

**Group name:** Functional Epi-Genomics of Aging and Alzheimer's Disease

**IP name:** Jose V Sanchez Mut

**Group web:** <https://in.umh-csic.es/es/grupos/epi-genomica-funcional-del-envejecimiento-y-la-enfermedad-de-alzheimer/>

**Title of the MRP/TFM:** Microglia reprogramming in Alzheimer's disease

**Summary of the Project:**

There is increasing evidence of microglia involvement in Alzheimer's disease (AD) which is paralleled by interest in modifying their behavior to intercept AD. Recently, we have identified a new mechanism by which microglia are targeted to amyloid plaques, reducing their size, number and toxicity, along with improved neuronal fitness and cognition in mouse models of AD. In this project, we propose to characterize this mechanism to identify potential microglia-modifying therapies to counteract AD. In particular, we propose to investigate the underlying transcriptional signatures to identify potential effectors that will be then pharmacologically and genetically manipulated in microglia cultures cells. Promising candidates will then be validated using human-derived microglia cells and, finally, analyzed in the light of human data. A better understanding of microglia behavior in AD holds great potential for the development of more efficient therapeutic strategies against AD.

**Methods and technology involved in the MRP/TFM Project:**

Primary mouse microglia and human-derived microglia cultures, Amyloid beta treatments, transwell migration assays, cytotoxicity assays, fluorescent activated cell sorting (FACS), virus-mediated genetic manipulations, real-time PCRs, western blots, ELISAs, immunostainings, etc.

Member/s of the lab who will act as tutor/co-tutor of the project (if different from the group IP; PhD required to be tutor / co-tutor):

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