A. Briefly describe overall research program at your laboratory.

My research focuses on neurodegenerative diseases such as Alzheimer’s and Huntington’s using fruit fly *Drosophila* as model system. We are currently investigating gene expression involved in survival, as well as the learning and memory deficits in Alzheimer’s flies.

B. Briefly describe specific project(s) for your teacher:

Title: Effects of probiotics on neurodegeneration using fruit fly as model system

Fruit fly *Drosophila* is a great model system for human diseases. Transgenic flies carrying human Alzheimer's gene exhibits locomotor deficit and shorten lifespan. Recent studies using animal model showed that dietary probiotics improved cognitive function of Alzheimer's, possibly via microbiota-gut-brain axis. In the six-week program, we will test probiotics on transgenic Alzheimer's flies, perform behavioral assessment, and use molecular techniques to identify gene expression associated with phenotypic changes. The experience would enhance classroom teaching for molecular biology, as well as offering new laboratory exercises that could be incorporated into high school biology curriculum.

C. Will any other people (post docs, grad students, undergraduate students, colleagues, etc.) be involved directly with your teacher?

Yes, there will be two undergraduate students and a high school student from SCORE program that will have direct interaction with the teacher.

D. Will you require any advanced reading/preparation for the teacher? If yes, please briefly describe.

No. We will have information packet on day one.