



Postdoctoral researcher in highly selective drug systems against cancer stem cells

The role

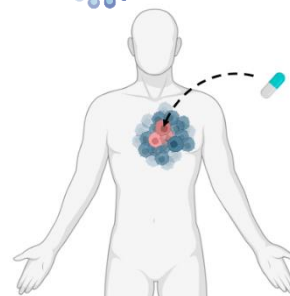
We are seeking a postdoctoral researcher to work on our project SeleCStem funded by an ERC Starting Grant. You will join an ambitious and impactful project at the intersection of chemistry and biology to fight against cancer stem cells!

Cancer stem cells are a small population of cells within a tumour which typically remain in a quiescent state that is unaffected by standard chemotherapy. However, after treatment, these cells can differentiate into proliferative cancer cells and regenerate a tumour; hence, they are very often **responsible for patient relapse**. Despite their important role, there is still a lack of selective drugs for these cells. A notable challenge is that these cells have close similarities to our healthy stem cells, which makes it difficult to develop drugs that do not cause side effects in other tissues.

Our group has recently secured funding from the European Research Council for the project SeleCStem, through which we will **utilise the activity of the enzyme ALDH** to design unprecedented **drugs that act selectively inside cancer stem cells**. The project includes, but is not limited to, developing **light-responsive molecules**. This project will be carried out by a team of junior and senior researchers working on complementary approaches. As a postdoctoral researcher, you will be a **pivotal figure within our team**, contributing to advance several of our proposed approaches throughout this 5-year project. Some of your responsibilities will include:

- **Designing** molecules using computational approaches.
- **Synthesising** the designed molecules.
- Determining the **photochemical properties** of the molecules.
- Evaluating biological activity in previously optimised **assays with purified enzymes**.
- Studying the **activity in cancer cell lines** of the molecules.

SeleCStem



This project offers a unique opportunity to participate in a highly interdisciplinary project encompassing computational modelling, organic synthesis, photopharmacology, enzyme assays, and cell culture. You will also present your work at our regular group meetings and at national and international conferences.

As a postdoctoral researcher in a young group, you will be given **opportunities for growth**. While we expect you to have a strong background in synthetic chemistry and ideally some experience in biological assays, we will also teach you new techniques and skills. You will also have

opportunities to supervise Master and PhD students, aid in the preparation of grants, and lead projects. We are also looking forward for you to complement our expertise by bringing new ideas!

What do we look for?

- **Qualifications**
 - PhD in Chemistry, Pharmacy, or a related field.
- **Competences**
 - Strong background in **synthetic chemistry**.
 - Experience in **biological assays and cell culture** will be considered a plus.
 - Experience in **docking** will be considered a plus.
 - High level of written and oral English.
 - Desirable skills: project leadership, some level of independence, some experience with student supervision, good communication, critical thinking, organisation, time management, perseverance, teamwork, commitment.

Working conditions

- **Contract duration: 5 years**
- Estimated annual gross salary: 41,098.95 €
- Target start date: beginning of 2025

The group

You will join the Drug Discovery & Medicinal Chemistry group led by Dr Laia Josa-Culleré. We are a young, dynamic, and passionate research group dedicated to developing innovative chemical strategies against cancer. Our group is interdisciplinary, bringing together expertise in chemistry and biology. As a young PI, I will provide hands-on training on the disciplines involved in the project, regular feedback, and project tracking. We also hold weekly group meetings to openly discuss the projects of the different team members. Our group cultivates a diligent, ambitious, supportive, and respectful environment committed to producing impactful scientific outcomes and fostering the professional and personal growth of our team members.

The institute

The **Institute for Advanced Chemistry of Catalonia (IQAC)** is one of the research centres of the Spanish National Research Council (CSIC). The Institute is located in Barcelona, and it was created in 2007 with the mission to perform research of excellence in chemical sciences with the broad goal of improving the quality of life. The general strategy to achieve this mission involves the application of chemical approaches to address and solve societal challenges, mainly those related to human health, the sustainability of chemical processes and products, and the needs for novel materials for different applications. Since its establishment, IQAC has been in a permanent attitude to transfer its knowledge and technology results to the industrial sector.

The research developed at IQAC is organised around two main nodes: **Biological Chemistry** and **Nanobiotechnology**, and many of the research groups work at the intersection between different disciplines. Our Institute holds a set of scientific and technical facilities run by highly qualified scientists and technical personnel with a solid background and long-lasting expertise.

How to apply?

Applications will be addressed to **Laia Josa-Culleré** at laia.josacullere@iqac.csic.es, adding "PostDoc StG Applicant" to the email subject and including:

- CV
- Motivation letter
- Contact details of at least two references

Deadline: 10/12/2024