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gk^{K414E} - Mouse Strain RES192

Mouse Information

Common Name:	gk^{K414E}
MGI Official Name:	Gck^{tm2Mgn}
Description:	This line of mice contains a gk^{K414E} point mutation that was introduced by gene knock-in. This point mutation wasidentified in aMODY-GK pedigree. These mice will be useful for studies of sustained hyperglycemia since they contain only a single mutation and are congenic with the C57BL/6J strain.
Categories:	None specified.

Genetic Alterations

1) Targeted Mutagenesis

Type of Allele	Global Mutation
Targeted Gene	Glucokinase (Gck - NCBI GeneID:103988)
Targeted Allele	targeted mutation 2 (Gck^{tm2Mgn} - MGI:3701697)
Description of Targeting Vector	A single base pair mutation was introduced into exon 9 via site specific mutagenesis to change amino acid 414 from lysine to glutamic acid. Genotype by DNA PCR using primers 5'-TGT CTC AAT TTG CTG TGT CCT CCA-3' and 5'-ATG TGT GAG TGT GCC AAT ATG AGT-3'. These primers will amplify a 636 bp fragment from the wild type allele and a 741 bp fragment from the targeted (mutant) allele. These animals are homozygous lethal. Heterozygous mice are viable. They are hyperglycemic and hypoinsulinemic when compared to wild type.
Targeting Vector Genbank File	pBOB2.K414E.gb

Citations

PubMedID	Citation
17353190	Glucokinase thermolability and hepatic regulatory protein binding are essential factors for predicting the blood glucose phenotype of missense mutations. (2007) *J Biol Chem* **282**: 13906-16 (Added 2008-03-29 16:59:08)

Strain Information

Strain Type:	Congenic Strain
Chimera/Founder Genetic Background:	129S6/SvEvTac
Current Genetic Background:	C57BL/6J (date recorded: Not provided)
Strain Description:	After achieving germline transmission mice carrying the gk^{K414E} allele were backcrossed for eleven generations into a C57BL/6J strain.

Associated Images

Image 1

Description:
Gene targeting strategy used to generate point mutations in the gk gene. Uppermost map is

Access Status

This resource is publicly viewable.

Request this Resource

Request from a **repository**

Primary contributor: **Magnuson Lab**

Resource Tags

Gck, gk^{K414E}, mouse, mouse strain

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Resource History & Actions

Approved on Feb 02, 2007
Last modified on Sep 20, 2007

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Related resources

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No matching resources

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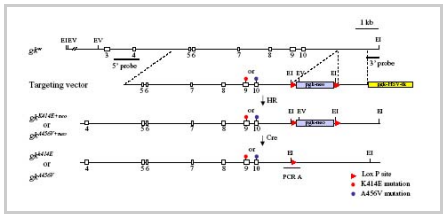
No matching resources

Data courtesy of dkCOIN. Only public resources are displayed.



a diagram of the mouse gk gene showing locations of exons 3 to 10 (indicated by open boxes). The locations of the DNA fragments used as 5' and 3' hybridization probes are shown. EI, EcoRI; EV, EcoRV. Second map from top is of the gene targeting vector carrying either the K414E mutation in exon 9 depicted by the red circle or the A456V mutation in exon 10 as indicated by the blue circle. A neomycin resistance cassette (pgk-neoR), which is flanked with two loxP sites depicted by red triangles, and a HSV-thymidine kinase cassette (pgk-HSV-TK), were used for positive and negative selection, respectively. Third map from top is of the recombinant gk allele after homologous recombination (HR) carrying a floxed pgk-neoR cassette and the respective point mutation in exon 9 or 10. Fourth map from top is of the mutant gk allele after Cre recombination.

Reference:
17353190

Repositories

MMRRC

Request via www.mmrrc.org website

Stock #: 015201-UCD
Availability Notes: *Not provided*

BCBC members may Login to request this resource.

Contact Information

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Associated Publications

No publications associated

Comments

There are no comments for this entry.

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