Service Projects

WORLD MAP

LBRC has a long track record of successful service projects (SPs) where cutting edge laser spectroscopy and photonics technologies are used creatively to solve biomedical problems. Service projects (SPs) are key venues for LBRC to bring its mature, newly developed technologies into the laboratories of a broader group of investigators. One of the proudest achievements in the current cycle is the commission of two classes of instruments to serve our SP collaborators. The first kind consisting of instruments such as point-scanning multiphoton microscopy, multi-focal multiphoton microscope, spectral-resolved multiphoton microscope, quantitative phase microscope, tomographic phase microscopes, and Raman confocal microscope are housed at MIT and are available to SP collaborators visiting the center. The second class of instruments, which includes high-sensitivity Raman spectrometers, multimodal spectrometers, and spectroscopic tissue scanner, can be shipped to the laboratories of our SP collaborators on a long-term loan basis. Some of our collaborators include Cornell University, Case Western Med. Ctr., Johns Hopkins University, University of Missouri, University of Connecticut, and Samsung Research Center in Korea.

We devote substantial resources including personnel commitment and the expenses in equipment development, maintenance, and deployment for our SP projects. The SP projects must, therefore, be chosen with care. Our selection criteria for SPs include: (1) The proposed SP is a recently completed CP that still requires the use of the center's existing but unique technology. (2) Proposed SPs must utilize newly matured LBRC technologies that are still not widely available in other laboratories. (3) SPs must have biomedical relevance and be led by knowledgeable investigators. (4) Opportunity to build a stronger biophotonics community, including support for young investigators as well as researchers from an under-represented minority background.

Currently, we engage in a number of SPs spanning diverse topics from blood disorders, cancer research, neurobiology to otology. In the following, we present only a select number of SPs. For a complete list of recently completed and on-going SPs, please click here.

SERVICE PROJECTS

SP1 **High sensitivity blood analyte assays** (PDF)
R. Rox Anderson, Wellman Center for Photomedicine, MGH
Associated With: TRD3

SP2 **Non-invasive detection of white adipose tissue inflammation with Raman spectroscopy** (PDF)
Abigail Haka, Weill Cornell Medical College
Associated With: TRD3

SP3 **Ultra-high sensitivity diagnostic assays in blood** (PDF**)**
Sergey Y. Tetin, M.D./Ph.D., Abbott Laboratories
Associated With: TRD1, (4)

SP4 **Cancer metabolites monitoring** (PDF)
Wendy Bautista, MD PhD, National Cancer Institute/NIH
Associated With: TRD3.1

SP5: **Thalassemia and iron deficiency anemia** (PDF)
Jane-Jane Chen, Ph.D. (Institute of Medical Engineering & Science, MIT)
Associated With: TRD2

SP6 **Middle ear diseases** (PDF)
Tulio A. Valdez, M.D., MSc, University of Connecticut, Connecticut Children's Medical Center
Associated With: TRD1.1, TRD3.1

SP7 **Glucose monitoring** (PDF)
Jerry C. Parker, Ph.D., Anandhi Upendran, Ph.D., University of Missouri
Associated With: TRD3.1

SP8 **DNA damage assay development** (PDF)
Bevin P. Engelward, Biological Engineering, MIT
Associated With: TRD1, (4)

SP9 **Axonal transport** (PDF)
Bianxiao Cui, Stanford University
Associated With: TRD4

SP10 **High sensitivity blood analyte assays** (PDF)
Marcos Dantus, Michigan State University
Associated With: TRD3