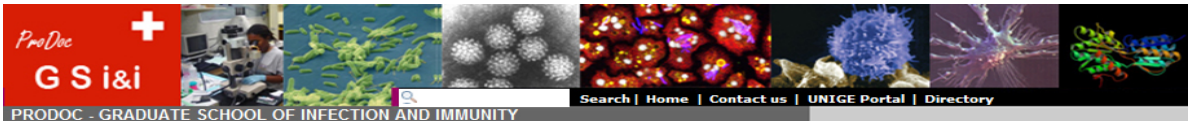

Graduate Schools
Infection & Immunity and Biology & Medicine

Seminars in Microbiology

Monday, 24 February, 2014

Salle de séminaire 7172, CMU

11:30 – 12:30

George P. Salmond

Department of Biochemistry, University of Cambridge, UK

Bacterial gang culture: phenotypes, faith, flotation and phages

George Salmond has a longstanding interest in quorum sensing (QS), regulation and biosynthesis of antibiotics and other secondary metabolites, protein secretion systems, gas vesicles and flotation, bacteriophage exploitation, toxin-antitoxin systems and anti-viral abortive infection.
Toxin-Antitoxin systems were originally discovered in plasmids and are today known as plasmid addiction systems, stress response modules, dormancy based persistence systems, etc.. Two of the five toxin-antitoxin systems use small RNAs as antitoxin, either to inhibit the expression of the toxin (type I) or directly the deleterious activity of the toxin by binding (type III). The type III system was discovered as an abortive infection system, rendering bacterial populations resistant to phage infection. ToxN is a ribonuclease that is inhibited by ToxI, a small RNA encoded by the ToxIN operon. Several phages that could escape this protection system were found to contain an amplification of the same region, encoding a sequence similar to ToxI (Blower et al., 2012). Recently crystal structures reveal the mode of species-specific inhibition (Short et al., 2013).

Selectivity and self-assembly in the control of a bacterial toxin by an antitoxic noncoding RNA pseudoknot. Short FL, Pei XY, Blower TR, Ong SL, Fineran PC, Luisi BF, Salmond GP. PNAS. 110(3):E241-9, 2013
Viral evasion of a bacterial suicide system by RNA-based molecular mimicry enables infectious altruism. Blower TR, Evans TJ, Przybilski R, Fineran PC, Salmond GP. PLoS Genet. 8:e1003023, 2012

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