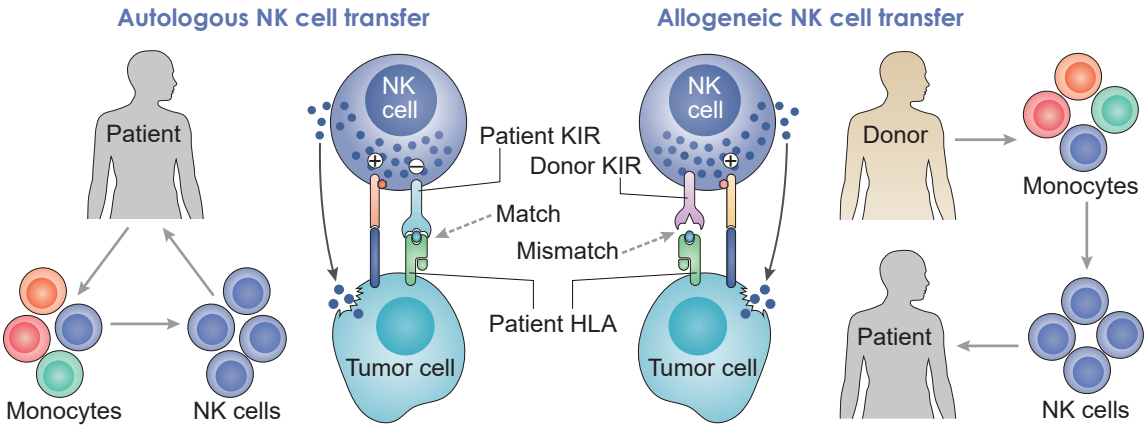
NK Cell-Based Therapeutics

In autologous transfer, natural killer (NK) cells from the patient are activated and expanded *in vitro* in the presence of cytokines. Feeder cellsare often used. The expanded and activated NK cells are then transferred back into the patient, who generally receives cytokine administration to sustain the expansion and function of the infused NK cells. Although autologous NK cells might recognize activating signals such as stress molecules on cancer cells, their anti-tumor activity is limited by the inhibitory signal transmitted by self HLA molecules. In allogeneic transfer, NK cells can be obtained from HLA-matched or haploidentical donors. NK cells are expanded but T cells should be removed to avoid GVHD. In this setting, the best responses are obtained when haploidentical donors do not express KIRs that recognize the patient's HLA molecules. Chimeric antigen receptors (CARs) can be engineered in autologous or allogeneic NK cells or in NK cell lines. CARs are designed by the fusion an antigen-binding domain with a hinge region, a transmembrane domain and one or more stimulatory molecules.

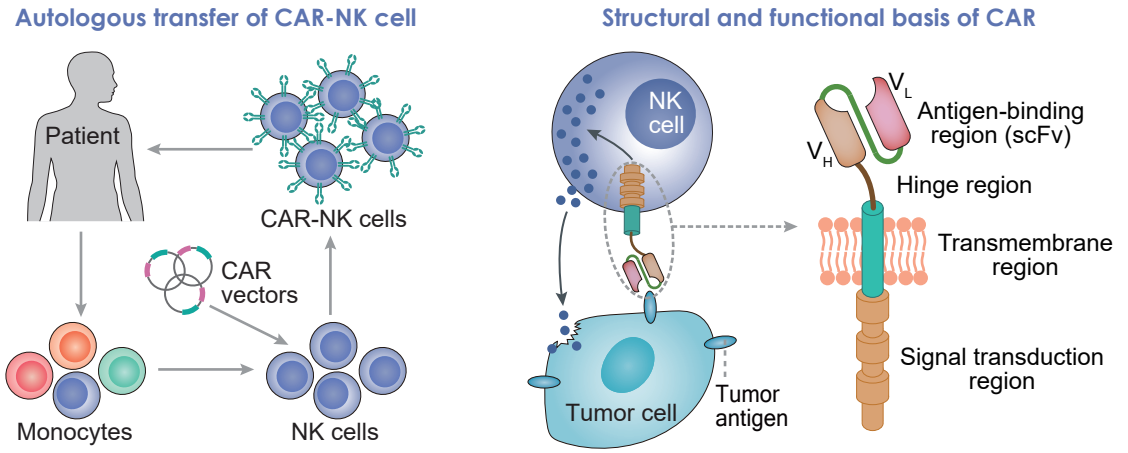
In addition to adoptive transfer, NK cells are also involved in molecular based therapies. Stimulatory cytokines, small molecule activators/inhibitors, monoclonal antibodies (mAbs) including bispecific antibodies (bsAbs), and antibody-drug conjugates (ADCs) are utilized to target inhibitory/activating receptors/ligands, tumor antigens, immuno-suppressive molecules, and the tumor microenvironment, to improve the anti-tumor activity of NK cells.

Creative Biolabs Cellular Therapy Solutions

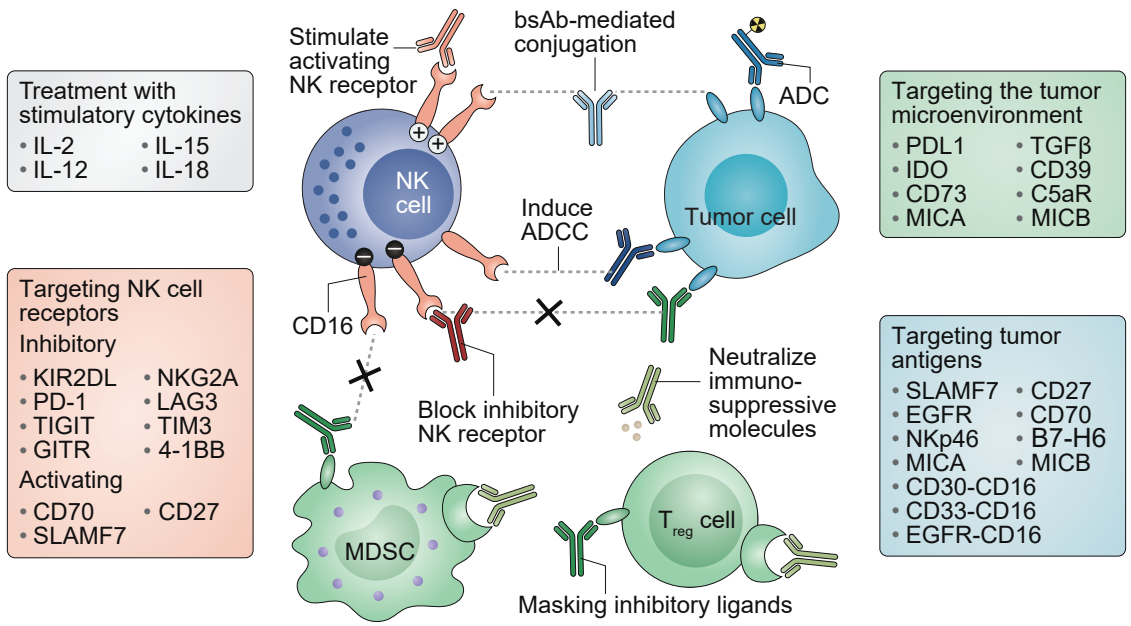
1 Adoptive transfer of NK cells without genetic engineering



2 Adoptive transfer of NK cells with CAR modification



3 NK cell-mediated molecular therapeutics



Treatment with stimulatory cytokines

- IL-2
- IL-12
- IL-15
- IL-18

Targeting NK cell receptors

Inhibitory

- KIR2DL
- PD-1
- TIGIT
- GITR
- NKG2A
- LAG3
- TIM3
- 4-1BB

Activating

- CD70
- SLAMF7
- CD27

Targeting the tumor microenvironment

- PDL1
- IDO
- CD73
- MICA
- TGFβ
- CD39
- C5aR
- MICB

Targeting tumor antigens

- SLAMF7
- EGFR
- NKp46
- MICA
- CD30-CD16
- CD33-CD16
- EGFR-CD16
- CD27
- CD70
- B7-H6
- MICB

What we do:

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

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