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RNA Electroporated CD19CAR-CD3zeta-4-1BB-expressing Autologous T-lymphocytes

National Cancer Institute

Source

National Cancer Institute. *RNA Electroporated CD19CAR-CD3zeta-4-1BB-expressing Autologous T-lymphocytes*. NCI Thesaurus. Code C118947.

Autologous, genetically engineered T-lymphocytes that have been electroporated with an mRNA encoding for an anti-CD19 chimeric antigen receptor (CAR) consisting of an anti-CD19 single chain variable fragment (scFv) coupled to the co-stimulatory signaling domain of 4-1BB (CD137) and the zeta chain of the T-cell receptor CD3 complex (CD3-zeta), with potential immunomodulating and antineoplastic activities. Upon transfusion, the RNA electroporated CD19CAR-CD3zeta-4-1BB-expressing autologous T-lymphocytes attach to cancer cells expressing CD19. This induces selective toxicity against CD19-expressing tumor cells and causes tumor cell lysis. The 4-1BB co-stimulatory molecule signaling domain enhances T-cell activation and signaling after recognition of CD19. CD19 antigen is a B-cell specific cell surface antigen, which is expressed in all B-cell lineage malignancies.