B6;129-Tg(APPSwe,tauP301L)1Lfa Psen1<sup>tm1Mpm</sup>/Mmjax

MMRRC Stock No: 34830-JAX | 3xTg-AD

Targeted Mutation, Transgenic

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0–2 week average lead time for 10 or more mice with age range
Overview

Also Known As: 3xTg-AD
These 3xTg-AD mice are useful when studying plaque and tangle pathology associated with synaptic dysfunction and Alzheimer's disease.

Donating Investigator
Frank LaFerla, University of California, Irvine

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<th>GENETIC OVERVIEW</th>
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<td>Genetic Background</td>
<td>Generation</td>
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<th>Psen1tm1Mpm</th>
<th>Allele Type</th>
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Tg(APPswe,tauP301L)1Lfa

Allele Type
Transgenic (Humanized sequence, Inserted expressed sequence)

RESEARCH APPLICATIONS
Neurobiology Research
Developmental Biology Research
Research Tools

VIEW ALL RESEARCH APPLICATIONS

Details

Detailed Description
Mice homozygous for all three mutant alleles (3xTg-AD; homozygous for the Psen1 mutation and homozygous for the co-injected APPswe and tauP301L transgenes (Tg(APPswe,tauP301L)1Lfa)) are viable, fertile and display no initial gross physical or behavioral abnormalities. Translation of the overexpressed transgenes appears to be restricted to the central nervous system, notably in Alzheimer’s disease-relevant areas including the hippocampus and cerebral cortex. The initial characterization of this mouse line indicated a progressive increase in amyloid beta peptide deposition, with intracellular immunoreactivity being detected in some brain regions as early as 3-4 months. Synaptic transmission and long-term potentiation are demonstrably impaired in mice 6 months of age. Between 12-15 months aggregates of conformationally altered and hyperphosphorylated tau are detected in the hippocampus. This mutant mouse exhibits plaque and tangle pathology associated with synaptic dysfunction, traits similar to those observed in Alzheimer’s disease patients. The donating investigator recently communicated (February 2014) that, in contrast to the initial observations, male transgenic mice may not exhibit the phenotypic traits originally described. No reports of diminished traits in female carriers have been reported.

Development

Expression Data

Control Suggestions

Selected References

Genetics

Psen\textsuperscript{Tm1Pm}

Tg(APPswe,tauP301L)1Lfa

Disease/Phenotype
Genotyping Protocols
Pyrosequencing: Psen1^{I1M1}Pm
QPCR: Generic App QPCR
End Point Analysis: Psen1^{I1M1}Pm-EP
Melt Curve Analysis: Tg(TAU*P301S)#Elan
Standard PCR: Generic Tg(APP)
Genotyping resources and troubleshooting

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

Breeding Considerations
When maintaining a live colony, mice that are homozygous for the Psen1 mutation and homozygous for the co-injected APPSwe and tauP301L transgenes (Tg(APPswe,tauP301L)L1L1a) may be bred together.

Additional Breeding and Husbandry Support

Mating System
See "Breeding Considerations"

Animal Health Reports
Facility Barrier Level Descriptions
- AX12 (Maximum)

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