CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:
RP150600

Project Title:
The Single-Cell Biopsy and Characterization Core (SBCC) at The University of Texas Health Science at San Antonio

Award Mechanism:
Core Facility Support Awards

Principal Investigator:
Huang, Tim

Entity:
The University of Texas Health Science Center at San Antonio

Lay Summary:

The Single-Cell Biopsy and Characterization Core (SBCC) is proposed to be located at the Cancer Therapy and Research Center, the University of Texas Health Science Center at San Antonio. This core facility will provide cancer researchers with cutting-edge technology of single-cell isolation and analyses. The goals are to advance research, diagnosis, and treatment options for cancers affecting the Texas population generally, and South Texas specifically, at the level of single cancer cells. To achieve these goals the SBCC objectives are to provide: 1)clinical sample processing for single-cell isolation and banking; 2) high-throughput single-cell analysis platforms; 3) data integration by single-cell specialized bioinformatics; and 4) outreach to cancer researchers by developing programs that enhance user pool, seed collaborations and support young scientists. The single-cell approach has several advantages over traditional research that examines bulk tumors. A major advantage is that researchers can tease out differences between individual tumor cells that are otherwise overlooked. This critical information will provide clues on whether cancers will respond to therapy or if they will come back. Using the SBCC state-of-the-art platforms, researchers will be able to analyze cancer cells from minute clinical materials, such as rare circulating tumor cells in the blood stream that cause distant metastases associated with high mortality. Researchers can also isolate cells by noninvasive means such as from urine for prostate and bladder cancers or brush scrubs for oral and uterine cancers. These approaches will allow for active monitoring of response to therapy and potential of cancer growth and progression. In all, the SBCC will provide researchers unprecedented opportunities to examine samples from cancer patients at the level of single cells, which is expected to improve the clinical outcome for cancer patients through development of new diagnostic and prognostic tools.