

DOCTORAL INPhINIT FELLOWSHIPS PROGRAMME – INCOMING INFORMATION CALL 2021

PhD Early-stage researchers (REF: PhD_LCEB_49)

The Josep Carreras Leukaemia Research Institute (IJC) is a non-profit research institute based in Barcelona and dedicated to advancing our understanding about leukaemia and related disorders, in partnership with the University of Barcelona and University Autònoma of Barcelona. The IJC has laboratories in three clinical campuses: i) Clinic Hospital, ii) Sant Pau Hospital and iii) Germans Trias i Pujol Hospital. IJC serves as a collaborative hub for basic investigators and physicians to work together on fundamental biological and clinical aspects of leukaemia. The IJC offers an excellent work environment built around a multi-disciplinary fusion of ideas and state-of-the-art facilities.

Research Description

We welcome applications from candidates eager to study the Epigenetics and immune disease at Research Group of **Dr. Esteban Ballestar** for the DOCTORAL to apply to the INPhINIT FELLOWSHIPS PROGRAMME.

The **Epigenetics and immune disease group** aim at understanding the role of epigenetic mechanisms in immune cell differentiation and in various context of immune function, with a particular focus on inflammation. We also study the relevance of epigenetic alterations in immune-mediated disease including primary immunodeficiencies, autoimmune and autoinflammatory diseases. We also investigate the impact of the epigenetic regulation of immune cells in the microtumour environment.

The PhD student will join a multidisciplinary and international team. The group has currently nine members (http://www.carrerasresearch.org/en/epigenetics-and-immunedisease_124402) with a good balance between postdoctoral and predoctoral researchers and constitutes an excellent environment for the development of a scientific career. This is exemplified by the achievements of previous PhD students who continued their careers in international laboratories (Babraham Institute, Wellcome Trust Sanger Institute, Blizard Institute), some of which have become successful group leaders.

Please also visit our group webpage:

https://www.carrerasresearch.org/en/epigenetics-and-immune-disease_124402

The PhD fellow will study the impact of immune cell-cell communication in the deposition and removal of epigenetic marks, with an emphasis on DNA methylation, and their functional impact in the context of inflammatory conditions, both using in vitro models and samples from patients with immune-mediated conditions.

The study matches the context of our laboratory research, which focuses on the study of the role, targeting mechanisms and functional consequences of epigenetic modifications in identity and function of immune cells. Our group has developed several cellular models to investigate epigenetic mechanisms in myeloid differentiation [Alvarez-Errico et al (2015) Nat Rev Immunol];

de la Rica et al (2013) *Genome Biol*; Vento-Tormo et al (2016) *Genome Biol*; Garcia-Gomez et al (2017) *Nucleic Acis Res*; Li et al (2020) *Nucleic Acis Res*], not only in physiological conditions but also under inflammatory situations or other pathological contexts those in cancer, autoimmune and autoinflammatory diseases and others [Rodriguez-Ubreva et al (2019) *Ann Rheum Dis*; Li et al (2020) *Genome Med*], such as the ones leading to the development of innate immune memory like in sepsis [Lorente-Sorolla et al (2019) *Genome Med*].

In addition to the study of experimental models, the team investigates the occurrence of aberrant epigenomic (methylome) profiles in the context of autoimmune and autoinflammatory diseases, as well as in certain types of primary immunodeficiencies. In these contexts, the group has pioneered the finding of epigenetic defects in these diseases. Examples include publications describing the presence of DNA methylation alterations in SLE [Javierre et al (2010) *Genome Res*] and common variable immunodeficiency [Rodriguez-Cortez et al (2015) *Nature Commun*], using discordant pairs of monozygotic twins, and in Cryopyrin-Associated Periodic Syndromes (CAPS), an archetypical autoinflammatory disease [Vento-Tormo et al (2016) *J Allergy Clin Immunol*].

What we need?

The team is engaged in active collaborations with national and international teams and the student will participate in those projects which provide a wide exposure to other research teams and other institutions.

The position should be filled with a motivated molecular biologist, bioinformatician, geneticist or immunologist. Experience in molecular biology, cell biology and single-cell omic techniques will be valued. Alternatively, experience in immunological methods or in bioinformatics will also be valued.

- The applications are submitted directly by the candidate to the la Caixa Foundation (Inphinit Incoming call). We highly recommend that in advanced the candidate contact with his future supervisor (if he is selected by la Caixa).
- Take note that Josep Carreras's positions are included under the umbrella of the Germans Trias I Pujol Research Institute (IGTP). Check the Josep Carreras open position Inphinit Incoming call at <https://finder.lacaixafellowships.org/finder>.
- At the closing date for submitting applications (4th February 2021), candidates must be in the first four years (full-time equivalent research experience) of their research careers and not yet have been awarded a doctoral degree.
- At the time of recruitment, candidates must comply with one of the following options:
 1. To have completed the studies that lead to an official Spanish or Portuguese (or from another country of the European Higher Education Area) university degree awarding 300 ECTS credits, of which at least 60 ECTS credits must correspond to master level.
 2. To have completed a degree in a non-Spanish or non-Portuguese university not adapted to the European Higher Education Area that gives

access to doctoral studies. The verification of an equivalent level of studies to the ones mentioned above will be made by the university when the admission procedure starts.

- **Mobility Rule:** For doing their research at Spanish institutions, candidates must have resided in Spain for less than 12 months in the last 3 years immediately prior to the closing date for submitting applications.
- Short stays, such as holidays, done in a country other than their country of usual residence (where they carried out their main activity), will be considered as time spent in their country of usual residence.
- Demonstrable level of **English** (B2 or higher).

What we offer?

- La Caixa offer the opportunity to contribute to cutting-edge research projects in a competitive and dynamic international environment, in one of the leading Epigenetics labs in the world.
- Three years contract.
- Salary conditions: the maximum total payment amount will be €122,592, as broken down below:
 1. Three annual payments of €34,800 each. Where applicable, the amounts corresponding to the Social Security contributions payable by the employer, as well as any other compulsory fee, whether current or that may be provided for in a future legal framework, will be deducted from the yearly gross amount of €34,800 to be received by the fellow.
 2. €3,564 per year, as an additional amount for conferences, courses, research stays, consumables, equipment, charges for the use of intellectual property, etc.
 3. The "la Caixa" Foundation will award a prize of €7,500, which will be paid in the fourth year, should the fellow be able to deposit their thesis within 6 months after the third year of their fellowship has ended.
- Complementary training: the Inphinit programme offers specific training meant to help fellows strengthen the skills required for a successful PhD and to prepare and design their professional career. The programme consists of an annual on-site three-days training session, as well as continuous support for either personal or technical needs.
- High-quality academic and industrial secondments.
- Participation in outreach and social events.
- Working in the mixed basic and clinical research environment of the Josep Carreras Leukemia Research Institute.
- The stimulating environment of the Barcelona metropolitan area.

In addition, Josep Carreras Institute organizes scientific seminars and other training to which the fellow might be able to attend.

How to apply?

INPhINIT aims to recruit excellent Early-Stage Researchers with very solid theoretical backgrounds, with curiosity and ambition; with incipient skills to express themselves clearly and defend their ideas with creativity, independence and originality. Researchers may be focused on the academic side or be more industry-oriented. The evaluation criteria and scores is defined on the call guidelines: <https://fundacionlacaixa.org/en/la-caixa-foundation-doctoral-inphinit-fellowships-incoming>.

Candidates must send an updated two-page CV with the contact details of 2 referees, a motivation letter and a one-page research project outline to jobs@carrerasresearch.org indicating in the subject of the message: **PhD_LCEB_49**.

Who we are?

Our mission is to carry out research into the basic, epidemiological, preventive, clinical and translational aspects of leukemia and other hematologic malignancies.

The vision of the Josep Carreras Leukaemia Research Institute is that research will identify new therapeutic targets and enable us to develop more precise and less aggressive treatments. We aspire to understand the origin and development of leukemias and other malignant haematological pathologies in order to be able to prevent them. We will work for a future in which all leukemias will be curable.

For further information, please, visit our webpage: <http://www.carrerasresearch.org/en> and the Josep Carreras non-profit organization: <https://www.fcarreras.org/en>.

The Josep Carreras Institute is member of the Research Centers of Excellence of Catalonia (CERCA, Catalan Government), also accredited by the Spanish Ministry of Health as Health Research Centre of Excellence (ISCIII) and by the Spanish Association Against Cancer (Asociación Española contra el Cáncer, AEEC). The institute also holds the HR Excellence in Research recognition awarded by the European Commission.



HR EXCELLENCE IN RESEARCH

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 favours the development of its scientists.

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