CAR-T Cell-Based Immunotherapy

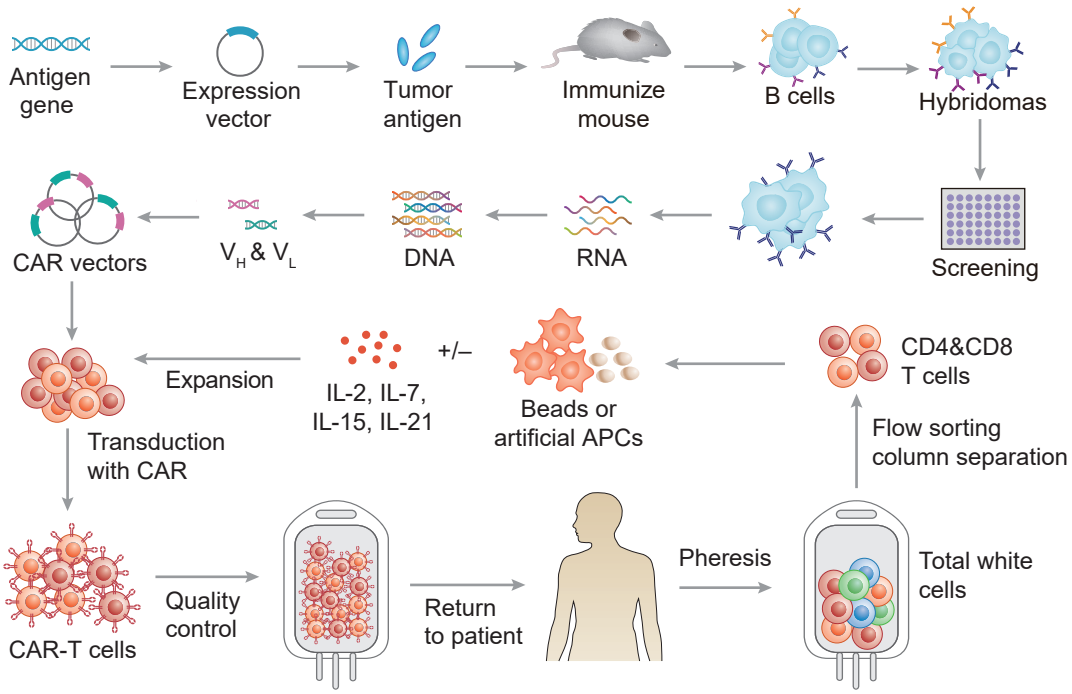
Development of CAR-T Cells

In the CAR-T cell constructing processes, the first step is to eukaryotically express the target antigen. Mice are vaccinated with the antigen, and the B cells are collected to generate hybridomas with myeloma cells using cell fusion technology. After several rounds of antigen-specific screening, hybridomas with the highest affinity with the target antigen are collected, and the total RNA is isolated and reverse transcribed for sequence analysis. Sequences of the antibody variable region are cloned into CAR vectors, including lentivirus, retrovirus, and transposome systems. Total white cells are collected from the patient's blood by pheresis methods and separated with flow sorting to obtain the CD4 and CD8 T cells, which are then *in vitro* matured and expanded. After infection or transfection, the CARs are expressed in the T cells to finally generate the CAR-T cells.

Lentivirus is HIV-1 based and the most mature system for T cell engineering. The first (1G) and second (2G) generation lentivirus systems both consist of three parts: transfer, envelope, and packaging plasmids. A regulator plasmid, which regulates viral transcription and nuclear export of transcripts, is supplemented to form the third generation. Gamma retrovirus system is quite similar to lentivirus except for few elements including promoters. Transposons are dual component systems composed of one plasmid carrying the CAR (transposon) and the other carrying the transposase.

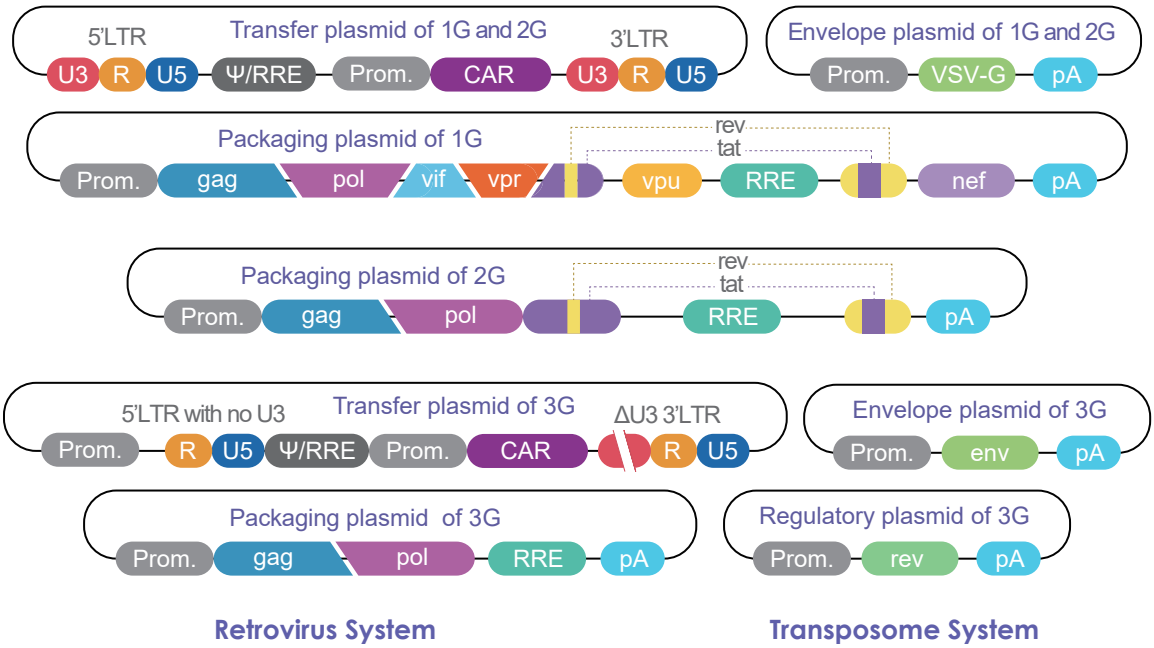
Creative Biolabs CAR/TCR-related Products & Services

1 Flow Chat of CAR-T cells generation

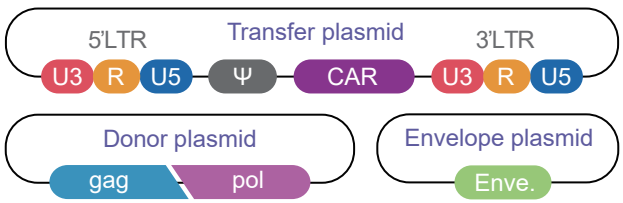


2 Vector Systems for CAR Engineering

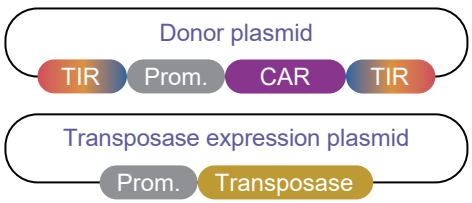
Lentivirus System



Retrovirus System



Transposome System



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