CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:
R1003

Project Title:
Recruitment of First-Time, Tenure-Track Faculty Members

Award Mechanism:
Recruitment of First-Time, Tenure-Track Faculty Members

Principal Investigator:
Ehrlich, Lauren

Entity:
The University of Texas at Austin

Lay Summary:

T cell acute lymphoblastic leukemia (T-ALL) arises from developing T cells, occurs predominantly in children and adolescents, and represents ~15% of pediatric ALL cases. The use of intensified chemotherapy regimens has improved the 5-year event free survival to 75-83%. However, non-responding patients have poor outcomes. Since the central nervous system is frequently a site of relapse, T-ALL patients often receive cranial irradiation, resulting in adverse effects such as impaired cognitive development and secondary tumors. Therefore, development of targeted therapies resulting in less short-term toxicity, a higher percentage of clinical response, and reduced long-term morbidity, would address a significant unmet medical need. The goal of my laboratory will be to identify tumor:stromal interactions that promote T-ALL progression and/or persistence. By using two-photon live-cell imaging, we will query the dynamics of molecular and cellular interactions in tumor development within an intact three-dimensional organ. Since we will compare thymocyte: stromal interactions that occur throughout normal thymocyte development with those that occur during lymphomagenesis, using both imaging and microarray analyses, we will be able to identify aberrant molecular interactions as potential therapeutic targets. By blocking such tumor: stromal interactions, we will strive to inhibit essential events for tumor progression that are upstream of multiple signaling pathways that promote tumor survival. Thus, we hope to establish widespread, low-toxicity therapeutics to significantly improve T-ALL treatment and disease outcome.