

2024 Swim Across America- Atlanta Funding: Young Investigator Research



Dr. Waitman Aumann

Dr. Aumann's research focuses on the most common pediatric cancer, acute lymphoblastic leukemia. While significant strides have been made in getting toward a cure, certain types of leukemia still have a poor prognosis. Dr. Aumann's work looks at these leukemias specifically and evaluates how a developmental protein, called SIX1, is involved in some of these leukemias. He has shown that increased expression of SIX1 in T-ALL (T-cell Acute Lymphoblastic Leukemia) and AML (Acute Myeloid Leukemia) leads to a worse prognosis. His research looks at the underlying biology of SIX1 in these leukemias and also uses small molecule inhibitors to SIX1 to slow the growth of leukemia cells.



Dr. Dailia Benita Francis

For children with relapsed or treatment resistant blood cancers such as lymphoma and leukemia, outcomes are quite poor. However, despite promising new therapies, there remain gaps in our understanding of the various mechanisms by which tumor cells can evade our immune system resulting in disease that is challenging to cure. We have found that a recently identified immune molecule Siglec-15 is expressed at high levels on a specific type of lymphomas known as non-Hodgkin's lymphomas as well as B-acute lymphoblastic leukemias. If we reduce the expression of this molecule in tumor cells, we can promote remission of disease in mouse models of non-Hodgkin's lymphoma. However, it is unknown how Siglec-15 function is regulated or how it enables tumor cells to avoid detection by the immune system and ultimately clearance. Our research will explore the hypothesis that in lymphoma cells, Siglec-15 expression and function is altered compared to normal cells. The knowledge we will obtain from understanding how Siglec-15 allows malignant cells to evade the immune response will provide an important basis in the development of new therapies which can improve the survival of pediatric patients with this diagnosis.



Dr. Jenny Shim

Dr. Shim's research specifically focuses on the most common pediatric solid tumor that occurs outside of the brain called neuroblastoma. Despite multiple different treatment modalities, more than half of children with high risk neuroblastoma will have a recurrence of the cancer and have no curative options. Therefore, Dr. Shim's research focuses on understanding mechanisms of why neuroblastoma does not respond to different types of therapies and how we can identify novel treatments to improve patient outcome when neuroblastoma comes back. Dr. Shim has been investigating the Hippo/YAP pathway that might contribute to such therapy resistant mechanisms in neuroblastoma and has been identifying ways to target the pathway.



Dr. Sherri Smart

Osteosarcoma is the most common bone tumor in children and adolescents. Outcomes remain devastatingly poor in patients with metastatic, relapsed, and refractory disease. There have been no new therapies since the 1970s that have prolonged the overall survival in these patients. We are investing mesenchymal stromal cells genetically engineered to secrete the proinflammatory cytokine interferon gamma directly into the tumor microenvironment. Interferon gamma is a proinflammatory signal that promotes an anti-tumor environment and stimulates macrophages and other immune cells to eat cancer cells. We are applying this biotechnology to models with an intact immune system.



Dr. Xu Ji

Dr. Ji's study will examine the patterns of health insurance coverage along the pediatric cancer care continuum, how changes in health insurance policies in the United States impact these patterns, and how this affects the health outcomes of children with cancer. Her research will also evaluate disparities in pediatric cancer outcomes by population demography and disease characteristics. The goal of her research is to provide information that can help healthcare providers and policymakers make decisions that improve the lives of children with cancer and those who have survived pediatric cancer.