

Group name: Neuropharmacology, Molecular Immunobiology and Behavior

IP name: TERESA FEMENIA

Group web: Femenia group (IN-website)

Title of the MRP/TFM:

Role of the immune system regulating brain function in emotion and cognition

Summary of the Project:

This project aims to elucidate how the innate immune system communicates with neurobiological pathways to regulate neuronal functions underlying emotion and cognitive processes. Specifically, we will investigate the mechanisms linking immune signaling—focusing on Toll-like receptors (TLRs), neuroplasticity, and metabolic regulation—to cognitive function and stress adaptation. The study will examine periphery-to-brain communication and the role of the gut microbiome in shaping these responses. We will assess neurochemical, molecular, and epigenetic changes, with particular emphasis on intracellular signaling pathways involved in immunometabolic regulation. A cell-type-specific approach will be applied to explore how these pathways correlate with behavioral outcomes.



Methods and technology involved in the MRP/TFM Project:

Gene expression, qRT-PCR, western blot, immunofluorescence, microscopy, cell culture and analyses of rodent behavior tests.

Member/s of the lab who will act as tutor/co-tutor of the project (if different from the group IP): Dra. **CARLA CRESPO QUIILES**

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