



a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA

Department of Cellular and Physiological Sciences



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****CPS SPECIAL SEMINAR TIME****

12:30 PM Monday, Jan. 7th, 2019

Location: LSC3

Hosted by Dr. Eric Accili

Powering the Synapse on Demand

Neurons are highly energy-consuming cells that require precise modulation of ATP production to meet increased energy demand during synaptic transmission. Although metabolic dysregulation lies at the heart of many neurological diseases, little is known about mechanisms regulating neuronal energetics. I will present the discovery of a pathway for upregulation of glycolysis that is essential for metabolic support of synaptic function. In this pathway, action potential firing recruits to the presynaptic plasma membrane, the glucose transporter GLUT4, previously characterized in muscle and adipocytes but not in the brain. I will also discuss the recent characterization of a mechanism for stimulation of oxidative phosphorylation in nerve terminals that relies on mitochondrial Ca^{2+} uptake through the MCU complex. Finally, I will discuss approaches to characterizing metabolic adaptations of highly-energetic cells, such as neurons, to long-term changes in energy demand.

Refreshments will be available outside LSC3!!!