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

Seminar in Microbiology
Monday, 20th November, 2017
Salle de séminaire, E07.3347.a, CMU

11:30 – 12:30

Prof. Christian Lesterlin
Molecular Microbiology & Structural Biochemistry, University of Lyon, FR

Cell-to-cell DNA transfer in Bacteria

Understanding how a commensal bacterium becomes multidrug resistant through horizontal gene transfer is a central issue in microbiology and human health. The Lesterlin lab focuses on the study of DNA transfer by bacterial conjugation and the subsequent establishment of the newly acquired properties in the recipient cell. To do so, they use a combination of molecular genetics and live cell imaging. In their system, the E. coli Fertility factor (F plasmid) carries DNA localization systems, which allow describing the real-time chronology of DNA transfer from cell-to-cell. Ssb fluorescent fusion enables monitoring intermediary ssDNA before F replication in the recipient. They also follow the timing of expression of F-borne genes. For instance, F carries a gene encoding a fluorescently labeled efflux pump (tetA-mCherry) conferring antibiotic resistance. They can simultaneously visualize the antibiotic molecule (Tetracycline) and the efflux pump protein in live cells, which gives insight into the establishment of drug resistance at the cellular scale and relevant for understanding drug resistance in clinically isolated pathogens.

Recent publications:


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