

Group name: Synaptic Neuromodulation

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Title of the MRP: Impact of Aging in Social Behavior

Summary of the MRP:



Cumulative evidence indicates that aging and neurodegenerative disorders not only alter neuronal circuits related to memory such as the hippocampus and the entorhinal cortex, but also brain networks involved in stress and general homeostasis. Therefore, **agitation and social anxiety are common symptoms of Alzheimer Disease** even during early stages of the disease, indicating a potential malfunction of hypothalamic circuits that are key regulators of stress responses and social behavior.

In this project we will investigate **how natural and pathological aging impact neuronal circuits involved in social behavior**. In particular, we will explore the effects on the oxytocin system, since this neuromodulator has been shown to play a major role in regulating social interaction.

The TFM will explore the following specific aims:

- Analyze how natural and pathological aging impact different aspects of social behavior
- Identify the specific alterations of the oxytocinergic system during natural and pathological aging

Methods and technology involved in the MRP:

To explore the aforementioned aims, the student will implement various state-of-the-art technologies including:

- **Immunohistochemistry and tissue clarification techniques for 3D imaging**
- **Behavioral assays in animal models**
- **Electrophysiology (electrical / light-assisted - optogenetics)**

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