

New Ways to See Disease via Nanomaterials

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Abstract: In this presentation I will discuss my lab's use of nanomaterials in medicine. We work both in vitro and in vivo. In vitro work includes diagnostics based on protease detection. I will describe applications in COVID and periodontal disease. Our in vivo work primarily uses photoacoustic imaging, which combines the contrast of optics with the temporal and spatial resolution of ultrasound: It is "light in/sound out" as opposed to traditional "sound in/sound out" ultrasound. I will present results on acoustic-based cell tracking, real-time monitoring of reactive oxygen species, as well as contrast agent-free translational work for wound care and oral health including first-in-man studies.