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Targeted deletion of pathogenic T effector cells as a robust means of allograft tolerance

Transplantation of pancreatic islets as a source of beta cells producing insulin has proven effective in improving metabolic control/quality of life and preventing severe hypoglycemic events in patients with type 1 diabetes. Rejection of islets mediated by T cells is a major limitation of clinical islet transplantation, which is presently controlled by standard immunosuppression. Chronic use of immunosuppression is not only ineffective in controlling rejection, but also has various side effects compromising the life quality of graft recipients. Therefore, there is an acute need for the development of targeted immunomodulatory approaches that have efficacy and safety features. In as much as T effector cells are the major culprit of allograft rejection and their pathogenic function is controlled by T regulatory cells, we have recently developed novel forms of immune ligands to target pathogenic T cells for physical elimination, while simultaneously expanding protective T regulatory cells. The application of this concept to pancreatic islet grafts for the treatment of diabetes will be discussed.

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, founder and CEO/CSO of FasCure Therapeutics, LLC, widely published, organized and lectured at numerous national/international conferences, served on study sections for various federal and non-profit funding agencies, and is on the Editorial Board of a number of scientific journals. He is member of several national and international societies and recipient of various awards.

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