Autologous Anti-CD19 CAR TCR-zeta/4-1BB-transduced T-lymphocytes huCART19

National Cancer Institute

Source

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Autologous T-lymphocytes that have been transduced with a lentiviral vector to express a chimeric antigen receptor (CAR) consisting of a humanized single chain variable fragment (scFv) of anti-CD19 coupled to the cytoplasmic portion of the zeta chain of the human T-cell receptor (CD3zeta) and the co-stimulatory molecule 4-1BB (CD137), with potential immunostimulating and antineoplastic activities. Upon re-introduction into the patient, the autologous anti-CD19 CAR TCR-zeta/4-1BB-transduced T-lymphocytes huCART19 target and bind to CD19-expressing neoplastic B-cells. This results in a cytotoxic T-lymphocyte (CTL) response against CD19-expressing tumor cells, resulting in tumor cell lysis. CD19 (cluster of differentiation 19) is a B-cell-specific cell surface antigen overexpressed in B-cell lineage tumors. Incorporation of the co-stimulatory signaling domains increases human T-cell function, expansion, and survival.