

MICROBIOLOGIE, INFECTIOLOGIE ET IMMUNOLOGIE

Université 
de Montréal

CONFÉRENCE

Dr. Tobias Dörr

Postdoctoral Research Fellow,
Harvard Medical School
Department of Microbiology and Immunobiology
Brigham and Women's Hospital Division of Infectious Diseases

Constructive destruction - cell wall homeostasis during antibiotic exposure in *Vibrio cholerae*

In many bacteria, inhibition of cell wall synthesis leads to cell death and lysis. The pathways and enzymes that mediate cell lysis after bacteria are exposed to cell wall-acting antibiotics (e.g. penicillins) are incompletely understood, but the dysregulated activity of enzymes that degrade the cell wall ('autolysins') are thought to be critical. In contrast to many other bacteria, *Vibrio cholerae*, the cholera pathogen, is tolerant against antibiotic-induced lysis. In response to inhibition of cell wall synthesis by a wide variety of antibiotics, this pathogen loses its rod-shape, indicative of cell wall degradation, and becomes spherical. Genetic analyses revealed that paradoxically *V. cholerae* survival via sphere formation required the activity of D, D endopeptidases, enzymes that cleave the peptide chains in the cell wall, whereas most cell wall degradative enzymes proved dispensable for this process. Inhibition of cell wall synthesis also induced sphere formation in other pathogens. This suggests that the enzymes that mediate cell wall degradation are critical for determining bacterial cell fate - sphere formation vs lysis – after treatment with antibiotics that target cell wall synthesis.

Jeudi 15 janvier 2015 à 11h30
Pavillon Claire-McNicol, salle Z-255

Invité par Dr Hugo Soudeyns
Tél: (514) 343-6285
Courriel: hugo.soudeyns@umontreal.ca