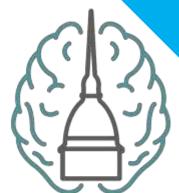
PhD in NEUROSCIENCE PhD School of Life and Health Sciences University of Turin

SEMINARS *in* NEUROSCIENCE



<u>2017-18</u>



William Catterall University of Washington

Host: Emilio Carbone

Calcium Channel Regulation, Synaptic Plasticity, and Spatial Learning

The voltage-gated calcium channel Cav2.1 triggers fast neurotransmission at most synapses in the brain. This channel forms a large signaling complex in the presynaptic membrane, which includes calmodulin-like calcium sensor proteins. Trains of brief depolarizations induce calcium-dependent facilitation followed by calcium-dependent inactivation. Transfection of Cav2.1 into cultured sympathetic neurons induces facilitation and rapid depression similar to a CNS synapse, and both facilitation and rapid depression of Cav2.1 channels by calcium sensor proteins. Inserting the IM-AA mutation in the calcium sensor protein binding site of Cav2.1 into the mouse genome impairs synaptic plasticity in hippocampal synapses, and these mice have weakened long-term potentiation and severely impaired spatial learning and memory. Evidently, biphasic regulation of Cav2.1 channels by calciuty and for spatial learning and memory.

TUESDAY Wednesday 7, 2018 FROM 2:00 P.M.

Room A C.So Massimo D' Azeglio,52 Torino