NOD/ShiLtJ

Stock No: 001976 | NOD

Inbred Strain

READILY AVAILABLE

PLACE ORDER

Readily available in any quantity needed.

Overview

Also Known As: Non-obese Diabetic, NOD

The NOD/ShiLtJ strain (commonly called NOD) is a polygenic model for autoimmune type 1 diabetes. Diabetes in NOD mice is characterized by hyperglycemia and insulitis, a leukocytic infiltration of the pancreatic islets. Marked decreases in pancreatic insulin content occur in females at about 12 weeks of age and several weeks later in males. A 2017 phenotyping study found that 90% of females and 52% of males became diabetic by 30 weeks; median female incidence was 18 weeks. Immune phenotypes in the NOD background consist of defects in antigen presentation, T lymphocyte repertoire, NK cell function, macrophage cytokine production, wound healing, and C5 complement. These defects make the NOD background a common choice for immunodeficient mouse strains.
Diabetes onset data is available.

GENETIC OVERVIEW

<table>
<thead>
<tr>
<th>Genetic Background</th>
<th>Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Technical Support</td>
<td></td>
</tr>
<tr>
<td>(2018-07-27 00:00:00)</td>
<td></td>
</tr>
</tbody>
</table>

RESEARCH APPLICATIONS
Diabetes and Obesity Research
Immunology, Inflammation and Autoimmunity Research
Research Tools
Internal/Organ Research
Neurobiology Research
Sensorineural Research
Developmental Biology Research

BASE PRICE
Starting at:
$36.12 Domestic price for male 3-week

Volume Pricing Available!
for select shipping destinations
Click for Details

Details

Important Note
This strain is homozygous for Cdh23<sup>ahl</sup>, the age related hearing loss 1 mutation, which on this background results in progressive hearing loss that is already severe by three months of age.

Detailed Description
Diabetes in NOD/ShiLtJ mice is characterized by insulitis, a leukocytic infiltrate of the pancreatic islets. Marked decreases in pancreatic insulin content occur in females at about 12 weeks of age and several weeks later in males. Onset of diabetes is marked by moderate glycosuria and by a non-fasting plasma glucose higher than 250 mg/dL. Diabetic mice are hypoinsulinemic and
hyperglucagonemic, indicating a selective destruction of pancreatic islet beta cells. Susceptibility to IDDM in NOD/ShiLtJ mice is polygenic, and environment, including housing conditions, health status, and diet, exerts a strong effect on penetrance. NOD/ShiLtJ females are more widely used than males because the onset of IDDM symptoms occurs earlier and with a higher incidence (90-100% by 30 weeks of age). NOD/ShiLtJ males develop IDDM at a frequency of between 40-60% by 30-40 weeks of age. Male mice are useful for certain applications, including pharmaceutical studies, “accelerated transfer” of IDDM, and some in vitro studies. The major component of diabetes susceptibility in NOD mice is the unique MHC haplotype (H2^beta = K^beta, Aa^beta, Ab^beta, E^null, D^beta). NOD mice also exhibit multiple aberrant immunophenotypes including defective antigen presenting cell immunoregulatory functions, defects in the regulation of the T lymphocyte repertoire, defective NK cell function, defective cytokine production from macrophages (Fan et al., 2004) and impaired wound healing. They also lack hemolytic complement, C5. NOD/ShiLtJ mice also are severely hearing-impaired. A variety of mutations causing immunodeficiencies, targeted mutations in cytokine genes, as well as transgenes affecting immune functions, have been backcrossed into the NOD/ShiLt inbred strain background.

### Development

### Control Suggestions

### Selected References

### Genetics

- Il2^null
- Gpr84^del
- Hc^beta
- H2^beta
- Cdh23^beta
- Cox7a2^l
- mt-Tr^null
- Del(3)1Lt
- Del(1)2Lt
- Del(3)3Lt

### Disease/Phenotype

### Disease Terms

### Research Areas By Genotype

### Mammalian Phenotype Terms by Genotype
Genotyping Protocols
Genotyping resources and troubleshooting
Inbred mouse strains are maintained through sibling (sister x brother) matings; no genotyping required.

Dietary Information
LabDiet® 5K52 formulation (6% fat)

Breeding Considerations

This strain is an exceptional breeder.

Additional Breeding and Husbandry Support

Mating System
Sibling x Sibling

Appearance
albino

Related Genotype: A/A Tyr<sup>C</sup>/Tyr<sup>C</sup>

Citation

Animal Health Reports

When using the NOD mouse strain in a publication, please include JAX stock #001976 in your Materials and Methods section.

Facility Barrier Level Descriptions

- AX5 (Standard)
- RB10 (Maximum)

Pricing & Availability

Readily available in any quantity needed.

<table>
<thead>
<tr>
<th>AGE</th>
<th>SEX</th>
<th>GENOTYPE</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 weeks</td>
<td>Female</td>
<td>Not Applicable</td>
<td>$42.36</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Not Applicable</td>
<td>$36.12</td>
</tr>
<tr>
<td>4 weeks</td>
<td>Female</td>
<td>Not Applicable</td>
<td>$44.79</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Not Applicable</td>
<td>$37.57</td>
</tr>
<tr>
<td>SEX</td>
<td>5 weeks</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>-------------</td>
<td>------------------</td>
<td>----------------</td>
<td>----------------</td>
</tr>
<tr>
<td>6 weeks</td>
<td>Female</td>
<td>Not Applicable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Not Applicable</td>
<td></td>
</tr>
<tr>
<td>7 weeks</td>
<td>Female</td>
<td>Not Applicable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Not Applicable</td>
<td></td>
</tr>
<tr>
<td>8 weeks</td>
<td>Female</td>
<td>Not Applicable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>Not Applicable</td>
<td></td>
</tr>
<tr>
<td>9 weeks</td>
<td>Male</td>
<td>Not Applicable</td>
<td></td>
</tr>
<tr>
<td>10 weeks</td>
<td>Male</td>
<td>Not Applicable</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>QUANTITY</th>
<th>VOLUME PRICING</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
<td>10% off</td>
</tr>
</tbody>
</table>

**Volume Pricing Details**

**Volume Pricing Program**
Quantities: Volume pricing is automatically applied when a minimum quantity per strain for a shipment is reached.
Sexes: Sexes of the same strain may be combined to reach minimum quantity levels to receive the volume pricing.
Shipment: All shipping destinations qualify.

**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.

**Terms Of Use**

**Terms of Use**
**General Terms and Conditions**

**Licensing Information**
Phone: 207-288-6470
Email: TechTran@jax.org
JAX® Mice, Products & Services Conditions of Use
“MICE” means mouse strains, their progeny derived by inbreeding or crossbreeding, unmodified derivatives from mouse strains or their progeny supplied by The Jackson Laboratory (“JACKSON”). “PRODUCT(S)” means biological materials supplied by JACKSON, and their derivatives. “SERVICES” means projects conducted by JACKSON for other parties that may include but are not limited to the use of MICE or PRODUCTS. “RECIPIENT” means each recipient of MICE, PRODUCTS, or SERVICES provided by JACKSON including each institution, its employees and other researchers under its control. MICE or PRODUCTS shall not be: (i) used for any purpose other than internal research, (ii) sold or otherwise provided to any third party for any use, or (iii) provided to any agent or other third party to provide breeding or other services. Acceptance of MICE, PRODUCTS or SERVICES from JACKSON shall be deemed as agreement by RECIPIENT to these conditions, and departure from these conditions requires JACKSON’s prior written authorization.

**No Warranty**
MICE, PRODUCTS AND SERVICES ARE PROVIDED “AS IS”. JACKSON EXTENDS NO WARRANTIES OF ANY KIND, EITHER EXPRESS, IMPLIED, OR STATUTORY, WITH RESPECT TO MICE, PRODUCTS OR SERVICES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ANY WARRANTY OF NON-INFRINGEMENT OF ANY PATENT, TRADEMARK, OR OTHER INTELLECTUAL PROPERTY RIGHTS.

**Credit for PRODUCTS or SERVICES**
In case of dissatisfaction for a valid reason and claimed in writing by a purchaser within ninety (90) days of receipt of, PRODUCTS or SERVICES, JACKSON will, at its option, provide credit or replacement for the PRODUCT received or the SERVICES provided. JACKSON makes no other representations and this shall be the exclusive remedy of the purchaser. Please note specific policy for live mice.

**Animal Care and Use for SERVICES**
Consistent with the requirement for a written understanding regarding animal care and use, the JACKSON Animal Care and Use Committee will review the animal care and use protocol(s) associated with any SERVICES to be performed at JACKSON, and JACKSON shall have ultimate responsibility and authority for the care of animals while on site or in JACKSON custody.

**No Liability**
In no event shall JACKSON, its trustees, directors, officers, employees, and affiliates be liable for any causes of action or damages, including any direct, indirect, special, or consequential damages, arising out of the provision of MICE, PRODUCTS, or SERVICES, including economic damage or injury to property and lost profits, and including any damage arising from acts or negligence on the part of JACKSON, its agents or employees. Unless prohibited by law, in purchasing or receiving MICE, PRODUCTS, or SERVICES from JACKSON, purchaser or recipient, or any party claiming by or through them, expressly releases and discharges JACKSON from all such causes of action or damages, and further agrees to defend and indemnify JACKSON from any costs or damages arising out of any third party claims.

MICE, PRODUCTS or SERVICES are to be used in a safe manner and in accordance with all applicable governmental rules and regulations.

The foregoing represents the General Terms and Conditions applicable to JACKSON’s MICE, PRODUCTS or SERVICES. In addition, special terms and conditions of sale of certain MICE, PRODUCTS, or SERVICES may be set forth separately in JACKSON web pages, catalogs, price lists, contracts, and/or other documents, and these special terms and conditions shall also govern the sale of these MICE, PRODUCTS and SERVICES by JACKSON, and by its licensees and distributors.

Acceptance of delivery of MICE, PRODUCTS or SERVICES shall be deemed agreement to these terms and conditions. No purchase order or other document transmitted by purchaser or recipient that may modify the terms and conditions hereof, shall be in any way binding on JACKSON, and instead the terms and conditions set forth herein, including any special terms and conditions set forth separately, shall govern the sale of MICE, PRODUCTS or SERVICES by JACKSON.