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## Localization and control of peptidoglycan synthesis in *Bacillus subtilis*

Bacteria are surrounded by a cell wall, which provides shape to the bacterial cell and protects the cell from environmental threats. The main component of the cell wall is peptidoglycan – a large molecule of sugar polymers connected through peptide cross-bridges. Peptidoglycan forms a net-like structure on the outside of the cell. Isolated peptidoglycan retains the shape of the cell, which means that the shape of the bacteria is encoded in the chemical structure of this gigantic molecule. Although the chemical structure of peptidoglycan has been known for over 40 years, much less is known about the ultrastructure of peptidoglycan and how its synthesis is regulated.

In this talk I will address recent work from my lab on local differences in the composition of the cell wall of the Gram-positive model organism *Bacillus subtilis*. I will also address how localization of the proteins involved in peptidoglycan synthesis, the so-called Penicillin Binding Proteins, can be driven by the availability of LipidII, the building block of peptidoglycan. Finally, I will discuss some of the methods we used to obtain these results, which have provided some insights into the mode of action of antimicrobial peptides that target LipidII and cell wall synthesis.

Hôte : Cécile Morlot (IBS/Groupe Pneumocoque)