B6.Cg-*Mapt* $^{tm1(Mecp2)Jae}$/LimmJ

Stock No: **018282**

Congenic, Targeted Mutation

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

PLACE ORDER

syndrome in humans. They may also be used for neuron-specific MeCP2 expression to rescue the Rett syndrome phenotype of other MeCP2 mutant mice.

Donating Investigator

Lisa M Monteggia, Univ of Texas Southwest Med Ctr Dallas

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GENETIC OVERVIEW

Genetic Background	Generation

Mapt$^{tm1(Mecp2)Jae}$

Allele Type	Gene Symbol	Gene Name
Targeted (Null/Knockout, Inserted expressed sequence)	*Mapt*	microtubule-associated protein tau

VIEW GENETICS

RESEARCH APPLICATIONS

Neurobiology Research
Developmental Biology Research

VIEW ALL RESEARCH APPLICATIO

BASE PRICE

Starting at:

$2,854.50 Domestic price Cryo Recovery

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Details

Detailed Description

The Tau-MeCP2 knockin mutation places the mouse MeCP2 cDNA sequence into exon 1 of the tau gene, in-frame with the endogenous tau start codon. Under control of the endogenous tau promoter/enhancer sequences, expression of the Tau-MeCP2 fusion protein (containing the first 31 amino acids of tau fused to the MeCP2 protein) is high in lung and kidney, low in heart, and very low in liver and spleen. Endogenous tau expression is abolished in the Tau-MeCP2 knockin allele. The axonal localization signal of tau is located in the 3' UTR, and therefore is not part of the Tau-MeCP2 mRNA. The onset of fusion protein expression correlates closely with endogenous tau expression (first detectable at 10.5 days *post coitum* [dpc]). While the amount of Mecp2 RNA is similar to Tau-MeCP2 RNA in heterozygous Tau-MeCP2 mice embryos and adult brain, the fusion protein expression level is approximately two-to-four times more abundant; suggesting a difference in either translation efficiency of the transcripts or protein stability. As such, the Tau-MeCP2 knockin results in MeCP2 overexpression directed primarily to heterochromatic foci of post-mitotic neurons in the brain. Heterozygous Tau-MeCP2 knockin mice tolerate ~2-3 fold MeCP2 overexpression levels in brain with no adverse effects on viability or fertility. By 3-5 months of age, heterozygotes display impaired motor coordination, heightened anxiety, and impaired learning and memory (accompanied by deficits in long-term potentiation and short-term synaptic plasticity). Mice homozygous for the Tau-MeCP2 knockin allele have ~4-6 fold MeCP2 overexpression levels in brain, resulting in a profound motor dysfunction with side-to-side swaying, tremors, and gait ataxia. Homozygotes are severely runted by weaning age (failure to thrive largely caused by inability to compete with littermates for food), remain smaller than wildtype mice, and fail to mate. The donating investigator (Dr. Lisa M. Monteggia) suggests using heterozygous mice for assessing behavioral traits, as the homozygous phenotype may complicate the analysis of behavioral testing.

Development

Expression Data

Control Suggestions

Selected References

Genetics

Mapt$^{tm1(Mecp2)Jae}$

Disease/Phenotype

- Disease Terms
- Research Areas By Phenotype
- Mammalian Phenotype Terms by Genotype
- References

Technical Support

CONTACT TECHNICAL SUPPORT

Genotyping Protocols

Separated PCR:Mapt
Genotyping resources and troubleshooting

Breeding Considerations

When maintaining a live colony, heterozygous mice may be bred with wildtype mice from the colony or with C57BL/6J inbred mice. Homozygous mice exhibit profound motor, learning, and behavioral abnormalities, and the donating investigator reports that homozygous mice do not mate.

Additional Breeding and Husbandry Support

Citation

When using the B6.Cg-*Mapt*$^{tm1(Mecp2)Jae}$/LimmJ mouse strain in a publication, please cite the originating article(s) and include JAX stock #018282 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

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 PRICING

SERVICE/PRODUCT	DESCRIPTION	PRICE
Cryo Recovery	Heterozygous or wildtype for	$2,854.50

RELATED PRODUCTS AND SERVICES

Frozen Mouse Embryo	B6.Cg-Mapt<tm1(Mecp2)Jae/LimmJ Frozen Embryo	$2595.00

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