

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

Seminar in Microbiology

Monday, 10th November, 2014

Salle de séminaire 7172, CMU

11:30 – 12:30

Dr. Beate Henrichfreise



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“Mechanistic insights into the chlamydial anomaly - cell wall biosynthesis and cell division in chlamydiae”

For intracellular bacteria belonging to the chlamydiae, there is no need for a cell wall and the typical cell wall (peptidoglycan) has not been reliably detected in these parasites so far. Nevertheless, chlamydiae are susceptible to antibiotics that target cell wall biosynthesis and a genome-wide search within Chlamydia identified a nearly complete pathway for peptidoglycan biosynthesis. This paradox, known as the chlamydial anomaly, is studied on the molecular level in our project. We analyse the functionality of the peptidoglycan biosynthesis pathway and investigate the role of a possibly rudimentary cell wall and/ or its precursors for the cell biology of intracellular bacteria beyond osmotic stabilization.

AmiA is a penicillin target enzyme with dual activity in the intracellular pathogen Chlamydia pneumoniae.
Klößner A, Otten C, Derouaux A, Vollmer W, Bühl H, De Benedetti S, Münch D, Josten M, Mölleken K, Sahl HG, Henrichfreise B. Nat Commun. 2014 5:4201.

Functional analysis of the cytoskeleton protein MreB from Chlamydomonas pneumoniae.
Gaballah A, Kloeckner A, Otten C, Sahl HG, Henrichfreise B. PLoS One. 2011;6(10):e25129.

Functional conservation of the lipid II biosynthesis pathway in the cell wall-less bacteria Chlamydia and Wolbachia: why is lipid II needed?
Henrichfreise B, Schiefer A, Schneider T, Nzukou E, Poellinger C, Hoffmann TJ, Johnston KL, Moelleken K, Wiedemann I, Pfarr K, Hoerauf A, Sahl HG. Mol Microbiol. 2009 Sep;73(5):913-23.

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Sandwiches will be offered after the seminar