

18 MONTHS POST-DOCTORAL POSITION AT TOULOUSE BIOTECHNOLOGIE INSTITUTE INSAT ON :

Electron bifurcating hydrogenases, a novel type of enzymes catalyzing H₂ production

The Toulouse Biotechnology Institute, Bio & Chemical Engineering (TBI, UMR INSA/CNRS/INRAE <http://www.toulouse-biotechnologyinstitute.fr>), is currently seeking a **post-doctoral researcher** to work on the **Hyd_{BifEvo} research project** funded by INRAE. The project is focused on the study of a novel type of multimeric enzymes, the **electron bifurcating hydrogenases, involved in the H₂ production at high yield** in some anaerobic bacteria. Recently discovered, these enzymes are considered as an attractive tool to develop new synthetic pathway for H₂ production. Molecular hydrogen (H₂) is a promising energy carrier due its high energy density. It has the potential to become the fuel of the future to tackle the climate problem by decreasing emission of CO₂. Objectives of the Hyd_{BifEvo} project are to i) biochemically characterized electron bifurcating hydrogenases, ii) better understand the reaction mechanism and iii) use a strategy of *in vivo* directed evolution based on a home-made strain to improve the catalytic properties of bifurcating hydrogenases for H₂ production.

The successful post-doctoral researcher will work in the Pathway Evolution and Engineering in Procaryotes team led by Pr. Isabelle Meynial-Salles, which is one of the six teams from the Department of the Physiology and Engineering of Microbial Metabolism. The Pathway Evolution and Engineering in Procaryotes team dedicates its fundamental research to i) the exhaustive analysis of anaerobic bacterial central metabolism to improve its knowledge and to identify its regulatory mechanisms, ii) the biochemical characterization of some key enzymes of the anaerobic central metabolism as the hydrogenase and ii) the adaptive evolution of bacteria under metabolic constraints. Synthetic microbial cell factories are also developed for an applied purpose. To lead his research, the successful candidate will benefit from core and specific facilities already available in the team or in TBI.

SKILLS AND QUALIFICATION

Candidates should hold a **phD in biochemistry, microbiology, protein analysis and engineering or related subject**. An experience in DNA cloning, protein expression and purification, protein bioinformatic analysis, protein biochemical characterization, bacterial culture is required. Candidates should be able to i) conduct independent experiments and research and ii) write research report and scientific papers. A good level in oral and written English is mandatory.

CONDITIONS

18 months contract, starting from 1st July 2022. The salary will be based on pay scale of the employer INRAE depending on experience.

CONTACT/APPLICATION

To apply please email your complete CV, cover letter and contact information for referees to Isabelle Meynial-Salles: meynial@insa-toulouse.fr. **Dead line for application 25th may 2022.**