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# Autologous PSMA-specific TGFb-resistant CAR T Cells

National Cancer Institute

## Source

National Cancer Institute. *Autologous PSMA-specific TGFb-resistant CAR T Cells*. NCI Thesaurus. Code C148496.

Autologous T-lymphocytes transduced with a lentiviral vector expressing a chimeric antigen receptor (CAR) consisting of an anti-prostate specific membrane antigen (PSMA) single chain variable fragment (scFv) and expressing a dominant negative (DN) form of transforming growth factor-beta (TGF-beta; TGFb) receptor, with potential immunomodulating and antineoplastic activities. Upon transfusion, the autologous PSMA-specific TGFb-resistant CAR T cells are directed to and induce selective toxicity in PSMA-expressing tumor cells. The tumor-associated antigen (TAA) PSMA is overexpressed by prostate cancers; its expression is associated with poor prognosis and metastasis. The inclusion of the DN TGFb receptor blocks signaling of the immunosuppressive cytokine TGFb in the tumor microenvironment (TME) and makes the CAR T cells resistant to TGFb. TGFb negatively regulates T-cell proliferation and activation and plays a key role in tumor immune suppression.