

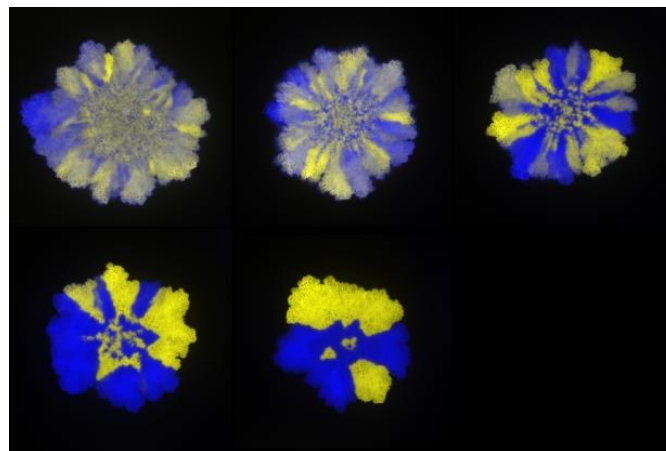
From biofilm to surface spreading: how bacteria share the matrix

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Abstract:

Biofilms are structurally complex bacterial communities that are considered to be the most common lifestyle of bacteria in nature. During biofilm formation, the secreted matrix benefits the population, i.e. protection against stress conditions, attachment to a substratum or surface spreading; while its production is costly for the individuals. Mutant strains of the Gram-positive bacterium, *Bacillus subtilis* lacking matrix production (i.e. cheaters) have a higher fitness under well mixed planktonic conditions. However, matrix producers (i.e. cooperators) have an advantage when cultivated in spatially structured environment. The density of cells at the onset of biofilm growth on a solid surface affects pattern formation and high assortment facilitates cooperation during biofilm growth. Sliding colonies of *B. subtilis* (i.e. passive translocation on semi-solid agar medium) seem to employ matrix components for spreading that is partially shared among the members of the population. Here, I will present how multicellular behaviours (sessile biofilm development and surface spreading), formerly believed to be antagonistic, are co-ordinately activated and highlight the impact of spatial assortment and diffusion on privatization of secreted matrix components.



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Room PH 127