**Title: Complementary biophysical tools to investigate lipid specificity in the interaction between bioactive peptides and the plasma membrane**

***Dr Magali Deleu\*, Dr Laurence Lins\****

Lab of Molecular Biophysics at Interfaces (LBMI)

Agrobiochem Dept, GX ABT

University of Liège

Belgium

***Abstract***

Plasma membranes are complexentities common to all living cells. The basic principle of their organization appears very simple, but they are actually of high complexity and represent very dynamic structures. The interactions between bioactive molecules notably peptides, and lipids are important for numerous processes, from drug bioavailability to viral fusion. The cell membrane is a carefully balanced environment and any changes inflicted upon its structure by a bioactive peptide must be considered in conjunction with the overall effect that this may have on the function and integrity of the membrane. As a general concept, understanding the mechanism at the molecular level by which bioactive molecules interact with cell membranes is of fundamental importance.

Lipid specificity is a key factor for the detailed understanding of the penetration and/or activity of lipid-interacting peptides and of mechanisms of some diseases. Further investigation in that way should improve drug discovery and development of membrane-active molecules in many domains such as health, plant protection or microbiology.

In this talk, we propose to overview some complementary “*in vitro*” and “*in silico*” biophysical approaches that can give information about lipid specificity at a molecular point of view. Our strategy is illustrated on different bioactive peptides such as antimicrobial peptides, peptides involved in human diseases or in plant cell signalling.

 Reference: Deleu,M, Crowet, JM, Nasir, MN, Lins, L. Complementary biophysical tools to investigate lipid specificity in the interaction between bioactive molecules and the plasma membrane, 2014, BBA, 1838, 3171-3190

***Biography***

Dr Magali Deleu, (PhD in Agricultural Sciences and Biological Engineering, University of Agricultural Sciences from Gembloux, Belgium) is Senior Research Fellow at the belgian FNRS (Fonds National de la Recherche Scientifique) and Associate Professor at Gembloux Agro-Bio Tech Faculty from the University of Liège, and responsible of the technical platform of Biophysics at Gembloux Agro-Bio Tech.

Dr Laurence Lins (PhD Sciences-Free University of Brussels-Belgium) is now Senior Research Fellow at the belgian FNRS (Fonds National de la Recherche Scientifique) and Associate Professor at the University of Liège, Head of The Lab of Molecular Biophysics at Interfaces (LBMI).