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HNF6^{flox} - Mouse Strain RES230

Mouse Information

Common Name:	HNF6^{flox}
MGI Official Name:	OC-1$^{tm1.1Mga}$
Description:	This line of mice allows for conditional inactivation of the OC-1 (HNF6) gene using Cre recombinase. Thus, HNF6 function can be assessed in the different tissues in which it is expressed.
Categories:	Cre-lox floxed alleles

Genetic Alterations

1) Targeted Mutagenesis	
Type of Allele	Conditional Null
Targeted Gene	Onecut1 (OC-1 - NCBI GeneID:15379)
Targeted Allele	targeted mutation 1.1 (OC-1$^{tm1.1Mga}$ - MGI:3526029)
Description of Targeting Vector	To generate mice with a loxP-containing HNF6 allele (HNF6flox), we constructed a loxP-FRT HNF6flox-neo targeting vector using BAC recombineering. To avoid disrupting potential regulatory regions within the HNF6 locus, mouse and human HNF6 gene homology was compared (using http://genome.ucsc.edu) and loxP sites introduced flanking the cut-domain in regions of less than 50% sequence conservation. A clone containing HNF6 genomic DNA was obtained from a mouse RPCI-22 BAC library (BACPAC Resources, Children's Hospital Oakland, CA). The HNF6 targeting construct also contained a neomycin resistance cassette (neoR) located 5' to the second loxP site and flanked by FRT sites to facilitate deletion by Flp recombinase; and a herpes simplex virus-thymidine kinase (TK) cDNA located outside of the HNF6 gene homology region. Deletion of the cut domain renders the allele a null.
Targeting Vector Genbank File	pCKO.HNF6.gb
Citations	PubMedID: 19766716 — Citation: Multiple, temporal-specific roles for HNF6 in pancreatic endocrine and ductal differentiation. (2009) *Mech Dev* **126**: 958-73 (Added 2014-12-11 10:25:26.858988)

Strain Information

Strain Type:	Mixed
Chimera/Founder Genetic Background:	129S6/SvEvTac
Current Genetic Background:	Not provided (date recorded: Not provided)
Strain Description:	Two independent ES cell clones with the appropriate HNF6flox-neo-targeted locus were used to generate chimeric mice by injection into mouse C57BL/6 blastocysts. High percentage chimeras were bred with C57BL/6 wild type mice and agouti offspring were screened for heterozygosity for the targeting construct. The neoR cassette was removed in vivo by breeding HNF6flox-neo/+ animals to human ACTB (beta-actin)-driven Flpe transgenic mice (Rodriguez et al., 2000) that mediates excision of

Access Status

This resource is publicly viewable.

Request this Resource

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Primary contributor: Gannon Lab
Co-contributed by:
- BCBC Mouse / ES Cell Core

Resource Tags

HNF6^{flox}, mESC Core, mouse, mouse strain, OC-1$^{tm1.1Mga}$

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Resource History & Actions

Approved on Apr 23, 2008
Last modified on Dec 11, 2014

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Related resources

BCBC

No matching resources

Other Consortia

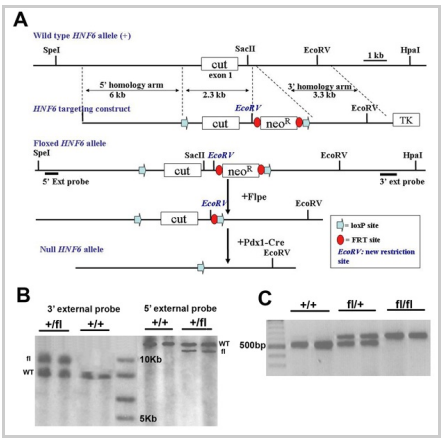
No matching resources

Data courtesy of dkCOIN. Only public resources are displayed.

FRT-flanked DNA in somatic and germ cells. HNF6flox/+ mice were used to generate mice homozygous for the floxed allele (HNF6flox/flox).

Associated Images

Image 1



Description:

Schematic diagram of *HNF6*$^{flox\text{-}neo}$ targeting vector and Cre-mediated *HNF6* inactivation. (A) Representation of the mouse *HNF6* locus showing exon one (the cut DNA binding domain). Also shown: *HNF6*^{flox}-targeting construct, *HNF6*^{flox}-targeted allele, and recombined *HNF6* allele following Cre exposure. The 5' and 3' Southern blot hybridization probes are indicated as horizontal lines below the floxed allele. Restriction sites shown in italics indicate introduced sites to allow for genotyping. (B) Southern blot of *Spe*I/*Eco*RV digested genomic DNA from *HN6*$^{flox\text{-}neo}$ targeted ES cells using the 5' external probe, detected bands specific to wild type (WT; 13.3kb) and *HNF6*^{flox} (fl; 11.6kb) alleles. Using 3' the external probe, Southern blot of *Hpa*I/*Sac*II digested genomic DNA from *HN6*^{fl} targeted ES cells detected bands specific to wild type (WT; 7.6kb) and *HNF6*^{fl} (fl; 9.6kb) alleles. (C) PCR analysis of mouse tail genomic DNA using primers flanking the 5'-most loxP site resulted in amplification of a larger product (590bp) from the targeted versus wild type allele (550bp).

Reference:
19766716

Repositories

MMRRC

Request via www.mmrrc.org website

Stock #: 029869-UNC
Availability Notes: *Not provided*

Gannon Lab

Request this resource

Stock #: *Not provided*
Availability Notes: *Not provided*

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Associated Publications

Publication	Citation
23926259	Wu F, Li R, Umino Y, Kaczynski TJ, Sapkota D, Li S, Xiang M, Fliesler SJ, Sherry DM, Gannon M, Solessio E, Mu X Onecut1 is essential for horizontal cell genesis and retinal integrity. (2013) *J Neurosci* **33**: 13053-65, 13065a (Added April 27, 2015)
21898486	Vanderpool C, Sparks EE, Huppert KA, Gannon M, Means AL, Huppert SS Genetic interactions between hepatocyte nuclear factor-6 and Notch signaling regulate mouse intrahepatic bile duct development in vivo. (2012) *Hepatology* **55**: 233-43 (Added April 27, 2015)
19766716	Zhang H, Ables ET, Pope CF, Washington MK, Hipkens S, Means AL, Path G, Seufert J, Costa RH, Leiter AB, Magnuson MA, Gannon M Multiple, temporal-specific roles for HNF6 in pancreatic endocrine and ductal differentiation. (2009) *Mech Dev* **126**: 958-73 (Added December 11, 2014)

Comments

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