Cologne Evolution Colloquium

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Physical determinants of cell shape in bacteria

Bacterial cell shape and cell volume are precisely regulated. Cell shape is physically determined by the peptidoglycan cell wall. For cell-envelope expansion during growth the cell wall must be cleaved, and new material must be inserted. We thus wondered how macroscopic cell shape and cell-envelope integrity can be maintained based on local, microscopic cues. We used high-precision microscopy paired with mechanical, chemical, and genetic perturbations to discern the different roles of envelope curvature, mechanical forces, and cell-wall architecture, and how they affect the spatial distribution and activity of different cell-wall-modifying enzymes and the bacterial cytoskeleton. To that end we also developed a novel CRISRP-based tool to precisely control gene expression in single cells.

Wednesday, May 22, 2019, 17:00
Institute for Biological Physics, Zülpicher Str. 77a
Seminar Room 0.02, Ground Floor

Hosted by Tobias Bollenbach

CRC 1310 Predictability in Evolution