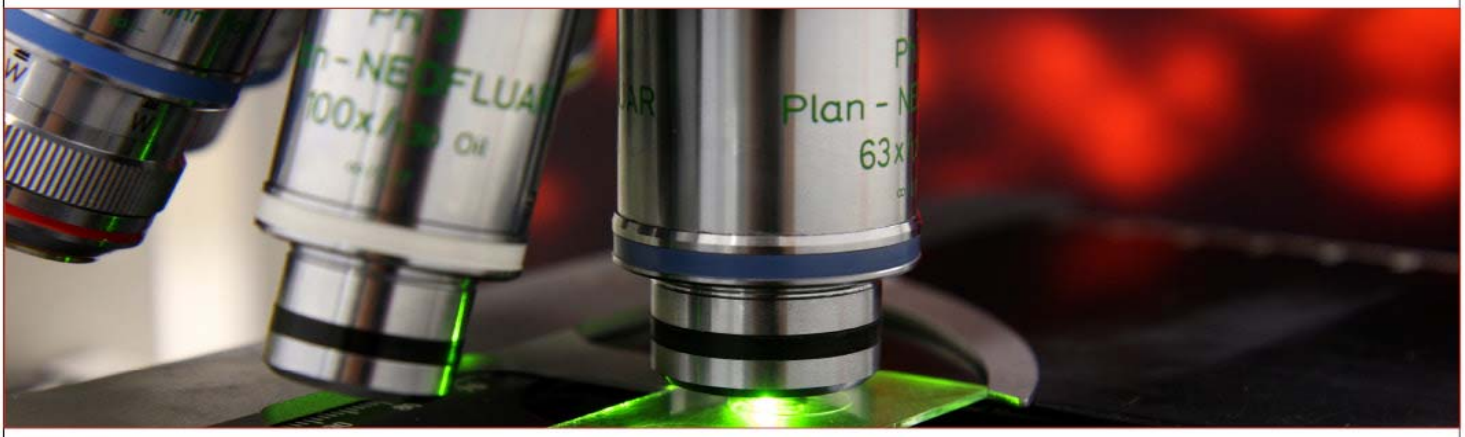
SÉMINAIRES ET CONFÉRENCES



Peter Christie

Department of Microbiology and Molecular Genetics
University of Texas, Houston, USA

« Novel functions of bacterial type IV secretion machines through evolution and genetic engineering»

Type IV secretion systems (T4SSs) are specialized nanomachines that function as macromolecular translocations systems among most if not all bacterial species. In Gram-negative bacteria, these machines are composed of three functional subassemblies, the VirD4 substrate receptor (type IV coupling protein or T4CP), the Inner Membrane Complex (IMC), and the Outer Membrane Complex (OMC). Recent studies suggest that each of these subassemblies has undergone extensive adaptation over evolutionary time for novel purposes. This is evidenced by the appropriation of protein domains or subunits, or even larger protein subcomplexes from unrelated ancestries to build highly complex and functionally-specialized machines. Indeed, the extant T4SSs are collectively capable of translocating many different types of DNA or monomeric or multimeric protein substrates to a range of bacterial and eukaryotic target cells. As we learn more about the genetic and compositional variability of T4SSs, we are better-poised to manipulate these machines for beneficial aims relating to thwarting the spread of antibiotic resistance and inhibiting colonization and spread of bacterial pathogens of clinical importance. This talk will provide an overview of the vast diversity of T4SSs acquired over evolutionary time. I will then summarize my group's efforts to manipulate these machines through rational design, both to attain a better understanding of their mechanisms of action and to engineer machines for beneficial therapeutic ends.

Faculté de médecine
Département de biochimie et médecine moléculaire
Université de Montréal

Le mardi, le 22 août 2017, 14h00

Pavillon Roger-Gaudry
Salle : D-225

Invité par Christian Baron

Tél : (514) 343-6300 courriel : christian.baron@umontreal.ca