

JOB OPENING AT IRB BARCELONA

Bioinformatician for the Inflammation, Tissue Plasticity & Cancer laboratory (ref. LAB/23/01)

Created in 2005 by the Generalitat de Catalunya (Government of Catalonia) and the University of Barcelona, IRB Barcelona is a Severo Ochoa Centre of Excellence—a seal that was awarded in 2011.

The institute is devoted to conducting research of excellence in biomedicine and to transferring results to clinical practice, thus improving people's quality of life, while simultaneously promoting the training of outstanding researchers, technology transfer, and public communication of science. Its 27 laboratories and seven core facilities address basic questions in biology and are orientated to diseases such as cancer, metastasis, Alzheimer's, diabetes, and rare conditions.

IRB Barcelona is an international centre that hosts 400 members and 30 nationalities. It is located in the Barcelona Science Park. IRB Barcelona forms part of the Barcelona Institute of Science and Technology (BIST) and the "Xarxa de Centres de Recerca de Catalunya" (CERCA).

IRB Barcelona is seeking a motivated and enthusiastic scientist to join the Inflammation, Tissue Plasticity & Cancer laboratory (led by Dr. Direna Alonso-Curbelo) as a Bioinformatician.

Our lab aims to understand how oncogenic mutations and environmental insults alter normal cellular identity and tissue homeostasis to drive and sustain tumorigenesis, to define tumor-cell and microenvironmental mechanisms of cancer pathogenesis and identify specific vulnerabilities that may be therapeutically exploited. To do so, our strategy involves a dynamic dialogue between computational efforts enabling inference of relevant biological information from NGS omics datasets (including single-cell data) and functional perturbation approaches (using CRISPR/Cas9, RNAi, mouse models and organoid/cell culture systems) to establish causality between disease-associated traits and cancer phenotypes. Through this reciprocal interplay between profiling and function, we aim to transform the breadth of existing and new datasets into new knowledge on cancer mechanisms, early biomarkers and therapeutic opportunities.

The successful candidate will lead the computational efforts of our lab, working transversally in different projects of the group investigating cell-intrinsic and microenvironmental mechanisms of tumor development and metastasis. The candidate will be responsible for the development and maintenance of computational analysis pipelines and resources; and will process and integrate multi-omics datasets (genotype, epigenome, transcriptome, proteome, clinical) from human samples and experimental systems to infer disease-relevant traits and regulatory mechanisms.

The candidate will work closely with other lab members (currently a lab manager, PhD students and a postdoc) as well as independently. The candidate will benefit from the dynamic environment of a junior group and established collaborations with computational scientists from the IRB Barcelona's Biostatistics & Bioinformatics Core and other multidisciplinary groups. He/she will also have access to state-of-the-art technologies and computational infrastructures, and be provided with on-the-job training in hard and soft skills in a collaborative environment. There will also be opportunities to have their own independent project and train undergraduate students and incoming lab members in bioinformatics and programming skills. Both junior and senior candidates will be considered.

Starting date: as soon as possible.



IRB BARCELONA endorses the Requirements and Principles of the *European Charter for Researchers*, the *Code of Conduct for the Recruitment of Researchers*, and Open, Transparent, Merit-based recruitment promoted by the European Commission and follows Equal Opportunities policies.

On 9 December 2014, IRB Barcelona was awarded the "HR Excellence in Research" logo. This recognition reflects the commitment of the Institute to the continuous improvement of its human resources policies in line with the *Charter & Code*. The Institute works to ensure fair and transparent recruitment and appraisal procedures.

DUTIES

- **Research activities may include:**
 - Develop and/or implement data analysis workflows and visualization tools for bulk and single-cell multi-omics data (including epigenomics, transcriptomics, and eventually mass spec and multidimensional spatial data).
 - Search, manage, organize, and store datasets; and develop workflows for effective computationally reproducible research.
 - Integrate molecular and clinical/phenotypic data to identify predictive and prognostic features.
 - Develop interactive web applications (R/Shiny) or online resources to build interfaces enabling non-computational colleagues to perform common lab data analyses.
 - Discuss results, elaborate reports, and participate and present in group meetings and scientific discussions.
 - Train, oversee, and provide advice to group members on best practices regarding bioinformatics and statistical approaches.

- **Learning opportunities & Team dynamics:**
 - While prior expertise in the above activities will be positively valued, candidates will have ample opportunities for “on the job” **learning/training** in the computational and conceptual fronts driving our research forward. Thus, we are looking for a skilled, proactive and enthusiastic scientist that will not only contribute to the lab goals with their prior expertise but who is also committed to learning new knowledge and skills.
 - The bioinformatician/computational biologist will also be able to develop and/or implement computational analysis workflows with the help of scientists at the Biostatistics & Bioinformatics Core and already established pipelines.

EXPERIENCE, KNOWLEDGE, SKILLS & SELECTION CRITERIA

Must Have - Required

- **Experience:**
 - Bachelor’s or Master’s degree in Bioinformatics or other related degrees in biology or health sciences.
 - Understanding of omics data and biological processes.

- **Knowledge:**
 - Working experience in programming languages such as Python or R.
 - Knowledge and demonstrated experience in management, analysis, integration and visualization of molecular/omics data obtained from NGS technologies, including single-cell transcriptomics or epigenomics (eg RNA-seq, ATAC-seq, scRNA/ATAC-seq).
 - Knowledge of statistical principles and biostatistics analysis tools.
 - Be familiar with publicly available resources, datasets, and tools for functional and/or gene regulatory analyses relevant for cancer genetics (TCGA, ENCODE, FANTOM, GO, Genome viewers, Human Cell Atlas Data Portal, etc.).

- **Skills:**
 - Proactive person, motivated to learn new technologies and analysis workflows.
 - Ability to work independently well as a team member.



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- Ability to perform multiple tasks independently.
 - Time- and deadline-management skills. Highly organized.
 - Effective communication and interpersonal skills.
- **Languages:** Proficient in English (oral and written).

Desirable

- **Experience:**
 - Prior experience in competitive research environments.
 - Understanding of cancer biology and/or immunology.
- **Knowledge:**
 - Computational analysis of spatial/imaging data.
 - Computational analysis of high-content pooled genetic screens (CRISPR/shRNA).
 - Practical experience with trajectory interference analysis from single-cell data.

WORKING CONDITIONS & ENTITLEMENTS

- **Working conditions:** Employed in compliance with Spanish legislation and regulations under a full-time contract. Employees receive the benefits of the Spanish Social Security system covering sickness, maternity/paternity leave, and injuries at work. Desk space (with a computer) and a working bench are provided to each member of the team.
- The unique opportunity to **lead computational biology efforts** within a **multidisciplinary group** with several national and international projects and collaborations with biomedical and computational scientists.
- Personal **continuous training opportunities** in an excellent and dynamic scientific environment.
- **International Environment:** The opportunity to join a prestigious, diverse and inclusive international research institution and to become a member of an established research group.
- **Estimated annual gross salary:** Salary commensurate with experience and qualifications.
- **Benefits:** Continuous training in a high-quality environment with unique professional career opportunities.

HOW TO APPLY & SELECTION PROCESS

Applications for the above opening should include **Motivation Letter** and **Full CV** (including at least **2 references**) and should apply on <https://recruitment.irbbarcelona.org/>, Reference: **LAB/23/01**

- **Deadline for applications:** 5/02/2023 (early application is encouraged)
If no suitable candidate is found, the deadline will be extended.
- **Number of positions available:** 1



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- **Selection process:**
 - **Pre-selection:** Will be based on CV, motivation letter, experience/soft-skills, management of research and innovation.
 - **Interviews:** Short-listed candidates will be interviewed.
 - **Job Offer:** Will be sent to the successful candidate after the interview.

For more information please visit our website at: www.irbbarcelona.org

Note: The strengths and weaknesses of the applications will be provided upon request.



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