



B 6 . C M t h f r ^{em1A_{diuj}} A p o e ^{em1(APOE*4)_{diuj}} T r e m 2 ^{em1A_{diuj}} / J

Stock No: 030922 | Mthfr*C677T/APOE4/Trem2*R47H

◆ Congenic, Targeted Mutation, Endonuclease-Mediated Mutation



CRYORECOVERY

P L A C E O R D E R

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

Overview



MODEL-AD

Model Organism Development & Evaluation for Late-Onset Alzheimer's Disease

Also Known As: *Mthfr**C677T/APOE4/*Trem2**R47H

This triple mutant strain carries a humanized ApoE knock-in mutation (sequence coding for isoform E4); a CRISPR/cas9-generated R47H point mutation of the *Trem2* gene; and CRISPR/Cas9 generated mutant of the *Mthfr* gene carries a point mutation resulting in the A262V amino acid substitution that models the human C677T polymorphism. These mice may be suitable for use in studies related to Alzheimer's disease, lipoproteins, arteriosclerosis, and coronary heart disease.

Donating Investigator

Mike Sasner, The Jackson Laboratory

READ MORE +

GENETIC OVERVIEW

Genetic Background

Generation

Trem2^{em1}Adiuj

Allele Type	Gene Symbol	Gene Name
Endonuclease-mediated (Humanized sequence)	<i>Trem2</i>	triggering receptor expressed on myeloid cells 2

Mthfr^{em1}Adiuj

Allele Type	Gene Symbol	Gene Name
Endonuclease-mediated (Not Specified)	<i>Mthfr</i>	methylenetetrahydrofolate reductase

Apoe^{tm1.1(APOE*4)}Adiuj

Allele Type	Gene Symbol	Gene Name
Targeted (Inserted expressed sequence, Humanized sequence)	<i>ApoE</i>	apolipoprotein E

V I E W G E N E T I C S

RESEARCH APPLICATIONS

Neurobiology Research

V I E W A L L R E S E A R C H A P P L I C A T I O N S

BASE PRICE

Starting at:

\$2,854.50 Domestic price Cryo Recovery

V I E W P R I C E L I S T

Details

Detailed Description

This triple mutant strain carries a humanized ApoE knock-in allele, in which exons 2, 3 and most of exon 4 of the mouse *ApoE* gene were replaced by human *APOE4* gene sequence including exons 2, 3 and 4 (and some 3' UTR sequence); a knock-in of a point mutation into mouse *Trem2*, triggering receptor expressed on myeloid cells 2, gene containing a R47H point mutation, with two silent mutations; and a CRISPR/Cas9 generated mutant of the *Mthfr* gene carries a point mutation resulting in the A262V amino acid substitution that models the human C677T polymorphism. The targeted *ApoE* gene encodes apolipoprotein E, which is important in lipoprotein metabolism and cardiovascular disease as well as Alzheimer's disease, immunoregulation and cognition. The targeted *Trem2* gene encodes a protein that is part of a receptor signaling complex with TYRO protein tyrosine kinase binding protein, and that activates macrophages and dendritic cells during immune responses. The *TREM2* R47H mutation is a missense mutation in exon 2 that is one of the strongest genetic risk factors for late-onset Alzheimer's disease. This *Mthfr* point mutation models the human *MTHFR* C677T polymorphism which is associated with an increased risk for Alzheimer's Disease.

Mice that are homozygous for the *Apoe*^{tm1.1(APOE*4)Adiuj} and *Trem2*^{em1Adiuj} alleles are viable and fertile. Homozygous viability/fertility has not been tested for the *Mthfr*^{em1Adiuj} allele (October 2018). As the mice are characterized, we will modify the strain description and add phenotype data.

+ Development

+ Expression Data

+ Control Suggestions

- Genetics

+ *Trem2*^{em1Adiuj}

+ *Mthfr*^{em1Adiuj}

+ *Apoe*^{tm1.1(APOE*4)Adiuj}

- Disease/Phenotype

+ Disease Terms

+ Research Areas By Genotype

+ Mammalian Phenotype Terms by Genotype

+ References

- Technical Support

C H A T O  F L I N E

C O N T A C T T E C H N I C A L S U P P O R T

Genotyping Protocols

End Point Analysis: [Trem2^{em1Adiuj}_EP](#)

Standard PCR: [Apoe^{tm1.1\(APOE*4\)Adiuj}](#)

[Genotyping resources and troubleshooting](#)

Breeding Considerations

When maintaining a live colony, these mice can be bred as homozygotes for the *Apoe*^{tm1.1(APOE*4)Adiuj} and *Trem2*^{em1Adiuj} alleles, and heterozygote for the *Mthfr*^{em1Adiuj} allele. Mice that are homozygous for the *Apoe*^{tm1.1(APOE*4)Adiuj} and *Trem2*^{em1Adiuj} alleles are viable and fertile. Homozygous viability/fertility has not been tested for the *Mthfr*^{em1Adiuj} allele (October 2018). As the mice are characterized, we will modify the strain description if necessary and add data related to viability and fertility.

[Additional Breeding and Husbandry Support](#)

Mating System

See "Breeding Considerations"

Citation

When using the Mthfr^{C677T}/APOE4/Trem2^{R47H} mouse strain in a publication, please [cite the originating article\(s\)](#) and include JAX stock #030922 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	GENOTYPE	PRICE
Cryo Recovery	Heterozygous or wildtype for Mthfr ^{<em1Aduj>} and Heterozygous for Apoe ^{<tm1.1(APOE*4)Aduj>} and Trem2 ^{<em1Aduj>}	\$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.

Related Products and Services

Frozen Mouse Embryo	B6.Cg-Mthfr ^{<em1Aduj>} Apoe ^{<tm1.1(APOE*4)Aduj>} Trem2 ^{<em1Aduj>}	\$2595.00
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