# 4 Doctoral Candidate Positions

CIC bioGUNE (http://www.cicbiogune.es/) opens applications for Doctoral Candidates (DC). Four FPI contracts, funded by the AEI (State Agency for Research, Spain) are open for applications from July 30TH. The positions will hold 4 years contract, social security, and health insurance.

CIC bioGUNE is a research center in biosciences located in Bilbao (Spain), where fundamental research goes hand in hand with oriented and applied perspectives. It offers an international, multidisciplinary scientific environment, hosting over 200 researchers working on chemical biology, cancer, genomics, biophysics, immunology, and many more. CIC bioGUNE is also equipped with state-of-the-art facilities for metabolomics, proteomics, genomics, structural biology (CryoEM, X-Ray, 800 MHz and 1 GHz NMR, computing cluster), and animal facilities.

CIC bioGUNE is recognized with the Severo Ochoa Excellence Accreditation (2023-2027).

We welcome applications from **motivated young scientists** who wish to get their PhD degree in an international scientific environment in one of our laboratories awarded with a predoctoral grant, carrying out cutting-edge research in the frontiers between chemistry, biology, and biomedicine within a highly collaborative environment. More than 60 doctoral candidates are currently developing their PhD Thesis with us.

Candidates should hold a degree in Biology, Biochemistry, Biotechnology, Chemistry, Pharmacy, Medicine, or a related topic. They should have completed their MsC degree at the time of incorporation (expected last quarter 2025/first quarter 2026).

Research topics for the applications include:

- Prof. Jesús Jiménez Barbero (*Chemical Glycobiology Lab)*
- Dr. Óscar Millet (*Precision Medicine and Metabolism Lab*)
- Prof. Joaquín Castilla *(*Prion Research Lab)
- Prof. Gonzalo Jiménez *(Computational Chemistry Lab)*

**Prof. Jesús Jiménez Barbero (Chemical Glycobiology Lab)**:

**The power of NMR to understand and modulate galectin-glycan interactions in health and disease: The role of chemical complexity of ligands and their presentation under native-like environments**

*Galectins are a family of human proteins involved in a wide range of biological processes. Among these, their role as immune checkpoints stands out, driven by carbohydrate-mediated interactions with glycosylated proteins on cell surfaces. The research project for the PhD will be focused on studying these interactions from a chemical and structural perspective, enabling the development of targeted therapeutic strategies. To achieve this, within the Chemical Glycobiology lab, the candidate will acquire deep multidisciplinary knowledge in a variety of scientific techniques and methodologies, most notably NMR spectroscopy, also including chemoenzymatic synthesis, computational tools and molecular biology.*



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**Dr. Óscar Millet (Precision Medicine and Metabolism Lab)**:

**NMR Methodology for Metabolomic and Lipidomic Analysis of Serum in Precision Medicine and Biomedicine**

*NMR enables the most comprehensive characterization of lipoprotein profile, with important relevance in cardiovascular disease. We aim to develop NMR methodologies to enhance lipoprotein profiling, employing advanced statistical analyses (AI algorithms) on large-scale datasets (>30,000 spectra). Simultaneously, the project will establish a lipoprotein model for rodents, currently unavailable, to address interspecies differences in lipoprotein composition. Motivated individuals with a degree in biosciences are strongly encouraged to apply.*

**Prof. Joaquín Castilla (Prion Research Lab)**:

**Systematic analysis of prion sequence variation and misfolding: From molecular determinants to therapeutic intervention**

*Join our cutting-edge research developing a gene therapy approach for prion diseases using engineered dominant-negative proteins. Building on our breakthrough generation of over hundreds of synthetic prions through innovative PMSA (Protein Misfolding Shaking Amplification) methodology, we are now engineering therapeutic proteins that can prevent disease onset in at-risk individuals. This interdisciplinary project combines systematic protein analysis, and AAV-based gene delivery to create transformative treatments for invariably fatal neurodegenerative disorders. You'll work with state-of-the-art facilities, collaborate with leading international partners, and contribute to research with potential applications beyond prion diseases. This is an exceptional opportunity to advance from fundamental protein misfolding mechanisms to clinical therapeutic development in a world-class research environment.*

**Prof. Gonzalo Jiménez (Computational Chemistry Lab)**

**Protein Design and Optimization for Biotechnological and Therapeutic Applications**

*This project uses AI-driven protein design to engineer proteins with improved stability, activity and specificity for biotechnological and therapeutic applications. We integrate computational de novo design and optimization with rigorous experimental validation, including biochemical characterization and in vitro assays, to ensure practical utility. The focus is on creating novel miniprotein binders, enzymes and antibodies using cutting-edge AI models, and confirming their real-world applicability through a comprehensive wet lab approach.*

Please, if you are interested send, before Sept 28th, your CV, your academic records, along with a motivation letter (1 page), and your preferred topic using the following **form** and indicating 44612 as reference.



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