

INTERNATIONAL/NATIONAL CALL IC39_26

JOB TITLE

Predocctoral Position (FPI Fellowship) – Project PI2025-169175OB-100

Researcher career profile (R1)

JOB DESCRIPTION

The DIBIOMECA research group (<https://www.irbcatsud.cat/es/grup/dibiomeca>), led by Dr. Matilde Rodríguez Chacón, is offering a fully funded PhD position to undertake a doctoral thesis within the framework of the project **“Extracellular Vesicle-Based Molecular Signature for Therapeutic Stratification in Metastatic Prostate Cancer: Development, Validation, and Mechanisms of Action (FMVESCαPMet)”**, funded through the **“Knowledge Generation Projects 2025 – Modality: Oriented Research Type B”** PI2025-169175OB-100 call of the Spanish Ministry of Science, Innovation and Universities.

The DIBIOMECA group belongs to the **Institut de Recerca Biomèdica Catalunya Sud (IRBCatSud)** and **Hospital Universitari Joan XXIII de Tarragona**, and is integrated into the research network of the **Carlos III Health Institute (Instituto de Salud Carlos III)**. The group has an extensive track record in prostate cancer research, with high-impact publications and international patents in the field of non-invasive biomarkers and extracellular vesicles.

The project – Why is so important?

Despite therapeutic advances in metastatic hormone-sensitive prostate cancer (mHSPC), the high heterogeneity among patients still entails a significant risk of both overtreatment and undertreatment. Extracellular vesicles (EVs) present in serum constitute a minimally invasive source of information on the tumor microenvironment. Although bone is the main organ affected by metastases, lymph node involvement is an early event with major prognostic significance. Our hypothesis is that extracellular vesicle-mediated communication through the lymphatic system plays a key role in early dissemination and the development of treatment resistance.

Number of available positions: 1



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The selected candidate will perform the following tasks:

As a successful candidate, you will join a strategy combining two complementary sub-projects:

1. **Development and validation of a multi-omics signature:** You will isolate and characterize extracellular vesicles from the serum of patients with mHSPC using techniques such as **NTA (Nanoparticle Tracking Analysis)** and **transmission electron microscopy (TEM)**. You will perform **proteomic** (LC-MS/MS) and **transcriptomic** (RNA-Seq) analyses to identify differentially expressed molecules between treatment responders and non-responders. You will integrate these multi-omics datasets using bioinformatics tools (R, DESeq2, functional enrichment analysis) to develop a **predictive molecular panel** of treatment response.
2. **Functional validation of the mechanisms involved:** You will study how extracellular vesicles derived from non-responding patients remodel pre-metastatic niches in lymph nodes and bone marrow. To this end, you will work with advanced **in vitro models** (prostate cancer cell lines, osteoblasts) and participate in **biodistribution assays and murine models**.

You will work closely with a multidisciplinary team comprising urologists, pathologists, molecular biologists, and biostatisticians, and you will join the **PhD Program in Biomedicine at Universitat Rovira i Virgili (URV)**.

A Unique Training Opportunity: Research Stay at the CNB

The project includes the opportunity to undertake a **research stay in the laboratory of Dr. Héctor Peinado** at the **National Center for Biotechnology (CNB)**. Dr. Peinado is an internationally recognized expert in the study of extracellular vesicles and their role in pre-metastatic niche formation. This research stay will provide you with cutting-edge training in murine models and advanced imaging techniques, significantly enhancing your doctoral thesis and your scientific career prospects.

CANDIDATE PROFILE & REQUIREMENTS

- **Degree:** Bachelor's degree in Biological Sciences, Biochemistry, Biotechnology, or related fields, and an **official Master's degree** in biomedicine, molecular biology, oncology, or related disciplines (or be in a position to obtain it before joining).
- **Academic record:** Candidates with an **academic grade > 7.5** (on a 10 scale) or equivalent will be considered.
- **Experience and/or knowledge considered an asset, but not essential:**
 - Knowledge of molecular and cell biology (PCR, Western blot, cell culture).
 - Experience in extracellular vesicle isolation and characterization techniques will be positively valued.
 - Experience with bioinformatics tools (R, Python) and omics data analysis (RNA-Seq, proteomics) will be an advantage.

- Knowledge of statistics and biostatistics.
- **Languages: Advanced level of English** (scientific reading and writing).
- **Other qualities:** Motivation for translational research, analytical mindset, ability to work in a team, commitment, and critical thinking.

IT WILL BE VALUED

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- Motivation, creativity, initiative, and a proactive attitude.
- Ability to learn, flexibility, and adaptability.
- Commitment to quality, optimizing resources, and achieving results.
- Previous experience in **similar research projects (basic or translational)**.
- Ability to identify and solve problems.
- Teamworking, ability to work independently, organizational skills, kindness, dynamism, versatility, rigour, responsibility, and confidentiality.
- Ability to carry out research under supervision.
- Ambition to develop knowledge of research methodologies and discipline.

LABOUR CONDITIONS

- Full-time position
- Workplace: IRBCatSud - Hospital Universitari Joan XXIII de Tarragona
- Contract: temporary, 48 months (Predoctoral contract for the training of research personnel linked to FMVESCαPMet project)
- Gross annual salary: according to the final resolution of Knowledge Generation project with reference code: Project PI2025-169175OB-100 and the salary scales for the FPI statute.
- Starting date: First Quarter of 2027 (February if possible)

SELECTION PROCEDURE

Selection of CV's. Suitable and unsuitable CV's will be identified according to the requirements. Applicants who do not meet the requirements indicated in the candidate profile and requirements will not pass to the next phase. Candidates need to attach to the resume the CV, an academic record and a cover letter with a maximum length of 2500 characters with spaces.

All candidates who meet the minimum requirements mentioned above, will proceed to the interview phase.

The selection procedure shall be based on the following criteria:

Criterion 1. Academic and/or scientific-technical background of the candidate (up to 50 points).

- Scientific and technical contributions (up to 45 points): the academic record and other curricular merits of the candidate will be assessed, as well as their suitability for the tasks to be carried out based on training and professional experience.

Criterion 2. Suitability of the candidate for the research activities to be carried out (up to 50 points).

The suitability of the candidate for the program, project or research activities to be carried out will be assessed based on their previous BsC and Master and experience. In doing so, consideration will be given to the added value that the implementation of the project will represent for their research career, as well as the value contributed to the host center and team.

SELECTION COMMITTEE

- President: Matilde Rodríguez Chacón (PhD, PI of DIBIOMEC Group)
- Chair 1: Xavier Ruiz Plazas (MD, PhD, Co-PI DIBIOMEC Group)
- Chair 2: Alazne Moreno Lanceta (Postdoctoral Fellow at the DIBIOMEC Group)

SUBSTITUTES:

- President: Josep Segarra Tomás (MD, Head of Urology Department)
- Chair 1: Anna Rull (PhD, PI of INIM Group)
- Chair 2: Maria Peraire Llores (M, Urology specialist, DIBIOMEC Group)

CANDIDATURES

- The CV must include the DNI/NIE number or another personal identity document number and the academic records
- Send the CV and the Cover Letter through the form that you will find on the bottom of the offer page <https://www.irbcatsud.cat/treballa-amb-nosaltres/>

For any questions or queries: recruitment@irbcatsud.cat

DEADLINE FOR RECEIPT OF CV : 30/09/2026

COMMUNICATIONS

The IRBCatSud will notify the candidates of the results of the different phases of the selection process through its website.

Key References from DIBIOMEC related to the project:

- Ruiz-Plazas X et al. *Cancers (Basel)*. 2021 Jan 11;13(2):250. doi: 10.3390/cancers13020250.
- Altuna Coy A et al. *Cancers (Basel)*. 2021 Sep 18;13(18):4688. doi: 10.3390/cancers13184688.
- Altuna Coy A et al. *BMC Med*. 2022 Aug 18;20(1):255. doi: 10.1186/s12916-022-02457-3.
- Altuna-Coy A, et al. *Cancer Cell Int*. 2023 Nov 17;23(1):275. doi: 10.1186/s12935-023-03123-1 Ruiz-Plazas X, et al. *Cancers (Basel)*. 2021;13(2):250.
- Sanchez martin S et al. *J Transl Med*. 2024 Jul 15;22(1):661. doi: 10.1186/s12967-024-05458-3.
- Alves-Santiago E, et al. *J Urol*. 2026 Jan;215(1):30-43. doi: 10.1097/JU.0000000000004749. Epub 2025 Aug 27. Sánchez-Martín S, et al. *J Transl Med*. 2024;22:185.
- Arreaza-Gil V, et al. *Mol Med*. 2026 Jan 21;32(1):23. doi: 10.1186/s10020-026-01422-7.

We are looking for someone passionate about translational research and eager to contribute to precision oncology!

HRS4R Research in HR Excellence

The IRBCatSud has the European accreditation The Human Resources Strategy for Researchers (HRS4R), complies with the general principles of the European Charter for Researchers and the Code of Conduct for the recruitment of researchers.

The IRBCatSud has an internal recruitment policy that follows the Open, Transparent and Merit-based Recruitment (OTM-R) policies. More information about the HRS4R policies implemented at the IISPV is available on the following website: <https://www.iispv.cat/hrs4r-hr-excellenceresearch/>

The IRBCatSud will guarantee the right to equal opportunities and treatment, as well as the real and effective exercise of rights by people with disabilities under equal conditions with respect to other citizens, through the promotion of personal autonomy, universal accessibility, access to employment, inclusion in the community and independent living and the eradication of any form of discrimination, in accordance with articles 9.2, 10, 14 and 49 of the Spanish Constitution and the International Convention on the Rights of Persons with Disabilities and international treaties and agreements ratified by Spain.

In the event of a tie, priority will be given to hiring the person with a disability.

In the event of a tie between people of different genders, the person of the least represented gender in the work group/department/service in which he joins will be hired.

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CHANGE CONTROL		
Date	Review	Modifications
03-07-24	00	Document creation