



## Overview

### Also Known As: 3xTg-AD congenic 129S4 mice

These 3xTg-AD mice harbor a *Psen1* mutation (M146V) and the co-injected APPSwe and tauP301L transgenes (Tg(APP<sup>Swe</sup>,tauP301L)<sup>1Lfa</sup>), and may be useful for 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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## GENETIC OVERVIEW

Genetic Background

Generation

VIEW GENETICS

## RESEARCH APPLICATIONS

Neurobiology Research

Developmental Biology Research

Research Tools

Mouse/Human Gene Homologs

VIEW ALL RESEARCH APPLICATIONS

## BASE PRICE

Starting at:

\$2,854.50 Domestic price Cryo Recovery

VIEW PRICE LIST

## − Details

### + Detailed Description

*In an attempt to offer alleles on well-characterized or multiple genetic backgrounds, alleles are frequently moved to a genetic background different from that on which an allele was first characterized. It should be noted that the phenotype could vary from that originally described for 3xTg AD mice on a C57BL/6;129 genetic background (see Stock No. 004807). We will modify the strain description if necessary as published results become available. Unless noted otherwise, the information below describes C57BL/6;129 genetic background 3xTg AD mice.*

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(APP<sup>Swe</sup>,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.

**In February 2014, the donating investigator communicated 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.**

Belfiore *et al.* 2019 Aging Cell 18:e12873 [PMID:30488653] characterized C57BL/6;129 genetic background 3xTgAD females for the onset, severity, and incidence of amyloid $\beta$ , phosphorylated tau, hippocampal and cortical plaques, neuroinflammation and cognitive decline. Most phenotypes that were evaluated were evident by 6 months of age. However, it was noted that cortical plaques were first detected at 12 months. For more detailed information, please see that publication. If any more detailed characterization is completed by The Jackson Laboratory, we will modify the strain description accordingly.

### + Development

### + Control Suggestions

## − Genetics

Currently there are no related genes or alleles for this strain.

## − Disease/Phenotype

### + Disease Terms

### + Research Areas By Genotype

### + Mammalian Phenotype Terms by Genotype

### + References

## − Technical Support

## Genotyping Protocols

End Point Analysis: [Psen1<sup>tm1Mpm</sup>-EP](#)

QPCR: [Tg\(APP<sup>Swe</sup>,tauP301L\)1Lfa](#)

Standard PCR: [Tg\(TAU\\*P301S\)#Elan](#)

Probe: [Tg\(APP<sup>Swe</sup>,tauP301L\)1Lfa](#)

Probe: [Tg\(APP<sup>Swe</sup>,tauP301L\)1Lfa-Chr2](#)

[Genotyping resources and troubleshooting](#)

## Breeding Considerations

When maintaining a live congenic colony, mice that are homozygous for the co-injected APP<sup>Swe</sup> and tauP301L transgenes [Tg(APP<sup>Swe</sup>,tauP301L)1Lfa on chromosome 2] and homozygous for the PS1M146V knock-in mutation [*Psen1<sup>tm1Mpm</sup>* on chromosome 12] may be bred together.

[Additional Breeding and Husbandry Support](#)

## Mating System

HOM HOM X HOM HOM

## Citation

When using the 3xTg-AD congenic 129S4 mice mouse strain in a publication, please [cite the originating article\(s\)](#) and include JAX stock #031988 in your Materials and Methods section.

[Facility Barrier Level Descriptions](#)

*Production of mice from cryopreserved embryos or sperm occurs in a maximum barrier room, G200*

## ➔ Pricing & Availability



Cryo Recovery

Typically mice are recovered in 10-14 weeks. Contact Customer Service to place an order or for more information.

## Domestic International

Pricing effective for USA, Canada and Mexico shipping destinations

### Cryorecovery - Domestic Not-For-Profit & Academic Pricing

SERVICE	GENOTYPE	PRICE
Cryo Recovery	Hemizygous for Tg(APP <sup>Swe</sup> ,tauP301L)1Lfa and Heterozygous for Psen1<tm1Mpm>	\$2,854.50

We will fulfill your order by providing at least two carriers for each strain ordered. The total number, sex, and genotypes provided will vary, although typically 8 or more animals are provided. Please check genotypes which will be recovered. While the genotypes of all animals produced will be communicated to you prior to scheduling shipment, the genotypes of animals provided may not reflect the mating scheme and genotypes described in the strain description. Animals are typically ready to ship in 11-14 weeks. If a second recovery is required to produce the minimum number of animals, then delivery time would increase to approximately 25 weeks. If we fail to produce animals of the correct genotype, you will not be charged. We cannot guarantee the reproductive success of mice shipped to your facility. If the mice are lost after the first three days (post-arrival) or do not produce progeny at your facility, a new order and fee will be necessary.

Cryorecovery to establish a [Dedicated Supply](#) for greater quantities of mice. Mice recovered can be used to establish a dedicated colony to contractually supply you mice according to your requirements. Price by quotation.

## Payment Terms and Conditions

Terms are granted by individual review and stated on the customer invoice(s) and account statement. These transactions are

payable in U.S. currency within the granted terms. Payment for services, products, shipping containers, and shipping costs that are rendered are expected within the payment terms indicated on the invoice or stated by contract. Invoices and account balances in arrears of stated terms may result in The Jackson Laboratory pursuing collection activities including but not limited to outside agencies and court filings.

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### Terms of Use

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Phone: 207-288-6470

Email: [TechTran@jax.org](mailto:TechTran@jax.org)

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All

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All Related Strains



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