Award ID:
RP170675

Project Title:
Individualized Pediatric Tumor Analysis Center of Texas (INPACT)

Award Mechanism:
Core Facility Support Awards

Principal Investigator:
Allen, Carl

Entity:
Baylor College of Medicine

Lay Summary:

To develop effective, safe therapies for children with cancer, researchers need to study living cells from tumor biopsies. The goal of the Individualized Pediatric Tumor Analysis Center of Texas (INPACT) Core is to create a specialized tissue bank that will make these cells available for research to achieve this goal. Historically, improvements in outcomes for children with cancer have come from giving maximum doses of chemotherapy. While these treatments can be effective, chemotherapy is very toxic and causes severe side effects. Worse, some children fail to respond to this therapy or experience a relapse. Many of these children ultimately die from uncontrolled cancer.

New discoveries have led to drugs that target specific proteins cancer cells use to survive and grow. Other discoveries have allowed scientists to "train" the patient's own immune cells to kill cancer cells. These treatments target cancer cells and are less toxic to normal cells. Additionally, these new therapies are based on the specific biology of an individual tumor. In other words, unique "weaknesses" of the cancer cells are exploited for each patient. To learn about these weaknesses, we need to collect and study living cells, called "viable tissue," from each tumor. The benefits of this effort are two-fold: 1) We can learn what weaknesses some tumors have in common (such as specific mutations or growth pathways), and use this knowledge to design and test new drugs. 2) Once we identify vulnerabilities in a tumor from one patient, others can be tested for the same weaknesses. These studies will allow us to predict the treatments will work best with the fewest side effects.

The INPACT Core will create a bank of tumor cells with associated clinical information, providing a unique tissue resource that will allow researchers to investigate the biology of cells from individual tumors, and establish a foundation for the development of the next generation of cancer treatment for children.