

# *Gipcl* Cas9-KO Strategy

Designer: Jia Yu

Reviewer: Xiaojing Li

Design Date: 2019-10-23

# Project Overview

**Project Name**

***Gipcl***

**Project type**

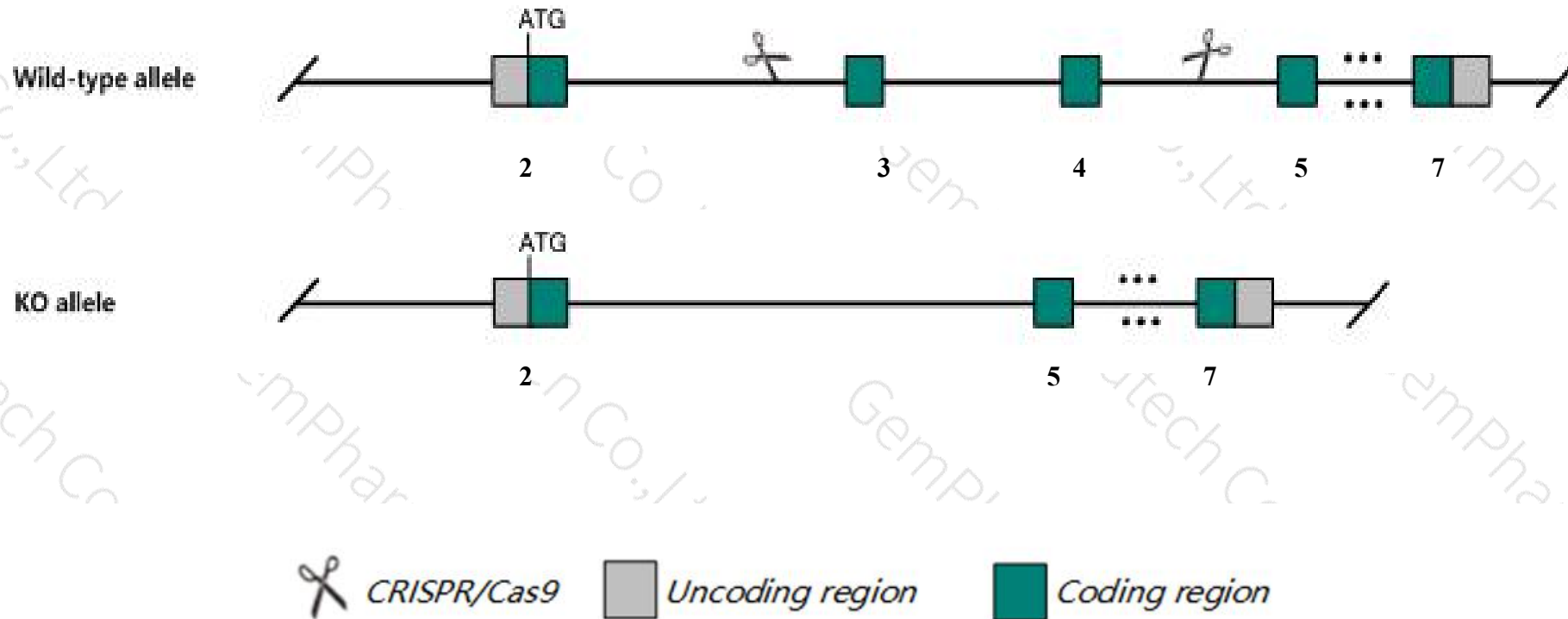
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gipcl* gene. The schematic diagram is as follows:



- The *Gipcl* gene has 3 transcripts. According to the structure of *Gipcl* gene, exon3-exon4 of *Gipcl*-201 (ENSMUST00000019577.9) transcript is recommended as the knockout region. The region contains 367bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Gipcl* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a gene trapped allele display reduced body and heart weight, selective arteriogenesis and arterial endothelial cell defects, and impaired cardiac performance and wound healing. Mice homozygous for a knock-out allele exhibit low molecular weight proteinuria.
- CDS 3' of transcripts 203 is incomplete, it may be unaffected.
- The *Gipcl* gene is located on the Chr8. If the knockout mice are crossed with other mice strains to obtain double gene positive homozygous mouse offspring, please avoid the two genes on the same chromosome.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of gene transcription and translation processes, all risks cannot be predicted under existing information.



# Gene information (NCBI)

## Gipc1 GIPC PDZ domain containing family, member 1 [Mus musculus (house mouse)]

Gene ID: 67903, updated on 8-Feb-2019

### Summary



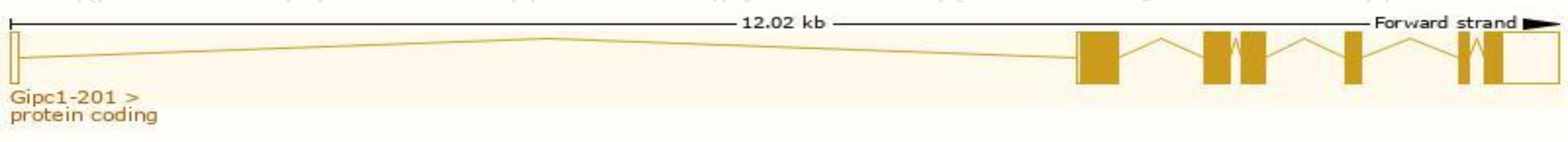
<b>Official Symbol</b>	Gipc1 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	GIPC PDZ domain containing family, member 1 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:1926252</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000019433</a>
<b>Gene type</b>	protein 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>	GIPC, Glut1CIP, Rgs19ip1, Semcap1, TIP-2, TaxIP2
<b>Expression</b>	Ubiquitous expression in stomach adult (RPKM 41.0), colon adult (RPKM 40.6) and 28 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

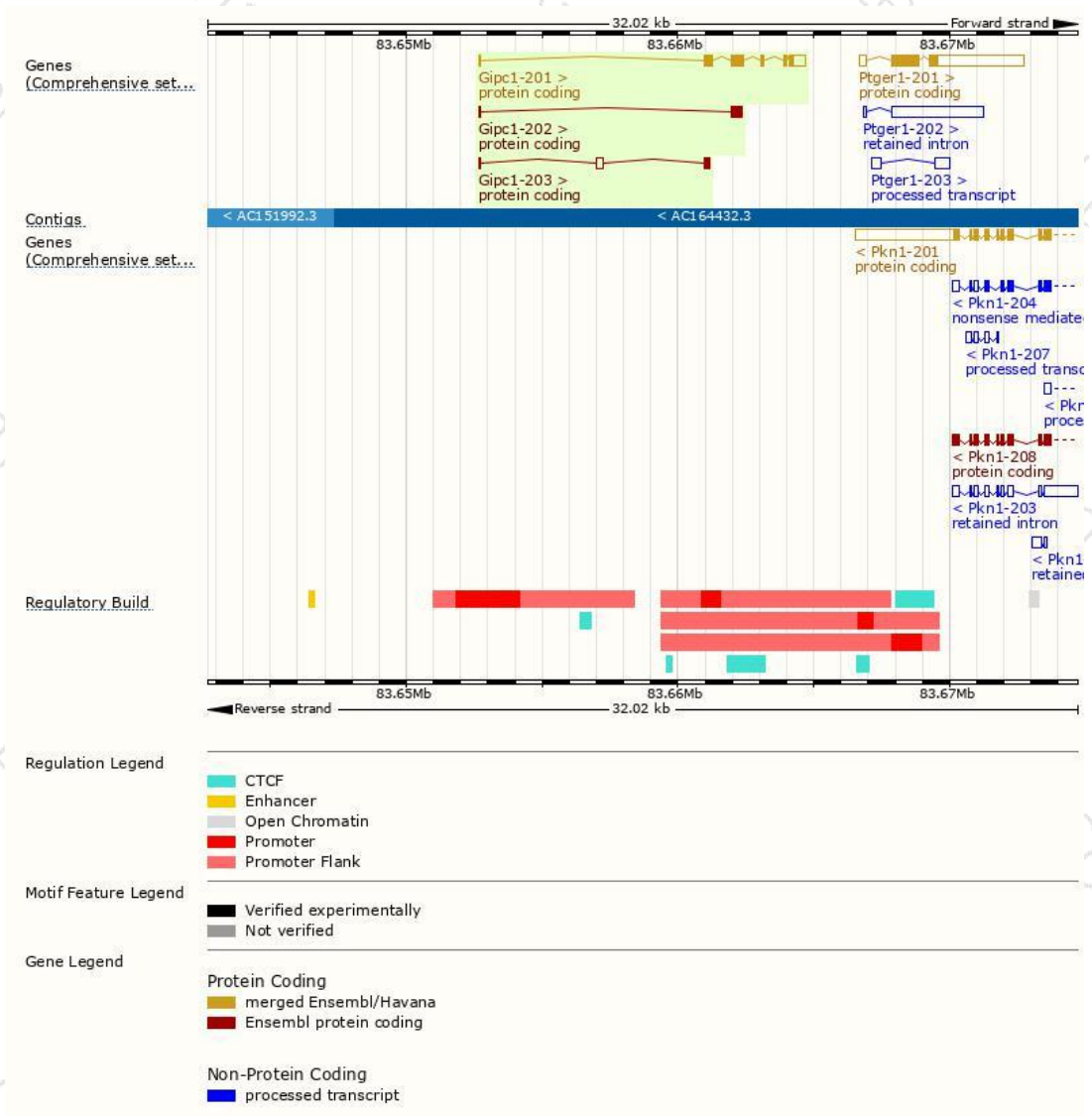
The gene has 3 transcript,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gipc1-201	<a href="#">ENSMUST00000019577.9</a>	1522	<a href="#">333aa</a>	Protein coding	<a href="#">CCDS22457</a>	<a href="#">Q9Z0G0</a>	TSL:1 GENCODE basic APPRIS P1
Gipc1-203	<a href="#">ENSMUST00000212463.1</a>	476	<a href="#">65aa</a>	Protein coding	-	<a href="#">A0A1D5RML2</a>	CDS 3' incomplete TSL:5
Gipc1-202	<a href="#">ENSMUST00000211985.1</a>	370	<a href="#">105aa</a>	Protein coding	-	<a href="#">A0A1D5RMN2</a>	CDS 3' incomplete TSL:3

The strategy is based on the design of *Gipc1-201* transcript,The transcription is shown below

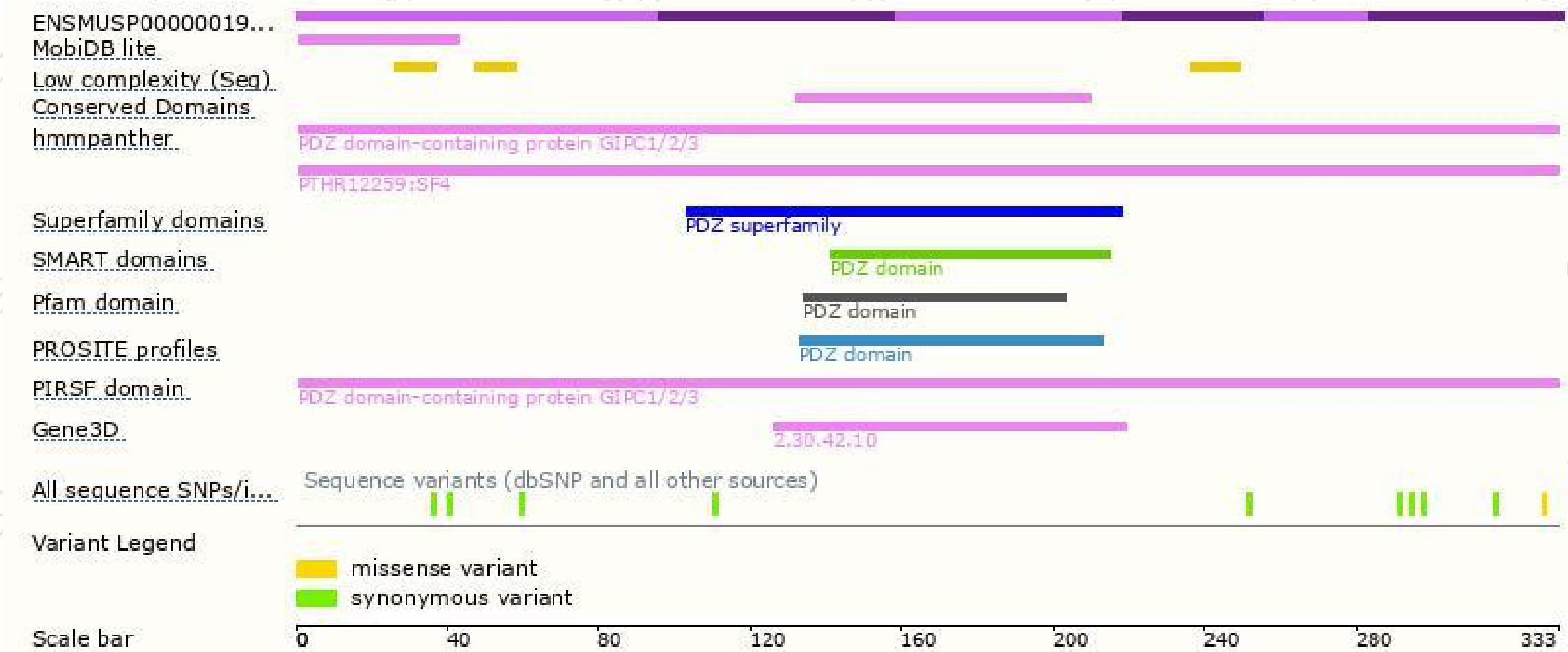


# Genomic location distribution

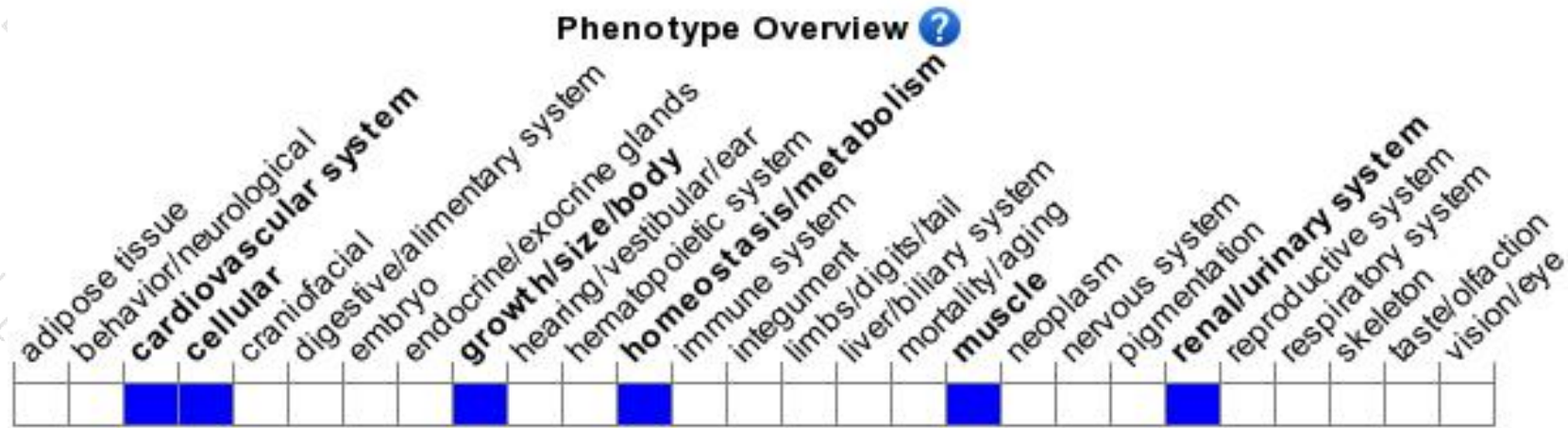




# Protein domain



# Mouse phenotype description(MGI )



*Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).*

According to the existing MGI data, Mice homozygous for a gene trapped allele display reduced body and heart weight, selective arteriogenesis and arterial endothelial cell defects, and impaired cardiac performance and wound healing. Mice homozygous for a knock-out allele exhibit low molecular weight proteinuria.

If you have any questions, you are welcome to inquire.

Tel: 400-9660890

