

C57BL/6JGpt-Slc6a3-iCre

Strain Name: C57BL/6JGpt-*Slc6a3*^{em1Cin(P2A-iCre)}/Gpt

Strain Type: Knock-in

Strain Number: T006955

Background: C57BL/6JGpt

Description

This mouse strain expresses codon optimized iCre recombinase [1] under the control of the mouse endogenous *Slc6a3* promoter, P2A-iCre was inserted upstream of the stop codon of mouse *Slc6a3* 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 dopaminergic neurons.

Strategy

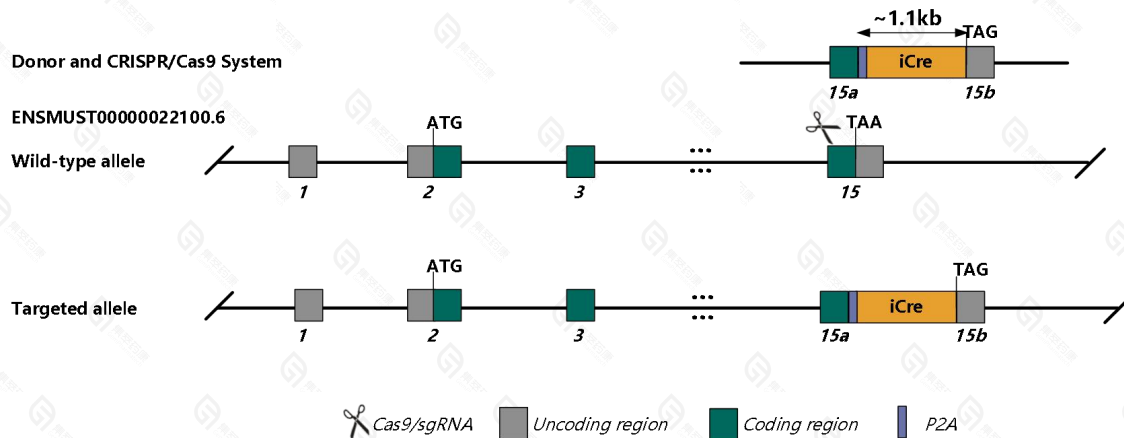


Fig.1 Schematic diagram of C57BL/6JGpt-Slc6a3-iCre model strategy.

Applications

1. Cre tool mice for specific induction of loxP recombination in dopaminergic neurons [2].

Data support

1. Validation methods & notes

Three genes were obtained by crossing *Slc6a3*-iCre (also known as DAT-Cre) mice with A-gene mice with flox, namely WT (DAT-Cre^{+/-}; A^{+/+}), heterozygous deletion (DAT-Cre^{+/-}; A^{f/+}) and homozygous deletion (DAT-Cre^{+/-}; A^{ff}). In order to verify whether the A gene is

knocked out, brain immunofluorescence technology was used to detect the brain's substantia nigra dopamine neurons (TH antibody staining) and protein A, respectively.

2. Images of tissues and organs with obvious Cre activity

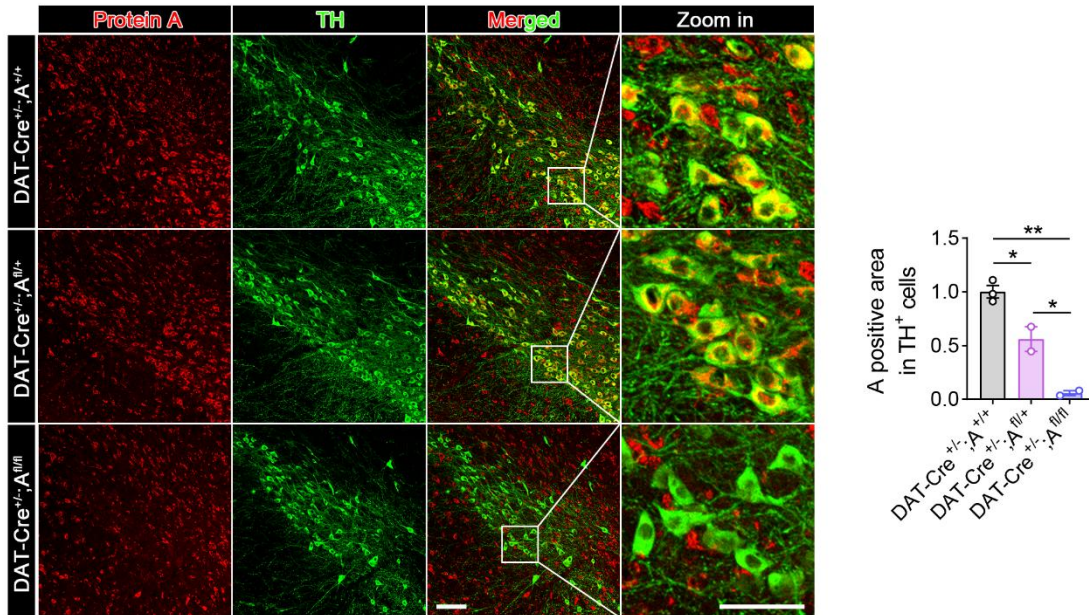


Fig 2. Fluorescence imaging of brain with obvious Cre activity.

Tyrosine hydroxylase(TH): Marker of dopaminergic neurons. In homozygous deletion mice, the A gene was only missing in dopamine neurons, and the protein level in other cells remained unchanged, indicating that DAT-Cre mice were able to specifically target dopamine neurons

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.Bäckman CM, Malik N, Zhang Y, et al. Characterization of a mouse strain expressing Cre recombinase from the 3' untranslated region of the dopamine transporter locus. *Genesis*, 2006, 44(8): 383-90.