Ppp1cb Cas9-KO Strategy

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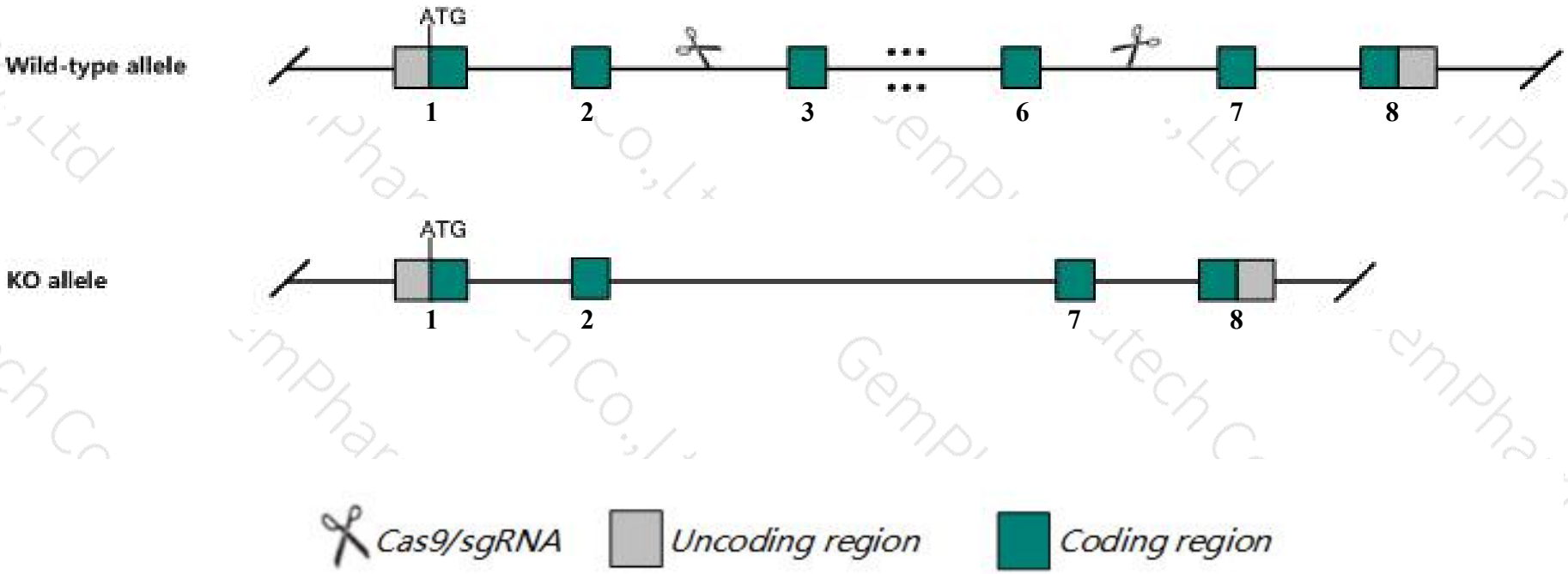
Project Overview

Project Name	***Ppp1cb***
Project type	**Cas9-KO**
Strain background	**C57BL/6J**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ppp1cb* gene. The schematic diagram is as follows:



Technical routes

➢ The *Ppp1cb* gene has 6 transcripts. According to the structure of *Ppp1cb* gene, exon3-exon6 of *Ppp1cb-201* (ENSMUST00000015100.14) transcript is recommended as the knockout region.The region contains 560bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Ppp1cb* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J mice.Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6J mice.

Notice

- According to the existing MGI data,Homozygous mutation of this gene results in lethality before weaning.
- The *Ppp1cb* gene is located on the Chr5. 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）

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Ppp1cb protein phosphatase 1 catalytic subunit beta [Mus musculus (house mouse)]

Gene ID: 19046, updated on 7-Apr-2019

Summary

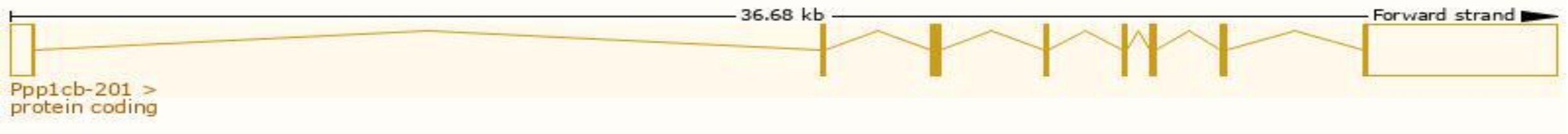
Official Symbol	Ppp1cb provided by MGI
Official Full Name	protein phosphatase 1 catalytic subunit beta provided by MGI
Primary source	MGI:MGI:104871
See related	Ensembl:ENSMUSG00000014956
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1200010B19
Expression	Broad expression in bladder adult (RPKM 116.5), liver E14 (RPKM 43.7) and 17 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

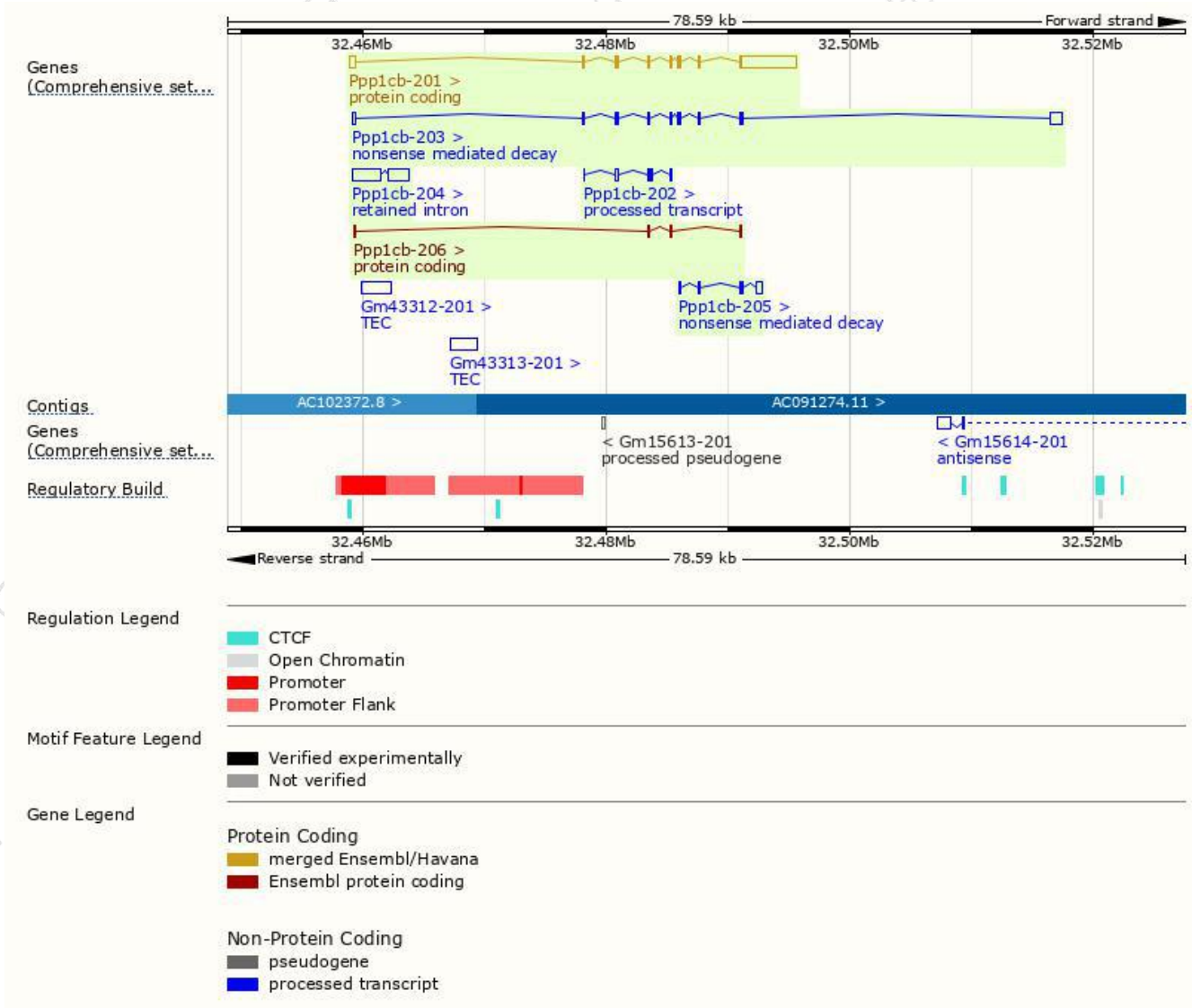
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ppp1cb-201	ENSMUST00000015100.14	5962	327aa	Protein coding	CCDS19193	P62141	TSL:1 GENCODE basic APPRIS P1
Ppp1cb-206	ENSMUST00000202078.1	383	59aa	Protein coding	-	A0A0J9YUG2	TSL:5 GENCODE basic
Ppp1cb-203	ENSMUST00000201360.3	2347	327aa	Nonsense mediated decay	-	P62141	TSL:1
Ppp1cb-205	ENSMUST00000201880.1	861	100aa	Nonsense mediated decay	-	A0A0J9YUU8	CDS 5' incomplete TSL:5
Ppp1cb-202	ENSMUST00000201207.1	638	No protein	Processed transcript	-	-	TSL:5
Ppp1cb-204	ENSMUST00000201600.1	4000	No protein	Retained intron	-	-	TSL:1

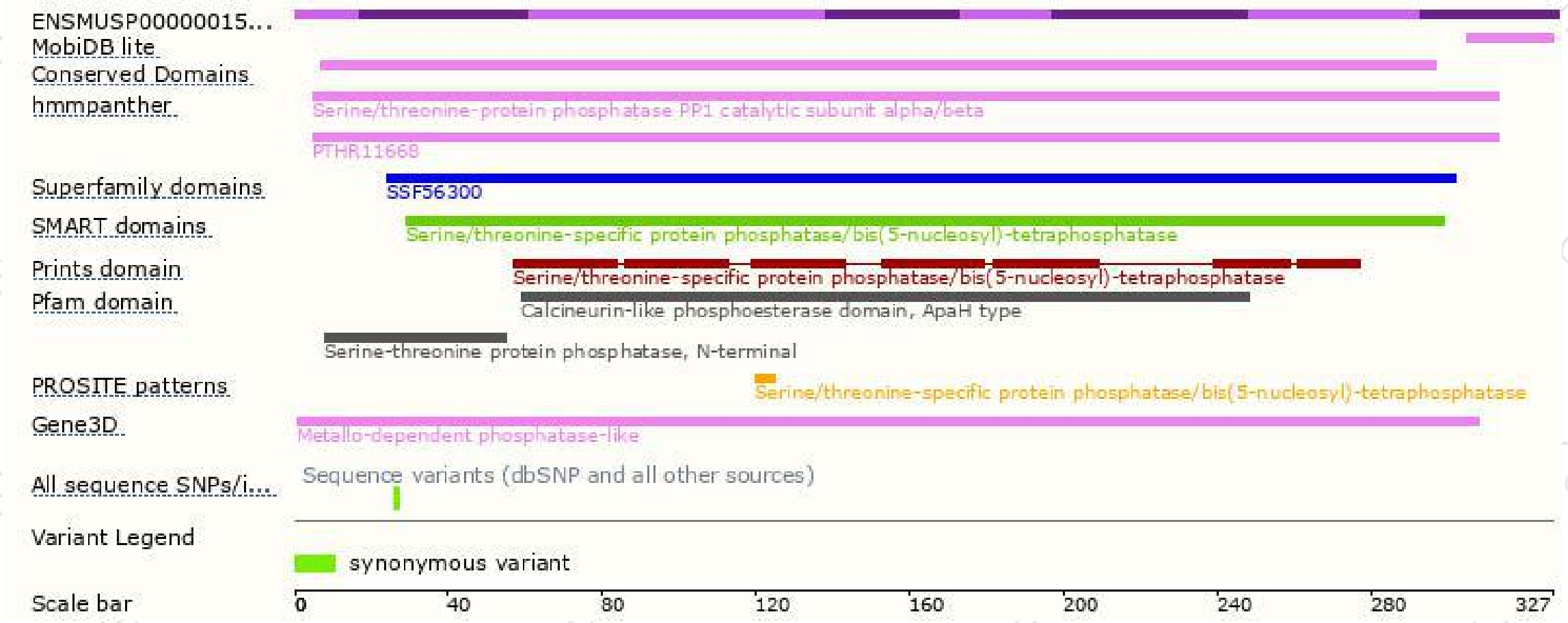
The strategy is based on the design of *Ppp1cb-201* transcript,The transcription is shown below



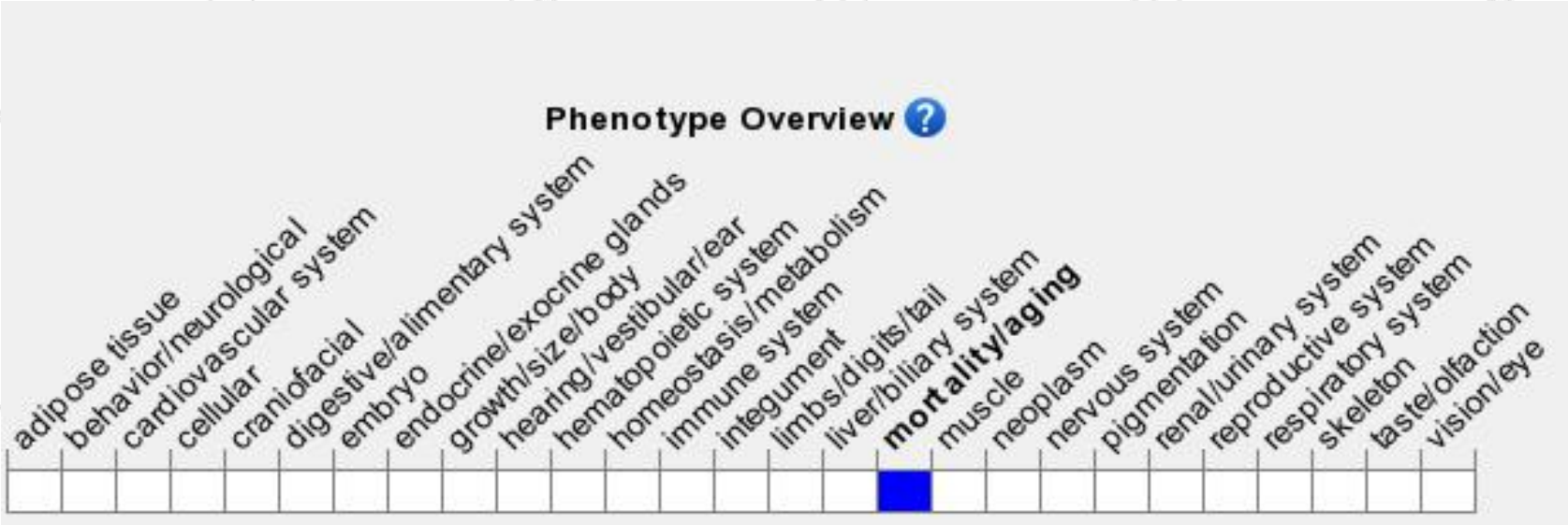
Genomic location distribution



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/).

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

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