



B 6 . C ^{tm1.1(APOE*4)Aduj} App ^{em1Aduj} Trem2 ^{em1Aduj} / J

Stock No: 030670 | hAPP/APOE4/Trem2*R47H

◆ Congenic, Targeted Mutation, Endonuclease-Mediated Mutation



AVAILABLE

PLACE ORDER

Live mice available in varying quantities. Ask Customer Service for details.

Overview



MODEL-AD

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

Also Known As: hAPP/APOE4/Trem2*R47H

This triple mutant strain carries a humanized ApoE knock-in mutation (sequence coding for isoform E4), CRISPR/cas9-generated G601R, F606Y, and R609H mutations of the *App* gene and a CRISPR/cas9-generated R47H point mutation of the *Trem2* gene. 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

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GENETIC OVERVIEW

Genetic Background Generation
?+pN1F2
(2019-06-17 00:00:00)

Trem2^{em1Adiuj}

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

App^{em1Adiuj}

Allele Type	Gene Symbol	Gene Name
Endonuclease-mediated (Humanized sequence)	<i>App</i>	amyloid beta (A4) precursor protein

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
 Research Tools
 Cardiovascular Research
 Metabolism 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:

\$255.00 Domestic price for female 4-week

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 mutant allele of the *App* gene containing G601R, F606Y, and R609H point mutations, and a knock-in of a point mutation into mouse *Trem2* (triggering receptor expressed on myeloid cells 2) gene containing an R47H point mutation with two silent mutations.

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 *App* gene encodes amyloid beta precursor protein, a transmembrane cell surface receptor that is cleaved by secretases. Mutations in this gene have been associated with Alzheimer's disease. 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. Mice that are homozygous for the *ApoE*^{tm1.1(APOE*4)Adiuj} and *Trem2*^{em1Adiuj} alleles, and heterozygous for the *App*^{em1Adiuj} allele are viable and fertile. Homozygous viability/fertility has not been tested for the *App*^{em1Adiuj} allele (June 2018). As the mice are characterized, we will modify the strain description and add phenotype data.

Of note, in brains of mice homozygous for the *Trem2*^{em1Adiuj} allele (and not carrying any other mutant alleles), expression of both

transcripts of *Trem2* is decreased by about 50%. Mice expressing the *Trem2* R47H mutation also express a novel splice variant with a deletion of 119bp at the 5' end of exon 2, due to a cryptic splice acceptor site in exon 2 (see Stock No. [027918](#)).

+ Development

+ Expression Data

+ Control Suggestions

- Genetics

+ *Trem2*^{em1Aduj}

+ *App*^{em1Aduj}

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

- 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^{em1Aduj}_EP](#)

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

Probe: [App \(G601R\) Probe](#)

[Genotyping resources and troubleshooting](#)

Breeding Considerations

When maintaining a live colony, mice homozygous for the *Apoe*^{tm1.1(APOE*4)Aduj} and *Trem2*^{em1Aduj} alleles, and heterozygous for the *App*^{em1Aduj} allele may be bred.

Homozygous viability/fertility has not been tested for the *App*^{em1Aduj} allele (June 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

Homozygous for Apoe^{tm1.1(APOE*4)Adiuj} Homozygous for App^{em1Adiuj} Homozygous for Trem2^{em1Adiuj} X Homozygous for Apoe^{tm1.1(APOE*4)Adiuj} Homozygous for App^{em1Adiuj} Homozygous for Trem2^{em1Adiuj}

Citation

When using the JAX APP/APOE4/Trem2*^{R47H} mouse strain in a publication, please [cite the originating article\(s\)](#) and include JAX stock #030670 in your Materials and Methods section.

[Facility Barrier Level Descriptions](#)

 [AX11 \(Maximum\)](#)

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Available

Domestic **International**

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Live Mouse

AGE	SEX	GENOTYPE	PRICE
4 weeks	Male	Homozygous for Apoe ^{tm1.1(APOE*4)Adiuj} Heterozygous for App ^{em1Adiuj} Homozygous for Trem2 ^{em1Adiuj}	\$255.00
4 weeks	Female	Homozygous for Apoe ^{tm1.1(APOE*4)Adiuj} Homozygous for App ^{em1Adiuj} Homozygous for Trem2 ^{em1Adiuj}	\$255.00
	Male	Homozygous for Apoe ^{tm1.1(APOE*4)Adiuj} Homozygous for App ^{em1Adiuj} Homozygous for Trem2 ^{em1Adiuj}	\$255.00
5 weeks	Male	Homozygous for Apoe ^{tm1.1(APOE*4)Adiuj} Heterozygous for App ^{em1Adiuj} Homozygous for Trem2 ^{em1Adiuj}	\$255.00
5 weeks	Female	Homozygous for Apoe ^{tm1.1(APOE*4)Adiuj} Homozygous for App ^{em1Adiuj} Homozygous for Trem2 ^{em1Adiuj}	\$255.00
	Male	Homozygous for Apoe ^{tm1.1(APOE*4)Adiuj} Homozygous for App ^{em1Adiuj} Homozygous for Trem2 ^{em1Adiuj}	\$255.00
6 weeks	Male	Homozygous for Apoe ^{tm1.1(APOE*4)Adiuj} Heterozygous for App ^{em1Adiuj} Homozygous for Trem2 ^{em1Adiuj}	\$255.00
6 weeks	Female	Homozygous for Apoe ^{tm1.1(APOE*4)Adiuj} Homozygous for App ^{em1Adiuj} Homozygous for Trem2 ^{em1Adiuj}	\$255.00
	Male	Homozygous for Apoe ^{tm1.1(APOE*4)Adiuj} Homozygous for App ^{em1Adiuj} Homozygous for Trem2 ^{em1Adiuj}	\$255.00
7 weeks	Male	Homozygous for Apoe ^{tm1.1(APOE*4)Adiuj} Heterozygous for App ^{em1Adiuj} Homozygous for Trem2 ^{em1Adiuj}	\$255.00
7 weeks	Female	Homozygous for Apoe ^{tm1.1(APOE*4)Adiuj} Homozygous for App ^{em1Adiuj} Homozygous for Trem2 ^{em1Adiuj}	\$255.00
	Male	Homozygous for Apoe ^{tm1.1(APOE*4)Adiuj} Homozygous for App ^{em1Adiuj} Homozygous for Trem2 ^{em1Adiuj}	\$255.00
8 weeks	Male	Homozygous for Apoe ^{tm1.1(APOE*4)Adiuj} Heterozygous for App ^{em1Adiuj} Homozygous for Trem2 ^{em1Adiuj}	\$255.00

8 weeks	SEX	Homozygous for Apoe Trem2	tm1.1(APOE*4)Adiuj	Homozygous for App	Homozygous for	\$255.00
	Male	Homozygous for Apoe Trem2	tm1.1(APOE*4)Adiuj	Homozygous for App	Homozygous for	\$255.00
9 weeks	Male	Homozygous for Apoe Trem2	tm1.1(APOE*4)Adiuj	Heterozygous for App	Homozygous for	\$255.00
9 weeks	Female	Homozygous for Apoe Trem2	tm1.1(APOE*4)Adiuj	Homozygous for App	Homozygous for	\$255.00
	Male	Homozygous for Apoe Trem2	tm1.1(APOE*4)Adiuj	Homozygous for App	Homozygous for	\$255.00
10 weeks	Male	Homozygous for Apoe Trem2	tm1.1(APOE*4)Adiuj	Heterozygous for App	Homozygous for	\$255.00
10 weeks	Female	Homozygous for Apoe Trem2	tm1.1(APOE*4)Adiuj	Homozygous for App	Homozygous for	\$255.00
	Male	Homozygous for Apoe Trem2	tm1.1(APOE*4)Adiuj	Homozygous for App	Homozygous for	\$255.00
11 weeks	Male	Homozygous for Apoe Trem2	tm1.1(APOE*4)Adiuj	Heterozygous for App	Homozygous for	\$255.00
11 weeks	Female	Homozygous for Apoe Trem2	tm1.1(APOE*4)Adiuj	Homozygous for App	Homozygous for	\$255.00
	Male	Homozygous for Apoe Trem2	tm1.1(APOE*4)Adiuj	Homozygous for App	Homozygous for	\$255.00
12 weeks	Male	Homozygous for Apoe Trem2	tm1.1(APOE*4)Adiuj	Heterozygous for App	Homozygous for	\$255.00
12 weeks	Female	Homozygous for Apoe Trem2	tm1.1(APOE*4)Adiuj	Homozygous for App	Homozygous for	\$255.00
	Male	Homozygous for Apoe Trem2	tm1.1(APOE*4)Adiuj	Homozygous for App	Homozygous for	\$255.00

Related Products and Services

Frozen Mouse Embryo	B6.Cg-Apoe<tm1.1(APOE*4)Adiuj> App<em1Adiuj> Trem2<em1Adiuj>	\$2595.00
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Terms of Use

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