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REF: PhD 05

Microglial polymorphisms in neurodegenerative diseases

TITLE: Postdoctoral Research Fellow
HOURS OF WORK: 37.5 hours per week (exluding lunch hours)
ANNUAL LEAVE: 24 days per annum plus statutory days
LOCATION: Villarroel 170, 08036 Barcelona
ACCOUNTABLE TO: Professor Nicole Mahy
CONTRACT: Up to 3 years, by IDIBAPS
SALARY: 38.000 € plus housing facilities

PDF VERSION

Closing date:
August, 31st 2010

APPLY

Job summary

1. A postdoctoral position is available in Professor Mahy laboratory. The position involves working with a team of scientists studying molecular and cellular interactions in neurodegenerative diseases of the CNS.

The programme is a continuation of work recently published in Rodríguez et al (2009) J Neurotrauma 26:1835-1845; Bernal et al (2009) J Neurosci Res 87:1240-1249; Cruchaga et al (2009) Neurobiol Dis. 33(2):164-70; Mathivanan et al (2008) Nat Biotechnol. 26(2):164-7, which has provided evidences that long-term neurodegenerative diseases cannot be studied with in vivo paradigms of short-term damage, and that in each brain area calcium signalling related with neurodegeneration depends on specific protein expression, and results in differences of neuronal death. Also, our results identified new genes and polymorphisms that predispose to Parkinson's Disease and PSP. We have also contributed to the creation of a protein database designed to collect information of protein-related diseases.

Briefly, we investigate the microglial involvement in neurodegenerative diseases from a cellular and molecular point of view. To this end, we have characterized in vitro and in vivo microglial inflammatory and neuroprotective responses and identified some mechanisms that contribute to neurodegeneration. A new therapeutic target has been proposed to control microglial activity.

The purpose of this programme of work will be to investigate the differences in polymorphisms of some genes expressed in microglia that can be related with Alzheimer's Disease and Amyotrophic Lateral Sclerosis. Afterwards the genes and polymorphisms found to be associated with each disease will be functionally studied and validated in microglial cultures and animal models.

2. The project is likely to involve some or all of the following techniques:

- Common molecular biology techniques
- Gene expression studies
- Transcriptomics, proteomics
- Primary cell culture, siRNA knock-down and gene knock-in
- General histology and immunohistochemistry
- Confocal microscopy and cellular localization of proteins.

Main Duties

To conduct research investigating in vitro and in vivo the functional relevance for Alzheimer's Disease and Amyotrophic Lateral Sclerosis of the selected microglial genes and polymorphisms.

Duties and Responsabilities

- To contribute to the design and planning of experiments in relation to this project
- To develop a thorough understanding of the research field and be involved in the intellectual decision making process required for successful completion of the project
- To set up and run experiments in consultation with the Principal Investigator
- To record, analyse and write up the results of experiments and ensure that laboratory notebooks are kept fully up to date as a formal record of the research
- To prepare and present findings of research to the Principal Investigator and other members of the centre

- To prepare progress reports on research
- The post holder may be required to perform some limited teaching and/or supervision of other members of staff and/or students, under the guidance of the Principal Investigator
- Responsible for ensuring that designated equipment is safe and maintained in good working order
- As duties and responsibilities change, the job description will be reviewed and amended in consultation with the post holder
- The post holder will carry out any other duties that are within the scope, spirit and purpose of the job, as requested by the Principal Investigator

Person specification

Knowledge and Qualifications

Essential:

- Undergraduate degree in a life science discipline
- PhD in an appropiate life science discipline

Desirable:

- Basic knowledge of molecular mechanisms of CNS neurodegeneration and neuroinflammation.
- Publications in high impact factor peer reviewed journals

Skills

Essential:

- Abilitity to develop ideas logically and design experiments to test hypotheses
- Ability to modify and apply new methods to advance a project
- Ability to analyse and write up data for presentations and publications
- Ability to present complex information effectively to a range of audiences
- Effective written and verbal communication skills
- Ability to meet deadlines
- Record of delivering high quality research

Desirable:

- Research skills in molecular biology and cell culture techniques required by the project
- Expertise in gene expression analysis, RNA interference, proteomics and genomics.
- Ability to direct junior members of the laboratory in simple laboratory procedures

Experience

Essential:

Experience of working in a research environment

Desirable:

Experience of multi-disciplinary working

Personal Qualities

Essential:

- ComitmentCommitment to high quality research
- Ability to work effectively as part of the team
- Ability to work independently and to use own initiative when required

APPLY