

CONV. FU-158/2023

1. POSITION OFFERED

1.1. A job is being opened to cover **3 Positions for R1-Predoctoral Researcher (G1-Investigadors)** to support the research of **Fundació de Recerca Clínic Barcelona-Institut d'Investigacions Biomèdiques August Pi i Sunyer** inside the "*Lipid Droplets and Innate Immunity*" research line. To participate in the research project "*Lipid Droplets as innate immunity hubs (DRIMMS)*" and at the "*Lipid trafficking and disease*" research group. Funded by EUROPEAN COMMISSION. Grant agreement number: 101071784, with a predoctoral temporary contract, in the following requirements:

Required qualifications and skills:

- **Required Education Level:** Grade in Biology, Medicine, Biomedicine or similar.
- **Master/PhD:** Master's degree in any discipline related to Immunology, Cell Biology, Bioinformatics or similar.
- **Experience Required:**
 - ✓ Previous experience in the design and development of research projects will be positively valued.
 - ✓ Experience in the following areas/techniques will be positively valued:
 - ✓ Microbiology and innate immunity mechanisms.
 - ✓ Immunology, purification, handling and study of blood cells including macrophages.
 - ✓ Bioinformatic analysis and big data management of RNA seq and high throughput screening.
 - ✓ Experience in experimentation with animals including organelle purification.
 - ✓ Cell biology techniques including cell culture, electroporation, DNA transfection, RNA interference, RT-PCR, kinase assays, immunoprecipitation and western-blot.
 - ✓ Molecular biology, design and production of plasmids and DNA vectors, CRISPR screening.
 - ✓ Flow cytometry, cell viability and proliferation, detection of lipid content, oxidative stress and cell separation.
 - ✓ Microscopy, immunofluorescence techniques, immunocytochemistry and confocal microscopy.
 - ✓ Lipid analysis, affinity, chromatography, and HPLC.
- **Skills:**
 - ✓ Highly motivated, enthusiastic, and collaborative person.
 - ✓ Good capacity Planning.
 - ✓ Strong teamwork skills.
 - ✓ Good communication skills.
- **Required Languages:** English.

Job description / Tasks to be developed:

Three Predoctoral Research positions are available in the group of "Lipid Trafficking and Disease (IDIBAPS Barcelona)" to participate in the ERC granted project "Lipid droplets as innate immunity hubs (DRIMMS)". The research will be supervised by the ICREA Professor Albert Pol as part of the International consortium "Lipid Droplet-Innate Immunity Group" formed by our group and Robert G. Parton (University of Queensland, Australia) and Caroline Demangel (Institut Pasteur, Paris).

Candidates must have a degree in Biology, Medicine, or similar with a master's degree related to Immunology, Cell Biology or Bioinformatics. Experience in those fields will be especially considered. Previous experience in the design and development of research projects will be valued positively. The contracts will include a trial period of six months and the salary will be as stipulated by IDIBAPS commensurate according to institutional scales and provided experience.

Experience in the following areas/techniques will be positively valued: Microbiology and innate immunity mechanisms: Immunology, purification, handling and study of blood cells including macrophages; Bioinformatic analysis and big data management of RNA seq and high throughput screening; Experience

in experimentation with animals including organelle purification; Cell Biology techniques including cell culture, electrophoresis, DNA transfection, RNA interference, RT-PCR, kinase assays, immunoprecipitation and western-blot; Molecular Biology, design and production of plasmids and DNA vectors, CRISPR screening; Flow cytometry, cell viability and proliferation, detection of lipid content, oxidative stress, and cell separation; Microscopy, Immunofluorescence techniques, immunocytochemistry and confocal microscopy; Lipid analysis, affinity chromatography, and HPLC.

Scientific background:

To date, approximately 1400 species of human pathogens have been identified. These pathogens cause 16 million deaths each year and this situation is predicted to worsen in the future. It is therefore imperative that countermeasures to face this global threat are identified and implemented as soon as possible.

A distinctive premise of our research is that countermeasures could be learnt from the sophisticated defence mechanisms that eukaryotes have developed over millions of years to cope with the pervasive presence of microbes. As major lipid storage organelles of eukaryotes, lipid droplets (LDs) are an attractive source of nutrients for invaders. Pathogens induce and physically interact with LDs and the current view is that they 'hijack' LDs to draw on substrates for host colonisation.

We recently challenged this dogma by demonstrating that LDs are endowed with a regulated protein-mediated antibiotic activity. Our work introduced the new concept that dependence on host nutrients is a generic 'Achilles heel' of intracellular pathogens and LDs a chokepoint harnessed by innate immunity to organise a front-line defence.

The Lipid Droplet-Innate Immunity Group is an ERC-funded International and multidisciplinary consortium that combine complementary knowledge and transdisciplinary expertise to investigate the hypothesis that LDs are innate immunity hubs sensing infection and directly confronting invaders. Using state-of-the-art technology, we will characterise how LDs efficiently coordinate and precisely execute a plethora of immune responses.

Characterisation of these novel innate immune systems will be paradigm-shifting in immunology, physiology and cell biology. In the age of antimicrobial resistance and viral pandemics, unravelling how eukaryotic LDs fight and defeat dangerous microorganisms will inspire new anti-infective therapies.

Read more at:

1) Mammalian lipid droplets are innate immune hubs integrating cells metabolism and host defence. Bosch M, (...) and Pol A. *Science*. 2020 Oct 16;370 (6514): eaay8085. doi: 10.1126/science.aay8085. Editor's comment in:

<https://science.sciencemag.org.sire.ub.edu/content/370/6514/eaay8085.editor-summary>

Special Perspective in:

<https://science.sciencemag.org.sire.ub.edu/content/370/6514/294F1000> four times recommended
<https://facultyopinions.com/prime/738842825>

2) Lipid droplets and the host-pathogen dynamic: FATal attraction? Bosch, M, Sweet MJ, Parton RG, and Pol A. *The Journal of Cell Biology* 2021, 220 (8): e202104005. doi: 10.1083/jcb.202104005.

Presentation of applications:

All documents must include the reference code of the job offer (see upper left corner of the call).

- Candidates must enclose a motivation letter and their Curriculum Vitae (including list of publications).
- Proof of the merits exposed, and the degree obtained must also be included in the application.
- The application must include also signed authorization in reference to personal data protection law - European Regulation (UE) 2016/679- (Document attached, Page 4).

Place of submission: (clearly indicating the reference code of the job offer)

1. Delivering it personally to the Dept. of Human Resources, located on the Esther Koplowitz Centre, C/ Rosselló 149, from 10 am to 1 pm from Monday to Friday.
2. By e-mail to the e-mail address: fcrbrrh@recerca.clinic.cat

Application Deadline: 01/06/2023.

1.2. The recruitment will be carried out according to the provisions of Article 15 of the Royal Legislative Decree 1/1995, of 24 March, which approves the text of the law of the Statute of workers, in accordance with the provisions of art. 2 of the Royal Decree 2720/98, of 18 December (BOE of 8 January 1999), law 12/2001, of 9 July (B.O.E. of 10 July) and concordant provisions.

The principle of equal treatment between men and women will be considered, according to article 14 of the Spanish Constitution, the Community Directive of 9 February 1976 and what is foreseen in the agreement of the Council of Ministers of 4 March 2005, which approves the plan for gender equality in the General Administration of the State.

The universal accessibility for disabled persons will be considered according to the second paragraph of Article 1 of the law of December 2 51/2003 of equality of opportunities; 5% of the vacancies are preserved when candidates' pass the selection process and disabilities are proved. Also, compatibility with the tasks associated to the job must be proved so that progressively we reach 2% of all workforces.

1.3. Annual gross remuneration inherent to the job offer object of this call will be fixed on the basis of the experience provided and the skills of the candidates.

1.4. In accordance with Regulation (EU) 2016/679 of 27 April 2016 on the protection of natural persons with regard to the processing of personal data (hereinafter the "Regulation"), we hereby inform you that:

- The party responsible for processing your data is Fundació de Recerca Clínic Barcelona-Institut d'Investigacions Biomèdiques August Pi i Sunyer (hereinafter "FRCB-IDIBAPS"), with Corporate ID No. G-59319681, and registered address in Barcelona, Carrer Rosselló 149-153. You may contact the Data Protection Manager by sending an email to protecciodades.recerca@clinic.cat or by writing to the Legal Director at Carrer Rosselló 149-153, Barcelona.
- When presenting your candidacy or sending us your CV, your data must be communicated with the aim and purpose of allowing employees at the entity to carry out management and selection processes.
- The information will be used by administrative and employee services in our entity, for their corresponding services, and may be submitted in full or in part to any authorities that, for legal reasons, require this type of information.
- The data provided will be held for a period of 1 year, and in addition once the relationship has been completed the data will be held for the period necessary to comply with legal provisions.
- The data provided may be transferred to a third country or international organisation, where necessary to justify the contract and/or salary of the employee providing the data.
- You have the right to access your data, request rectification of inaccurate data or request the removal of your data. Equally, you have the right to restrict the processing of your data, and you may oppose or withdraw consent for your data to be used in certain circumstances. You may exercise these rights by writing to the Legal Director at Carrer Rosselló 149-153, Barcelona, or by sending an email to protecciodades.recerca@clinic.cat. We also inform you of your right to file a complaint with the Catalan Data Protection Authority (Autoritat Catalana de Protecció de Dades) for any action taken by FRCB-IDIBAPS that you believe infringes your rights.
- Since 2015, IDIBAPS holds the "[HR Excellence in Research](#)" Award from the European Commission. This is a recognition of the Institute's commitment to developing an HR Strategy for Researchers, designed to bring the practices and procedures in line with the principles of the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers ([Charter and Code](#)). Please check our [Recruitment Policy](#).



I Authorize at:

Fundació de Recerca Clínic Barcelona-Institut d'Investigacions Biomèdiques August Pi i Sunyer to treat my personal data for the personnel selection procedure, which will cede it only in these legally enforceable cases, in accordance with the provisions of European Regulation (UE) 2016/679, and corresponding regulations that develop it.

Name:

Signed:

Barcelona,