Name(s)	Project Number
Chloe Glikbarg	36021

Project Title
Identification of a Transdifferentiation Regulating Gene in C. elegans

Abstract

Objectives/Goals
The objective of this project was to study transdifferentiation in the nematode C. elegans, and specifically to identify the location of a gene that regulates this process. The location was determined using three-point mapping and RNAi (interference RNA). Due to the genetic similarities of C. elegans and homo sapiens, knowing how cells transdifferentiate within these worms allows for potential applications to humans, and may one day help humans recreate lost or destroyed organs.

Methods/Materials
Performed three-point mapping in conjunction with a study with RNAi to identify the location of the transdifferentiation regulating gene. Used RNAi that the lab had possession of, luria broth, C. elegans strain containing specific mutations, many agar plates, regular and UV microscope, counter, worm pick, incubator, IPTG.

Results
Within Chromosome III of the nematode C. elegans, the mutation was located at 2.7 mapping units, given the results of the three-point mapping process and the known location of two mutations. The RNAi data confirmed that the mutation was located around this area on Chromosome III.

Conclusions/Discussion
This gives more insight into the process of transdifferentiation and how we can better regulate it in the future. Knowing the location of the regulating gene will help with specific control over the gene researched in this project and with identifying the location of other genes moving forward.

Summary Statement
I studied the process of transdifferentiation within the nematode C. elegans and identified the location of a mutation that regulates this process.

Help Received
Dr. Pan-Young Jeong served as my mentor through the Research Mentorship Program at UCSB. Cricket Wood/Rothman Lab at UCSB set up the RNAi strains and provided me with a lab space to work in. Lina Kim ran RMP and reviewed both my paper and poster.