



SAFE HARBOR

These slides and the accompanying oral presentation contain forward-looking statements about Avinger, Inc. ("Avinger" or the "Company") and its business. All statements other than statements of historical fact contained in this presentation, including statements regarding business strategy and plans and objectives for future operations are forward-looking statements. Avinger has based these forward-looking statements on its estimates and assumptions and its current expectations and projections about future events. These forward-looking statements are subject to a number of risks, uncertainties and assumptions, including those that may be described in greater detail in the Company's most recent quarterly report on Form 10-Q filed with the U.S. Securities and Exchange Commission (the "SEC") on May 15, 2018, or annual report on Form 10-K filed with the SEC on March 30, 2018. In light of these risks, uncertainties and assumptions, the forward-looking events and circumstances discussed in this presentation are inherently uncertain and may not occur, and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements. Accordingly, you should not rely upon forward-looking statements as predictions of future events. Avinger undertakes no obligation to update publicly or revise any forward-looking statements for any reason after the date of this presentation, to conform these statements to actual results or to changes in Avinger's expectations.

Certain data in this presentation was obtained from various external sources, and neither the Company nor its affiliates, advisers or representatives has verified such data with independent sources. Accordingly, neither the Company nor any of its affiliates, advisers or representatives makes any representations as to the accuracy or completeness of that data or to update such data after the date of this presentation. Such data involves risks and uncertainties and is subject to change based on various factors.

The trademarks included herein are the property of the owners thereof and are used for reference purposes only. Such use should not be construed as an endorsement of the products or services of the Company.



UNIQUE SOLUTIONS FOR A GROWING MARKET

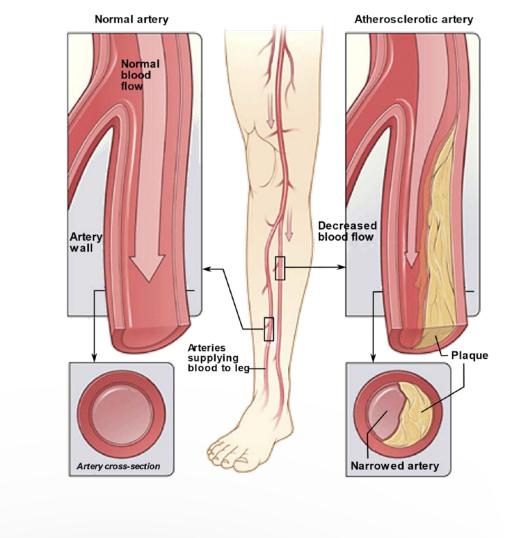
COMMERCIAL-STAGE MEDICAL DEVICE COMPANY

- Designs and develops the first-ever image-guided, catheter-based system for treatment of patients with Peripheral Artery Disease (PAD)
- Over 21 million people projected to suffer from PAD in United States alone by 2020¹
- U.S. Peripheral Vascular (PV) device market expected to be \$3.6 billion in 2018²
- Extensive IP portfolio (120 total patents and pending applications) covering key design, manufacturing and therapeutic use of OCT imaging catheters, atherectomy devices and imaging console
- Focused and experienced management team; 65 employees, including 18 Sales professionals³
- Fully-integrated with in-house manufacturing in Redwood City, California

FDA clearance of
Next Generation Pantheris received May 2018

- (1) The Sage Group 2010
- (2) Millennium Research Group, December 2014
- (3) Employee count as of December 31, 2017







PAD Image by Jmarchn - Own work, CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=31200275



LUMIVASCULAR PLATFORM

ONLY TECHNOLOGY THAT OFFERS REAL-TIME VISUALIZATION OF THE INSIDE OF THE ARTERY DURING PERIPHERAL ARTERY DISEASE (PAD) TREATMENT

IMAGING CONSOLE "RAZOR"



- 147 installed units
- FDA 510(k) cleared
- CE Mark
- Re-usable, multi-display mobile unit that delivers high-definition OCT images

CATHETERS"RAZOR BLADE"



- First-ever Image-guided Atherectomy catheter
- FDA clearance of next generation Pantheris received May 2018
- Expect submission of FDA 510(k) for small-vessel device Q3
 2018
- VISION clinical trial exceeded all safety and efficacy endpoints





- Only image-guided CTO crossing catheters
- Three product configurations on the market
- CONNECT II best-in-class clinical data



PIPELINE & UPCOMING MILESTONES

	Product	Market Opportunity	Expected FDA Clearance / Product Launch	Commentary		
18	Pantheris 3.0 Next Generation	\$280M ATK	H1 2018	Next generation image-guided atherectomy. FDA FDA cleared May 2018		
20	Pantheris 6F Small Vessel	\$180M BTK H2 2018		Longer length, lower profile for small vessels, including BTK (below-the-knee)		
2019	Ocelaris PAD	\$90M	H1 2019	Next generation Peripheral CTO crosser		
	Lightbox L300	\$100M	2019	Miniaturized solid state console with full integration		
2020	Ocelaris CAD	\$190M	2020	Groundbreaking image-guided Coronary CTO CTO crossing		





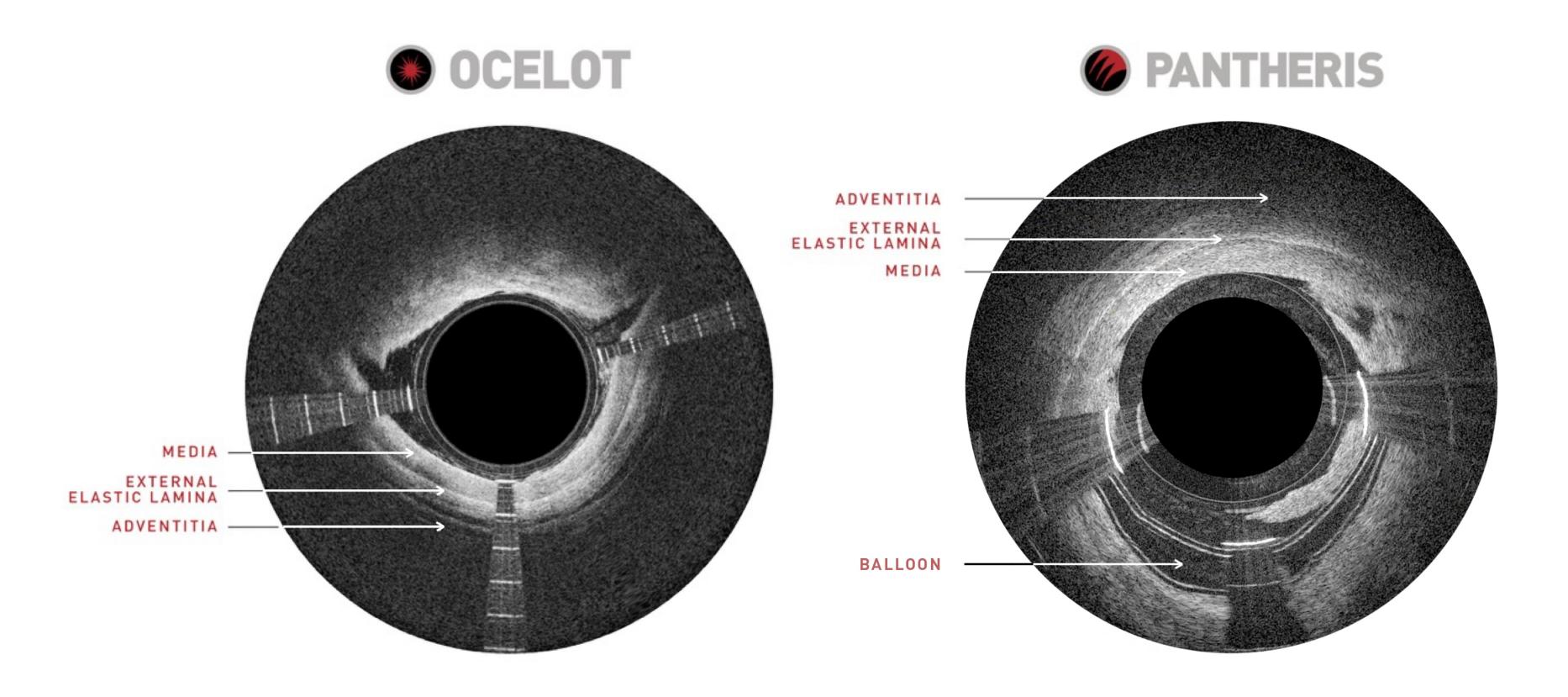
KEY 2018 MILESTONES

- √ Received FDA clearance of Next Generation Pantheris May 2018
- Anticipated filing of 510(k) for Pantheris 6F Small Vessel (BTK) –
 Q3 2018, with anticipated FDA clearance by year-end 2018
- Anticipated notification in July 2018 that CPT application (OCT diagnostic reimbursement) will be reviewed at September 2018 CPT Editorial Panel Meeting
- Target completion of enrollment in ISR clinical study 2018
- Anticipated filing of 510(k) for Ocelaris next generation CTO crosser
 — Q4 2018



LUMIVASCULAR APPROACH

OCT IMAGE-GUIDED THERAPY – HIGH DEFINITION, LIGHT-BASED, NO IONIZING RADIATION



Fluoroscopy (X-Ray)

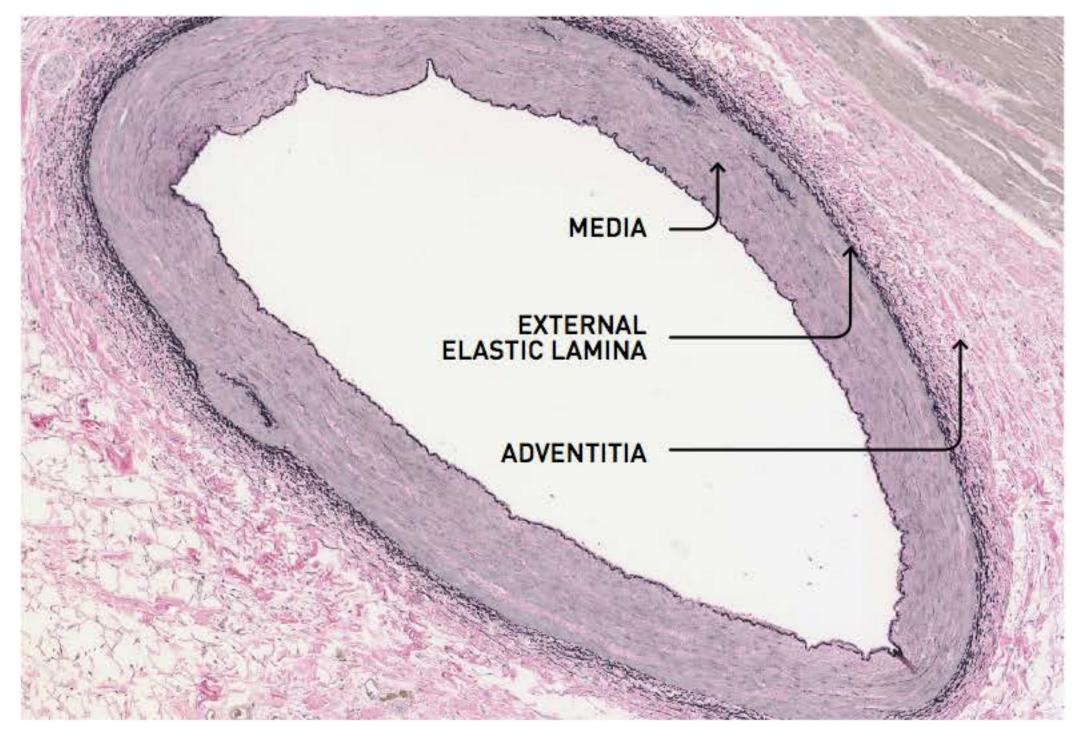


OPTICAL COHERENCE TOMOGRAPHY (OCT)



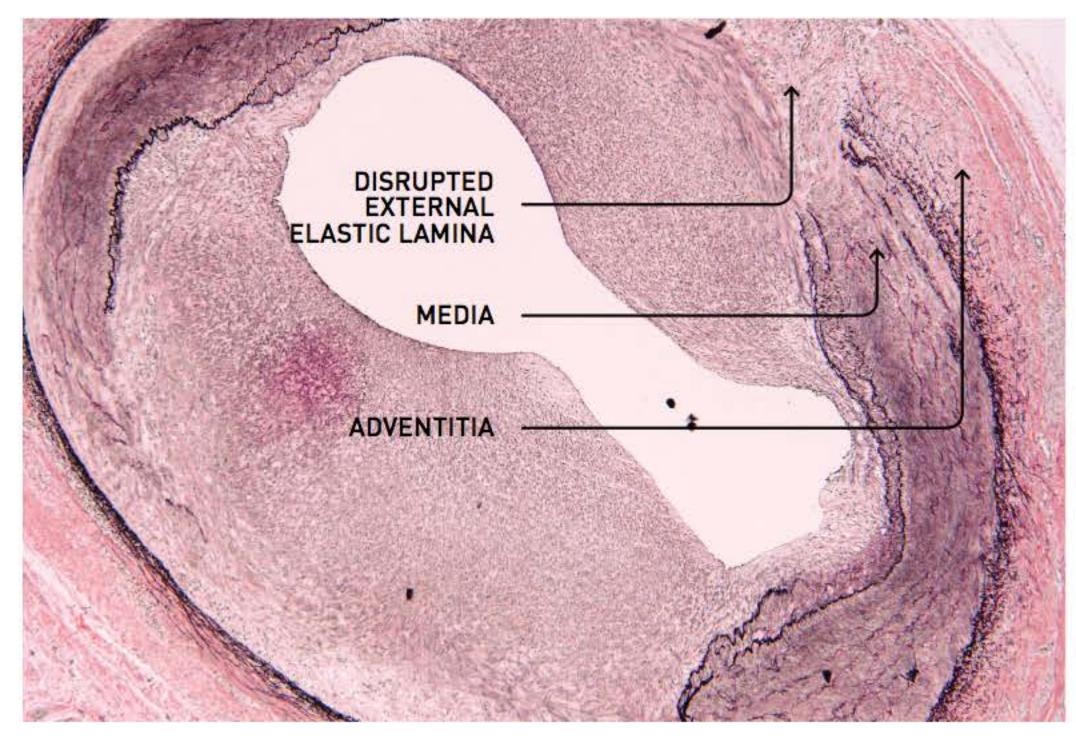
ARTERIAL DAMAGE LEADS TO RESTENOSIS

HEALTHY ARTERIAL STRUCTURES



The external elastic lamina (EEL) is the border between the media and the adventitia.

RESTENOSIS



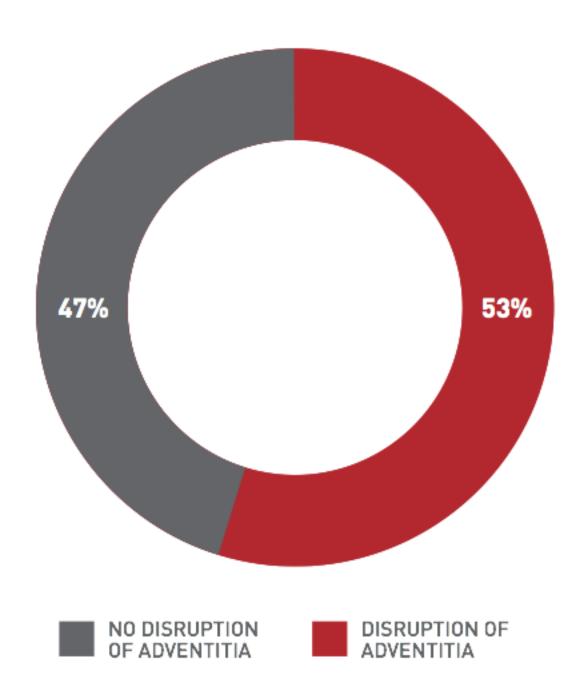
Disruption to external elastic lamina and adventitia leads to an aggressive healing response, commonly referred to as restenosis.



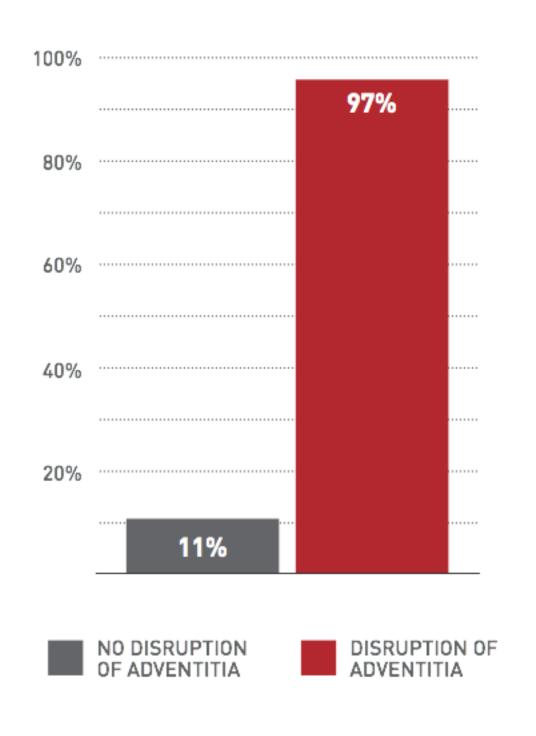
MINIMIZING DAMAGE TO ADVENTITIA

LUMIVASCULAR

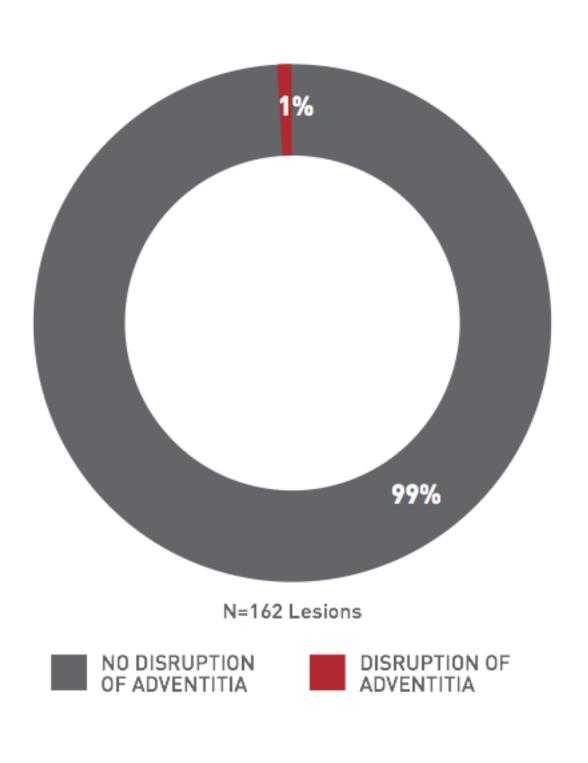
TRADITIONAL ATHERECTOMY 1 ADVENTITIAL DISRUPTION



TRADITIONAL ATHERECTOMY 1 RESTENOSIS AT ONE YEAR



VISION TRIAL TISSUE ANALYSIS ²



(2) FIH Data on file at Avinger, Inc.



⁽¹⁾ Histopathological Evidence of Adventitial or Medial Injury is a Strong Predictor of Restenosis During Directional Atherectomy for Peripheral Artery Disease. J Endovasc Ther. 2015 Oct;22l5l:712-5. doi: 10.1177/1526602815597683. Epub 2015 Jul 24

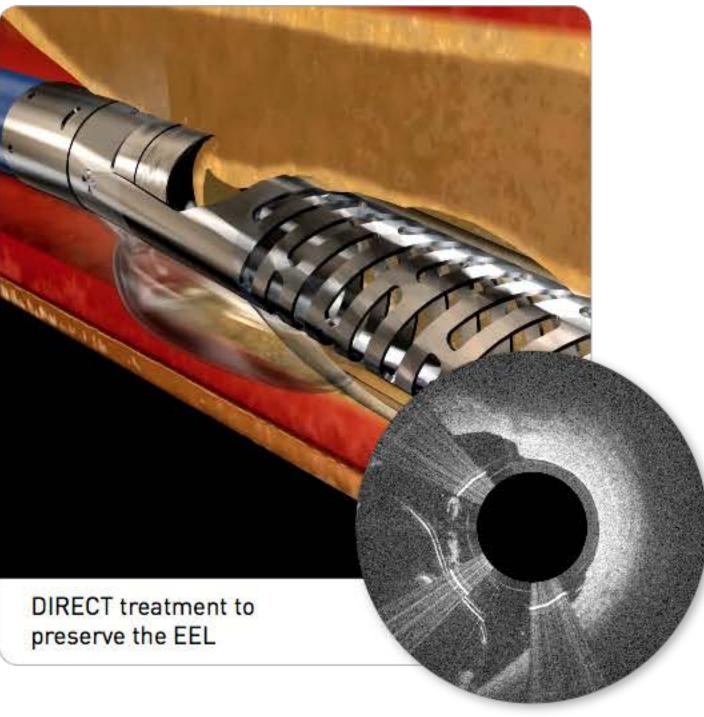




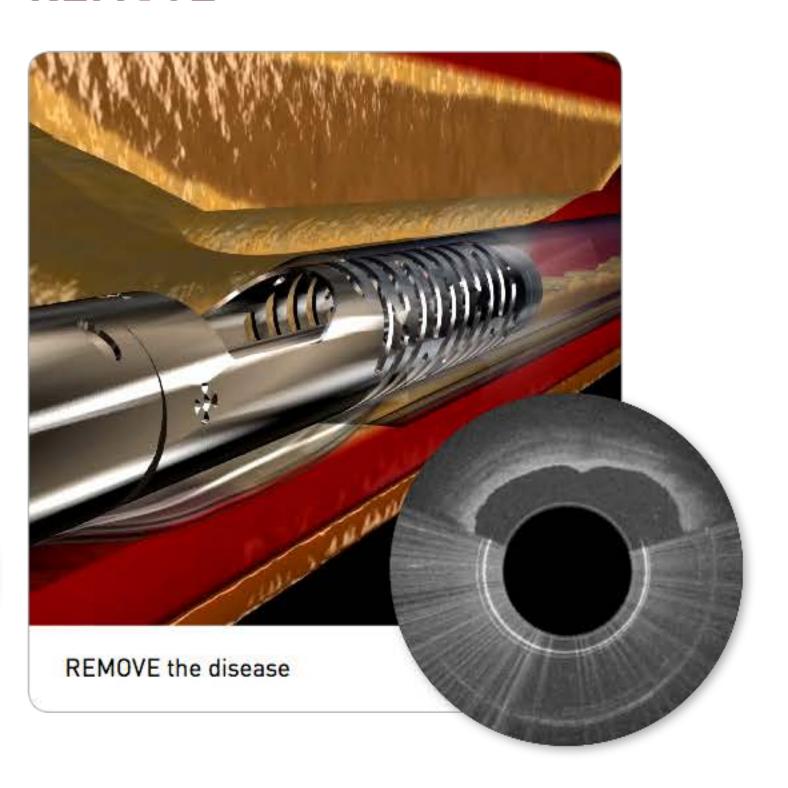
SEE



DIRECT



REMOVE

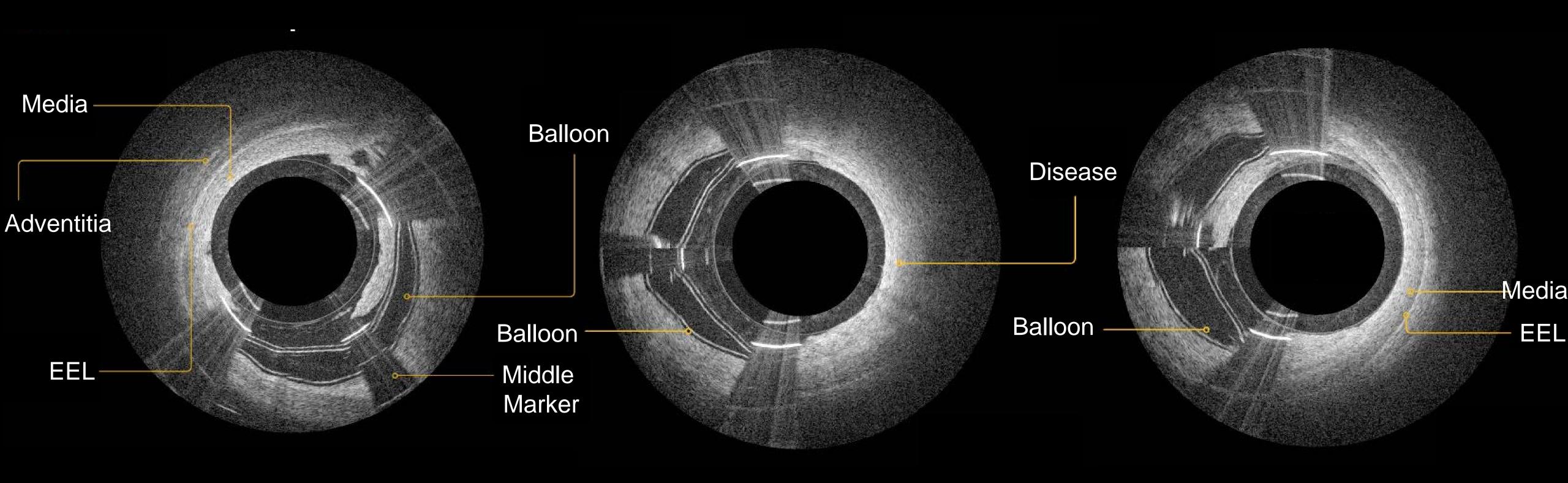








VISUALIZE the disease



Cut with PRECISION

Ø AVINGER

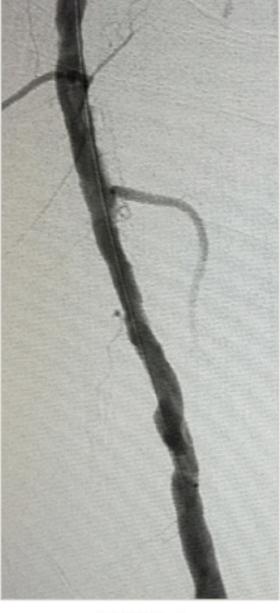
Stay SAFE and don't perforate











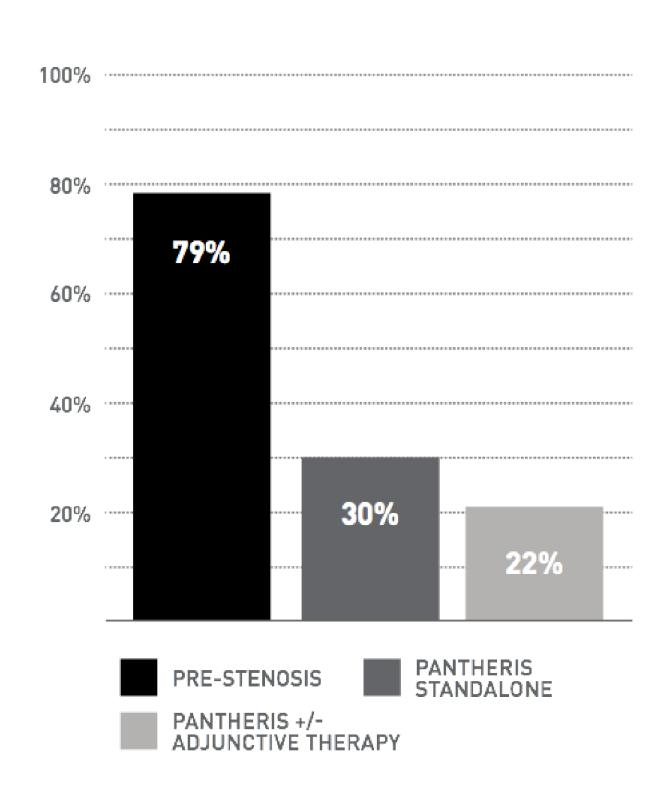
PRE PANTHERIS

POST PANTHERIS

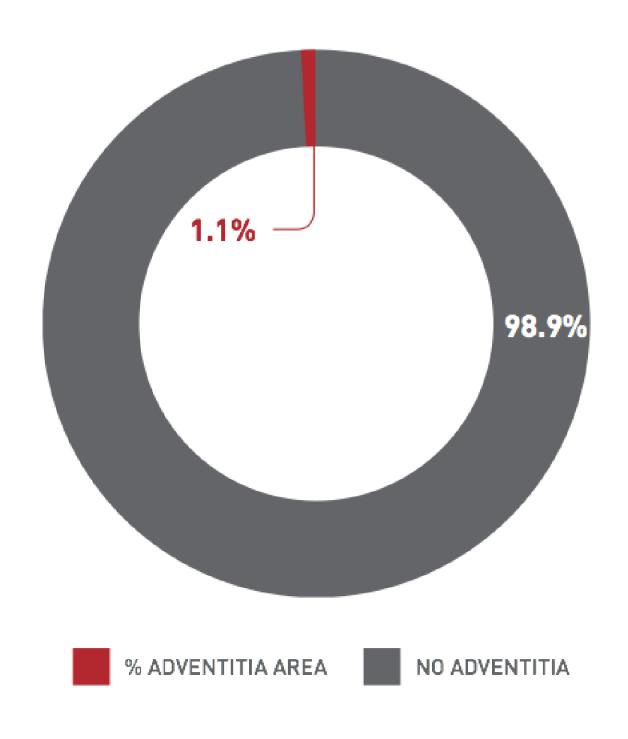


130 PATIENTS | 20 SITES | 164 LESIONS | 7.3 ± 4.1cm MEAN LESION LENGTH | SFA-POPLITEAL LESION LOCATION

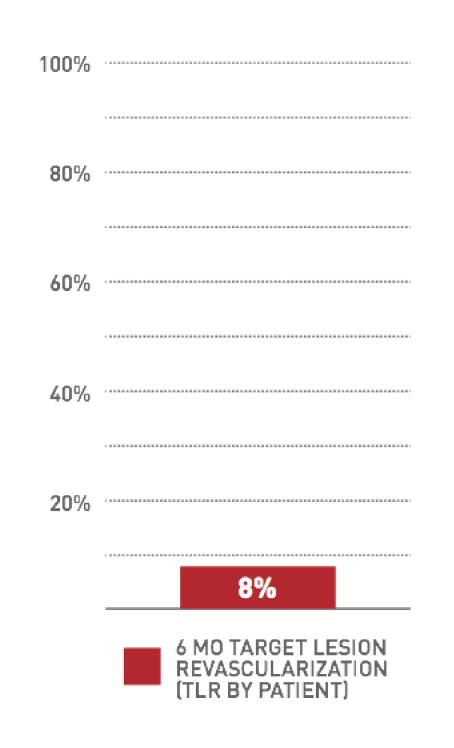
LUMINAL GAIN | 72%



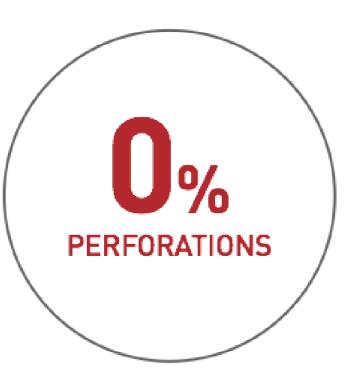
ADVENTITIA | ANALYSIS



TLR 6 MONTHS | 8%

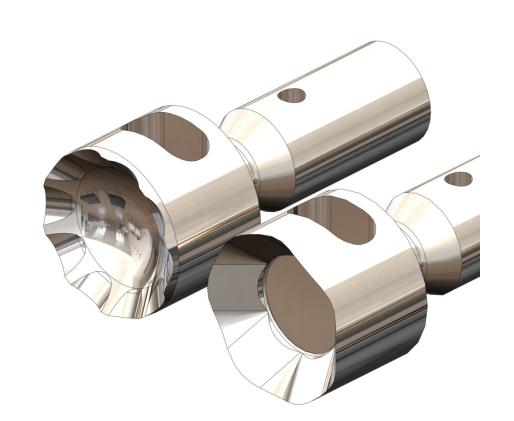






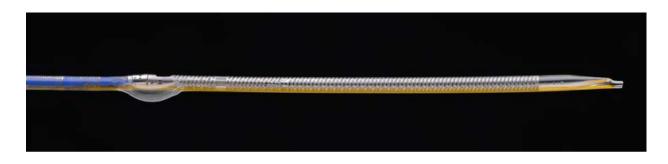


PANTHERIS 3.0 - NEXT GENERATION FDA 510(K) CLEARANCE RECEIVED MAY 2018



Petal Cutter

 Provides increased cutting efficiency and enhanced tissue engagement



Redesigned Inflation System

 Single balloon for apposition and blood flow management



Stiffer Catheter Shaft

Improves pushability

Markers on Shaft

Aids in longitudinal positioning



Longer Packing Stroke and Reinforced Vented Nosecone

- Enhances tissue management
- Standard and XL nosecone lengths

Currently in development at Avinger. Not available for sale



PANTHERIS 6F SMALL VESSEL FDA 510(K) SUBMISSION PLANNED Q3 2018



BENEFITS

- Compatible with 6F sheaths
- Treat distal lesions with shaft markings for longitudinal reference
- Enables single use operator
- Facilitates use in distal anatomy

ENHANCEMENTS

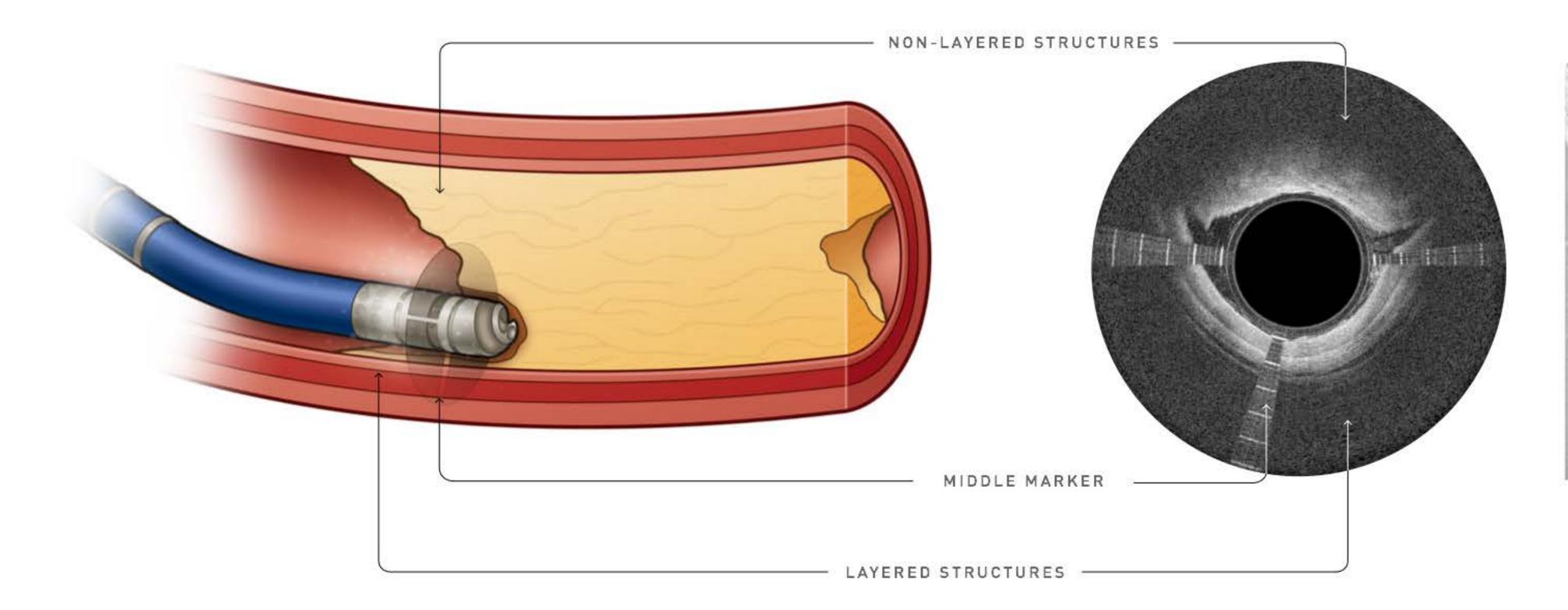
- Slimmer profile
- 140cm working length
- 1:1 torque transmission
- "Cobra" jog for apposition of cutter to tissue
- 3.5cm nosecone

Currently in development at Avinger. Not available for sale





OCELOT LUMIVASCULAR CTO CROSSING



FLUOROSCOPY
No visualization of arterial structures

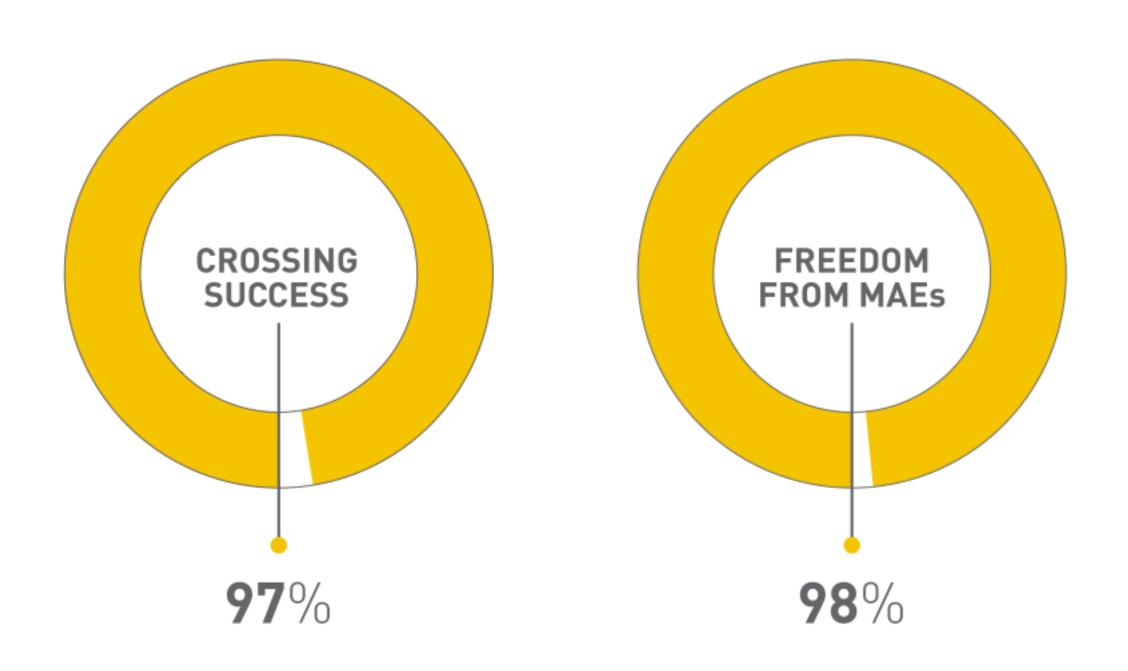


CTO = CHRONIC TOTAL OCCLUSIONS

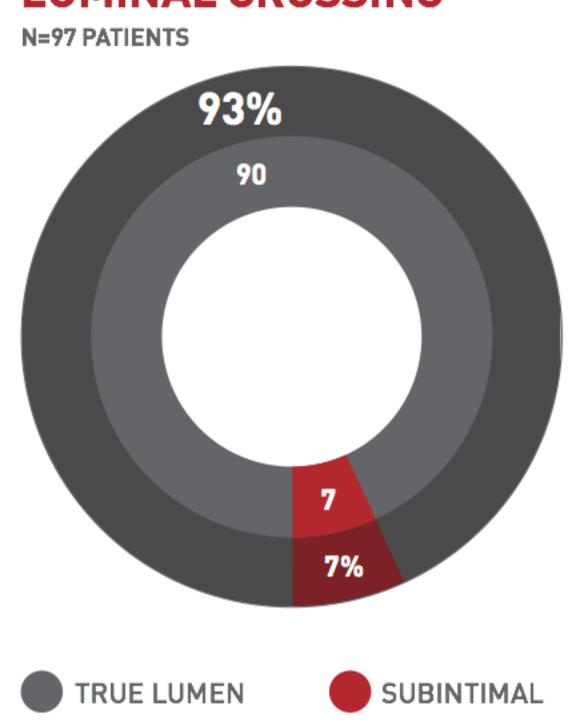


100 PATIENTS | 14 SITES | 166mm MEAN LESION LENGTH | SFA & POPLITEAL LESION LOCATION

CROSSING SUCCESS & FREEDOM FROM MAES



LUMINAL CROSSING



Avinger's CONNECT II is an FDA approved prospective, non-randomized, global clinical study that evaluated the safety and efficacy of the Ocelot System.



CLINICAL DATA AND REGULATORY PROGRAMS

Label Expansion for In-Stent Restenosis (ISR) Lesions

- CE-Mark approval for ISR claim Sept 2017
- FDA approval of IDE application for INSIGHT study April 2017
- 20 US/OUS Sites // up to 140 subjects
- 30-day follow-up for labeling safety claim; Follow-up will continue at 6 and 12 months
- Enrollment initiated October 2017; Multiple site expansion Q1 2018



CLINICAL DATA AND REGULATORY PROGRAMS (CONT'D)

Proposed Rule: new diagnostic imaging code/reimbursement for OCT in peripheral arteries (PAD)

- Incremental to already strong atherectomy procedural reimbursement
- Similar to existing intravascular ultrasound (IVUS) reimbursement
- Would apply to Ocelot, Pantheris and future OCT image-guided products
- Strategically important in growing Office-Based Lab (OBL) market
- Small-scale clinical study (SCAN) expected to be completed Q3 2018
- CPT application submitted June 2018, requesting review at AMA September 2018 CPT Editorial Panel Meeting
- CMS proposed and final rule in 2019; if approved, effective Jan 1, 2020



U.S. AND INTERNATIONAL SALES REGIONS

Europe/Middle East

Direct sales in Germany (1 Sales Director); sales through distributors in Switzerland, UAE and Turkey

United States 18 sales professionals*

- VP: 1
- Regional Managers: 3
- Territory Sales Reps: 11
- Clinical Specialists: 3

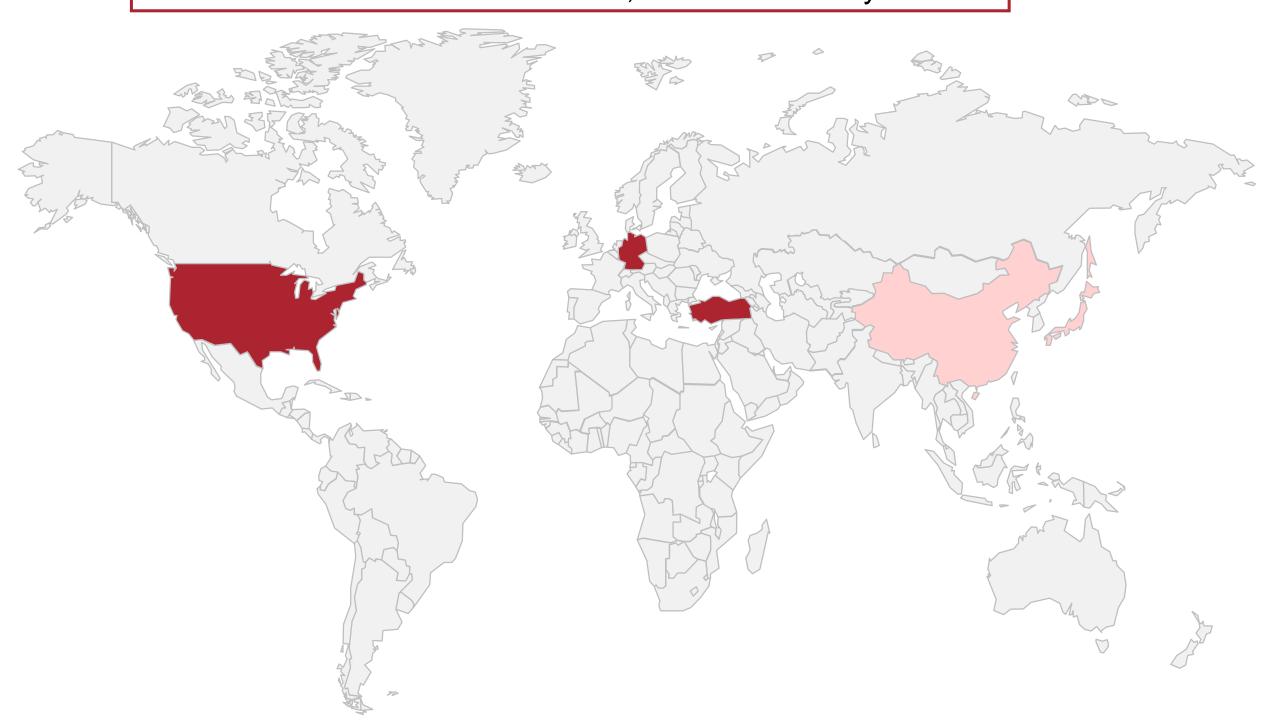
National Agreements



Department of Veterans Affairs







Japan

Manufacturing facility registration with PMDA, Jan 2017

China

Large market opportunity; anticipated approval timeline from potential filing is 12- 24 months

	US	Europe	Japan	China
Regulatory Approval	✓	✓	Process Initiated	Partner Discussions

*as of December 31, 2017



CAPITALIZATION TABLE AND SELECTED FINANCIALS

ACOF HIME OO OO4O					
Security	Common Equivalents				
Common stock	9,305,872				
Series A Preferred ¹ (41,800 outstanding / \$2.00 conversion)	20,900,000				
Series B Preferred ^{1,2} (1,701 outstanding / \$2.00 conversion)	850,500				
Warrants - Series 1 ³ (\$2.00 exercise)	8,979,000				
Warrants - Series 2 ⁴ (\$2.00 exercise)	8,709,500				
Fully Diluted and Outstanding	48,744,872				

Selected Financials	
Debt Balance (as of 3/31/2018) ⁵	\$ 7.5M

Cash Balance (as of 3/31/2018) \$ 14.4M

1. The Series A Preferred Stock resulted from the conversion of debt held by CRG Partners. The Series B preferred stock was issued in the February 14th, 2018 public offering and generated \$18 million in gross proceeds. Each share of Series B Preferred is convertible into shares of the company's common stock and was accompanied by (a) a Series 1 warrant to purchase 500 shares of the company's common stock and (b) a Series 2 warrant to purchase 500 shares of the company's common stock at an exercise price of \$2.00 per share. For the complete terms and conditions of the Series A and Series B preferred stock, please see each security's certificate of designation:

[•] Series A Preferred Stock: https://www.sec.gov/Archives/edgar/data/1506928/000104746918000721/a2234485zex-3 4.htm

[•] Series B Preferred Stock: https://www.sec.gov/Archives/edgar/data/1506928/000104746918000721/a2234485zex-3 5.htm

^{2.} The Series B preferred have full ratchet based anti-dilution protection below \$2.00 per share

^{3.} Expires February 17, 2025

^{4.} Expires 60 days following FDA clearance of Pantheris BTK, provided if at any time during such 60-day period the VWAP for any trading day is less than the exercise price, the termination date shall be extended to February 17, 2025

^{5.} Maturity date of June 30, 2023



OPPORTUNITY SUMMARY

- U.S. Peripheral Vascular Device Market is expected to be \$3.6 billion in 2018
- Lumivascular platform is the only technology that combines real-time intravascular imaging with highly effective therapy for the treatment of PAD
- Experienced and committed senior management team with multiple high value strategic transactions
- FDA clearance received for Next Generation Pantheris image-guided atherectomy device in May 2018, with controlled launch underway
- Robust product development and clinical data pipeline to position the company for future growth, including potential expansion to the coronary arteries

Appendix



















MANAGEMENT TEAM

Jeff Soinski - Chief Executive Officer

Jeff Soinski has served as our President, Chief Executive Officer and a member of our Board of Directors since December 2014. From its formation in September 2009 until the acquisition of its Unisyn business by GE Healthcare in May 2013, Mr. Soinski served as Chief Executive Officer of Medical Imaging Holdings and its primary operating company Unisyn Medical Technologies, a national provider of technology-enabled products and services to the medical imaging industry. He remained a director of Medical Imaging Holdings and its remaining operating company Consensys Imaging Service until its acquisition in October 2017. Mr. Soinski served periodically as a Special Venture Partner from July 2008 to June 2013 and as a Special Investment Partner since October 2016 for Galen Partners, a leading healthcare-focused private equity firm. From 2001 until its acquisition by C.R. Bard in 2008, Mr. Soinski was President and CEO of Specialized Health Products International, a publicly-traded manufacturer and marketer of proprietary safety medical products. Earlier in his career, Mr. Soinski was President and CEO of ViroTex Corporation, a venture-backed pharmaceutical drug delivery company he sold to Atrix Laboratories in 1998.

Mr. Soinski served on the board of directors of Merriman Holdings, parent of Merriman Capital, a San Francisco-based investment banking and brokerage firm, from 2008 until March 2016. He holds a B.A. degree from Dartmouth College.

Mark Weinswig – Chief Financial Officer

Mr. Weinswig has served as our Chief Financial Officer since June 2018. He brings extensive strategic and operational financial experience to Avinger, including almost 20 years in financial leadership positions in private and publicly-traded technology companies. Mr. Weinswig previously served as the CFO of Emcore, One Workplace, and Aqua Metals. Earlier in his career, he was International Financial Controller for Coherent, and held senior financial positions at Oclaro. Mr. Weinswig began his career in public accounting at PricewaterhouseCoopers and worked at Morgan Stanley as an Equity Research Analyst. He has held both Certified Public Accountant (CPA) and Chartered Financial Analyst (CFA) designations, and received an M.B.A from Santa Clara University and a B.S. degree in Accounting from Indiana University.

MANAGEMENT TEAM (CONT'D)

Himanshu Patel – Chief Technology Officer

Himanshu Patel has served as Chief Technology Officer of Avinger since its founding in 2007. Mr. Patel brings over 25 years of design experience developing medical devices, primarily for cardiovascular and peripheral artery disease treatment. He has extensive experience leading R&D and manufacturing operations across several companies, and has served as a named inventor in more than 25 medical device patents. Mr. Patel founded Avinger in 2007, leading the company in the rapid development of new products that address specific unmet clinical needs in the treatment of peripheral artery disease. He spearheaded engineering efforts of the current platform of image-guided ("Lumivascular") interventional devices at Avinger, and has played a central role in the development of products that have generated over \$1 billion in shareholder value over the course of his career. Prior to Avinger, Mr. Patel led R&D activities as the Director of Advanced Technologies at FoxHollow, and spearheaded the engineering efforts of a \$180 million revenue product. His other experience includes designing and developing shape memory alloy stents and multi-component stent-graft devices at EndoTex Interventional Systems, and improving the manufacturing processes of medical devices at General Surgical Innovations, amongst others. Mr. Patel has a proven track record of developing products that exceed customer expectations, with a focus on cost containment, speed to market, and manufacturability.

Mr. Patel holds a B.S. in Mechanical Engineering from M.S. University of Baroda, India, and an M.S. in Mechanical Engineering from the University of Florida.

Jaafer Golzar, MD, FACC, FSCAI – Chief Medical Officer

Jaafer Golzar, MD, joined Avinger in July 2018 and serves as our Chief Medical Officer. Dr. Golzar is a practicing interventional cardiologist with Advocate Medical Group and a key opinion leader in the treatment of peripheral artery disease. He is the Director of Limb Salvage and Endovascular Intervention at Advocate Trinity Hospital in Chicago. Dr. Golzar is also a leading educator on interventional techniques and technologies and is the founder of the Chicago Endovascular Conference (CVC), an international-scale annual conference designed to address the educational needs of physicians treating patients with peripheral arterial and venous diseases. Prior to joining Avinger, Dr. Golzar was also Medical Director – Interventional Vascular for BTG International. He has participated in multiple clinical research trials, including studies of PAD treatment with atherectomy, drug-eluting balloons and stents and has authored numerous publications in peer-reviewed journals. As a recognized leader in the endovascular community, Dr. Golzar has received multiple accolades including the prestigious Pioneers in Performance - North America Award in 2014. He is a Fellow of the American College of Cardiology and of the Society for Cardiovascular Angiography and Interventions. Dr. Golzar has a B.S. from the University of Arkansas at Little Rock and an M.D. degree from the University of Arkansas College of Medicine.



Thomas Lawson, PhD – VP, Clinical & Regulatory Affairs

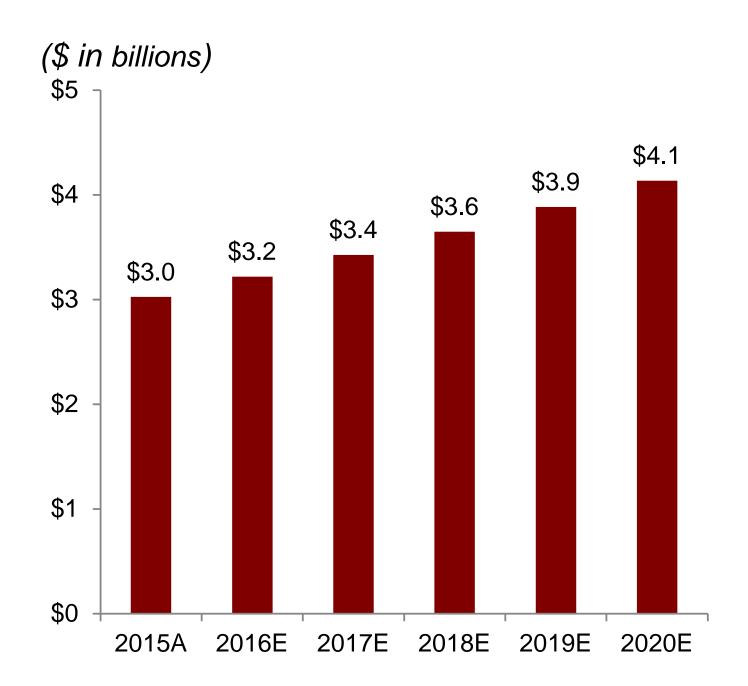
Thom Lawson joined Avinger in October 2016 and serves as our Vice President of Clinical & Regulatory Affairs. After gaining a PhD in plant pathology from the University of California, Berkeley, Dr. Lawson coordinated international preclinical and clinical studies at Cetus Corporation, then the 2nd largest biotech company in the US. Prior to joining Avinger, Dr. Lawson spent 25 years executing the preclinical, clinical and regulatory tasks for 8 different start-up medical device companies, involving over 80 studies in 13 different countries, and authoring over 50 regulatory filings for the commercialization of devices in 27 countries, including over thirty 510(k) submissions. To facilitate device promotion and education, he has provided first-drafts to physicians and researchers of over 140 abstracts and journal articles. An invited lecturer to professional society meetings and medical departments in the USA, Europe and Asia, he is the past editor-in-chief of the *Journal of Vascular Access Devices* and author of over 40 articles in both scientific and general audience journals in the fields of biology, pathology, and medical science





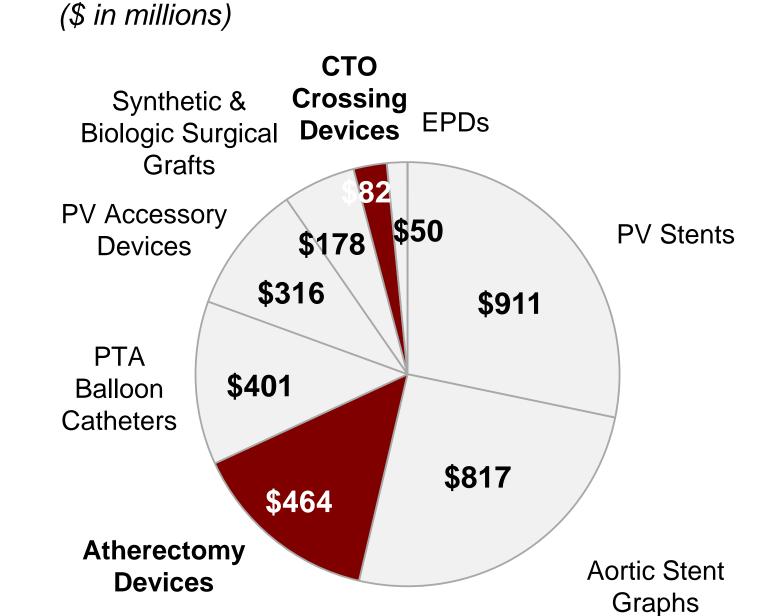
ATTRACTIVE AND GROWING MARKET

U.S. PV DEVICE MARKET



 U.S. PV Device Market is expected to be \$3.6 billion in 2018 and expected to grow at a rate of 2.3% until 2023

2016 U.S. MARKET BY DEVICE TYPE



 Atherectomy procedures and CTO procedures are expected to grow at 11.4% and 7.7% through 2023, respectively

2016 U.S. MARKET SIZE FOR ENDOVASCULAR TREATMENT OF PAD

Treatment	Procedures	Market Size
Amputations ⁽¹⁾	200,000	-
Bypass ⁽²⁾	160,000	-
Surgical Procedures	360,000	-
Stents ⁽³⁾	314,000	\$523M
Angioplasty ⁽³⁾	560,000	\$240M
Atherectomy	149,000	\$464M
CTOs	155,000	\$82M
Endovascular Procedures ⁽⁴⁾	620,000	\$1,309M

 Total atherectomy and CTO market size in 2016 was \$546 million

Source: Unless otherwise noted, data is from Millennium Research Group, December 2014

⁽⁴⁾ Total endovascular procedures are less than sum of the individual categories due to use of same technologies in same procedure



⁽¹⁾ The Sage Group, 2014

⁽²⁾ Journal of Vascular Surgery, 2009

⁽³⁾ For PAD, includes only Iliac, Femoropopliteal and Infrapopliteal indications



COMPETITIVE POSITIONING

	COMPANY	PRODUCT	MARKET SHARE	APPROACH	LUMINAL GAIN	AVOIDS ADVENTITIA DISRUPTION	REMOVAL OF PLAQUE	RADIATION & CONTRAST SPARING	IMAGING & VESSEL MEASUREMENT
	Avinger	Pantheris	<5%	Directional Atherectomy					
G. W. L. L.	Covidien / Medtronic	SilverHawk	29%	Directional Atherectomy					
	CSI	Diamondback 360	35%	Orbital Atherectomy					
	Philips (Spectranetics)	Turbo Elite	19%	Laser Ablation					
	Boston Scientific	Jetstream / Rotablator	11% ⁽¹⁾	Rotational Atherectomy					
	Philips (Volcano)	Phoenix	<5%	Rotational Atherectomy					

Source: Estimated Market Share 12 mos. ended Sept 2017 (based on DRG and other sources)(1) Boston Scientific market share not differentiated between Jetstream and Rotablator



OCELARIS: NEXT GENERATION CTO CROSSING

- 1000 RPM rotation speed generates Pantheris-like imaging and enhanced CTO crossability
- Low profile design allows for 5F sheath compatibility
- Variable angle tip deflection delivers precise maneuverability
- Anticipated Peripheral version H1 2019
- Anticipated Coronary version 2020



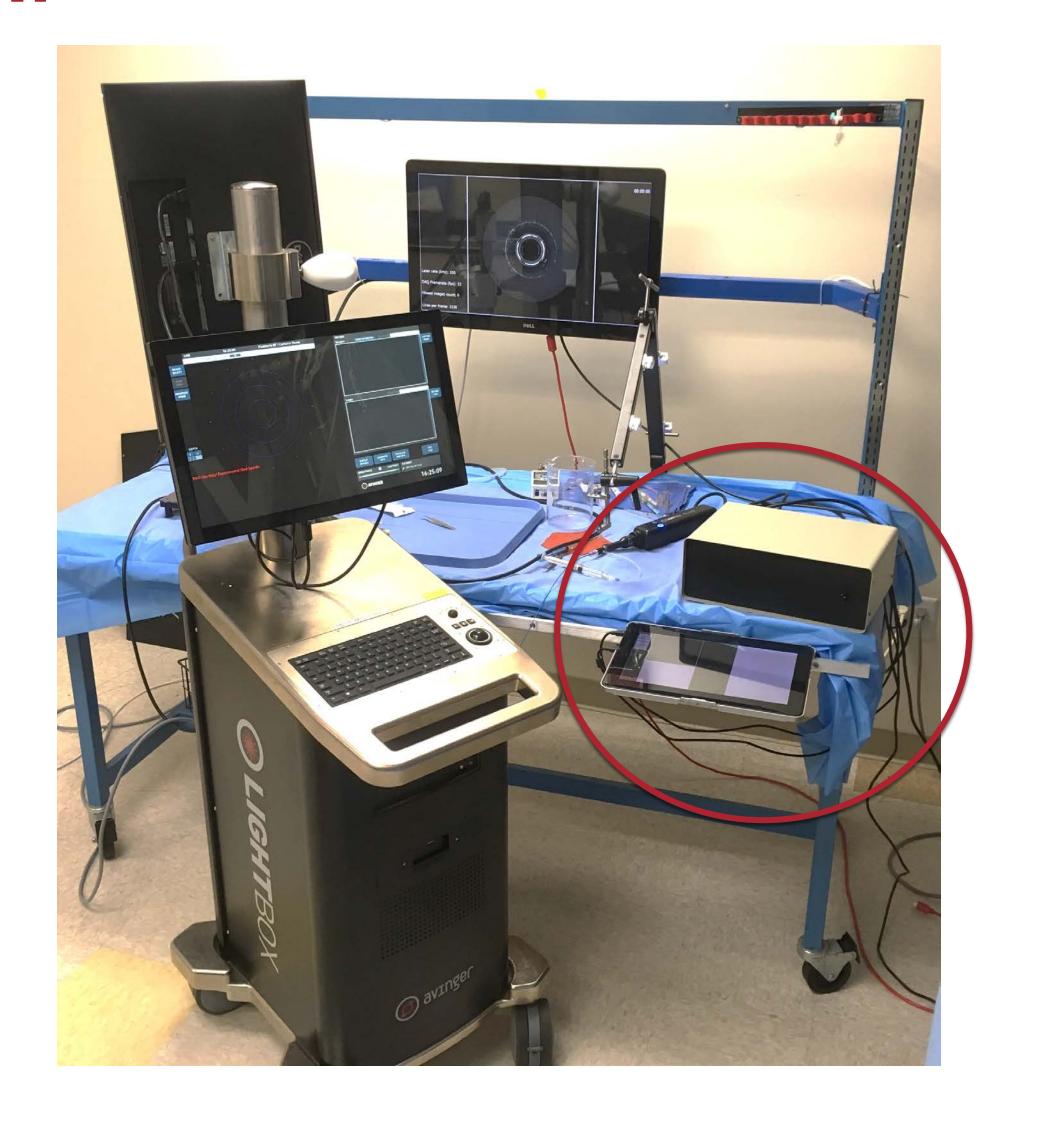


Currently in development at Avinger. Not available for sale



LIGHTBOX L300 PLATFORM

- Radically reduced footprint for easier lab integration
- Multiple system installation options
 - Lab integrated option
 - Cart-based option
- Variable speed catheter rotation (1,000 10,000 RPM) delivering enhanced OCT imaging and optimal device effectiveness
- Sterile field control system to enable single operator use
- Reimagined software system (emphasis on speed & simplicity)
 - Vessel measurements
 - DICOM compatible export of OCT case data
 - Automatic catheter identification



Currently in development at Avinger. Not available for sale

RADIATION EFFECTS

BRAIN

Increasing prevalence of left sided brain tumors (85%) in interventional physicians (n=31) ¹

EYES

>3.2X risk of accelerated lens opafication (cataracts) among interventional practitioners ²

BLOOD

Exacerbation of reactive oxygen species and blood-borne cancers 3

SKIN

Soft tissue cancers, hair loss, and skin mottling noticeable in non-dominant hand of MDs ⁴

LOWER EXTREMITY

Revascularization procedures pose the greatest radiation risk in the hospital 5

(1) Roguin et. al. AJC. May 2013. Vol.111(9): 1368-1372
(2) Vano et. al. Radiation Research. 2010.174(4): 490-495
(3) Ruso G. et. al. European Heart Journal. 2001
(4) Shope TB Radiographics. 1996. 16(5): 1195-9
(5) Segal E. et. al. JVS. 2013.58(6): 1556-62

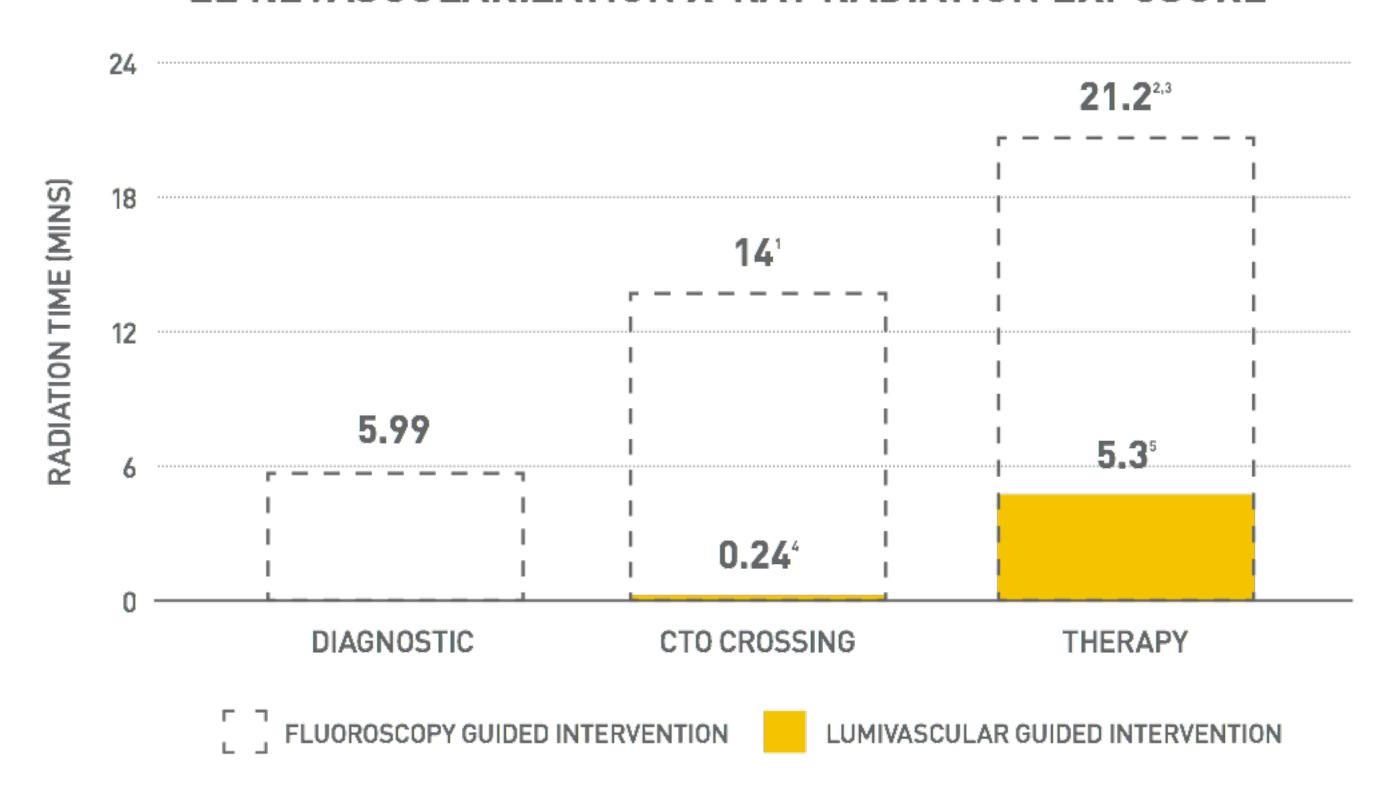


RADIATION FREE TECHNOLOGY

X-RAY RADIATION FOR 15-25CM SFA CTOS

29 MINUTES of radiation eliminated per case when using Lumivascular

LE REVASCULARIZATION X-RAY RADIATION EXPOSURE



⁽⁵⁾ Brodmann, M. Lumivascular Case Series, LINC 2016



⁽¹⁾ Staniloae, Cezar S., et al. "Endoluminal treatment of peripheral chronic total occlusions using the Crosser® recanalization catheter." Journal of Invasive Cardiology 23.9 (2011): 359

⁽²⁾ Laird, John R., et al. "Excimer laser with adjunctive balloon angioplasty and heparin-coated self-expanding stent grafts for the treatment of femoropopliteal artery in-stent restenosis." Catheterization and Cardiovascular Interventions 80.5 (2012): 852-859

⁽³⁾ Roberts, David, et al. "Effective endovascular treatment of calcified femoropopliteal disease with directional atherectomy and distal embolic protection: final results of the DEFINITIVE Ca++ trial." Catheterization and Cardiovascular Interventions 84.2 (2014): 236-244

⁽⁴⁾ Davis, T. Crossing Chronic Total Occlusions using zero fluoroscopy. Vascular Disease Management



Avinger has an extensive IP portfolio covering key aspects of the design, manufacturing and therapeutic use
of OCT imaging catheters, atherectomy devices and imaging console

42 U.S. patents and patent applications

- 18 allowed & issued US patents
- 24 pending utility applications

78 Ex-U.S. patents and patent applications

- 28 allowed & issued ex-US patents
- 44 pending nationalized ex-US applications
- 6 pending PCT applications

120 Total patents and pending applications