

# hCD3EDG

## TRIPLE HUMANIZED CD3 MOUSE

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The hCD3EDG triple humanized CD3 model is one of the most in-demand tools for bispecific T cell engager (TCE) development.

The hCD3EDG strain replaces all three signaling subunits of the murine CD3 complex (CD3 epsilon, CD3 delta, and CD3 gamma) with their human orthologs on a C57BL/6 background. This is a full CD3 complex humanization, not a single-chain knock-in, custom-built for preclinical evaluation of human CD3-directed immunotherapies.

Parameter	Detail
<b>Model name</b>	hCD3EDG
<b>Full strain name</b>	C57BL/6 Cd3etm1(hCD3E) Cd3dtm1(hCD3D) Cd3gtm1(hCD3G)
<b>Catalog number</b>	HU 220120
<b>Strain state</b>	Repository live (ready to ship)
<b>Humanized genes</b>	CD3E (epsilon), CD3D (delta), CD3G (gamma)
<b>Zygoty</b>	Homozygous

## WHY TRIPLE CD3 HUMANIZATION?

The TCR requires the CD3 complex for signal transduction, comprising CD3 $\epsilon/\delta$ , CD3 $\epsilon/\gamma$ , and CD3 $\zeta/\zeta$  dimers that together provide 10 ITAMs to drive downstream activation. CD3 $\epsilon$  is the primary target for most TCEs, but it functions as an obligate heterodimer with CD3 $\delta$  and CD3 $\gamma$ . Humanizing only CD3 $\epsilon$  can produce hybrid mouse-human complexes that do not fully reproduce human binding and signaling.

- By humanizing CD3E, CD3D, and CD3G simultaneously, hCD3EDG provides:
- Accurate human epitope presentation, including interfaces at  $\epsilon/\delta$  and  $\epsilon/\gamma$
- Physiologic ITAM-based signal transduction through a properly assembled CD3 complex
- Translatable cytokine release profiles in an immunocompetent, syngeneic system
- Preserved immune architecture, including normal T cell development and subset distribution

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### VALIDATION DATA

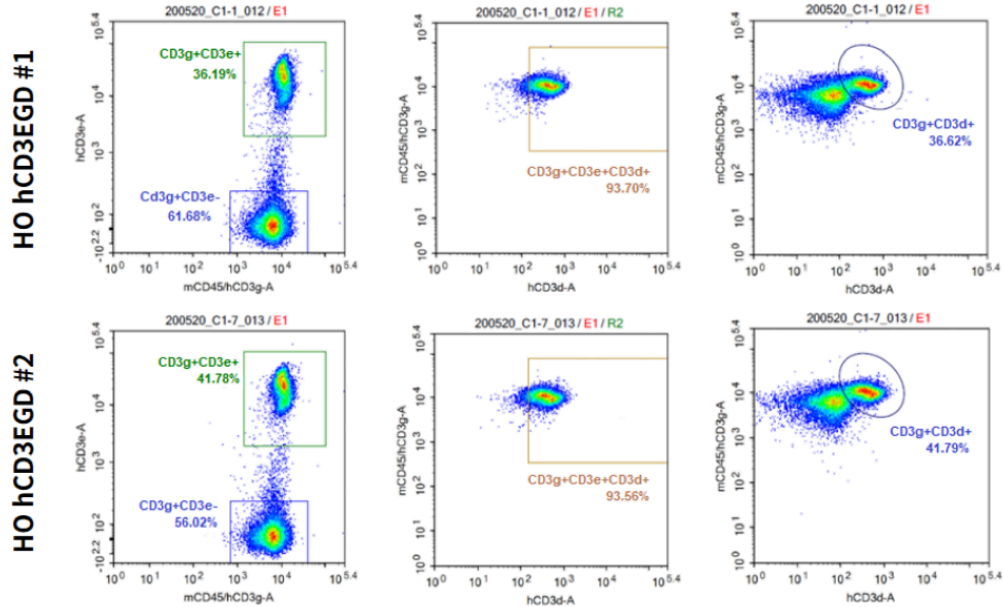


Fig.1 Detection of human CD3E,CD3D,CD3G on T cell surface in HO hCD3EDG mice.

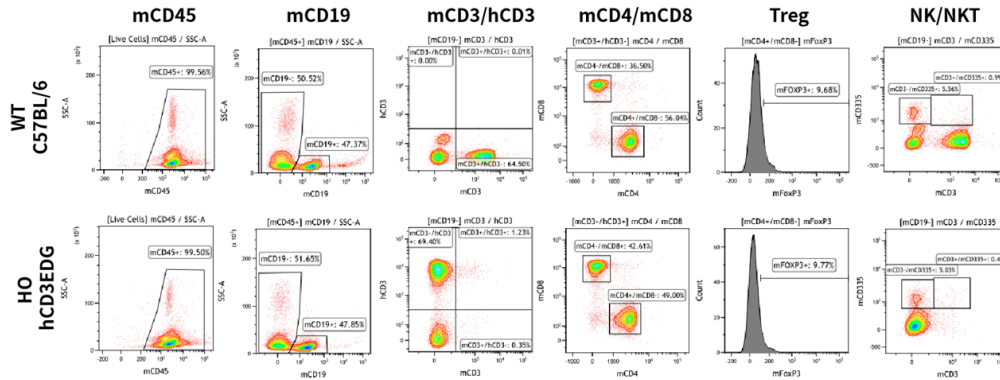


Fig.2 Lymphocyte Lineage Characterization in Blood in Homozygous hCD3EDG Mice.

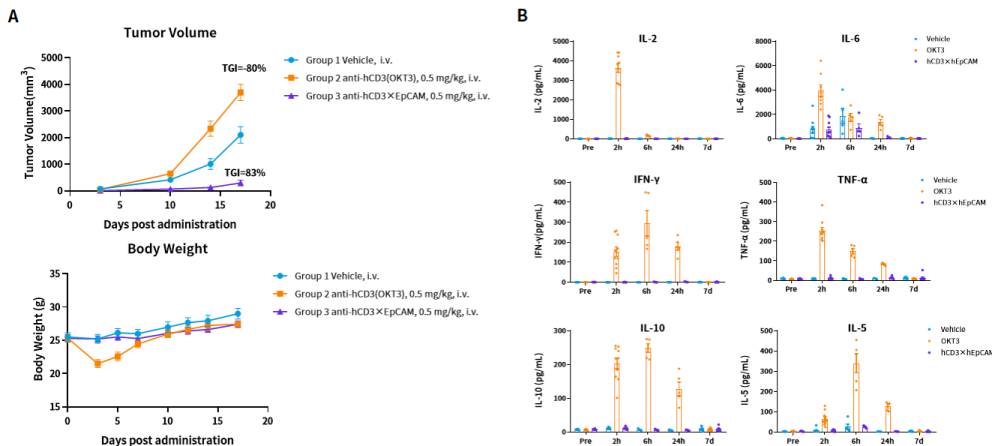
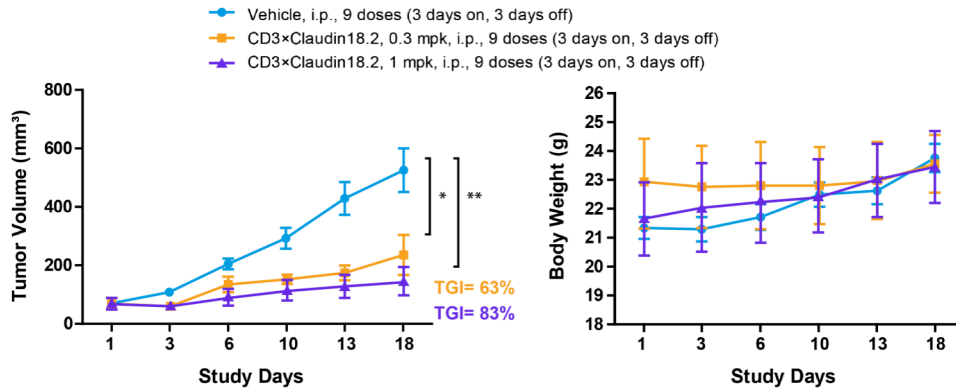


Fig.3 In vivo AICD and irAE Assessment of Bispecific T Cell Engager Antibodies in Homozygous hCD3EDG Mice.

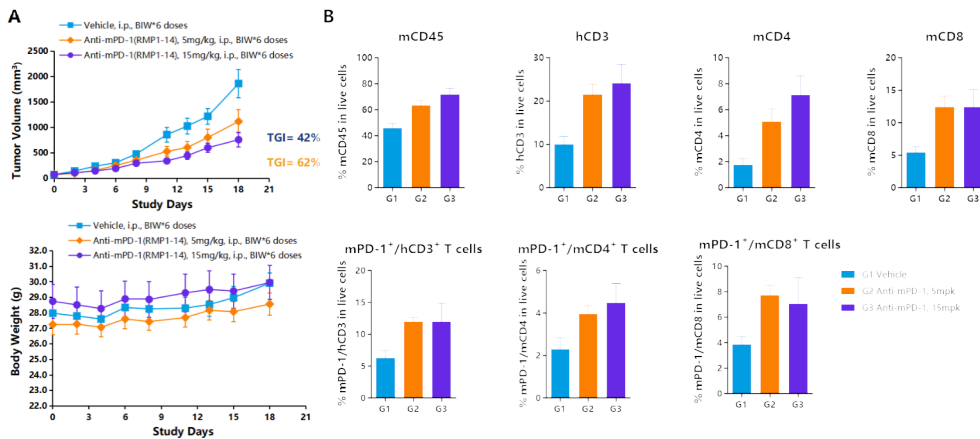
Homozygous hCD3EDG mice were engrafted with MC38-hEpCAM to evaluate the AICD and irAE of OKT3 and anti-CD3xEpCAM bispecific antibody *in vivo*.

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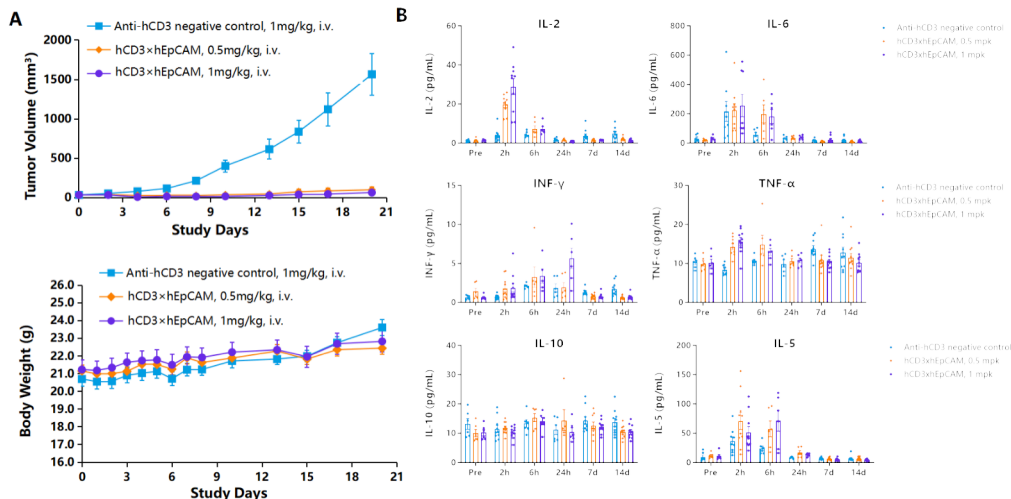
**Fig.4 *In Vivo* Response with Bispecific T Cell Engager Antibodies in Homozygous hCD3EDG Mice.**

Homozygous hCD3EDG mice were engrafted with MC38-hCLDN18.2 to evaluate the *in vivo* efficacy of anti-CD3×Claudin18.2 bispecific antibody.



**Fig.5 *In vivo* AICD and irAE Assessment of CD3 Bispecific Antibody in homozygous hCD3EDG Mice.**

The anti-tumor response of anti-mPD-1 was evaluated in homozygous hCD3EDG mice bearing MC38 syngeneic tumor model.



**Fig.6 *In vivo* AICD and irAE Assessment of CD3 Bispecific Antibody with Homozygous hCD3EDG Mice.**

Homozygous hCD3EDG mice were engrafted with MC38-hEpCAM to evaluate the AICD and irAE of anti-CD3×EpCAM bispecific antibody at low and high dose levels *in vivo*.

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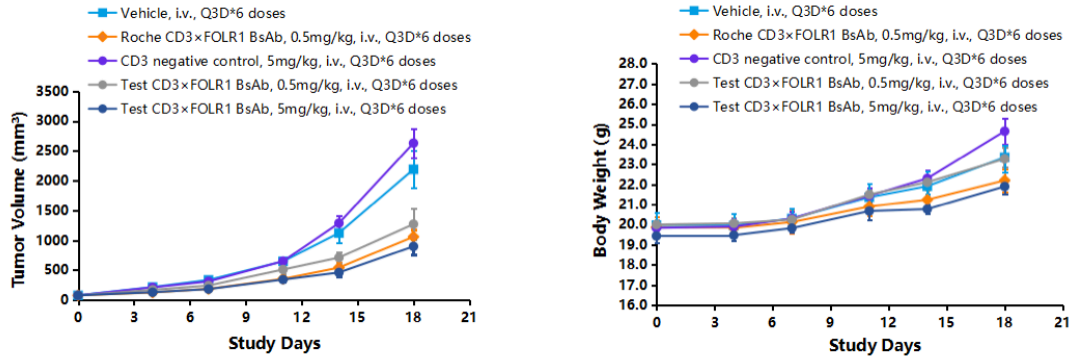


Fig.7 In Vivo Response with Bispecific T Cell Engager Antibodies.

## About ingenious targeting laboratory

Ingenious targeting laboratory maintains a catalog of over 14,000 mouse models, including humanized strains, Cre driver lines for conditional expression, and reporter mice for cell tracking and imaging. These quality-controlled models on defined genetic backgrounds ship as breeding pairs or cohorts with complete genotyping protocols and health documentation. Researchers gain immediate access to mouse strains without custom generation timelines, accelerating experiments across immunology, oncology, neurology, and metabolic disease applications.