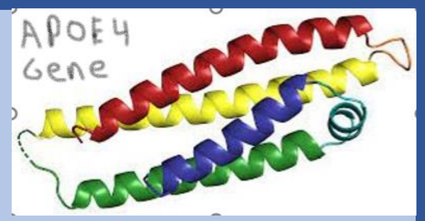
Genetic Risk Associated With Cognitive Decline

Jai Hsieh-Bailey
Marquette University
MU4Gold Cohort Scholar

The Genetic Risk



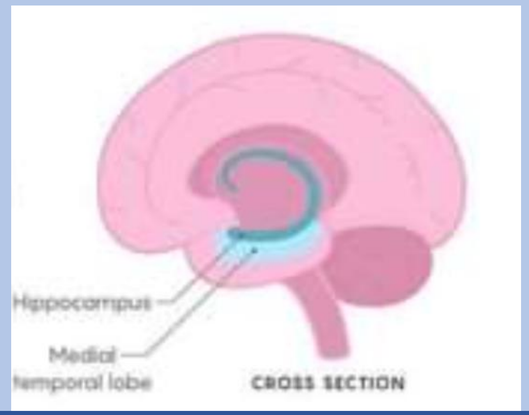
The lab has examined brain activation in test subjects while performing certain tasks. The area of focus within these patients is a type of gene known as the "APOE4" gene. The APOE gene contributes to making a protein called apolipoprotein E. This is a protein that forms lipoproteins responsible for packaging cholesterol and fats and transporting them through the bloodstream. This e4 subtype has been proven to associated with Alzheimer's Disease and is within about 15% of the population

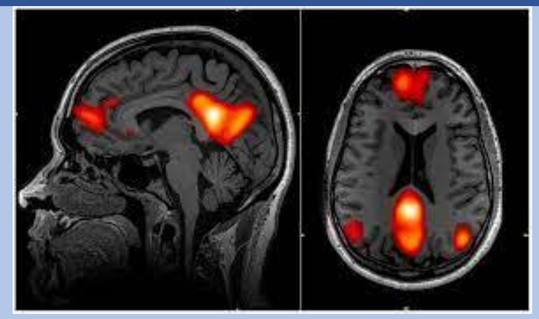
Purpose

The aim of the lab is to gain a deeper understanding of the brain and how we may be able to detect early signs of conitive decline and neurodegenerative disease.

Task and Findings

The lab examined two different subjects while completing the task. These two groups were people containing the APOE4 gene (e4+), and those without (e4-). Fmri was used to observe neural activity. The subjects with the APOE ε4+ exhibited greater activation while performing this semantic memory task than the APOE4 – group. These same people also experienced episodic memory loss as well as some atrophy in the hippocampus, a region of the brain that is heavily influential on memory.





Looking Forward