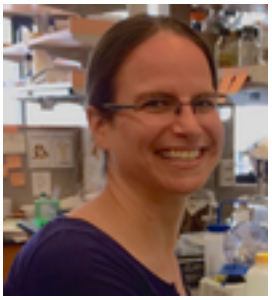
Graduate Schools
Infection Immunity and Cancer, UniGe & UniL: CUS
Biology & Medicine, CMU

Seminar in Microbiology

Tuesday, 18th October, 2016

Salle de séminaire, E07.3347.a, CMU



12:00 – 13:00

Dr. Coralie Fumeaux

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Identification of MupP as a new peptidoglycan recycling factor and antibiotic resistance determinant in *Pseudomonas aeruginosa*

Peptidoglycan (PG) is an essential cross-linked polymer that surrounds most bacterial cells to prevent osmotic rupture of the cytoplasmic membrane. Its synthesis relies on penicillin-binding proteins (PBPs), the targets of beta-lactam antibiotics. Many gram-negative bacteria, including the opportunistic pathogen *Pseudomonas aeruginosa* are resistant to beta-lactams due to a chromosomally-encoded beta-lactamase called AmpC. In P. aeruginosa, expression of the *ampC* gene is tightly regulated and its induction is linked to cell wall stress. We therefore reasoned that a lacZ fusion to the *ampC* promoter would serve as a useful reporter for the identification of new factors involved in maintaining cell wall homeostasis in *P. aeruginosa*. The screen identified a new factor called MupP involved in the recycling of cell wall turnover products. Characterization of MupP and other components of the pathway reveal that cell wall recycling plays important roles in both the resistance and sensitivity of *P. aeruginosa* to cell wall-targeting antibiotics.

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