

Plan II Master's Defense

Thursday, July 17, 2014

1:00 pm, SEC 2438

“Quantitative trait loci associated with the genotype-by-diet interaction for larval triglycerides and transgenerational effects of a high fat diet in *Drosophila melanogaster*”

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Abstract - An individual's phenotypic response to an environmental perturbation is dependent upon the type of environmental alteration, genotype and the genotypes' interaction with the environment. Quantitative trait loci (QTL) studies can be utilized to pinpoint genes contributing to the genotype and genotype-by-diet interaction. Here we have used a population of recombinant inbred lines and a high fat diet to find QTL associated with the genotype-by-diet interaction on triglycerides in *Drosophila melanogaster*. We were able to find 5 QTL significant for genotype-by-diet interactions under several statistical models, including the additive and dominance genetic effects. Candidate genes were chosen for expression analysis and mutant characterization experiments to find the causative genes of the QTL. A second experiment investigated the sex-specific effect of a high fat diet on untreated decedents. It was found that transgenerational phenotypic response to diet was dependent on genotype, and sex of the treated individual.