



# B 6 . C <sup>tm1.1(APOE\*4)Adiuj</sup> *App o e* P l c g 2 <sup>em3A0iuj</sup> T r e m 2 <sup>em1A0iuj</sup> / J

Stock No: 030674 | Plcg2\*M28L/APOE4/Trem2\*R47H

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: *Plcg2*\*M28L/APOE4/*Trem2*\*R47H

This triple mutant strain carries a humanized ApoE knock-in mutation (sequence coding for isoform E4), CRISPR/Cas9 generated mutant of the *Plcg2* gene with the M28L mutation, 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

READ MORE +

## GENETIC OVERVIEW

Genetic Background      Generation  
?+pN1  
(2019-01-07 00:00:00)

### *Trem2*<sup>em1A</sup>*Adiuj*

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

### *ApoE*<sup>tm1.1(APOE\*4)</sup>*Adiuj*

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

*Plcg2<sup>em3Aduj</sup>*

Allele Type	Gene Symbol	Gene Name
Endonuclease-mediated (Humanized sequence)	<i>Plcg2</i>	phospholipase C, gamma 2

V I E W   G E N E T I C S

## RESEARCH APPLICATIONS

Cardiovascular Research  
 Research Tools  
 Metabolism Research  
 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:

\$255.00 Domestic price for female

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 CRISPR/Cas9 generated mutant of the *Plcg2*, phospholipase C, gamma 2, gene with the M28L mutation; and 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. 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.

Mice that are homozygous for the *ApoE<sup>tm1.1(APOE\*4)Aduj</sup>* and *Trem2<sup>em1Aduj</sup>* alleles and heterozygous for the *Plcg2<sup>em2Aduj</sup>* allele are viable and fertile. Homozygous viability/fertility has not been tested for the *Plcg2<sup>em2Aduj</sup>* 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<sup>em1Aduj</sup>* 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\*<sup>em1Aduj</sup>](#)

[+ \*Apoe\*<sup>tm1.1\(APOE\\*4\)Aduj</sup>](#)

[+ \*Plcg2\*<sup>em3Aduj</sup>](#)

[- Disease/Phenotype](#)

[+ Disease Terms](#)

[+ Research Areas By Genotype](#)

[+ Mammalian Phenotype Terms by Genotype](#)

[+ References](#)

[- Technical Support](#)

CHAT OFFLINE

CONTACT TECHNICAL SUPPORT

## Genotyping Protocols

End Point Analysis: [Trem2<sup>em1Aduj</sup>](#)

Standard PCR: [Apoe<sup>tm1.1\(APOE\\*4\)Aduj</sup>](#)

End Point Analysis: [Plcg2<sup>em3Aduj</sup>](#)

[Genotyping resources and troubleshooting](#)

## Breeding Considerations

When maintaining a live colony, mice homozygous for the *Apoe*<sup>tm1.1(APOE\*4)Aduj</sup> and *Trem2*<sup>em1Aduj</sup>, and heterozygous for the *Plcg2*<sup>em2Aduj</sup> allele may be bred. Homozygous viability/fertility has not been tested for the *Plcg2*<sup>em2Aduj</sup> 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<sup>tm1.1(APOE\*4)Adiuj</sup> Heterozygous for Plcg2<sup>em3Adiuj</sup> Homozygous for Trem2<sup>em1Adiuj</sup> x Homozygous for Apoe<sup>tm1.1(APOE\*4)Adiuj</sup> Wildtype for Plcg2<sup>em3Adiuj</sup> Homozygous for Trem2<sup>em1Adiuj</sup>

Homozygous for Apoe<sup>tm1.1(APOE\*4)Adiuj</sup> Wildtype for Plcg2<sup>em3Adiuj</sup> Homozygous for Trem2<sup>em1Adiuj</sup> X Homozygous for Apoe<sup>tm1.1(APOE\*4)Adiuj</sup> Heterozygous for Plcg2<sup>em3Adiuj</sup> Homozygous for Trem2<sup>em1Adiuj</sup>

## Citation

When using the Plcg2<sup>em3Adiuj</sup>/APOE4/Trem2<sup>em1Adiuj</sup> mouse strain in a publication, please [cite the originating article\(s\)](#) and include JAX stock #030674 in your Materials and Methods section.

[Animal Health Reports](#)  
[Facility Barrier Level Descriptions](#)

 [AX18 \(Maximum\)](#)

## ➔ Pricing & Availability



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

Available

## Domestic International

Pricing effective for USA, Canada and Mexico shipping destinations

### Live Mouse

AGE	SEX	GENOTYPE	PRICE
Approx 4-8 weeks	Female	Homozygous for Apoe <sup>tm1.1(APOE*4)Adiuj</sup> Heterozygous for Plcg2 <sup>em3Adiuj</sup> Homozygous for Trem2 <sup>em1Adiuj</sup>	\$255.00
	Male	Homozygous for Apoe <sup>tm1.1(APOE*4)Adiuj</sup> Heterozygous for Plcg2 <sup>em3Adiuj</sup> Homozygous for Trem2 <sup>em1Adiuj</sup>	\$255.00
Approx 4-8 weeks	Female	Homozygous for Apoe <sup>tm1.1(APOE*4)Adiuj</sup> Wildtype for Plcg2 <sup>em3Adiuj</sup> Homozygous for Trem2 <sup>em1Adiuj</sup>	\$255.00
	Male	Homozygous for Apoe <sup>tm1.1(APOE*4)Adiuj</sup> Wildtype for Plcg2 <sup>em3Adiuj</sup> Homozygous for Trem2 <sup>em1Adiuj</sup>	\$255.00

## Related Products and Services

Frozen Mouse Embryo [B6.Cg-Apoe<tm1.1\(APOE\\*4\)Adiuj> Plcg2<em3Adiuj> Trem2<em1Adiuj](#) \$2595.00

## Payment Terms and Conditions

Terms are granted by individual review and stated on the customer invoice(s) and account statement. These transactions are payable in U.S. currency within the granted terms. Payment for services, products, shipping containers, and shipping costs that are rendered are expected within the payment terms indicated on the invoice or stated by contract. Invoices and account balances in arrears of stated terms may result in The Jackson Laboratory pursuing collection activities including but not limited to outside agencies and court filings.

## 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.

## Terms Of Use

### Terms of Use

[General Terms and Conditions](#)

#### QUESTIONS ABOUT TERMS OF USE

### Additional Use Restrictions Apply

The use of this mouse model is subject to the terms and conditions of the [Limited License from The Broad Institute](#).

The use of this mouse model is subject to the terms and conditions of the [Limited Use Label License from Caribou Biosciences, Inc.](#)

### Licensing Information

Phone: 207-288-6470

Email: [TechTran@jax.org](mailto:TechTran@jax.org)

### JAX® Mice, Products & Services Conditions of Use

"MICE" means mouse strains, their progeny derived by inbreeding or crossbreeding, unmodified derivatives from mouse strains or their progeny supplied by The Jackson Laboratory ("JACKSON"). "PRODUCT(S)" means biological materials supplied by JACKSON, and their derivatives. "SERVICES" means projects conducted by JACKSON for other parties that may include but are not limited to the use of MICE or PRODUCTS. "RECIPIENT" means each recipient of MICE, PRODUCTS, or SERVICES provided by JACKSON including each institution, its employees and other researchers under its control. MICE or PRODUCTS shall not be: (i) used for any purpose other than internal research, (ii) sold or otherwise provided to any third party for any use, or (iii) provided to any agent or other third party to provide breeding or other services. Acceptance of MICE, PRODUCTS or SERVICES from JACKSON shall be deemed as agreement by RECIPIENT to these conditions, and departure from these conditions requires JACKSON's prior written authorization.

### No Warranty

MICE, PRODUCTS AND SERVICES ARE PROVIDED "AS IS". JACKSON EXTENDS NO WARRANTIES OF ANY KIND, EITHER EXPRESS, IMPLIED, OR STATUTORY, WITH RESPECT TO MICE, PRODUCTS OR SERVICES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ANY WARRANTY OF NON-INFRINGEMENT OF ANY PATENT, TRADEMARK, OR OTHER INTELLECTUAL PROPERTY RIGHTS.

### Credit for PRODUCTS or SERVICES

In case of dissatisfaction for a valid reason and claimed in writing by a purchaser within ninety (90) days of receipt of, PRODUCTS or SERVICES, JACKSON will, at its option, provide credit or replacement for the PRODUCT received or the SERVICES provided; JACKSON makes no other representations and this shall be the exclusive remedy of the purchaser. [Please note specific policy for live mice.](#)

### Animal Care and Use for SERVICES

Consistent with the requirement for a written understanding regarding animal care and use, the JACKSON Animal Care and Use Committee will review the animal care and use protocol(s) associated with any SERVICES to be performed at JACKSON, and JACKSON shall have ultimate responsibility and authority for the care of animals while on site or in JACKSON custody.

### No Liability

In no event shall JACKSON, its trustees, directors, officers, employees, and affiliates be liable for any causes of action or damages, including any direct, indirect, special, or consequential damages, arising out of the provision of MICE, PRODUCTS, or SERVICES, including economic damage or injury to property and lost profits, and including any damage arising from acts or negligence on the part of JACKSON, its agents or employees. Unless prohibited by law, in purchasing or receiving MICE, PRODUCTS, or SERVICES from JACKSON, purchaser or recipient, or any party claiming by or through them, expressly releases and discharges JACKSON from all such causes of action or damages, and further agrees to defend and indemnify JACKSON from any costs or damages arising out of any third party claims.

MICE, PRODUCTS or SERVICES are to be used in a safe manner and in accordance with all applicable governmental rules and

regulations.

The foregoing represents the General Terms and Conditions applicable to JACKSON's MICE, PRODUCTS or SERVICES. In addition, special terms and conditions of sale of certain MICE, PRODUCTS, or SERVICES may be set forth separately in JACKSON web pages, catalogs, price lists, contracts, and/or other documents, and these special terms and conditions shall also govern the sale of these MICE, PRODUCTS and SERVICES by JACKSON, and by its licensees and distributors. Acceptance of delivery of MICE, PRODUCTS or SERVICES shall be deemed agreement to these terms and conditions. No purchase order or other document transmitted by purchaser or recipient that may modify the terms and conditions hereof, shall be in any way binding on JACKSON, and instead the terms and conditions set forth herein, including any special terms and conditions set forth separately, shall govern the sale of MICE, PRODUCTS or SERVICES by JACKSON.

## ☰ Related Strains

All

By Allele

By Gene

By Collection

All Related Strains



### DO YOU NEED BALB/c MICE?

Rely on JAX to provide the models you need, when you need them.

LEARN MORE



CONTACT



DONATE



SUBSCRIBE

JAX HOME

CAREERS

PRIVACY POLICY

TERMS OF USE

RESEARCH CENTERS    MOUSE GENOME INFORMATICS  
MOUSE PHENOME DATABASE

*Leading the search for*  
**TOMORROW'S CURES**

---

©2020 THE JACKSON LABORATORY

Choose other country or region 