

C57BL/6JGpt-Cldn18-IRES-CreERT2

Strain Name: C57BL/6JGpt-*Cldn18*^{em1Cin(IRES-CreERT2)}/Gpt

Strain Type: Knock-in

Strain Number: T056749

Background: C57BL/6JGpt

Description

This mouse strain expresses CreERT2 inducible recombinase ^[1] under the control of the mouse endogenous *Cldn18* promoter, the construct was inserted into the targeted stop codon of the *Cldn18* 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 gastric epithelium after tamoxifen administration.

Strategy

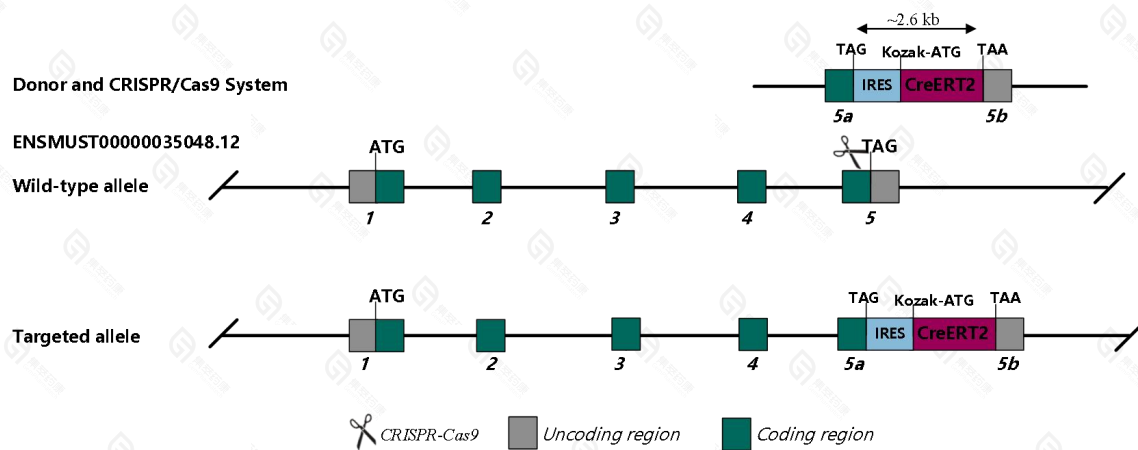


Fig.1 Schematic diagram of C57BL/6JGpt-Cldn18-IRES-CreERT2 model strategy.

Applications

1. Cre tool mice for specific, tamoxifen dependent induction of loxP recombination in gastric epithelium ^[2].

Data support

1. Validation methods & notes

Cldn18-IRES-CreERT2 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. For tamoxifen administration, 0.25 mL of 5 mg/mL tamoxifen was treated through intraperitoneal injection daily from P40 to P46 (5.7 w~6.6 w). Note: these results may only represent the activity of CreERT2 in this strain under this certain tamoxifen treatment condition at the identical stage. Recombinase activity may be different at other stages or under different tamoxifen induction conditions in your application.

2. Timeline of tamoxifen treatment and imaging

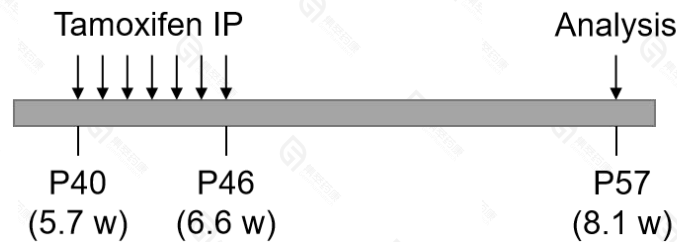


Fig 2. Timeline of tamoxifen treatment and experiment analysis of Cldn18-IRES-CreERT2 mice.

3. Images of tissues and organs with obvious Cre activity

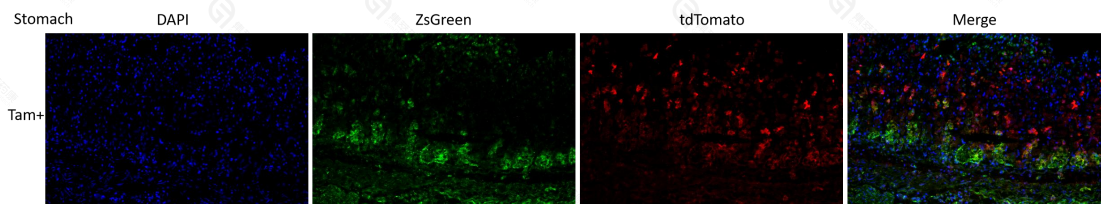
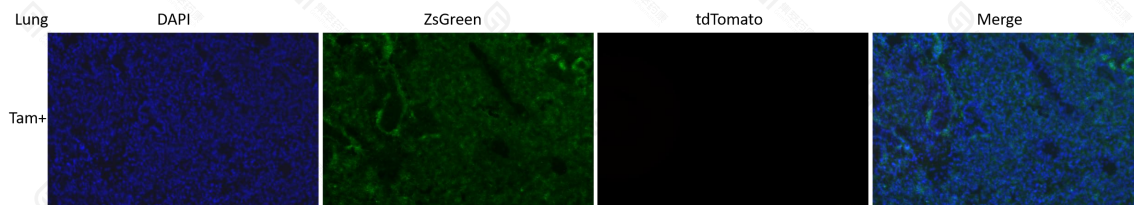


Fig 3. Fluorescence imaging of tissues and organs with obvious Cre activity.

Organ name was indicated in the left top of each subfigure group. Tam+: Cldn18-IRES-CreERT2, CAG-G/R double positive individuals with tamoxifen administration.

4. Images of tissues and organs with little or no Cre activity



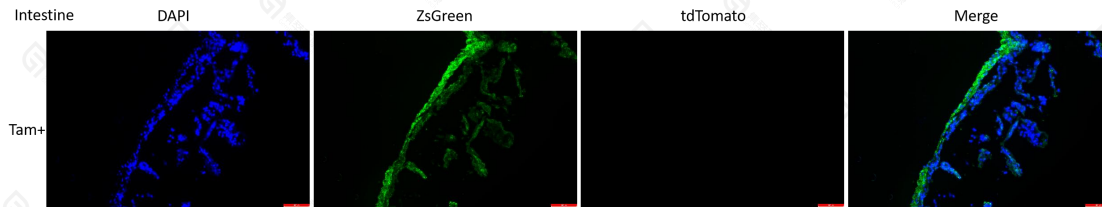


Fig 4. Fluorescence imaging of tissues and organs with little or no Cre activity.

Organ name was indicated in the left top of each subfigure group. Tam+: Cldn18-IRES-CreERT2, CAG-G/R double positive individuals with tamoxifen administration.

Reference

1. Feil R, Wagner J, Metzger D, et al. "Regulation of Cre recombinase activity by mutated estrogen receptor ligand-binding domains." *Biochem Biophys Res Commun*, 1997, 237(3): 752-757.
2. Fatehullah A, Terakado Y, Sagiraju S, et al. A tumour-resident Lgr5+ stem-cell-like pool drives the establishment and progression of advanced gastric cancers. *Nat Cell Biol*, 2021, 23(12): 1299-1313.