# C57BL/6JGpt-Ncr1-iCre-P2A

**Strain Name：** C57BL/6JGpt-*Ncr1*$^{em1Cin(iCre-P2A)}$/Gpt
**Strain Type：** Knock-in
**Strain Number：** T005674
**Background：** C57BL/6JGpt

## Description

This mouse strain expresses codon optimized iCre recombinase [1] under the control of the mouse endogenous *Ncr1* promoter, iCre-P2A was introduced to the downstream of the ATG of mouse *Ncr1* gene 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 natural killer (NK) cells. Recombinase activity was detected in a proportion of cells in spleen and lung.

## Strategy

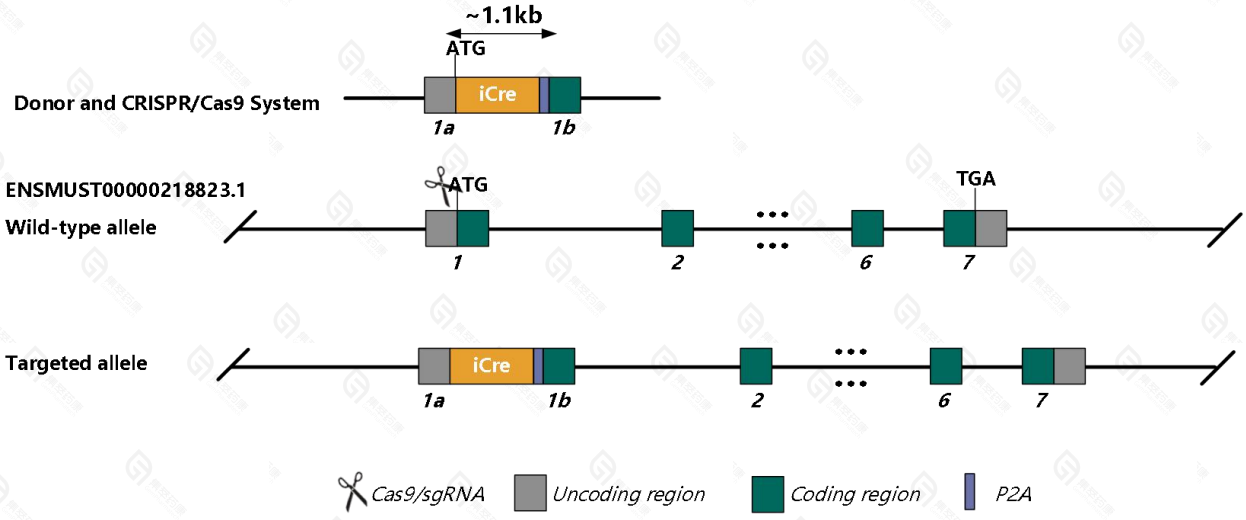


**Fig.1 Schematic diagram of C57BL/6JGpt-Ncr1-iCre-P2A model strategy.**

## Applications

1. Cre tool mice for specific induction of loxP recombination in NK cells [2].

## Data support

### 1. Validation methods & notes

Ncr1-iCre-P2A 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. Fluorescence imaging of frozen sections were performed to exhibit Cre activity in various tissues and organs. Imaging of sections were performed under a 200x microscopy. 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. Images of tissues and organs with obvious Cre activity

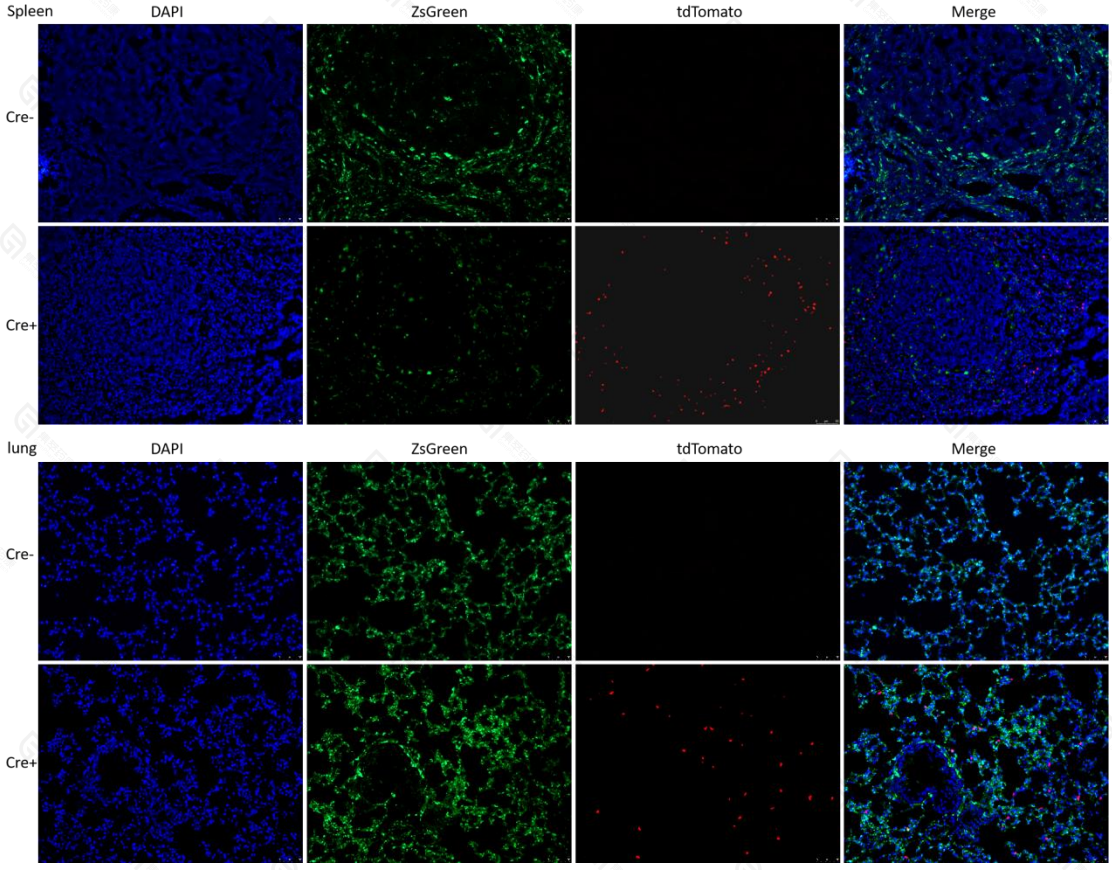


**Fig 2. Fluorescence imaging of tissues and organs with obvious Cre activity.**
Organ name was indicated in the left top of each subfigure group. Cre-: CAG-G/R single positive individuals; Cre+: Ncr1-iCre-P2A, CAG-G/R double positive individuals.

## 3. Flow cytometry analysis of cells with Cre activity

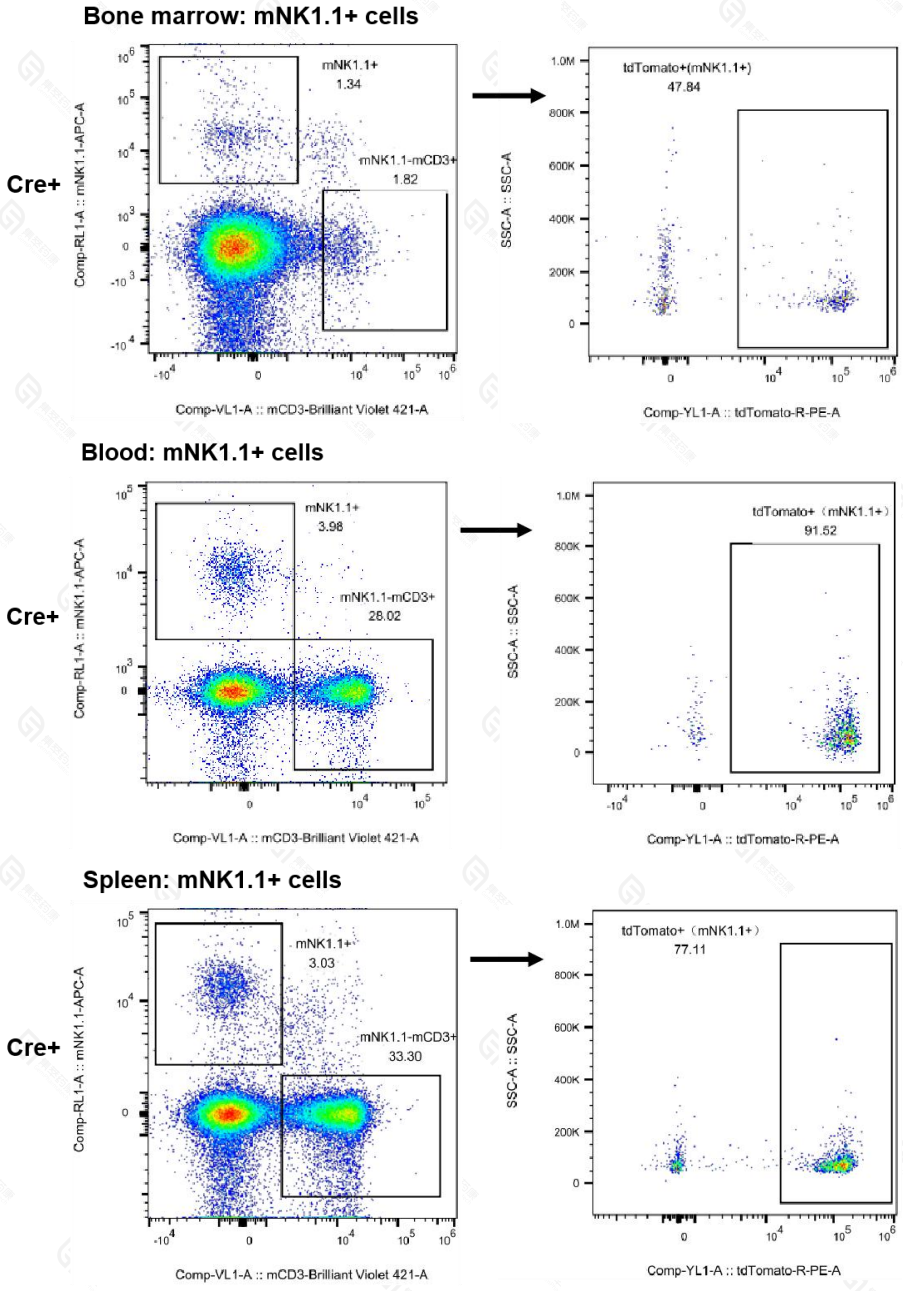


**Fig 5. Flow cytometry analysis of cells with Cre activity**

Organ name was indicated in the left top of each subfigure group. Cre+: Ncr1-iCre-P2A, CAG-G/R double positive individuals. Bone marrow-derived cells, 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.Narni-Mancinelli E, Chaix J, Fenis A, et al. Fate mapping analysis of lymphoid cells expressing the NKp46 cell surface receptor. Proc Natl Acad Sci U S A, 2011, 108(45): 18324-9.