

## Sema4d-KO

**Strain Name:** C57BL/6JGpt-*Sema4d*<sup>em9Cd1655</sup>/Gpt

**Strain Type:** Knock-out

**Strain Number:** T014199

**Background:** C57BL/6JGpt

### Description

Semaphorin4D (Sema4D, also known as CD100) is the first semaphorin that has been proved as an immunoregulatory molecular with diverse functions in immune system <sup>[1]</sup>. Sema4D is expressed on a wide range of cells, including multiple types of cells in nervous and epithelial tissue <sup>[2]</sup>. In the immune system, Sema4D is expressed with high levels on T cells, activated B cells, macrophages, and dendritic cells (DCs) <sup>[3]</sup>. Sema4D plays multiple roles in immune responses including antigen-specific T cell priming, antibody production and cell-to-cell adhesion <sup>[1]</sup>.

GemPharmatech uses gene editing technology to knock out the *Sema4d* gene on C57BL/6JGpt Background. This strain did not express CD100 in T cells and B cells, demonstrating that the gene was successfully knocked out.

### Strategy

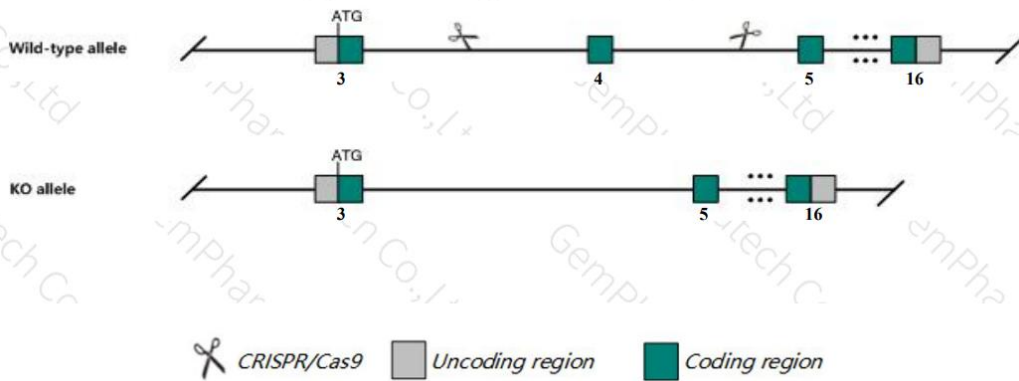


Fig 1. Schematic diagram of Sema4d-KO model strategy.

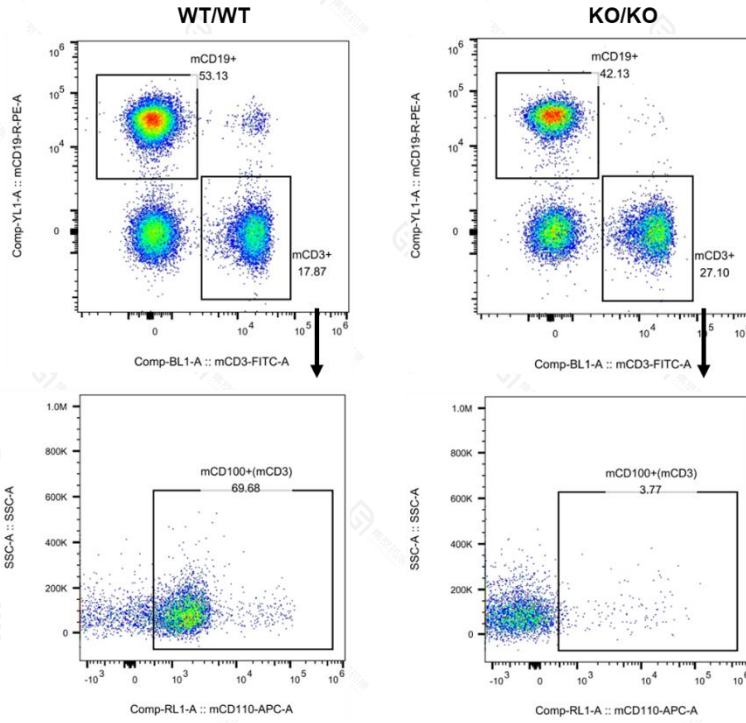
### Applications

1. Research related to deficiency of CD100.

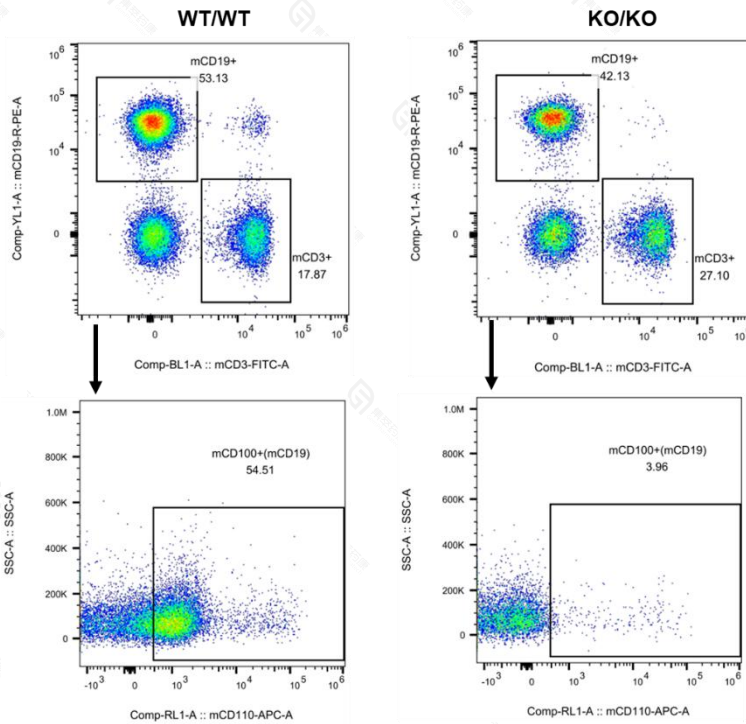
### Data support

1. Determination of CD100 protein expression

**Blood: T cells**



**Blood: B cells**



**Fig 2. Protein expression of CD100 in T cells and B cells.**

Protein expression of CD100 in T cells and B cells was determined by FACS using specific antibody. WT/WT: C57BL/6JGpt wild-type mice, KO/KO: Sema4d-KO homozygous mice.

## References

1. Maleki, Kimia T., Martin Cornillet, and Niklas K. Björkström. "Soluble SEMA4D/CD100: a novel immunoregulator in infectious and inflammatory diseases." *Clinical Immunology* 163 (2016): 52-59.
2. Kumanogoh, A., and H. Kikutani. "Biological functions and signaling of a transmembrane semaphorin, CD100/Sema4D." *Cellular and Molecular Life Sciences CMLS* 61 (2004): 292-300.
3. Zhu, Zhenlai, et al. "Sema4D is required in both the adaptive and innate immune responses of contact hypersensitivity." *Molecular Immunology* 78 (2016): 98-104.