

BALB/c-hCD3E

Strain Name: BALB/cJGpt-Tg(hCD3E BAC)102/Gpt

Strain Type: BAC Transgenic

Strain ID: T001550

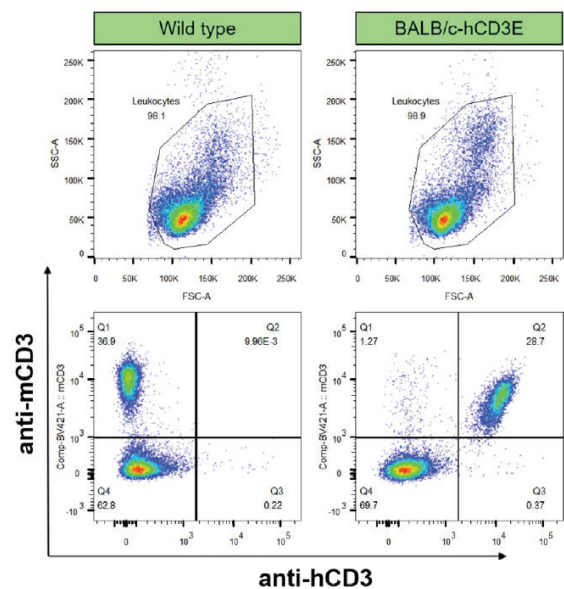
Background: BALB/cJGpt

Description

CD3E encodes the CD3-epsilon polypeptide, which together with CD3-gamma, -delta and -zeta, and the T-cell receptor alpha/beta and gamma/delta heterodimers, forms the T-cell receptor-CD3 complex. This complex plays an important role in coupling antigen recognition to several intracellular signal transduction pathways. CD3E plays a critical role in the formation and function of the TCR-CD3 complex. T-cell bispecific antibody (T-BsAb), an important class of drugs against a variety of tumors, binds to a tumor associated antigen (TAA) and CD3E and directs specific killing of tumor cells carrying the TAA. However, therapeutic T-BsAbs usually don't cross-react to mouse CD3E as human CD3E shares only 47% homology with mouse CD3E in the extracellular domain, thus there is an unmet need for suitable animal models to evaluate the therapeutic efficacy of T-BsAb candidates. GPT's BALB/c-hCD3E mice (T001550) co-express human and mouse CD3E in over 90% of T-cells and display normal immune system compared to wild-type BALB/c mice. Consistent with previous studies, when we knocked out mCd3e in BALB/c-hCD3E mice, BALB/c-hCD3E/mCd3e-KO double mutant mice displayed a marked reduction in the number of splenic T-cells, as well as percentages and numbers of CD4⁺ and CD8⁺ T-cells. More importantly, strong tumor inhibition of anti-mCTLA4 was observed in BALB/c-hCD3E.



Human CD3E protein expression analysis



Detection of hCD3E expression in BALB/c-hCD3E mice. hCD3E is expressed on the surface of T-cells, and 96% CD3⁺ T-cells co-express hCD3E and mCD3E in BALB/c-hCD3E mice.

Application

1. Study development and activation of T-cells.
2. Screen T-cell bispecific antibodies.
3. Drug development in immuno-oncology.

Our added value

- Optimal logistic arrangement for international shipments, thanks to our dedicated and internal transport service.
- Pre- and post-sales scientific support.
- Seamless MTA and CDA process due to our in-house models.

Useful References

(1) Yamazaki, Tetsuo, et al. "CAST, a novel CD3ε-binding protein transducing activation signal for interleukin-2 production in T cells." *Journal of Biological Chemistry* 274.26 (1999): 18173-18180. (2) Kuhn, Chantal, et al. "Human CD3 transgenic mice: preclinical testing of antibodies promoting immune tolerance." *Science Translational Medicine* 3.68 (2011): 68ra10-68ra10. (3) Soudais, Claire, et al. "Independent mutations of the human CD3-ε gene resulting in a T cell receptor/CD3 complex immunodeficiency." *Nature genetics* 3.1 (1993): 77. (4) de Saint Basile, Geneviève, et al. "Severe combined immunodeficiency caused by deficiency in either the δ or the ε subunit of CD3." *The Journal of clinical investigation* 114.10 (2004): 1512-1517. (5) Dreier, Torsten, et al. "T cell costimulus-independent and very efficacious inhibition of tumor growth in mice bearing subcutaneous or leukemic human B cell lymphoma xenografts by a CD19-/CD3-bispecific single-chain antibody construct." *The Journal of Immunology* 170.8 (2003): 4397-4402.

Additional services

