

Project Title: Developing a small peptide modulator of the Hippo-YAP pathway for cancer treatment

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Cancer cells have extensively rewired pathways resulting in growth and survival advantages. We want to explore and identify critical genes whose inhibition can withdraw the survival edge from cancer cells leading to their removal by cell death. The Hippo pathway downstream protein YAP has been recognized as an oncogene required for the tumor cell proliferation and survival. Extensive research has demonstrated the critical oncogenic roles for YAP in breast cancer development, including the transformation of normal mammary epithelia and promotion of metastasis. However, targeting YAP for breast cancer treatment has not been fully achieved under clinical settings. Here, we are aiming at developing a peptide based therapy by targeting a domain module of YAP, called WW domain. Our preliminary studies have shown the specificity for the WW domain-based therapy and revealed YAP as a biomarker for a group of breast cancer patients. In this application, we will further characterize this WW domain-based therapy using the breast cancer cells and tumor models and test the efficacy of the WW domain-based peptide in treating YAP-dependent breast cancer.