

Researchers Help Make Cellular Therapies A Reality

Johns Hopkins University



For many years, some cancer patients have received an aggressive treatment using state-of-the-art stem cell transplantation techniques developed from monoclonal antibody technology pioneered at The Johns Hopkins University. And in the future, as a result of continuing research, that technology may also play a role in the treatment of cardiovascular and other diseases.

High doses of chemotherapy can change the interior of bones where bone marrow is produced and resides. Cancer patients who have received high doses of chemotherapy drugs may have a diminished ability to fight infection because their white blood cell counts are lowered; likewise, their bone marrow may be unable to make sufficient new red blood cells. Now there is a way to get around the effects of chemotherapy on bone marrow.

“Patients who receive stem cell transplants using Baxter Healthcare Corp.’s Isolex® Magnetic Cell Selection System have their own hematopoietic (blood-forming) progenitor bone marrow cells removed or harvested before high dose chemotherapy is administered.

With the Isolex® Magnetic Cell Selection System, the anti-CD34 monoclonal antibody is used to enrich the patient's CD34+ hematopoietic progenitor cells. Through this enrichment process any tumor cells present in the product are passively depleted. After chemotherapy, the patient's enriched CD34+ cell population is reinfused into the patient to rescue the blood-forming system.

This stem cell selection system was developed by Baxter employing monoclonal antibody technology licensed from The Johns Hopkins University. The anti-CD34 monoclonal antibody technology was developed by Dr. Curt Civin, a pediatric oncologist at The Johns Hopkins University School of Medicine, whose original research on the technology was sponsored by the National Institutes of Health.

The Isolex® Magnetic Cell Selection System has been commercially available since 1998 for use in cancer treatment. Currently, Baxter is conducting research with the Isolex® Magnetic Cell Selection System, investigating the efficacy, tolerability and safety of blood-derived selected CD34+ stem cells to improve symptoms and clinical outcomes in subjects with chronic myocardial ischemia (CMI), a severe form of coronary artery disease. The National Institutes of Health and other research institutions are using the Isolex® system in their own research today, studying the use of selected CD34+ stem cells in the treatment of a variety of medical conditions.

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