

## DERMVISIO-1

### MULTIMODAL OPTICAL IMAGING INSTRUMENT FOR DERMATOLOGY USE

The unique capabilities of the new multimodal instrument enables clinicians to gather high quality images of the skin cancer lesions, determine their lateral and depth margins, and guide therapy.

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# MULTI-MODAL OPTICAL IMAGING INSTRUMENT FOR DERMATOLOGY USE (DERMVISIO-1)

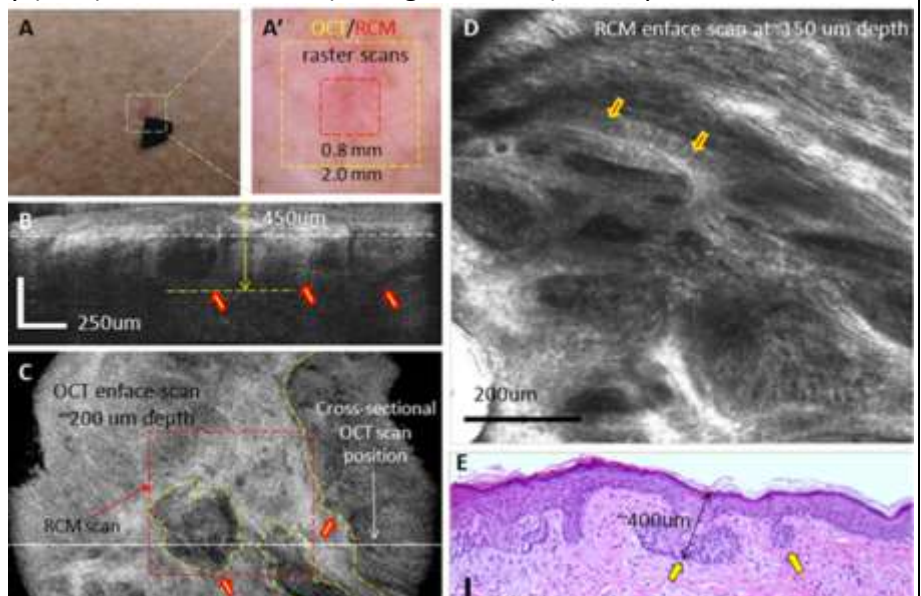
## ADDRESSED NEED:

The immediate application of this device is to detect skin cancers and guide laser and radiation therapy. It is to be noted that confirming eradication of skin cancer is currently limited to visual inspection, a highly insensitive and subjective method. This instrument can also be used for guiding various non-surgical treatment approaches, such as cryotherapy, photodynamic therapy, laser cosmetic surgery, as well as to monitor therapy response.

Non-surgical treatments are emerging for superficial BCCs, superficial squamous cell carcinomas (incidence ~ 1 million new cases/year in the US alone), superficial lentigo malignas (incidence > 40,000 cases/year in the US alone) skin pre-cancers such as actinic keratoses (current prevalence ~58 million in the US alone), and superficial benign skin lesions such as solar lentigines, angiomas, sebaceous hyperplasias and melasmas.

## TECHNOLOGY/CAPABILITIES:

The multimodal optical imaging instrument combines the benefits of Reflectance Confocal Microscopy (RCM) and Optical Coherence Tomography (OCT). As shown here (see figure below), RCM provides enface images with nuclear-level resolution in superficial skin, to depths of 300  $\mu\text{m}$ , while OCT provides cross-sectional images with structural-level resolution in the deeper skin layers, to depths of at least 1.8 mm. The complementary capabilities of these optical technologies enables accurate demarcation of tumor margins in depth as well as laterally. This functionality is very important in guiding skin cancer treatment modalities that offer less invasive, less time consuming, and less costly alternatives to traditional Mohs surgery.



## IMAGING CAPABILITIES:

### a). OCT mode:

- Field of view: 2mm x 2mm
- Imaging resolution: 8  $\mu\text{m}$  axial and 10  $\mu\text{m}$  lateral
- > 1.8 mm
- Imaging speed: > 50 fps

### b) RCM mode:

- Field of view: 0.75mm x 0.75mm
- Lateral imaging resolution: 0.8  $\mu\text{m}$

Example of CM-OCT combined use for delineating BCC margins. A) linical image showing an erythematous macule on the right shoulder. A') Dermoscopy image showing shiny white lines and serpentine vessels, suggestive of superficial basal cell carcinoma. B) Cross-sectional and C) Enface OCT images showing multiple hypoechoic areas, suggestive of basal cell carcinoma. D) Reflectance confocal microscopy showing cord-like structures with palisading (arrows) surrounded by reticulated collagen and inflammatory cells. E) Histology showing superficial tumor nests (arrows) (hematoxylin & eosin, 4x magnification).

- Sectioning resolution: 3.5 um
- Imaging speed: > 12 fps
- Step-through imaging planes in the CM mode: 0 to 300 um depth

**FEATURES:**

- Provides spatially co-registered enface confocal and cross-sectional OCT images
- Provides image post-processing capabilities:
  - Display of the images in 3D;
  - Zoom-in to visualize small scale features, and place cursors to measure lesion margins.

**NOTE:** This instrument is not yet FDA approved and therefore is available for investigational use only.

**LICENSING:** This technology is available for licensing

**CONTACTS/INFORMATION/SALES/INQUIRIES**

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