



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Ryan Tam; Daniel Yeh	Project Number S0425
Project Title A Screen for Mutants in <i>Drosophila melanogaster</i> Affecting Triglyceride Levels	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals In our project, we overexpress the progeny of our Ryan-Daniel (aptly named after ourselves) fly line cross using a UAS-GAL4 system and test them for high or low triglyceride levels which deviate from the calculated average value. We will isolate the progeny with notable deviation because if the lines of the overexpressed gene show an increase in triglyceride level, it means that the genes regulate the triglyceride levels. We want to isolate new genes that change the triglyceride levels of the fly, and we predict that we will find lines causing both an increase and decrease of triglyceride levels in the fly.</p> <p>Methods/Materials For our methods, we grinded eight male <i>Drosophila Melanogaster</i> fruit flies (the results of our cross) each for thirty different microtubes. Each of the <i>Drosophila</i> constitutes a different fly line, or P-element. We continually add triglyceride reagents and buffer and undergo several incubation steps in order to get our desired solution. We then put each of our thirty different solutions into the microplate, which we load into a microplate reader to get our triglyceride results.</p> <p>Materials include the triglyceride reagent, PBS buffer, our <i>Drosophila</i> cross, and the microplate reader.</p> <p>Results We found that line 5 of our cross had the highest and most consistent deviation and thus had the most reproducible phenotype. Through this project, we want to understand fat regulation and the effects of high triglyceride levels.</p> <p>Conclusions/Discussion The success of <i>Drosophila Melanogaster</i> as a model organism has largely been due to its ability to carry out large-scale genetic screens in identifying the genes involved in a biological process. Although most genes are based on a loss-of-function phenotype, our gene is based on a gain-of-function phenotype, or overexpressed genes.</p>	
Summary Statement We will isolate the progeny of our RD-cross and test them for notable deviations in triglyceride levels, using triglyceride assays; this may show that the overexpressed gene regulates the triglyceride levels.	
Help Received Our mentor, Brian Zid, helped guide us through the project, helping us with the background information and the procedures.	