

**Centennial Honors College**  
**Thomas E. Helm Undergraduate Research Day 2024**

**ABSTRACT**

Major: Biochemistry

Poster

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**A Pilot Test for Zebrafish Memory**

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Alzheimer's Disease (AD) is a neurodegenerative disease characterized by memory and motor skill loss. Being a neurodegenerative disease, it is possible to use an in vivo experiment to aid in determining the contributing factors in animals with homologous brain structures to humans. In the past several years, an increasing amount of research has utilized zebrafish for memory-based experiments. These fish present ideal candidates for trials due to their predictive behaviors, homologous brain structures with humans, and the larval fish clear brains, making them easily observable. While the end goal of this experiment is to induce AD in the zebrafish, this procedure utilizes a complex classical conditioning experiment to test the zebrafish's capacity to learn. This pilot test has three stages: habituation, training, and probe. For the habituation, we first placed eight fish all in the experimental tank we constructed and allowed them to acclimate for one hour. The next day, we placed 4 fish at a time instead of all 8. The following day, we placed 2 fish at a time. On the last day of habituation, one fish at a time was placed in the tank for 5 minutes. The training consisted of allowing 1 fish to explore the experimental tank for 5 minutes while 4 stimulus fish were in a stimulus tank, with a red card either paired or unpaired with the stimulus fish. The probe consisted of removing the stimulus fish to see if the trained fish associated the cue card with the presence of the fish.