

registration. The instrument is capable of achieving an imaging resolution of up to 1.5 μm (axial) \times 0.4 μm (transverse), and a spectroscopic resolution of up to 13 μm (axial) \times 0.79 μm (transverse). The tradeoff between axial resolution and SNR as a function of CRS detection fiber size resulted in the use of a 50 μm detection fiber based on the desired application to *in vivo* analysis of the skin. Co-registration of CRS and CM was verified to within 5 μm . The performance of the probe was then demonstrated by performing *in vivo* measurements from different layers of the skin, including the stratum corneum, stratum granulosum, and dermis as well as micro-structures such as sebaceous glands, with confocal reflectance imaging while providing chemical differences of tissue through Raman spectroscopy. The combined system can provide beneficial data collection for diagnostic purposes.

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