Technology Showcase

Saturday July, 27
10:15 am-5:00 pm

Organ Sensing: Room – Entrepreneur, Level 2

California Medical Innovations Institute: Hans Gregersen (hag@GIOME.org)
The Fecobionics system is a sensor system that measures physiological properties as it transits the colon and anorectum. The Software for Organizing Data Automatically (SODA) helps validate, curate, and upload datasets to be shared with other researchers.

Cleveland Clinic Lerner Research Institute: Margot Damaser (damasem@ccf.org)
The GastroIntestinal Monitor of Conscious Activity (GoMOCA): A wireless catheter-free bowel monitor for neuromodulation and mapping research in conscious animals. In a benchtop system, we will demonstrate real-time reporting of pressure and volume by the GoMOCA, which is developed for wireless catheter-free untethered bowel monitoring in conscious freely ambulating pigs.

Cleveland Clinic Lerner Research Institute: Margot Damaser (damasem@ccf.org)
The Urological Monitor of Conscious Activity (UroMOCA): A wireless catheter-free bladder monitor for neuromodulation and mapping research in conscious animals. In a benchtop system, we will demonstrate real-time wireless catheter-free reporting of pressure and volume by the UroMOCA, which is developed for untethered bladder monitoring in conscious freely ambulating cats.

G-Tech Medical: Steve Axelrod (steve.axelrod@gtechhealth.com)
G-Tech Medical is developing a non-invasive wireless patch that detects slow wave myoelectric signals from the stomach, small intestine and colon, continuously for multiple days. A proprietary data processing system identifies and quantifies episodes of motor activity with 10-minute time resolution.

New York Institute of Technology: Aydin Farajidavar (afarajid@nyit.edu)
TBD

University of Pittsburg: Robert Gaunt (rag53@pitt.edu)
The University of Pittsburgh and Ripple Neuro will show samples of a flexible electrode technology that is designed to interface directly with the surface of the urinary bladder, but that can be adapted for any visceral organ.

Nerve Sensing, Modulation and Characterization: Room – Artistry, Level 2

Case Western Reserve University: Michael Jenkins (michael.jenkins@case.edu)

Mini Light Sheet: an open source, highly modular and cost-effective light sheet generation device that can be install on conventional inverted fluorescence microscopes to facilitate 3D imaging.

Columbia University: Elisa Konofagou (ek2191@columbia.edu)
We demonstrate that image-guided focused ultrasound (FUS) modulates motor neuron activity bidirectionally (excites and/or inhibits) the mouse sciatic nerve *in vivo* due to associated FUS-mediated temperature changes.

FDA: Srikanth Vasudevan (Srikanth.Vasudevan@FDA.HHS.gov)
Optical coherence tomography (OCT) is a label-free and non-contact microscopy, featuring centimeter-scale fields of view and up to 2 mm of imaging depth. We will demonstrate a SPARC-funded deployable OCT system optimized to investigate the anatomy, vasculature, and myelination of peripheral nerves in vivo.

University California Los Angeles: Leif Havton (LHavton@mednet.ucla.edu)
The Havton Laboratory at UCLA provides transmission electron microscopy support to SPARC Consortium members. We will display customized ultrastructural studies of the autonomic nervous system to support novel neuromodulation strategies.

University of Colorado Boulder: Juliet Gopinath (juliet.gopinath@colorado.edu)
University of Colorado Denver, Anschutz Medical Campus: Emily Gibson, Richard Weir (emily.gibson@ucdenver.edu, richard.weir@ucdenver.edu)
The University of Colorado team will demonstrate technology for a miniaturized fiber-coupled microscope for *in vivo* attachment to a vagus nerve. We will show examples of electrowetting and flexible GRIN lens devices, as well as a 3D model of the compact laser technology we are developing.

University of South Florida: Kendall Morris (kmorris@health.usf.edu)
TBD

Implants for Nerve Sensing/Modulation: Room – Imagination, Level 2

Micro-Leads Inc: Bryan McLaughlin (bryan@micro-leads.com)
Micro-Leads will show High-Resolution Spinal Cord Stimulation Electrodes, visceral organ surface electrodes, nerve cuff electrodes, and implantable telemeters for peripheral nerve stimulation and recording. Micro-Leads will be hosting a **complimentary nerve-cuff giveaway** for registered SPARC PIs.

Northwell Health: Larry Miller (lmiller7@Northwell.edu)
TBD

Ripple Neuro: Danny McDonnall (danny@rppl.com)
TBD

Stanford University: Tom Soh (tsoh@stanford.edu)
TBD

University College London: David Holder (d.holder@ucl.ak.uk)
Demonstration of Electrical Impedence Tomography (EIT) imaging technique. Real time imaging of a mechanical goldfish, swimming in the saline tank will be demonstrated using EIT in time difference mode. Experiment demonstrates applicability of EIT to image cross-sectional neural traffic in complex peripheral nerves.

University of Michigan: John Seymour (seymourj@umich.edu)
Michigan Microneedle team will display our current devices and insertion method for acute and chronic implantation using both silicon and carbon fiber flexible arrays.