Methods of Pre-conditioning Patients for T-cell Therapy

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Technology description

The Need

Recent advances in Chimeric Antigen Receptor (CAR) T-cell therapy have generated hope in treatment of diseases such as cancer and HIV/AIDS. Cytotoxic lymphodepletion preconditioning is a step included in most CAR T-cell therapies, where T-cells and "cytokine sink" cells are depleted to increase the effectiveness of CAR T-cells. However, current therapies have yielded inconsistent results among patients, including death in some preclinical trials. Currently, there is a need for a more effective lymphodepletion preconditioning therapy for use in CAR T-cell therapy.

The Technology

Dr. Sanggu Kim of The Ohio State University has developed a methodology to specifically ablate T-cells in the body. This treatment method utilizes CD3e immunotoxin (CD3e-IT), an anti-CD3e monoclonal antibody conjugated with diphtheria toxin (DT), to specifically ablate Tcells in the body. Results indicate that CD3e-IT specifically ablates CXCR5+ follicular T cell (Tfh) populations, which is a key target in CAR T-cell therapy for HIV-1 and follicular T-cell cancers.

Application area

Treatment of Cancer

Treatment of HIV/AIDS

Advantages

Highly specific immunotoxin showing approximately 14- to 20- and 18- to 29-fold reduction rates for CD4+ T-cells and CD8+ T-cells

May provide a safer and more effective option for host preconditioning in CAR T-cell therapy

Institution

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