Docket #: S10-278

Multimodal DAC Microendoscope Platforms

An interdisciplinary team of Stanford researchers is developing a dual axis confocal (“DAC”) microscope system for in vivo imaging of tissues at the cellular scale. This system is designed to provide point-of care microscopic optical sectioning (histopathology) with both reflectance and fluorescence imaging to diagnose and evaluate diseases such as cancer. The architecture allows for simple integration of fiber optics, micro-optics, and microelectronmechanical systems (MEMS) components into a miniature apparatus that can be integrated into existing endoscopes or into therapeutic tools (such as tumor suction catheters or ultrasound).

This technology is a modular assembly to combine the DAC microendoscope platform with ultrasonic transducers. Together, these provide overlapping acoustic and optical fields for the tissue, with the potential for ultrasound imaging as well as ultrasonic treatments. The flexibility of the modular platform will allow rapid development of novel in-vivo clinical tools.

Related Technology
Stanford Docket S10-261 describes improvements for faster, multispectral 3-D imaging.

Applications

- **Medical imaging** – for non-invasive histopathology or coupling with therapeutic devices
- **Image-guided surgery**

Advantages

- **Multimodal functionality** - combines both optical and acoustic imaging and therapeutics
- **Flexible platform** - for incorporating DAC microendoscopy with other devices

Patents

- Published Application: 20120330157
- Issued: 9,864,190 (USA)

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