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ANTI-FCRL5 CHIMERIC ANTIGEN RECEPTOR (CAR) TARGETING MULTIPLE MYELOMA

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Value Proposition: *An innovative therapy leveraging unique chimeric antigen receptors (CAR) to specifically target Fc receptor-like 5 (FCRL5), enabling the precise elimination of FCRL5-expressing cells to treat multiple myeloma and other cancers.*

Technology Description

Researchers at Washington University in St. Louis have developed chimeric antigen receptor compositions that can be used to kill malignant cells in subjects in need thereof. The method developed by the researchers consists of administering an immune effector cell with one of their novel compositions. The immune effector cell is comprised of a chimeric antigen receptor (CAR-immune effector cell) and the antigen recognition domain of the CAR is designed to specifically bind to Fc receptor-like protein 5 (FCRL5).

Stage of Research

The CARs were generated with unique Vh and Vl targeting sequences. The CARs may be introduced into any immune cell (for example T cells, NK cells, NKT cells, iNKT cells, etc.) by any method (e.g., viral transduction, transposition, etc.).

Previous treatment approaches targeting FCRL5 in human multiple myeloma patients have either failed or not led to a cure, partially due to inefficient binding. CAR-T and bi-specific antibodies function best when the antibody binds to the protein at locations proximal to the cell surface. Researchers designed antibody clones that bind to the membrane proximal domain of FCRL5 in addition to other bindings increasing the effectiveness.

Stage of Research

- Lead compounds have been developed.

Publications

Targeting Distinct Epitopes of FCRL5 Using CAR-T Generated with Sequences Derived from Newly Identified FCRL5 Humanized Antibodies Resulted in Potent Anti-Myeloma Activity in Vitro and In Vivo. Blood (2023)

Applications

- Multiple myeloma; B cell and/or plasma cell malignancies

Key Advantages

- Have several humanized anti-FCRL5 antibodies that bind to various regions of FCLR to increase binding success
- The CAR can be introduced into any immune cell and can be introduced by various methods.
- The CAR can be introduced by various methods.

Patents

PCT Application (nationalization pending) - WO2023200873A2

Related Web Links: Julie O'Neal; John DiPersio Lab