
Animal Models/ Research Tools

B6-CD19-Cre

Strain Name: B6/JGpt-*Cd19^{em1Cin(P2A-iCre)}*/Gpt

Strain Type: Knock-in

Strain Number: T003785

Background: C57BL/6JGpt

Description

Cd19 is mainly expressed on B cell surface. The iCre was inserted into the C terminal of Cd19 gene by CRISPR/Cas9 technology on C57BL/6 background mice. The two genes were linked by the P2A element. Both of Cd19 and iCre could be expressed in these mice. B6-CD19-Cre mice model can be applied to induce LoxP recombination, such as deletion of Flox region. These mice are ideal model for B cell associated research.

Application

1. B cell research Tools

Data support

1、 Cre specific expression detection

- 1) Observation of frozen section

Detection method: Rosa26-loxp-tdtomato-loxp-GFP mice were bred with CD19-Cre mice. Rosa26-loxp-tdtomato-loxp-gfp mice expressed red fluorescence. When Rosa26-loxp-tdtomato-loxp-GFP mating with CD19-Cre mice, cre recombinase would be expressed in the offspring cells. The cells expressing Cre glowed green fluorescence instead of red fluorescence, so as to confirm the expression of Cre protein in the spleen of mice.

Spleen:

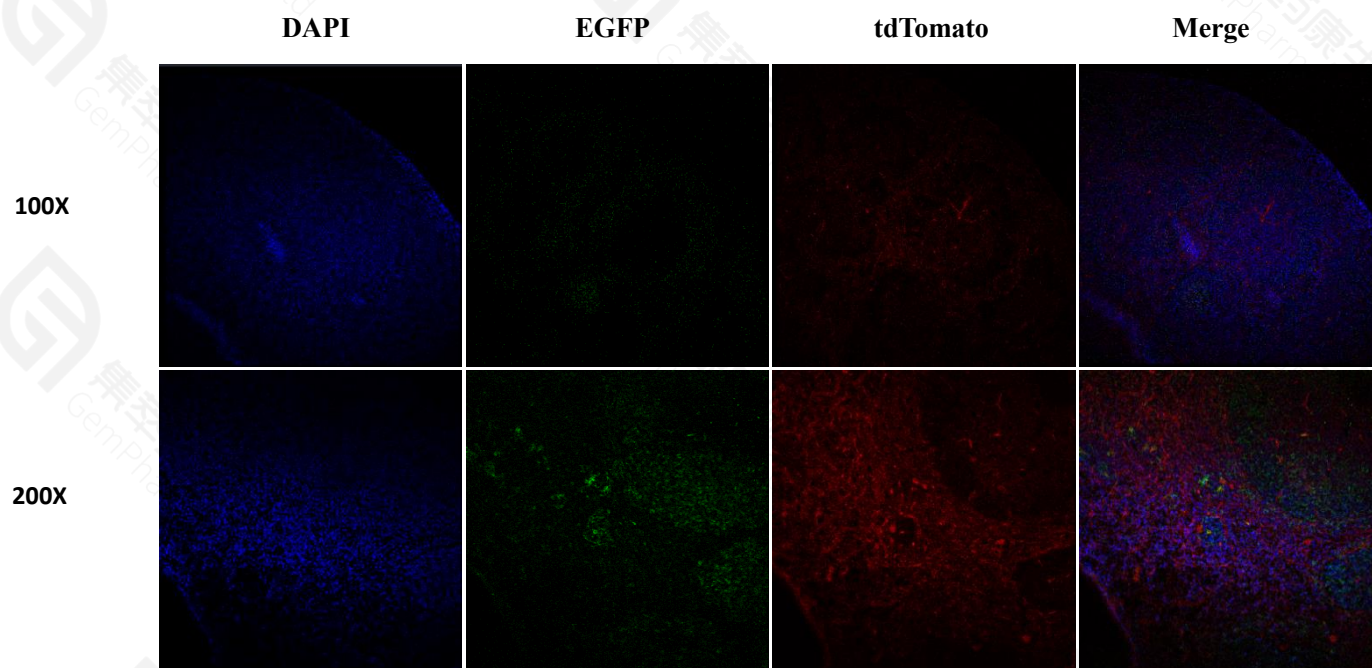


Fig 1. Detection of Cre recombinase expression in the spleen of B6-CD19-cre mice. Green fluorescence can be observed in spleen tissue and Cre can be expressed in B6-CD19-cre mice spleen.

2) Flow cytometry

Detection method: Rosa26-loxp-tdtomato-loxp-GFP mice were bred with CD19-Cre mice. Rosa26-loxp-tdtomato-loxp-GFP mice expressed red fluorescence. When Rosa26-loxp-tdtomato-loxp-GFP mating with CD19-Cre mice, cre recombinase would be expressed in the offspring cells. CD19 expressing cells were enriched after FACS sorting, and the expression of red fluorescence and green fluorescence were detected, so as to confirm the expression of Cre protein in the B cells of mice.

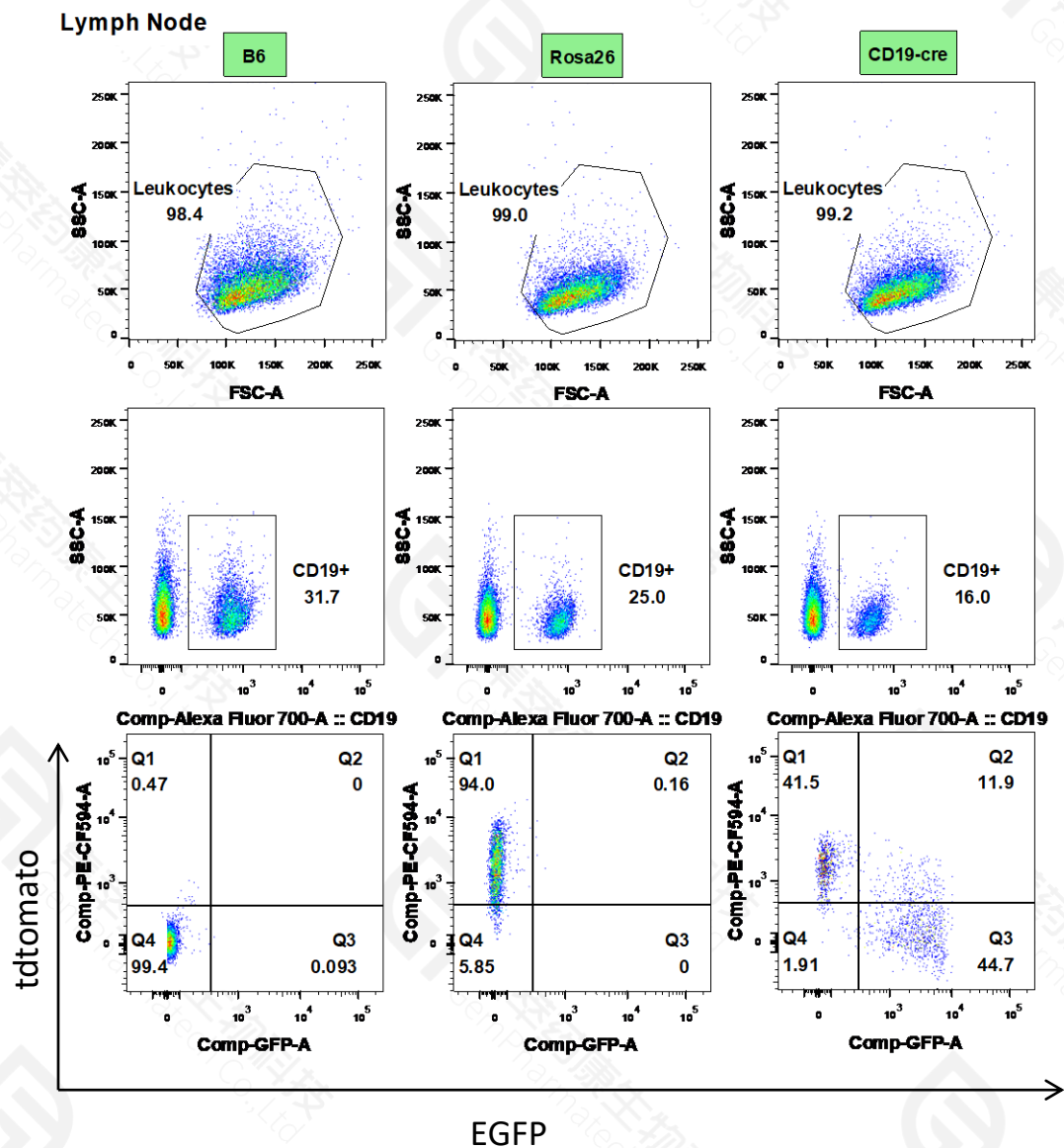


Figure 2. Detection of Cre recombinase expression in lymph nodes of B6-Cd19-Cre mice.

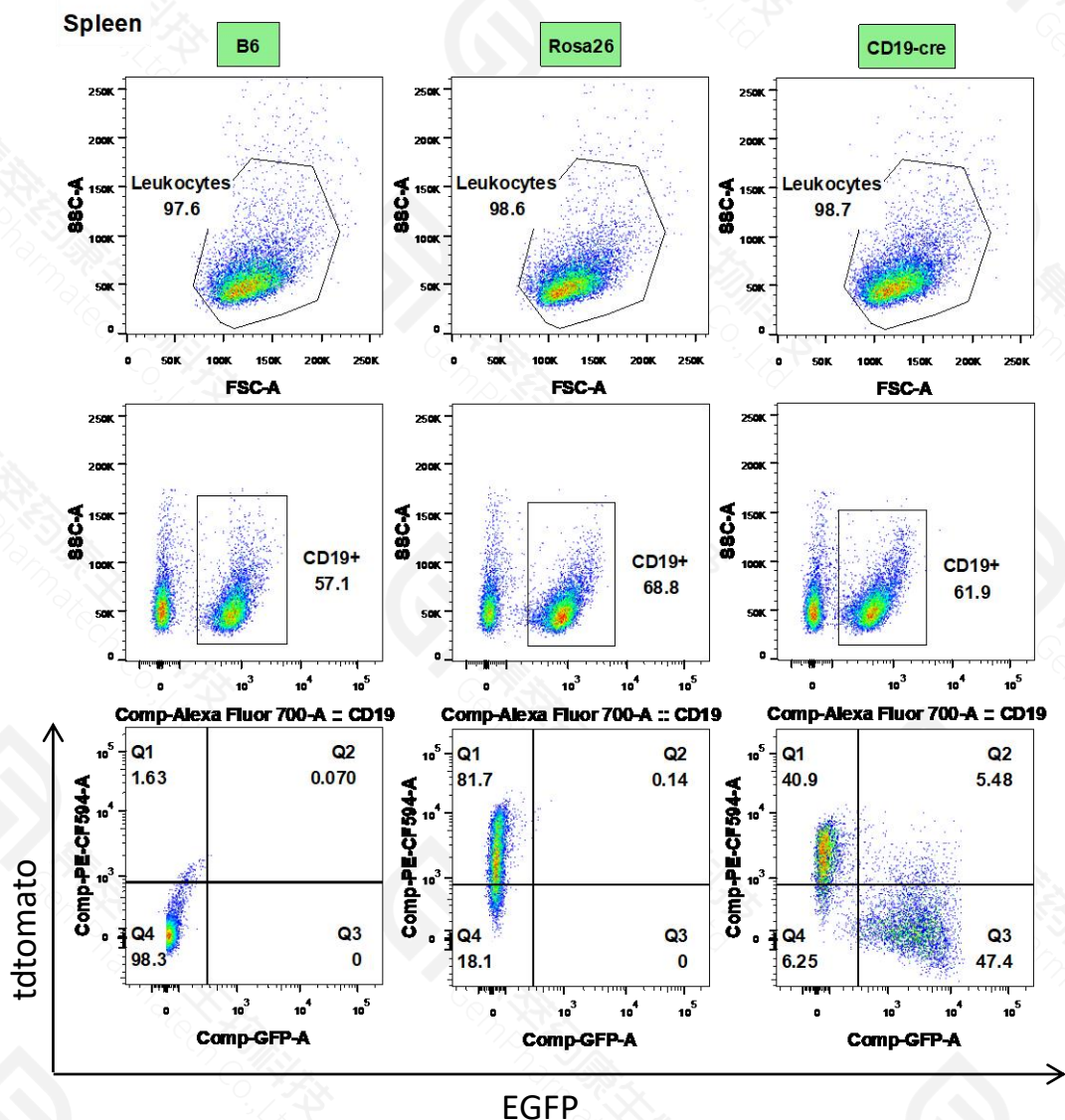


Figure 3. Detection of Cre recombinase expression in the spleen of B6-Cd19-Cre mice.

Flow cytometry was used to detect EGFP expression in CD19 cells of lymph nodes and spleen. There was no tdtomato and GFP expression in CD19+ cells of B6 control mice. Only tdtomato was detected in CD19+ cells of Rosa26-loxp-tdtomato-loxp-GFP control mice. While EGFP expression was detected in CD19+ cells of cre positive mice.

Note: tdtomato has the same fluorescent channel as PE-CF594

2、Whole-body expression detection (brain, heart, liver, kidney, intestine, pancreas, skeletal muscle, stomach and spinal cord)

Only red fluorescence was observed in the offspring tissues (Fig4), indicating that CD19-Cre was not expressed in these tissues.

Brain:

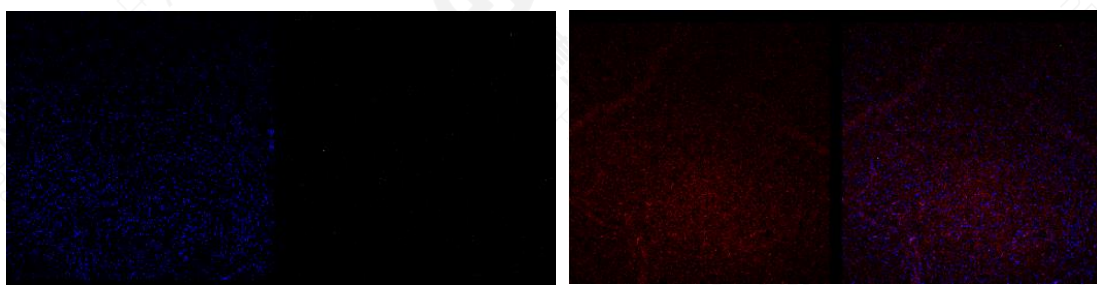
DAPI

GFP

tdTomato

Merge

100X



200X

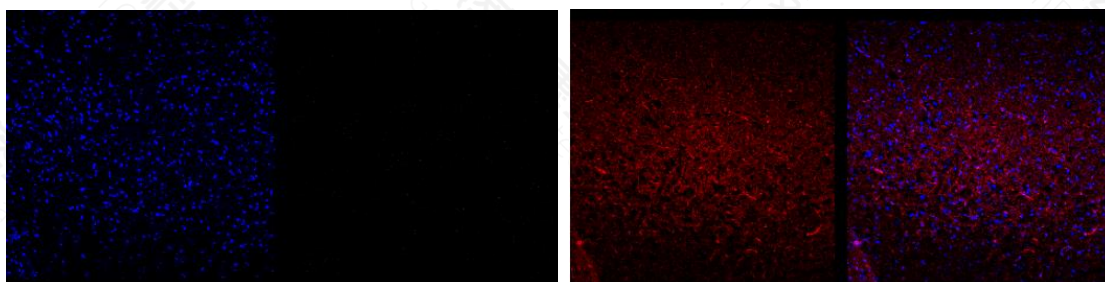


Fig4 Detection of Cre recombinase expression in the brain of B6-CD19-cre mice.

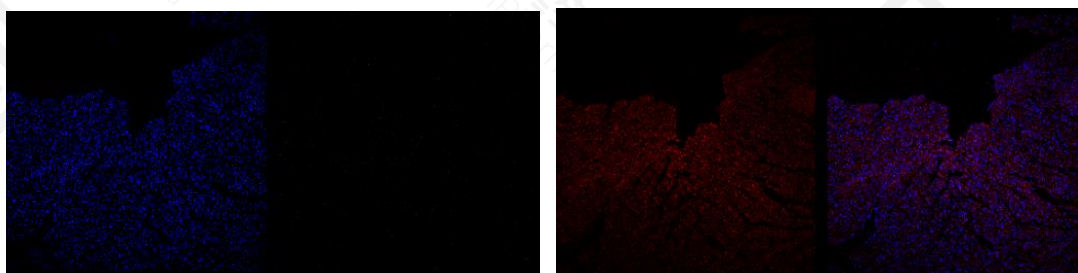
DAPI

GFP

tdTomato

Merge

100X



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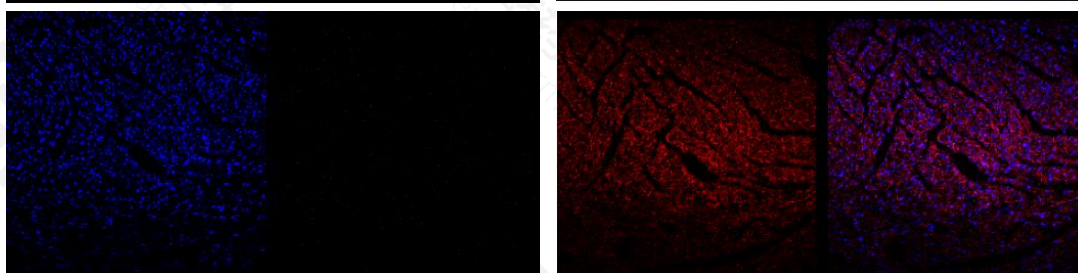


Fig 5. Detection of Cre recombinase expression in the heart of B6-CD19-cre mice.

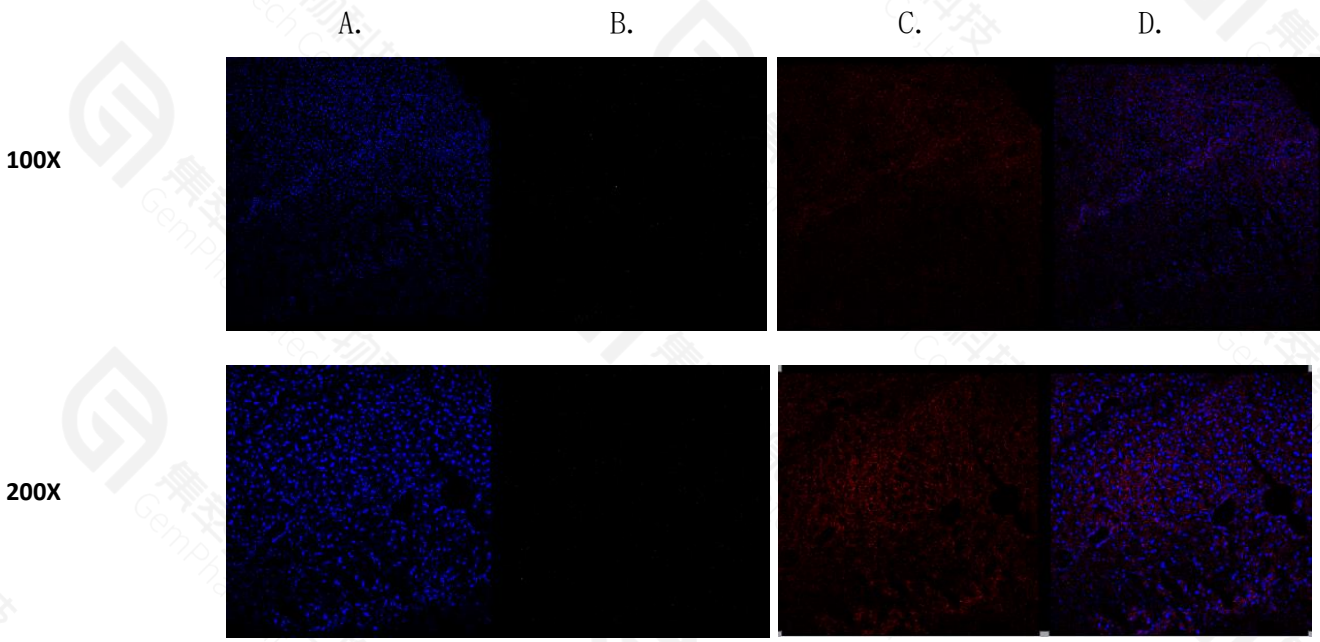


Fig6 Detection of Cre recombinase expression in the liver of B6-CD19-cre mice.

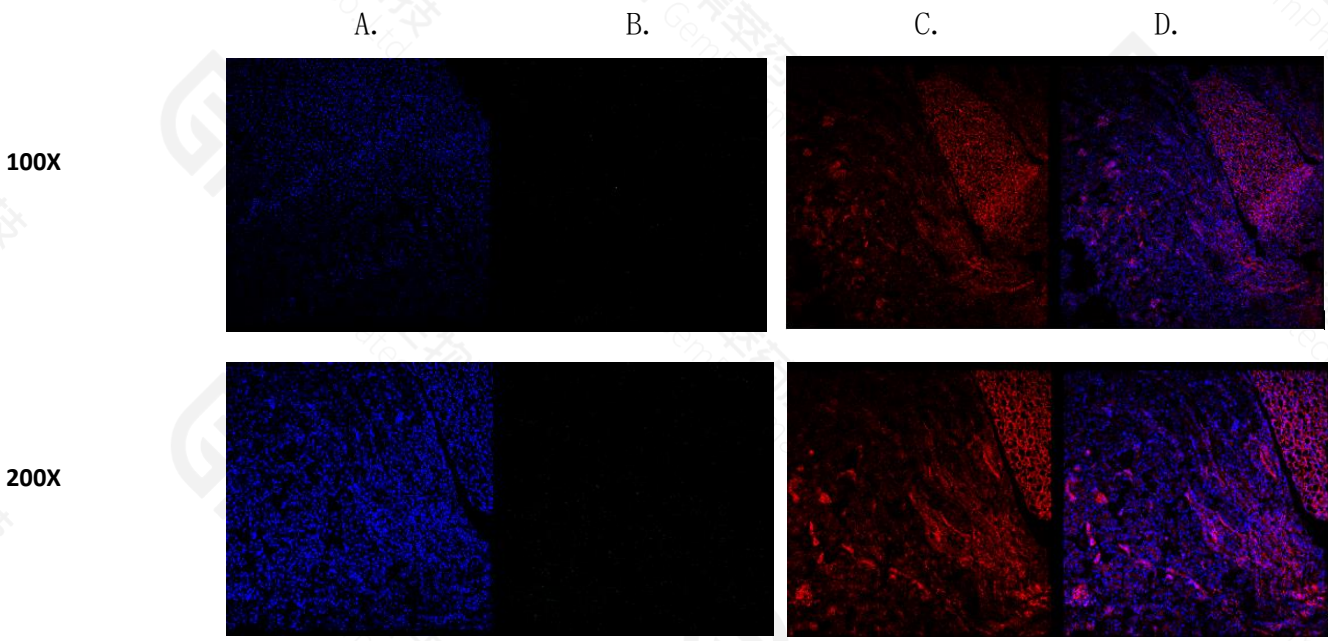


Fig7 Detection of Cre recombinase expression in the kidney of B6-CD19-cre mice.

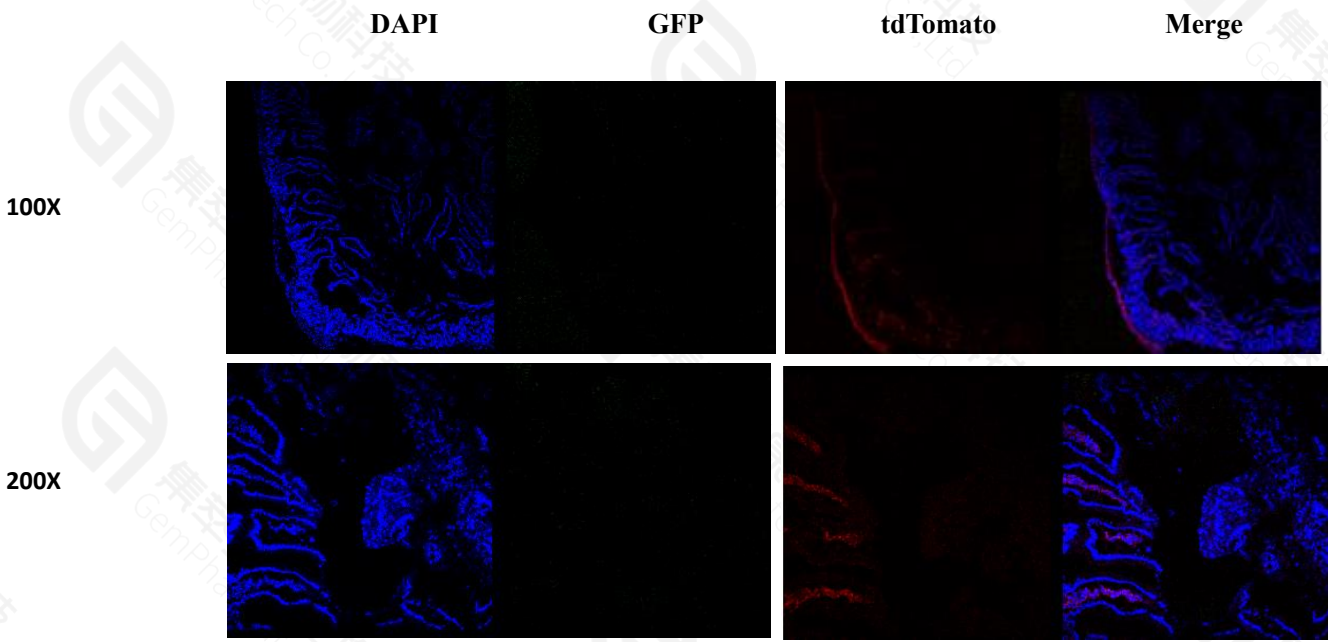


Fig8. Detection of Cre recombinase expression in the intestine of B6-CD19-cre mice.

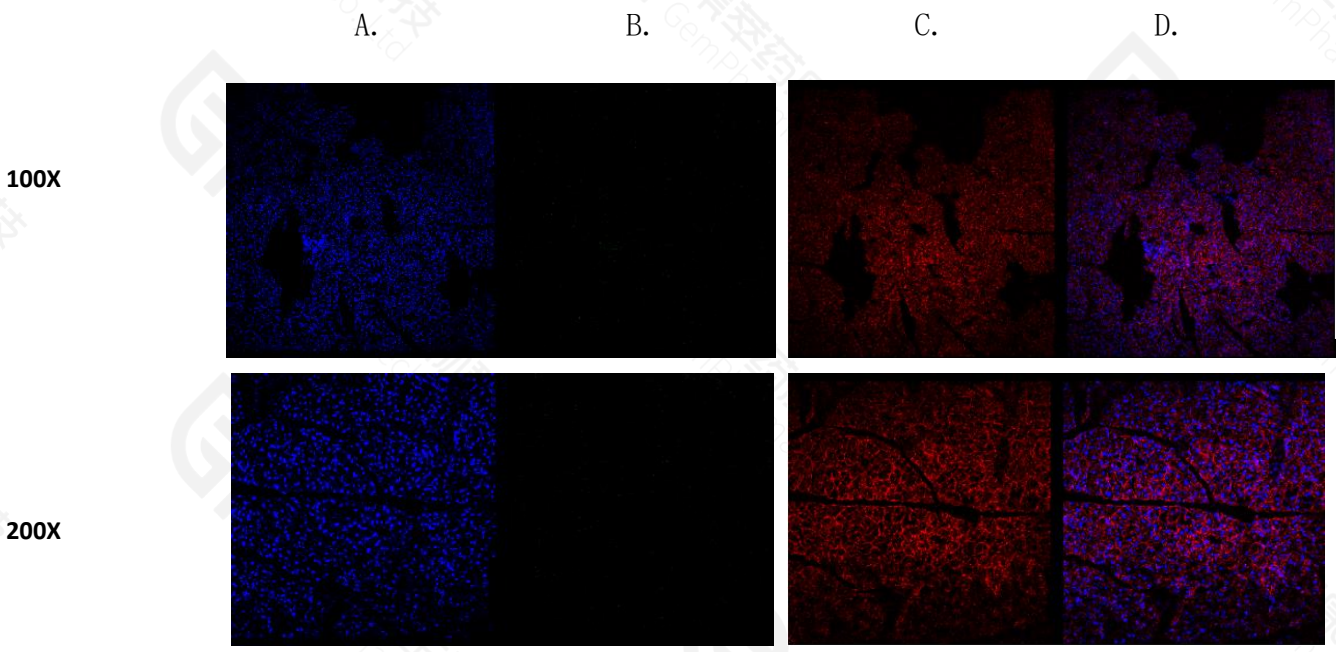


Fig 9. Detection of Cre recombinase expression in the pancreas of B6-CD19-cre mice

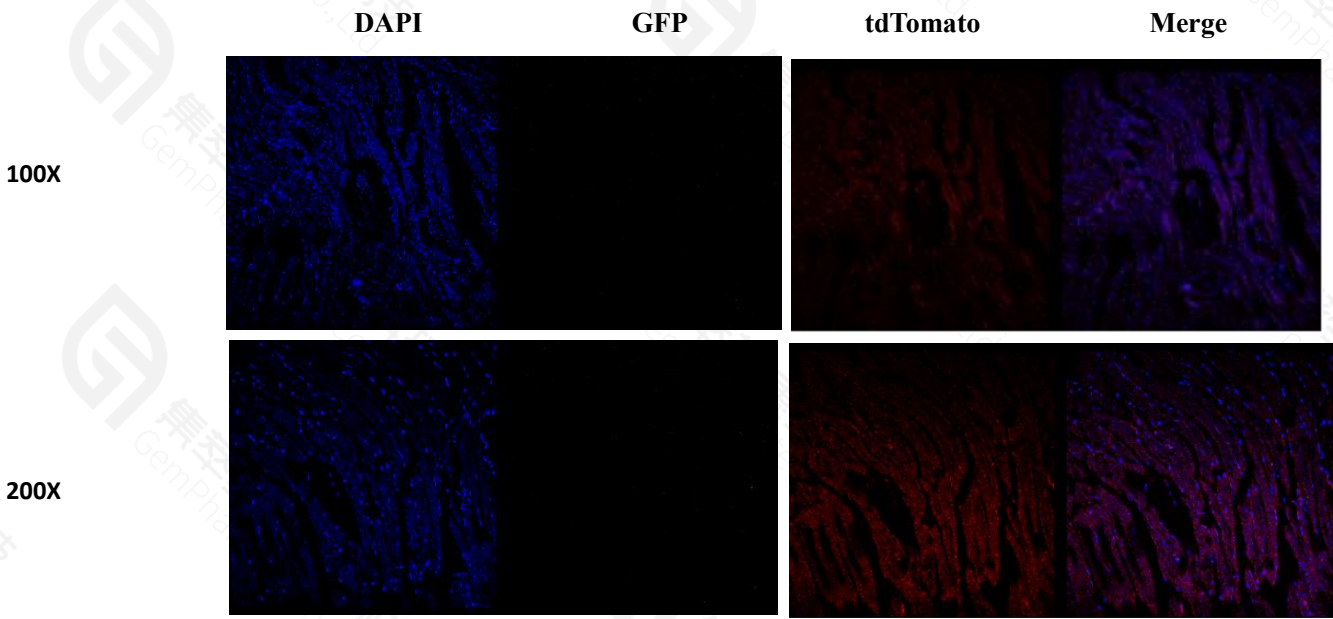


Fig 10. Detection of Cre recombinase expression in the skeletal muscle of B6-CD19-cre mice

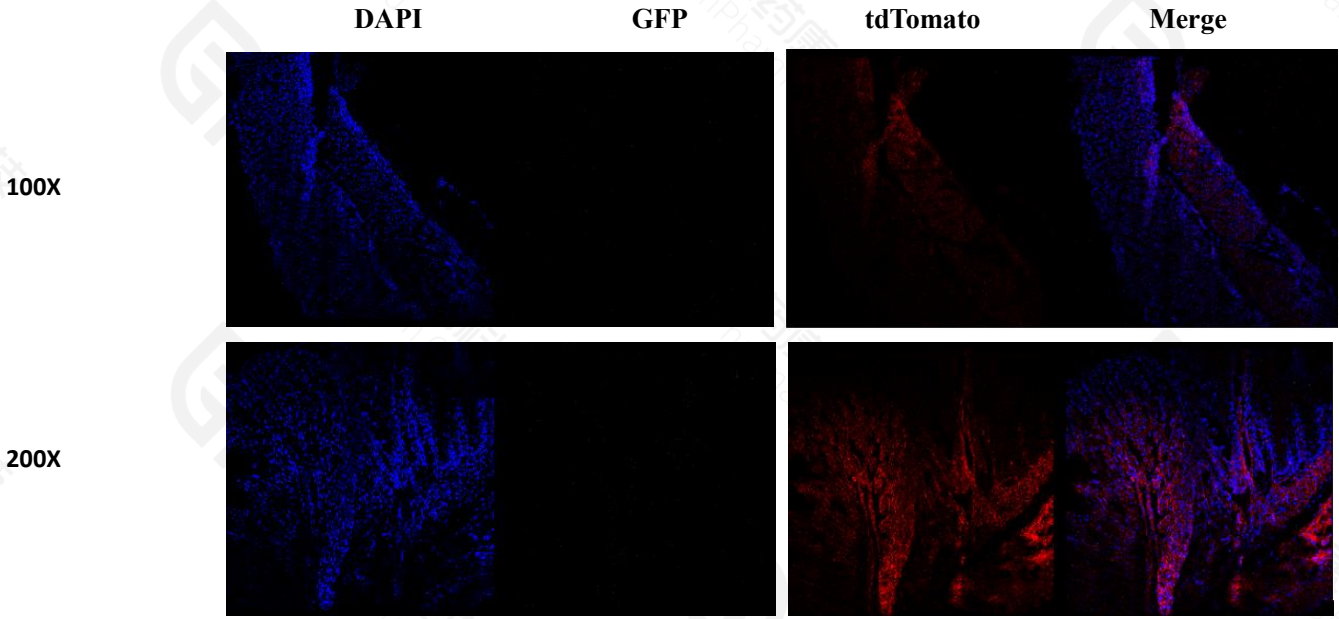


Fig 11. Detection of Cre recombinase expression in the stomach of B6-CD19-cre mice

100X

200X

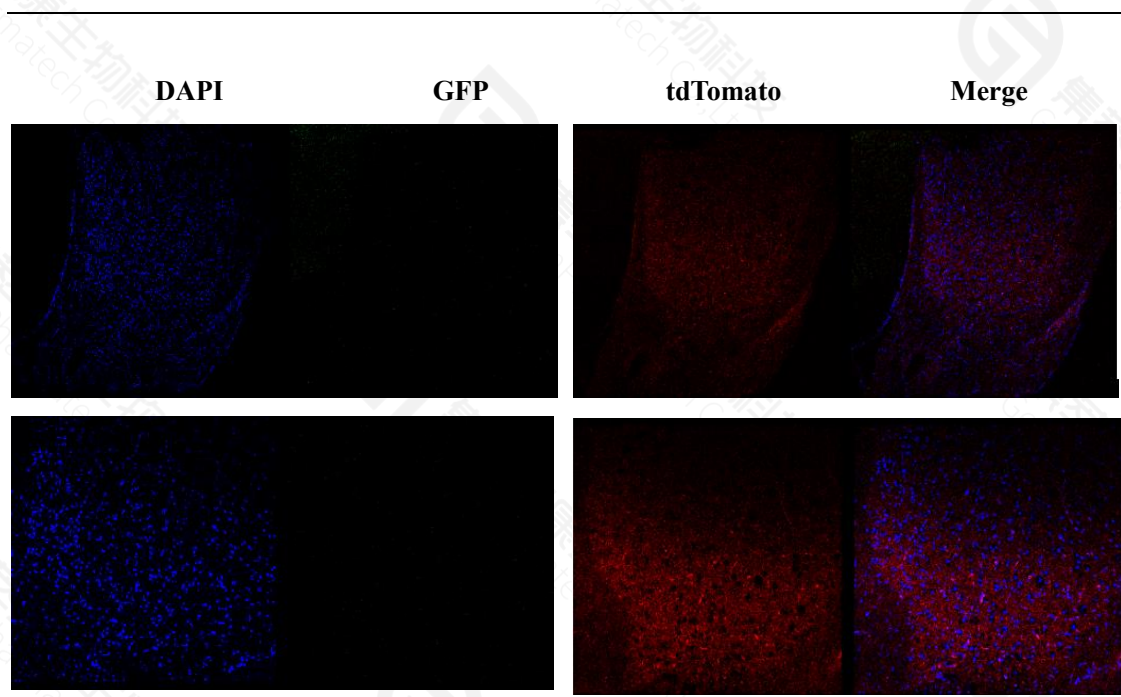


Fig 12. Detection of Cre recombinase expression in the spinal cord of B6-CD19-cre mice