



CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:
RP180819

Project Title:
Pediatric Solid Tumors Comprehensive Data Resource Core

Award Mechanism:
Core Facility Support Awards

Principal Investigator:
Gorlick, Richard

Entity:
The University of Texas M.D. Anderson Cancer Center

Lay Summary:

Despite improvements in survival rates for childhood cancers, high-dose radiation and chemotherapy used as standard of care cause significant quality of life problems in survivors. Tumors also frequently recur or metastasize, and these are refractory to current therapies. These children are at added risk for secondary malignancies in the long-term, and there are no therapeutic options. Thus, there is a need to develop precision therapies that take advantage of differences in biology between normal and tumor tissues. In adult cancers, studying mutations and other genomic alterations during the course of treatment has provided researchers and clinicians with information on tumor evolution, which has then allowed modification of treatment as tumors recur or metastasize. Similar studies in pediatric cancers have not been conducted because of a lack of a systematic effort to collect samples longitudinally from diagnosis through treatment and cure or recurrence. Pediatric cancers have their origins in aberrant gene expression because of DNA mis-folding. Why the immune system fails to recognize tumor cells is not clear either. Fortunately, mis-regulation of DNA architecture and malfunctional immune system can be reversed therapeutically. Therefore, refractory pediatric cancers can be potentially managed if these events are studied and better understood both during initial diagnoses and during recurrence and or metastasis. We will approach this problem by developing a bio-bank to systematically collect samples from patients from the time of initial diagnoses through treatments and either survival, recurrence or metastasis. This will provide a well-annotated resource to perform molecular studies on DNA architecture and immune response to pediatric cancers. Our resource will be made available to the pediatric cancer research community through a user-friendly web-based portal to facilitate therapeutic discoveries.