



Centre de Neurosciences Psychiatriques

CNP SEMINAR

ANNOUNCEMENT

Friday September 22nd 2023, 11:00 – 12:00

Gamma audiovisual stimulation promotes integration of granule cells born in the aging hippocampus

By : **Mariela Trinchero**

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Summary :

Non-invasive gamma audiovisual stimulation at 40 Hz can reduce levels of amyloid beta peptide and improve memory performance in several mouse models of Alzheimer's disease. However, the mechanisms that transduce light and sound stimulation ("flickering") into cellular and circuit changes remain elusive. Because neurogenesis in the aging hippocampus is particularly sensitive to behavioral stimuli, the effects of gamma flickering might be revealed by analyzing its impact on developing new neurons. Using light and sound pulses, we study the impact of 40 Hz stimulation on the development of neurons born in the hippocampus of 8-month-old mice. We found that audiovisual stimuli awaken mechanisms that promote neuronal plasticity not only under pathological conditions, but also in the healthy aging brain.

Invited by Nicolas.Toni@chuv.ch

Publications:

High Plasticity of New Granule Cells in the Aging Hippocampus. Trinchero MF, Buttner KA, Sulkes Cuevas JN, Temprana SG, Fontanet PA, Monzón-Salinas MC, Ledda F, Paratcha G, Schinder AF. Cell Rep. 2017 Oct 31;21(5):1129-1139. PMID: 29091753

Experience-dependent structural plasticity of adult-born neurons in the aging hippocampus. Trinchero MF, Herrero M, Monzón-Salinas MC, Schinder AF. Front. Neurosci., July 2019 PMID: 31379489

Rejuvenating the brain with chronic exercise through adult neurogenesis. Trinchero MF*, Herrero M*, Schinder AF. Front. Neurosci., Sep 2019 PMID: 31619959

Biosketch :

Mariela got her Biochemist degree in 2009. While being a student she took an internship in the department of Human Physiopathology where she studied the modulation of the noradrenergic nervous system by neurotrophins in the hypothalamus. Then, she joined the Institute of Pharmacological Studies of Buenos Aires to dig into the role of environmental enrichment in depression. Since 2007 she has been a part of the Neuronal Plasticity Lab at Leloir Institute where she did her PhD studying the effects of aging on adult neurogenesis. Currently, she is doing her research as a postdoctoral fellow in Schinder's lab investigating activity-dependent plasticity in the aging hippocampus.

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