C57BL/6JGpt-Aldh1l1-CreERT2

Strain Name： C57BL/6JGpt-*Aldh1l1*$^{em1Cin(CreERT2)}$/Gpt
Strain Type： Knock-in
Strain Number： T052693
Background： C57BL/6JGpt

Description

This mouse strain expresses CreERT2 inducible recombinase [1] under the control of the mouse endogenous *Aldh1l1* promoter, the construct was inserted into the targeted stop codon of mouse *Aldh1l1* 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 astrocytes after tamoxifen administration.

Strategy

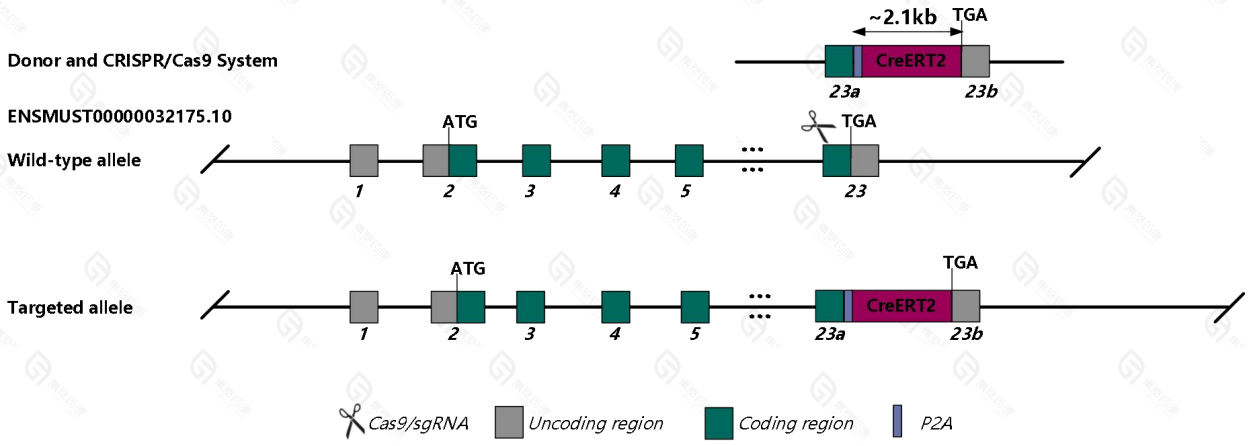

Fig.1 Schematic diagram of C57BL/6JGpt-Aldh1l1-CreERT2 model strategy.

Applications

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

Data support

1. Validation methods & notes

Aldh1l1-CreERT2 mice was crossed with Rosa26-CAG-LSL-tdTomato-WPRE mice with ubiquitous reporter expression (hereafter referred as R26-tdTomato mice), Cre-mediated recombination will lead to excision of the stop cassette and expression of tdTomato, thus gain of red fluorescence will indicate Cre activity. Fluorescence imaging of immune-stained frozen sections were performed to exhibit Cre activity in brain. Imaging of sections were performed under a 400x microscopy. For tamoxifen administration, 1.5 mg tamoxifen was treated through intraperitoneal injection daily from P40 to P49 (5.7 w~7.0 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

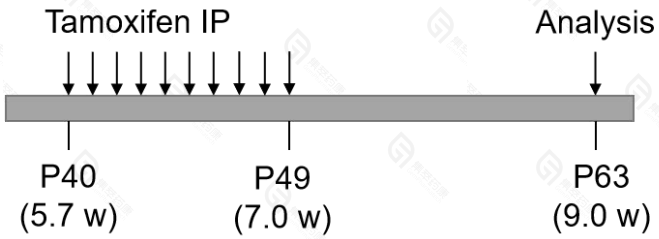

Fig 2. Timeline of tamoxifen treatment and experiment analysis of Aldh1l1-CreERT2 mice.

3. Images of tissues and organs with obvious Cre activity

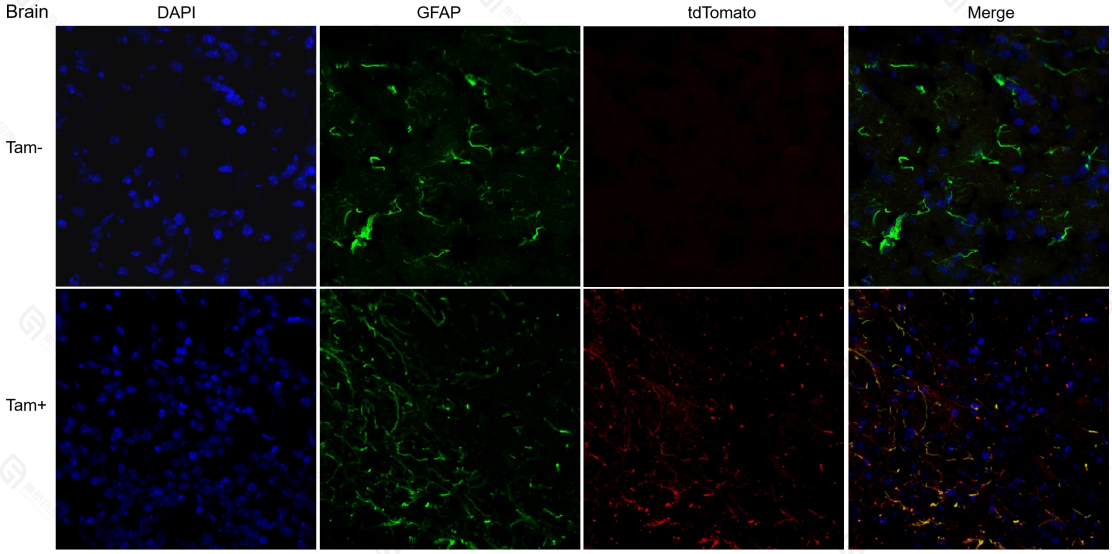

Fig 3. Fluorescence imaging of tissues and organs with obvious Cre activity.

Organ name was indicated in the left top of each subfigure group. Tam-: Aldh1l1-CreERT2, R26-tdTomato double positive individuals without tamoxifen administration; Tam+: Aldh1l1-CreERT2, R26-

tdTomato double positive individuals with tamoxifen administration. tdTomato expression was highly co-localized with GFAP, suggesting specific Cre activity in astrocytes.

Reference

1.Verrou C, Zhang Y, Zürn C, et al. Comparison of the tamoxifen regulated chimeric Cre recombinases MerCreMer and CreMer. Biol Chem. 1999, 380(12): 1435-8.

2.Srinivasan R, Lu TY, Chai H, et al. New Transgenic Mouse Lines for Selectively Targeting Astrocytes and Studying Calcium Signals in Astrocyte Processes In Situ and In Vivo. Neuron, 2016, 92(6): 1181-1195.