This strain is commonly known as T29-1. CaMKIIα-Cre line T29-1 transgenic mice have the mouse calcium/calmodulin-dependent protein kinase II alpha (\textit{Camk2a}) promoter driving Cre recombinase expression in the forebrain, including the CA1 pyramidal cell layer of the hippocampus. See strain description below for additional information. This strain is useful in examining synaptic plasticity and Long Term Potentiation (LTP) in hippocampal networks.

**Donating Investigator**

Dr. Susumu Tonegawa, Massachusetts Institute of Technology
Mice homozygous for the CaMKIIα-Cre transgene [Tg(Camk2a-cre)T29-1Stl] are viable, fertile, normal in size and do not display any gross physical or behavioral abnormalities. CaMKIIα-Cre transgenic mice from line T29-1 [Tg(Camk2a-cre)T29-1Stl] have the mouse calcium/calmodulin-dependent protein kinase II alpha promoter (CaMKIIα) directing expression of Cre recombinase. When crossed with a strain containing /loxp site flanked sequence of interest, Cre-mediated recombination occurs in the pyramidal cell layer. See below for additional expression information (including male germline), as well as for breeding considerations when using floxed mice.

In the original publication Tsien et al. 1996 Cell 87:1317, crossing the CamKIIα-Cre line T29-1 mice with a Cre-dependent lacZ reporter line resulted in Cre recombinase expression in the forebrain, predominantly in the CA1 pyramidal cell layer in the hippocampus during the third to fourth postnatal week.

The Cre recombinase activity pattern of CamKIIα-Cre line T29-1 at several different ages was also characterized by the Genetic Resource Science group at The Jackson Laboratory - as reported on the Mouse Genome Informatics (MGI) Allele Detail entry for Tg(Camk2a-cre)T29-1Stl. In brief, that analysis shows expression in the CA1 pyramidal cell layer at all ages tested, as well as in other regions of the nervous system, in the alimentary, renal/urinary and reproductive systems, and in sensory organ. In general, mice older than 43 days old had more widespread expression. This same information can also be found searching the MGI Recombinase Activity database. This same information may also be found searching the MGI Recombinase Activity and MGI Gene Expression + Recombinase Activity Comparison Matrix.

Importantly, Tg(Camk2a-cre)T29-1Stl mice exhibited evidence of Cre recombinase expression in several structures of the male germline, including spermatocyte. Furthermore, Luo et al. 2020 Neuron 106:37 reports that CamKIIα-Cre line T29-1;floxed double mutant males bred to floxed females produced some offspring with germline deletion of the floxed allele [observed from several cohorts; 21.4% (6/28) - 31.3% (5/16)]. As such, for Cre-lox experiments and to avoid/minimize germline deletion of the floxed allele, researchers may consider breeding CamKIIα-Cre line T29-1 females to floxed males.
Tg(Camk2a-cre)T29-1Stl

Disease/Phenotype

Disease Terms

Research Areas By Phenotype

Mammalian Phenotype Terms by Genotype

References

Technical Support

Genotyping Protocols
QPCR: Generic Cre Quantitative PCR
Standard PCR: Generic Cre
Standard PCR: Tg(Camk2a-cre) Alternate 1
Separated PCR: Tg(Camk2a-cre)T29
Probe: Tg(Camk2a-cre)T29 Alternate1
QPCR: Tg(Camk2a-cre)T29 Alternate1
QPCR: Tg(Camk2a-cre)T29 Alternate1

Genotyping resources and troubleshooting

Dietary Information
LabDiet® 5K52 formulation (6% fat)

Breeding Considerations

When maintaining a live colony, these mice may be bred as homozygotes.

For Cre-lox experiments and to avoid/minimize germline deletion/global recombination of floxed alleles, researchers may consider breeding Tg(Camk2a-cre)T29-1Stl females with floxed males. See Detailed Description for more details.

Additional Breeding and Husbandry Support
Mating System
Homozygote x Homozygote

Citation
When using the T29-1 mouse strain in a publication, please cite the originating article(s) and include JAX stock #005359 in your Materials and Methods section.

Animal Health Reports
Facility Barrier Level Descriptions
Pricing & Availability

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### Domestic

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