The Treatment of Neurodegeneration in Chemosensory Neurons of Caenorhabditis elegans

Mellone, Dominique

The purpose of the experiment is to determine if the chemical Taurine repairs or prevents neurodegeneration in the chemosensory neurons in Caenorhabditis elegans, which can be correlated to the cell damage associated with Alzheimer's disease. The hypothesis was if the Caenorhabditis elegans are treated with Taurine, then the chemical will work to both prevent and repair the chemosensory neurons from degenerating, because Taurine, when naturally occurring in the body, works to stabilize cell membranes, prevents excitotoxicity, and inhibits excessive calcium from entering the brain cells. By increasing the Taurine levels, cells should be protected from neurodegeneration. In this experiment, 3,787 C.elegans were placed in the hypoxia chamber and deprived of a normal level of oxygen. This oxygen deprivation caused their neurons to be damaged, simulating the cell death that occurs in Alzheimer's. Without their neurons functioning correctly, the C.elegans could not find their food source, or exhibit normal behaviors, which was shown in the data by the large number of non-normal C.elegans in the control and post-treated categories. However, when Taurine was given to the C.elegans before they entered the hypoxia chamber, there was an increase of normal C.elegans behavior throughout the course of the experiment. This shows that Taurine did have an effect on the C.elegans that were treated before entering the hypoxia chamber. Taurine is relevant because it can prevent Alzheimer's from happening, or allow people to live a longer life before the onset of Alzheimer's. Taurine could be taken as a dietary supplement as a preventative measure.

Awards Won: