

Monday, November 2, 2009

12:00 noon

Blue Bird Auditorium, NB-137, Neurosensory Center

A Brief Introduction to in vivo 2-photon imaging methods for dissecting cortical circuit function and its emerging applications in health and disease

Stelios Manolis Smirnakis, M.D., Ph.D.

Assistant Professor of Neurology and Neuroscience

Objectives – At the end of this lecture, participants should be able to:

- Understand the principle of two photon imaging and why it represents a superior way for monitoring living tissue.
- Understand the information that 2-photon imaging can gather about the structure and function of cortical circuits
- Gain familiarity with some applications of two photon imaging in studying cortical disease processes.

References:

- Garaschuk, Milos, Grienberger, Marandi, Adelsberger, Konnerth. *Optical monitoring of brain function in vivo: from neurons to networks*. Pflugers Arch -Eur J Physiol (2006) 453:385-396.
- Golshani P, Gonçalves JT, Khoshkhoo S, Mostany R, Smirnakis SM, Portera-Cailliau C *Internally mediated developmental desynchronization of neocortical network activity*. J Neurosci 29(35):10890-9, 2009.
- Nishimura, Schaffer, Friedman, Tsai, Lyden, Kellinfield. *Targeted insult to subsurface cortical blood vessels using ultrashort laser pulses: three models of stroke*. Nature Methods 3(2):99-108, 2006.
- Luo, Callaway, Svoboda. *Genetic Dissection of Neural Circuits*. Neuron 57: 634-660, 2008.
- Zhang, Wang, Brauner, Liewald, Kay, Watzke, Wood, Bamberg, Nagel, Gottschalk, Deisseroth (2007). *Multimodal fast optical interrogation of neural circuitry*. Nature 446:633-639.

Target Audience, Needs, Educational Methods, Activity Evaluation:

Physicians, residents, fellows, and other healthcare professionals need to be updated about new advances in the clinical and research areas for the diagnosis, treatment, and management of patients with neurological disorders. Educational methods will include lectures, case presentations, audio/video presentations, and questions & answer sessions. Participants will be asked to complete an activity evaluation.

Accreditation/Credit Designation

Baylor College of Medicine is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians. Physicians should only claim credit commensurate with the extent of their participation in the activity.