

**Scientific Abstract**

This phase I/II pilot study will evaluate the safety, relative survival and potential efficacy of infusions of activated, genetically engineered, syngeneic CD4+ T lymphocytes obtained from HIV seronegative identical twins. T cells from each seronegative twin will be obtained by apheresis, enriched for CD4+ cells, induced to polyclonal proliferation with anti-CD3 and rIL-2 stimulation, transduced with one of two control (Neor-containing) retroviral vectors and up to two additional retroviral vectors containing potentially therapeutic genes (antisense TAR and/or transdominant Rev). These engineered T cell populations will be expanded 10-1,000 fold in numbers during 1-2 weeks of culture, and then will be infused into the seropositive twins. The relative survival of the uniquely engineered T cell populations will be monitored by vector-specific PCR, while the recipients' functional immune status is monitored by standard in vitro and in vivo testing protocols. A total of up to 4 cycles of treatment may be given using identical or different combinations of control and anti-HIV retroviral vectors.