Autologous Anti-CD19CAR-4-1BB-CD3zeta-EGFRt-expressing CD4+/CD8+ Central Memory T-lymphocytes JCAR014

National Cancer Institute

Source

National Cancer Institute. Autologous Anti-CD19CAR-4-1BB-CD3zeta-EGFRt-expressing CD4+/CD8+ Central Memory T-lymphocytes JCAR014. NCI Thesaurus. Code C126639.

A defined preparation of CD4+ and CD8+ central memory (CM) autologous T-lymphocytes transduced with a lentiviral vector expressing a chimeric antigen receptor (CAR) containing an anti-CD19 single chain variable fragment (scFv) fused to the signaling domains of CD28, 4-1BB (CD137), the zeta chain of the TCR/CD3 complex (CD3-zeta), and a truncated form of the human epidermal growth factor receptor (EGFRt), with potential immunostimulating and antineoplastic activities. Upon intravenous administration, autologous anti-CD19CAR-4-1BB-CD3zeta-EGFRt-expressing CD4+/CD8+CM T-lymphocytes JCAR014 are directed to and induce selective toxicity in CD19-expressing tumor cells. CD19 antigen is a B-cell specific cell surface antigen expressed in all B-cell lineage malignancies. Devoid of both ligand binding domains and tyrosine kinase activity, the expressed EGFRt both facilitates in vivo detection of the administered, transduced T-cells and can promote elimination of those cells through a cetuximab-induced antibody dependent cellular cytotoxicity (ADCC) response. The 4-1BB costimulatory signaling domain enhances both proliferation of T-cells and antitumor activity.