Overview

18 Wide-field imaging combined with confocal microscopy using a miniature f/5 camera integrated within a high NA objective lens.

Dickensheets DL, Kreitinger S, Peterson G, Heger M, Rajadhyaksha M. Opt Lett. 2017 Apr 1;42(7):1241-1244. doi: 10.1364/OL.42.001241.

ABSTRACT
Wide-field (WF) imaging paired with reflectance confocal microscopy can noninvasively detect skin cancer with high accuracy. However, two separate devices are required to perform each imaging procedure. We describe a new concept that integrates the two into one device: a miniature WF color camera within the objective lens used for confocal microscopy, providing simultaneous sub-surface cellular imaging and WF surface morphologic imaging. The camera, inserted between a hyperhemisphere front lens and a back lens group of the objective, commands a field of view of 4.0 mm, with a resolution better than 30 ?m, while confocal optical sectioning is preserved at sharper than 2.5 ?m.
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