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MURC 2019

Presentation ID: 152
Presentation Format: 10-Minute Oral Presentation
Presentation Title: Dopaminergic Neuron Degeneration and Resultant Behavioral Defects Caused by Mutations in Homologs of PD-Associated Genes in C.elegans

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Parkinson's disease (PD) is a progressive neurodegenerative disorder which affects roughly 10 million people globally. PD is characterized by a loss of neurons (brain cells) and resultant defects in behavior, speech, smell, and motor function. PD can occur with or without a familial connection although both can have genetic components. To date 18 genes have been linked to PD. C. elegans have homologs of some of these genes and data suggest that mutations in these genes can result in PD-like phenotypes in the model organism, including neurodegeneration and behavioral defects. This project studies the effects of mutations in several different PD-associated genes on the morphology of dopaminergic neurons and alterations in behavior in C.elegans. C. elegans is an ideal model organism for studying these genes because the complete nematode genome and all neural connections have been mapped. Additionally, we can observe changes specific neurons after genetic manipulation in live organisms. In this project we evaluate the health of neurons in different PD mutants by expressing a fluorescent protein in them and studying their morphology. We also use optogenetics to stimulate specific neural pathways with blue light in PD mutant strains to identify any alterations in behavior that could be caused by the mutations. Through these experiments we are gaining a better understanding of the functional changes in neurons caused by each mutation. The results of this study could provide insight into the biological mechanisms responsible for PD.

Commented [CI1]: changes of specific neurons?

Themes:

Check (highlight) the most applicable theme according to the abstract.

☐ Innovation and Technology	☐ Health and Wellness	☐ Culture and Society	☐ Sustainability and Conservation

Comments: Well written abstract overall. You provide a good background of PD and reasoning of your methods.

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