UC Irvine
UC Irvine Previously Published Works

Title

1.7-micron optical coherence tomography angiography for characterization of skin cancer

Permalink

https://escholarship.org/uc/item/2r802550

Authors

Li, Yan
Zhu, Yirui
Zhang, Fengyi
et al.

Publication Date

2021-03-05

DOI

10.1117/12.2576449

Peer reviewed

5 March 2021

1.7-micron optical coherence tomography angiography for characterization of skin cancer

Yan Li, Yirui Zhu, Fengyi Zhang, Jianing Tang, Joseph Mehrabi, Kristen Kelly, Zhongping Chen

Author Affiliations +

Abstract

Optical coherence tomography (OCT) is a non-invasive diagnostic method that offers real-time visualization of the layered architecture of the skin in vivo. The 1.7-micron OCT system has been applied in cardiology, gynecology and dermatology, demonstrating an improved penetration depth in contrast to conventional 1.3-micron OCT. To further extend the capability, we developed a 1.7-micron OCT/OCT angiography (OCTA) system that allows for a visualization of both morphology and microvasculature in the deeper layers of the skin. Using this imaging system, we imaged human skin with different benign lesions and described the corresponding features of both structure and vasculature. The significantly improved imaging depth and additional functional information suggest that the 1.7-micron OCTA system has great potential to advance both dermatological clinical and research settings for characterization of benign and cancerous skin lesions.