

Seeking applicants for Marie Skłodowska-Curie Actions Postdoctoral Fellowships (MSCA-PF) at Pere Virgili Institute for Health Research (IISPV) for the PO&B group – Computational biology

HOST INSTITUTION:

The Pere Virgili Institute for Health Research (IISPV) integrates the biomedical research of Camp de Tarragona and Terres de l'Ebre (Catalonia, Spain). The IISPV is the instrument provided by the university hospitals of the province of Tarragona (Joan XXIII University Hospital of Tarragona; Verge de la Cinta Hospital of Tortosa; Sant Joan University Hospital of Reus; Institute Pere Mata University Hospital of Reus) and the University Rovira i Virgili (URV), to bring together and manage biomedical research and innovation in the territory.

We are an institute committed to our society, and we promote health research in our territory with the aim of improving well-being and transferring knowledge to patients.

In 2022, IISPV renewed its commitment with Human Resources for Researchers obtaining HRS4R certification. IISPV and URV work together to promote and organize seminars and training activities applied to research, thus our staff can access to several courses. The institution is fully committed with gender dimension, open access, data management, and social impact, organizing annual workshops for these cross-cutting issues.

The institutional infrastructures/equipment are: Cell Culture Core Unit; Flow cytometry Platform; SeaHorse; Clinical trials Unit; Biobank; Histological Platform; Bioinformatics Platform; Animal Housing Facilities; Metabolomics Platform; Scientific and Technical Resource Centre (Confocal laser scanning and electron microscopy, MS MALDI TOF, etc.).

RESEARCH GROUP:

The PO&B team of the IISPV, based at the Hospital de Tortosa Verge de la Cinta, has been working for more than 15 years on the prevention and advanced diagnosis of cancer. Led by Marylène Lejeune, PhD and Carlos López, PhD, the PO&B team is an

1 / 3

interdisciplinary group that includes pathologists, oncologists, biologists, biotechnologists and computer specialists, with strategic clinical and methodological skills for the development of the group's research lines.

The consolidated lines of research of the PO&B team focus on the study of the tumor microenvironment through digital image analysis and mathematical modeling. The immune response is one of the components of the tumor microenvironment that has been shown to play an important role in the evolution of cancer patients. Changes in the type and number of immune cells in the tumor microenvironment have been related to differences in disease functionality. Our team has studied these changes through the development of new computer-assisted image analysis algorithms capable of providing more accurate and reproducible automated quantification of immune biomarkers with immunohistochemical and fluorescence staining. They have led or participated in more than 15 national or European projects related to image analysis and cancer.

OFFER DESCRIPTION & REQUIREMENTS:

The main objective is to study how breast cancer (BC) cells interact with the tumor and axillary lymph nodes (ALN) immune microenvironments and to explore the spread of tumoral cells to the ALN using mechanistic modeling approaches, such as agent-based models. We are looking for a candidate with strong programming skills, preferably in Python, and experience in computational biomechanics and cancer mechanobiology. Other scientific challenges of the research line include 1) identifying the immune markers and variables in the tumor and ALN associated with a higher risk of relapse or death), and 2) uncovering the mechanistic and signaling pathways beyond BC progression.

The selected candidate will be invited to work on the proposal with Carlos López, PhD and the International Projects Unit of IISPV starting in June 2024. Therefore, it is important to have availability during the summer months for the preparation of the proposal, which opens on 23 April 2024 and closes on 11 September 2024, 17.00, CEST.

In addition, the applicant must meet the eligibility and mobility requirements of the MSCA-PF. For eligibility:

- Have a Doctoral degree and a maximum of 8 years of full-time equivalent research experience.
- The candidate has not resided or carried out his/her main activity (e.g., work, studies) in the country of the Host Institution (Spain) for more than 12 months in

the 3 years immediately prior to the reference date (exceptions to this apply under the career restart and reintegration panels).

HOW TO APPLY?

The applicant must express their interest by sending an email to upi@iispv.cat with the subject "**MSCA-PF Manifestation of interest - CANDIDATE NAME**" before 10th June 2024. For any technical questions, please contact Carlos López, PhD at carlos.lopez@urv.cat. The email must include:

- 1) Curriculum Vitae.
- 2) A brief outline of the proposed research project with defined objectives (max 2 pages).
- 3) Motivation letter.