**Light Activated Ruthenium Peptide Hybrids (Abstract)**

Cancer research is being conducted due to the alarming death rate of patients. The development of chemotherapy by Rosenberg, has proven to have satisfactory outcomes. However, treatment causes uncontrollable side effects such as nausea, vomiting and hair loss. One strategy to reduce side effects and selectively target tumors is photodynamic therapy (PDT). The Glazer laboratory uses ruthenium compounds as PDT agents because they are less likely to photobleach, exhibit reliable solubility and have tunable properties. One of the tunable properties is the addition of various ligands such as peptides. The goal of this project is to synthesize a peptide ruthenium hybrid that possess anti-cancer activity and can selectively target various membrane proteins. The three essential elements of this project is to synthesize a ruthenium peptide hybrid, characterize the compound and test on cells. The results are ruthenium hybrids that were tested for cytotoxicity in cancer cells and verified cell localization.