The Vall d'Hebron Research Institute (VHIR) is a public sector institution that promotes and develops the research, innovation and biosanitary teaching of the Vall d'Hebron University Hospital. Through the excellence of our research, we identify and apply new solutions to the health problems of society and we contribute to spread them around the world.

In April 2015, the **Vall d'Hebron Research Institute (VHIR)** obtained the recognition of the European Commission **HR Excellence.**
This recognition proves that VHIR endorses the general principles of **the European Charter for Researchers and a Code of Conduct for the Recruitment of Researchers (Charter & Code)**.
Thus, there are no restrictions of gender, national origin, race, religion, sexual orientation or age and **candidates with disabilities are strongly encouraged to apply.**

Vall d'Hebron
Institut de Recerca
VHIR

Predoctoral Researcher

Cardiovascular Diseases Research Group

Vall d'Hebron Research Institute (VHIR) offers a position for a Predoctoral researcher within the Laboratory of the Cardiovascular Diseases Research Group to participate in the project "Inhibition of mitochondrial sodium/calcium exchanger, NCLX, as a therapeutic strategy to reduce myocardial ischemia-reperfusion injury during myocardial infarction", recently funded by Instituto de Salud Carlos III, from Ministerio de Ciencia, Innovación y Universidades (PI23/00260).

JOB DESCRIPTION

Education and qualifications:

Required:

- Degree in Health Sciences (Biology, Biomedicine, Pharmacy, Biomedicine, Veterinary Medicine or a related discipline).
- Master degree.
- High academic marks (degree and master) is a must. **ESSENTIAL TO SEND THE ACADEMIC RECORD INCLUDING THE MEAN QUALIFICATION.**
- Good communication skills and fluency in spoken and written English.

Desired:

- Strong sense of responsibility, initiative, self-motivation and social skills as key personal abilities.
- Ability to work independently.
- Previous publications.
- Research stages abroad.
- Accreditation for the use of animals in research.

Experience and knowledge:

- Good knowledge on animal physiology, especially in the cardiovascular system, will be positively valuated.
- Previous experience in molecular biology methods and research.
- Good molecular biology background and experience in molecular biology techniques (Western Blot, PCR, immunofluorescence, etc).
- Critical thinking including capacity to analyze and evaluate information critically and to develop innovative solutions to research problems.

Main responsibilities and duties:

- To develop the doctoral thesis project and collaborate in other projects of the research group.
- To develop their own translational research project to solve an unmet clinical issue in cardiology. This includes design, perform and interpret the results obtained in both in vivo and in vitro experiments, including the use of animal models, data measurement and statistical analyses.
- To join the research team and collaborate and support other research members in the development of their projects.
- To generate a fruitful discussion within the group.
- Present and defend the results obtained in national and international scientific meetings.
- Participation in group meetings and other activities.

What we offer:

- Incorporation to Vall d'Hebron Research Institute (VHIR), a public sector institution that promotes and develops the biomedical research, innovation and teaching at Vall d'Hebron University Hospital (HUVH), the biggest hospital of Barcelona and the largest of Catalan Institute of Health (ICS).
- A scientific environment of excellence, highly dynamic, where high-end biomedical projects are continuously developed.
- Continuous learning and a wide range of responsibilities within a stimulating work environment.
- Individual training opportunities.
- Flexible working hours.
- 23 days of holidays + 9 personal days.
- Flexible Remuneration Program (including dining checks, health insurance, transportation and more)
- Corporate Benefits: platform through which you can obtain significant discounts on travel, culture, technology, gastronomy, sports... among many others.
- Healthy Offering: choose from a variety of wellbeing focused activities to be the healthiest you.

Labour conditions:

- **Position:** Full-time pre-doctoral position (40h/week) after application to a research grant (including AGAUR, etc).
- **Starting:** According to the conditions established by the grant holder.
- **Duration:** 4 years.
- **Gross annual salary:** According to the conditions established by the grant holder.
- **Project title***:* Inhibition of mitochondrial sodium/calcium exchanger, NCLX, as a therapeutic strategy to reduce myocardial ischemia-reperfusion injury during myocardial infarction (project funded by Instituto de Salud Carlos III, Ministerio de Ciencia, Innovación y Universidades).
- **Project Summary:**

  Background: A key role for the mitochondrial sodium/calcium exchanger, NCLX, in reactive oxygen species (ROS) production during ischemia has been recently unveiled in endothelial and neuronal cells. Preliminary results show that NCLX inhibition can also abolish ROS production during reperfusion and reduces infarction in a mouse model of stroke. As ischemia-reperfusion (IR) injury during acute myocardial infarction is driven by ROS production and oxidative damage,

we want to address whether the same mechanism operates in cardiomyocytes, and the therapeutic potential of NCLX inhibition.
Objectives: (1) To characterize the role of NCLX in ROS production during IR in cardiomyocytes; (2) to evaluate if the application of novel NCLX inhibitors would constitute a promising therapeutic approach to reduce IR injury.
Methods: We will perform a detailed molecular study (superoxide production, cell viability, mitochondrial pH and oxygen consumption) of the effects of mitochondrial sodium-calcium exchange during IR, to understand the molecular pathways leading to ROS production. We will use isolated hearts, in vivo rodent and pig models of myocardial infarction, and cardiomyocytes isolated from human atrial samples to test the usefulness of novel NCLX inhibitors to attenuate IR injury. We expect that inhibition of NCLX may reduce myocardial infarct size by attenuating mitochondrial ROS production.

HOW TO APPLY

Applicants should submit a full Curriculum Vitae, **including academic marks**, and a cover letter with the reference "ARS-PRE-DOC CARDIOLOGY" to the following email address: antonio.rodriguez.sinovas@vhir.org.

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