EXECUTIVE SUMMARY [NON-TECHNICAL ABSTRACT FOR PUBLIC INFORMATION OR PROGRAM PROMOTION]: State **in layman's terms** the application's broad, long-term objectives and specific aims, making reference to the potential public benefits of the project relevant to California.

We will use a model organism, the common fruit fly, to determine the effects of mutations in a particular muscle protein on heart gene expression. By analyzing the structure and physiological properties of the mutant hearts, we determined that fruit flies show similar cardiac defects to those found in human hearts with contractile protein mutations. Using state-of-the-art biotechnological tools, we will compare the patterns of gene expression during aging between normal and mutant hearts. This will yield insight into the molecular defects resulting from the expression of the mutant protein. Further, our data may suggest potential therapeutic strategies that can be pursued in the model system and eventually translated into human therapies. This project will permit scientists and students at San Diego State University to collaborate with scientists at the Burnham Institute, a leading biomedical research institute. Students will also have the opportunity to work in the biotechnology industry at GHC Technologies to obtain training in advanced molecular biological techniques.