The Search for Happy, Healthy Cells: Alzheimer's Disease Research

By Mariah Wahl

Alzheimer’s Disease is a frequently discussed, but little understood, neurodegenerative disease. This month, the Alzheimer's Association is promoting their "Go Purple" campaign to promote awareness of neurodegenerative diseases. Karina Cabrera ‘17, working in professor of biology James Roberts' lab, is increasing our understanding of this disease with her summer research.

Cabrera’s work looks at the astrocytes, or the nurse cells, of mice neurons. These cells are responsible for repairing the neuron, but aged astrocytes are less helpful than young astrocytes, which can result in the degeneration that causes Alzheimer’s disease. Cabrera is looking specifically at the High Density Lipoproteins (HDLs) and Low Density Lipoproteins (LDLs) particles containing ApoE which are produced by astrocytes.
Cabrera loads harvested cells into the centrifuge, hoping to get a better look at HDLs and LDLs. ApoE is not as prevalent in aged astrocytes, and Cabrera and Roberts believe that looking at differences in the composition of HDL and LDL contained by young and old astrocyte cells might help explain this. Cabrera spent the first several weeks growing and plating astrocyte cells, and now she will begin harvesting them using a centrifuge. This will allow her to examine the cells at a more specific level. Cabrera and Roberts’ research is unique, being the first to look specifically at the HDL and LDL particles of both young and old astrocytes.
Although Cabrera had initially approached Roberts to ask if he knew of any research available, he offered her a spot in his own lab instead. Cabrera smiles when she remembers seeing her first successful collection of astrocyte cells under the microscope: “There they were: happy, healthy, and alive. I was so excited.”
After successfully cultivating astrocyte cells, Cabrera harvests them in the lab.

Speaking about what research has meant to her, Cabrera says, “Research has shown me the work that happens behind the scenes in helping others. I feel lucky to be some small part of that.” Cabrera hopes to continue research in a similar field by pursuing graduate study in hereditary diseases.

Learn more about research on Alzheimer's Disease at Trinity University [here](#). Learn more about Neuroscience at Trinity [here](#).

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