These Igfbp1 knockout mice suffer more rapid and severe hepatocellular injury and delayed and diminished DNA synthesis after hepatectomy or toxic damage.

Donating Investigator
Kim Olthoff, University of Pennsylvania
Details

Detailed Description

Mice that are homozygous for the targeted mutation are viable, fertile, normal in size and do not display any gross physical or behavioral abnormalities. No gene product (mRNA or protein) is detected by Northern or Western blot analysis of post partial hepatectomy liver tissue. Immediately following hepatectomy, homozygotes exhibit increased liver injury (increased necrosis and elevated liver enzymes) and delayed and diminished DNA synthesis. Induction of cyclin A and cyclin B1 expression in hepatocytes from postpartial hepatectomy livers is delayed and decreased, cyclin E expression is decreased, induction of CCAAT enhancer binding protein (C/EBP) beta expression is absent, and activation of mitogen-activated protein kinase/extracellular signal-regulated kinase (MAPK/ERK) is diminished. Elevated levels of activated matrix metalloproteinase (Mmp9) and active TGF-beta1 result with Fas agonist (Jo-2 mAb) challenge. Within 3 hours of Fas agonist treatment hepatocytes exhibit increased apoptosis and caspase activation, followed by hemorrhage and parenchymal degradation. Mutant mice suffer more rapid and severe hepatocellular injury due to acute carbon tetrachloride, CCl4, treatment, and DNA synthesis is delayed and diminished following treatment. This mutant mouse strain may be useful in studies of liver regeneration, acute viral hepatitis and mitogenic signaling pathways.

In an attempt to offer alleles on well-characterized or multiple genetic backgrounds, alleles are frequently moved to a genetic background different from that on which an allele was first characterized. As this allele was originally published on a mixed genetic background, it should be noted that the phenotype could vary from that originally described. We will modify the strain description if necessary as published results become available.

Development

Control Suggestions

Selected References

Genetics

Igfbp1tm1Taub

Disease/Phenotype

Disease Terms
Genotyping Protocols
Standard PCR: Igfbp1
Genotyping resources and troubleshooting

Breeding Considerations
This strain is maintained as a homozygote.

Additional Breeding and Husbandry Support

Citation
When using the IGFBP-1- mouse strain in a publication, please cite the originating article(s) and include JAX stock #005248 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

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

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<thead>
<tr>
<th>SERVICE/PRODUCT</th>
<th>DESCRIPTION</th>
<th>PRICE</th>
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<td>Cryo Recovery</td>
<td>Heterozygous for Igfbp1&lt;tm1Taub&gt;</td>
<td>$2,854.50</td>
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All

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