Reference: C.I.III.09/2017

Position title: Research Collaborator III

Group: Neurobiology Laboratory

Job description (function and tasks):

The project that will be carried out by the selected candidate will address the study of the mechanisms involved in the interaction between different factors (neuroinflammation, increased GABAergic tone, decreased cGMP) that produce cognitive deterioration and motor incoordination. The specific objectives will analyze:

- Mechanisms by which hyperammonemia and hepatic failure induce neuroinflammation. Role of transduction from peripheral inflammation to the brain.
- Role of oxidative stress in cognitive and motor disorders. Molecular mechanisms. Therapeutic implications.
- Role of cerebellar alterations in the impairment of learning in a Y-maze task and in motor incoordination. Molecular mechanisms. Therapeutic implications. Analysis of the interaction between cGMP, neuroinflammation and GABAergic tone in the cerebellum of rats with MHE.
- Role of hippocampal alterations on deterioration of spatial learning. Molecular mechanisms. Therapeutic implications. Analysis of the activation of the IL-1b pathway - increased GABAergic tone - cognitive impairment.
- Analysis of the interaction between cGMP, neuroinflammation and GABAergic tone in hippocampus of rats with MHE.
- Design and test in rats with MHE new therapeutic treatments to reverse cognitive and motor deterioration

The project will require an experimental design that will include the following functions and tasks:

- Perform surgical operations in rats (cerebral microdialysis, placement of osmotic minipumps, electroencephalography ...).
- Performance of learning and motor activity tests in rats.
- Experiments on fresh brain slices, determination of nitrites, measurement of ammonium in blood and tissue, cGMP, PGE2, IL-6, ...; protein expression, measurement of NOS activity by radioactivity, chlorine and calcium kinetics ... 
- Determination of aminocids and neurotransmitters (glutamate, GABA,...) by HPLC.
- Electrophysiological records in multielectrode arrays (MEA).
- Analysis of results and preparation of scientific manuscripts.
The candidate selected will also collaborate in the formation and supervision of Master and PhD students of the group.

Research Center description:

The Prince Felipe Research Centre, CIPF, was created to develop first-rate, competitive and internationally relevant research in the fields of Neurobiology, Advanced Therapies, Rare & Genetic Diseases, Molecular Mechanisms of Disease and Computational Genomics. The research centre, located in Valencia, occupies an area of 32,000 m² and it is equipped with the most advanced infrastructures, facilities and technological equipment.

Basic requirements of the position:

- PhD in biology, biochemistry, biotechnology or pharmacy.
- Training course for the design and management of animal research procedures.
- High level of English both spoken and written.
- Experience in research in the field of neurobiology.

Experience required:

- At least 10 years of experience in research laboratory.
- Experience in the following methodologies and techniques:
  - Separation techniques: HPLC, electrophoresis (protein, DNA and RNA) in agarose and polyacrylamide.
  - Biochemical techniques: analysis of nitrites in cellular samples, measure of ammonium in blood and brain tissue, ELISA for quantification of cGMP, cAMP, interleukins, Coomassie, preparation of brain membranes and isolation of binding proteins to cGMP by cGMP binding agarose.
  - Analysis and manipulation of protein: protein expression in brain tissue homogenates and neuronal cultures, purification, isolation and detection by western blot.
  - Analysis and manipulation of RNA in tissue samples: isolation, quantification, cDNA synthesis by RT-PCR and analysis of gene expression by qPCR (Taqman probes, Scorpion, SYBR-Green).
  - Analysis and manipulation of DNA from different samples (tissue, blood): isolation, quantification, electrophoresis analysis, PCR genotyping, polymorphism analysis for allele discrimination, analysis of mutational state of the gene by PCR.
  - Management of experimental animals (rats): care, breeding and toxic dosage.
  - Processing and biochemical analysis of brain areas.
  - Knowledge and skills in the use of different equipment (HPLC for determination of aminoacids and neurotransmitters, Fluoroskan, Microscope, Spectrophotometer, Vibrotome, Microtome, multielectrode arrays, etc.).
  - Microsurgery in rats for implantation in cerebellum of osmotic minipumps in brain ventricle.
  - Microdialysis in brain and jugular.
  - Manipulation of brain slices: NOS activity measured by radioactivity (14C), perfusion of different treatments for studying NOS, signal transduction and membrane expression of receptors and transporters, analysis of calcium and chloride kinetics, electrical activity recordings in MEA.
Analysis of behaviour in rats: motor coordination (rotarod, beam walking, motor activity), learning and spatial memory (Morris Water Maze, Radial Maze), object recognition memory, test of conditional discrimination (Y Maze).

- Proven ability to present results in congresses.
- A postdoctoral stay in a center different to CIPF
- Publications in the area of biomedicine.

Merits:

- Be communicative, assertive and skilled to work in a multidisciplinary team.
- PhD in Biology: Termination date posterior to January 1, 2014
- Experience in clinical research laboratories
- Participation in european projects
- Good level English
- Demonstrated capacity to supervise students work.
- Informatics knowledge (Office, SPSS, GraphPad Prism, Reference Manager)

Contract

- Professional category: Research Collaborator III
- Salary Level: (Salary level as stipulated in the Convenio de Sanidad Privada de la Provincia de Valencia)
- Funding Source/Project: SAF2014-51851-R
- Duration: 1 year
- Starting date: January 1st, 2018
- Working day: Full time
- The deadline for receipt of resumes will be open until December 17, 2017

How to present your candidacy?

Interested candidates should send their CV, cover letter and references only by email to the following address: selection@cipf.es.

In order to comply with Law 15/1999 of December 13, for The Protection of Personal Data, we inform you that the personal data contained in your resume will be included in a personal data file owned by the Foundation Prince Felipe Research Centre, CIPF, to enable you to participate in our recruitment process, and if appropriate, it may be used for processing appropriate aid, grants and funding to enable this recruitment.

By submitting your resume, you agree to your personal data to be treated in the commented terms, allowing CIPF to share this data with other public and private institutions with the exclusive aim of applying for grants for the financial funding of this institution and its research projects linked to your data.

You may exercise your rights of access, rectification, cancellation and opposition by writing to CIPF, Calle Eduardo Primo Yúfera, 3, CP 46012 Valencia and attaching your ID.
Please indicate the offer reference number in the subject field. If you have any questions about this offer, please contact the Human Resources Department by email to: recursoshumanos@cipf.es