

C57BL/6JGpt-H11-Myh6-MerCreMer

Strain Name: C57BL/6JGpt-*H11*^{em1Cin(Myh6-MerCreMer)}/Gpt

Strain Type: Knock-in

Strain Number: T060079

Background: C57BL/6JGpt

Description

This mouse strain expresses MerCreMer inducible recombinase^[1] under the control of the mouse *Myh6* promoter, the construct was precisely inserted into the H11 safe harbor site in mouse Chr11 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 ardiac tissues/cells after tamoxifen administration. Note: mild MerCreMer leaky activity was observed in heart without tamoxifen treatment.

Strategy

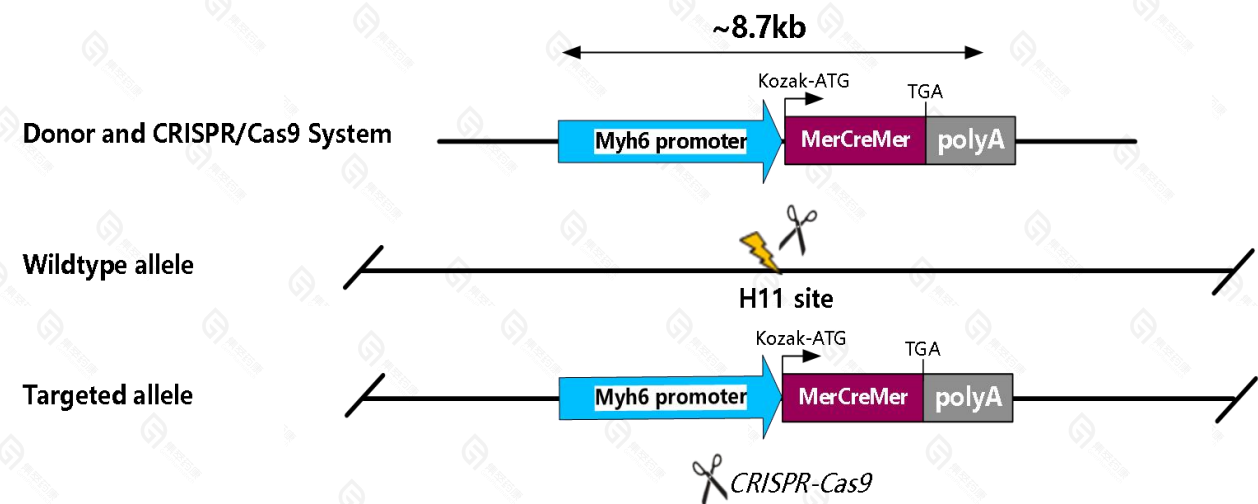


Fig.1 Schematic diagram of C57BL/6JGpt-H11-Myh6-MerCreMer model strategy.

Applications

1. Cre tool mice for specific, tamoxifen dependent induction of loxP recombination in ardiac tissues/cells^[2].

Data support

1. Validation methods & notes

H11-Myh6-MerCreMer 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 MerCreMer 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

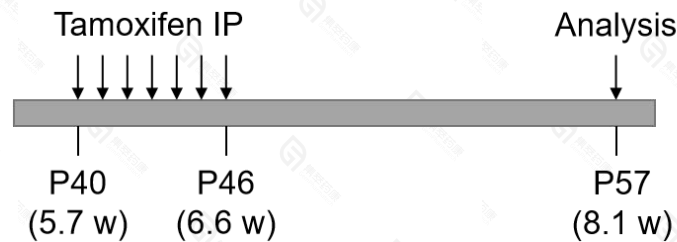


Fig 2. Timeline of tamoxifen treatment and experiment analysis of H11-Myh6-MerCreMer mice.

3. Images of tissues and organs with obvious Cre activity

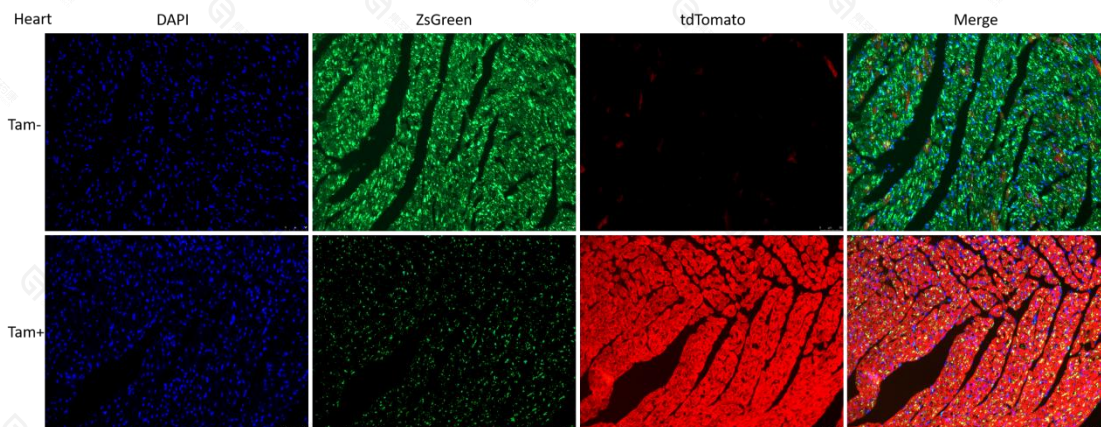


Fig 3. Fluorescence imaging of tissues and organs with obvious Cre activity.

Organ name was indicated in the left top of each subfigure group. Tam-: H11-Myh6-MerCreMer, CAG-G/R double positive individuals without tamoxifen administration; Tam+: H11-Myh6-MerCreMer, CAG-G/R double positive individuals with tamoxifen administration.

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. Sohal DS, Nghiem M, Crackower MA, et al. Temporally regulated and tissue-specific gene manipulations in the adult and embryonic heart using a tamoxifen-inducible Cre protein. *Circ Res*, 2001, 89(1): 20-5.