Molecular Detection of Colon Cancers Using Spectral Endoscopy

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The goal of this project is to develop a hyperspectral imaging endoscope for in vivo molecular biomarker imaging of the colon. This technology will provide real-time imaging that is capable of differentiating between multiple molecular biomarkers based on their characteristic fluorescence and absorbance spectra. While advanced colon pathologies are obvious using traditional white light and autofluorescence endoscopy approaches, early lesions are difficult to visualize and often go undetected. Thus, the ability to detect multiple molecular signals in the colon has the potential to transform clinical screening and early diagnosis of pathologies, including colon cancer. This is a collaboration between Dr. Silas Leavesley, Dr. Thomas Rich (Pharmacology, Center for Lung Biology), Dr. Jack Di Palma (Gastroenterology), Dr. Carole Boudreaux (Pathology), and Dr. Paul Rider (Surgery). This work is supported by the Abraham Mitchell Cancer Research Fund.

Sam Mayes working on hyperspectral imaging endoscope