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## Transplantation technologies in stem cell therapy

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Stem cells are well known to be capable of differentiating into specialized cells performing different functions in the body. A stem cell-based, transplantation technology represents a new feasible approach to the treatment for a number of diseases which are considered as incurable by conventional measures. Actually, transplanted stem cells can migrate into tissue lesions and differentiate there into those cells which are required for effective tissue regeneration. As a matter of fact, stem cell-based technologies are enabling to replace the complicated surgery on organ transplantation by the cell grafting, an ambulatory procedure with an equivalent potential. Moreover, it is used to replace bone marrow that isn't working or has been destroyed by disease, chemotherapy, or radiation. In some diseases, like leukemia, aplastic anemia, certain inherited blood diseases, some diseases of the immune system the stem cells in the bone marrow don't work the way they should. Another major discovery frontier for research on adult and embryonic stem cells is the development of transplantable pancreatic tissues that can be used to treat diabetes. Depending on the source of the stem cells, this procedure may be called a bone marrow transplant, a peripheral blood stem cell transplant, or a cord blood transplant. Transplant teams are able to care better for transplant patients and doctors know more about which patients are likely to have better results after transplant. They do a pre transplant assessment mainly Human Leucocyte Antigen Matching and blood grouping, in addition to other clinical investigations. The expected risks and benefits must be weighed carefully before transplant. In addition, the potential for the recipient of a stem cell transplant to reject these tissues as foreign is considerable. Modifications to the cells, to the immune system, or both will be a major requirement for their use. Also trials are made to minimize the side effects of stem cell transplantation as; infection, mucositis and haemorrhagic cystitis. In summary, with the exception of the current practice of hematopoietic stem cell transplantation, much basic research lies ahead before direct patient application of stem cell therapies is realized.

## Biography

Mervat Ibrahim Ahmed Shehata is an undergraduate at the Faculty of Medicine, Alexandria University, Egypt. She is a 5th year medical student and a student in the course of (DNA from structure to therapy) by Dr. Rer Nat Habil Susanne Illenberger, University Lecturer of Biochemistry and Cell Biology and Prof. DPhil Sebastian Springe, Associate Professor of Biochemistry and Cell Biology, held by Jacobs University Bremen. She participated as a health care volunteer in the WHO for World TB day, Hand hygiene campaign and other volunteer work coordinated by the WHO. She is interested in the field of genetics, cell studies and therapy, and wants to be specialized in this field of study.

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