Séminaire ibs

Institut de Biologie Structurale J.P. Ebel
41, rue Jules Horowitz
F-38027 GRENOBLE Cedex 1
Tél. +33 (0)4 38 78 95 50 - Fax +33 (0)4 38 78 54 94
www.ibs.fr

Conférencier invité

Vendredi 04 Mai 2012

A 11h - Salle des séminaires de l'IBS

Par Sigolene Lecuyer

Laboratoire Interdisciplinaire de Physique (LIPhy)

Saint Martin d'Hères

Interfacial phenomena in bacteria

I will present two different experimental studies that deal with interfacial processes in bacteria.

First, I will discuss how membrane remodeling can influence protein localization within a bacterium. I will present in vivo evidence that the protein SpoVM localizes to a specific membrane area during spore formation in Bacillus subtilis. In vitro experiments with giant lipid vesicles support the hypothesis that this localization is driven by geometry rather than biochemical recognition. Our results suggest a cooperative adsorption mechanism for high membrane curvature, and are the first demonstration of curvature sensing in a prokaryote [1].

Second, I will report results for the influence of flow on the interaction between Pseudomonas aeruginosa, an opportunistic biofilm-forming pathogen, and abiotic surfaces. Using a microfluidic approach to study the adhesion of P. aeruginosa as a function of shear stress, we show that the residence time of bacteria increases approximately linearly as the shear stress increases [2]. To investigate this surprising phenomenon, we used mutant strains defective in surface organelles or extracellular matrix production, bringing new insights into the process of bacterial adhesion.

[1] Ramamurthi K.S., Lecuyer S., Stone H.A. and Losick R., Science (323) 1354-1357, 2009.

[2] Lecuyer S., Rusconi R., Shen Y.,Vlamakis H., Forsyth A., Kolter R. and Stone H.A., Biophysical Journal (100) 341-50, 2011.

Hôte : C. Morlot (IBS/Groupe Pneumocoque)