

IMIBIC CALL FOR EXPRESSIONS OF INTEREST:
POST-DOCTORAL RESEARCHERS: New Therapies in Cancer

Reference: PostdocMSCA2017GC6

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

New Therapies in Cancer (GC-06)

The research group “New Therapies in Cancer” is multidisciplinary, with a team structure that reflects transversal capacities and skills (oncologists, biologists, pathologists, biotechnologists, etc.) that allows integrated approaches to the achievement of the proposed goals. The aim is to conduct a multifaceted research of the tumorigenic process at the basic, translational, and clinical level. The group participates in a National Research Network program, through the Biomedical Research Networking Center in Cancer (CIBER cancer in Spanish), and also participates in cooperative groups of clinical cancer research, thus providing an excellent framework for collaboration and interaction

with other cancer research groups. The group has developed several lines of study mainly aimed to address new clinical challenges in the implementation of novel targeted therapies in oncology.

The first area is related to the identification of clinical or molecular factors useful in predicting clinical evolution, response or toxicity in cancer treatment. In this area we have reported the development of predictive biomarkers of response to antiangiogenic therapy. We participate very actively in the development of new therapeutic strategies using drugs aimed at specific targets. To achieve this, we are currently studying the association between antitumoral immune response and response to antiangiogenic therapy in cancer, to define predictive markers of response to antiangiogenic drugs. The development of these markers will optimize the use of new therapies in cancer patients.

Another research area looks into the role of nitrosative stress and the regulation of nitrosothiol homeostasis in cancer. Using the latest proteomic approaches to identify posttranslational nitrosative modifications, notably the S-nitrosylation of proteins, we analyse the importance of maintaining the homeostasis of nitrosothiols and the formation of S-nitrosoproteins. Results in our laboratory data support the hypothesis that the metabolism of nitric oxide (NO) plays an important role in the onset and progression of cancer, confirming a close relationship between NO and stem/mesenchymal characteristics in tumors. Therefore the main objective in this area is to characterize the mechanisms by which NO is involved in the onset and progression of cancer, and identify new therapeutic strategies for the treatment of this disease. Finally, our group is actively performing clinical validation studies to assess whether the determination of RAS mutational status using liquid biopsy tools may optimize the rational use of anti-EGFR therapies in colorectal cancer.

Likewise, our group is applying liquid biopsy tools in other gastrointestinal tumors such as pancreatic cancers. Also, more translational studies are being undertaken in our laboratory to explore other plasma components, such as miRNAs and exosomes.

Project description:

One main line of research in our group is to decipher the mechanisms by which nitric oxide (NO) is involved in the initiation and progression of tumours, and also in the response to therapy. Existing heterogeneity among colorectal cancer (CRC) patients calls for a change in treatment toward more personalized therapies and distinct CRC molecular subtypes classifications have recently been proposed based on genetic signatures. Although studies published to date differ in the number of subtypes identified, all of them describe the existence of a subgroup of tumours with poor prognosis and stem/mesenchymal characteristics.

On the other hand, experimental evidence links NO metabolism with stem characteristics in some tumour types. These studies and previous results in our laboratory support the hypothesis that the metabolism of NO plays an important role in the onset and progression of CRC, confirming a close relationship between NO and stem/mesenchymal characteristics in intestinal tumours. Therefore the main objective of the project is to characterize the mechanisms by which NO is involved in the onset and progression of CRC, their relationship with different molecular subtypes and to identify new therapeutic strategies. Refinement and clinical validation of the classification as well as the elucidation of the biology (i.e. the roles of the immune reaction and the stroma) will be relevant sub-aims.

Profile

Skills/Qualifications:

-PhD in Biology, Biochemistry, Cellular and Molecular Biology, Pathology, Biotechnology or similar.

Specific Requirements:

- Demonstrated expertise in molecular, cellular biochemical techniques, and/or systems biology is preferred.
- Experience with mammalian cell culture, microscopy, immunoassays, molecular biology, and animal models is absolutely required.

-Highly motivated individuals with excellent communication skills and the ability to work effectively within a research team are encouraged to apply.

Required Research Experience:

- Candidates with background in cancer biology research will be preferred

Required Languages:

-Excellent level of spoken and written English.

Benefits:

The biomedical research institute, IMIBIC, located in Cordoba, southern Spain, offers an active environment focused on results-oriented research and based on precision medicine and excellence in science. Modern research equipments and core facilities are provided by the different Biomedical Research Support Units at the IMIBIC, including Genomics (Next generation sequencing, digital PCR, nCounter), and Proteomics (Mass spectrometry, MALDI-Imaging) units. Regular seminars and research events offer the opportunity to meet with distinguished national and international speakers. The post-doctoral researcher will also get a great chance for cooperation with hospital and industry.

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 “**PostdocMSCA2017GC6**”. 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/>