The Jackson Laboratory

B6.Cg-Tg(Avil-icre/ERT2)AJwo/J

Stock No: **026516**

Congenic, Transgenic

Please contact Technical Support for more information

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Advillin-CreERT2 transgenic mice (AvCreERT2) express a tamoxifen-inducible iCre recombinase directed by mouse *Avil* (advillin) promoter elements. When induced, iCre recombinase activity is observed in dorsal root ganglia and sensory neurons. These mice may have applications in the study of nociception.

Donating Investigator

John Wood, University College London

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GENETIC OVERVIEW

Genetic Background **Generation**

Tg(Avil-icre/ERT2)AJwo

Allele Type

Transgenic (Recombinase-expressing, Inducible)

VIEW GENETICS

RESEARCH APPLICATIONS

Neurobiology Research
Sensorineural Research
Research Tools

VIEW ALL RESEARCH APPLICATIO

Details

Important Note

As of January 2017, it has been the experience at The Jackson Laboratory Repository that when breeding hemizygous mice to wildtype siblings or C57BL/6J inbred mice, the resulting litters have less hemizygous offspring than expected, which is 29% instead of the expected 50%. Additionally in those matings, we observe significant incidence of hemizygous males with tail damage and/or genital injury.

Detailed Description

These Advillin-CreERT2 transgenic mice (AvCreERT2) express a tamoxifen inducible optimized (improved) iCre recombinase driven by the mouse *Avil* (advillin) gene promoter. iCre is an "improved Cre", optimized with mammalian codon usage, removed putative cryptic splice sites, an altered stop codon, and reduced CpG content to limit the chances of epigenetic silencing in mammals. After tamoxifen induction iCre recombinase activity is specific to sensory neurons and dorsal root ganglia. When these mice are bred with mice containing a *loxP*-flanked sequence of interest, tamoxifen-inducible, iCre-mediated recombination will result in deletion of the flanked sequences in *Avil* expressing cells.
Mice that are hemizygous for the transgene are viable and fertile. The Donating Investigator has not attempted to make the strain homozygous to date (December 2014). As of January 2017, it has been the experience at The Jackson Laboratory Repository that when breeding hemizygous mice to wildtype siblings or C57BL/6J inbred mice, the resulting litters have less hemizygous offspring than expected. Additionally in those matings, we observe significant incidence of hemizygous males with tail damage and/or genital injury.

Regarding transgene copy number: the Donating Investigator reported their colony showed the transgene copy number was not stably inherited - therefore they strongly recommended each generation be assessed for Cre recombinase activity (which is dependent upon copy number). As of January 2017, The Jackson Laboratory Repository colony has been showing stable inheritance of the transgene copy number (*i.e.*, we cannot detect molecular changes in the copy number).

The Cre-ERT2 fusion protein consists of Cre recombinase fused to a triple mutant form of the human estrogen receptor which does not bind its natural ligand (17β-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, Cre-ERT2 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.

Development

Expression Data

Control Suggestions

Selected References

Genetics

Tg(Avil-icre/ERT2)AJwo

Disease/Phenotype

Disease Terms

Research Areas By Phenotype

Mammalian Phenotype Terms by Genotype

References

Technical Support

CONTACT TECHNICAL SUPPORT

Genotyping Protocols

Standard PCR:Tg(Avil-cre/ERT2)AJwo alternate1
QPCR:Tg(Avil-cre/ERT2)AJwo-qPCR
QPCR:iCre QPCR
Genotyping resources and troubleshooting

Breeding Considerations

When maintaining a live colony, hemizygous mice may be bred together, to wildtype siblings or to C57BL/6J inbred mice (Stock No. 000664).

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See strain description (phenotype) for important information on assessing transgene copy number each generation.

Additional Breeding and Husbandry Support

Mating System

Noncarrier x Hemizygote
Hemizygote x Noncarrier

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General Terms and Conditions

QUESTIONS ABOUT TERMS OF USE

ADDITIONAL USE RESTRICTIONS APPLY

Use of MICE by companies or for-profit entities requires a license prior to shipping.

LICENSING INFORMATION

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Related Strains

All

By Allele

By Gene

By Collection

Leading the search for

TOMORROW'S CURES