PhD Student Position: Developing New Strategies for Crystallization Screening of Monoclonal Antibodies (mAbs)

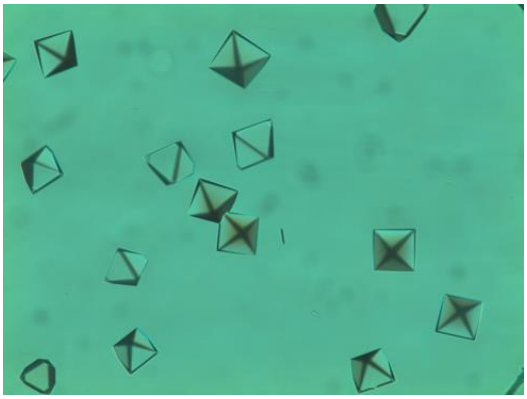
Institution: Instituto Andaluz de Ciencias de la Tierra (IACT, CSIC)

Department: Laboratorio de Estudios Cristalográficos

Location: Granada, Spain

Website: https://www.iact.csic.es/

Summary



The demand for biopharmaceuticals, including monoclonal antibodies (mAbs), has surged due to an aging population and the rise in chronic diseases. Crystallization offers a sustainable, scalable, and cost-efficient alternative for separation, purification, and formulation compared to traditional chromatographic methods.

This PhD project (DC11) aims to exploit the counter diffusion technique (CDT) to develop novel crystallization screening kits for antibodies. The project will integrate machine learning (ML) approaches to analyze published data and test conditions using commercial antibody samples. Advanced techniques such as dynamic light scattering (DLS) integrated with microfluidic systems will be employed to assess protein-protein interactions, while the behavior of mAbs in crystallization media will be characterized to predict their crystallization behavior.

The position is part of the Marie Skłodowska-Curie European Training Network (ETN) **PROCRYSTAL** (https://procrystal.csic.es/), which focuses on biomolecular crystallization, biochemistry, chemical and process engineering, and advanced modeling. As part of this network, the selected candidate will benefit from interdisciplinary training, including secondments with academic and industrial partners, and enroll in the Doctoral School of the University of Granada (https://www.ugr.es/en/study/doctoral-programmes).

Academic Qualifications and Skills Required

- M.Sc. or equivalent in Biotechnology, Biochemistry, Chemistry, Chemical Engineering, or a related field.
- Must not already hold a doctoral degree at the time of recruitment.
- Programming and machine learning skills will also be assessed.
- Strong motivation to tackle challenging research questions and work independently and collaboratively.
- Enthusiasm for interdisciplinary and innovative research.
- Proficiency in written and spoken English is mandatory.

Application Process

Interested candidates should submit the following documents:

- A detailed CV.
- A cover letter outlining research interests and relevant experience.
- Academic transcripts.
- Contact information for references (optional but encouraged).

Applications should be sent via email to:

- **Dr. Jose Antonio Gavira:** j.gavira@csic.es
- **Dr. Fermín Otálora:** f.otalora@csic.es

Application deadline: Applications will be reviewed on a rolling basis until the position is filled.
Start date: Earliest: December 1, 2024; Latest: March 31, 2025.

Mobility Rule

To be eligible under the MSCA guidelines:

1. You must not have resided or carried out your main activity (work, studies, etc.) in Spain for more than 12 months in the 36 months immediately prior to recruitment.
2. You must not hold a PhD degree at the start of the assignment.

Benefits and Salary

- Attractive salary in accordance with MSCA regulations, including:
    - Living allowance.
    - Mobility allowance.
    - Family allowance (if applicable).
- Funding for 36 months.
- Access to state-of-the-art facilities and international collaborative opportunities within the PROCRYSTAL network.

For more information about the PROCRYSTAL network and this position, visit: https://procrystal.csic.es/.