



TO MAGNIFICO RETTORE OF UNIVERSITA' DEGLI STUDI DI MILANO

ID CODE 6205

I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type B fellowship at **Dipartimento di Biotecnologie Mediche e Medicina Traslazionale**

Scientist- in - charge: _Prof. Rondelli Valeria_____

[Name and surname]

CURRICULUM VITAE

PERSONAL INFORMATION

Surname	Guillaume
Name	Gilliard

PRESENT OCCUPATION

Appointment	Structure
PhD student	Laboratory of Molecular Biophysics at Interfaces - Gembloux AgroBio Tech (Belgium)

EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
PhD	PhD in agronomy and biologic engineering	Gembloux AgroBio Tech - University of Liège	2024
Master	Master in bioscience engineering: chemistry and bio-industries	Gembloux AgroBio Tech - University of Liège	2019
Degree	Degree in bioscience engineering	Gembloux AgroBio Tech - University of Liège	2017

REGISTRATION IN PROFESSIONAL ASSOCIATIONS

Date of registration	Association	City



FOREIGN LANGUAGES

Languages	level of knowledge
French	Native
English	advanced
Dutch	notion
Italian	notion

AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2019	FRIA (Fund for Research Training in Industry and Agriculture) - PhD grant

TRAINING OR RESEARCH ACTIVITY

During my PhD, I focused on studying the interaction of lipopeptides with plant membrane lipids. This project combined biological and biophysical approaches to investigate how lipopeptides interacts with membrane lipids, possibly modifying their structure and activating plant immune responses. In this context, I develop a strong understanding of the interactions between bioactive molecules and membrane lipids. I also gained expertise in using biomimetic membrane models, like liposomes (both LUVs and GUVs), to analyze the effects of lipopeptides on membrane properties. I utilized various tools including fluorescence spectroscopy, dynamic light scattering and isothermal titration calorimetry. I also acquired some practical knowledge on Langmuir trough (use for a small side projects) and some theoretical knowledge on DSC (knowledge from master lessons) and X-ray and neutron scattering (knowledge from distance lessons of Jülich neutron center in 2020).

In addition to the biophysical approach, I employed fluorescence and luminescence spectroscopy to study plant cell responses to lipopeptides. All these works are included in one paper currently under review and one paper in preparation. During this work, I also worked in another laboratory of Liege on the development of a microfluidic device to study mechanical properties of membrane. Additionally, I had the opportunity to develop teaching skills with the successful supervision of 3 master students and 3 bachelor students.

Apart from my thesis's primary project, I also collaborated with a post-doc working on the development of complex asymmetric liposomes using cyclodextrin exchange. In this project, I was involved in the characterization of the change of membrane model properties using fluorescence probes.

Finally, I contributed to the writing of three scientific projects, including one recently accepted.

PROJECT ACTIVITY

Year	Project
2019-2023	DOMSURF: The role of plasma membrane mechanics and organization in the stimulation of plant defense by <i>Bacillus</i> lipopeptides
2019-2023	SURFASYM: developement of asymmetric plant membrane model



PATENTS

Patent

CONGRESSES AND SEMINARS

Date	Title	Place
26 January 2022	<i>Mechanistic aspect of the perception of the elicitor surfactin at the plant plasma membrane. (online presentation)</i>	15èmes rencontres plantes bactéries, Aussois, France
14 January 2021	<i>Implications des flux ioniques racinaires dans la réponse immune induite par la surfactine chez Arabidopsis thaliana (online presentation)</i>	Journées jeunes chercheurs Condorcet 2021, Amiens, France
2022	<i>How biophysics can help to understand biological mechanisms of surfactins.</i>	EOS workshop - Bacterial lipopeptides: from (physico)chemistry to ecology, Liège, Belgium
15 June 2022	<i>Development of asymmetric liposomes to mimic plant plasma membrane using cyclodextrins as lipid carriers Influence of phospholipid fatty acid chains.</i>	BESS 2022, Lipid Bilayers at ESS, Lund, Sweden.
2022	<i>The surfactin lipopeptide from beneficial bacilli is perceived by plant cells via an uncommon lipid-mediated process to trigger systemic resistance.</i>	miCROPe, Vienna, Austria
March 2023	<i>How biophysics can help to decipher lipid-driven biological mechanisms of surfactins, a class of bacterial lipopeptides (poster)</i>	XXIII GEM Congress - Membranes: Structure, Dynamics and function, Autrans, France.
January 2023	<i>Plant membrane lipids as key actors of the sensing mechanism of the elicitor surfactin in plant cells (poster)</i>	Gordon Research Conference - Plant Lipids: Structure, Metabolism and Function, Galveston, United States - Texas
March 2023	<i>The atypical modulation of plant immunity by the lipopeptide surfactin. (poster)</i>	16eme rencontres plantes-bactéries, Aussois, France
September 2022	<i>Stimulation of plant immunity by the lipopeptide surfactin is influenced by plant cell wall (poster)</i>	EOS workshop, Liège, Belgium
May 2022	<i>Cell wall influences immune response to the elicitor surfactin in Arabidopsis thaliana. (poster)</i>	13eme journée du Réseau Français des Parois, Versailles, France
April 2022	<i>Fluorescent probes to study the perception of the elicitor surfactin at the plant plasma membrane. (poster)</i>	Winter school - Fluorescence markers for advanced microscopy: From photophysics to biology, Les Houches, France.
July 2021	<i>Development of asymmetric liposome to mimic plant plasma membrane. (poster)</i>	13th European Biophysical Conference, EBSA.



PUBLICATIONS

Articles in reviews
Gilliard, G.* , Furlan, A.*, Smeralda, W., Prsic, J., & Deleu, M. (10 November 2022). Added Value of Biophysics to Study Lipid-Driven Biological Processes: The Case of Surfactins, a Class of Natural Amphiphile Molecules. <i>International Journal of Molecular Sciences</i> , 23 (22), 13831. doi:10.3390/ijms232213831
Cordelier, S.* , Crouzet, J.* , Gilliard, G. , Dorey, S., Deleu, M.* , & Dhondt-Cordelier, S.*. (2021). Deciphering the role of plant plasma membrane lipids in response to invasion patterns: how could biology and biophysics help? <i>Journal of Experimental Botany</i> . doi:10.1093/jxb/erab517
Gilliard, G.* , Huby, E.* , Cordelier, S., Ongena, M., Dhondt-Cordelier, S.* , & Deleu, M.*. (05 October 2021). Protoplast: A Valuable Toolbox to Investigate Plant Stress Perception and Response. <i>Frontiers in Plant Science</i> , 12. doi:10.3389/fpls.2021.749581

OTHER INFORMATION

Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

Please note that CV WILL BE PUBLISHED on the University website and It is recommended that personal and sensitive data should not be included. This template is realized to satisfy the need of publication without personal and sensitive data.

Please DO NOT SIGN this form.

Place and date: Ernage (Belgium), 05 January 2024