MOUSE STRAIN DATASHEET - 028842

NOD.Cg-Prkdc il2rg Tg(SERPINA1*E342K)#Slcw/SzJ

Stock No: 028842 | NSG-PiZ

Congenic, Spontaneous Mutation, Targeted Mutation, Transgenic

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Overview

Also Known As: NSG-PiZ

NSG-PiZ mice express mutant human SERPINA1 (Glu342Lys mutation) on the immunodeficient NOD scid gamma (NSG) background, providing a stable engraftment environment for primary human hepatocytes after partial hepatectomy. This strain may be useful in studies utilizing a humanized liver xenograft mouse model.

Donating Investigator

Dr. Leonard D. Shultz, The Jackson Laboratory

GENETIC OVERVIEW

Tg(SERPINA1*E342K)#Slcw

Allele Type
Transgenic (Inserted expressed sequence, Humanized sequence)

Prkdc<sup>scid</sup>

<table>
<thead>
<tr>
<th>Allele Type</th>
<th>Gene Symbol</th>
<th>Gene Name</th>
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</thead>
<tbody>
<tr>
<td>Spontaneous</td>
<td>Prkdc</td>
<td>protein kinase, DNA activated, catalytic polypeptide</td>
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</table>

Il2rg<sup>tm1Wjl</sup>

<table>
<thead>
<tr>
<th>Allele Type</th>
<th>Gene Symbol</th>
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<tbody>
<tr>
<td>Targeted (Null/Knockout)</td>
<td>Il2rg</td>
<td>interleukin 2 receptor, gamma chain</td>
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NSG-PiZ mice do not express the Prkdc gene nor the X-linked Il2rg gene, but do express the mutant human SERPINA1 PiZ variant with a Glu342Lys point mutation. Female NSG-PiZ mice, homozygous for both alleles and the transgene, and male NSG-PiZ mice, homozygous for the Prkdc allele and transgene and hemizygous for the X linked Il2rg allele, are viable and fertile. After partial (two-thirds) hepatectomy, NSG-PiZ mice engrafted with primary human hepatocytes exhibit stable human albumin serum levels between 0.4 and 2.8 mg/ml.
Breeding Considerations

This strain is a challenging breeder.

When maintaining a live colony, females that are homozygous for the \( Prkdc^{scid} \) and \( Il2rg^{tm1Wjl} \) alleles and the SERPINA1* transgene are bred to males that are homozygous for \( Prkdc^{scid} \) and SERPINA1* transgene, and hemizygous for \( Il2rg^{tm1Wjl} \) (\( Il2rg \) is an X-linked gene).

Additional Breeding and Husbandry Support

Mating System

| Homozygous Prkdc | Homozygous Il2rg | Homozygous Tg(SERPINA1*E342K)#Slcw x Homozygous Prkdc | Hemizygous Il2rg | Homozygous Tg(SERPINA1*E342K)#Slc |

Citation

When using the NSG-PiZ mouse strain in a publication, please cite the originating article(s) and include JAX stock #028842 in your Materials and Methods sections.

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<th>SEX</th>
<th>Homozygous for Prkdc&lt;sup&gt;scid&lt;/sup&gt;</th>
<th>Homozygous for Il2rg&lt;sup&gt;tm1Wjl&lt;/sup&gt;</th>
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<tr>
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<td>Homozygous for Tg(SERPINA1*E342K)#Slcw&lt;sup&gt;tm1Wjl&lt;/sup&gt;</td>
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