

Group name: Mecanismos transcripcionales y epigenéticos de la plasticidad neuronal

IP name: Angel L Barco Guerrero

Group web: <https://in.umh-csic.es/es/grupos/mecanismos-transcripcionales-y-epigeneticos-de-la-plasticidad-neuronal/>

Title of the MRP/TFM:

Regulation of neuronal activity-transcription and genomic memory by Fos.

Summary of the Project:

Activity-driven transcription is involved in many processes in the brain, including learning and other enduring modifications of the animal's behavior. Among the main transcription factors (TFs) that regulate this process is Fos. In this TFM, the student will investigate the function of Fos in the adult brain using new methods and genetic tools. Although Fos induction is the most commonly used marker of neuronal activation, many aspects of Fos biology remain unknown. The master student will investigate Fos occupancy of neuronal chromatin in vivo, their relocation and induction upon activation and their downstream targets in excitatory neurons. We will also explore the consequences in behavior, neuronal physiology, and basal and activity-induced neuronal gene expression of their controlled ablation in the adult brain using forebrain-specific inducible knockouts. Our general objective is a better understanding of the transcriptional mechanisms involved in synaptic plasticity, memory formation and their disorders..

Methods and technology involved in the MRP/TFM Project:

Mouse genetics, behavioral tests, hippocampal neuronal cultures, quantitative PCR, immunofluorescence and confocal microscopy.

Note that some of these methods require that the candidate have a valid certification to work with experimental animals. The training program will be adapted to the certification of the candidate.

Member/s of the lab who will act as tutor/co-tutor of the project (if different from the group IP): Dr. Beatriz del Blanco

Contact: bblanco@umh.es, abarco@umh.es