Anti-ACTR/4-1BB/CD3zeta-Viral Vector-transduced Autologous T-Lymphocytes ACTR087

National Cancer Institute

Source

National Cancer Institute. Anti-ACTR/4-1BB/CD3zeta-Viral Vector-transduced Autologous T-Lymphocytes ACTR087. NCI Thesaurus. Code C129715.

Autologous T-lymphocytes that are genetically modified and transfected with a viral vector expressing the ACTR gene, a proprietary gene encoding for an antibody-coupled T-cell receptor (ATCR), with potential antineoplastic activity. The ACTR contains the extracellular Fc receptor CD16 domain, normally found on certain immune cells, such as natural killer (NK) cells, coupled to the co-immunostimulatory signaling domain 4-1BB, normally expressed on T-cells, and linked to the intracellular CD3 zeta domain (CD3z), which is needed for TCR signaling. Upon reintroduction into the patient and co-administration of a cancer-specific antibody, the co-administered antibody targets and binds to the tumor-associated antigen (TAA) expressed on the tumor cell. In turn, this induces the activation of the ACTR087 cells and destruction of the tumor cells by a) releasing cytotoxins that directly kill cancer cells; b) releasing cytokines that trigger an immune response and recruit other immune-mediated killer cells to kill the tumor cells; b) targeting and killing adjacent tumor cells that are not bound to the antibody; c) inducing T-cell proliferation and thereby further enhancing the T-cell mediated tumor cell attack. CD3 zeta is one of several membrane-bound polypeptides found in the TCR/CD3 complex; it enhances the survival and persistence of T-lymphocytes. The 4-1BB co-stimulatory molecule signaling domain enhances activation and signaling after recognition of the TAA.