IMIBIC CALL FOR EXPRESSIONS OF INTEREST:
POST-DOCTORAL RESEARCHERS: Oxidative stress and Nutrition

Reference: PostdocMSCA2017GE01

Description of IMIBIC

The biomedical research institute, IMIBIC, located in Cordoba, southern Spain, is a partnership between the University of Cordoba and the Reina Sofia University Hospital. IMIBIC offers a multidisciplinary environment focused on results-oriented research and based on precision medicine and excellence in science. IMIBIC is accredited with the Excellence distinction from the Carlos III Spanish National Institute of Health.

The Institute is structured in research groups that cooperate in the implementation of its various scientific programmes. Our major goal is to promote biomedical innovation as a powerful engine for economic and social development. To this end, the Institute offers an active environment in which to conduct high-level scientific research. Regular seminars and research events offer the opportunity to meet with national and international speakers covering a diverse range of topics in biomedicine.

The IMIBIC building is located within the University Health Sciences Campus, nearby the Reina Sofia University Hospital. It hosts a wide variety of core facilities for researchers, including the Biomedical Research Support Units that host brand new equipment and laboratories to support the technical needs of the IMIBIC community, as well as a Clinical Research Unit to support clinical trial research.

In 2015, IMIBIC managed to continue increasing its scientific output, with 359 papers and the total impact factor was 1303.75 points. Furthermore, 21 property registries were fostered at the heart of the Institute, and a total of 5 EU and international projects (private and public: FP7, H2020, IMI) were active in 2015.

Aim of the call

The Maimonides Biomedical Research Institute of Cordoba (IMIBIC) is seeking to develop proposals with **experienced researchers** for submission under the **Horizon 2020 Marie Skłodowska-Curie Actions.**
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/msca-if-2017.html

IMPORTANT: Applicants should check their CV against the eligibility and mobility conditions of Marie Skłodowska-Curie Actions.

Brief description of the Research Group

Oxidative stress and Nutrition (GE-01)

Our group studies the effect of different antioxidant agents, as well as transcraneal magnetic stimulation on neuroplasticity (neurogenesis and synaptogenesis), cell death, oxidative stress and behavioural phenotype in models of neurodegeneration induced by neurotoxins and neuropsychiatric models induced by olfactory bulbectomy. Through these models, we analyse the role played by reactive oxygen and nitrogen species in the above mentioned phenomena, as well as the possibility of using the properties of the different agents used as new therapeutic strategies.

Recently, the scope of the study has covered the analysis of transcription factors and vitagenes involved in the antioxidant response. Additionally, the group is currently studying the role of nitrate and oxidative status, as well as inflammation in vitagene activation in patients with different neurodegenerative diseases. Finally, the group is involved in intense horizontal research in partnership with other groups in the assessment, analysis and interpretation of oxidative status in different study models and processes.

Nowadays, the efforts of our group have been focused in study of the route involved, especially oxidative stress, in pathogenesis of MS using experimental model (experimental autoimmune encephalomyelitis) and clinical studies. In addition, we analyse the neuroprotective effect of different strategies such as transcranial magnetic stimulation, nutritional intervention and others.

Project description:

Transcranial magnetic stimulation (TMS) affects development of chronic neuroinflammatory diseases such as Alzheimer's disease and multiple sclerosis (MS), as well as brain function. Manipulation of neuroplasticity may help to improve mood disorders such as depression and schizophrenia. Our hypothesis is that TMS improves the evolution of relapsing-remitting MS (RRMS) by modulating the neuroplasticity: neuropeptides, biomarkers for oxidative/nitrative stress and inflammation, adhesion molecules and neurotrophic factors.

Aim: To demonstrate that TMS application will induce a favourable difference of 25% in the ADAS-COG-PLUS and Dual Task tests in patients with RRMS treated with Natalizuzmab, as well as an improvement in the nuclear magnetic resonance (NMR).

Methods: 50 men and women, aged over 18, with RRMS with Nataliztumab treatment will follow two intervention periods of 24 weeks each, with a randomized crossover design. TMS periods will be: 1. Patients with Natalizumab treatment + placebo and 2. Patients with Natalizumab treatment + TMS. To determine in blood samples levels of NPY, serotonin, dopamine, acetate, glutamate, GABA, LPS, LBP; TNFalpha, IL-6, IL-1, NFkB, Nrf2, VCAM-1, BDNF, lipid peroxidation products carbonilated proteins, redox glutathione system, SOD, GPx, catalase, nitric oxide and nitrotyrosine.

Profile

Skills/Qualifications:

-PhD in Neuroscience, Medicine, Biomedicine, Biology or Biochemistry

Specific Requirements:

We will evaluate positively knowledge in:

Neurochemistry Oxidative stress Neurodegenerative diseases Gut microbiota Proteomics and genomics

Required Research Experience:

-Experience in Experimental model of neurodegenerative and psychiatric disorders "in vivo" and "in vitro"

-Experience and knowledge in transcranial magnetic stimulation management

Required Languages:

-Excellent level of spoken and written English.

Eligibility criteria:

The candidate must fulfil the eligibility and mobility conditions of Marie Skłodowska-Curie Actions.

Selection Process:

The process consists of an analysis, evaluation and ranking of all CVs received. Following the evaluation, the highest ranked applicants will be called for a personal interview in order to evaluate more precisely the skills of the candidate.

Additional comments:
How to Apply: Applicants should send their CV to the following address: personal@imibic.org stating clearly in the subject of the email the reference "**PostdocMSCA2017GE01**". Deadline for sending your CV: 10th April, 2017.
Warning: Application emails that do not include reference will not be considered.

For more information about the Marie Skłodowska-Curie actions, see:
http://ec.europa.eu/research/mariecurieactions/