Call for Expressions of Interest to apply for a MSCA-IF grant

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 organized around two main nodes: **Biological Chemistry** and **Nanobiotechnology** and it is facilitated by a number of Key Enabling Technologies. Considering the objectives pursued, many of the investigations carried out by the Research Groups at IQAC lie at the intersection between nodes.

In addition, 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. These facilities are available not only to IQAC research groups, but also to potential users from both academia and private institutions. In any case, the technical services from IQAC are always wide open to attend any inquiry and to offer their best efforts to find adequate responses to specific needs.

The group

The Nb4D group (https://nb4d.csic.es/) aims at conducting **pioneering research to improve the quality of life of society** through the development of **new diagnostic and therapeutic approaches** that will redefine the healthcare landscape, with the clear intention to be **a reference in the clinical field** and to translate our expertise into **tangible market-ready solutions**.

The backbone of our research is based on the design, production and characterization of antibodies of interest in different areas such as environment analysis, food safety and clinical

field. We have four fully equipped laboratories for organic synthesis, immunoassays development, molecular biology, hybridoma handling, as well as a BSL2 laboratory. We are a group of around 20 enthusiastic scientist that involves staff scientist, PhD students, post-docs and technicians.

The role

The potential candidate would work on the project "**PRODUCTION AND CHARACTERIZATION OF NANOBODIES FOR THE TREATMENT OF INFECTIOUS DISEASES".**

Antibody based therapy has emerged in the last decade for the treatment of different diseases such as cancer, autoimmune and infectious diseases. In addition to monoclonal antibodies, several clinical trials point at the added value of using **nanobodies (Nbs).** Proof of it is the first nanobody approved by FDA on year 2019. Nbs are defined as recombinant entities representing the variable region of the characteristic single heavy chain antibodies from camelids. The most characteristic feature of Nbs is the small size (15 KDa), much lower than the conventional antibodies (150 KDa). Nbs are composed by just one polypeptide chain which confers them additional stability towards environmental factors such as organic solvents or high temperatures. The affinity and selectivity are preserved under these conditions. For therapeutic purposes, their low size allows them to escape from the host immune system, have high tissue and cellular penetration and rapid clearance.

Our group has special interest in developing nanobodies for the **diagnostic** and **treatment of *P. aeruginosa* respiratory infections,** but also addressing other objectives in the field of **cardiovascular and neurodegenerative diseases**. Our investigations are addressed to produce nanobodies against non-immunogenic proteins such as low molecular weight molecules.

What do we look for?

- **Qualifications**
  PhD in Chemistry, Biochemistry, Biotechnology, Biomedicine or Biology
- **Professional experience**
  No more than 8 years research expertise after PhD obtention (career breaks do not count)
- **Competences**
  Production of recombinant proteins
  Production of fusion proteins
  Cell culture techniques
  Good English command, oral and written

Working conditions

- **Contract duration**: **The MSCA-IF grant covers a minimum of 12 months and a maximum of 24.**
- Estimated annual gross salary: Stipulated by the MSCA-IF call.
- Target start date: 1st March 2024

How to apply?

Those interested may email their **CV** and **motivation letter** to **Juan Pablo Salvador** at jpablo.salvador@cid.csic.es, copying nb4d-projectmanager@cid.csic.es, adding **EoI MSCA-IF Nanobodies** to the email subject.

Deadline: 15th July 2023