

NEWS RELEASE

Scientists identify a combination of four key biomarkers for diagnosing Graft Versus Host Disease

GVHD is the most common reason why bone marrow transplants fail

(Vancouver – October 22, 2007) – A research team led by the Child & Family Research Institute, BC Children’s Hospital, and the University of British Columbia has identified a combination of four key biomarkers – blood proteins – in children with chronic Graft Versus Host Disease (GVHD), a painful, disabling, and frequently fatal complication of bone marrow transplantation. Testing patients with this set of biomarkers could help doctors diagnose the disease, determine if treatments are beneficial, show how the disease is progressing, and predict a patient’s response to treatment. These biomarkers are also potential new drug targets.

“Identifying these biomarkers gives us important clues about the immune cells involved in this disease,” says Dr. Kirk Schultz, the study’s principal investigator. Dr. Schultz is a clinician scientist at the Child & Family Research Institute, a pediatric hematologist at the BC Children’s Hospital, and an associate professor of pediatrics at the University of British Columbia.

The study is published this month in an advance online version of the journal *Blood*.

“This is the Jekyll and Hyde part of transplant,” says Dr. Schultz. “The Jekyll part is that we’ve cured a patient’s life-threatening disease, such as leukemia. The Hyde part is that we’ve given them a brand new disease called Graft Versus Host Disease that is incredibly debilitating.”

Bone marrow transplantation is a life-saving treatment for children – and adults – with leukemia, thalassemia, sickle cell anemia and certain genetic diseases. Bone marrow is the soft tissue inside bones that produces new blood cells. GVHD is a major reason why bone marrow transplants fail to prolong the lives of patients with cancer. The other reason is that the cancer returns.

GVHD is a disabling and potentially fatal disease that arises when immune cells from donated bone marrow attack the recipient’s skin, organs, and bodily systems. It damages the liver, skin, lungs, digestive and immune systems. It’s a painful disease that’s not been well understood and is difficult to diagnose and treat.

In this study, the scientists reviewed blood samples from 52 children with chronic GVHD and 28 healthy individuals. They compared approximately 20 biomarkers that previous studies had shown to be associated with GVHD. This study was performed by the Children's Oncology Group, which includes all pediatric cancer treatment centres in North America, and it was the first study to look at all of the biomarkers together in a large group of patients and evaluate their relative importance. The team identified four blood proteins (interleukin 2 receptor; anti double stranded DNA antibody; B cell activation factor; and CD13) as the key biomarkers for understanding, diagnosing, and treating GVHD.

The research team plans to validate these findings in a larger study with adults. Based on this additional work, the team aims to develop a blood test that doctors can use to diagnosis chronic GVHD.

The study was funded by U.S. National Institutes of Health and the Canadian Institutes of Health Research/Wyeth Clinical Research Chair in Transplantation.

The Child & Family Research Institute is dedicated to world-class research at the Children's and Women Health Campus. It is the largest research institute of its kind in Western Canada and it is supported by the BC Children's Hospital Foundation. Research is conducted in the areas of community child health, diabetes, applied health research and evaluation, infectious and inflammatory diseases, molecular medicine and therapeutics, oncology, reproductive health, nutrition, genetics, immunology, informatics, neurobiology and mental health. Incorporated in 1995, the Institute works in close partnership with the University of British Columbia, BC Children's Hospital and Sunny Hill Health Centre for Children, BC Women's Hospital & Health Centre, which are agencies of the Provincial Health Services Authority. For more information, visit www.cfri.ca.

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