

PhD Student Position: Developing New Strategies to Control Crystal Size Distribution in Scalable Convection-Free Systems

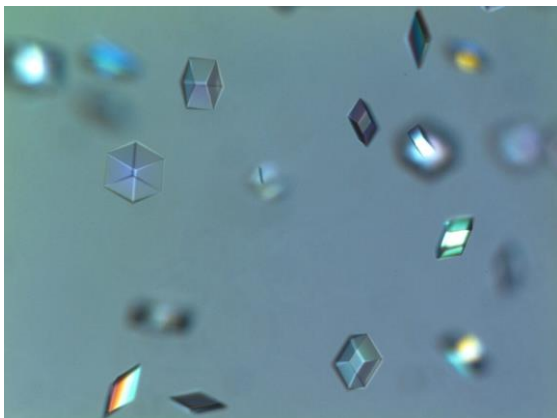
Institution: Instituto Andaluz de Ciencias de la Tierra (IACT, CSIC)

Department: Laboratorio de Estudios Cristalográficos

Location: Granada, Spain

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

Summary



The rising demand for biopharmaceuticals, including monoclonal antibodies and nucleic acids, highlights the need for efficient and scalable separation and purification methods. Crystallization, as a sustainable and cost-effective technique, offers a promising alternative to traditional chromatographic processes for the production of biopharmaceuticals.

This PhD project (DC07) focuses on controlling crystal size distribution (CSD) of biomolecules

in convection-free systems. The study will leverage crystalline "seeds" to:

1. Overcome the nucleation barrier.
2. Maximize the transformation of soluble proteins to their solid-state form by optimizing crystallization conditions and seed production.

Using phycobiliproteins as a model, the developed methodologies will be tested and later applied to the crystallization of target antibodies, aiming to scale up production.

This position is part of the Marie Skłodowska-Curie European Training Network (ETN) **PROCRYSTAL** (<https://procrystal.csic.es/>), a programme dedicated to biomolecular crystallization, biochemistry, chemical and process engineering, and advanced modelling. The successful candidate will benefit from interdisciplinary training, including secondments with academic and industrial partners, and enrol 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 related fields.
- Must not hold a doctoral degree at the time of recruitment.
- Strong motivation to tackle challenging research problems and ability to 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. Sergio Martínez-Rodríguez:** sergio@ugr.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

- Competitive 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/>.