



SGU &

31st DGGR Seminar

Wednesday, October 7th, 2015 16:10-17:10

4-th floor Seminar room, University Laboratories for Innovative Research

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Spermatogenesis and the Evolutionary Reorganization of the Genome

Although more than a decade has passed since the first eukaryotic genome was sequenced, the molecular basis of genome organization and complexity remains a largely unresolved problem. The relationship of genotype to phenotype has proven particularly challenging. I use gametogenesis in *Drosophila* as a model system to study the evolution and phenotypic expression of genomic features. Gametogenesis is a fascinating biological process; it varies temporally throughout development, and has profound evolutionary impact in that it provides the raw material for the next generation - the gamete. To date, gametogenesis research has primarily focused on single gene studies of fertility. In contrast, I apply a genomic perspective to the overall process of gametogenesis to understand the role sexual selection plays in genome evolution. In my research on genome evolution in *Drosophila melanogaster*, I have combined bioinformatics and statistics with experimental genomic and molecular genetic methods to obtain large-scale gene expression data on gametogenesis, or spermatogenic-stage-specific transcriptome (SpermPress). The results help to solve two classical problems that have puzzled biologists for decades: evidence for Meiotic Sex Chromosome inactivation and for Post-meiotic transcription. In this talk, I present the results obtained through the application of advanced Bayesian statistics to Gene Chip microarray data. I also introduce another puzzle yet to be solved in the evolutionary biology field related to the role of sperm haploid selection in the evolution of new genes.

Chairperson: Tim Karr

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