



CANCER PREVENTION & RESEARCH  
INSTITUTE OF TEXAS

Award ID:  
RP101089

Project Title:  
Whole Genome Approaches to Define the Inherited Basis of Childhood  
Cancer

Award Mechanism:  
Individual Investigator

Principal Investigator:  
Plon, Sharon E

Entity:  
Baylor College of Medicine

Lay Summary:

Identification of the genes which impact the risk to develop cancer during childhood improves our ability to identify those individuals at higher risk to develop cancer (personalized genomic medicine) and allows us to provide better prevention and surveillance methods to reduce the risk of developing and dying from cancer. Our study will focus on families who have enrolled in research projects at one of three longstanding cancer genetics clinics in Texas (Texas Children's Hospital, MD Anderson Cancer Center and UT-Health Science Center San Antonio). The clinical centers enroll ethnically diverse subjects and their family members and collect samples for DNA isolation and creation of cell lines. The protocol includes linkage of biological information to medical data to ensure the clinical relevance of our results. We will utilize state-of-the-art techniques in large-scale DNA sequencing available at the Human Genome Sequencing Center at Baylor College of Medicine to thoroughly study all of the genes in a blood sample from families with multiple cases of childhood and young adult cancers. Analysis of the sequence data using statistical and bioinformatic techniques in collaboration with colleagues at Rice University will allow us to determine which of the sequence changes identify in the subject's germline DNA can impact cancer risk. Our overall goal is to identify novel genes which when altered increase the risk of childhood cancer. Knowledge of genes which predispose to cancer also teaches us about how cancer develops in the general population and will provide new ideas about improved treatment of cancer once it develops.