NEUROSCIENCE 2012

NEW ORLEANS
OCTOBER 13–17, 2012

SOCIETY FOR NEUROSCIENCE

Size Matters: Formation & Function of GIANT Synapses

8:00 a.m. to 6:00 p.m.
Friday, October 12, 2012

Organizers: Gerard Borst, Chunlai Wu & Ian Forsythe

Neuroscience Center of Excellence 8th Floor Conference Room
2020 Gravier Street, New Orleans, LA
Enter via Roman St. garage and take elevator to 3rd.floor, exit to the left and pass 2 walkways on the right, the third right is the entrance to the Lion's Eye Building. Take the elevator to the 8th Floor.

website: http://www.medschool.lsuhsc.edu/neuroscience/calendar.aspx

SEATING IS LIMITED so please register today by emailing Chunlai Wu (mailto:cwu@lsuhsc.edu).

The registration is free

For a synapse, size is a clear predictor of potential power in influencing its target. Synaptic physiologists have favored giant synapses for their accessibility and much of our knowledge about synaptic transmission has been learned from the squid giant synapse and the frog neuromuscular junction. The unique accessibility of the neuromuscular junction has allowed developmental neurobiologists to elucidate the key factors required for synapse assembly. In recent times, a combination of technical breakthroughs in genetic labeling and imaging methods has forcefully illustrated that Big is also Beautiful, as evidenced by studies in which the formation of individual synapses can be followed *in vivo*.

This satellite meeting of SFN in New Orleans will focus on the development and function of giant synapses. Seminars during the morning session will highlight signaling mechanisms of giant synapse formation and development from both vertebrate and invertebrate preparations. During the afternoon, electrophysiological

and imaging studies of giant synapses will explore our current knowledge of synaptic function, with presentations considering giant synapses from retina to cerebellum, and from hippocampus to brainstem.

Program

Friday 12 Oct 2012

8:15-8:45 *Registration and coffee/breakfast*

8:45-9:00 *Welcome and introduction*

Session 1: Formation of Giant Synapses

9:00-9:30 **Chunlai Wu** (New Orleans)
A Syd-1/Liprin-alpha/PP2A linear pathway regulates the clustering of presynaptic vesicles at the nerve terminal

9:30-10:00 **Jasprien Noordermeer** (Leiden)
Postsynaptic Dystrophin regulates the homeostatic set point of neurotransmitter release via a Dystrobrevin, Rho-GTPase and CaMKII-dependent pathway

10:00-10:30 **George Spirou** (Morgantown)
The calyx of Held as a model system to study neural development: competition and pruning to mono-innervation

10:30-11:00 *Coffee break*

11:00-11:30 **Masanobu Kano** (Tokyo)
Calcium-dependent regulation of climbing fiber synapse elimination during postnatal cerebellar development

Session 2: Function of Giant Synapses

11:30-12:00 **S. Murray Sherman** (Chicago)
Functional significance of large glutamatergic synapses in thalamus and cortex

12:00-12:30 **Felix Felmy** (Munich)
Large synapses in a small circuit

12:30-14:00 *Lunch*

14:00-14:30 **Henrique von Gersdorff** (Portland)
Multivesicular release at large ribbon synapses in the eye and ear

14:30-15:00 **Stefan Hallermann** (Goettingen)
Mechanisms of kHz-transmission at a central synapse

15:00-15:30 **Angus Silver** (London)
Vesicle mobility and reloading at cerebellar mossy fiber synapses

15:30-16:00 *Tea break*

16:00-16:30 **Stephen Meriney** (Pittsburgh)
The NMJ: Strong and reliable release from thousands of unreliable single vesicle release sites

16:30-17:00 **Erwin Neher** (Goettingen)
Transients in global Ca++ concentration induced by electrical activity in a giant nerve terminal

17:00-17:05 *Closing remarks*

17:05- *Drinks/Reception*

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