

POSTDOCTORAL POSITION AVAILABLE at the DEPARTMENT OF BIOMEDICAL SCIENCES, UNIVERSITY OF PADOVA

(ASSEGNO DI RICERCA, 1 YEAR)

under the supervision of prof. Marco Mainardi

deadline for application December 2, 2024

Reckless rearrangement of structure and molecular composition of synapses represents the physical substrate for memory storage in the brain and is instrumental to learning and memory processes.

Despite progress in the study of synaptic plasticity mechanisms, it is still unclear (i) whether specific neuronal sub compartments are dedicated to the storage of specific information types, and (ii) how the synaptic proteome changes in response to activation of synaptic plasticity processes. In this regard, obtaining a complete picture of the structural and molecular underpinnings of learning and memory is a steppingstone to fully understanding the pathogenesis of cognitive impairment linked to neurodegenerative diseases, including Alzheimer's.

This project aims at contributing to solve these scientific problems through the set-up of recombinant proteins for imaging and molecular analysis of synapses. These tools will be expressed in the hippocampus – a key region for learning and memory - via adeno associated vectors in healthy rodents and in transgenic models of neurodegeneration, with the goal of understanding the topography and proteomics of synaptic plasticity in this brain structure.

The Candidate should be proficient in at least 2 among the following techniques:

- Neuroanatomy, immunofluorescence and confocal imaging;
- Stereotaxic surgery for intracerebral delivery of gene constructs;
- Protein and nucleic acid electrophoresis, Western blotting, and immunoprecipitation;
- Molecular cloning and gene construct amplification.

Anyone interested to apply for this call is warmly invited to contact Marco Mainardi at the e-mail address marco.mainardi@unipd.it