Overview

Also Known As: Nur77^, NGFI-B-

Adrenal expression of Nr4a2 is increased threefold following LPS challenge in homozygous mice of this strain. Mutant mice may be useful in studies of anti-psychotic drug/neuroleptic therapies and other neurological studies. Although the original analysis of this allele revealed no detectable transcript of any type from this gene in the thymus, findings by Koenis, 2018 (PMID 30111591) indicate the presence of a transcript capable of producing a truncated N-terminal domain (NTD) peptide that can stabilize and activate HIF1A (hypoxia inducible factor 1, alpha subunit).

Donating Investigator

Jeffrey Milbrandt, Washington University School of Medicine, St. Louis
A neomycin cassette was introduced to exon 2 of the mouse \textit{Nr4a1} (nuclear receptor subfamily 4, group A, member 1; also called Nur77 or NGFI-B) gene, blocking the transcription of both the DNA binding domain (DBD) and ligand-binding (LBD) domain. Although the original analysis of this allele revealed no detectable transcript of any type from this gene in the thymus, findings by Koenis, 2018 (PMID 30111591) indicate the presence of a transcript capable of producing a truncated N-terminal domain (NTD) peptide that can stabilize and activate \textit{HIF1A} (hypoxia inducible factor 1, alpha subunit). Neither the transcriptional nor the translational start of the gene are disrupted.

Eight-month-old homozygotes develop systemic inflammation (PMID 26113803), demonstrating splenomegaly, and severe infiltration of inflammatory cells in several organs including liver, lung, spleen and kidney, in addition to increased hyperplasia of fibrous tissue in the lung, and enlargement of kidney glomeruli. Homozygotes also show increased production of pro-inflammatory cytokines and immunoglobulin, and elicit pro-inflammatory M1-like polarization in macrophages as revealed by increased expression of CXCL11 and INDO, and decreased expression of MRC1.

Following acute neuroleptic administration with dopamine D2 receptor antagonists (haloperidol and/or raclopride), homozygous mice exhibit reduced catalepsy and disrupted neuropeptide responses in the brain. In homozygotes, adrenal expression of \textit{Nr4a2}
(also called *Nurr1*) is increased threefold following LPS challenge. Mutant mice may be useful in studies of antipsychotic drug/neuroleptic therapies, schizophrenia, neurobiology, nuclear receptor family transcription pathways, adrenal gland, and steroidogenesis.

Mice homozygous for this targeted mutation are viable and fertile.

**Development**

**Control Suggestions**

**Selected References**

**Genetics**

*Nr4a1*<sup>tm1Jmi</sup>

**Disease/Phenotype**

**Disease Terms**

**Research Areas By Genotype**

**Mammalian Phenotype Terms by Genotype**

**References**

**Technical Support**

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**Genotyping Protocols**

Standard PCR: *Nr4a1*<sup>tm1Jmi</sup>

**Genotyping resources and troubleshooting**

**Dietary Information**

New Diet as of March 2015: Lab Diet® 5K0Q (6% fat)

**Breeding Considerations**

When maintaining a live colony, these mice are maintained as homozygotes.

**Additional Breeding and Husbandry Support**

**Mating System**

Homozygote x Homozygote

**Citation**

When using the NGFI-B mouse strain in a publication, please cite the originating article(s) and include JAX stock #006187 in your Materials and Methods section.

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Pricing & Availability

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

Available

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Related Products and Services

| Frozen Mouse Embryo | B6;129S2-Nr4a1<sup>tm1Jmi</sup>/J Frozen Embryos | $2595.00 |

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By Gene

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