



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.**

## Pre-doctoral Researcher Cardiovascular Diseases Research Group

VHIR is seeking a junior researcher to apply for a pre-doctoral grant (AGAUR/VHIR) within the Research Group in Cardiovascular Diseases. More information about our group can be found at: <http://www.vhir.org/portal1/grup-presentacio.asp?s=recerca&contentid=186804&idrefer=186805>

### JOB DESCRIPTION

#### Education and qualifications:

##### Required:

- Degree in Biology, Biomedicine, Pharmacy, Biomedicine, Veterinary Medicine or a related discipline.
- Master degree.
- High academic marks (degree and master) is a must.
- 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.
- Accredited for animal handling.

#### Experience and knowledge:

- Good knowledge on animal physiology, especially in the cardiovascular system, will be positively valued.
- Previous experience in research would be desired.
- Good molecular biology background and experience in molecular biology techniques (Western Blot, PCR, immunofluorescence, etc) will be positively valued

#### Main responsibilities and duties:

- To develop their own translational research project to solve an unmet clinical issue in cardiology. This includes conducting the appropriate experiments (both in in vivo and in vitro animal models), data measurement and interpretation, 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.

### Labour conditions:

- Position: Full-time pre-doctoral position (40h/week).
- Contract length: From January 2022 to December 2024 (according to the conditions established by the grant holder (AGAUR/VHIR)).
- Gross annual salary: According to the conditions established by the grant holder (about 16.638,83€ first and second year, 17.827,32€ third year and 22.284,15€ fourth year)
- Project title: Effects of air pollution on the development of arrhythmias, study of mechanisms, and potential strategies for prevention. (project funded by Instituto de Salud Carlos III, Ministerio de Ciencia, Innovación y Universidades).
- Project Summary:
- The global aim of the study is to evaluate the potential role of air pollution in triggering arrhythmias with detrimental effects on health, particularly in vulnerable patients such as those with heart failure. We also seek to assess the potential mechanisms involved in the association between air pollution and arrhythmias, and evaluate the impact of implementing interventions addressed to diminish exposure and/or target specific mechanisms. The project embraces a clinical study including patients with heart failure, where the exposure to air pollution will be related to the incidence of arrhythmias, and an experimental study including rats exposed to diesel exhaust particles, in which arrhythmia inducibility, heart rate variability, infarct size after coronary occlusion, and action potential characterization will be assessed after air pollution exposure in combination or not with life-style interventions (exercise, omega-3 fatty-acid enriched diet). The study of mechanisms will include the assessment of oxidative stress and fibrosis, and calcium dynamics in isolated cardiomyocytes. The pre-doctoral student will be assigned to the experimental project, with the possibility of collaborating in the clinical study if interested.

Therefore, the position represents a unique opportunity to work in a truly translational project with social and clinical impact, which will allow the student to acquire expertise in the broadest range of in vivo and in vitro techniques and methodologies to study different aspects of the cardiovascular system, and learn to perform basic research and interpret its results

### HOW TO APPLY

Applicants should submit a full Curriculum Vitae, including academic marks, and a cover letter with the reference “PRE-DOC CARDIOLOGY” to the following email addresses: [mteresa.fernandez@vhir.org](mailto:mteresa.fernandez@vhir.org), [antonio.rodriguez.sinovas@vhir.org](mailto:antonio.rodriguez.sinovas@vhir.org), [begona.benito@vhir.org](mailto:begona.benito@vhir.org).

