

Innovative Dermatology Healthcare based on Label-Free Spectral Optoacoustic Mesoscopy

We designed and prototyped a new handheld, portable, scalable, label-free Raster Scan Optoacoustic Mesoscopy (RSOM) device for point-of care dermatology

Objectives

- Design of scalable clinical RSOM prototype
- Pre-clinical validation of the RSOM
- Quantitative measure of improvements in disease detection and monitoring
- Develop and update an exploitation plan for RSOM market introduction

Technology Breakthroughs

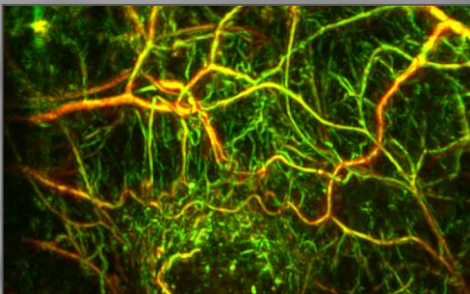
- High-resolution, deep (5 mm) optical imaging
- Unique label-free *optical absorption* contrast mechanisms
- High-contrast imaging of vascularization/angiogenesis
- Quantification of oxygenation status of tissues, lesions and individual blood vessels
- Imaging of micro-vessel blood flow and volume

Clinical Need

- Distinguish between pre-cancerosis and carcinoma; benign nevi and melanoma; allergic and irritated skin
- Reliable cutoff for tumor borders/depth
- Identification of melanocytic origin in amelanomic melanoma
- Identification of origin (B or T cell lymphomas)
- Early and fast analysis of different malignant manifestations

Outcome

- Development of three validated RSOM devices for clinical and preclinical research (iThera Medical)
- Development of novel ultrasound detector for RSOM (Sonaxis)
- 22 peer-reviewed publications in 16 journals
- 3 patents pending



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