Research Project Proposal
Academic year 2019-2020

Project Nº 1 1 A S I G N A D O

Title: *Neuroinflamation in the alpha-synuclein models of Parkinson´s disease*

Department/ Laboratory *Laboratory where the project will be carried out indicating Department, Area, Faculty, CUN, CIMA etc.*
Departamento de Bioquímica y Genética, Facultad de Ciencias; Área de Neurociencias, CIMA.

Director 1: *Marisol Aymerich*
Contact: *maymerich@unav.es*
Codirector:
Contact:

Summary

Parkinson's disease (PD) is a neurodegenerative disorder. Most cases of PD are sporadic, while 5-10% are family forms. The neuropathological features common to the two forms of the disease are the death of dopaminergic neurons, the presence of Lewy bodies and neuroinflammation. Genetic analyses have identified genes that cause familial forms as well as risk factors associated with sporadic forms. The SNCA gene encoding the alpha-synuclein protein stands out. Mutations in this gene cause familial forms of PD and are the major component of Lewy bodies. The combination of intrinsic factors (genetic susceptibility) with extrinsic factors (neuroinflammation) together with the unique properties of dopaminergic neurons could be key to trigger the specific neuronal death observed in PD. The goal of this project is to understand the molecular and cellular mechanisms involved in the neurodegeneration associated with PD which are necessary to develop new therapies capable of preventing neuronal death. For this purpose will generate animal models of PD by overexpressing alpha-synuclein by stereotactic surgery and the effect on motor activity will be evaluated. Subsequently, the number of dopaminergic neurons will be quantified. The neuroinflammation pattern will be analyzed in the striatum and mesencephalon by RNA sequencing, flow cytometry, PCR and histological techniques. In this way, we intend to identify mechanisms of neuroinflammation associated with an increased risk of neuronal death that could constitute new therapeutic targets for the treatment of PD.

yes	**X**	**Does the project include the possibility of supervised animal manipulation to complete the training for animal manipulator?**
no		