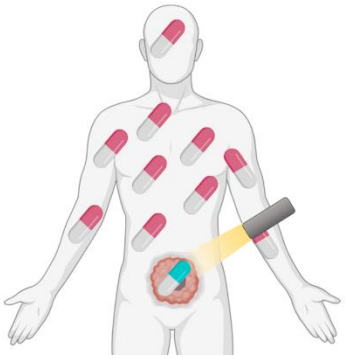
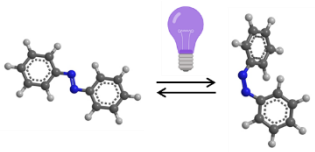
Predoctoral researcher in light-responsive anticancer drugs

The role

We are seeking a highly motivated student to join an ambitious and impactful project at the intersection of chemistry and biology!



A big limitation of current treatments for cancer is their lack of selectivity for tumour cells, which derives in side effects for patients. Photopharmacology is an emerging field that uses light to activate drugs at a specific space and time. Our hypothesis is that light-responsive molecules could provide a localised therapeutic effect only in the tumour area, thereby solving the limitations of current anticancer drugs.



In this context, the aim of your PhD project will be **to develop inhibitors of FGFR3 that can be activated with external light**, offering a highly **selective treatment for bladder cancer**. Your responsibilities will include:

- Designing these molecules using computational tools.
- Developing synthetic routes towards the designed molecules and synthesising them using organic chemistry techniques.
- Evaluating their photochemical properties to determine the necessary light conditions for activation.
- Studying the ability of your molecules to inhibit FGFR3 and to eliminate cancer cells under different light conditions.

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

What do we look for?

- **Qualifications**
  - Degree in Chemistry, Pharmacy, or a related field
  - Master's degree or equivalent (300 ECTS completed to be eligible to start a PhD)

Institute for Advanced Chemistry of Catalonia (IQAC-CSIC)
c/ Jordi Girona, 18-26. 08034, Barcelona (Spain)
www.iqac.csic.es

- **Professional experience**
  - Experience in a synthetic chemistry laboratory is desirable

- **Competences**
  - High level of written and oral English
  - Strong knowledge of organic chemistry
  - Basic knowledge of biology and a keen interest to learn more
  - Desirable skills: communication, critical thinking, organisation, time management, perseverance, teamwork, commitment

Working conditions

- **Contract duration: 3 years**
- Estimated annual gross salary: 20,461.20 €
- Target start date: beginning of 2025

The group

You will be co-supervised between the Drug Discovery & Medicinal Chemistry group led by Dr Laia Josa-Culleré and the Medicinal Chemistry & Synthesis group led by Dr Amadeu Llebaria.

The Drug Discovery & Medicinal Chemistry group is 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, Dr Josa-Culleré 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 Medicinal Chemistry & Synthesis (MCS) group is focused on chemical and pharmacology research to generate knowledge and therapeutic technologies combining the improvement and optimisation of existing drug molecules and the definition of new therapeutic approaches. Besides its basic research activities, the group is actively involved in R+D+i industrial projects concerted with companies working mainly in the chemical, pharmaceutical and biosciences fields. MCS provides research support and chemical expertise and advice to academic groups or companies in custom synthesis, process development, medicinal chemistry and analytical methods development.

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 and **Amadeu Llebaria** at amadeu.llebaria@iqac.csic.es, adding “JAE-PRE23 Applicant” to the email subject and including:

- CV
- Motivation letter
- Academic transcript
- Contact details of at least one reference

Deadline: 8/11/2024