RISE Biomedical and Biobehavioral Research Colloquia

"Neuroexocytosis: EnSNAREd in Brain Development and Neuropsychiatric Disease"

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Abstract

Ca^{2+} regulated exocytotic release of neurotransmitters provides for chemical signaling between neurons and neuroendocrine cells and their postsynaptic target cells. Our laboratory is interested in the regulation of neurotransmitter release, its impact on nervous system development and function, and how it contributes to behavior, learning and memory. Our studies focus on genetic manipulations of the gene encoding SNAP-25, which together with integral membrane proteins syntaxin and synaptobrevin/VAMP constitute the neural SNARE core machinery required for Ca^{2+}-triggered exocytotic release of neurotransmitters. Using mouse knockout mutants we have evaluated the role of neural SNARE complexes in promoting regulated action potential-dependent and –independent modes of neurotransmitter release ("singing" and "humming" by neurons) and its impact on nervous system development, synapse formation and maturation. I will discuss *Snap25* as a susceptibility locus for attention-deficit/hyperactivity disorder (ADHD), and potentially other neuropsychiatric diseases, and our recent efforts to develop a gene x environment model of ADHD in the mouse.

April 1, 2010—4:00 pm

Foster Hall room 231

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