providing for a successor trustee or additional trustees;
- conforming the indenture to the description of the securities set forth in this prospectus or the accompanying prospectus supplement;
- curing any ambiguity, defect or inconsistency; provided that such action shall not adversely affect the interest of the holders in any material respect;
- permitting or facilitating the defeasance and discharge of the debt securities;
- make such other provisions in regard to matters or questions arising under the indentures or under any supplemental indentures as our board of directors may deem necessary or desirable, and which does not in each case adversely affect the interests of the holders of the debt securities of a series; and
- comply with requirements of the SEC in order to effect or maintain the qualifications of the indentures under the Trust Indenture Act of 1939, as amended (the "Trust Indenture Act").

However, neither the trustee nor we may make any modification or amendment without the consent of the holder of each outstanding security of that series affected by the modification or amendment if such modification or amendment would:

- change the stated maturity of the principal of, or any installment of principal or interest on, any debt security;

- reduce the principal, premium, if any, or interest on any debt security or any amount payable upon redemption or repurchase, whether at our option or the option of any holder, or reduce the amount of any sinking fund payments;
- reduce the principal of an original issue discount security or any other debt security payable on acceleration of maturity;
- change the place of payment or the currency in which any debt security is payable;
- impair the right to enforce any payment after the stated maturity or redemption date;
- if subordinated debt securities, modify the subordination provisions in a materially adverse manner to the holders;
- adversely affect the right to convert any debt security if the debt security is a convertible debt security; or
- change the provisions in the indenture that relate to modifying or amending the indenture.

Satisfaction and Discharge; Defeasance

We may be discharged from our obligations on the debt securities, subject to limited exceptions, of any series that have matured or will mature or be redeemed within one year if we deposit enough money with the trustee to pay all the principal, interest and any premium due to the stated maturity date or redemption date of the debt securities.

Each indenture contains a provision that permits us to elect either or both of the following:

- we may elect to be discharged from all of our obligations, subject to limited exceptions, with respect to any series of debt securities then outstanding. If we make this election, the holders of the debt securities of the series will not be entitled to the benefits of the indenture, except for the rights of holders to receive payments on debt securities or the registration of transfer and exchange of debt securities and replacement of lost, stolen or mutilated debt securities.
- we may elect to be released from our obligations under some or all of any financial or restrictive covenants applicable to the series of debt securities to which the election relates and from the consequences of an event of default resulting from a breach of those covenants.

To make either of the above elections, we must irrevocably deposit in trust with the trustee enough money to pay in full the principal, interest and premium on the debt securities. This amount may be made in cash and/or U.S. government obligations or, in the case of debt securities denominated in a currency other than U.S. dollars, cash in the currency in which such series of securities is denominated and/or foreign government obligations. As a condition to either of the above elections, for debt securities denominated in U.S. dollars we must deliver to the trustee an opinion of counsel that the holders of the debt securities will not recognize income, gain or loss for U.S. federal income tax purposes as a result of the action.

With respect to debt securities of any series that are denominated in a currency other than United States dollars, “foreign government obligations” means:

- direct obligations of the government that issued or caused to be issued the currency in which such securities are denominated and for the payment of which obligations its full faith and credit is pledged, or, with respect to debt securities of any series which are denominated in Euros, direct obligations of certain members of the European Union for the payment of which obligations the full faith and credit of such members is pledged, which in each case are not callable or redeemable at the option of the issuer thereof; or

- obligations of a person controlled or supervised by or acting as an agency or instrumentality of a government described in the bullet above the timely payment of which is unconditionally guaranteed as a full faith and credit obligation by such government, which are not callable or redeemable at the option of the issuer thereof.

Notices

Notices to holders will be given by mail to the addresses of the holders in the security register.

Governing Law

The indentures and the debt securities will be governed by, and construed under, the laws of the State of New York.

No Personal Liability of Directors, Officers, Employees and Stockholders

No incorporator, stockholder, employee, agent, officer, director or subsidiary of ours will have any liability for any obligations of ours, or because of the creation of any indebtedness under the debt securities, the indentures or supplemental indentures. The indentures provide that all such liability is expressly waived and released as a condition of, and as a consideration for, the execution of such indentures and the issuance of the debt securities.

Regarding the Trustee

The indentures limit the right of the trustee, should it become our creditor, to obtain payment of claims or secure its claims.

The trustee will be permitted to engage in certain other transactions with us. However, if the trustee acquires any conflicting interest, and there is a default under the debt securities of any series for which it is trustee, the trustee must eliminate the conflict or resign.

Subordinated Debt Securities

The following provisions will be applicable with respect to each series of subordinated debt securities, unless otherwise stated in the prospectus supplement relating to that series of subordinated debt securities.

The indebtedness evidenced by the subordinated debt securities of any series is subordinated, to the extent provided in the subordinated indenture and the applicable prospectus supplement, to the prior payment in full, in cash or other payment satisfactory to the holders of senior debt, of all senior debt, including any senior debt securities.

Upon any distribution of our assets upon any dissolution, winding up, liquidation or reorganization, whether voluntary or involuntary, marshalling of assets, assignment for the benefit of creditors, or in bankruptcy, insolvency, receivership or other similar proceedings, payments on the subordinated debt securities will be subordinated in right of payment to the prior payment in full in cash or other payment satisfactory to holders of senior debt of all senior debt.

In the event of any acceleration of the subordinated debt securities of any series because of an event of default with respect to the subordinated debt securities of that series, holders of any senior debt would be entitled to payment in full in cash or other payment satisfactory to holders of senior debt of all senior debt before the holders of subordinated debt securities are entitled to receive any payment or distribution.

In addition, the subordinated debt securities will be structurally subordinated to all indebtedness and other liabilities of our subsidiaries, including trade payables and lease obligations. This occurs because our right to receive any assets of our subsidiaries upon their liquidation or reorganization, and your right to participate in those assets, will be effectively subordinated to the claims of that subsidiary's creditors, including trade creditors, except to the extent that we are recognized as a creditor of such subsidiary. If we are recognized as a creditor of that subsidiary, our claims would still be subordinate to any security interest in the assets of the subsidiary and any indebtedness of the subsidiary senior to us.

We are required to promptly notify holders of senior debt or their representatives under the subordinated indenture if payment of the subordinated debt securities is accelerated because of an event of default.

Under the subordinated indenture, we may also not make payment on the subordinated debt securities if:

- a default in our obligations to pay principal, premium, if any, interest or other amounts on our senior debt occurs and the default continues beyond any applicable grace period, which we refer to as a payment default; or
- any other default occurs and is continuing with respect to designated senior debt that permits holders of designated senior debt to accelerate its maturity, which we refer to as a non-payment default, and the trustee receives a payment blockage notice from us or some other person permitted to give the notice under the subordinated indenture.

We will resume payments on the subordinated debt securities:

- in case of a payment default, when the default is cured or waived or ceases to exist, and
- in case of a nonpayment default, the earlier of when the default is cured or waived or ceases to exist or 179 days after the receipt of the payment blockage notice.

No new payment blockage period may commence on the basis of a nonpayment default unless 365 days have elapsed from the effectiveness of the immediately prior payment blockage notice. No nonpayment default that existed or was continuing on the date of delivery of any payment blockage notice to the trustee shall be the basis for a subsequent payment blockage notice.

As a result of these subordination provisions, in the event of our bankruptcy, dissolution or reorganization, holders of senior debt may receive more, ratably, and holders of the subordinated debt securities may receive less, ratably, than our other creditors. The subordination provisions will not prevent the occurrence of any event of default under the subordinated indenture.

The subordination provisions will not apply to payments from money or government obligations held in trust by the trustee for the payment of principal, interest and premium, if any, on subordinated debt securities pursuant to the provisions described under the section entitled "Satisfaction and discharge; defeasance," if the subordination provisions were not violated at the time the money or government obligations were deposited into trust.

If the trustee or any holder receives any payment that should not have been made to them in contravention of subordination provisions before all senior debt is paid in full in cash or other payment satisfactory to holders of senior debt, then such payment will be held in trust for the holders of senior debt.

Senior debt securities will constitute senior debt under the subordinated indenture.

Additional or different subordination provisions may be described in a prospectus supplement relating to a particular series of debt securities.

Definitions

"Designated senior debt" means our obligations under any particular senior debt in which the instrument creating or evidencing the same or the assumption or guarantee thereof, or related agreements or documents to which we are a party, expressly provides that such indebtedness shall be designated senior debt for purposes of the subordinated indenture. The instrument, agreement or other document evidencing any designated senior debt may place limitations and conditions on the right of such senior debt to exercise the rights of designated senior debt.

"Indebtedness" means the following, whether absolute or contingent, secured or unsecured, due or to become due, outstanding on the date of the indenture for such series of securities or thereafter created, incurred or assumed:

- our indebtedness evidenced by a credit or loan agreement, note, bond, debenture or other written obligation;
- all of our obligations for money borrowed;
- all of our obligations evidenced by a note or similar instrument given in connection with the acquisition of any businesses, properties or assets of any kind,
- our obligations:
 - o as lessee under leases required to be capitalized on the balance sheet of the lessee under generally accepted accounting principles, or
 - o as lessee under leases for facilities, capital equipment or related assets, whether or not capitalized, entered into or leased for financing purposes;
- all of our obligations under interest rate and currency swaps, caps, floors, collars, hedge agreements, forward contracts or similar agreements or arrangements;
- all of our obligations with respect to letters of credit, bankers' acceptances and similar facilities, including reimbursement obligations with respect to the foregoing;
- all of our obligations issued or assumed as the deferred purchase price of property or services, but excluding trade accounts payable and accrued liabilities arising in the ordinary course of business;
- all obligations of the type referred to in the above clauses of another person, the payment of which, in either case, we have assumed or guaranteed, for which we are responsible or liable, directly or indirectly, jointly or severally, as obligor, guarantor or otherwise, or which are secured by a lien on our property; and
- renewals, extensions, modifications, replacements, restatements and refundings of, or any indebtedness or obligation issued in exchange for, any such indebtedness or obligation described in the above clauses of this definition.

"Senior debt" means the principal of, premium, if any, and interest, including all interest accruing subsequent to the commencement of any bankruptcy or similar proceeding, whether or not a claim for post-petition interest is allowable as a claim in any such proceeding, and rent payable on or in connection with, and all fees and other amounts payable in connection with, our indebtedness. However, senior debt shall not include:

- any debt or obligation if its terms or the terms of the instrument under which or pursuant to which it is issued expressly provide that it shall not be senior in right of payment to the subordinated debt securities or expressly provide that such indebtedness is on the same basis or "junior" to the subordinated debt securities; or
- debt to any of our subsidiaries, a majority of the voting stock of which is owned, directly or indirectly, by us.

"Subsidiary" means a corporation more than 50% of the outstanding voting stock of which is owned, directly or indirectly, by us or by one or more of our other subsidiaries or by a combination of us and our other subsidiaries. For purposes of this definition, "voting stock" means stock or other similar interests which ordinarily has or have voting power for the election of directors, or persons performing similar functions, whether at all times or only so long as no senior class of stock or other interests has or have such voting power by reason of any contingency.

DESCRIPTION OF SUBSCRIPTION RIGHTS

We may issue subscription rights to purchase our common stock, preferred stock or debt securities. These subscription rights may be offered independently or together with any other security offered hereby and may or may not be transferable by the stockholder receiving the subscription rights in such offering. In connection with any offering of subscription rights, we may enter into a standby arrangement with one or more underwriters or other purchasers pursuant to which the underwriters or other purchasers may be required to purchase any securities remaining unsubscribed for after such offering.

The prospectus supplement relating to any subscription rights we offer, if any, will, to the extent applicable, include specific terms relating to the offering, including some or all of the following:

- the price, if any, for the subscription rights;
- the exercise price payable for our common stock, preferred stock or debt securities upon the exercise of the subscription rights;
- the number of subscription rights to be issued to each stockholder;
- the number and terms of our common stock, preferred stock or debt securities which may be purchased per each subscription right;
- the extent to which the subscription rights are transferable;
- any other terms of the subscription rights, including the terms, procedures and limitations relating to the exchange and exercise of the subscription rights;
- the date on which the right to exercise the subscription rights shall commence, and the date on which the subscription rights shall expire;
- the extent to which the subscription rights may include an over-subscription privilege with respect to unsubscribed securities or an over-allotment privilege to the extent the securities are fully subscribed; and
- if applicable, the material terms of any standby underwriting or purchase arrangement which may be entered into by Avinger in connection with the offering of subscription rights.

The descriptions of the subscription rights in this prospectus and in any prospectus supplement are summaries of the material provisions of the applicable subscription right agreements. These descriptions do not restate those subscription right agreements in their entirety and may not contain all the information that you may find useful. We urge you to read the applicable subscription right agreements because they, and not the summaries, define your rights as holders of the subscription rights. For more information, please review the forms of the relevant subscription right agreements, which will be filed with the SEC promptly after the offering of subscription rights and will be available as described in the section titled "Where You Can Find More Information."

DESCRIPTION OF UNITS

We may issue units comprised of one or more of the other classes of securities described in this prospectus in any combination. Each unit will be issued so that the holder of the unit is also the holder of each security included in the unit. Thus, the holder of a unit will have the rights and obligations of a holder of each included security. The units may be issued under unit agreements to be entered into between us and a unit agent, as detailed in the prospectus supplement relating to the units being offered. The prospectus supplement will describe:

- the designation and terms of the units and of the securities comprising the units, including whether and under what circumstances the securities comprising the units may be held or transferred separately;
- a description of the terms of any unit agreement governing the units;
- a description of the provisions for the payment, settlement, transfer or exchange of the units;
- a discussion of material federal income tax considerations, if applicable; and
- whether the units if issued as a separate security will be issued in fully registered or global form.

The descriptions of the units in this prospectus and in any prospectus supplement are summaries of the material provisions of the applicable unit agreements. These descriptions do not restate those unit agreements in their entirety and may not contain all the information that you may find useful. We urge you to read the applicable unit agreements because they, and not the summaries, define your rights as holders of the units. For more information, please review the forms of the relevant unit agreements, which will be filed with the SEC promptly after the offering of units and will be available as described in the section titled "Where You Can Find More Information."

SELLING SECURITY HOLDERS

This prospectus also relates to the possible resale by certain of our stockholders, who we refer to in this prospectus as the “selling stockholders,” of up to 8,705 shares of our common stock that were issued and outstanding prior to the original date of filing of the registration statement of which this prospectus forms a part. The shares of common stock which may be offered by the selling stockholders were purchased pursuant to the Securities Purchase Agreement dated September 22, 2015 between us and CRG Partners III L.P. and certain of its affiliated funds, collectively referred to as “CRG.” When we refer to the “selling stockholders” in this prospectus, we mean the persons listed in the table below, as well as their donees, pledgees, assignees, transferees, distributees, or other successors in interest. No selling stockholder has had any material relationship with us or any of our affiliates within the past three years, other than as lenders pursuant to the Term Loan Agreement dated September 22, 2015 by and among us, certain of our subsidiaries from time to time party thereto as guarantors and CRG as lenders, under which we may borrow up to \$50 million from CRG.

The following table details the name of each selling stockholder, the number of shares of common stock held by the selling stockholder, and the number of shares that may be offered by the selling stockholder for resale under this prospectus. The following table has been prepared on the assumption that all shares offered for resale by the selling stockholders under this prospectus will be sold to parties unaffiliated with the selling stockholders.

Name of Selling Stockholder(1)	Prior to the Offering		Number of Shares of Common Stock Being Registered for Resale	After the Offering	
	Number of Shares of Common Stock Beneficially Owned	Percent of Shares of Common Stock Outstanding		Number of Shares of Common Stock Beneficially Owned	Percent of Shares of Common Stock Outstanding
CRG Partners III, L.P.	1,404	*	1,404	—	*
CRG Partners III—Parallel Fund “A” L.P.	753	*	753	—	*
CRG Partners III—Parallel Fund “B” (Cayman) L.P.	3,322	*	3,322	—	*
CRG Partners III (Cayman) LEV AIV I L.P.	2,984	*	2,984	—	*
CRG Partners III (Cayman) UNLEV AIV I L.P.	242	*	242	—	*
Total shares of common stock to be registered for selling stockholders	8,705	*	8,705	—	*

* Less than 1%.

(1) CR Group L.P. is the investment manager to each of CRG Partners III, L.P., CRG Partners III—Parallel Fund “A” L.P., CRG Partners III—Parallel Fund “B” (Cayman) L.P., CRG Partners III (Cayman) LEV AIV I L.P. and CRG Partners III (Cayman) UNLEV AIV I L.P.

PLAN OF DISTRIBUTION

We or the selling stockholders may sell the securities offered through this prospectus (1) to or through underwriters or dealers, (2) directly to purchasers, including our affiliates, (3) through agents, including ordinary brokerage transactions, block trades, placements, "at the market" transactions, put or call transactions or in any other way not involving market makers or established trading markets or (4) through a combination of any of these methods. The securities may be distributed at a fixed price or prices, which may be changed, market prices prevailing at the time of sale, prices related to the prevailing market prices, or negotiated prices. Any prospectus supplement will include, to the extent applicable, the following information:

- the terms of the offering;
- the names of any underwriters or agents;
- the name or names of any managing underwriter or underwriters;
- the purchase price of the securities;
- the net proceeds from the sale of the securities;
- any delayed delivery arrangements;
- any underwriting discounts, commissions and other items constituting underwriters' compensation;
- any initial public offering price;
- any discounts or concessions allowed or reallowed or paid to dealers; and
- any commissions paid to agents.

We may engage in at the market offerings into an existing trading market in accordance with Rule 415(a)(4). Any at the market offering will be through an underwriter or underwriters acting as principal or agent for us.

We may issue to the holders of our common stock, on a pro rata basis for no consideration, subscription rights to purchase shares of our common stock or preferred stock. These subscription rights may or may not be transferable by stockholders. The applicable prospectus supplement will describe the specific terms of any offering of our common or preferred stock through the issuance of subscription rights, including the terms of the subscription rights offering, the terms, procedures and limitations relating to the exchange and exercise of the subscription rights and, if applicable, the material terms of any standby underwriting or purchase arrangement entered into by us in connection with the offering of common or preferred stock through the issuance of subscription rights.

Sale through Underwriters or Dealers

If underwriters are used in the sale, the underwriters will acquire the securities for their own account, including through underwriting, purchase, security lending or repurchase agreements with us. The underwriters may resell the securities from time to time in one or more transactions, including negotiated transactions. Underwriters may sell the securities in order to facilitate transactions in any of our other securities (described in this prospectus or otherwise), including other public or private transactions and short sales. Underwriters may offer securities to the public either through underwriting syndicates represented by one or more managing underwriters or directly by one or more firms acting as underwriters. Unless otherwise indicated in the prospectus supplement, the obligations of the underwriters to purchase the securities will be subject to certain conditions, and the underwriters will be obligated to purchase all the offered securities if they purchase any of them. The underwriters may change from time to time any initial public offering price and any discounts or concessions allowed or reallowed or paid to dealers. The prospectus supplement will include the names of the principal underwriters, the respective amount of securities underwritten, the nature of the obligation of the underwriters to take the securities and the nature of any material relationship between an underwriter and us or the selling stockholders, as applicable.

Some or all of the securities that we offer through this prospectus may be new issues of securities with no established trading market. Any underwriters to whom we sell securities for public offering and sale may make a market in those securities, but they will not be obligated to do so and they may discontinue any market making at any time without notice. Accordingly, we cannot assure you of the liquidity of, or continued trading markets for, any securities offered pursuant to this prospectus.

If dealers are used in the sale of securities offered through this prospectus, we or the selling stockholders will sell the securities to them as principals. They may then resell those securities to the public at varying prices determined by the dealers at the time of resale. The prospectus supplement will include the names of the dealers and the terms of the transaction.

Direct Sales and Sales through Agents

We or the selling stockholders may sell the securities offered through this prospectus directly. In this case, no underwriters or agents would be involved. In addition, any shares that qualify for sale by the selling stockholders pursuant to Rule 144 under the Securities Act may be sold under Rule 144 rather than pursuant to this prospectus.

Securities may also be sold through agents designated from time to time. Any required prospectus supplement will name any agent involved in the offer or sale of the offered securities and will describe any commissions payable to the agent by us or the selling stockholders. Unless otherwise indicated in such prospectus supplement, any agent will agree to use its reasonable best efforts to solicit purchases for the period of its appointment.

We or the selling stockholders may sell the securities directly to institutional investors or others who may be deemed to be underwriters within the meaning of the Securities Act with respect to any sale of those securities. The terms of any such sales will be described in any required prospectus supplement.

Delayed Delivery Contracts

If the prospectus supplement indicates, we may authorize agents, underwriters or dealers to solicit offers from certain types of institutions to purchase securities at the public offering price under delayed delivery contracts. These contracts would provide for payment and delivery on a specified date in the future. The contracts would be subject only to those conditions described in the prospectus supplement. The applicable prospectus supplement will describe the commission payable for solicitation of those contracts.

Market Making, Stabilization and Other Transactions

Unless the applicable prospectus supplement states otherwise, each series of offered securities by us will be a new issue and will have no established trading market. We may elect to list any series of offered securities on an exchange. Any underwriters that we use in the sale of such offered securities may make a market in such securities, but may discontinue such market making at any time without notice. Accordingly, we cannot assure you that the securities will have a liquid trading market.

Any underwriter may also engage in stabilizing transactions, syndicate covering transactions and penalty bids in accordance with Rule 104 under the Exchange Act. Stabilizing transactions involve bids to purchase the underlying security in the open market for the purpose of pegging, fixing or maintaining the price of the securities. Syndicate covering transactions involve purchases of the securities in the open market after the distribution has been completed in order to cover syndicate short positions.

Penalty bids permit the underwriters to reclaim a selling concession from a syndicate member when the securities originally sold by the syndicate member are purchased in a syndicate covering transaction to cover syndicate short positions. Stabilizing transactions, syndicate covering transactions and penalty bids may cause the price of the securities to be higher than it would be in the absence of the transactions. The underwriters may, if they commence these transactions, discontinue them at any time.

Derivative Transactions and Hedging

We, the underwriters or other agents may engage in derivative transactions involving the securities. These derivatives may consist of short sale transactions and other hedging activities. The underwriters or agents may acquire a long or short position in the securities, hold or resell securities acquired and purchase options or futures on the securities and other derivative instruments with returns linked to or related to changes in the price of the securities. In order to facilitate these derivative transactions, we may enter into security lending or repurchase agreements with the underwriters or agents. The underwriters or agents may effect the derivative transactions through sales of the securities to the public, including short sales, or by lending the securities in order to facilitate short sale transactions by others. The underwriters or agents may also use the securities purchased or borrowed from us or others (or, in the case of derivatives, securities received from us in settlement of those derivatives) to directly or indirectly settle sales of the securities or close out any related open borrowings of the securities.

Electronic Auctions

We or the selling stockholders may also make sales through the Internet or through other electronic means. Since we or the selling stockholders may from time to time elect to offer securities directly to the public, with or without the involvement of agents, underwriters or dealers, utilizing the Internet or other forms of electronic bidding or ordering systems for the pricing and allocation of such securities, you should pay particular attention to the description of that system we will provide in a prospectus supplement.

Such electronic system may allow bidders to directly participate, through electronic access to an auction site, by submitting conditional offers to buy that are subject to acceptance by us, and which may directly affect the price or other terms and conditions at which such securities are sold. These bidding or ordering systems may present to each bidder, on a so-called "real-time" basis, relevant information to assist in making a bid, such as the clearing spread at which the offering would be sold, based on the bids submitted, and whether a bidder's individual bids would be accepted, prorated or rejected. For example, in the case of a debt security, the clearing spread could be indicated as a number of "basis points" above an index treasury note. Of course, many pricing methods can and may also be used.

Upon completion of such an electronic auction process, securities will be allocated based on prices bid, terms of bid or other factors. The final offering price at which securities would be sold and the allocation of securities among bidders would be based in whole or in part on the results of the Internet or other electronic bidding process or auction.

General Information

Agents, underwriters and dealers may be entitled, under agreements entered into with us or the selling stockholders, to indemnification by us or the selling stockholders against certain liabilities, including liabilities under the Securities Act. Agents, underwriters and dealers may engage in transactions with or perform services for us in the ordinary course of their businesses.

LEGAL MATTERS

The validity of the securities offered by this prospectus will be passed upon by Dorsey & Whitney LLP, Salt Lake City, UT.

EXPERTS

The financial statements of Avinger, Inc. as of December 31, 2018 and 2017 and for the years then ended, have been audited by Moss Adams LLP, an independent registered public accounting firm, as stated in their report, which is incorporated herein by reference. Such financial statements have been so incorporated in reliance upon the report of such firm (which report expresses an unqualified opinion and includes explanatory paragraphs regarding a going concern emphasis and the adoption of Accounting Standards Codification Topic No. 606, Revenue Recognition) given upon their authority as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly and other 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>. Our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K, including any amendments to those reports, and other information that we file with or furnish to the SEC pursuant to Section 13(a) or 15(d) of the Exchange Act can also be accessed free of charge through the Internet. These filings will be available as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC.

We have filed with the SEC a registration statement under the Securities Act of 1933 relating to the offering of these securities. The registration statement, including the attached exhibits, contains additional relevant information about us and the securities. This prospectus does not contain all of the information set forth in the registration statement. You can obtain a copy of the registration statement, at prescribed rates, from the SEC at the address listed above. The registration statement and the documents referred to below under "Information Incorporated by Reference" are also available on our Internet website, www.avinger.com. We have not incorporated by reference into this prospectus the information on our website, and you should not consider it to be a part of this prospectus.

INFORMATION INCORPORATED BY REFERENCE

The SEC allows us to incorporate by reference into this prospectus certain information we file with it, which means that we can disclose important information by referring you to those documents. The information incorporated by reference is considered to be a part of this prospectus, and information that we file later with the SEC will automatically update and supersede information contained in this prospectus and any accompanying prospectus supplement. We incorporate by reference the documents listed below that we have previously filed with the SEC (excluding any portions of any Form 8-K that are not deemed "filed" pursuant to the General Instructions of Form 8-K):

- our Annual Report on [Form 10-K](#) for the fiscal year ended December 31, 2018, filed with the SEC on March 6, 2019;
- our Current Report on [Form 8-K](#) filed with the SEC on February 15, 2019; and
- the description of our common stock contained in our Registration Statement on [Form 8-A](#) as filed with the SEC on January 27, 2015 pursuant to Section 12(b) of the Exchange Act.

We also incorporate by reference into this prospectus additional documents (other than current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits on such form that are related to such items) that we may file with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the completion or termination of the offering, including all such documents we may file with the SEC after the date of the initial registration statement and prior to the effectiveness of the registration statement, but excluding any information deemed furnished and not filed with the SEC. Any statements contained in a previously filed document incorporated by reference into this prospectus is deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in this prospectus, or in a subsequently filed document also incorporated by reference herein, modifies or supersedes that statement.

This prospectus may contain information that updates, modifies or is contrary to information in one or more of the documents incorporated by reference in this prospectus. You should rely only on the information incorporated by reference or provided in this prospectus. Neither we nor the selling stockholders have authorized anyone else to provide you with different information. You should not assume that the information in this prospectus is accurate as of any date other than the date of this prospectus or the date of the documents incorporated by reference in this prospectus.

We will provide to each person, including any beneficial owner, to whom this prospectus is delivered, upon written or oral request, at no cost to the requester, a copy of any and all of the information that is incorporated by reference in this prospectus.

Requests for such documents should be directed to:

Avinger, Inc.
400 Chesapeake Drive
Redwood City, CA 94063
Attention: Secretary

You may also access the documents incorporated by reference in this prospectus through our website at www.avinger.com. Except for the specific incorporated documents listed above, no information available on or through our website shall be deemed to be incorporated in this prospectus or the registration statement of which it forms a part.

10,000,000 Shares



Common Stock

PROSPECTUS SUPPLEMENT

Aegis Capital Corp.

January 28, 2021