IQCB
Institute for Quantitative & Computational Biosciences

Cross Disciplines Seminar

April 30, 2025
10:30 AM

SR Anthropologie (00.101), Anselm-Franz-von-Bentzel-Weg 7, 55128 Mainz

Dr. Karl Grieshop

University of East Anglia, UK

The Maintenance and Identification of Sexually Antagonistic Genetic Variation

Understanding the forces that maintain genetic variation for fitness is a fundamental aim of evolutionary biology, with implications public health. Mutation-selection balance is inevitable but cannot singlehandedly explain all the genetic variance in fitness and life history traits observed in nature. Debate continues over the efficacy and prevalence of other explanatory factors. Sexually antagonistic (SA) selection is inevitable in sexually reproducing species and can result in alternative alleles having opposite fitness effects in males and females. I briefly present novel theory showing that SA selection will always increase genetic variance relative to simple (non-SA) mutation-selection balance alone, and I will show some quantitative genetic evidence of SA genetic variance in the seed beetle *Callosobruchus maculatus* and its role in local adaptation. Still, there remains little consensus on the number, nature, and location of sexually antagonistic polymorphisms in any organism's genome. I will present some novel 'omics-based approaches that have identified candidate SA regions in the *Drosophila melanogaster* genome and discuss their attributes and overlap with other studies. Modest overlap among independent efforts to identify candidate SA regions of the genome suggests truth in these findings. I end with some intriguing preliminary data connecting the genetic underpinnings of human sex-specific genetic diseases to genomic signatures SA selection.

IQCB EVENTS

For further information please contact
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