

## **Post-doctoral position at ULiege (Belgium), in “biophysical study of asymmetric biological membranes in the context of plant defense mechanism”**

### ***Job description:***

The two years post-doctoral position will be part of a project dealing with the biophysical study of asymmetric biological membranes in the context of plant defense mechanisms.

The use of elicitors capable of stimulating plant defenses is a promising alternative to conventional chemical control and represents a major research area in the frame of the integrated protection development in agriculture. In this context, surfactin (SRF), a Bacillus secondary metabolite, has been proven to be of interest to trigger the plant defense mechanisms. Due to its amphiphilic character, SRF is likely to be perceived directly by the lipid constituents of the plant cell plasma membrane (PM). However, the detailed molecular mechanism is still elusive, and more particularly the question of the role of membrane asymmetry was never considered in the previous biophysical studies on SRF-membrane interactions.

The overall goal of this interdisciplinary project is to deliver molecular details of the SRF interaction mechanism with plant cell biomimetic membranes with asymmetric leaflets, which represents a true technological challenge beyond the biological context.

Two key objectives are targeted:

1. Study the physical properties of the asymmetric PM models with particular emphasis on domain organization, membrane order and dynamics, and leaflet interdigitation
2. Analyze the interaction of SRF with plant biomimetic asymmetric PM at a molecular level.

The fellowship will be funded by the FRS-FNRS (National Funds for Scientific Research, Belgium - <http://www.fnrs.be/>) and will cover the personnel expenses (post-doc grant 2.387 €/month) and the operating cost for two years.

### ***Profile:***

- PhD degree in the fields of Biological Sciences, Biochemistry, Biophysics, Physical Chemistry or related disciplines
- Strong cross-disciplinary skills in experimental biophysics and possibly in molecular dynamics simulation in the field of biological membranes.
- Good publication records and excellent communication skills in English.
- The candidate is expected to work both independently and in a team spirit.

### ***Scientific environment:***

As a leader in sustainable development, Gembloux Agro-Bio Tech (Gx-ABT), a faculty within the University of Liège (Uliege), offers a privileged network of skills and expertises in biological engineering, agriculture and environment management. The promotor's laboratory of Molecular Biophysics at Interfaces (LBMI) is devoted to molecular biophysics and computer assisted modelling. Its research activities are mainly focused on the study of the interaction between biomolecules with the membrane by complementary biophysical tools to understand their structure/activity relationships. In partnership with the Gx-ABT Biophysics technical plateau, the laboratory offers experimental and *in silico* equipment for basic research in biophysics.

Magali Deleu, promoter of this project, is senior research associate at the FRS-FNRS leading a research group of 7 people (1 technician and 6 PhD students) within the LBMI focusing on the molecular understanding of mechanisms occurring at interfaces both in the field of biosurfactants and membrane bioactive molecules. The research of the promoter relies on a well established collaborative network. More particularly, the post-doctoral fellow will benefit from the collaborations established with Dr Laurence Lins, who has an expertise in molecular modeling, with Pr Tristan Gilet and Dr Stéphanie van Loo for the generation of asymmetric membranes by microfluidic and with Dr Marc Ongena, an expert in molecular mechanisms governing biocontrol-related plant host-microbe interactions.

*Recent publication from the group on the website:* <http://www.gembloux.ulg.ac.be/biophysique-moleculaire-aux-interfaces/>

**Please send a *Curriculum vitae*, a detailed letter of motivation and the contact details of 2-3 referees to [magali.deleu@uliege.be](mailto:magali.deleu@uliege.be), no later than the February 22, 2019.**

**The post-doc position is to start no later than June 2019 .**