Graduate Schools
Infection Immunity and Cancer, UniGe & UniL: CUS
Biology & Medicine, CMU

Seminar in Microbiology

Monday, May 11, 2015

Salle de séminaire 7172, CMU

11:30 – 12:30

Dr. Alessandra POLISSI

Department of Biotechnology and Biosciences, University of Milano-Bicocca, Milano

The lipopolysaccharide export pathway in *Escherichia coli*: structure, organization and regulated assembly of the Lpt machinery

Alessandra POLISSI has had a longstanding interest in microbial membrane biogenesis. The bacterial outer membrane (OM) is a peculiar biological structure with a unique composition that contributes significantly to the fitness of Gram-negative bacteria in hostile environments. OM components are all synthesized in the cytosol and must, then, be transported efficiently across three compartments to the cell surface. Lipopolysaccharide (LPS) is a unique glycolipid that paves the outer leaflet of the OM. Transport of this complex molecule poses several problems to the cells due to its amphipatic nature. This complex molecule is transported to the cell surface by a molecular machine composed of seven essential proteins LptABCDEFG that form a transenvelope complex and function as a single device. While advances in understanding the mechanisms that govern the biogenesis of the cell envelope have been recently made, only few studies are available on how bacterial cells respond to severe envelope biogenesis defects on a global scale.

References

Martorana, AM, Motta, S, Di Silvestre D, Falchi, Deho, G, Mauri P, Sperandero, P, and **Polissi, A** (2014) Dissecting *Escherichia coli* outer membrane biogenesis using differential proteomics. PlosOne e100941.

Polissi , A and Sperandeo, P (2014) The lipopolysaccharide export pathway in *Escherichia coli*: structure, organization and regulated assembly of the lpt machinery. Mar Drugs 12:1023-1042.

Villa R, Martorana, AM, Okuda, S., Gourlay, LJ, Nardini, M., Sperandeo, P., Deho, G, Bolognesi, M, Kahne, D., and **Polissi, A** (2013) The *Escherichia coli* Lpt transenvelope protein complex for lipospolysaccharide export is assembled vi conserved structurally homologous domains. (2013) J. Bacteriol. 195:1100-1108.

Contact: W. Kelley
Sandwiches will be offered after the seminar