



MPI-NAT SEMINAR SERIES

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What limits meiotic crossovers?

Meiotic crossovers shuffle parental genetic information, providing novel combinations of alleles on which selection can act. However, meiotic crossovers are relatively rare, one to three per chromosome in most eukaryotes. Intriguingly, crossover numbers differ between males and females in many species, and this correlates with differences in the length of the meiotic chromosome axes. Perhaps even more intriguing, when multiple crossovers occur on a single chromosome they tend to be distant from each other, a phenomenon called interference whose mechanisms have been a matter of debate for over a century. Using the model plant *Arabidopsis thaliana*, we revealed several mechanisms that limit meiotic crossovers. Mutation of the corresponding genes led to a spectacular increase in genome-wide recombination, showing that crossovers are naturally constrained well below their possible maximum. Our and previous results support a unifying emerging model that accounts for crossover numbers, heterochiasmy and crossover interference.

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Host: Jochen Rink / Melina Schuh