Project Title: Studying Cell Death Associated with Neurodegenerative Diseases

Project Mentor: Professor Leah Chase, Chemistry Department

Project Description: In the Chase lab, we are interested in learning more about brain cell death associated with neurodegenerative diseases, such as Parkinson's Disease. Many of these brain cells are believed to die as a result of the build up of very toxic and reactive compounds, called oxidants. Our brain cells contain several different types of anti-oxidants that normally function to protect the cells from these toxic agents. In our lab, we grow human brain cells and expose them to a common oxidant found in many brain cells, hydrogen peroxide. We then use biological and chemical techniques to explore how these brain cells control the production of a specific anti-oxidant known as glutathione. We are specifically interested how the cells regulate the movement of precursors for glutathione synthesis across the cell membrane. Students who work in this lab will learn how to culture human brain cells, measure the levels of cellular glutathione, and stain the cells with fluorescent markers to monitor the influx of glutathione precursors