

## PHD STUDENT - CHROMATIN BIOLOGY (REF.: VAC\_83\_2024)

The Josep Carreras Leukemia Research Institute (IJC) is a comprehensive cancer research center dedicated to researching and promoting innovation in the epidemiological, preventive, clinical, translational and basic aspects of leukemia and other hematological neoplasms, with the objective end of finding a cure for these diseases. It was created in 2010, and since then it has experienced exponential growth.

The IJC is also part of the network of Research Centers of Excellence of Catalonia (CERCA) and was accredited as a Severo Ochoa Center of Excellence by the Ministry of Science, Innovation and Universities in 2024. Since 2018, the Institute has also been accredited by the Scientific Foundation of the Spanish Association Against Cancer (FCAECC) In addition, the IJC is one of the centers integrated into the accreditation of the Germans Trias i Pujol Research Institute (IGTP) as an Accredited Health Research Institute (IIS) by the Health Institute Charles III (ISCIII).

The main headquarters of the IJC is located within the Can Ruti Biomedical Campus, together with other leading biomedical institutions, providing direct access to cutting-edge scientific and technological facilities, as well as complementary community services. The IJC has six headquarters integrated into reference hospitals: Hospital Germans Trias i Pujol, Hospital Clínic, Hospital Sant Pau, Hospital Trueta, Hospital del Mar and Hospital San Joan de Déu. This facilitates close collaboration between basic and clinical researchers, fostering translational research that integrates basic science with clinical practice in clinical settings.

### Research Description

The Chromatin Biology Laboratory led by Alex Vaquero is recognized for its expertise in studying response mechanisms under stress conditions. The group's main objective is to define the role of the sirtuin family of enzymes in regulating genome stability and epigenetics in response to stress, and their impact on cancer, senescence, and aging. Given the key role of cell senescence in both hematological and non-hematological cancers, understanding the underlying mechanisms driving cell senescence is crucial for comprehending its contribution to carcinogenesis and for the future design of novel anti-cancer therapies. Although sirtuins play an important role in regulating cell senescence in response to stress conditions, which impacts systemic aging, the mechanisms involved remain incompletely characterized. The project aims to study the functional link between Sirtuins and cell senescence by studying: 1) The regulation of the interferon signaling pathway, and 2) Identification and subsequent characterization of factors involved in the sirtuin-dependent regulation of cell senescence through functional screening.

Please also visit our group webpage:

<https://www.carrerasresearch.org/en/research/chromatin-biology-laboratory>

<https://www.sirtuinbiology.com/>

## WHAT WE NEED

- MSc in Biology, Biomedicine or similar.
- A high level of motivation and interest.
- Excellent communication and organizational skills.
- Good level of oral and written English.
- Experience in cellular and molecular biology, stress response.
- Good academic records that allow the candidate to apply for competitive PhD calls.
- Previous experience in stress response and/or sirtuin biology, as well as proteomic and/or genomic analysis, would be highly valued.

## WHAT WE OFFER

- A FPI PhD position for 4 years funded by MCIN/AEI/10.13039/501100011033 and FSE+.
- The stimulating environment of the Barcelona metropolitan area.
- An exciting and innovative research project.
- Incorporation in a well-established, dynamic and highly motivated team.
- Working in the outstanding multidisciplinary research environment of the Josep Carreras Leukaemia Research Institute.

## MAIN RESPONSIBILITIES

- Study the role of Sirtuins in stress response and genome stability through a combination of biochemistry, molecular biology, genomics, proteomics and cell biology.
- Analyze the contribution of Sirtuins to Interferon signaling and its impact on cancer.
- Characterize the functional contribution of sirtuin to cell senescence and systemic aging.
- Analyze the role of sirtuin to heterogeneity in pro-inflammatory phenotype of cellular senescence through cell biology and multiomic analysis.

## EVALUATION CRITERIA

The evaluation criteria for the selection process are as follows:

- **Criterion 1.** Academic and/or scientific-technical background of the candidate (up to 50 points).
  - **Sub-criterion 1.a):** Scientific-technical contributions (up to 45 points). The
  - **Sub-criterion 1.b):** Mobility and internationalization (up to 5 points). The relevance and impact of the candidate's stays at national and international centers and/or in the industrial sector on their research career will be assessed, considering the prestige of the host institution and the activities undertaken there.

- **Criterion 2.** Suitability of the candidate to the research activities to be carried out (up to 50 points). The candidate's suitability for the program, project, or research activities to be developed will be evaluated based on their prior education and experience. The added value that carrying out the project will represent for the candidate's research career, as well as the value contributed to the center and the receiving team, will be taken into account.

## DEADLINE FOR APPLICATIONS

Please submit your application by November 13<sup>th</sup>, 2024.

## WHO WE ARE?

Welcome to the endothelial pathobiology lab that is dedicated to study the vasculature in health and disease. As such, we aim to pave the way for novel diagnostic tools and targeted therapies for vascular conditions.



The European Commission awarded the IJC the HR Excellence seal in July 2019. The IJC continues to work to maintain its policies in line with the Charter and Code principles.

The HRS4R has the main objective of ensuring that research centers of excellence implement and respect the requirements of the European Charter for Researchers and the Code of Conduct for hiring researchers (from here on referred to as the Charter and Code) within their human resources policies.

This EC initiative aims to promote training, professional development, and mobility for all European scientists. The IJC supports these values and principles, which will not only serve to strengthen its internal policies but will actively stimulate excellent research and firmly situate the organization as an institution with a stimulating working environment that favors the development of its scientists.

**IJC is an equal opportunity employer. We evaluate qualified applicants without regard to race, color, religion, sex, national origin, disability, and other legally protected characteristics.**