

# DSV Seminars

# 2017

## Master Degree in Neuroscience

Wednesday, 31 May 2017 14:00

Room 2A (Aula Morin), II floor, H2bis Building

### Agenor Limon

Department of Psychiatry and Human Behavior  
University of California Irvine, USA

*Host: Annalisa Bernareggi*

## Multidimensional analysis of synaptic dysfunction in psychiatric disorders

Alterations of synaptic function in individuals with schizophrenia (SZ) have been found in transcriptomics, proteomics, and genome wide association studies. These findings suggest that impairments of glutamatergic (excitatory), or GABAergic (inhibitory) neurotransmission, or both, are involved in the core symptoms of SZ patients. However, absence of direct measurements of synaptic function in the SZ brain had precluded to determine whether alterations found in gene and protein expression are correlated to specific functional alterations. Our initial studies measuring the electrophysiological activity of synaptic glutamate and GABA receptors reactivated from postmortem brains with SZ or from controls, have found direct evidence of an imbalance between excitatory and inhibitory synaptic currents in the SZ brain. Multidimensional analysis using electrophysiological data allowed the screening of proteins and splice variants that have strong correlations with synaptic currents and that are disrupted in SZ. Thus, we present a new functional endophenotype that might be closer to some of the synaptic alterations present in persons with schizophrenia, and which paves the way for future pharmacological studies to correct this imbalance. Our results suggest that pro-inhibitory synaptic imbalance may underlie the hypofunction and decreased activation that has been consistently observed in the dorsolateral prefrontal cortex of SZ patients.

