



Département de psychiatrie
Centre de neurosciences psychiatriques
Site de Cery
CH-1008 Prilly - Lausanne

Centre de Neurosciences Psychiatriques

CNP SEMINAR

ANNOUNCEMENT

Friday, February 12th, 2016, 11 a.m.

“Cholinergic interneurons and the atypical vesicular glutamate transporter VGLUT3: crucial actors in the regulation of reward and addiction”

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<http://www.ibps.upmc.fr/fr/Recherche/umr-8246/systemes-glutamatergiques-normaux-et-pathologiques>

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Glutamate is the major transmitter in the brain. Before its exocytotic release glutamate is accumulated inside synaptic vesicles by carriers named: VGLUT1-3. VGLUT1 and VGLUT2 are found in canonical glutamatergic neurons from the cortical and subcortical areas. In contrast, VGLUT3 is present in neurons using other transmitters than glutamate such as: 5-HT neurons, subpopulation of GABAergic interneurons from the cortex and the hippocampus and cholinergic interneurons from the dorsal and ventral striatum (also named TANS for Tonicly Active Neurons). In this presentation Salah El Mestikawy will discuss the role of these bilingual neurons in the regulation of reward circuits and its implication for addiction in humans.

Selected Publications:

- 1) SAKAE D.Y et al. The absence of the vesicular glutamate transporter VGLUT3 predisposes to cocaine abuse by increasing dopamine and glutamate signaling in the nucleus accumbens. *Mol Psy.* 2015 Aug 4. doi:
- 2) EL MESTIKAWY S et al. From glutamate co-release to vesicular synergy: vesicular glutamate transporters. *Nature Reviews Neurosci*, **12** (4): 204-216 (2011).
- 3) AMILHON B et al. VGLUT3 contribution to the regulation of serotonergic transmission and anxiety. *J. Neuroscience*, **30** (6): 2198-2210 (2010)
- 4) GRAS C et al. The vesicular glutamate transporter VGLUT3 synergizes striatal acetylcholine tone. *Nature Neuroscience* **11**(3): 292-300 (2008).