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Autologous Anti-HLA-A*0201/AFP CAR T-cells ET1402L1

National Cancer Institute

Source

National Cancer Institute. *Autologous Anti-HLA-A*0201/AFP CAR T-cells ET 1402L1*. NCI Thesaurus. Code C155884.

A preparation of autologous T-lymphocytes that have been transduced with a lentiviral vector encoding a chimeric antigen receptor (CAR) containing a single chain variable fragment (scFv) derived from a human monoclonal antibody specific for an immunogenic human tumor-associated antigen (TAA) alpha-fetoprotein (AFP) epitope, AFP158-166, complexed with human leukocyte antigen (HLA)-A*02:01 (HLA-A*0201/AFP), fused to the co-stimulatory domains of CD28 and CD3zeta, with potential immunostimulating and antineoplastic activities. Upon administration, the autologous anti-HLA-A*0201/AFP CAR T-cells ET 1402L1 specifically recognize and selectively bind to the AFP158-166 peptide presented by HLA-A*0201. Upon binding to the AFP-MHC complex, the T-cells release cytokines and induce selective toxicity in HLA-A*0201/AFP-positive tumor cells. AFP, an intracellularly expressed fetal glycoprotein rarely expressed in adult tissues, is overexpressed in certain tumors of endodermal origin and plays a key role in tumor cell proliferation and survival. AFP is processed into peptides and presented by class I major histocompatibility complexes (MHCs) on the surface of tumor cells.