

# 5<sup>th</sup> World Congress on **Cell & Stem Cell Research**

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## **ProtEx™ technology as an effective means of engineering bone marrow cells with immunoregulatory molecules for the establishment of mixed hematopoietic chimerism**

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Allogeneic bone marrow transplantation (BMT) has the potential to cure a series of inherited and acquired hematological disorders. The routine application of allogeneic BMT as a therapeutic intervention in the clinic, however, is complicated by nonmyeloablative conditioning of the recipient, graft-versus-host disease (GVHD), and lack of engraftment. Although elimination of T cells from the donor BM inoculum is effective in curtailing GVHD, it results in compromised engraftment. Thus, strategies targeting specific and effective elimination of only the pathogenic T cells may have important implications for routine application of BMT to the clinic. We have developed a novel approach, designated as ProtEx™, to engineer bone marrow cells with an exogenous protein immunoregulatory protein, SA-FasL, and tested the efficacy of the engineered cells to engraft in allogeneic recipients. Our results demonstrate the robust efficacy of this approach to establish mixed hematopoietic chimerism under nonmyeloablative conditioning and without complication of GVHD.

### **Biography**

Haval Shirwan is Dr. Michael and Joan Hamilton Endowed Chair in Autoimmune Disease, Professor of Microbiology and Immunology, Director of Molecular Immunomodulation Program at the Institute for Cellular Therapeutics. He conducted his Graduate studies at the University of California in Santa Barbara, CA, and Postdoctoral studies at California Institute of Technology in Pasadena, CA. He joined the University of Louisville in 1998 after holding academic appointments at various academic institutions in the United States. His research focuses on the modulation of immune system for the treatment of immune-based diseases with particular focus on type 1 diabetes, transplantation, and development of prophylactic and therapeutic vaccines against cancer and infectious diseases. He is an inventor on over a dozen of worldwide patents, widely published, organized and lectured at numerous National and International conferences, served on study sections for various federal and non-profit funding agencies, and is on the Editorial Board of a dozen of scientific journals. He is member of several national and International societies and recipient of various awards.

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