C57BL/6JGpt-S100A8-iCre

Strain Name： C57BL/6JGpt-*H11*$^{em1Cin(hS100A8-iCre)}$/Gpt
Strain Type： Knock-in
Strain Number： T005636
Background： C57BL/6JGpt

Description

This mouse strain expresses codon optimized iCre recombinase [1] under the control of the Human *S100A8* promoter, the construct was precisely inserted into the H11 safe harbor site in mouse Chr11 by CRISPR/Cas9 technology. When crossed with a strain with loxP site flanked sequence in its genome, Cre-mediated recombination will result in excision of the DNA fragment between the two loxPs in granulocytes, monocytes, macrophages and granulocyte/macrophage progenitors (GMPs). Note: sperm Cre activity was detected by detection of loxP recombination, which may result in global recombination of floxed allele in some of the offspring of male C57BL/6JGpt-S100A8-iCre mice, thus application of female individuals of this strain is recommended.

Strategy

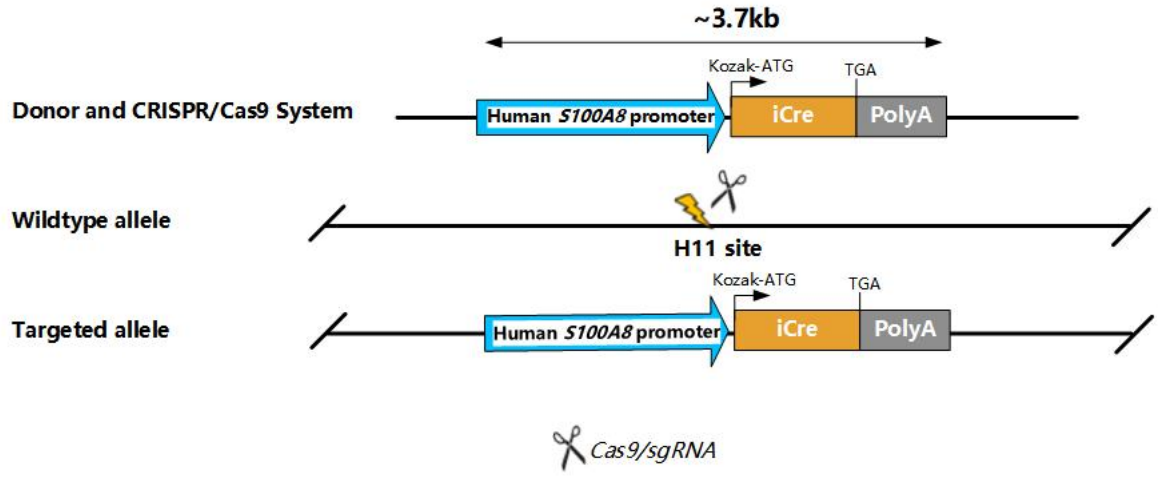


Fig.1 Schematic diagram of C57BL/6JGpt-S100A8-iCre model strategy.

Applications

1. Cre tool mice for specific induction of loxP recombination in granulocytes, monocytes, macrophages and granulocyte/macrophage progenitors (GMPs) [2-3].

Data support

1. Validation methods & notes

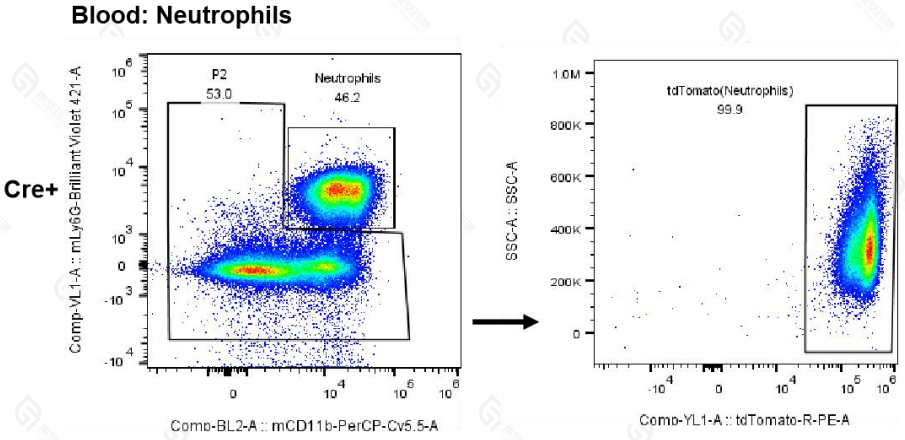
S100A8-iCre mice was crossed with CAG-loxp-ZsGreen-Stop-loxp-tdTomato mice with ubiquitous reporter expression (hereafter referred as CAG-G/R mice), Cre-mediated recombination will lead to excision of ZsGreen and the stop cassette and expression of tdTomato, thus loss of green fluorescence and gain of red fluorescence will indicate Cre activity. Note: these results may only represent the activity of Cre in this strain at the identical stage. Recombinase activity may be different at other stages in your application.

2. Gating Strategies for flow Cytometry

Cell population	Gating	
Neutrophils	mCD45+	mCD11b+mLy6G+
Monocytes	Not Neutrophils	mCD11b+mLy6C hi
Eosinophils	Not Monocytes	mCD11b+SSC-H hi
Macrophages	Not Eosinophils	mCD11b+mF4/80+

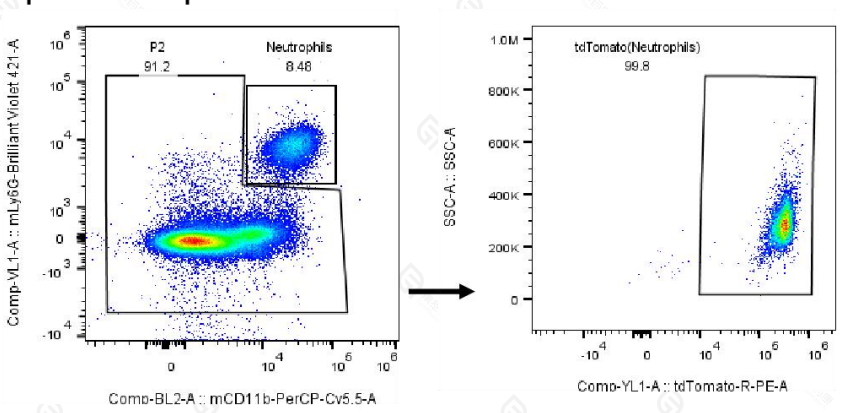
Table 1. Gating Strategies for flow Cytometry of S100A8-iCre mice.

3. Flow cytometry analysis of cells with Cre activity



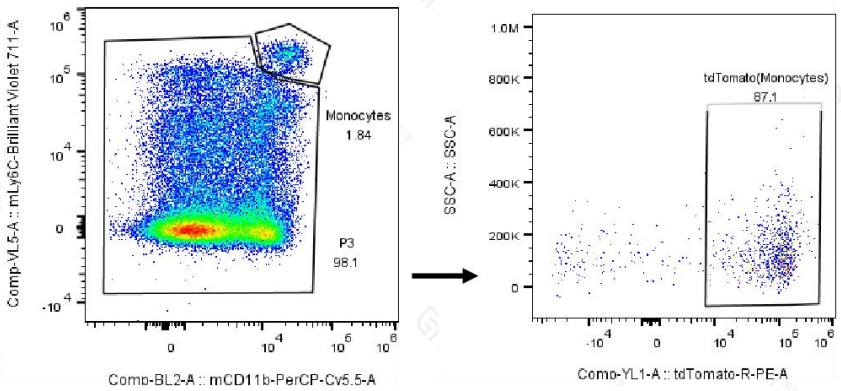
Spleen: Neutrophils

Cre+



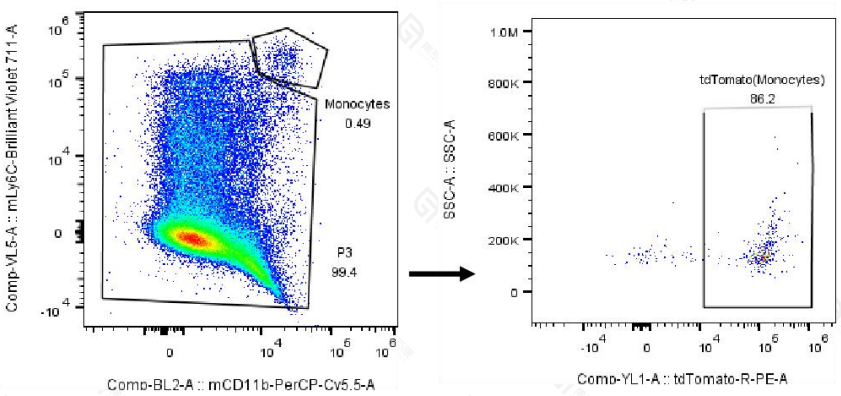
Blood: Monocytes

Cre+



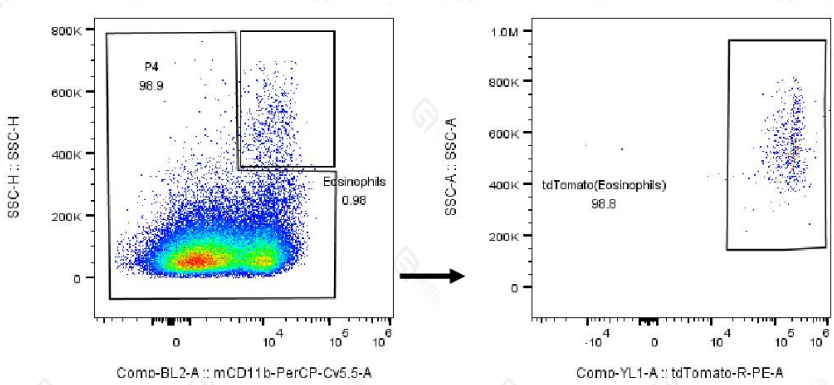
Spleen: Monocytes

Cre+



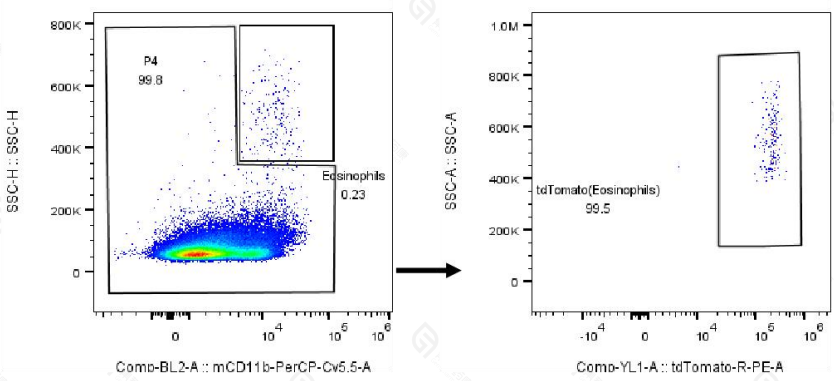
Blood: Eosinophils

Cre+



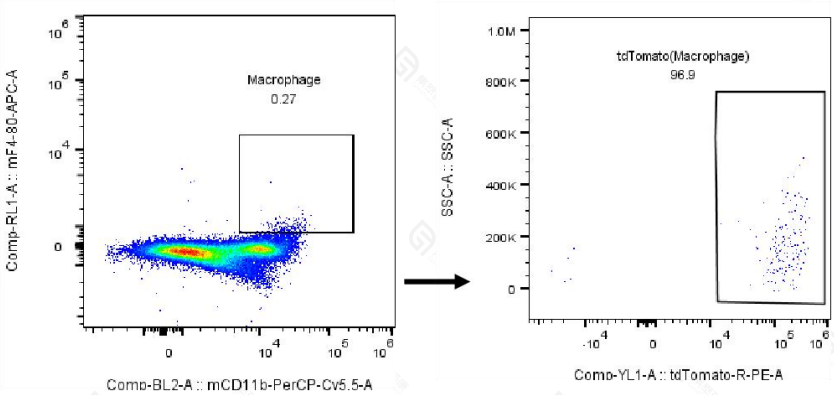
Spleen: Eosinophils

Cre+



Blood: Macrophages

Cre+



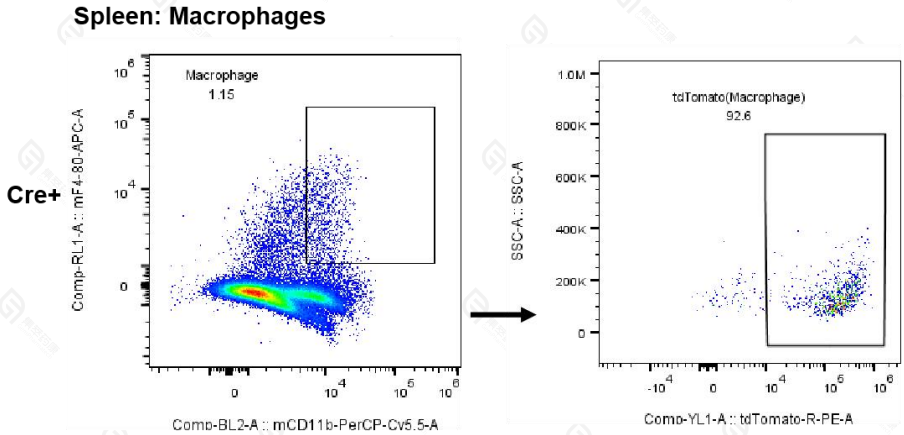


Fig 2. Flow cytometry analysis of cells with Cre activity

Organ name was indicated in the left top of each subfigure group. Cre+: S100A8-iCre, CAG-G/R double positive individuals. Splenocytes and whole blood cells were harvested from Cre+ mice and analyzed for tdTomato expression with flow cytometry.

Reference

1.Shimshek D R, Kim J, Hübner M R, et al. "Codon-improved Cre recombinase (iCre) expression in the mouse." genesis 2002, 32(1): 19-26.

2.Lagasse E, Clerc RG. Cloning and expression of two human genes encoding calcium-binding proteins that are regulated during myeloid differentiation. Mol Cell Biol, 1988, 8(6): 2402-10.

3.Passegué E, Wagner EF, Weissman IL. JunB deficiency leads to a myeloproliferative disorder arising from hematopoietic stem cells. Cell, 2004, 119(3): 431-43.