

BALB/c- hCD22

Strain Name: BALB/cJGpt-Cd22^{em1Cin(hCD22)}/Gpt

Strain Type: Knock-in

Strain Number: T054197

Background: BALB/cJGpt

Description

CD22, or cluster of differentiation-22, is a molecule belonging to the SIGLEC family of lectins. It is mainly expressed on the surface of mature B cells, and involved in the regulation of the expression of surface IgM on B cells. CD22 is also found on the surface of most B-cell leukemias and lymphomas and therefore has been explored as a target for Ab-based therapies [1]. Inotuzumab ozogamicin (InO) is a calicheamicin-conjugated antibody targeting CD22 on B-cell ALL cells, and is approved for R/R B-cell precursor ALL. And there are many drugs that target CD22 in the clinical stage for treating B-cell Lymphoma.

In addition, a lot of studies have shown that CD22 contributes to the regulation of autoimmunity. Some recent data suggest that targeting CD22 can suppress pathogenic B cell response, such as Epratuzumab (Emab) as therapies for autoimmune diseases, particularly for SLE.

GemPharmatech use gene editing technology to replace the human CD22 protein of BALB/c mice for the mouse CD22, developed BALB/c-hCD22 humanized model. This model will be useful in research of anti-CD22 immunotherapies in the field of tumor and autoimmunity therapy.

Strategy

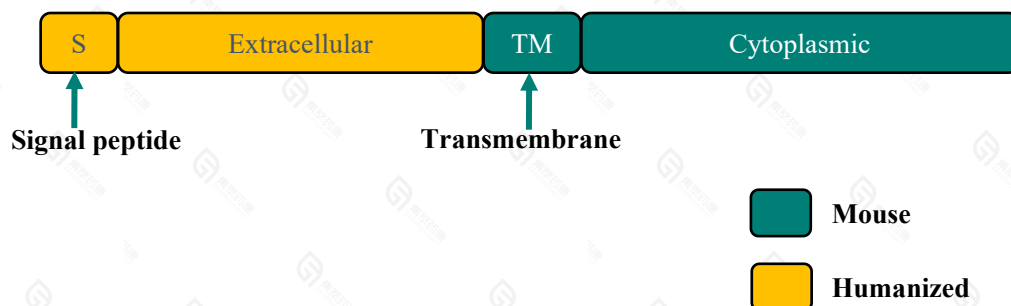


Fig.1 Schematic diagram of CD22 humanization strategy in BALB/c-hCD22 mice.

The extracellular domain was substituted with its human counterpart.

Applications

1. Evaluation of efficacy and safety of anti-hCD22 antibodies
2. Anticancer drug research and development
3. Research on autoimmune diseases

Data support

1. CD22 Protein expression analysis

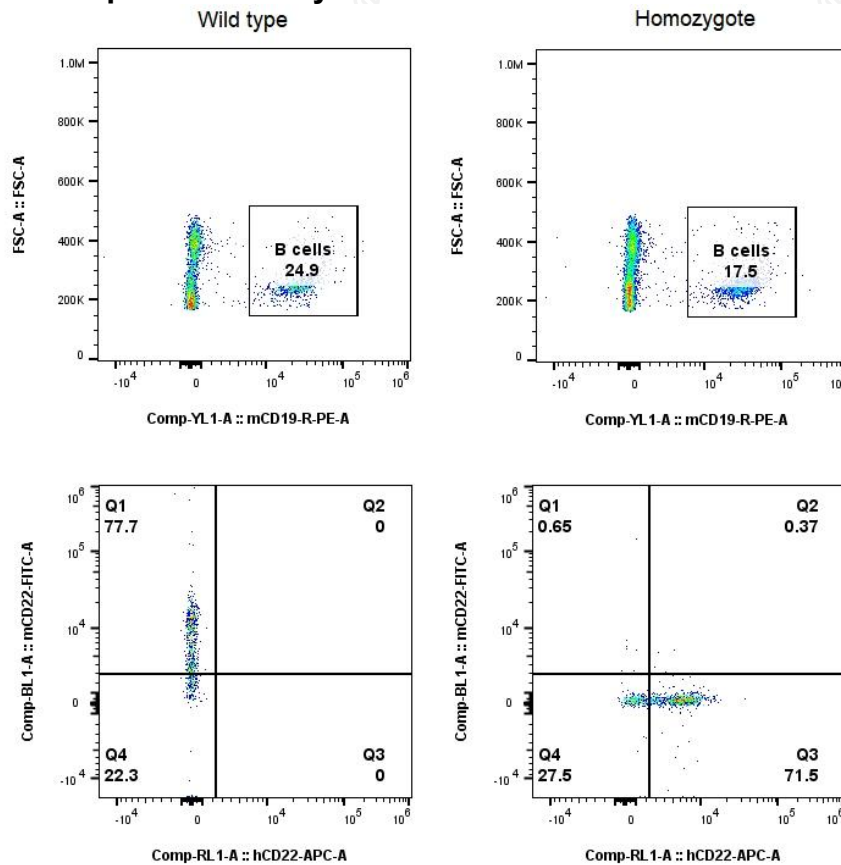


Fig.2 Detection of CD22 expression in BALB/c-hCD22 mice.

The hCD22 expressing cell ratio in total B cells in homozygous BALB/c-hCD22 mice blood is comparable to that of mCD22 of expressing cell ratio in wild-type BALB/c mice blood. Top panel: mCD19 expressing ratio in lymphocytes. Bottom panel: mCD22+/hCD22+ expressing ratio in B cells.

2. The T/B cell ratio detection

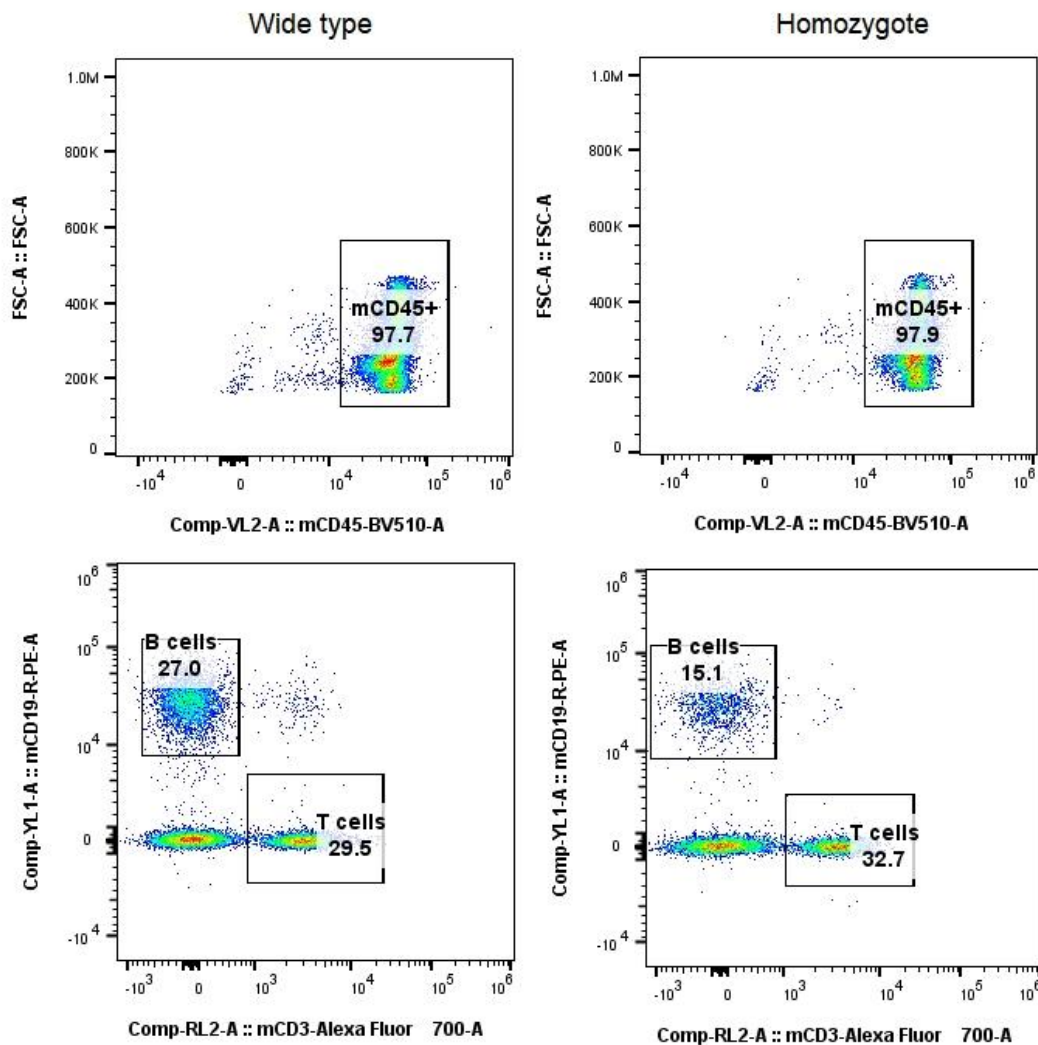


Fig.5 Detection the T/B cell ratio in BALB/c-hCD22 mice.

The ratio of T and B lymphocytes in the blood of BALB/c-hCD3EDG mice is similar to that in wild-type BALB/c mice. Top panel: lymphocytes ratio in live cells. Bottom panel: mCD19/mCD3 in lymphocytes

References

1. Leonard J P, Goldenberg D M. Preclinical and clinical evaluation of epratuzumab (anti-CD22 IgG) in B-cell malignancies[J]. *Oncogene*, 2007, 26(25): 3704-3713.
2. Geh D, Gordon C. Epratuzumab for the treatment of systemic lupus erythematosus[J]. *Expert review of clinical immunology*, 2018, 14(4): 245-258.