



FriSBi

CRISPR, herd immunity and transduction - the unexpected ways of how bacteria have sex

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Unlike most eukaryotes, bacteria reproduce by binary fission, which is devoid of recombination. Recombination is known to be able to speed up adaptation by bringing beneficial alleles arising in different individuals together. In a purely clonal bacterial population, however, the beneficial alleles compete with each other in a process called clonal interference. Although bacteria lack recombination as it occurs in eukaryotes, they can occasionally exchange genetic information directly between individuals in a process called horizontal gene transfer (HGT), and one of the common means of HGT is transduction by bacteriophages. In my presentation I am going to tell you about my ongoing project, which in turn shows that in bacterial populations recombination may be much more prevalent than previously thought, hence have a strong impact on bacterial evolution. In particular, I will show that presence of CRISPR-based herd immunity results in maintenance of CRISPR+ and CRISPR- strains in the population and allows for a continuous gene flux by transduction from the susceptible part of the population to the resistant one. Therefore, the CRISPR immunity can in fact enable recombination in bacterial populations and essentially serve as an unexpected way of how bacteria have sex.

Friday, September 21, 2018 03:00pm - 04:00pm

Mondi Seminar Room 2, Central Building



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