Ppp1r9b Cas9-CKO Strategy

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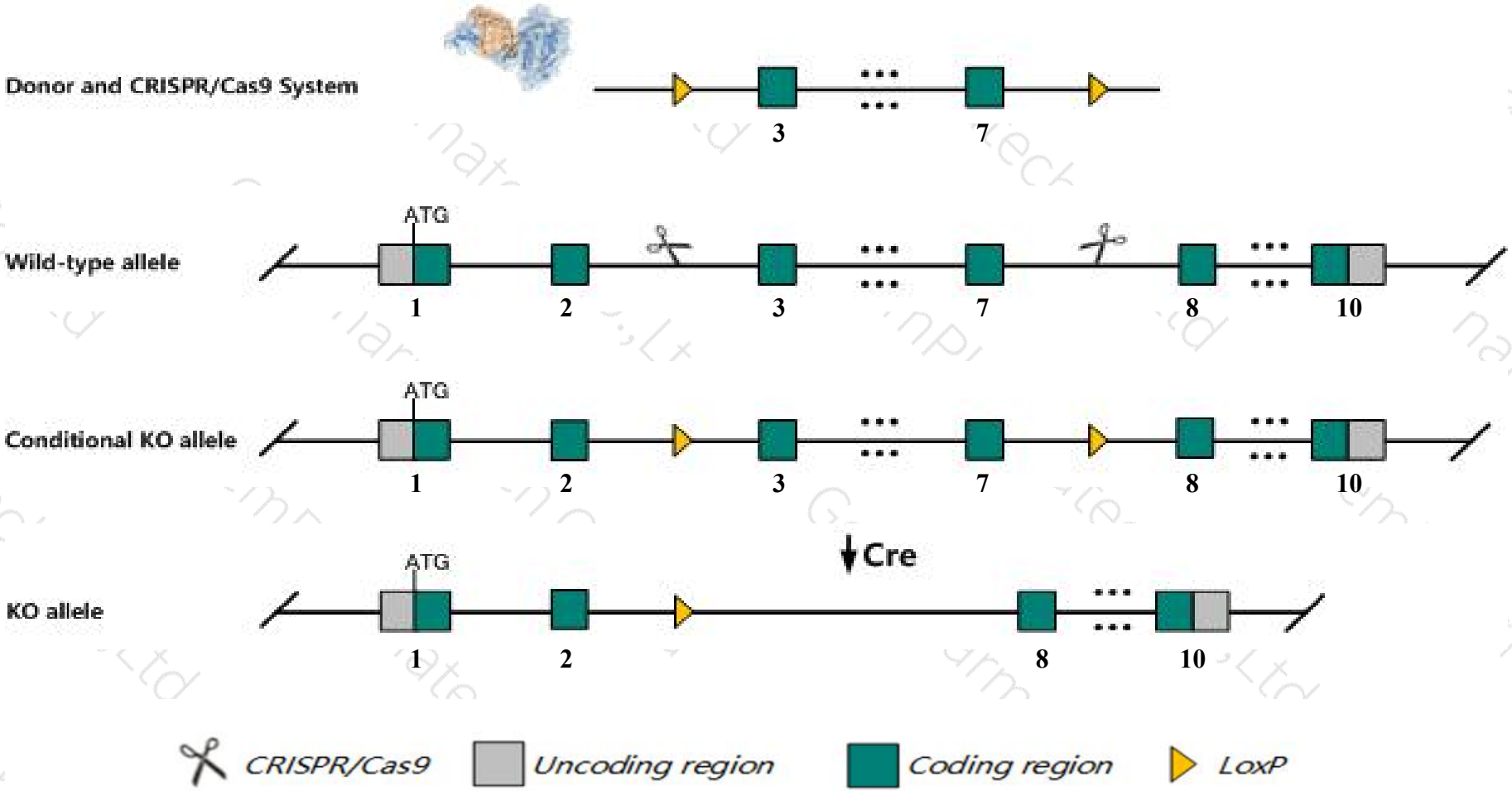
Design Date: 2019-11-26

Project Overview

Project Name	***Ppp1r9b***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ppp1r9b* gene. The schematic diagram is as follows:



Technical routes

- The *Ppp1r9b* gene has 3 transcripts. According to the structure of *Ppp1r9b* gene, exon3-exon7 of *Ppp1r9b-201* (ENSMUST00000038696.11) transcript is recommended as the knockout region.The region contains 569bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Ppp1r9b* 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,Homozygotes for a targeted null mutation exhibit abnormal glutamatergic synaptic transmission, reduced long-term depression, resistance to kainate-induced seizures, impaired taste aversion learning, and increased dendritic spine density.

- The *Ppp1r9b* gene is located on the Chr11. 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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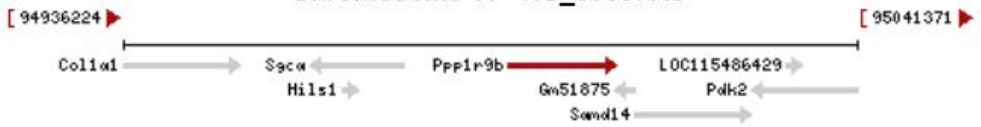
Ppp1r9b protein phosphatase 1, regulatory subunit 9B [*Mus musculus* (house mouse)]

Gene ID: 217124, updated on 19-Nov-2019

Summary

Official Symbol	Ppp1r9b provided by MGI
Official Full Name	protein phosphatase 1, regulatory subunit 9B provided by MGI
Primary source	MGI:MGI:2387581
See related	Ensembl:ENSMUSG00000038976
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	SPL; Spn
Expression	Ubiquitous expression in frontal lobe adult (RPKM 75.4), cortex adult (RPKM 71.9) and 27 other tissues See more
Orthologs	human all

Chromosome 11 - NC_000077.6

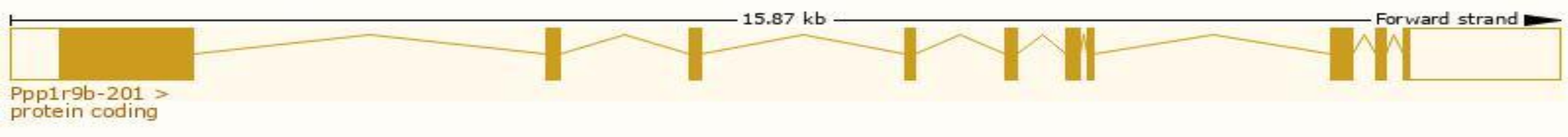


Transcript information（Ensembl）

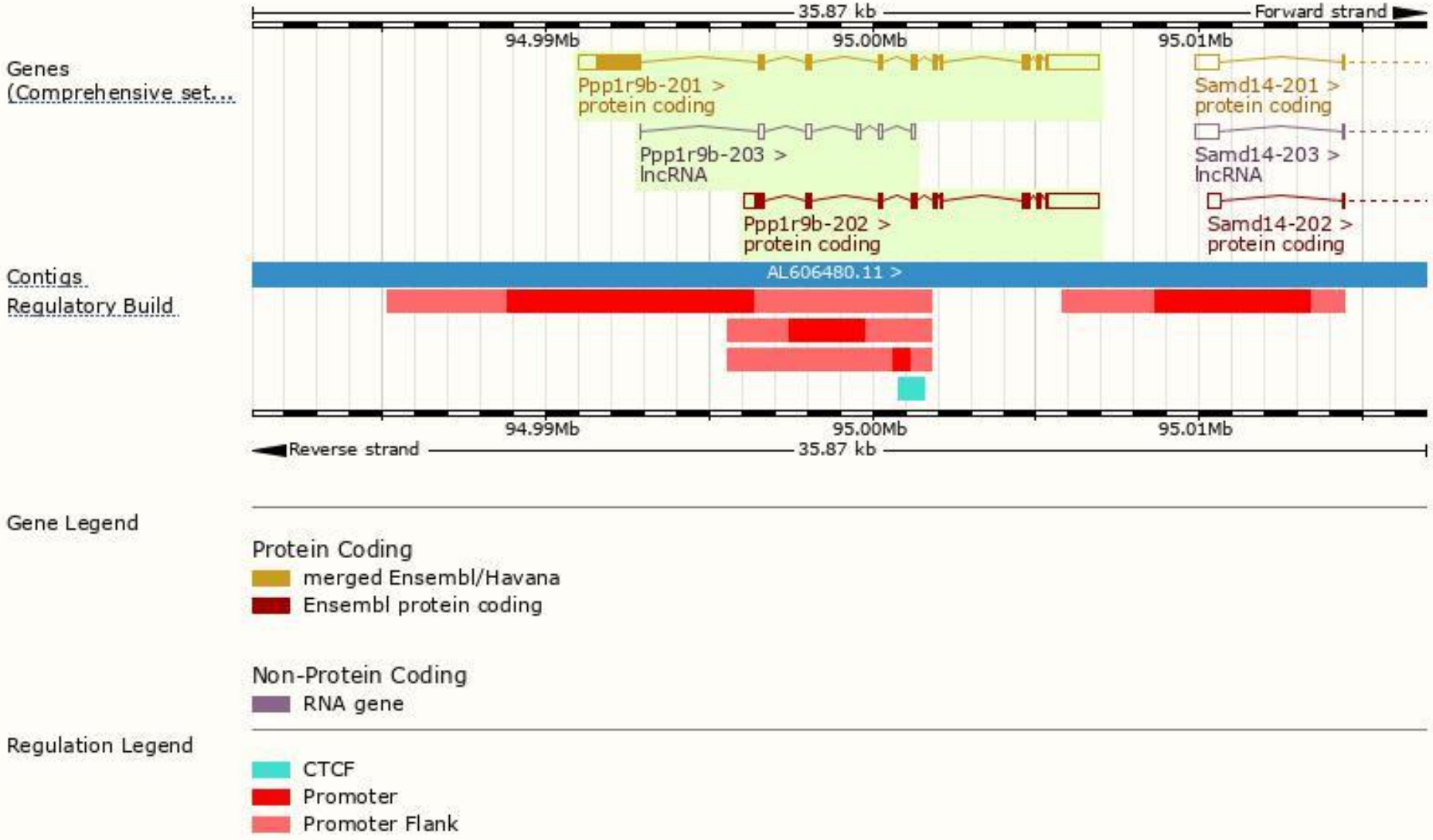
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ppp1r9b-201	ENSMUST00000038696.11	4508	817aa	Protein coding	CCDS25268	Q6R891	TSL:1 GENCODE basic APPRIS P2
Ppp1r9b-202	ENSMUST00000107748.1	3095	393aa	Protein coding	-	Q6R891	TSL:1 GENCODE basic APPRIS ALT2
Ppp1r9b-203	ENSMUST00000151771.1	610	No protein	lncRNA	-	-	TSL:5

The strategy is based on the design of *Ppp1r9b-201* transcript,The transcription is shown below

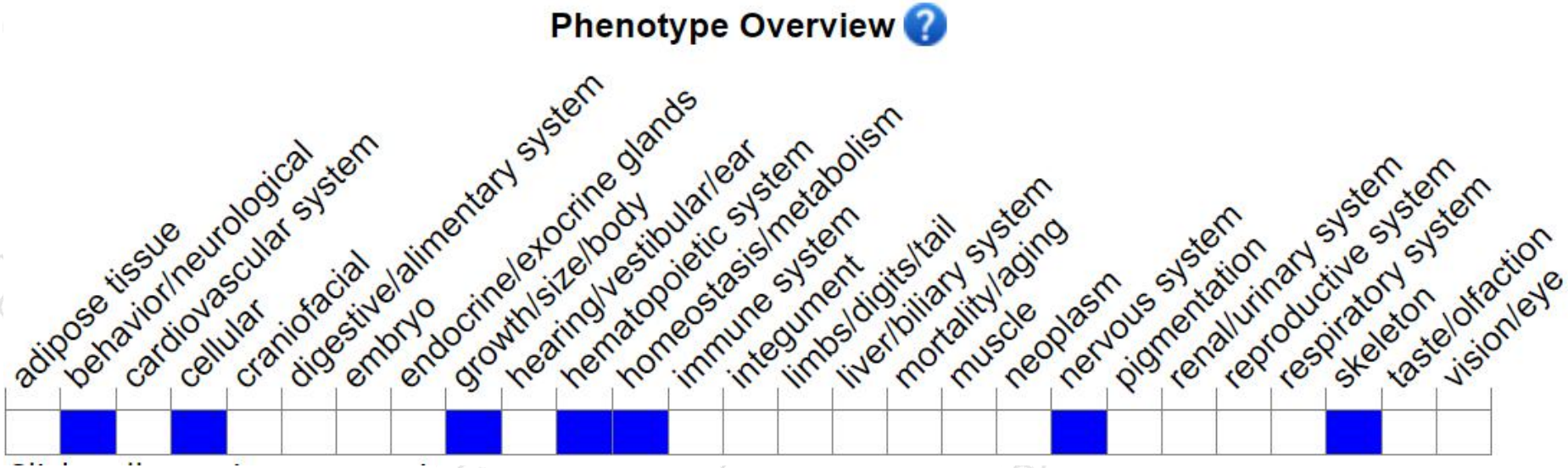


Genomic location distribution



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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