Supplementary Online Content


eFigure 1. RCM-OCT Image Registration and Visualization

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This supplementary material has been provided by the authors to give readers additional information about their work.
**Figure 1.** RCM-OCT Image Registration and Visualization

(A) The RCM and OCT images can be visualized simultaneously, in real-time, in the user interface. The en-face RCM image (0.8 mm x 0.8 mm) can be observed on the right while the orthogonal OCT image (2 mm x 1 mm) appears on the left. (B) The RCM image and OCT image are centered on each other, so as to achieve precise image registration. (C) Depth-stacks of RCM images can be acquired starting from surface of the skin (stratum corneum) to depth of ~200 µm (superficial dermis), to cover tissue volume of 0.8 mm x 0.8 mm x 0.2 mm. (D) OCT rasters are acquired over a length of 2 mm, to cover tissue volume of 2 mm x 2 mm x 1 mm.
### Patient Demographics

(A) Flowchart of lesions included in the study, (B) Patient demographics.

Summary of patients and lesions imaged during the accrual period of January-December 2017. Eight-five lesions on 55 patients with histopathology available after
imaging were included in the study. The median age of the patients was 59 years, and approximately equal numbers of males (51%) and females were accrued. Mostly, a single suspicious lesion was imaged on most patients. Two patients contributed 12 and 6 lesions each. The face was the most common site followed by trunk. Of the 85 lesions, 60 were found to be positive for BCC on histopathology after imaging.
eFigure 3. Correlation of Normal and BCC Features on RCM-OCT and Pathology

RCM and OCT features for normal skin and BCC were correlated and validated with histopathology.

(A) RCM *en face* image showing normal epidermis (Epi) and hair follicles (HF). A dark hyporeflective structure is observed in the center of the OCT image which
corresponds to a hair follicle (HF) along with fine vessels on either side (red arrows). Histology shows normal epidermis and dermis with hair-follicles.

(B) RCM \textit{en face} image shows tumor nests at the dermal-epidermal junction (orange asterisks). A roundish, hyporeflective structure (orange asterisk) arising from the underside of the epidermis with clefting (yellow arrows) is observed along with some dilated vessels in the dermis (red arrows) in the OCT image. Histology confirms it to be a superficial BCC connected to the epidermis.

(C) RCM \textit{en face} image shows a large, pigmented tumor nest (orange asterisk) with peripheral palisading and clefting (yellow arrows). An elongated, gray structure (orange asterisk) with dark peritumoral rim or clefting (yellow arrows) can be seen in the superficial dermis along with branched vessels (red arrows) on OCT. Histology shows presence of several superficial, pigmented tumor nests corresponding to BCC.

(D) RCM \textit{en face} image shows a central hair follicle surrounded by large tumor nests (orange asterisk) with peripheral palisading and clefting on both sides. Two large, gray tumor nests (orange asterisk) are seen in the OCT image encompassing the entire dermis. Histology confirms large tumor nests across the dermis.

(E) RCM \textit{en face} image shows small tumor nests (orange asterisk) with peripheral palisading and clefting, embedded in a bright peritumoral stroma (blue arrows). OCT image shows small gray and hyporeflective tumor nests (orange asterisk) along with the bright peritumoral rims (blue arrows) surrounding the tumor nests. Histology confirms the presence of small tumor nests across the dermis.