

Bankhead-Coley Cancer Research Program

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*Medicine
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Research Project Grant
(5-year project)*

Project Title: Improving Cord Blood Transplantation Via Expansion of Myeloid and Regulatory T Cells

Project Summary: Allogeneic stem cell transplantation (SCT) is the primary curative therapeutic modality for many patients with relapsed and/or high-risk hematologic malignancies. Unfortunately, many patients who might otherwise be cured by SCT are unable to be transplanted due to the lack of a suitable family or registry donor. For these patients, historically discarded placental and umbilical cord blood (CB) represents a potentially life-saving source of hematopoietic cells. Unfortunately, cord blood transplantation (CBT) is limited by delayed recovery of donor-derived cells, including those that fight infection. This is particularly true in adults, because the numbers of cells in CB products are often too few to promote rapid recovery of recipient white blood cells and immune function. Poor immune recovery often leads to infection, which is the major cause of death after CBT. In this project, we plan to conduct two trials where CB products are manipulated outside of the body to significantly expand cell numbers. The first will use a novel expansion strategy to try and improve white blood cell recovery and function in recipients. The second trial will additionally expand a special white blood cell population capable of preventing graft-versus-host disease, an important complication of CBT. In both studies, we will carefully assess recipient clinical outcomes and the impact of our interventions on recipient immune recovery.