Ex vivo catheter-based imaging of coronary atherosclerosis using multimodality OCT and NIRAF excited at 633 nm

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While optical coherence tomography (OCT) has been shown to be capable of imaging coronary plaque microstructure, additional chemical/molecular information may be needed in order to determine which lesions are at risk of causing an acute coronary event. In this study, we used a recently developed imaging system and double-clad fiber (DCF) catheter capable of simultaneously acquiring both OCT and red excited near-infrared autofluorescence (NIRAF) images (excitation: 633 nm, emission: 680nm to 900nm). We found that NIRAF is elevated in lesions that contain necrotic core – a feature that is critical for vulnerable plaque diagnosis and that is not readily discriminated by OCT alone.

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