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

Seminar in Microbiology

Monday, 22nd May, 2017

Salle de séminaire, E07.3347.a, CMU

11:30 – 12:30

Prof. Dr. Leo Eberl

Department of Plant and Microbial Biology, University of Zürich, CH

Heretic aspects of quorum sensing and vesicle formation in bacteria

Burkholderia cepacia-like bacteria are naturally present in soil, water and the rhizosphere of plants, but they can also cause life-threatening lung infections in patients requiring mechanical ventilation and with chronic granulomatous disease or cystic fibrosis (CF). The quorum sensing system of *B. cenocepacia* H111 is thought to ensure that pathogenic traits are only expressed when the bacterial population density is high enough to overwhelm the host before it is able to mount an efficient response. The Eberl lab explores quorum-sensing in *B. cenocepacia* H111 and recently found that it uses membrane vesicle-based mechanism for binary trafficking of hydrophobic signal molecules such as N-hexadecanoyl-L-homoserine lactone. They recently studied in c-di-GMP-based signaling and have had long standing interest in *B. cenocepacia* genomics and in the genetic basis of biofilm formation.

Recent publications:

- Toyofuku et al. 2017. Membrane vesicle-mediated bacterial communication. **ISME J.**
- Turnbull et al. 2016. Explosive cell lysis as a mechanism for the biogenesis of bacterial membrane vesicles and biofilms. **Nat Commun**.
- Pinto-Carbó et al. 2016. Evidence of horizontal gene transfer between obligate leaf nodule symbionts. **ISME J.**
- Sieber et al**.** 2015**.** Isolation and total synthesis of kirkamide, an aminocyclitol from an obligate leaf nodule symbiont. **Angew. Chem. Int. Ed**..
- Urfer et al. 2015. A Peptidomimetic Antibiotic Targets Outer Membrane Proteins and Disrupts Selectively the Outer Membrane in Escherichia coli. **J. Biol. Chem**.
- Stopnisek et al. 2015. Molecular mechanisms underlying the close association between soil Burkholderia and fungi. **ISME J.**
- Dubern et al. 2015. Integrated whole genome screening for Pseudomonas aeruginosa virulence genes using multiple disease models reveals that pathogenicity is host specific. **Environ Microbiol**.
- Cárcamo-Oyarce et al. 2015. Quorum sensing triggers the stochastic escape of individual cells from Pseudomonas putida biofilms. **Nat. Commun**.

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