Method to prevent rejection of disease-fighting proteins described

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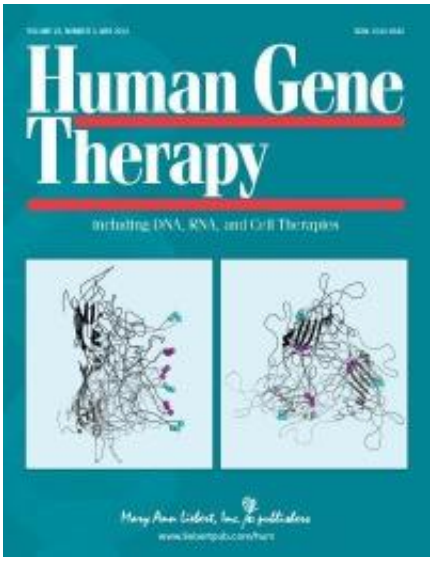

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The body's natural reaction to reject replacement proteins represents a major obstacle to the successful use of gene therapy to cure a range of life-threatening diseases. A novel method that uses the body's own immune cells to induce tolerance to a specific protein was shown to suppress the rejection response, as described in an article in *Human Gene Therapy*, a peer-reviewed journal from Mary Ann Liebert, Inc.

"A major limitation of protein and gene therapeutics is the associated immune responses which can cause toxicity and diminish efficacy," says

James M. Wilson, MD, PhD, Editor-in-Chief, and Director of the Gene Therapy Program, Department of Pathology and Laboratory Medicine, University of Pennsylvania Perelman School of Medicine, Philadelphia. "This clever use of immune modulators may prevent these untoward immune responses from happening."

Exposing a type of immune cell called dendritic cells to a specific therapeutic protein in the presence of immune-stimulating chemicals called cytokines leads to the creation of tolerogenic dendritic cells. These cells, when introduced into mice that are then given gene therapy designed to deliver the therapeutic protein of interest, allow the mice to tolerate, and not reject, the therapeutic protein.

Current approaches to induce partial or full tolerance to proteins replaced via gene therapy are expensive and are unsuccessful in as many as 40% of cases. The method described in this article by Gautam Sule and colleagues from Baylor College of Medicine and Howard Hughes Medical Institute, Houston, TX, offers advantages to support the long-term success of gene therapies. The authors report their findings in "Cytokine-Conditioned Dendritic Cells Induce Humoral Tolerance to Protein Therapy in Mice."

More information: online.liebertpub.com/doi/full … 10.1089/hum.2011.225

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