HBNb Mouse

Catalogue number: 151771
Sub-type: Mouse
Images:

Contributor

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Images:

Tool details

***FOR RESEARCH USE ONLY**

Name: HBNb Mouse

Alternate name:

Class:
Conjugate:
Description: A mouse model has been developed in which cytochrome b5 has been deleted in the liver (Hepatic cytochrome b5 Null (HBN) mouse). The loss of hepatic cytochrome b5 results in a reduction in metabolism and in the development of non-alcoholic hepatic steatosis. The mouse model presents an age related increase in hepatic lipid and this accumulation of hepatic microvesicular steatosis reached significance at 6 months. Additionally, while the overall hepatic and plasma lipid content is unchanged between the transgenic and the wild type mice, the fatty acid profiles are different, especially for the polyunsaturated fatty acids (n-6). With respect to the reduction in metabolism, metabolism of all cytochrome P450 probe drugs tested (chlorozoxane, metroprolol, midazolam, tolbutamide and phenacetin) was significantly reduced (30-80% reduction). Circulating levels of the drugs post intravenous delivery were consistently increased and their clearance was consistently decreased in HBN mice compared to wild-type mice. The mouse model is a valuable in vivo tool to study the causes of non-alcoholic liver steatosis. The model would be useful for in vivo preclinical studies of new therapeutics to prevent or treat steatosis. The model may also be used to study the role of liver steatosis in metabolic diseases, such as diabetes mellitus, as well as in chronic hepatitis C disease. This model may also be valuable for assessing drug metabolism and toxicity at early stage in the drug development process. In addition, valuable information can be obtained on the tested compound relating to its contribution to efficacy and toxicity versus its metabolites. This mouse model also represents a key tool for studying cytochrome b5 mediated metabolism in in vivo preclinical drug development. Liver cells extracted from the mouse (hepatic microsomes) can also be used to test new drugs in vitro.
Purpose:
Parental cell:

Organism:
Tissue:
Model:
Gender:
Isotype:
Reactivity:
Selectivity:
Host:
Immunogen:
Immunogen UNIPROT ID:
Sequence:
Growth properties:
Production details: A targeting vector was constructed from an 18-kb DNA fragment, produced by fusing overlapping PCR fragments generated from mouse 129/Ola genomic DNA, containing exons 2â??5 of the mouse cytochrome b5 gene. A cassette, flanked by same orientation loxP sites and containing a selectable marker (neomycin), driven by the herpes simplex thymidine kinase promoter, was cloned into a BclI site in intron 1, and a thirdloxP site was cloned into a KpnI site in intron 5. The construct was checked by PCR and sequencing and transfected into GK129/1 embryonic stem cells by electroporation; the embryonic stem cells were subsequently cultured in 96-well plates under G418 selection. G418-resistant clones were screened for specific homologous recombination by Southern blot analysis, using BglII and an 800-bp PCR fragment generated using 5'-GGCACAACACCAATTATTTGTC-3' and 5'-GACAGTCCTTAACACAAGCTC-3' as forward and reverse primers, respectively. Two correctly targeted embryonic stem cell clones (Cytb+/lox5) were expanded, injected into C57BL/6 blastocysts, and transferred into pseudopregnant mice. Male chimeric mice were bred to C57BL/6 mice, and heterozygous offspring were screened by Southern blot and multiplex PCR to confirm germ line transmission of the Cytb +/lox5 genotype using the following primer set: 1) forward primer, 5'-CCAATGGTCTCTCCTTGGTC-3';2)lox/neomycin reverse primer, 5'-CAATAGCAGCCAGTCCCTTC-3'; 3) wild-type reverse primer, 5'-GATGGAGTTCCCCGATGAT-3'.Cytb5lox/+ mice were crossed to produce homozygous Cytb5lox/loxmice and maintained by random breeding on a 129P2 ?? C57BL/6 genetic background. Cytb5lox/loxmice were crossed with a transgenic mouse line expressing Cre recombinase under the control of the hepatocyte-specific rat albumin promoter (CreALB) on a C57BL/6 background, andCytb5lox/+::CreALB offspring were backcrossed with Cytb5lox/lox mice to generate liver-specific microsomal cytochrome b5 conditional knock-out mice (HBN; Cytb5lox/lox::CreALB) and control (wild-type, Cytb5lox/lox) mice. The HBN line was thereafter maintained by random intercrossing of these two lines.
Formulation:
Recommended controls:
Bacterial resistance:
Selectable markers:
Additional notes:

Target details

Target: Cytochrome B5

Target alternate names:

Target background:

Molecular weight:

Ic50:

Applications

Application:
Application notes:

Handling

Format:
Concentration:
Passage number:
Growth medium:
Temperature:
Atmosphere:
Volume:
Storage medium:
Storage buffer:
Storage conditions:
Shipping conditions: Embryo/Spermatoza- Dry Ice

Related tools

Related tools:

References

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