The Jackson Laboratory

# STOCK *Cacng4* $^{tm1Ran}$ /J

Stock No: **028445** | γ-4

Targeted Mutation

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

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Homozygous γ-4 knockout mice exhibit dysfunctional synaptic targeting of AMPARs. These mice may be useful in studying AMPAR membrane trafficking and synaptic transmission/targeting in the brain; specifically in the olfactory bulb, striatum and glia of developing brain.

## Donating Investigator

Roger A Nicoll, University of California, San Francisco

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## GENETIC OVERVIEW

| Genetic Background | Generation |
|---|---|
| | |

### *Cacng4*$^{tm1Ran}$

| Allele Type | Gene Symbol | Gene Name |
|---|---|---|
| Targeted (Null/Knockout) | *Cacng4* | calcium channel, voltage-dependent, gamma subunit 4 |

VIEW GENETICS

## RESEARCH APPLICATIONS

Neurobiology Research

VIEW ALL RESEARCH APPLICATIO

BASE PRICE

Starting at:

$2,854.50 Domestic price Cryo Recovery

VIEW PRICE LIST

## Details

### Detailed Description

Synaptic α-amino-3-hydroxy-5-methyl-4-isoxazole propionic acid receptors (AMPARs) are the dominant glutamate receptor in the brain. AMPARs are regulated by a family of auxiliary subunits known as transmembrane AMPAR regulatory proteins (TARPs) and the additional AMPAR auxiliary subunits/binding proteins (cornichon).
TARP subtypes are the prototypical stargazin (γ-2), and the homologous γ-3, γ-4 (*Cacng4*), and γ-8 (*Cacng8*). The TARP subtypes are differentially expressed throughout the CNS; this imparts functional diversity to AMPARs in distinct neuronal populations. Specifically, γ-4 is expressed transiently throughout the developing brain, with especially high levels in the striatum. It is the primary TARP expressed in the olfactory bulb, striatum and glia, and may be the sole TARP expressed in neonates. γ-4 regulates AMPAR abundance and kinetics.

The TARP γ-4 knockout allele ($\gamma\text{-}4^{-}$) has a neomycin resistance gene replacing the exon encoding the first extracellular domain and the second and third transmembrane domains. Homozygous mice ($\gamma\text{-}4^{-/-}$ or Cacng4-/-) exhibit dysfunctional synaptic targeting of AMPARs (abnormal excitatory postsynaptic currents). However, homozygotes show no obvious difference in GluR1 and GluR2/3 expression when compared to wildtype controls. Homozygous mice are viable and fertile. Heterozygous mice are viable and fertile with no reported abnormalities. Western blot analysis of brain protein extracts confirms the absence of protein expression from the knockout allele.

### Development

### Control Suggestions

### Selected References

## Genetics

### *Cacng4*$^{tm1Ran}$

## Disease/Phenotype

Disease Terms

Research Areas By Phenotype

Mammalian Phenotype Terms by Genotype

References

## Technical Support

CONTACT TECHNICAL SUPPORT

### Genotyping Protocols

Separated PCR:Cacng4-alternate3
Genotyping resources and troubleshooting

### Breeding Considerations

When maintaining a live colony, heterozygous mice may be bred together, to wildtype mice from the colony or to C57BL/6J inbred mice (Stock No. 000664). Alternatively, homozygous mice may be bred together.

Additional Breeding and Husbandry Support

### Mating System

Homozygote x Homozygote

### Citation

When using the γ-4$^{-}$ mouse strain in a publication, please cite the originating article(s) and include JAX stock #028445 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 | Please inquire | $2,854.50 |

## 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. We do not guarantee breeding performance and therefore suggest that investigators order more than one breeding pair to avoid delays in their research.

# Terms Of Use

## TERMS OF USE

General Terms and Conditions

QUESTIONS ABOUT TERMS OF USE

## ADDITIONAL USE RESTRICTIONS APPLY

Use of MICE by companies or for-profit entities requires a license prior to shipping.

## LICENSING INFORMATION

Phone: 207-288-6470
Email: TechTran@jax.org

# Related Strains

All

By Allele

By Gene

By Collection