C57BL/6N-Tg(Ins2-Chrm3*)SJwe/J

Stock No: **028966** | β-GsD Tg (or β-R-s Tg)

Coisogenic, Transgenic

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

PLACE ORDER

following administration of the pharmacologically inert molecule clozapine-*N*-oxide (CNO). These mice may be useful for chemogenetic/pharmacogenetic applications to express an activating DREADD for studying G protein regulation of β-cell function.

Donating Investigator

Jürgen Wess, National Institute of Diabetes and Digestive and Kidney Diseases (NIH-NIDDK)

READ MORE +

GENETIC OVERVIEW

Genetic Background **Generation**

Tg(Ins2-Chrm3*)SJwe

Allele Type

Transgenic (Inserted expressed sequence)

VIEW GENETICS

RESEARCH APPLICATIONS

Neurobiology Research
Research Tools
Immunology, Inflammation and Autoimmunity Research
Diabetes and Obesity Research
Cancer Research
Cell Biology Research

VIEW ALL RESEARCH APPLICATION

BASE PRICE

Starting at:

$2,854.50 Domestic price Cryo Recovery

VIEW PRICE LIST

Details

Detailed Description

The β-GsD (or β-R-s) transgene has the rat insulin 2 promoter directing expression of a hemagglutinin epitope-tagged, mutant G protein-coupled receptor (GsD [also called rM3Ds or R-s]) to pancreatic β-cells.
The GsD is a G_s-coupled rat muscarinic 3 DREADD modified to have its second and third intracellular loops replaced with the corresponding turkey β1-adrenergic receptor sequences. Two amino acid substitutions (Y148C and A238G) have been added that abolish receptor affinity for the native ligand, acetylcholine (ACh), but allow receptor binding and subsequent activation by the small pharmacologically inert molecule clozapine-*N*-oxide (CNO). CNO binding to GsD induces the selective activation of the canonical $G\alpha_s$ signaling pathway, effectively increasing intracellular cAMP levels.

Mice that are hemizygous for the transgene (β-GsD Tg or β-R-s Tg) are viable and fertile. The donating investigator reports they have not tried to generate homozygous mice (May 2016). The phenotype described below compares β-GsD Tg with a similarly created transgenic mouse that expresses a rat insulin 2 promoter-driven rhM3Dq (β-rhM3Dq Tg ; Stock No. 028964).

The transgenic mouse lines β-rhM3Dq Tg (Stock No. 028964) and β-GsD Tg (Stock No. 028966) express similar numbers of rhM3Dq and GsD in their pancreatic islets, respectively. RT-PCR studies confirmed that rhM3Dq and GsD transcripts were not detectable in tissues other than pancreatic islets.

In the absence of CNO, both transgenic lines have normal growth, insulin sensitivity, plasma insulin levels and glucagon levels. While freely-fed β-rhM3Dq Tg have normal blood glucose levels, freely-fed β-GsD Tg have decreased blood glucose levels. Taken together, this indicates the rhM3Dq receptor is devoid of ligand-independent signaling *in vivo*, whereas the GsD receptor retains some degree of agonist-independent signaling *in vivo*.

CNO treatment of transgenic mice leads to the activation of β-cell $G_{q/11}$ or $G\alpha_s$ signaling pathways, respectively, in a conditional and β-cell-selective fashion.
Specifically, following CNO administration in β-rhM3Dq Tg, the canonical $G_{q/11}$ pathway is activated in rhM3Dq-expressing pancreatic β-cells. This leads to significant increases in both first- and second-phase insulin release, greatly improved glucose tolerance in obese, insulin-resistant mice, and elevated β-cell mass, associated with pathway-specific alterations in islet gene expression levels. For β-GsD Tg, CNO-induced activation of the canonical $G\alpha_s$ pathway in GsD-expressing pancreatic β-cells results in qualitatively similar *in vivo* metabolic effects.

Development

Expression Data

Control Suggestions

Selected References

Genetics

Tg(Ins2-Chrm3*)SJwe

Disease/Phenotype

Disease Terms

Research Areas By Phenotype

Mammalian Phenotype Terms by Genotype

References

Technical Support

CONTACT TECHNICAL SUPPORT

Genotyping Protocols

Standard PCR:Tg(Ins2-Chrm3*)SJwe
Genotyping resources and troubleshooting

Breeding Considerations

When maintaining a live colony, hemizygous mice may be bred together, to wildtype (noncarrier) mice from the colony, or to C57BL/6NJ inbred mice (Stock No. 005304). To date (May 2016), it has not been attempted to make this strain homozygous.

Additional Breeding and Husbandry Support

Mating System

Noncarrier x Hemizygote
Hemizygote x Noncarrier

Citation

When using the β-GsD Tg (or β-R-s Tg) mouse strain in a publication, please cite the originating article(s) and include JAX stock #028966 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 **Internatic**

Pricing effective for USA, Canada and Mexico shipping destinations

Cryorecovery - Domestic Pricing

SERVICE/PRODUCT	DESCRIPTION	PRICE
Cryo Recovery	Hemizygous or non carrier for Tg(Ins2-Chrm3*)SJwe	$2,854.50

Related Products and Services

Frozen Mouse Embryo	C57BL/6N-Tg(Ins2-Chrm3*)SJwe/J Frozen Embryo	$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. 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

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

Leading the search for

TOMORROW'S CURES

Choose other country or region

Did you find what you were looking for?

Yes No