



US DEPARTMENT OF DEFENSE
BLAST INJURY RESEARCH PROGRAM
COORDINATING OFFICE

Transplants and Burn Injury Treatment

Hand Transplantation with Reduced Immunosuppression

For Service Members who have suffered catastrophic limb loss, transplantation offers the potential of improved function with less disability. The central challenge for the field of transplantation is to develop novel strategies to regulate the host's immune system. The USAMMDA Tissue Injury and Regenerative Medicine (TIRM) Project Management Office is managing several studies of novel immunomodulatory strategies in hand transplantation. The studies are being conducted at five centers, including the Johns Hopkins University, University of Pittsburgh, Duke University, University of Louisville, and the Brigham and Women's Hospital. As of FY15, 12 hand transplants have been performed with DoD funding (two performed in FY15). Investigators at the collaborating centers focused their FY15 efforts on tolerance induction using chimeric donor-host derived cells, bone marrow-derived stem cells, with particular preclinical success in transplants containing vascularized bone, immunomodulation using regulatory T-cells, and stromal-derived factor cells from adipose tissue, in an effort to discover new methods to lower the risk for rejection. Hand transplantation offers an alternative to prosthetics, and the potential of improved function with less disability, for Service Members who have suffered catastrophic limb loss.