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Book of Abstracts

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affects prophage persistence. When prophages are subjected to induction, we observed fast selection against prophages, driven by loss of prophages from the bacterial genome. In contrast, prophages subject to counteracting selective pressures from antibiotics and an inducing agent remain persistent in their bacterial host through two different mechanisms. Prophages that provided a selective advantage with antibiotic resistance that acts as a public good facilitate the emergence of phage free bacteria. Therefore, prophage containing bacteria persist at an equilibrium frequency with phage free bacteria to counteract the antibiotics. Lysogens without this beneficial resistance gene also maintain their prophage by going through successive rounds of beneficial mutations against the presence of antibiotics and inducing agent. Our study suggests that prophage persistence and the frequency of carriage within populations is environmentally dependent, and the pressure of induction can lead to rapid loss of prophages from a population.

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Temperature shapes chromosome inversion polymorphism of *Drosophila subobscura* through generations

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Drosophila subobscura is a wide spread Palearctic species, which possesses very rich inversion polymorphism in all of the five acrocentric chromosomes. As populations rapid response to fast changes of environmental conditions can be seen through changes in inversions frequency, this polymorphism is good candidate to measure the effect of temperature on the genetic structure of population. Frequencies of particular chromosomal arrangements are correlated with temperature, with standard arrangements increasing in frequency at lower temperatures, and more complex arrangements like J_1, U_{1+2}, U_{1+2+6}, $E_{1+2+9,}$ and O_{3+4} increasing in frequency at higher temperatures. In order to explore the effect of optimal and suboptimal temperatures on the arrangements frequencies, samples of *D. subobscura* population from a high altitude were reared in laboratory at suboptimal (16°C) and optimal (19°C). Chromosome arrangements frequencies were analyzed and compared through generations (F_0, $F_{5,}$ and F_{16}). The increasing frequency of complex chromosome arrangements and the decreasing frequency of standard chromosomal arrangements were observed. There are significant differences in some of the chromosome arrangements between suboptimal and optimal conditions and also between generations, indicating laboratory adaptation through generations.

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Context- and sex- dependent links between father's sexual success and offspring pathogen resistance