

BALB/c-hCD138

Strain Name: BALB/cJGpt-*Sdc1*^{em1Cin(hSDC1)}/Gpt

Strain Type: Knock-in

Strain ID: T054537

Background: BALB/cJGpt

Description

CD138, also known as Syndecan-1, is a transmembrane (type I) heparan sulfate proteoglycan and is a member of the syndecan proteoglycan family. It is also a marker highly specific for terminally differentiated normal plasma cells. According to records, CD138 is a heparin sulphate proteoglycan that controls tumor cell survival, growth, adhesion and bone cell differentiation in Multiple myeloma (MM). In addition, the use of specific antibodies targeting CD138 are also considered as a novel treatment strategy for MM [1].

GemPharmatech used CRISPR/Cas9 gene editing technology to substitute the extracellular region of mouse CD138 with the corresponding region of human CD138 on BALB/c background, and normal intracellular signal transduction was retained. Developed the BALB/c-hCD138 humanized mouse model, this model can successfully express human CD138. These mice are ideal models for evaluating anti-CD138 drug efficacy and toxicity, in particular anti-CD138 drug safety in vivo.

Strategy

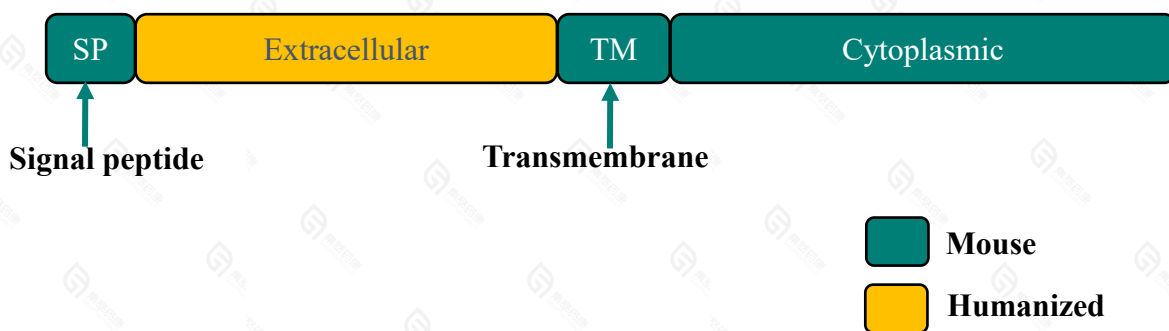


Fig 1. The CD138 gene humanization strategy

The extracellular domain, except for the signal peptide, was substituted with its human counterpart. In comparison, the transmembrane and cytoplasmic domain was retained.

Applications

1. Efficacy evaluation of anti-hCD138 drugs.

2. Drug safety evaluation of anti-hCD138 drugs.

Data support

1. Detection of CD138 mRNA expression

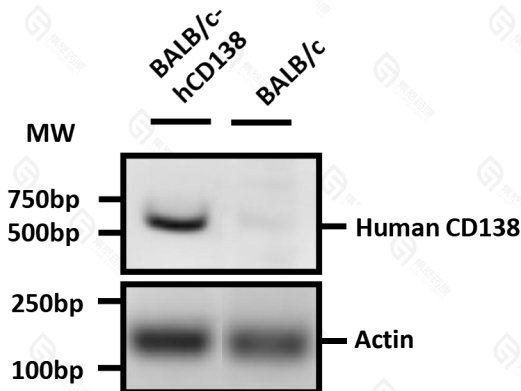


Fig 2. Detection of hCD138 expression on BALB/c-hCD138 mice.

Human CD138 mRNA can successfully be detected in BALB/c-hCD138 liver.

2. Detection of CD138 protein expression



Fig 3. Detection of hCD138 protein expression on BALB/c-hCD138 mice.

CD138 expression was detected by Western Blot with an anti-human CD138 antibody (AF2780-SP) and anti-mouse CD138 antibody (AF3190-SP). The CD138 protein was successfully detected in the BALB/c-hCD138 mice.

References

1. Ikeda, Hiroshi, et al. "The monoclonal antibody nBT062 conjugated to cytotoxic Maytansinoids has selective cytotoxicity against CD138-positive multiple myeloma cells in vitro and in vivo." *Clinical Cancer Research* 15.12 (2009): 4028-4037.