

Ulrich Eckhard

Beatriu de Pinós Fellow, Ramon y Cajal Research Investigator 2022

Department of Structural Biology

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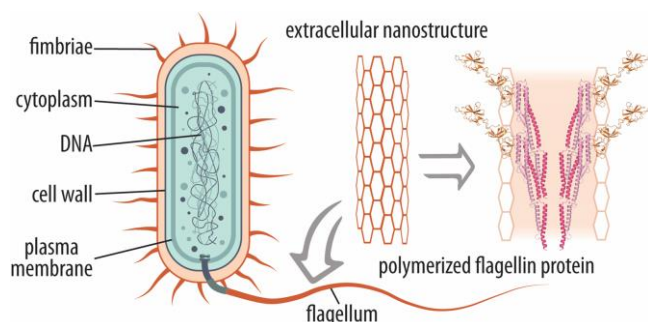
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Institut de Biologia Molecular de Barcelona
Molecular Biology Institute of Barcelona CSIC

Master Thesis and Internship Projects

We are always looking for motivated students for practical work, internships, and master thesis research projects, to work with us on the development of biotechnological applications and assays based on [proteolytic flagellins](#), a recently discovered flagellin protein family with enzymatic activity. Depending on project status and the candidate's individual skills and interests, potential work packages may include: molecular cloning, CRISPR-Cas mediated gene editing, recombinant protein expression and purification, biochemical and structural characterization, functional assays, microbial imaging, structural modelling and structure-function analysis, all under the guidance and supervision of an experienced researcher in the lab. Importantly, the lab has a strong commitment to train and mentor students, and to help them take their next steps in their academic and scientific career.



The bacterial flagellum plays a key role in locomotion and cell adhesion, and thus in biofilm biology and pathogenesis. Natural and synthetic augmentation of the filament with enzymatic functions expands its functional repertoire and may allow application specific designs for biotechnology.

About the lab: The [Structural Biotechnology Lab](#) at the Molecular Biology Institute of Barcelona (IBMB-CSIC) is a soon-to-be established research team focusing on the biological impact of proteolytically active bacterial flagella, and the possibility to alter their biochemical properties biochemistry for biotechnological applications such as plastic degradation or waste water treatment. We are located at the *Parc Científic de Barcelona*, one of the main life science research hubs in Spain, which hosts not only over 90 companies, but also major research institutes such as the Institute for Research and Biomedicine (IRB), the Institute of BioEngineering of Catalonia (IBEC), and also our institute, the [IBMB-CSIC](#). As part of the Structural Biology Department, we are in close contact with multiple high-profile research teams and have access to state-of-the-art research equipment and facilities, such as the Automated Crystallography Platform for robot-assisted protein crystallization and imaging, and have readily access to the various European Synchrotrons, including ESRF in Grenoble (France), Diamond Light Source in Didcot (UK), or ALBA in Cerdanyola del Vallès. Additionally, as the lab is embedded within the highly collaborative [Proteolysis Lab](#) of Prof. Xavier Gomis-Rüth, we fully profit of a well-established and a highly productive research environment.

Candidate specifications: Motivated candidates with a background in Molecular Biology, Microbiology, Biochemistry, and/or Biotechnology are encouraged to send their CV and a short statement of motivation directly to Ulrich Eckhard (ulrich.eckhard@ibmb.csic.es). Fluency in English, team work, and good communication skills are expected.