

Seminar in Microbiology

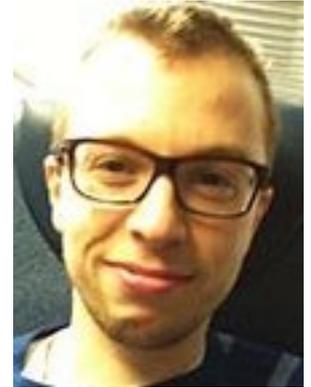
Monday, 8th May, 2017

Salle de séminaire, E07.3347.a, CMU

11:30 – 12:30

Prof. Dr. Alexandre Persat

Global Health Institute, EPF Lausanne, CH



Bacteria and their mechanical world: surface sensing and colonization

Throughout evolution bacteria have adapted to colonize nearly all types of environments on the surface of our planet, where they are exposed to a variety of physical phenomena. The Persat lab explores how bacteria respond to the mechanics of their environments, such as fluid flow and contact with different surfaces. They aim to understand how such system provides these organisms with selective advantages in the wild, be it in colonization or virulence in hopes of developing alternative therapeutic strategies that target mechanosensitive systems to combat infections. Other current and past interests include the biophysics of bacterial organelle dynamics, the in vitro assembly of bacterial fimbriae (pili) and the signal transduction in bacterial mechanosensing involving type IV pili.

Recent key publications:

- A Periplasmic Polymer Curves *Vibrio cholerae* and Promotes Pathogenesis. (2017) Bartlett et al. **Cell**. 12;168(1-2).
- Bacterial mechanotransduction. (2017) Persat. **Curr Opin Microbiol**36:1-6.
- A scaffold protein connects type IV pili with the Chp chemosensory system to mediate activation of virulence signaling in *Pseudomonas aeruginosa*. (2016) Inclan et al. **Mol Microbiol**. 101(4):590-605
- Type IV pili mechanochemically regulate virulence factors in *Pseudomonas aeruginosa*. (2015) Persat et al. **Proc Natl Acad Sci U S A**. 112(24):7563-8.
- The mechanical world of bacteria. (2015) Persat et al **Cell**. 161(5):988-97.
- Bacterial evolution: rewiring modules to get in shape. (2014) Persat et al. **Curr Biol**. 24(11):R522-4.
- The curved shape of *Caulobacter crescentus* enhances surface colonization in flow. (2014) Persat et al. **Nat Commun**. 5:3824. .