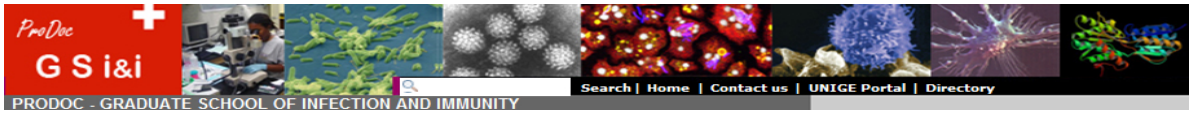

Graduate Schools
Infection Immunity and Cancer, UniGe & UniL: CUS
Biology & Medicine, CMU

Special Seminar in Microbiology

Thursday, 30th October, 2014

Salle de séminaire 7172, CMU

13:00 – 14:00

Prof. Yves V. Brun

Indiana μ, Biology Department,
Indiana University, Bloomington, IN, USA

"Mechanisms and regulation of bacterial surface attachment and biofilm formation"

The attachment of bacteria to surfaces provides advantages such as increasing nutrient access and resistance to environmental stress. Attachment begins with a reversible phase, often mediated by surface structures such as flagella and pili, followed by a transition to irreversible attachment, typically mediated by polysaccharides. The seminar will focus on stimulatory and inhibitory mechanisms of cell attachment and biofilm formation. I will describe how the interplay between pili and flagellum rotation of *Caulobacter crescentus* cells stimulates the rapid transition between reversible and polysaccharide-mediated irreversible attachment by stimulating the biosynthesis of the holdfast adhesive polysaccharide. I will also describe how programmed cell death in a biofilm produces extracellular DNA that inhibits cell settling in the biofilm by directly binding to nascent holdfast, thereby stimulating cell dispersal in response to declining environmental quality.

Li, G., Brown, P.B., J.X. Tang, Zhu, J., Quardokus, E.M., Fuqua, C., and Y.V. Brun. 2012. Surface contact stimulates the just-in-time deployment of bacterial adhesins. Molecular Microbiology, 83:41-51.

Berne, C., D. Kysela, and Y.V. Brun. 2010. A bacterial extracellular DNA inhibits settling of motile progeny cells within a biofilm. Molecular Microbiology, 77: 815-829.

C. Berne, X. Ma, N. Licata, B. Neves, S. Setayeshgar, Y.V. Brun, and B. Dragnea. 2013. Physiochemical Properties of *Caulobacter crescentus* Holdfast: a Localized Bacterial Adhesive. Journal of Physical Chemistry, 117: 10492-503.

Javens, J.J., Z. Wan, G.G. Hardy, and Y.V. Brun. 2013. Bypassing the need for subcellular localization of a polysaccharide export-anchor complex by overexpressing its protein subunits. Molecular Microbiology, 89: 350-71.

Contact: P. Viollier