These INS2 knockout mice exhibit high levels of insulin auto-antibodies and diabetes incidence occurs in all these mice.

Donating Investigator
George Eisenbarth, U of Colorado

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

PLACE ORDER

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GENETIC OVERVIEW

<table>
<thead>
<tr>
<th>Genetic Background</th>
<th>Generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>001976 NOD/ShiLtJ</td>
<td>?+pN1</td>
</tr>
<tr>
<td></td>
<td>(2020-12-14 00:00:00)</td>
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</tbody>
</table>

\[\text{Ins2}\text{\textsuperscript{tm1Jja}}\]

<table>
<thead>
<tr>
<th>Allele Type</th>
<th>Gene Symbol</th>
<th>Gene Name</th>
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</thead>
<tbody>
<tr>
<td>Targeted (Reporter, Null/Knockout)</td>
<td>\textit{Ins2}</td>
<td>insulin II</td>
</tr>
</tbody>
</table>

V I E W  G E N E T I C S

RESEARCH APPLICATIONS

Diabetes and Obesity Research

V I E W  A L L  R E S E A R C H  A P P L I C A T I O N
Details

Important Note

NOD-Ins2 KO Diabetes incidence study performed at The Jackson Laboratory show that 90 percent of both male and female homozygous animals become diabetic by 13 weeks of age, however diabetes in untreated homozygous males and females has been identified as early as 4-5 weeks of age.

Detailed Description

Ins2<sup>tm1.jja</sup> heterozygous mice are viable, fertile, normal in size, and do not display any gross physical or behavioral abnormalities.

RT-PCR detects no expression of Ins2 in the thymus or pancreas of Ins2<sup>tm1.jja</sup> homozygous mice and Insulin Autoantibody Assays (IAA) indicate that by four weeks of age insulin auto-antibodies were significantly higher than NOD controls. Diabetes incidence occurs in 100 percent of the homozygous females by 15 weeks of age compared with 77% wildtype females by 27 weeks of age. While 100 percent of the homozygote males are diabetic by 22 weeks old compared to 28 percent of the wildtype males by 27 weeks of age. Histological evaluation found extensive islet infiltration in 8 week old homozygous mice compared to wildtype mice in which a minority of islets were infiltrated.

NOD.129S2(B6)-Ins2<sup>tm1.jja</sup>/GseJ is useful for studying insulin autoantigens and their role in the autoimmune process leading to Type 1 Diabetes.

Development

Expression Data

Control Suggestions

Selected References

Genetics

Ins2<sup>tm1.jja</sup>
Disease/Phenotype

Disease Terms

Research Areas By Phenotype

Mammalian Phenotype Terms by Genotype

References

Technical Support

Genotyping Protocols
Standard PCR: Ins2
Separated PCR: Ins2alternate1
Separated MCA: Ins2
Standard PCR: Ins2
Genotyping resources and troubleshooting

Breeding Considerations

NOD-Ins2 KO diabetes incidence study performed at The Jackson Laboratory show that 90 percent of both male and female homozygous animals become diabetic by 13 weeks of age, however diabetes in untreated homozygous males and females has been identified as early as 4-5 weeks of age. Recommended breeding scheme is heterozygous x heterozygous or heterozygous female x homozygous male.

A footpad injection of Complete Freund's Adjuvant (CFA) administered once at weaning will delay diabetes onset, thus extending the lifespan of breeders, both heterozygous and homozygous. Use of Complete Freund's Adjuvant in NOD mice can be found in Current Protocols in Immunology page 15.9.19, Reproduction.

Additional Breeding and Husbandry Support

Appearance
albino
Related Genotype: A/-, Tyr<sup>C</sup> / Tyr<sup>C</sup>

Citation
When using the NOD.Ins2<sup>null</sup> mouse strain in a publication, please cite the originating article(s) and include JAX stock #005036 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

FGB29 (F29) (Standard)
Typically mice are recovered in 10-14 weeks. Contact Customer Service to place an order or for more information.

CRYORECOVERY - DOMESTIC PRICING

<table>
<thead>
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<th>SERVICE/PRODUCT</th>
<th>DESCRIPTION</th>
<th>PRICE</th>
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<tbody>
<tr>
<td>Cryo Recovery &gt;</td>
<td>Heterozygous or wildtype for Ins2&lt;tm1Jja&gt;</td>
<td>$2,854.50</td>
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</tbody>
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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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TERMS OF USE

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