

These mice may be used to study tissue-specific functions of phosphoenolpyruvate carboxykinase (Pck1). This enzyme is essential for gluconeogenesis and also is important for regulating anapleurosis/catapleurosis of TCA cycle intermediates. By generating mice that are homozygous for the pck<sup>lox</sup> allele and that contain a tissue-specific Cre transgene Pck1 can be deleted from various sites.

Keywords: [Pck1](#) [pck<sup>lox</sup>](#) [PEPCK](#)

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## Mouse Information

Common Name	pck1 <sup>lox</sup>
Research Applications	Cre-lox system
MMRRC ID	011950-UNC
Jackson Laboratories Stock No	Not provided
VCMR ID	AV, AX
Additional Strain Information	Not provided

## Genetic Alteration

### Mutation #1: Targeted Mutagenesis

Type of Allele	Conditional Null
Targeted Gene	Name: phosphoenolpyruvate carboxykinase 1 Symbol: Pck1 NCBI: <a href="#">18534</a>
Allele	Name: targeted mutation 1.1, Mark A Magnuson Symbol: Pck1 <sup>tm1.1Mgn</sup> MGI: <a href="#">MGI:2449283</a>
Description of Targeting Vector	A gene targeting strategy was used to flank exons 4 and 5 in the Pck1 gene with two tandemly-oriented loxP sites. DNA PCR utilizing primers 5'-AATGTTCTCTGCAAGTCCTGGTG-3' and 5'-TCTGTCTCAGTTCAATACCAATCT-3' amplify a 616 bp pck <sup>lox</sup> band and a 518 bp wild type band. Homozygous Pck <sup>lox/lox</sup> animals are viable. Pck1 activity and protein content in liver and kidney do not differ from wild type. Heterozygous animals are also viable and do not differ from the wild type.
Vector Genbank File	<a href="#">pmPEPCK.KO2.gb</a>

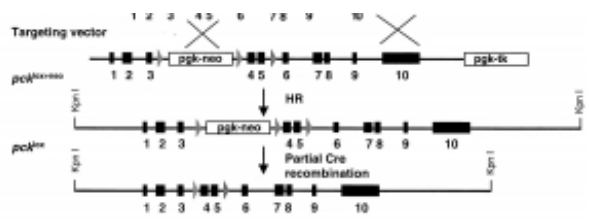
<b>Allele Map</b>	<i>Not Provided</i>
<b>PCR Genotyping Protocol</b>	<i>Not provided</i>
<b>Citations</b>	<p><b>Publication</b></p> <hr/> <p><u>Hepatic energy state is regulated by glucagon receptor signaling in mice.</u> (2009) <i>J Clin Invest</i> <b>119</b>: 2412-22 (Added 3/18/2013) PMID: <a href="#">19662685</a></p> <hr/> <p><u>Cytosolic phosphoenolpyruvate carboxykinase does not solely control the rate of hepatic gluconeogenesis in the intact mouse liver.</u> (2007) <i>Cell Metab</i> <b>5</b>: 313-20 (Added 4/10/2012) PMID: <a href="#">17403375</a></p> <hr/> <p><u>Impaired tricarboxylic acid cycle activity in mouse livers lacking cytosolic phosphoenolpyruvate carboxykinase.</u> (2004) <i>J Biol Chem</i> <b>279</b>: 48941-9 (Added 4/10/2012) PMID: <a href="#">15347677</a></p> <hr/> <p><u>Mechanisms by which liver-specific PEPCK knockout mice preserve euglycemia during starvation.</u> (2003) <i>Diabetes</i> <b>52</b>: 1649-54 (Added 12/10/2013) PMID: <a href="#">12829628</a></p> <hr/> <p><u>Phosphoenolpyruvate carboxykinase is necessary for the integration of hepatic energy metabolism.</u> (2000) <i>Mol Cell Biol</i> <b>20</b>: 6508-17 (Added 12/10/2013) PMID: <a href="#">10938127</a></p> <hr/>


## Background Strain Information

<b>Strain Type</b>	Congenic Strain
<b>Chimera/Founder Genetic Background</b>	129S6/SvEvTac
<b>Current Genetic Background</b>	99.76% C57BL/6
<b>Number of Generations Backcrossed</b>	10
<b>Strain Description</b>	Mice carrying the $pck^{lox}$ allele have been backcrossed ten times into a C57Bl/6J background.

## Attachments

 [mb170054901a.jpeg](#) - Added on July 19, 2010 at 10:17 AM by Mark Magnuson



 [pcklox\\_\\_pckwt\\_pcr\\_protocol.doc](#) - Added on July 27, 2010 at 10:56 AM by Jill Lindner

PCR protocol for genotyping mice