

POSITION

1. Project Title/ Job Position title:

New roles of the innate immune system in the human cardiovascular disease

2. Area of Knowledge:

Life Sciences

3. Group of disciplines:

Medicine, Public Health, Sports Science, Nutrition, Clinical Psychology, Healthcare Management

4. Research project/ Research Group description

Ischemic cardiovascular diseases are the leading cause of death worldwide. In spite of modern treatment, acute myocardial infarction (AMI) still carries significant morbidity and mortality worldwide. Even though standard of care therapy improves symptoms and also long-term prognosis of patients with AMI, it does not improve the mortality rates. So, new research related to AMI pathophysiology is needed.

Our project aims to determine the role of a key receptor of the innate immune system; NOD1 (nucleotide binding oligomerization domain containing 1) in the AMI progression. Using myocardium and peripheral blood monocytes from healthy and AMI individuals we will determine the activation of NOD1 pathway and its relationship with dysfunction and the detrimental cardiac remodeling linked to AMI. At cellular level, we will determine the activation of NOD1 in human ventricular cardiomyocytes under ischaemic/reperfusion conditions.

New unconventional therapeutic strategies aiming to regenerate the AMI heart have been rising during the last years. One of the latest breakthroughs in this regard is the stem cell therapy. Here, using human mesenchymal stem cells we will determine the role of NOD1 in cardiac regeneration. Employing an AMI mice model, we will determine whether the genetic deletion of NOD1 impairs the cardiac dysfunction and remodeling. The present translational study purposes to determine whether NOD1 can be a new clinical biomarker of cardiac damage, uncovering a novel potential target in the AMI treatment.

Hospital La Paz Institute for Health Research (IdiPAZ) is an interdisciplinary research center equipped with pioneering facilities and supports the chance to work with leading scientists in an international and team-oriented setting. The Innate Immune Response group is young and dynamic and has established collaborations with several cardiologists both national and abroad, resulting in relevant publications in the cardiovascular field.

5. Job position description

Role: The candidate will be in charge of performing the experimental activities of the project, in collaboration with other members of the group. He/she will be trained accordingly and mentored through the completion of his/her PhD thesis.

Responsibilities

Set up and perform experiments, maintain experimental resources (as cell lines, reagents, etc.) according to protocols, analyze & interpret results and contribute to the development of experimental strategies with accuracy and honesty.

Keep updated the laboratory notebook and properly store the data produced during the project.

Collaborate with colleagues and participate in team activities (such as meetings, seminars, workshops, etc.) across the research group and wider scientific community.

Participate in knowledge exchange with several stakeholders, to promote the value of research in public health, to keep up to date with current knowledge and recent advances and to

contribute to the dissemination of his/her research results in the principles of EU's Open Science policy.

Undertake any other duties of equivalent standing as assigned to him/her.

Skills

MSc degree in Life Sciences: Biology, Medicine or Pharmacy.

Strong interest in medical science, cardiovascular diseases, molecular and cellular biology, animal models and biochemistry are preferred.

Motivation, critical thinking and problem-solving oriented skills.

Good interpersonal skills, including team working.

Good communication skills, willingness to engage in public presentations and ability to transmit complex concepts in a clear way.

Good time and workload management skills, including both initiative and flexibility.

GROUP LEADER

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