Universidad de Navarra

Máster en Investigación Biomédica
Facultad de Ciencias

Research Project Proposal
Academic year 2015-2016

Project Nº 44
Title: Study Of Fine Behavioural Parameters in Central Nervous System Rodent Models
Department/ Laboratory Clinical Neurophysiology Laboratory, Neurosciences Area, CIMA
Director 1 Miguel Valencia Ustárroz **Contact:** mvustarroz@unav.es / +34 948194700, ext. 2007 **Codirector:** Julio Artieda González-Granda **Contact:** jartieda@unav.es / +34 948194700, ext. 2007
Summary Behavioural changes and the presence of alterations in motor skills constitute an inherent phenotypic feature of several chronic neurodegenerative diseases. Psychoactive substances acting on the brain also produce behavioural changes that are of interest to evaluate their effectiveness or the presence of side effects. There is a wide array of behavioural tools to evaluate behavioural processes in animal models, mostly in rodents. However, currently existing methods to study behavioural activity are often limited to evaluate 2gross" parameters. The most commonly applied traditional motor assays used in CNS rodent models evaluate total displacement, mean velocity, spent time in movement, in rest, etc. All these parameters are only sensitive at advanced stages of the disease or at high doses of drug. They lack of sensitivity to capture fine behavioural alterations or improvements. A finer characterization of behavioural activity in rodents could provide a more accurate tool to capture subtle dysfunctions and therapeutic effects. This project is aimed to develop an easy-to-use but sensitive framework to detect changes in the behaviour of free-moving rodents. We will evaluate digital video recordings from free-moving mice and rats during behavioural tests (open-field, reversal learning and Moris water maze). Different models of neurodegenerative disorders (Parkinson's and Alzheimer's disease) and the effect of different drugs will be studied (drugs acting on dopaminergic, cholinergic and glutamatergic systems). Animal's trajectories will semi-automatically processed to extract behavioural models that will be correlated with information obtained from electrophysiological and histological studies.
POSSIBILITY OF PhD YES*

* (PhD grant required)