B6;129-*Raf1* ^{tm2Ara} /J

Stock No: **021233**

Targeted Mutation

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

PLACE ORDER

disorder Noonan syndrome (NS).

Donating Investigator

Benjamin Neel, NYU School of Medicine

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GENETIC OVERVIEW

Genetic Background	Generation

Raf1^{tm2Ara}

Allele Type	Gene Symbol	Gene Name
Targeted	*Raf1*	v-raf-leukemia viral oncogene 1

VIEW GENETICS

RESEARCH APPLICATIONS

Developmental Biology Research
Cardiovascular Research
Research Tools

VIEW ALL RESEARCH APPLICATION

BASE PRICE

Starting at:

$2,854.50 Domestic price Cryo Recovery

VIEW PRICE LIST

Details

Detailed Description

Mice homozygous for the *Raf1*$^{loxP/loxP}$ allele are viable and fertile. This allele contains a floxed sequence containing a cDNA fragment encoding v-raf-leukemia viral oncogene 1 (*Raf1*) wild-type exons 13 to 16 and a neomycin (neo) resistance cassette downstream of exon 12 of the *Raf1* gene. A point mutation was introduced downstream of the floxed sequence, resulting in the missense mutation D486N, associated with the autosomal dominant disorder Noonan syndrome (NS). Raf1 is a MAP kinase kinase kinase (MAP3K), which is activated by Ras GTPases, which in turn activates MEK1/2 and extracellular signal-regulated kinase (ERK)1/2 pathways. Activated ERKs are involved in the cell division cycle, apoptosis, cell differentiation and cell migration. The D486N, kinase-impaired, mutation is associated with the autosomal dominant disorder Noonan syndrome (NS) characterized by short stature, facial dysmorphia, cardiovascular abnormalities, and myeloproliferative disease (MPD). Homozygous mice are viable and fertile. When these mutant mice are bred to mice that express Cre recombinase, resulting offspring will have the floxed sequence deleted in cre-expressing tissues.

For example, when bred to mice expressing germ line *cre* (see B6.FVB-Tg(Ella-cre)C5379Lmgd/J Stock No. 003724), removal of the floxed sequence permits expression of mutant *Raf1*^{D486N}. Heterozygous D486N/+ females exhibit a mild growth defect. One-third of homozygous mice had body length and weight only 50% that of littermate controls. A majority of these smaller mice (s-D486N/D486N) die shortly after weaning, while survivors only live 4 and 8 months. The longer-lived s-D486N/D486N mice exhibit reduced body size, a hunched appearance with ruffled fur, and frequent tremors. These mice have a slight decrease in skull width resulting in a ?triangular? facial appearance. The mice with normal length and weight (n-D486N/D486N) display an increase in heart weight/body weight ratio with an increase also seen in the left ventricular diastolic posterior wall thickness. They exhibit a decrease in left ventricular internal endsystolic dimension, and an increase in stroke volume, fractional shortening, cardiac output, and ejection fraction. Raf1^{D486N}-expressing cells show enhanced ERK/MAPK pathway activation and increased heterodimerization with BRAF.

Development

Control Suggestions

Selected References

Genetics

Raf1^{tm2Ara}

Disease/Phenotype

- Disease Terms
- Research Areas By Phenotype
- Mammalian Phenotype Terms by Genotype
- References

Technical Support

CONTACT TECHNICAL SUPPORT

Genotyping Protocols

End Point Analysis:Raf1End Point
Genotyping resources and troubleshooting

Breeding Considerations

When maintaining a live colony, homozygous mice may be bred together.

Additional Breeding and Husbandry Support

Citation

When using the B6;129-*Raf1*^{tm2Ara}/J mouse strain in a publication, please cite the originating article(s) and include JAX stock #021233 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.

Cryo
Recovery

Domestic **Internatio**

Pricing effective for USA, Canada and Mexico shipping destinations

CRYORECOVERY - DOMESTIC PRICING

SERVICE/PRODUCT	DESCRIPTION	PRICE
Cryo Recovery	Heterozygous or wildtype for Raf1<tm2Ara>	$2,854.50

RELATED PRODUCTS AND SERVICES

Frozen Mouse Embryo	B6;129-Raf1<tm2Ara>/J	$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.

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