

Inhibitors for Quinoproteins

Quinoproteins are a class of enzymes with physiological functions ranging from regulation of biogenic amines, signal transduction and extracellular matrix stabilization. Dys-function of these proteins is associated with breast cancer, fibrosis, secondary complications of diabetes and Alzheimer's disease. The aim of this project is to understand the mode of inhibition (chemical mechanism) of known small molecules that inhibit this class of enzymes. The goal is to define the specificity of these inhibitors that have potential as therapeutics targeting the diseases described above. This study requires the techniques of organic chemistry (synthesis), biochemistry and basic molecular biology. REU students will acquire wide range of skills such as organic synthesis, protein expression and purification, PCR, gel electrophoresis, UV-vis spectroscopy, O₂ electrode assays, mass spectrometry and NMR spectroscopy as well as crystallization of small molecules and proteins.