B6SJL-Tg(APPswF1lon,PSEN1*M146L*L286V)6799Vas/Mmjax

MMRRC Stock No: 34840-JAX | 5XFAD

Transgenic

ORDER AT MMRRC JAX

1 week average lead time for up to 30 mice
Overview

Also Known As: 5XFAD, Tg6799

These 5XFAD transgenic mice overexpress mutant human APP(695) with the Swedish (K670N, M671L), Florida (I716V), and London (V717I) Familial Alzheimer’s Disease (FAD) mutations along with human PS1 harboring two FAD mutations, M146L and L286V. Both transgenes are regulated by the mouse Thy1 promoter to drive overexpression in the brain. 5XFAD mice recapitulate major features of Alzheimer’s Disease amyloid pathology and may be a useful model of intraneuronal Aβ42 induced neurodegeneration and amyloid plaque formation.

Donating Investigator

Robert Vassar, Northwestern University

GENETIC OVERVIEW

<table>
<thead>
<tr>
<th>Genetic Background</th>
<th>Generation</th>
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<td>N11+N24</td>
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Tg(APPsFlLon,PSEN1*M146L*L286V)6799Vas

Allele Type

Transgenic (Inserted expressed sequence, Humanized sequence)

RESEARCH APPLICATIONS

Mouse/Human Gene Homologs
Neurobiology Research
Research Tools

Details

Detailed Description

These 5XFAD transgenic mice overexpress both mutant human APP(695) with the Swedish (K670N, M671L), Florida (I716V), and London (V717I) Familial Alzheimer’s Disease (FAD) mutations and human PS1 harboring two FAD mutations, M146L and L286V.
Expression of both transgenes is regulated by neural-specific elements of the mouse Thy1 promoter to drive overexpression in the brain. Mice from this founder line have high APP expression correlating with high burden and accelerated accumulation of the 42 amino acid species of beta-amyloid (Abeta-42). 5XFAD mice generate Abeta-42 almost exclusively, rapidly accumulating massive cerebral levels. On the mixed C57BL/6 and SJL background (see MMRR stock 34840), intraneuronal Abeta-42 accumulation is observed starting at 1.5 months of age, just prior to amyloid deposition and gliosis, which begins at two months of age. On a congenic C57BL/6J genetic background (see MMRR stock 34848) it has been the observation of the MMRRC that this phenotype is not as robust as that demonstrated in the mixed C57BL/6 and SJL background (view data). In addition, these mice have reduced synaptic marker protein levels, increased p25 levels, neuron loss, and memory impairment in the Y-maze test. 5XFAD transgenic mice recapitulate major features of Alzheimer's Disease amyloid pathology and may be useful models of intraneuronal Abeta-42 induced neurodegeneration and amyloid plaque formation. Hemizygous mice are viable and fertile.

This strain is segregating heterozygous/wildtype for the retinal degeneration allele Pde6b<sup>rg1</sup>.

**Development**

**Expression Data**

**Control Suggestions**

**Selected References**

**Genetics**

Tg(APPSwFlLon,PSEN1*M146L*L286V)6799Vas

**Disease/Phenotype**

**Disease Terms**

**Research Areas By Genotype**

**Mammalian Phenotype Terms by Genotype**

**References**

**Technical Support**

CONTACT TECHNICAL SUPPORT

**Genotyping Protocols**

Standard PCR: Generic Pde6b
High Resolution Melting: Tg(APPSwFlLon,PSEN1*M146L*L286V)6799Vas-Chr3
QPCR: Human PSEN1 cDNA qPCR
Genotyping resources and troubleshooting
Dietary Information
LabDiet® 5K52 formulation (6% fat)

Breeding Considerations
When maintaining a live colony, hemizygous mice may be bred to B6SJLF1/J (Stock No. 100012).

Additional Breeding and Husbandry Support

Mating System
Hemizygote x F1
F1 x Hemizygote

Appearance
multiple coat colors
Related Genotype: segregating for a, A, Oca2<sup>o</sup>, Tyr<sup>c</sup> and Pde6b<sup>rd1</sup>

Citation
When using the AX10 mouse strain in a publication, please cite the originating article(s) and include MMRRC stock #34840 in your Materials and Methods section.

Facility Barrier Level Descriptions
AX10 (Standard)

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- All
- By Allele
- By Gene
- By Collection

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