

## JOB OPENING AT IRB BARCELONA

### POSTDOCTORAL FELLOW in MOLECULAR/CELL BIOLOGY (ref. PD/20/06)

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 25 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 talented and highly motivated **Postdoctoral Researcher** to join the **Structural Bioinformatics and Network Biology group** (<https://sbnb.irbbarcelona.org>), led by **Dr. Patrick Aloy**, to work on **Personalized Medicine**.

Large-scale small molecule bioactivity data are not routinely integrated in daily biological research to the extent of other 'omics' information. Compound data are scattered and diverse, making them inaccessible to most researchers and not suited to standard statistical analyses. We recently developed the Chemical Checker (CC), a resource that provides processed, harmonized and integrated bioactivity data on small molecules (Duran-Frigola *et al.* 2020 Nat Biotechnol *in press*, available at bioRxiv). The CC divides data into five levels of increasing complexity, ranging from the chemical properties of compounds to their clinical outcomes. In between, it considers targets, off-targets, perturbed biological networks and several cell-based assays such as gene expression, growth inhibition and morphological profiles. In the CC, bioactivity data are expressed in a vector format, which naturally extends the notion of chemical similarity between compounds to similarities between bioactivity signatures of different kinds. We showed how CC signatures can boost the performance of drug discovery tasks that typically capitalize on chemical descriptors, and we demonstrated and experimentally validated that CC signatures can be used to reverse and mimic biological signatures of disease models and genetic perturbations, options that are otherwise impossible using chemical information alone. We are now developing a generalized connectivity mapping, as a form of virtual phenotypic screening, to discover novel chemical or genetic modulators able to *revert* the specific signatures of disease and 'cancel out' the phenotypic traits of complex disorders.

#### DUTIES

The successful candidate will work in a very collaborative environment, and he/she will be responsible for the experimental validation of the mechanistic hypotheses, generated in the lab, on the molecular routes that need to be active/inactive in a given complex pathological state for its onset and progression. In addition, he/she will also help to design and validate a systems pharmacology approach, based on concerted multi-target perturbations, able to modify the biology of the diseases and stop their advance.



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 9th 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.

## EXPERIENCE, KNOWLEDGE, SKILLS & SELECTION CRITERIA

### Must Have - Required

- **Education:** Bachelor in Biosciences. PhD in Pharmacology, Molecular or Cell biology.
- **Experience:** previous experience in working with complex diseases, including molecular and cellular models. Strong publications record according to his/her career stage.
- **Skills:**
  - o Experience with standard biochemistry, molecular and cell biology techniques.
  - o Experience in CRISPR-Cas9, RNAi, target validation and drug screening.
  - o Knowledge of `omics technologies and high-throughout approaches.
  - o Positive organizational, problem solving and communication skills.

### Desirable

- **Experience:** Previous experience working on Alzheimer´s disease.

## 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 leaves and injuries at work.
- **Training and Career:** Postdoctoral researchers joining IRB Barcelona gain access to the Institute's advanced research training and career development opportunities, all within in a competitive international environment. Courses and workshops on themes of particular interest to postdocs are offered regularly by the Institute.
- **International environment:** Nearly 90 Postdoctoral researchers (more than a half non-Spanish nationals) are currently working at IRB Barcelona.

## HOW TO APPLY & SELECTION PROCESS

Applications for the above opening should include a CV and a letter of interest and should be sent by e-mail to: [irbjobs@irbbarcelona.org](mailto:irbjobs@irbbarcelona.org) with the Reference: **PD/20/06**

- **Deadline for applications:** 31/03/2020  
If no suitable candidate is found, the deadline will be extended.
- **Number of positions available:** 1
- **Selection process**
  - **Pre-selection:** Will be based on CV, motivation letter and experience.
  - **Interviews:** Short-listed candidates will be interviewed.
  - **Job offer:** Will be sent to the successful candidate after the interview.



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For more information please visit our website at: [www.irbbarcelona.org](http://www.irbbarcelona.org)

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

*If you, as an applicant, have any suggestion or wish to make a complaint regarding the selection process, please contact us at the following email address: [irbrecruitment.suggestions@irbbarcelona.org](mailto:irbrecruitment.suggestions@irbbarcelona.org) You will receive a response within a month.*



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