



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Barbara Shinaver	Project Number S1820
Project Title The Multigenerational Epigenetic Effects in Drosophila melanogaster Exposed to Green Tea	
Abstract Objectives/Goals The purpose of my current project is to determine if multiple, successive generations of Drosophila Melanogaster bred on Green Tea possess an extended epigenetic effect of the supposed benefits of Green Tea, by studying the phenotypic aspects of the Drosophila. Methods/Materials From my three previous projects I have established that Green Tea is beneficial to Drosophila Melanogaster in protecting against environmental stresses and extending their lifespan. I have bred through the 2nd generation of Drosophila on the Green Tea medium and subjected these flies to a longevity study, which measures the flies entire lifespan on the tea as compared to the control medium (distilled water). The next set of flies tested for my project was the fourth generation of flies in my culture, and the first generation of flies to not be exposed to the Green Tea medium, as to measure the possible epigenetic effect from a phenotypic standpoint. These 1st generation non-exposed flies were subjected to environmental stress tests to determine their ability to withstand extreme heat and cold temperatures. Results Early results of stress testing do indicate that Green Tea exposure within the flies ancestry provides protection for the Drosophila when exposed to environmental stress. Drosophilae bred on Green Tea in multiple generations are not necessarily able to live longer than the control group when exposed to Green Tea throughout their entire lifespan. Further test results for environmental stress tests and longevity observations are pending. Conclusions/Discussion According to the current results from the statistical analyses ran on all data, Green Tea can affect a fruit fly's ability to withstand environmental stress when exposed to the tea medium within their ancestry, but not during their physical lifetime. Green Tea cannot significantly increase the lifespan of multiple generations of fruit flies when exposed to the tea in both their ancestry and physical lifetimes, but past experiments did show an increased lifespan of flies raised on Green Tea when compared to flies raised on the control medium.	
Summary Statement Based on data from previous experiments, I bred multiple successive generations of Drosophila on Green Tea to determine if a possible extended, phenotypic, epigenetic effect exists when subjected to longevity and environmental stress tests.	
Help Received Nathan Whittington (teacher) provided equipment, Dr. Bert Tribbey helped run statistical analyses.	