Overview

Also Known As: B6.129-Nrl<sup>tm1Asw</sup>/J

Nrl (neural retina leucine zipper gene) plays an essential role in rod photoreceptor differentiation and homeostasis. These animals carry a targeted allele in which the entire coding region of the mouse gene has been deleted. This strain may be useful in studies of retinal and macular degenerative diseases.

Donating Investigator

Anand Swaroop, NIH/NEI
**GENETIC OVERVIEW**

<table>
<thead>
<tr>
<th>Genetic Background</th>
<th>Generation</th>
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<tbody>
<tr>
<td>Nrl&lt;sup&gt;tm1Asw&lt;/sup&gt;</td>
<td></td>
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<table>
<thead>
<tr>
<th>Allele Type</th>
<th>Gene Symbol</th>
<th>Gene Name</th>
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<tbody>
<tr>
<td>Targeted (Null/Knockout)</td>
<td>Nrl</td>
<td>neural retina leucine zipper gene</td>
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**RESEARCH APPLICATIONS**

Sensorineural Research

**BASE PRICE**

Starting at:

$2,595.00 Domestic price Cryo Recovery

**Details**

<table>
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<tr>
<th>Detailed Description</th>
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Nrl (neural retina leucine zipper gene) encodes a retinal transcription factor that plays an essential role in rod photoreceptor differentiation and homeostasis. Dysfunction or death of rod photoreceptors precedes cone loss in many retinal and macular degenerative diseases.

These animals carry a targeted allele in which the entire coding region of the mouse gene has been deleted. Homozygous knockouts are morphologically normal, viable and fertile, but show a complete loss of rod function and super-normal cone function. The photoreceptors have cone-like nuclear morphology and short, sparse outer segments with abnormal disks. Retinas undergo a rapid but transient period of degeneration in early adulthood, with cone apoptosis, retinal detachment, alterations in retinal vessel structure, and activation and translocation of retinal microglia. Cone degeneration stabilizes by 4 months of age, resulting in a thinner but intact outer nuclear layer with residual cones expressing S- and M-opsins and preserved photopic electroretinogram.

Homozygous Nrl mutant mice show no Nr2e3 (nuclear receptor subfamily 2, group E, member 3) expression in the retina, demonstrating that Nrl is upstream in pathways leading the development of photoreceptors.

**Development**
Control Suggestions

Selected References

Genetics

Nrl^{tm1Asw}

Disease/Phenotype

Disease Terms

Research Areas By Genotype

Mammalian Phenotype Terms by Genotype

References

Technical Support

CONTACT TECHNICAL SUPPORT

Genotyping Protocols
Standard PCR: Nrl^{tm1Asw alternate2}
Genotyping resources and troubleshooting

Breeding Considerations
Homozygotes and heterozygotes are viable and fertile.
Additional Breeding and Husbandry Support

Citation
When using the B6.129-Nrl^{tm1Asw/J} mouse strain in a publication, please cite the originating article(s) and include JAX stock #021152

Animal Health Reports
in your Materials and Methods section.
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.
Cryorecovery - Domestic Pricing

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<tr>
<th>SERVICE</th>
<th>GENOTYPE</th>
<th>PRICE</th>
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<tbody>
<tr>
<td>Cryo Recovery</td>
<td>Heterozygous for Nrl&lt;tm1Asw&gt;</td>
<td>$2,595.00</td>
</tr>
</tbody>
</table>

We will fulfill your order by providing at least two carriers for each strain ordered. The total number, sex, and genotypes provided will vary, although typically 8 or more animals are provided. **Please check genotypes which will be recovered.** While the genotypes of all animals produced will be communicated to you prior to scheduling shipment, the genotypes of animals provided may not reflect the mating scheme and genotypes described in the strain description. **Animals are typically ready to ship in 11-14 weeks.** If a second recovery is required to produce the minimum number of animals, then delivery time would increase to approximately 25 weeks. If we fail to produce animals of the correct genotype, you will not be charged. We cannot guarantee the reproductive success of mice shipped to your facility. If the mice are lost after the first three days (post-arrival) or do not produce progeny at your facility, a new order and fee will be necessary.

Cryorecovery to establish a **Dedicated Supply** for greater quantities of mice. Mice recovered can be used to establish a dedicated colony to contractually supply you mice according to your requirements. Price by quotation.

### Related Products and Services

| Frozen Mouse Embryo | $2,595.00 per straw or vial |

### 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.

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**Terms of Use**

**General Terms and Conditions**

**QUESTIONS ABOUT TERMS OF USE**

**Additional Use Restrictions Apply**

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**Licensing Information**

Phone: 207-288-6470
Email: TechTran@jax.org

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### Related Strains

- All
- By Allele
- By Gene