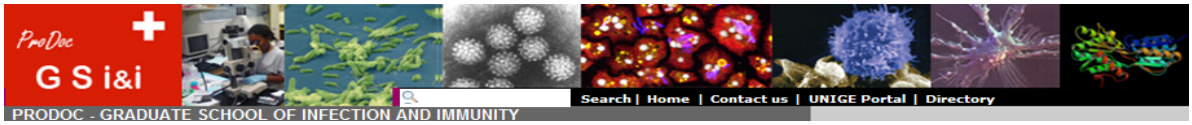

Graduate Schools
Infection & Immunity and Biology & Medicine

Seminars in Microbiology

Monday, March 31, 2014

Salle de séminaire 7172, CMU

11:30 – 12:30

Patrick Trieu-Cuot

Biology of Gram-Positive Pathogens,
Institut Pasteur, Paris

Complex regulation of virulence gene expression in streptococci

The group of Patrick Trieu-Cuot is exploring the expression of virulence factor genes in Streptococci. Group B Streptococci can be part of the commensal flora and a feared pathogen casing meningitis in neonates. Recent work of the group identified in a marvelous screen for hemolysis deficient mutants a regulatory protein that antagonizes the sensor protein of a Two-Component System (TCS). This TCS is different from other known systems, in that the response regulator is a transcriptional repressor, rather than an activator. This TCS senses environmental changes and the TCS antagonist abolishes virulence in an animal model (Firon et al 2013).

The commensal Group D *Streptococcus gallolyticus* (formerly *S. bovis*) is known to be associated with endocarditis and colorectal cancer. Adhesion of bacteria to collagen type I (cardiac valves) or type IV (basal lamina of pre-cancerous polyps) is mediated by pili. Their expression is stochastically regulated by phase variation in the leader peptide of Pil1 pili. In presence of a long leader peptide, transcription of the pil gene is enhanced by destabilization of a terminator structure by the ribosomes decoding the pre-peptide ORF (Danne et al., 2014).

The Abi-domain protein Abx1 interacts with the CovS histidine kinase to control virulence gene expression in group B Streptococcus. Firon et al., PLoS Pathog. 2013 Feb;9(2):e1003179.

Single cell stochastic regulation of pilus phase variation by an attenuation-like mechanism. Danne et al. PLoS Pathog. 2014 Jan;10(1):e1003860.

Contact: P. Linder
Sandwiches will be offered after the seminar

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