Allograft Tolerance Induction

Unmet Need: Allograft transplantation techniques, including skin grafts and transplants, are modern medical miracles, saving countless lives, and its unmet need can be seen in the waiting lists for transplants across the globe. However, despite tissue matching and modern immunosuppressive drugs, an unacceptably high proportion of organs are rejected every year. Allograft rejection can be caused by a variety of reasons, such as immunosuppressive drug toxicity. For example, almost a third of the waiting list for kidney transplants in Australia are waiting for a second kidney following rejection.

Solution: The US Navy, through the Naval Medical Research Command, has developed technologies to improve allograft transplantation outcomes. The present innovations focuses on inducing chimerism and allograft tolerance in graft v. host responses by administering stem/progenitor-like cells ad non cells. For example, donor unfractionated bone marrow sells can be co-infused with stem/progenitor like cells and administered to the host. Combined with initial treatments to reduce CD4+ and CD8+ cells in the host, host immune response and immunosuppressive drug dosage are greatly reduced. This technology is understood to have applications in treating or reducing immunological and hematopoietic diseases beyond just transplantation or allograft rejection, to include inflammatory diseases of the skin, malignancies, immunodeficiencies and autoimmune related diseases.

Stage of Development: The technology is in the early stages of development.

IP or IP Status: This technology is embodied in US Patent 9,457,052 (US Patent 9,457,052).

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- **Categories:** Immunology, Biotechnology
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