CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:
RP160716

Project Title:
Texas Pediatric Patient Derived Xenograft Facility

Award Mechanism:
Core Facility Support Awards

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

Lay Summary:

Despite advances in treating childhood cancer, there is a long way to go before the cure rates and the long-term consequences of therapy are acceptable. Developing more effective agents for those children not currently cured, and less toxic therapy to others, poses significant challenges. Additionally, some minority and underserved populations – such as Hispanic populations common across Texas – have outcomes that are worse than the general population, and these populations may be poorly represented in the few clinical trials that are available.

To overcome these challenges, we will develop and validate preclinical models that represent the genetic diversity of childhood cancer from the populations of children that we serve in Texas. We have shown that transplantation of cancer tissue from a child into immune-deficient mice (a process known as generating Patient Derived Xenografts; PDX's) can establish experimental models that are valuable for identifying novel therapeutics. Indeed, some of the drugs and drug combinations shown to be active in PDX models have now become standard of care. However, the current models do not fully represent the genetic diversity known to exist in the spectrum of childhood cancers. Further, very few models have been derived from Hispanic children known to have poorer outcomes.

We will establish a coordinated effort to develop and characterize new PDX models primarily from Hispanic and underserved children in Texas. PDX's will be characterized using state-of-art molecular approaches, and will be made available to pediatric cancer researchers in Texas and more broadly. PDX models already distributed have been important in further understanding the biology and therapy of childhood cancers. Generating new PDX models, representing a renewable resource, will enhance our 'coverage' of genetic diversity of childhood cancer, and provide urgently needed materials that will enhance research into childhood cancer.