

## B6-hCD34

**Strain Name:** B6JGpt-*CD34<sup>em1Cin(hCD34)</sup>*/Gpt

**Strain Type:** Knock-in

**Strain ID:** T056429

**Background:** C57BL/6JGpt

### Description

CD34 is a highly glycosylated type I transmembrane protein, belonging to cadherin, which is a marker of vascular endothelial cells, hematopoietic stem cells and other cells. CD34 is selectively expressed on the surfaces of early hematopoietic stem cells, hematopoietic progenitor cells, small vascular endothelial cells, and embryonic fibroblasts, and plays an important role in mediating cell adhesion. It is involved in hematopoietic stem cell transportation, colonization, inflammatory response, and homing of lymphocytes [1]. In addition to being of great significance in the study of hematopoietic diseases, the CD34 molecule also provides a new marker for the study of solid tumors. The expression level of CD34 molecule in tumors can reflect the situation of tumor angiogenesis and indirectly reflect the speed of tumor proliferation, which is of great clinical significance [2]. Therefore, CD34 can be used as a marker of vascular endothelial cells and hematopoietic stem cells [3].

Using gene editing technology, we replaced the extracellular region of the B6-hCD34 gene with the corresponding human-derived gene fragment, while retaining the intracellular signaling region of the corresponding mouse-derived gene, ensuring that the correct cell signaling is not affected. The constructed B6-hCD34 will be an ideal animal model for evaluating human CD34-targeting drugs.

### Strategy

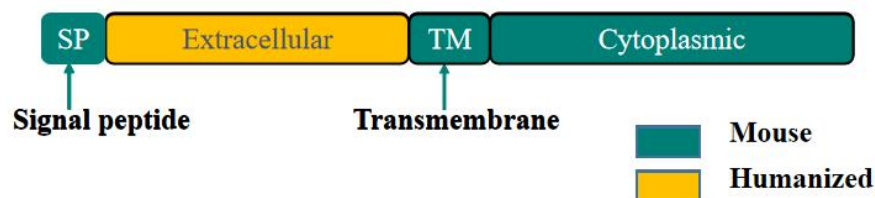


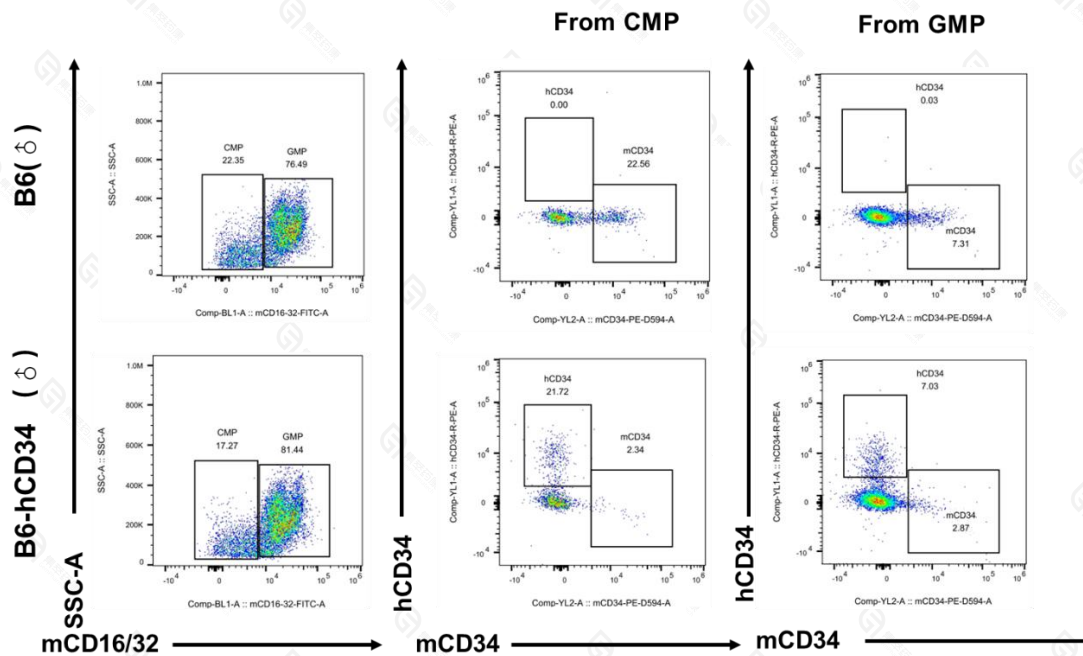
Figure 1 Schematic diagram of CD34 humanization strategy in B6-hCD34 mice

### Applications

1. Efficacy evaluation of human CD34 agonists;
2. Safety evaluation of human CD34 agonists;
3. Research on cell therapy;

## Data Support

### 1. Detection of protein expression



**Figure 2 CD34 Protein expression assay in B6-hCD34 mice**

Bone marrow was collected from B6 and B6-hCD34 mice, and the expression of CD34 in CMP, GMP was detected by flow cytometry. The results showed that human CD34 expression was detected by CMP, GMP in the bone marrow of B6-hCD34 mice, mouse CD34 expression was detected by CMP, GMP in the bone marrow of B6 mice.

## References

1. Mackie AR, Losordo DW. CD34-positive stem cells: in the treatment of heart and vascular disease in human beings. *Tex Heart Inst J.* 2011;38(5):474-85.
2. Díaz-Flores L, Gutiérrez R, García MP, González-Gómez M, Rodríguez-Rodríguez R, Hernández-León N, Díaz-Flores L Jr, Carrasco JL. CD34+ Stromal Cells/Telocytes in Normal and Pathological Skin. *Int J Mol Sci.* 2021 Jul 8;22(14):7342.
3. Jiang L, Chen T, Sun S, Wang R, Deng J, Lyu L, Wu H, Yang M, Pu X, Du L, Chen Q, Hu Y, Hu X, Zhou Y, Xu Q, Zhang L. Nonbone Marrow CD34+ Cells Are Crucial for Endothelial Repair of Injured Artery. *Circ Res.* 2021 Oct;129(8):e146-e165.