

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

Seminar in Microbiology

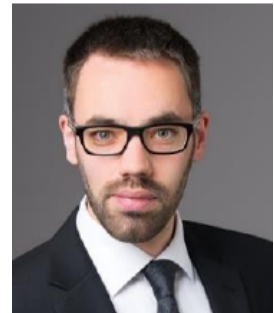
Monday, January 19, 2015

Salle de séminaire 7172, CMU

11:30 – 12:30

Médéric Diard

Institute of Microbiology
ETHZ, Zürich



Evolutionary dynamics of *Salmonella* cooperative virulence

Population dynamics within a host during an infection can profoundly influence the severity of the disease as well as the treatment. Médéric Diard is studying cooperative virulence in *Salmonella typhimurium* in an established mouse model system. In the case that virulence expression is costly to a bacterium, the population may evolve into virulent and non-virulent bacteria, where the non-virulent bacteria will profit from the presence of the virulent bacteria. During this competition, non-virulent bacteria may compete out the virulent cousins. During their experiments, Diard and collaborators found that treatment by antibiotics reverses the situation and favors the to survival of virulent persister bacteria, that are lodged in the tissue and are thereby protected from the antibiotic treatment. After cessation of treatment, these bacteria recolonize the gut and can be transmitted further to other hosts.

References:

Maier, Diard , et al., Granulocytes Impose a Tight Bottleneck upon the Gut Luminal Pathogen Population during *Salmonella typhimurium* Colitis. PLoS Pathog. 2014;10:e1004557.

Diard et al., Antibiotic treatment selects for cooperative virulence of *Salmonella typhimurium*. Curr Biol. 2014;24:2000-5.

Diard et al., Stabilization of cooperative virulence by the expression of an avirulent phenotype. Nature. 2013;494:353-6

Diard et al., Pathogenicity-associated islands in extraintestinal pathogenic Escherichia coli are fitness elements involved in intestinal colonization. J Bacteriol. 2010;192:4885-93

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