Autologous Anti-CS1 Hinge-optimized CAR-4-1BB-EGFRt-expressing Memory-enriched T-cells

National Cancer Institute

Source

National Cancer Institute. Autologous Anti-CS1 Hinge-optimized CAR-4-1BB-EGFRt-expressing Memory-enriched T-cells. NCI Thesaurus. Code C160711.

A preparation of autologous central memory-enriched T-cells (Tcm) that have been transduced with a self-inactivating (SIN) lentiviral vector expressing a hinge-optimized chimeric antigen receptor (CAR) comprised of a CS1 (CD2 subset 1; SLAM family member 7; SLAMF7; CD319; CRACC)-specific single chain variable fragment (scFV), fused to the costimulatory signaling domain of 4-1BB (CD137), and a truncated human epidermal growth factor receptor (huEGFRt), with potential antineoplastic activity. Upon intravenous infusion, anti-CS1-CAR-4-1BB-CD3z-EGFRt-expressing Tcm-enriched T-lymphocytes target and induce selective toxicity in CS-1-expressing tumor cells. Devoid of both ligand binding domains and tyrosine kinase activity, the expressed huEGFRt facilitates both 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. CS1, a cell surface glycoprotein of the signaling lymphocyte activation molecule (SLAM) receptor family, is highly expressed on certain malignant plasma cells.