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Chapters

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Functionally Modified Ionic Liquids as Green Solvents for Extraction and Removal of Toxic Metal Ions from Contaminated Water

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Abstract

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Thalassemia and Hematopoietic Stem Cell Transplants

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Introduction:

The purpose of stem cell transplantation is to cure life threatening or chronic diseases, such as thalassemia, using high doses of chemotherapy, followed by transplantation of donor marrow or Stem cells. This treatment is an intense one, causing your child's body to temporarily not be able to make blood cells. Your child's ability to make blood cells is then restored by giving healthy stem cells to your child, that is, transplanted into your child's body. These healthy stem cells grow in the bone marrow and restore your child's body's ability to make blood cells, specifically healthy red blood cells and haemoglobin without thalassemia.

Stem cells are the very young cells that mature and develop into red blood cells, white blood cells and platelets. Red cells (erythrocytes) carry oxygen to other cells in your body. White blood cells (Leukocytes) fight infection. Platelets (thrombocytes) help blood to clot. All of these cells develop from the stem cells.

Stem cells are produced in the bone marrow. Very small numbers of stem cells also circulate in the blood stream. These are called peripheral blood stem cells (PBSC's). Stem cells are also present in the blood of the umbilical cord of a baby. Therefore, there are three places to obtain stem cells for transplantation: the bone marrow, the blood stream, or from the umbilical cord immediately after birth.

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