C57BL/6JGpt-Lrat-P2A-iCre

Strain Name： C57BL/6JGpt-*Lrat*$^{em1Cin(P2A-iCre)}$/Gpt
Strain Type： Knock-in
Strain Number： T006205
Background： C57BL/6JGpt

Description

This mouse strain expresses codon optimized iCre recombinase [1] under the control of the mouse endogenous *Lrat* promoter, iCre-P2A was introduced to the downstream of the ATG of mouse *Lrat* 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 *Lrat*-positive cells or tissues, such as hepatic stellate cells (HSCs), eyes and testes.

Strategy

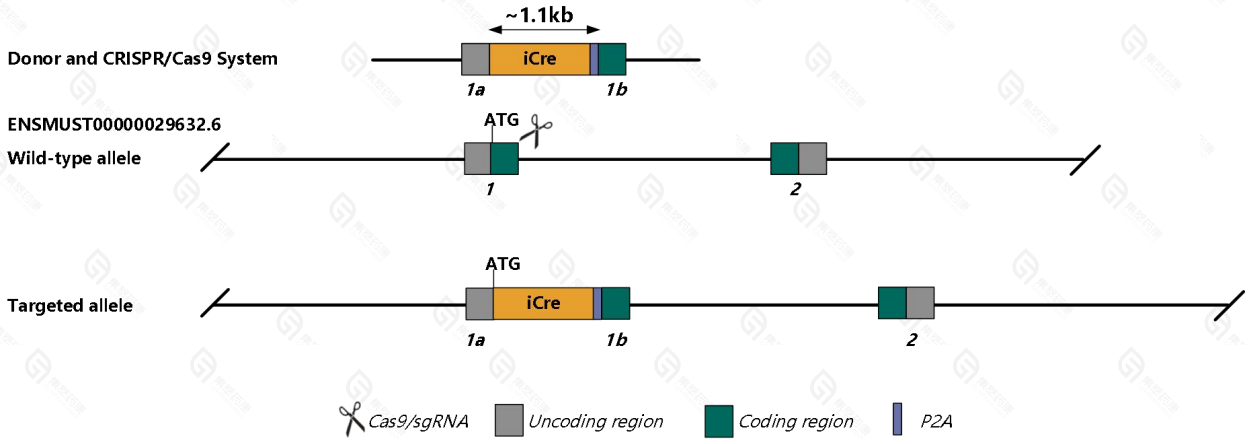

Fig.1 Schematic diagram of C57BL/6JGpt-Lrat-P2A-iCre model strategy.

Applications

1. Cre tool mice for specific induction of loxP recombination in *Lrat*-positive cells or tissues, such as hepatic stellate cells, eyes and testes [2-3].

Data support

1. Validation methods & notes

Lrat-Cre mice was crossed with LSL- tdTomato fluorescent 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.

2. Fluorescence imaging of hepatic stellate cells

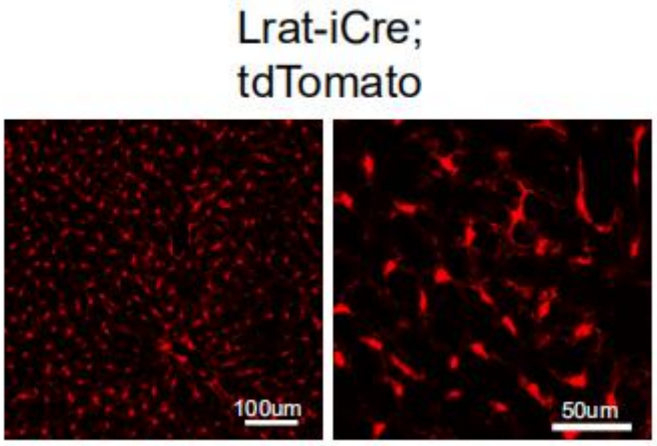

Fig 2. Fluorescence imaging of hepatic stellate cells.

3. Flow cytometry analysis of hepatic stellate cells

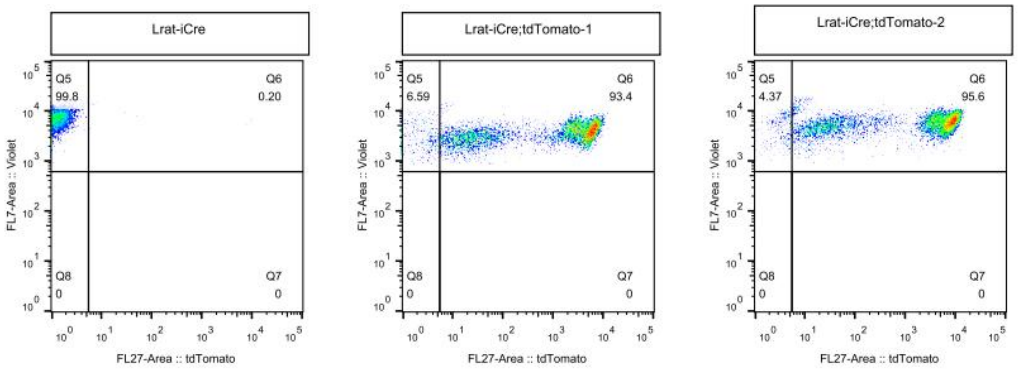

Fig 3. Flow cytometry analysis of hepatic stellate cells

HSCs were sorted and analyzed for tdTomato expression with flow cytometry, the results showed that more than 90% of HSCs expressed tdTomato in Lrat, tdTomato double positive individuals. HSCs have the autofluorescent properties of UV excitation and can be used for flow cytometry sorting.

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.Mederacke I, Hsu CC, Troeger JS, et al. Fate tracing reveals hepatic stellate cells as dominant contributors to liver fibrosis independent of its aetiology. Nat Commun. 2013, 4: 2823.
3.Prukova D, Ileninova Z, Antosova B, et al. Transgenic reporter mice with promoter region of murine LRAT specifically marks lens and meiosis spermatocytes. Physiol Res. 2015, 64(2): 247-54.