

BALB/c-hCD3/hCD73

Strain Name: BALB/cJGpt-Cd3e, d, g^{tm1(hCD3E, D, G)} Nt5e^{em1Cin(hNT5E)}/Gpt

Strain Type: Targeted

Strain Number: T057420

Background: BALB/cJGpt

Description

5'-nucleotidase (5'-NT), also known as ecto-5'-nucleotidase or CD73 (cluster of differentiation 73), an enzyme, commonly serves to convert AMP to adenosine. In recent years, studies have revealed CD73 plays a significant role in promoting cancer progression by upregulating adenosine signaling, a well-established mechanism of inhibiting immunosurveillance against tumor cells [1]. Moreover, many cancer cells overexpress CD73, which exacerbates immune suppression in the tumor microenvironment. These studies, among others, highlight the therapeutic potential of blocking CD73 hydrolysis of AMP as a means to de-repress anti-tumor immune activity.

Bispecific antibodies (BsAbs) combine specificities of two antibodies and simultaneously address different antigens or epitopes. CD3-target-based bispecific antibodies (CD3-TCB) are designed to simultaneously bind to T cells and target cell antigens, leading to T-cell activation, proliferation, and target cell death.

The BALB/c-hCD3/CD73 was created at GemPharmatech using gene editing technology whereby the coding sequence of CD73 was inserted at the murine start codon position following with the termination transcription sequence on BALB/c-hCD3EDG(T053483) background. The expression of hCD3 and hCD73 was detected in homozygous BALB/c-hCD3/hCD73 mice. The BALB/c-hCD3/CD73 mice are suitable models for preclinical studies of anti-hCD3/hCD73 bispecific antibodies and related immunotherapies.

Strategy



Fig1 Schematic diagram of humanization CD73 of BALB/c-hCD3/hCD73 model

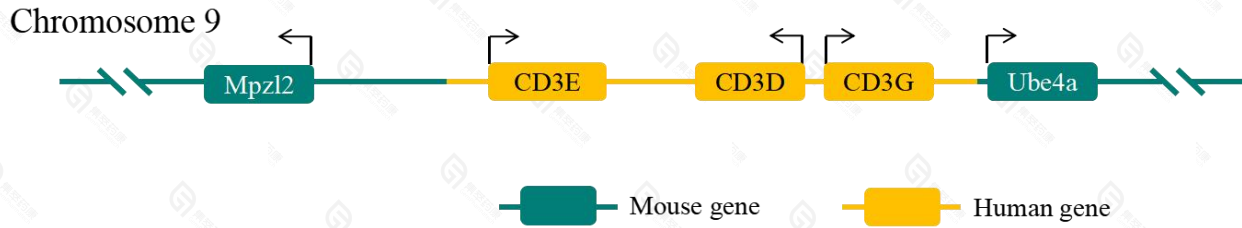


Fig2 Schematic diagram of humanization CD3E/D/G of BALB/c-hCD3/hCD73 model

Applications

1. Anti-hCD3/hCD73 drugs screening and efficacy test
2. Toxicity evaluation of anti-human CD3/CD73 antibody
3. Immune system-related research

Data support

1. Detection of CD3 expression

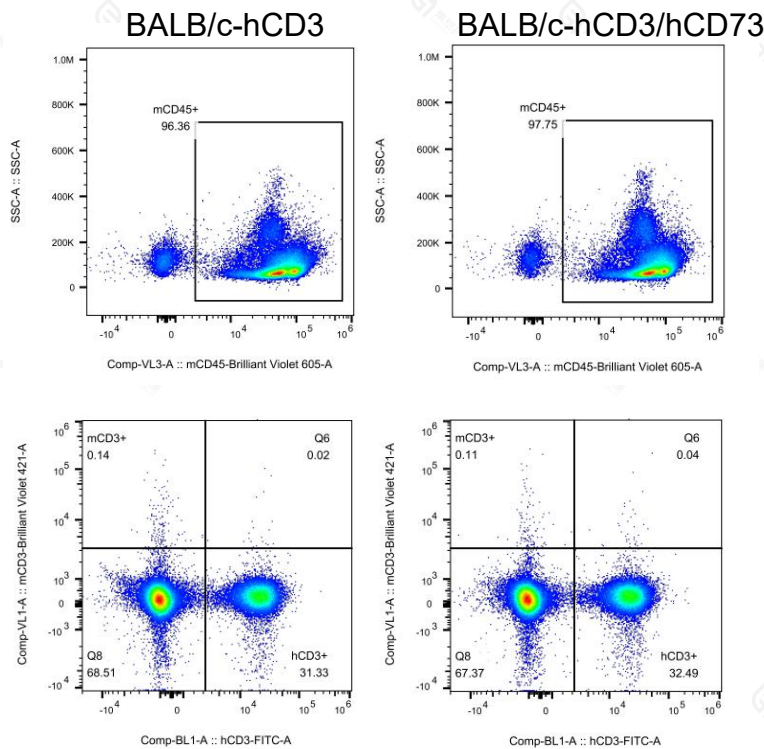


Fig 3. Detection of hCD3 expression on BALB/c-hCD3/hCD73 mice.

The expression of human CD3 was successfully detected in homozygous BALB/c-hCD3/hCD73 spleen.

Top panel: mCD45+ expressing ratio in live cells. Bottom panel: mCD3E+/hCD3E+ expressing ratio in total T cells.

2. Detection of CD73 expression

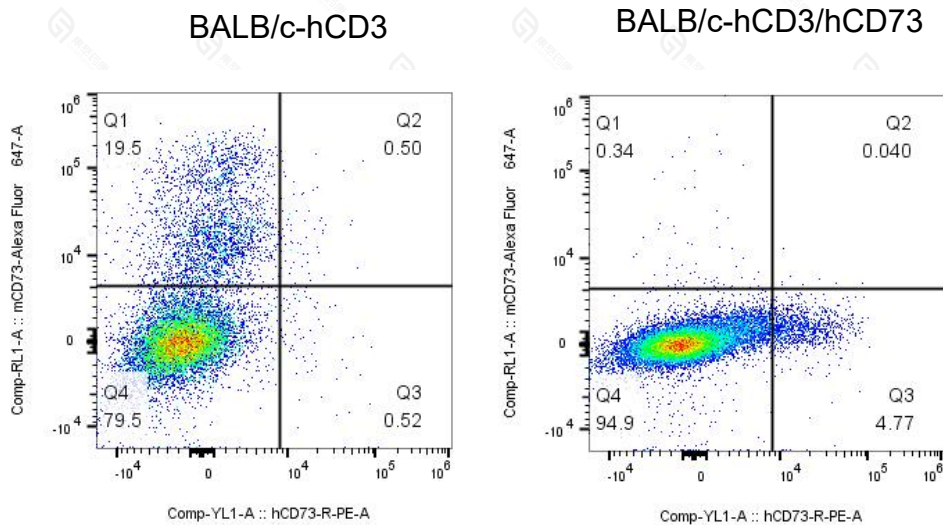


Fig 4. Detection of hCD73 expression on BALB/c-hCD3/hCD73 mice.

The expression of human CD73 was successfully detected in homozygous BALB/c-hCD3/hCD73 liver. Panel: mCD73+/hCD73+ expressing ratio in total live cells.

References

1. Allard, Bertrand, et al. "The ectonucleotidases CD 39 and CD 73: novel checkpoint inhibitor targets." *Immunological reviews* 276.1 (2017): 121-144.