DSV Seminars 2017

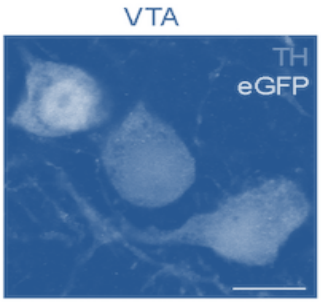
UNIVERSITÀ DEGLI STUDI DI TRIESTE

DIPARTIMENTO DI SCIENZE DELLA VITA

PhD Program in Neural and Cognitive Sciences

Friday, 30 June 2017 - 14:00

Emiciclo, Q Building – Via L. Giorgieri, 5



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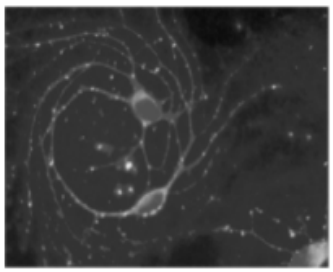
Invited by Prof. Piero Paolo Battaglini

Dopaminergic dysfunctions in Alzheimer's disease

Alzheimer's disease (AD) is an age-related neurological syndrome, characterized by progressive cognitive deterioration. Most of the scientific interest has been focused into those brain regions causing memory loss, like the hippocampus and cortex. However, there is evidence that psychiatric symptoms are also present in AD patients, including depression, apathy and anxiety, which often precede the cognitive impairments. Indeed, alterations in the dopaminergic system have been reported in AD patients.

In this seminar, evidence will be presented, from a murine AD model, of two forms of alterations involving the mesolimbic system. First, an age-dependent dopaminergic neuron loss in the ventral tegmental area (VTA), resulting in lower dopamine outflow in the hippocampus and nucleus accumbens (NAc). The progression of dopaminergic neurons death correlated with impairments in CA1 synaptic plasticity, memory and food reward processing. Second, a strong waning of the output signal from the hippocampus to NAc through the subiculum, indicative of an impaired hippocampal-mesolimbic network. The pharmacological stimulation of the dopaminergic system completely rescued CA1 synaptic plasticity, memory deficits and food reward processing.

On this basis we propose a role for the VTA in the pathophysiology of AD symptoms, which may promote a novel approach for early AD diagnosis and treatment.