Induction of Tolerance by Combinatorial Therapy w/ Donor Stem Cells and Expanded Recipient Treg cells in HLA-mismatched Kidney Transplant Recipients

Grant Award Details

Induction of Tolerance by Combinatorial Therapy w/ Donor Stem Cells and Expanded Recipient Treg cells in HLA-mismatched Kidney Transplant Recipients

Grant Type: Clinical Trial Stage Projects

Grant Number: CLIN2-11400

Project Objective: Phase 1 trial to determine whether patients can achieve sustained donor mixed chimerism and be withdrawn from immunosuppressive drugs while maintaining normal renal function after renal transplantation.

Investigator:

Name:	Everett Meyer
Institution:	Stanford University
Type:	PI

Disease Focus: Kidney Disease, Kidney Failure

Human Stem Cell Use: Adult Stem Cell

Award Value: $11,955,585

Status: Active

Grant Application Details

Application Title: Induction of Tolerance by Combinatorial Therapy w/ Donor Stem Cells and Expanded Recipient Treg cells in HLA-mismatched Kidney Transplant Recipients

Public Abstract:

Therapeutic Candidate or Device

Combined hematopoietic stem cell graft and recipient T regulatory cells

Indication

Kidney disease requiring kidney transplantation

Therapeutic Mechanism

The study will determine whether patients treated with TLI and rATG, and given a haploidentical living donor hematopoietic progenitor cell transplant (HSCT) , along with in vitro expanded recipient Treg cells (what we term as combinatorial therapeutic cell therapy) can achieve sustained donor mixed chimerism and be withdrawn from immunosuppressive drugs while maintaining normal renal function after renal transplantation.

Unmet Medical Need

The goal is “one kidney for life” off drugs with safety for all patients. The overall health status of patients off IS drugs will improve due to reduction in side effects associated with IS drugs, and due to reduced graft loss afforded by tolerance induction that will prevent chronic rejection.

Project Objective

Phase 1 trial completed

Major Proposed Activities

- Assessment and adjustment of the Treg dose required to sustain chimerism in the recipients without causing adverse reactions such as GVHD
- Assessing the impact of immunosuppressive drug dose reductions toward withdrawal without graft rejection or adversely affecting kidney function
- Assess kidney duration post-transplant compared to patients undergoing SOC kidney transplants w/out cell therapy to induce immune tolerance

Statement of Benefit to California:

A reduction or elimination of chronic rejection could have significant effects in improving transplant outcomes and significantly reducing the pool needing re-transplantation. In addition to the improved health outcomes, it is expected that the long term financial burden on patients will be reduced since the cost of IS drugs is about $15,000 to $20,000 per year. The latter costs also lead to non-compliance with medications that increases the incidence of rejection and graft loss

---