

KANSAS STATE
UNIVERSITY
Division of Biology Presents:

The Genomic Causes and Consequences of Selfish Genes

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Anytime two genetic entities are transmitted differently, there is opportunity for genetic conflict. This could be between cytoplasmic elements (like mitochondria) and nuclear genes, transposable elements that replicate by moving around the genome and the rest of the genome, or between homologous chromosomes where one homolog benefits from cheating during gametogenesis to bias its own transmission. We study genetic conflict in general and meiotic drive specifically. Our system is *Drosophila affinis* which harbors two sex-ratio meiotic drive systems. Some X chromosomes (XSR) can kill or disable Y-bearing sperm during spermatogenesis leading to mostly X-bearing sperm and therefore mostly daughters. Meiotic drive has enormous evolutionary and genomic consequences but dissecting the genetic basis of drive is notoriously difficult. Most *Drosophila* drivers are tied up in multiple inversions that make genetic mapping impossible. Thus, we have relied on a series of different approaches to map drivers. We find an enormous proliferation of genomic defense genes and a likely arms race between gene silencing and silencing of the silencing underpinning that arms race. Whether this is the mechanism of drive or an arms race to control drive is yet to be determined.

If you would like to visit with Dr. Robert Unckless, please contact Dr. Gavin Rice at gavinrice@ksu.edu.

Coffee & snacks served preceding the seminar in Ackert Hall, Room 225