Ppp3cc Cas9-CKO Strategy

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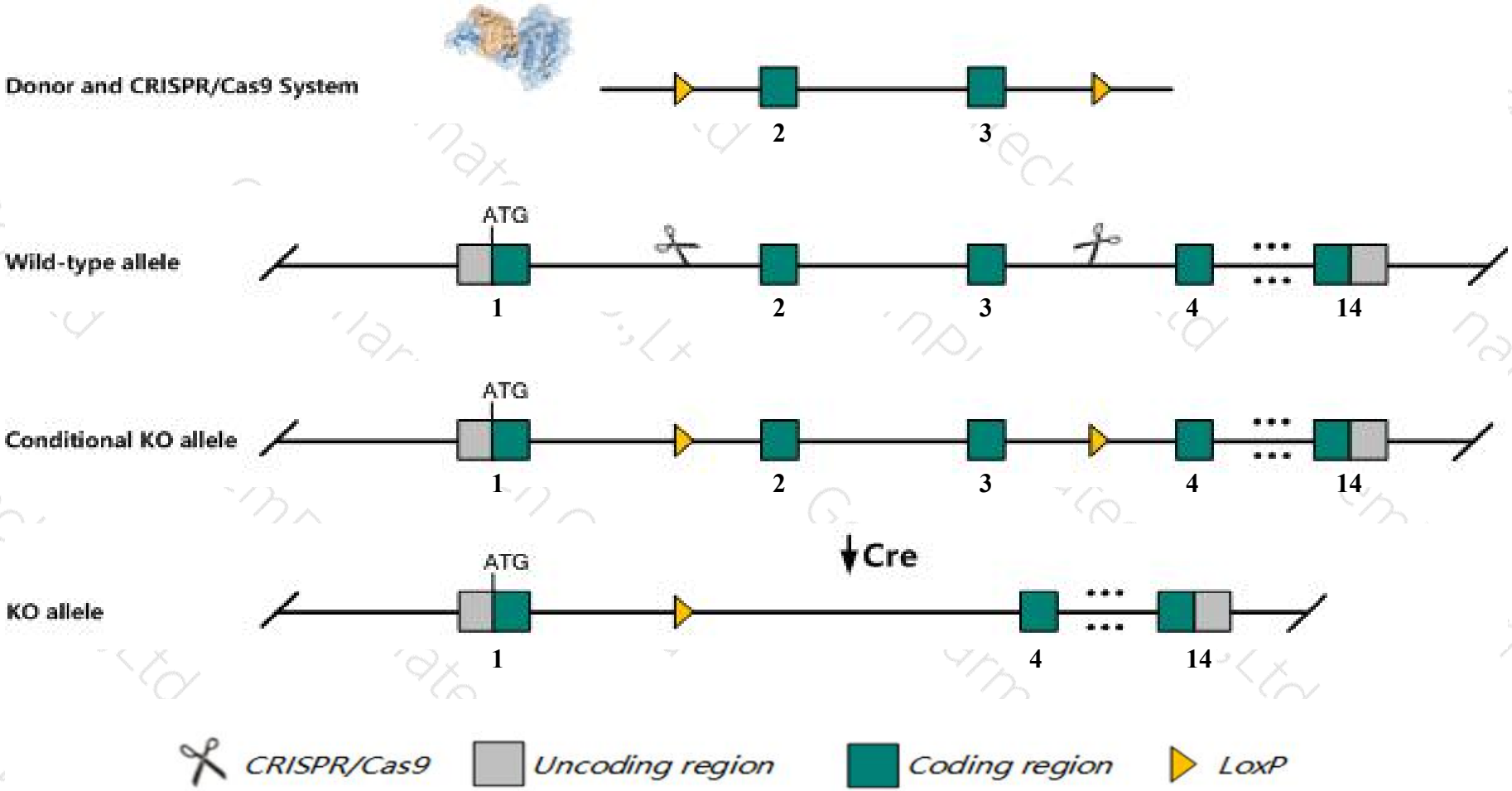
Project Overview

Project Name	***Ppp3cc***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ppp3cc* gene. The schematic diagram is as follows:



Technical routes

- The *Ppp3cc* gene has 3 transcripts. According to the structure of *Ppp3cc* gene, exon2-exon3 of *Ppp3cc-201* (ENSMUST00000078434.7) transcript is recommended as the knockout region.The region contains 323bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Ppp3cc* gene. The brief process is as follows:CRISPR/Cas9 system and Donor 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 sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.

- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

Notice

- According to the existing MGI data,Mice homozygous for a knock-out allele exhibit male infertility due to reduced hyperactivated sperm motility and midpiece rigidity.

- The *Ppp3cc* gene is located on the Chr14. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

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Ppp3cc protein phosphatase 3, catalytic subunit, gamma isoform [*Mus musculus* (house mouse)]

Gene ID: 19057, updated on 12-Aug-2019

Summary

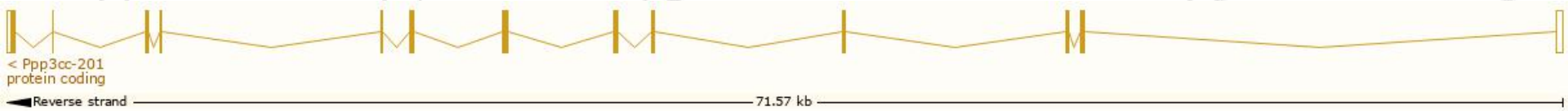
Official Symbol	Ppp3cc provided by MGI
Official Full Name	protein phosphatase 3, catalytic subunit, gamma isoform provided by MGI
Primary source	MGI:MGI:107162
See related	Ensembl:ENSMUSG00000022092
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Calnc; PP2BA gamma
Expression	Broad expression in testis adult (RPKM 21.7), frontal lobe adult (RPKM 6.2) and 18 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

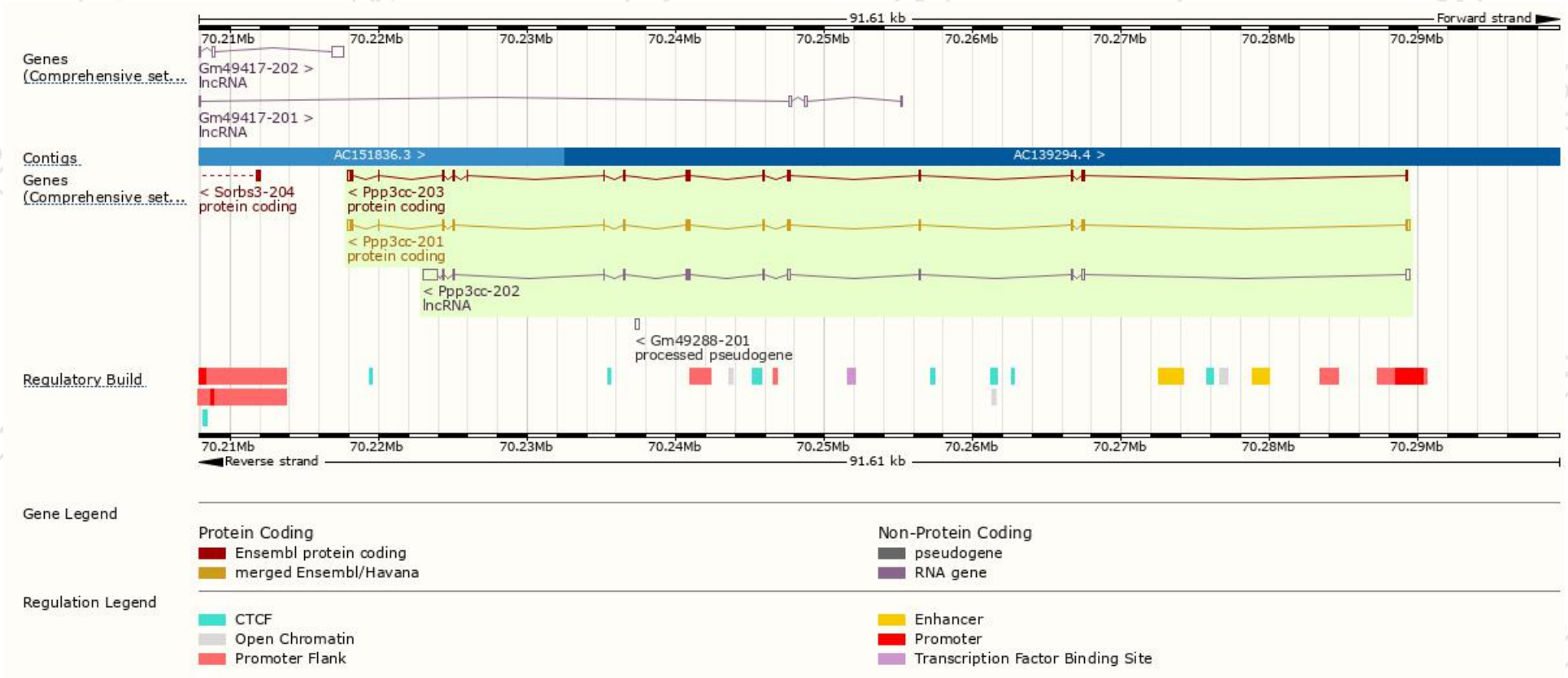
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ppp3cc-201	ENSMUST00000078434.7	1970	513aa	Protein coding	CCDS36968	P48455	TSL:1 GENCODE basic APPRIS P2
Ppp3cc-203	ENSMUST00000228911.1	1836	522aa	Protein coding	-	A0A2I3BPC5	GENCODE basic APPRIS ALT2
Ppp3cc-202	ENSMUST00000228265.1	2494	No protein	lncRNA	-	-	-

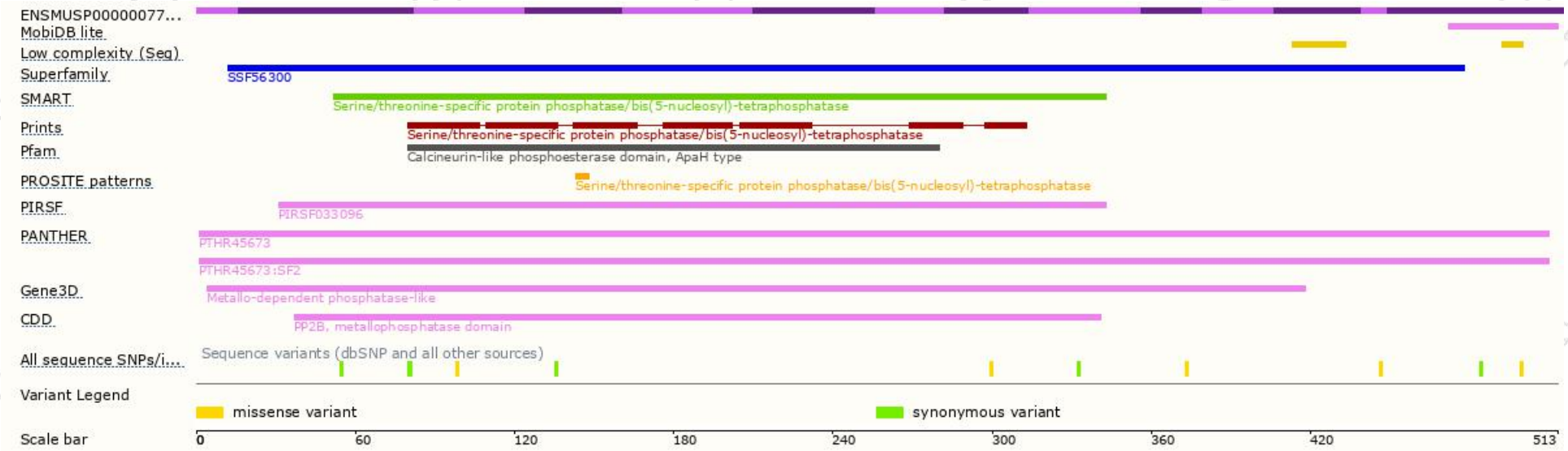
The strategy is based on the design of *Ppp3cc-201* transcript,The transcription is shown below



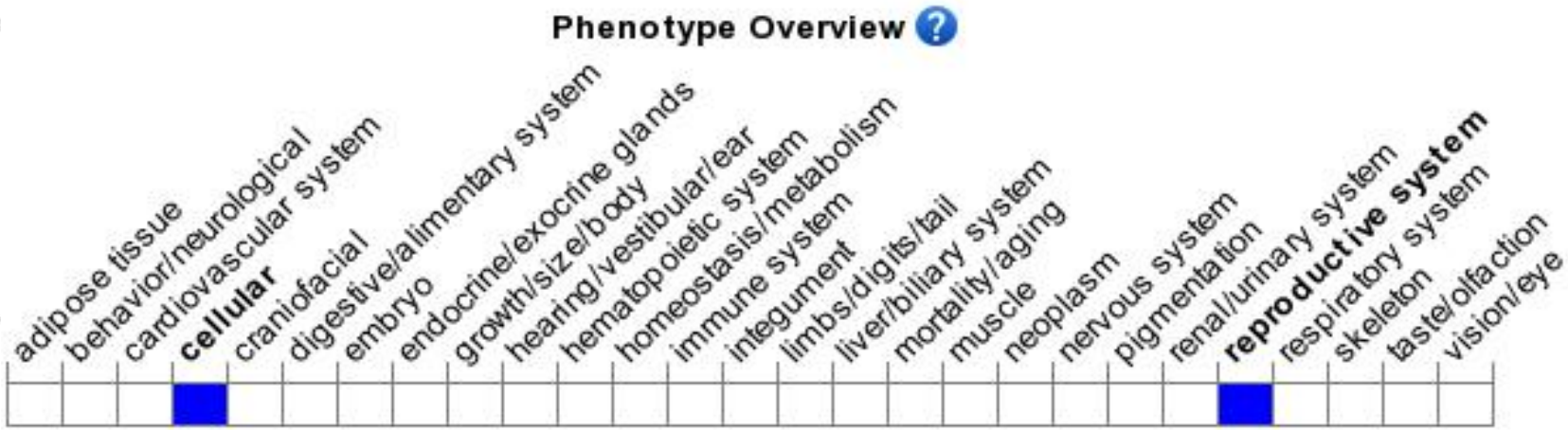
Genomic location distribution



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 knock-out allele exhibit male infertility due to reduced hyperactivated sperm motility and midpiece rigidity.

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

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