

B6;129S-Grin2b ^{tm1.1(Grin2a)Bjha} /J

Stock No: **023538** | GluN2B to GluN2A replacement

 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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abolishes GluN2B gene function and expresses GluN2A from the endogenous mouse GluN2B promoter/enhancer elements. These 2B->2A mice may be useful in studying the N-methyl-D-aspartate receptor (NMDAR) and its downstream signaling molecules/pathways (including alpha-CaMKII and mTOR), synaptic plasticity (learning and memory), social behavior and the NR2B-NR2A developmental switch.

Donating Investigator

Benjamin J Hall, Tulane University

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GENETIC OVERVIEW

Genetic Background Generation

Grin2b^{tm1.1(Grin2a)Bjha}

Alele Type	Gene Symbol	Gene Name
Targeted (Null/Knockout, Inserted expressed sequence)	<i>Grin2b</i>	glutamate receptor, ionotropic, NMDA2B (epsilon 2)

VIEW GENETICS

RESEARCH APPLICATIONS

Developmental Biology Research
Neurobiology Research

VIEW ALL RESEARCH APPLICATIONS

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

The N-methyl-D-aspartate receptor (NMDAR) is a specific type of ionotropic glutamate receptor and the predominant molecular device for controlling synaptic plasticity. The NMDAR is a heterotetramer composed of two GluN1 subunits and combinations of GluN2 subunits (N2A, N2B, N2C, N2D) or GluN3 subunits (N3A, N3B). Whereas NR2B is predominant in early postnatal brain development, the number of NR2A subunits grows after birth, and eventually NR2A subunits outnumber NR2B. This is called NR2B-NR2A developmental switch. GluN2B is a critical regulator of synaptic plasticity and social behavior. GluN2B is also affected by Tau phosphorylation and beta-amyloid.

In this targeted mutation strain, full-length rat GluN2A (*Grin2a*) cDNA replaces most of the first coding exon (exon 4) of the mouse GluN2B (*Grin2b*) gene, including the initial ATG site. This both abolishes endogenous GluN2B expression and directs rat GluN2A expression from the endogenous mouse GluN2B promoter/enhancer elements. Compared to wildtype, the 2B->2A allele has earlier onset of GluN2A expression (the same time as that of GluN2B). Homozygous mice are GluN2B-null with early postnatal glutamatergic cortical synapses composed only of GluN2A-containing N-methyl D-aspartate receptors (NMDARs), rather than the GluN2B-containing NMDARs normally present at this developmental timepoint. Homozygous mice display a high rate of perinatal lethality (~8% survive past birth) and surviving homozygotes have diminished feeding/fitness. Homozygous mice also exhibit depressed social exploratory behavior. Heterozygous mice are viable and fertile.

Development

Expression Data

Control Suggestions

Selected References

Genetics

Grin2b^{tm1.1(Grin2a)Bjha}

⊖ Disease/Phenotype

[+ Disease Terms](#)

[+ Research Areas By Phenotype](#)

[+ Mammalian Phenotype Terms by Genotype](#)

[+ References](#)

⊖ Technical Support

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

Standard PCR: [Grin2b](#)

[Genotyping resources and troubleshooting](#)

Breeding Considerations

Heterozygotes are viable and fertile. Homozygous mice display a high rate of perinatal lethality (~8% survive past birth) and surviving homozygotes have diminished feeding/fitness.

[Additional Breeding and Husbandry Support](#)

Citation

When using the GluN2B to GluN2A replacement mouse strain in a publication, please [cite the originating article\(s\)](#) and include JAX stock #023538 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



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

DomesticInternational

Pricing effective for USA, Canada and Mexico shipping destinations

CRYORECOVERY - DOMESTIC PRICING

SERVICE/PRODUCT	DESCRIPTION	PRICE
Cryo Recovery	Heterozygous or Wildtype for Grin2b<tm1.1(Grin2a)Bjha>	\$2,854.50

RELATED PRODUCTS AND SERVICES

Frozen Mouse Embryo	B6;129S-Grin2b<tm1.1(Grin2a)Bjha>/J Frozen Embryo	\$2595.00
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