Technology Overview

The median survival for leukemia patients that relapse following allogeneic hematopoietic stem cell transplantation (HCT) is four months. Prior studies demonstrated these patients can be treated with lymphocyte infusion from the original donor. Unfortunately, this is often ineffective and patients are at risk of graft-versus-host disease (GVHD) which can cause serious mortality and morbidity. Fred Hutch researchers demonstrated that certain minor H antigens are expressed on leukemic stem cells and blasts. Dr. Bleakley and her team have genetically engineered T cells to express TCRs specific for leukemia-associated hematopoietic-restricted minor H antigen, HA-1, to prevent or treat relapse of leukemia after HCT and minimize GVHD.

Applications

- Treatment of leukemia and other HA-1 expressing tumors
- Prophylactic and therapeutic treatment of AML, ALL and other leukemia and lymphoma in pediatric and adult populations

Advantages

- HA-1 has been validated as a viable clinical target for adoptive T cell therapy
- CD4 T cells transduced with the CD8 co-receptor to help CD8 "cytotoxic" T cell function
- IND has been submitted to the FDA

Market Overview

Leukemia, a cancer of the blood or bone marrow characterized by an abnormal proliferation of blood cells, is the 10th most common type of cancer in the US with an estimated 60,140 new cases and 24,400 deaths in 2016. The global market for leukemia is anticipated to reach an estimated to reach $11.3 billion by 2020. While chemotherapy, targeted therapy, radiation therapy, and stem cell transplant are major market drivers, there is a significant number of patients who suffer from leukemia relapse after HCT. Alternative approaches are necessary to address this unmet medical need.