



CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:
RP170005

Project Title:
Proteomics and Metabolomics Core Facility

Award Mechanism:
Core Facilities Support Awards - Competitive Renewal

Principal Investigator:
Edwards, Dean P

Entity:
Baylor College of Medicine

Lay Summary:

Gene mutations play an important role in cancer development and progression; however, it is the alterations in proteins encoded by these genes, and consequential reprogramming of metabolism that ultimately drives the aberrant function of cancer cells. The goal of the Core Facility is to support cancer researchers at BCM with state-of-the-art proteomics and metabolomics technologies for discovery of protein and metabolic pathways that underlie important cancer research and clinical problems. Problems include identification of drivers of cancer, therapy resistance mechanisms to enable development of alternatives to combat resistance and novel protein and metabolite targets for drug development. Proteomics and metabolomics are the sciences of analyzing and exploring complex relationships between global networks of proteins and metabolic pathways. These are rapidly evolving "omics" sciences, therefore an essential activity of the core is to develop innovative new technologies in order to advance these scientific discovery goals. The Core Facility will initially apply the technology platforms established previously as support services for cancer research projects of BCM faculty. Newly developing technologies will be applied as they become validated and transition to the core setting. A major initiative in the renewal project is the expansion of the Bioinformatics/Statistics group to manage and analyze the increasing volume and complexity of omics data generated by the core. This includes capabilities for analysis of samples by multi-omics platforms and integrating across data sets with the hypothesis that this will provide greater insights and discoveries than any single omics analysis. Metrics for success of the Core Facility will be high impact publications of user projects, new cancer related research grants of investigators using core support and important discoveries made possible by core technologies that lead to development of novel therapeutic strategies.