PROGRESS IN NEUROSCIENCE PINS

Seminar Series of the
Brain & Mind Research Institute
Weill Cornell Medical College (WCMC)
&
The Graduate Program in Neuroscience of
WCMC and Sloan Kettering Institute

Thursday, 5/14/15, 4 PM, coffee at 3:45 PM
Weill Auditorium

"Genetically Encoded Optical Electrophysiology"

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Professor of Cell and Molecular Physiology and Neurobiology
Yale School of Medicine

Abstract:

My laboratory engineers protein-based sensors of membrane voltage. These probes allow the optical monitoring of the electrical activity of collections of neurons simultaneously. We have developed ArcLight and gArcLight. We have established a rapid screening platform to screen hundreds of constructs at a time for voltage dependent fluorescence changes. My laboratory has developed the first head mounted fluorescent microscope which allows monitoring brain electrical activity using voltage probes in freely moving rodents. We continue to develop this technology for use with ArcLight and other genetically-encoded voltage probes.

Recent relevant publication:

Cao G, **Platisa J**, **Pieribone VA**, **Raccuglia D**, **Kunst M**, **Nitabach MN**. Genetically targeted optical electrophysiology in intact neural circuits. *Cell* 154: 904–913, 2013.

Jin L, **Han Z**, **Platisa J**, **Wooltorton JRA**, **Cohen LB**, **Pieribone VA**. Single Action Potentials and Subthreshold Electrical Events Imaged in Neurons with a Fluorescent Protein Voltage Probe. *Neuron* 75: 779–785, 2012.

Sparks JS, **Schelly RC**, **Smith WL**, **Davis MP**, **Tchernov D**, **Pieribone VA**, **Gruber DF**. The Covert World of Fish Biofluorescence: A Phylogenetically Widespread and Phenotypically Variable Phenomenon. *PLoS ONE* 9: e83259, 2014.

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