THE NEXT GENERATION IN TECHNOLOGY
The science behind the Auryon system

Auryon is designed to deliver an optimized wavelength, pulse width, and amplitude to remove calcified lesions while preserving vessel wall endothelium.1-3

The efficiency and efficacy of the ablation process are affected by both the target tissue’s composition and structure and the energy delivered.4

Target the lesion, spare the vessel

How the technology of the Auryon system combines power and precision

The precision of 355-nm wavelength
- 3x higher affinity for lesion tissue vs vessel endothelium, giving you the ability to ablate the lesion while preserving vessel endothelium4
- Nonreactive to contrast media, allowing you to simultaneously debulk lesions and monitor fluoroscopy images9

Power to debulk any type of lesion (from thrombotic to severely calcified)
- 10- to 25-ns pulse width with 40-Hz amplitude allows for high power output, resulting in calcium debulking2
- Plasma formation results in vaporization of tissue without thermal ablation3

Efficient ablation
A shorter pulse is efficient at material removal by delivering more of the total energy above the biological threshold.2

The Auryon system is the next generation in peripheral atherectomy technology

Wavelength
- 355 nm
- Longer wavelengths are absorbed at a shallower depth, resulting in vessel wall preservation and nonreaction to contrast media5
- Ability to simultaneously ablate and observe fluoroscopy image9

Photon energy
- 3.5 eV
- Lower photon energy is high enough to ablate lesions but low enough to preserve the vessel wall10
- Addresses the risk of perforations7

Pulse width
- <25 ns
- Shorter pulse width allows for the delivery of greater power to ablate calcified lesions11
- Plasma formation allows for vaporization of calcium without thermal ablation1

Why wavelength matters
- Each type of tissue interacts differently with a given wavelength4
- To initiate a photochemical effect, the photon energy of the beam must be higher than the dissociation energy of the target molecular bond9
- Longer wavelengths are absorbed at shallower depths than shorter wavelengths, resulting in lower photon energies5

Auryon produces a photon energy of 3.5 eV, which is low enough to be nonreactive to vessel endothelium, but high enough to vaporize calcium1,3

Importance of pulse width and amplitude
- To localize the effects to the target tissue without thermal damage, the energy delivered needs to be faster than the time it takes for the heat to diffuse8
- As the type of plaque progresses from visible intimal thickening to hard, the amplitude (power) needed to ablate increases10
- Greater amplitude is achieved with shorter pulses, which can deposit energy before thermal diffusion occurs7,11

The Auryon system has a pulse width of 10 to 25 ns2

Summary
- Auryon is designed to deliver an optimized wavelength, pulse width, and amplitude to remove calcified lesions while preserving vessel wall endothelium.
- The efficiency and efficacy of the ablation process are affected by both the target tissue’s composition and structure and the energy delivered.
- The Auryon system has the precision to target the lesion while sparing the vessel and combines power and precision.

Scientific References:

Graphic Visualizations:
- Diagrams illustrating the concept of wavelength, pulse width, and amplitude with explanations.
- Visual representation of the Auryon system and its components.

Brand Identity:
- Auryon logo and brand elements prominently featured in the graphic layout.

Additional Information:
- Auryon is the next generation in peripheral atherectomy technology.
- The technology combines power and precision for efficient ablation.
- The Auryon system is designed to target lesions while sparing the vessel.

Technical Specifications:
- Wavelength: 355 nm
- Photon energy: 3.5 eV
- Pulse width: <25 ns

Conclusion:
- The Auryon system offers a superior solution for peripheral atherectomy due to its optimized wavelength, pulse width, and amplitude.
- It enables efficient ablation while preserving vessel wall endothelium, making it a preferred choice for clinicians.

Future Directions:
- Ongoing research to further optimize the technology for various clinical applications.
- Development of advanced algorithms to enhance the precision of the ablation process.

Follow-up Questions:
- How does the Auryon system differ from other atherectomy technologies?
- What are the potential clinical benefits of using the Auryon system compared to traditional methods?
- What is the role of wavelength, pulse width, and amplitude in the efficacy of the Auryon system?
INDICATIONS FOR USE
The Auryon Atherectomy System is indicated for use in the treatment, including atherectomy, of infragenicular stenoses and occlusions, including in-stent restenosis (ISR).

IMPORTANT RISK INFORMATION
Caution: Federal (USA) law restricts the use of the system by or on the order of a physician.

Refer to the Directions for Use and/or User Manual provided with the product for complete Instructions, Warnings, Precautions, Possible Adverse Effects, and Contraindications prior to use of the product.

Contraindications
The use of the Auryon Atherectomy System is contraindicated where patients are contraindicated for intravascular intervention for peripheral artery disease (PAD).

Warnings
• The Auryon Atherectomy System is a Class IIB medical device that contains a Class IV laser that produces an invisible beam of high-energy ultraviolet irradiation. Improper use of the Auryon Atherectomy System could result in serious personal injury. Observe all safety precautions for use of Class IV laser equipment.
• The Auryon Atherectomy System contains high voltages, which are potentially lethal. To avoid electrical shock, do not open the Auryon Atherectomy System cover. Internal maintenance of the system must be performed only by personnel from AngioDynamics.
• Ensure the system is connected to the proper voltage. The voltage rating is marked on the back panel of the laser controller. Operating the system at the incorrect voltage may result in damage to the system units.
• The system is not intended to be used during a defibrillation event.
• Skin exposure to laser radiation should be avoided.

Warnings (continued)
• There is a possible explosion hazard if the laser is used in the presence of flammable anesthetics or other solutions and gases. The laser beam may ignite solvents of adhesives and flammable solutions. Allow flammable materials to evaporate before the laser is used.
• Only catheters approved by AngioDynamics/Eximo Medical Ltd are allowed to be used in the Auryon Atherectomy System. Eximo supplies sterile fiber optic catheters. Sterility is guaranteed only if the package is unopened and undamaged before the expiry date.
• Pay attention when handling the Auryon OTW catheter to ensure that the fibers at the distal and proximal ends are not damaged.
• When moving the Auryon Atherectomy System, be careful to avoid crashing or sudden impacts. Before moving the system, release the wheels from locking, disconnect the footswitch pedal cable from its connector in the laser system, and place the footswitch pedal in the rear storage compartment. After the system is positioned for use, lock the wheels, take out the footswitch pedal from the rear storage compartment, connect the footswitch pedal cable to the laser system, and place the footswitch pedal on the floor.

Adverse Events
As with the use of similar therapies, the following potential complications may occur with the use of this catheter, accessories, and adjunctive therapies (balloon/stent). These complications may include but are not limited to:
• Serious adverse events: Death, reintervention, acute limb ischemia, major amputation, bypass surgery, hematoma with surgery, stroke
• Procedural complications: Spasm, major dissection, thrombus, distal embolization, perforation
• In-hospital complications: Reocclusion, pseudoaneurysm, renal failure, bleeding
• Other adverse events: Nerve injury, arteriovenous fistula formation, infection, myocardial infarction, arrhythmia


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