CAR-T Cell-Based Immunotherapy

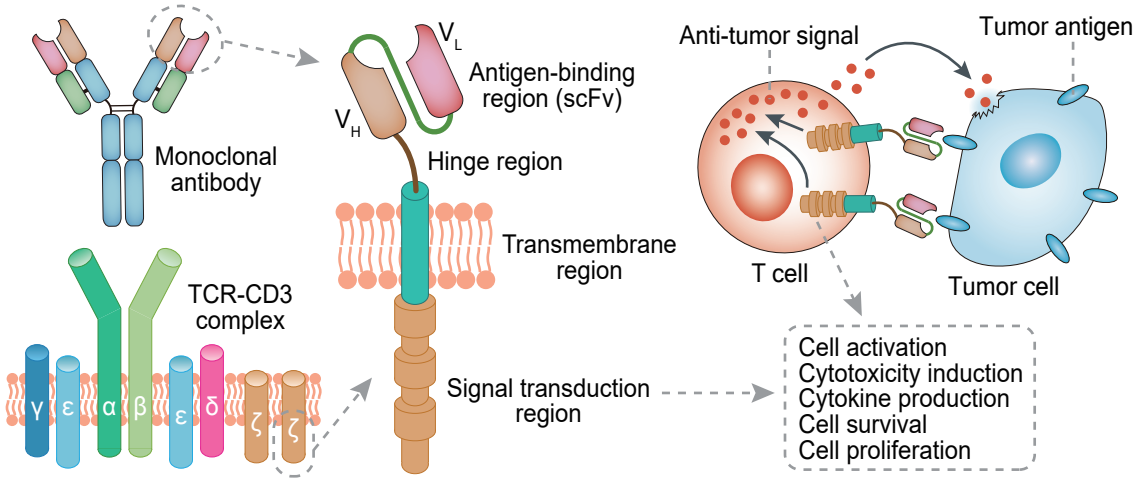
Basic Principles

The basic design of CAR includes a tumor-associated antigen (TAA) binding region (usually scFv), an extracellular hinge region, a transmembrane region and an intracellular signal. The first chimeric TCR was constructed by replacing the Vα and Vβ extracellular domains of the TCR chains. Single chain antibody links the CD3ζ for the first generation. Costimulatory molecule, such as CD28, has been engineered to the signal transduction region for the second generation. Another costimulatory molecule based on the second generation for the third generation has been engineered to the signal transduction region. The cytokines based on the second generation for the fourth generation has been engineered to the signal transduction region.

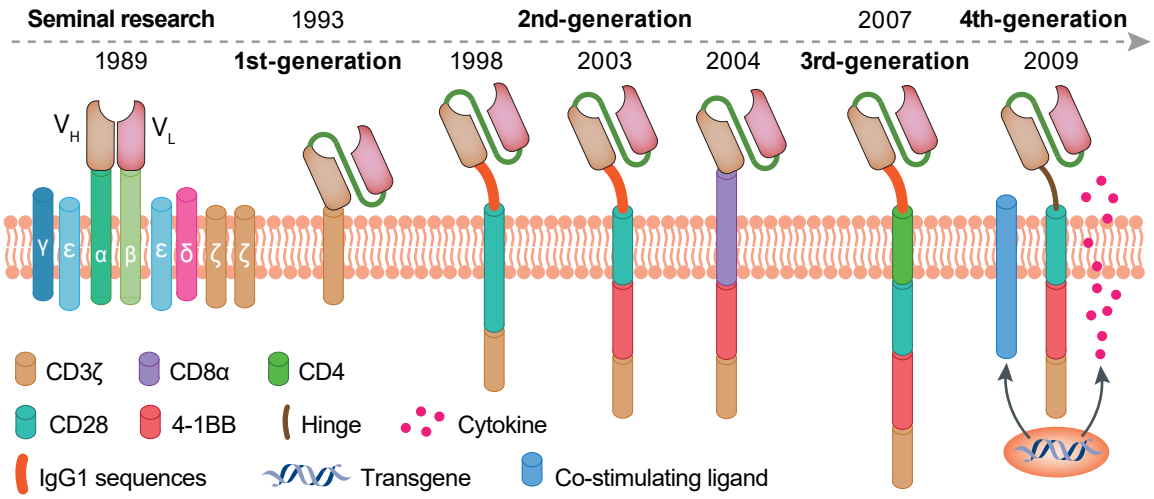
A dual CAR T cell expresses two separate CARs with different ligand binding targets. Dual CAR T cell activation requires co-expression of both targets on the tumour. A conditional CAR T cell is by default unresponsive until the addition of a small molecule to complete the circuit. A tandem CAR T cell expresses a single CAR consisting of two linked scFvs that have different affinities. The physiological CAR consists of an antigen receptor and a CD3ζ intracellular signaling domain with/without a transmembrane and a spacer region. The universal CAR utilizes biotin or anti-FITC scFv as targeting region fused with the transmembrane domain. Marked CAR T cells express a CAR plus a tumour epitope to which an existing monoclonal antibody agent binds.

Creative Biolabs CAR/TCR-related Products & Services

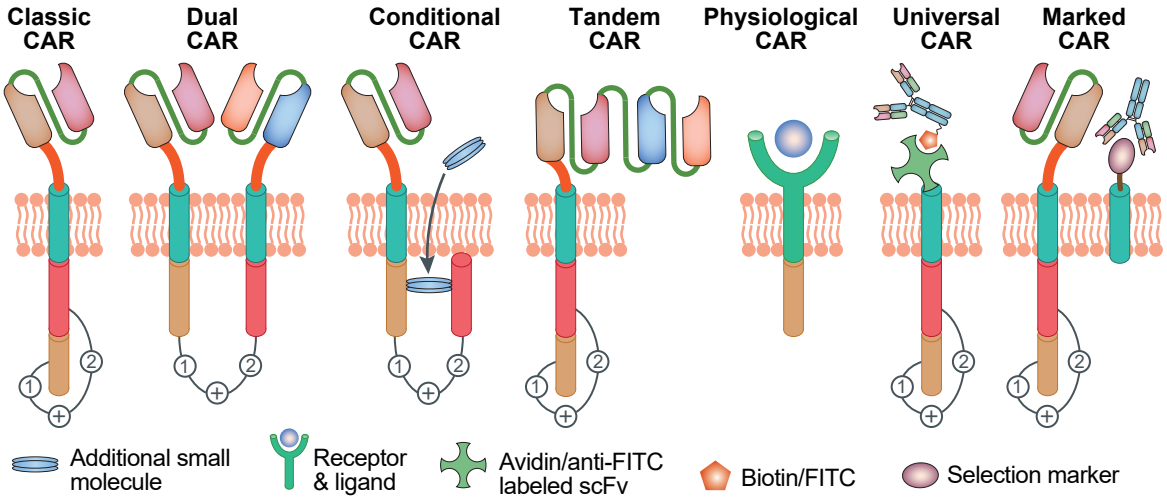
1 Structural and Functional Basis of CAR



2 Evolution of CAR



3 New CAR Models and Concepts



What we do:

One-Stop CAR-T Therapy Development Services
TCR Modified T Cell Development Services
TCR-Like Antibody Services
Dendritic Cell Vaccine Development Services
Bispecific TCR Development Service

Products:
Diseases Associated Antigen
CAR Vector System
Viral Particle
CAR/TCR Development Kits