B6;C3-Tg(Prnp-MAPT*P301S)PS19Vle/J

Stock No: 008169

Transgenic

Available Now

Place Order

Live mice available in varying quantities. Ask Customer Service for details.
The PS19 mouse model harbors the T34 isoform of microtubule-associated protein tau with one N-terminal insert and four microtubule binding repeats (1N4R) encoding the human P301S mutation, all driven by the mouse prion protein promoter. These mice are useful in studying neurofibrillary tangles, neurodegenerative tauopathy and Alzheimer’s disease.

**Donating Investigator**

Virginia M Lee, University of Pennsylvania

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**GENETIC OVERVIEW**

<table>
<thead>
<tr>
<th>Genetic Background</th>
<th>Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tg(Pmp-MAPT*P301S)PS19V1e</td>
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</tr>
</tbody>
</table>

**Allele Type**

Transgenic (Inserted expressed sequence, Humanized sequence)

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**RESEARCH APPLICATIONS**

Neurobiology Research
**BASE PRICE**
Starting at:

- $270.00 Domestic price for female 4-week
- $348.51 Domestic price for breeder pair

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**Details**

**Detailed Description**

These PS19 transgenic mice (P301S Tg mice) express the P301S mutant form of human microtubule-associated protein tau (MAPT), under the direction of the mouse prion protein promoter (Prnp). The expression of the mutant human MAPT is five-fold higher than the expression of the endogenous mouse MAPT protein. Hyperphosphorylated, insoluble mutant human MAPT protein in the brain accumulates with age causing decreased microtubule binding/density. At three months of age, transgenic mice exhibit claspng and limb retraction when lifted by the tail, which progresses to limb weakness. By ten months of age the mice exhibit a hunched back and paralysis, followed by inability to feed. Transgenic mice have a median lifespan of approximately nine months with approximately 80% dying by 12 months. Histological analysis reveals neuron degeneration in hippocampus and ventricular dilatation (brain atrophy) by eight months of age, although significant neuron degeneration in the hippocampus occurs at approximately nine months of age. Neuron loss spreads to the amygdala, neocortex and entorhinal cortex by 12 months of age. Defective translocation of endoplasmic reticulum proteins in affected neurons is observed as early as three months of age. The onset of neurofibrillary tangle formation in the neocortex, amygdala, hippocampus, brain stem and spinal cord is five months of age. Transgenic mice display neuroinflammation with microglial activation and astrogliosis. The ultrastructure of the neurofibrillary tangle-like lesions detected is similar to that found in brain lesions of human Alzheimer’s disease and tauopathy patients. Degradation of synaptic function is significant by six months of age. These mice cannot be bred to homozygosity as homozygous females do not mate.

The phenotype of PS19 transgenic mice described above is based on the published information available as of 2008. In 2012-2013, publications using PS19 mice on a B6C3F1 or B6C3 genetic background report attenuated formation of tau pathology (hyperphosphorylated tau inclusions prominent by 12 months of age, significant neuronal death after 12 months of age), as well as males developing tau pathology more consistently than females. It is not determined if these phenotype differences are observed for the PS19 colony at The Jackson Laboratory. To ensure genetically stability, we periodically refresh our colony onto the hybrid B6C3F1/J genetic background (Stock No. 100010). This was last performed March to November 2016.

As of October 2017, the Stock No. 008169 live colony is homozygous for the C57BL/6-derived functional Pde6b allele (the C3H-derived Pde6b allele has been selectively removed). As of May 2019, the Stock No. 008169 live colony is homozygous for the Tr4 allele.

**Development**

**Expression Data**

**Control Suggestions**

**Selected References**

**Genetics**

**Tg(Prnp-MAPT*P301S)PS19Le**
Genotyping Protocols
Standard PCR: Tg(Prnp-MAPT*P301S)PS19Vle alternate2
QPCR: Tg(Prnp-MAPT*P301S)PS19Vle QPCR
High Resolution Melting: Tg(Prnp-MAPT*P301S)PS19Vle alternate2
MELT: Tg(Prnp-MAPT*P301S)PS19Vle-Chr3
Probe: Tg(Prnp-MAPT*P301S)PS19Vle-Chr3 Probe
Genotyping resources and troubleshooting

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

Breeding Considerations
When maintaining a live colony, these mice can be bred as hemizygotes. These mice cannot be bred to homozygosity as homozygous females do not mate.

Additional Breeding and Husbandry Support

Mating System
Hemizygote x Noncarrier
Noncarrier x Hemizygote

Citation
When using the BAC C57Prnp-MAPT*P301S)PS19Vle/J mouse strain in a publication, please cite the originating article(s) and include JAX stock #008169 in your Materials and Methods section.

Facility Barrier Level Descriptions

- AX10 (Standard)

Pricing & Availability
Live mice available in varying quantities. Ask Customer Service for details.
## Live Mouse

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<th>AGE</th>
<th>SEX</th>
<th>GENOTYPE</th>
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<tr>
<td>4 weeks</td>
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<td>Noncarrier</td>
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<tr>
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<tr>
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## Breeder Pair

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## Related Products and Services

- **Frozen Mouse Embryo**: $2,595.00 per straw or vial

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Email: TechTran@jax.org

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- All
- By Allele
- By Gene
- By Collection

All Related Strains
Leading the search for
TOMORROW'S CURES