The Jackson Laboratory

# B6.Cg-Tg(tetO-APPSwInd)102Dbo/Mmjax

MMRRC Stock No: **34845-JAX**

Congenic, Transgenic

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Amyloid pathology is observed when the transgene is expressed. This strain has been shown to be useful in studies correlating temporal expression of mutant APP expression with Alzheimer's-like amyloid pathology.

## Donating Investigator

Dr. David R Borchelt, University of Florida

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## GENETIC OVERVIEW

**Genetic Background** **Generation**

### Tg(tetO-APPSwInd)102Dbo

**Allele Type**

Transgenic (Inducible, Inserted expressed sequence, Humanized sequence)

VIEW GENETICS

## RESEARCH APPLICATIONS

Research Tools
Neurobiology Research
Mouse/Human Gene Homologs

VIEW ALL RESEARCH APPLICATION

# Details

## Detailed Description

Hemizygotes for this tetO-APPswe/ind transgene are viable and fertile. These transgenic mice express a chimeric mouse/human amyloid precursor protein (APP695) bearing the Swedish (KM570/571NL) and Indiana (V617F) mutations associated with Alzheimer's disease (APP695swe/ind) under the control of a tetracycline-responsive promoter element (TRE; tetO). When hemizygotes are bred with another transgenic mouse expressing either reverse tetracycline-controlled transactivator protein (rtTA) or tetracycline-controlled transactivator protein (tTA) under the control of a tissue-specific promoter, APP695swe/ind expression in the appropriate tissues of the bitransgenic offspring can be regulated with the tetracycline analog doxycycline (dox). These tetO-APPswe/ind transgenic mice may be useful in studies of Alzheimer's disease and other neurodegenerative diseases.

For example, when bred to a strain expressing tTA in brain tissues (Tg(Camk2a-tTA)1Mmay), bi-transgenic offspring show 10-30 fold greater transgenic APP695swe/ind protein expression than endogenous levels and nearly complete suppression following dox treatment. The donating investigators report some differences in APP695swe/ind expression in bi-transgenic offspring dependent upon which APP695swe/ind founder line was used; line 885 (B6.Cg-Tg(tetO-APPSwInd)885Dbo/Mmjax) shows the highest APP695swe/ind expression with greater dox requirements for transgene suppression, line 102 (B6.Cg-Tg(tetO-APPSwInd)102Dbo/Mmjax) has the greatest sensitivity to dox, and line 107 (B6.Cg-Tg(tetO-APPSwInd)107Dbo/Mmjax) and line 18 are similarly intermediate.

Note that tet alone may affect neuronal degeneration and behavioral phenotypes, depending on the genetic background used (see Han et al, J. Neurosci., 2012).

*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. We will modify the strain description if necessary as published results become available.*

## Development

## Expression Data

## Selected References

# Genetics

## Tg(tetO-APPSwInd)102Dbo

# Disease/Phenotype

## Disease Terms

## Research Areas By Phenotype

Mammalian Phenotype Terms by Genotype

References

## Technical Support

CONTACT TECHNICAL SUPPORT

### Genotyping Protocols

Standard PCR:Generic Tg(APP)
Genotyping resources and troubleshooting

### Breeding Considerations

When maintained as a live colony, hemizygous mice are bred to C57BL/6J or wildtype siblings.

Additional Breeding and Husbandry Support

### Citation

When using the B6.Cg-Tg(tetO-APPSwInd)102Dbo/Mmjax mouse strain in a publication, please cite the originating article(s) and include MMRRC stock #34845 in your Materials and Methods section.

### Animal Health Reports

Facility Barrier Level Descriptions

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

## THE JACKSON LABORATORY'S GENOTYPE PROMISE

The Jackson Laboratory has rigorous genetic quality control and mutant gene genotyping programs to ensure the genetic background of JAX® Mice strains as well as the genotypes of strains with identified molecular mutations. JAX® Mice strains are only made available to researchers after meeting our standards. However, the phenotype of each strain may not be fully characterized and/or captured in the strain data sheets. **Therefore, we cannot guarantee a strain's phenotype will meet all expectations.** To ensure that JAX® Mice will meet the needs of individual research projects or when requesting a strain that is new to your research, we suggest ordering and performing tests on a small number of mice to determine suitability for your particular project. We do not guarantee breeding performance and therefore suggest that investigators order more than one breeding pair to avoid delays in their research.

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