



Innovative Dermatology Healthcare based on Label-Free Spectral Optoacoustic Mesoscopy

AIM: to design and prototype a handheld, portable, scalable, label-free RASTER SCAN OPTOACOUSTIC MESOSCOPY (RSOM) device for point-of care DERMATOLOGY applications

OBJECTIVES

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

TECHNOLOGY

BREAKTHROUGHS

- High-resolution optical imaging, deeper (~5mm) than all-optical imaging methods
- 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 blood volume

CLINICAL NEEDS

- Distinguish pre-cancerosis from carcinoma more easily; benign nevi from melanoma; allergic from irritated areas of the skin
- Reliable cut-off for tumor borders and 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

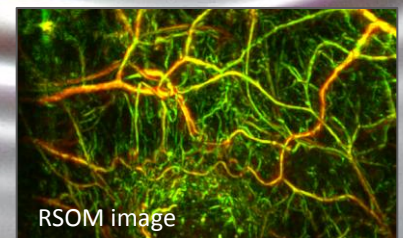
- New user-friendly, light-weight portable scanner for various applications
- Cross-fertilizing Innovation platform that brings optical, ultrasound, software/mathematics and clinical stakeholders to impact photonics with a novel skin imaging modality
- strong value chain to deliver RSOM to clinical markets

CONSORTIUM

Technical University of Munich – GERMANY
Sonaxis SA - FRANCE
Rayfos LTD – UNITED KINGDOM
iThera Medical GmbH – GERMANY
Humanitas University – ITALY

COORDINATOR

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RSOM image