ELSC Seminar: Josh Goldberg

January 9, 2014

On the topic of: "up-regulation of sodium currents boosts cortical input to striatal cholinergic interneurons in mouse models of Huntington's disease"

ELSC cordially invite you
to the lecture given by:

Josh Goldberg
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Institute of Medical Research Israel-Canada (IMRIC)
The Faculty of Medicine, The Hebrew University of Jerusalem

On the topic of:

"up-regulation of sodium currents boosts cortical input to striatal cholinergic interneurons in mouse models of Huntington's disease"

The lecture will be held on Thursday, January 9, 2014 at 17:00, at ELSC: Silverman Bldg., 3rd Wing, 6th Floor, Edmond J. Safra Campus

Light refreshments at 16:45

Abstract:

In Huntington's disease (HD) ? a devastating autosomal-dominant neurodegenerative disease ? the striatum displays reduced cholinergic markers, despite the resiliency of cholinergic interneurons (ChIs) ? the source of striatal acetylcholine ? to the neurodegeneration that decimates striatal projection neurons. Autonomous spiking of ChIs is unchanged in transgenic HD mice, suggesting a functional deficit in extrinsically driven activity. Using two transgenic mouse models of HD, we show that ChI responses to cortical input are boosted by a post-synaptic up-regulation of the persistent sodium current. This boosting is replicated by in wild-type mice by diminished activation of group I metabotropic glutamate receptors (mGluRs). Activation of group I mGluRs in HD mice counters the boosting. We propose that the recently described loss of thalamic synapses in striatum, reduces group I mGluR activation in ChIs which promotes boosting of cortical inputs. The augmentation of cortical inputs may function to compensate for the lost thalamic glutamatergic drive.
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