

STOCK *Hand2^{tm1.1Majh}* /AbfiJ

Stock No: **027727** | *Hand2* floxed (*Hand2^{loxP}*, *Hand2^{ploxP}*, *Hand2^{fl}*, *Hand2^{fllox}*)

 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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system morphogenesis and cell type-specific gene expression in sympathetic, enteric and adrenal chromaffin cells, cardiac morphogenesis and limb bud / branchial arch development. The absence of *Hand2* expression may also be a useful biomarker for atypical hyperplasia, endometrioid carcinoma and epigenetic silencing.

Donating Investigator

Anthony B Firulli, Indiana University School of Medicine

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GENETIC OVERVIEW

Genetic Background

Generation

Hand2^{tm1.1Majh}

Alele Type

Targeted (Conditional ready (e.g. floxed), No functional change)

Gene Symbol

Hand2

Gene Name

heart and neural crest derivatives expressed 2

VIEW GENETICS

RESEARCH APPLICATIONS

Research Tools
 Cardiovascular Research
 Cell Biology Research
 Cancer Research
 Neurobiology Research

BASE PRICE

Starting at:

\$2,854.50 Domestic price Cryo Recovery

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Details

Detailed Description

The Hand2^{fl} allele has *loxP* sites flanking exon 1 of the *Hand2* gene. Because the PGK-neo cassette is not present in this allele, heterozygotes (Hand2^{fl/+}) and homozygotes (Hand2^{fl/fl}) are viable and fertile with no alterations in Hand2 expression levels/patterns (*in situ* hybridization and qRT-PCR) compared to wildtype mice. Homozygotes exhibit no reported abnormal phenotype.

Hand2 is a basic helix-loop-helix family transcription factor that functions in sympathetic nervous system morphogenesis and cell type-specific gene expression in sympathetic, enteric and adrenal chromaffin cells, cardiac morphogenesis and limb bud / branchial arch development.

The absence of Hand2 expression may also be a useful biomarker for atypical hyperplasia, endometrioid carcinoma and epigenetic silencing.

When Hand2^{fl} mice are bred to Cre recombinase-expressing animals, the resulting offspring may be useful in generating global Hand2 knockout mice or tissue-specific Hand2 knockout mice. Specific examples are described below.

When bred to germline Cre-expressing mice, the resulting Hand2 global knockout homozygotes (Hand2^{ko} or Hand2^{Delta}) are embryonic lethal around embryonic day (E)10-12, with some surviving to birth but expiring thereafter.

Breeding Hand2^{fl} mice to Wnt1-Cre transgenic mice (Stock Nos. [003829](#) / [009107](#)) results in deletion of Hand2 expression in neural crest cells. The resulting Hand2^{cko} homozygotes exhibit reduced neuronal precursor cell/neuroblast proliferation and neuronal numbers, abnormal facial/skull development and aglossia (absence of a tongue), with no gross cleft palate. Hand2^{cko} mice also have neurogenesis defects/decreased neurons in the developing enteric nervous system with few to no noradrenergic sympathetic ganglion neurons.

Deletion of Hand2 expression in neural precursor cells using Nestin-Cre transgenic mice (Stock Nos. [003771](#) / [019103](#)) is lethal at around postnatal day (P)20, allowing analysis throughout development and the early neonatal period. Such mice have abnormal enteric nervous system development with loss of all nitergic neurons, decreased numbers of cholinergic neurons and functional aganglionosis.

Development

Control Suggestions

Selected References

Genetics

+ [Hand2^{tm1.1Majh}](#)

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:[Hand2-Alternate 1](#)

[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

Heterozygote x Heterozygote

Citation

When using the Hand2 floxed (Hand2^{loxP}, Hand2^{ploxP}, Hand2^{fl}, Hand2^{fllox}) mouse strain in a publication, please [cite the originating article\(s\)](#) and include JAX stock #027727 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.

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CRYORECOVERY - DOMESTIC PRICING

SERVICE/PRODUCT	DESCRIPTION	PRICE
Cryo Recovery	Heterozygous or wildtype for Hand2<tm1.1Majh>	\$2,854.50

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