Overview

Also Known As: BGT1-flox

*BGT1-flox* mice possess *loxP* sites flanking exons 3-5 of the solute carrier family 6 (neurotransmitter transporter, betaine/GABA), member 12 gene. This strain may be useful for studying the role of BGT1 in the brain and liver.
BGT1-flox mice possess loxP sites flanking exons 3-5 of the solute carrier family 6 (neurotransmitter transporter, betaine/GABA), member 12 (Slc6a12) gene. BGT1 mediates sodium- and chloride-dependent uptake of betaine and GABA. When these mutant mice are bred to mice that express Cre recombinase, resulting offspring will have exons 3-5 deleted in cre-expressing tissues. The deleted DNA sequence encodes amino acid residues 72-193 of BGT1. This region is required for transport activity so there is no transport activity without it. Further, the deletion causes the remaining sequences to be out of frame preventing the expression of a truncated protein. When these BGT1-flox mice are bred with Hprt1-Cre mice to delete BGT1 in all cells, BGT1 deficient mice they are healthy and fertile under non-challenging rearing conditions.

Most of the studies of BGT1 concern its function and regulation in the collecting ducts in the kidney medulla where its role is best understood. A role in the control of seizure thresholds was refuted when it was realized that BGT1 is not expressed close to synapses, but rather in the leptomeninges covering the brain and spinal cord. However, most of the BGT1 protein is found in the
sinusoidal plasma membranes of hepatocytes in the liver. Here it is believed to act as a transporter for betaine, a derivative of choline, which is produced in the liver. Choline is important for liver function, normal brain development, nerve function, muscle movement, and metabolism. This strain may be useful for studying the role of BGT1 in the mentioned organs.

Development

Control Suggestions

Selected References

Genetics

Slc6a12<sup>tm1.1Ncd</sup>

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: Slc6a12
Genotyping resources and troubleshooting

Breeding Considerations
When maintaining a live colony, mice homozygous for the floxed allele may be bred together.

Mating System
Heterozygote x Heterozygote

Citation
When using the BGT1-flox mouse strain in a publication, please cite the originating article(s) and include JAX stock #030090 in your Materials and Methods sections.

Animal Health Reports
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.
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All

By Allele

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