Combination CD123 and C-type Lectin Molecule 1 Targeted T cells for Acute Myeloid Leukemia

Technology #7195

Summary: This method engineers T cells that specifically target leukemia cells for destruction, which is a targeted, less-toxic therapy for leukemia, including acute myeloid leukemia.

Applications:
· New method for engineering T cells
· AML treatment for high-risk patients

Advantages:
· Provides an additional treatment option for AML patients
· Less toxic than current therapies
· More targeted than some current therapies
· Can active immune responses, making the treatment more robust

Background:
There are approximately 45,000 new cases of Acute Myeloid Leukemia (AML) globally per year. Traditional chemotherapy treatments fall short of curing this disease for many patients. Over the past several years, alternative therapies for AML patients have been extensively explored, including therapies that target cancer-specific genes with antibodies or chimeric antigen receptors to initiate the body’s own immune responses to fight the cancer. However, these therapies are not 100% effective and still present some toxicity.

This technology uses engineered T cells to selectively target C-type lectin molecule 1 (CLL-1) cancer cells. CLL-1 is specifically expressed on leukemia cells, but not normal progenitor myeloid cells; this makes it an ideal candidate gene for targeting because healthy cells will not be affected by the treatment. Also, this technology can activate and recruit innate T cells to the leukemia target, enhancing the treatment’s therapeutic effects. These advantages make this technology a robust treatment with the potential to be more effective and less toxic than current AML treatment options.

Patents: Pending US, European patent applications

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