

# Pnpla3 Cas9-KO Strategy

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# Overview

## Target Gene Name

- Pnpla3

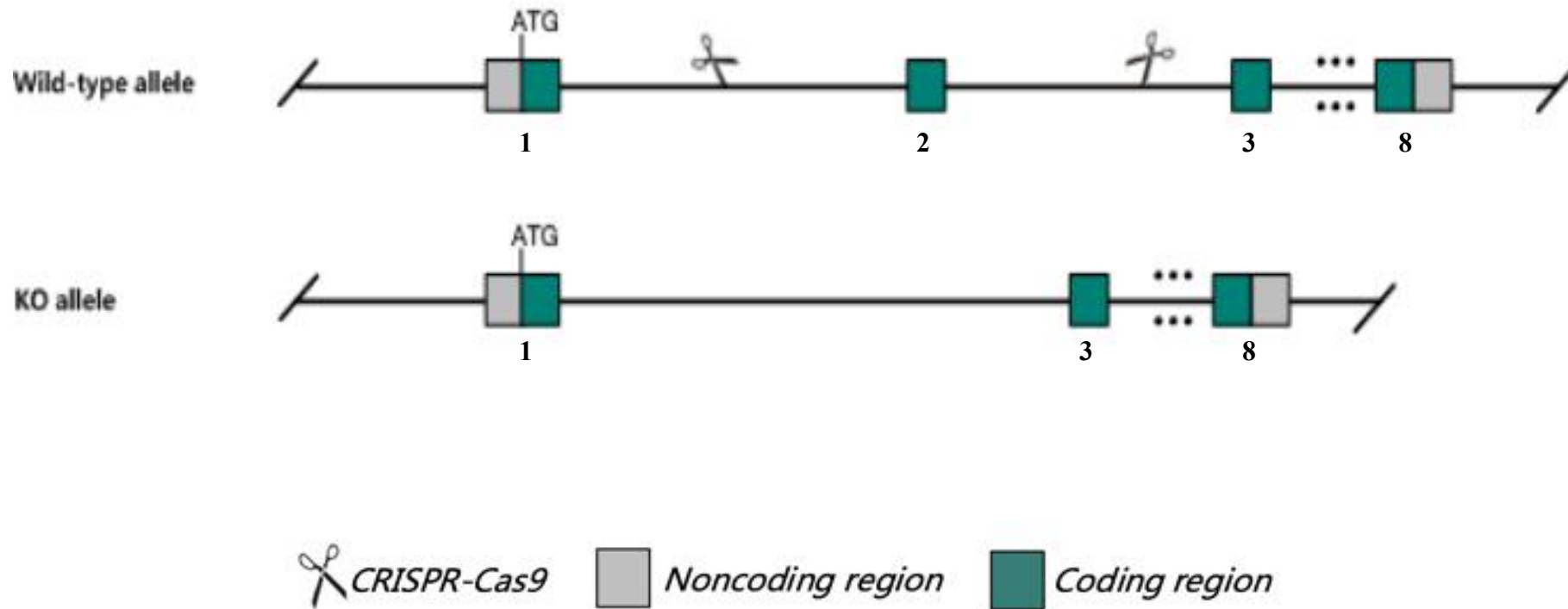
## Project Type

- Cas9-KO

## Genetic Background

- C57BL/6JGpt

# Strain Strategy



# Technical Information

- The *Pnpla3* gene has 2 transcripts. According to the structure of *Pnpla3* gene, exon2 of *Pnpla3*-201 (ENSMUST00000045289.6) transcript is recommended as the knockout region. The region contains 233bp coding sequence. Knocking out the region will result in disruption of protein function.
- In this project we use CRISPR-Cas9 technology to modify *Pnpla3* gene. The brief process is as follows: gRNAs were transcribed in vitro. Cas9 and gRNAs were microinjected into the fertilized eggs of C57BL/6JGpt mice. Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and on-target amplicon sequencing. A stable F1-generation mouse strain was obtained by mating positive F0-generation mice with C57BL/6JGpt mice and confirmation of the desired mutant allele was carried out by PCR and on-target amplicon sequencing.

# Gene Information

## Pnpla3 patatin-like phospholipase domain containing 3 [Mus musculus (house mouse)]

Gene ID: 116939, updated on 2-Feb-2019

### Summary

<b>Official Symbol</b>	Pnpla3 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	patatin-like phospholipase domain containing 3 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:2151796</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000041653</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	VALIDATED
<b>Organism</b>	<a href="#">Mus musculus</a>
<b>Lineage</b>	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
<b>Also known as</b>	Adpn
<b>Expression</b>	Biased expression in subcutaneous fat pad adult (RPKM 202.0), mammary gland adult (RPKM 115.5) and 3 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

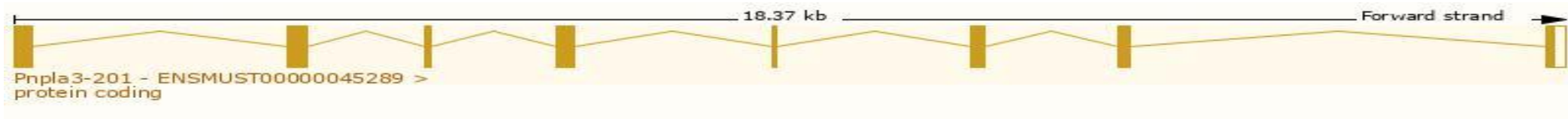
Source: <https://www.ncbi.nlm.nih.gov/>

# Transcript Information

The gene has 2 transcripts, all transcripts are shown below:

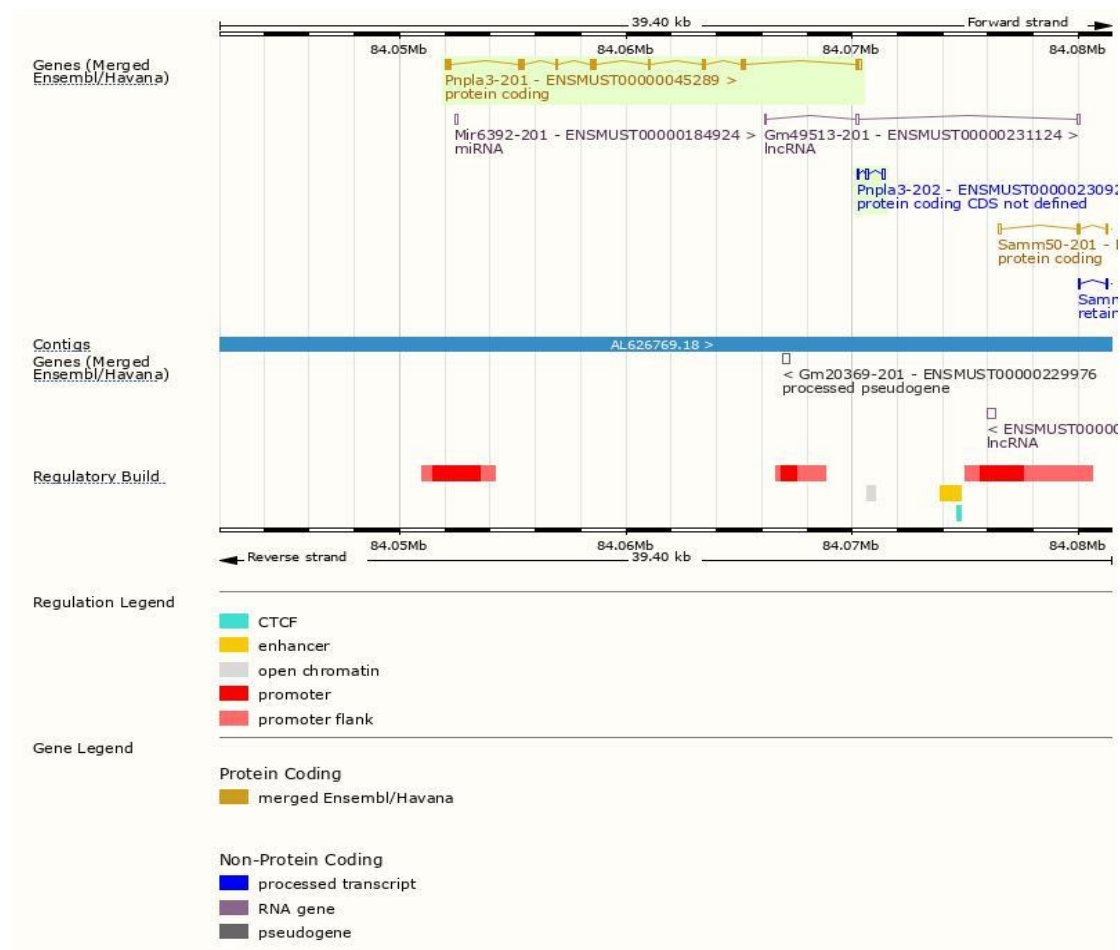
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pnpla3-201	<a href="#">ENSMUST00000045289.5</a>	1313	<a href="#">384aa</a>	Protein coding	<a href="#">CCDS37165</a>	<a href="#">E9QNZ9</a>	TSL:5 GENCODE basic APPRIS P1
Pnpla3-202	<a href="#">ENSMUST00000230926.1</a>	303	No protein	Processed transcript	.	.	

The strategy is based on the design of *Pnpla3*-201 transcript, the transcription is shown below:



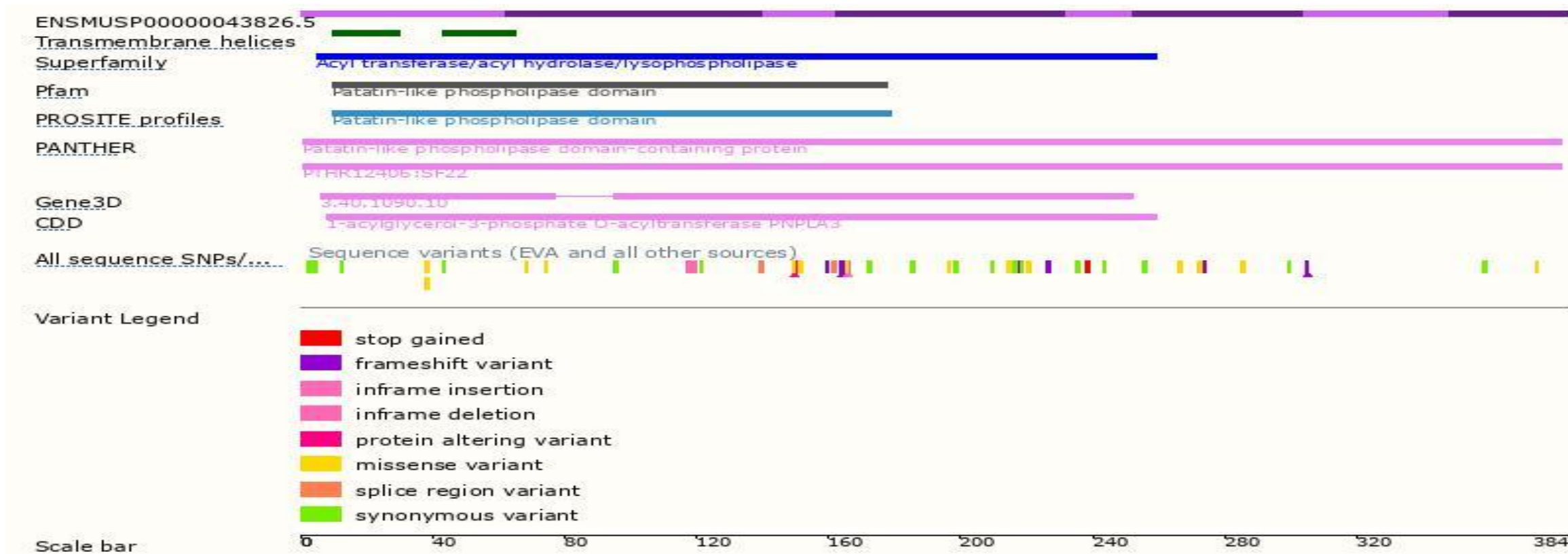
Source: <https://www.ensembl.org>

# Genomic Information



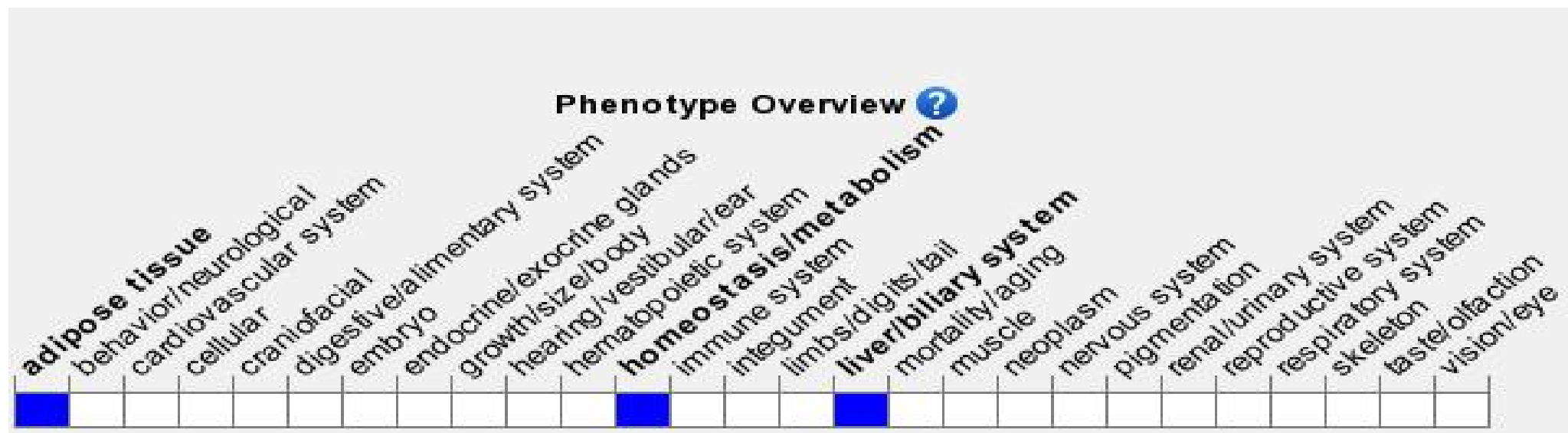


# Protein Information





# Mouse Phenotype Information (MGI)



- Mice homozygous for a knock-out allele exhibit normal energy, glucose, and lipid homeostasis.

# Important Information

- *Pnpla3* is located on Chr15. If the knockout mice are crossed with other mouse strains to obtain double homozygous mutant offspring, please avoid the situation that the second gene is on the same chromosome.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risks of the mutation on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.