


B6.Cg-*Hprt*^{tm362a(Ple304-*icre/ERT2*)Ems}/Mmjax
MMRRC Stock No: **037385-JAX** | OLIG1-*creERT2*
 **Congenetic, Targeted Mutation**

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Ple304-*icre/frt/ERT2/frt*;mEMS6089 mice have the Ple304-*icre/frt/ERT2/frt* transgene targeted as a single copy "knock-in" into the upstream region of the hypoxanthine guanine phosphoribosyl transferase (*Hprt*) locus on the X Chromosome. This is designed to allow specific portions from the promoter/enhancer/regulatory regions of the human oligodendrocyte transcription factor 1 (*OLIG1*) locus to direct expression of a tamoxifen-inducible, improved Cre recombinase (*icre/ERT2*). In these mice, the *icre/ERT2* estrogen receptor sequences are flanked with *frt* sites.

Donating Investigator

Elizabeth M Simpson, Centre for Molecular Medicine & Therapeutics, University of British Columbia

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GENETIC OVERVIEW

Genetic Background

Generation

Hprt^{tm362a(Ple304-*icre/ERT2*)Ems}

Alele Type

Targeted (Recombinase-expressing, Inducible)

Gene Symbol

Hprt

Gene Name

hypoxanthine guanine phosphoribosyl transferase

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Details

Detailed Description

Ple304-*icre/frt/ERT2/frt*;mEMS6089 mice have the Ple304-*icre/frt/ERT2/frt* transgene targeted as a single copy "knock-in" into the upstream region of the hypoxanthine guanine phosphoribosyl transferase (*Hprt*) locus on the X Chromosome. Heterozygous females and hemizygous males are viable and fertile, with specific portions from the promoter/enhancer/regulatory regions of the human oligodendrocyte transcription factor 1 (*OLIG1*) locus directing expression of the tamoxifen-inducible, improved Cre recombinase (*icre/ERT2*). In these mice, the *icre/ERT2* estrogen receptor sequences are flanked with *frt* sites. The donating investigator reports RT PCR expression as "Positive (Telencephalon, Diencephalon, Midbrain)." The phenotype of homozygous mice has not been evaluated to date (January 2014).

The iCre/ER^{T2} fusion protein used here consists of a codon-improved Cre recombinase fused to a G400V/M543A/L544A triple mutant form of the human estrogen receptor which does not bind its natural ligand (17 β -estradiol) at physiological concentrations but will bind the synthetic estrogen receptor ligands 4-hydroxytamoxifen (OHT or tamoxifen) and, with lesser sensitivity, ICI 182780. Restricted to the cytoplasm, iCre/ER^{T2} can only gain access to the nuclear compartment after exposure to tamoxifen. To counteract the mixed estrogen agonist effects of tamoxifen injections, which can result in late fetal abortions in pregnant mice, progesterone may be coadministered. The iCre/ER^{T2} fusion protein used here has also been modified to have F3-*frt* sites flanking the estrogen receptor sequences.

In 2014, a 32 SNP (single nucleotide polymorphism) panel analysis, with 27 markers covering all 19 chromosomes and the X chromosome, as well as 5 markers that distinguish between the C57BL/6J and C57BL/6N substrains, was performed on the first generation rederived living colony at The Jackson Laboratory Repository. While the 27 markers throughout the genome suggested a C57BL/6 genetic background, 3 of 5 markers that determine C57BL/6J from C57BL/6N were found to be segregating in some mice (chromosomes 8 [~15.2 Mbp], 13 [~41.0 Mbp] and 15 [~57 Mbp]). These data suggest that the mice sent to The Jackson Laboratory Repository were on a mixed C57BL/6J;C57BL/6N genetic background.

Development

Expression Data

Control Suggestions

Selected References

Genetics

+ *Hprt*^{tm362a(Ple304-*icre/ERT2*)Ems}

Disease/Phenotype

[+ Disease Terms](#)

[+ Research Areas By Phenotype](#)

[+ Mammalian Phenotype Terms by Genotype](#)

[+ References](#)

[- Technical Support](#)

C O N T A C T T E C H N I C A L S U P P O R T

Genotyping Protocols

Separated PCR:Hprt

[Genotyping resources and troubleshooting](#)

Breeding Considerations

The targeted mutation is on the X chromosome. When maintaining a live colony, heterozygous females may be bred with wildtype males from the colony or with C57BL/6J inbred males (Stock No. [000664](#)). Alternatively, wildtype females from the colony or C57BL/6J inbred females may be bred with hemizygous males. Homozygous females and hemizygous males are expected to be viable and fertile. The expected coat color is black.

[Additional Breeding and Husbandry Support](#)

Citation

When using the OLIG1-creERT2 mouse strain in a publication, please [cite the originating article\(s\)](#) and include MMRRC stock #037385 in your Materials and Methods section.

Animal Health Reports

[Facility Barrier Level Descriptions](#)

Production of mice from cryopreserved embryos or sperm occurs in a maximum barrier room, [G200](#)

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