

Pdzk1 Cas9-KO Strategy

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Reviewer:

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Design Date:

2020-2-6

Project Overview

Project Name

Pdzk1

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pdzk1* gene. The schematic diagram is as follows:



- The *Pdzk1* gene has 7 transcripts. According to the structure of *Pdzk1* gene, exon3-exon5 of *Pdzk1*-203 (ENSMUST00000107070.7) transcript is recommended as the knockout region. The region contains 583bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pdzk1* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous mutation of this gene results in increased serum cholesterol levels.
- Transcript *Pdzk1-204* may not be affected.
- The *Pdzk1* gene is located on the Chr3. 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 biological processes, all risk of the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Pdzk1 PDZ domain containing 1 [*Mus musculus* (house mouse)]

Gene ID: 59020, updated on 5-Nov-2019

Summary

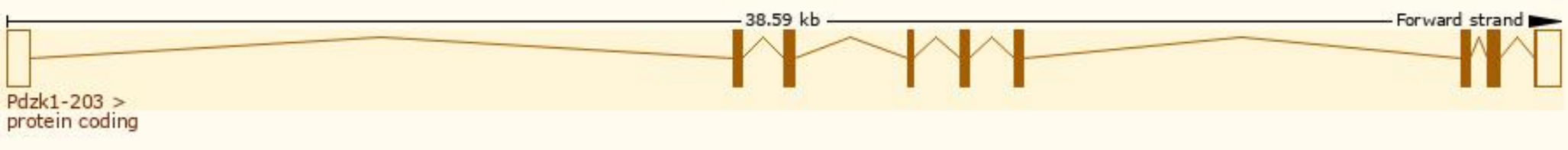
Official Symbol	Pdzk1 provided by MGI
Official Full Name	PDZ domain containing 1 provided by MGI
Primary source	MGI:MGI:1928901
See related	Ensembl:ENSMUSG00000038298
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Pdzd1; mPDZK1; NHERF-3; AI267131; AI314638; AL022680; naPi-Cap1; D3Ert537e; 1700023D20Rik; 2610507N21Rik; 4921513F16Rik
Expression	Biased expression in kidney adult (RPKM 101.3), placenta adult (RPKM 43.2) and 7 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

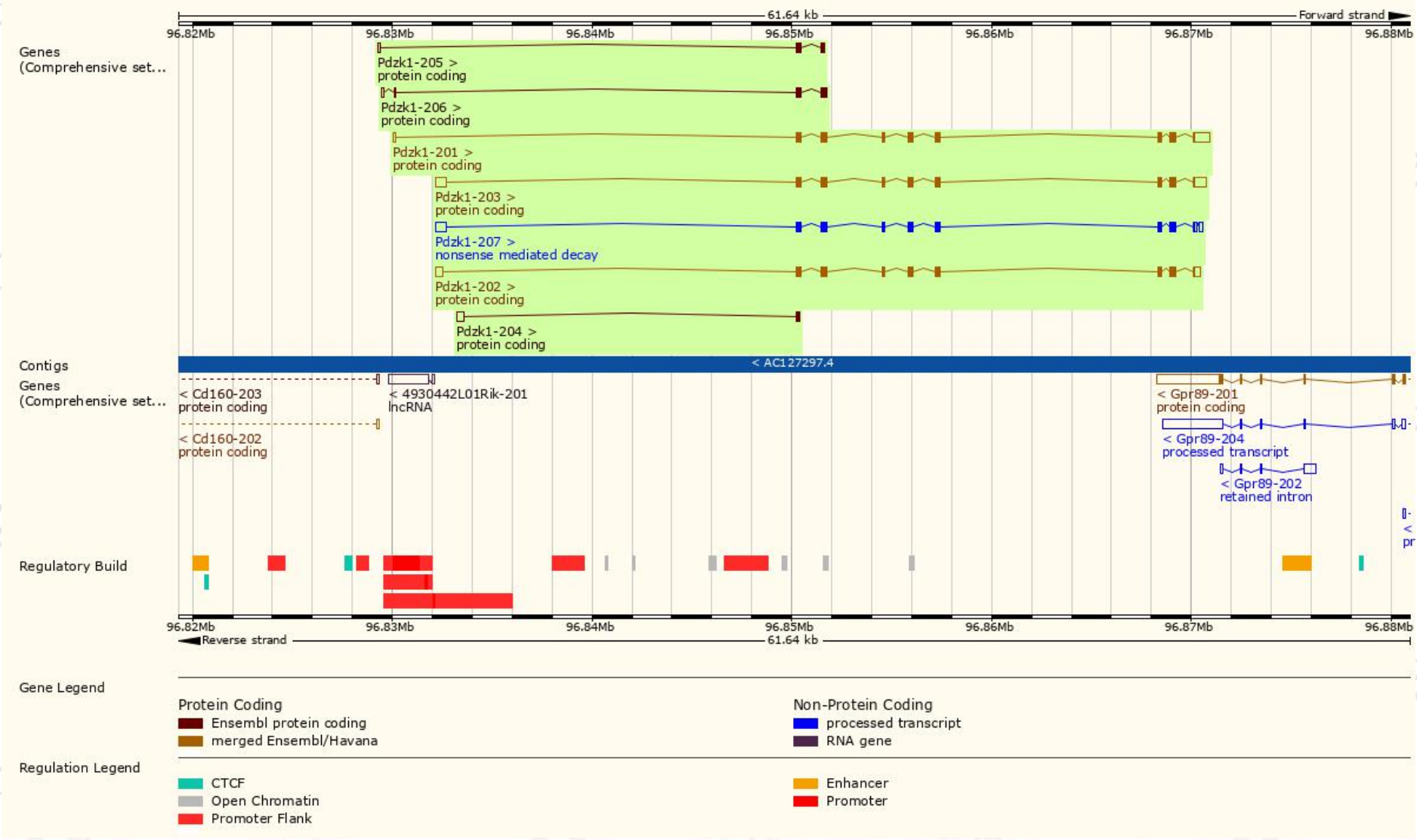
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pdzk1-203	ENSMUST00000107070.7	2711	519aa	Protein coding	CCDS17649	A0A0R4J1V0	TSL:1 GENCODE basic APPRIS P1
Pdzk1-201	ENSMUST00000058865.13	2406	519aa	Protein coding	CCDS17649	A0A0R4J1V0	TSL:1 GENCODE basic APPRIS P1
Pdzk1-202	ENSMUST00000107069.7	2219	519aa	Protein coding	CCDS17649	A0A0R4J1V0	TSL:1 GENCODE basic APPRIS P1
Pdzk1-206	ENSMUST00000138014.7	622	153aa	Protein coding	-	D3YZS9	CDS 3' incomplete TSL:3
Pdzk1-204	ENSMUST00000128789.1	531	50aa	Protein coding	-	D3Z114	CDS 3' incomplete TSL:2
Pdzk1-205	ENSMUST00000135031.7	495	125aa	Protein coding	-	D3YW13	CDS 3' incomplete TSL:2
Pdzk1-207	ENSMUST00000153256.2	2409	519aa	Nonsense mediated decay	-	A0A0R4J1V0	TSL:1

The strategy is based on the design of *Pdzk1-203* transcript,the transcription is shown below:



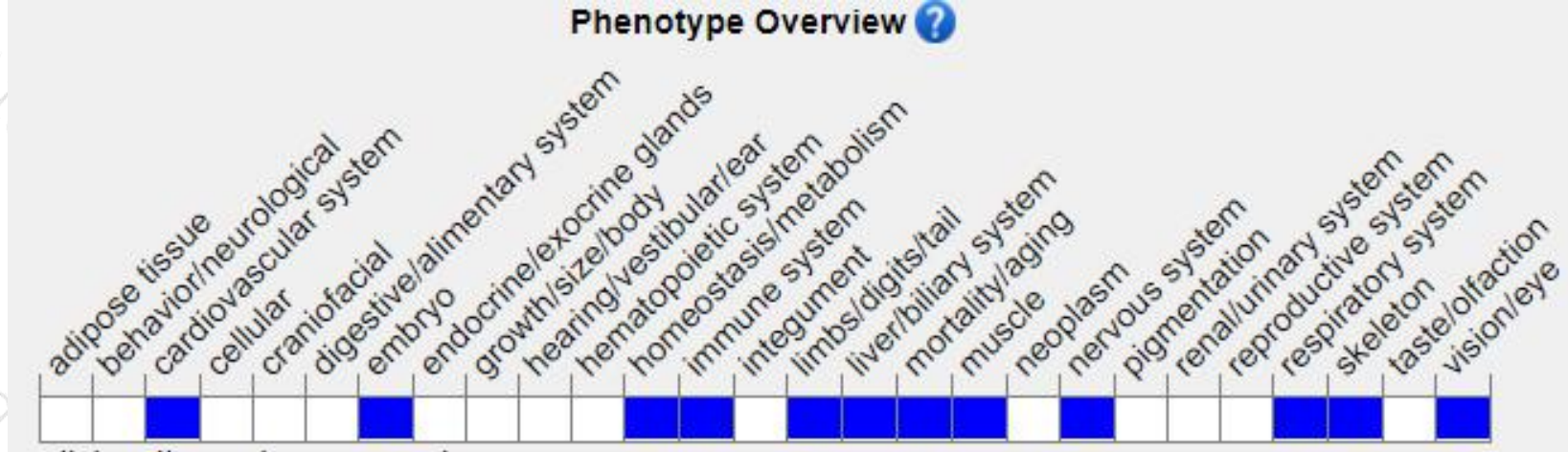
Genomic location distribution



集萃药康
GemPharmatech



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, Homozygous mutation of this gene results in increased serum cholesterol levels.

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

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