PI: Yue Sun, PhD and Xiang-Yang (Shawn) Wang, PhD **Title:** A Phosphoinositide Kinase in Tumor-Immune Response

The immune system plays a crucial role in detecting and destroying cancer cells. However, cancer cells can sometimes evade detection and escape from the immune system. The breakthroughs in the field of immunology have led to recent approval of several immunotherapeutic drugs. While immunotherapy is emerging as a beacon of hope for curing cancer, many cancer patients do not respond well to the current immunotherapies, highlighting an urgent need to discover new targets to enhance antitumor immune response and/or optimize the current treatment modalities. Recently, our team identified a molecule called PIPKI γ i5 as an important regulator of the interferon (IFN)- γ signaling pathway, which is well recognized for its critical role in determining tumor responsiveness to cancer immunotherapies. Patients with deficiencies in the IFN- γ signaling often exhibit tumor resistance to immunotherapies. Our preliminary studies suggest that targeting PIPKI γ i5 can potentially boost the IFN- γ signaling in both cancer cells and immune cells. The objective of this application is to investigate a novel role of PIPKI γ i5 to improve the effectiveness of immunotherapies. Our research holds promise in identifying a new target for development of novel immunotherapies to benefit large patient populations.