

Photoacoustic Probe

Organization

University of Missouri, Columbia

Industry:

Health Care, Burn Care and Dermatology

Researchers:

Dr. John Viator, Professor, Biological Engineer (previously at UMC, now Duquesne University)

Dr. Nick Golda, Professor, Dermatology

Dr. Heather Hunt, Professor, Bioengineering

Paul Whiteside, Graduate Researcher (PhD Candidate), Biological Engineering

Ben Goldschmidt, Graduate Researcher UMC, Biological Engineer

Status of Intellectual Property:

Patent pending, patent numbers, etc.

Next Steps: Finalize prototype design, construction, and testing

For more information contact:

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Wanted

Experienced leader in medical devices to commercialize burn injury and dermatology photoacoustic probe with selective release waveguide and sonoillumination technology

Customer Problem

Current versions of light probes with waveguides in skin treatments such as dermatology, laser surgery, varicose vein and tattoo removal, have limited ability to control light without health risk to patients and operators.

Potential Market Uses

With the photoacoustic probe, health care professionals and tattoo removal technicians will be able to better direct light source to areas of ablation, dermatological procedure or burn injury diagnosis.

This new handheld laser ablation device for the markets noted above with disposable integrated waveguide cassettes will more specifically direct light treatments for specific applications.

Patients and consumers desiring laser treatments, tattoo removal and burn or dermatology patients would be the ultimate end users of the technology.

Use case: A health care professional in a burn clinic at a medical center can probe deeper into a burn wound to better diagnose burn treatment plans. A tattoo removal technician can effectively remove tattoos more accurately and with less exposure to harmful light rays from the treatment at increased depths than previously possible. Devices and systems will have requirements for Medical Device FDA Pre-market notification and clearance under 510k. Some applications will not be subject to these requirements in the initial implementation stages, so revenue can be generated while the device is completing the process to obtain FDA pre-market clearance.

Potential applications:

Any light-based technology with targets beneath the epidermis

Laser hair removal

Laser tattoo removal

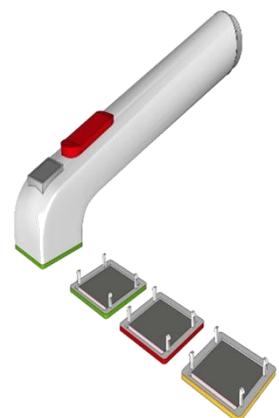
Photoacoustic tomography

May allow for a combination of techniques

Photoacoustic tomography

DURING laser ablation

procedures to generate images of the ablated target



Innovation

The photoacoustic probe offers a better way to diagnose burn injuries and develop treatment plans using continued development of 3D printed, disposable waveguide cassettes for various applications that can be rapidly replaced for next treatment.

- Modular Design Laser Hand Piece w/ Disposable Waveguide Cassettes for superior control of light
- Ultrasound Module Attachment w/ Transducer changes tissue for deeper penetration treatment
- Sonoillumination substantially increases light transmission efficiency to target area for imaging

Stage of Development

Prototype systems have been configured using novel laser device and disposable waveguide cassettes.

Market Size

Total Available Market in excess of \$1.5B annually in U.S. alone with a CAGR of around 12%. Existing competitors in this space offer products with far smaller feature sets (typically only one of the features of our proposed devices). They include: Syneron Medical; Cynosure; Palomar; and Lumenis.

Competitive Advantages

by the increased depth of the patent pending probe and system using a unique photoacoustic light probe with ultrasound modulation integrated with a disposable waveguide system. No competitor manufactures and sells a device like our proposed modular device and system.

