Ppp2r2b Cas9-KO Strategy

Designer: Longyun Hu

Reviewer: Rui Xiong

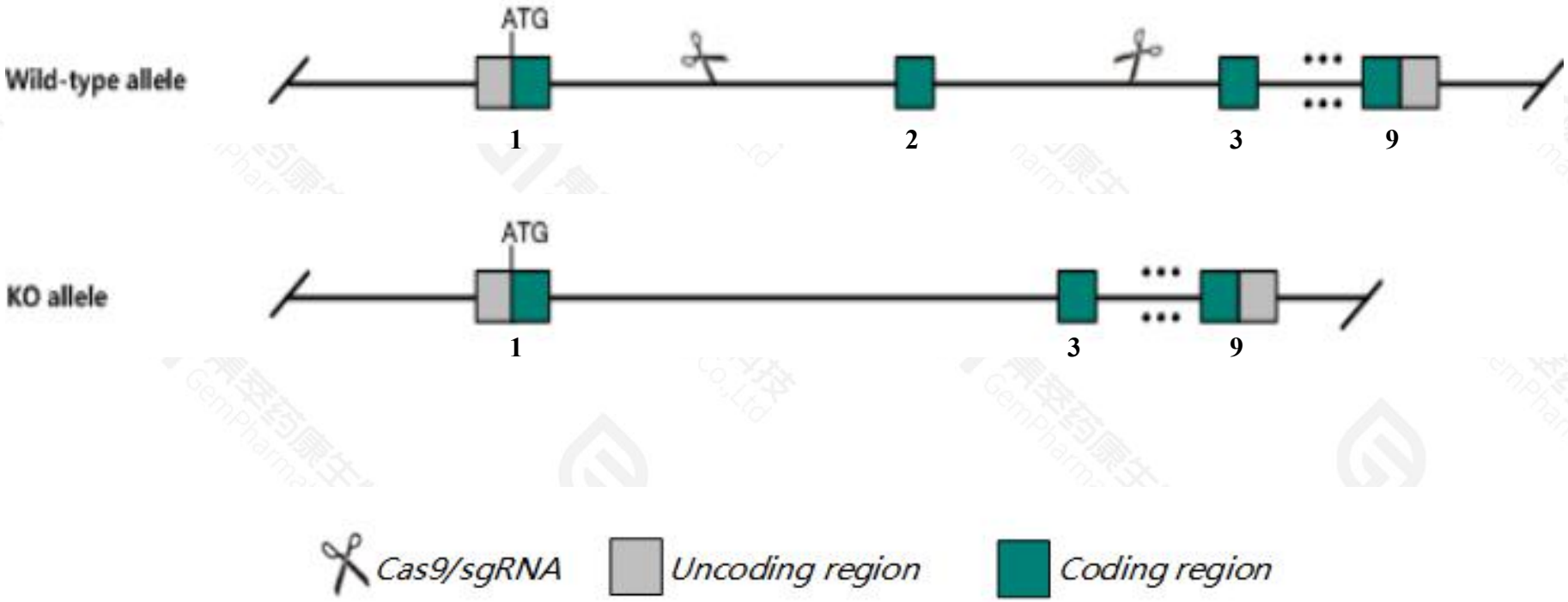
Design Date: 2021-3-12

Project Overview

Project Name	***Ppp2r2b***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ppp2r2b* gene. The schematic diagram is as follows:



Technical routes

➢ The *Ppp2r2b* gene has 8 transcripts. According to the structure of *Ppp2r2b* gene, exon2 of *Ppp2r2b-201*(ENSMUST00000025377.13) transcript is recommended as the knockout region.The region contains 98bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Ppp2r2b* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA 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.

Notice

➢ The *Ppp2r2b* gene is located on the Chr18. 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）

集萃药康 GemPharmatech

Ppp2r2b protein phosphatase 2, regulatory subunit B, beta [Mus musculus (house mouse)]

Gene ID: 72930, updated on 13-Mar-2020

Summary

Official Symbol	Ppp2r2b provided by MGI
Official Full Name	protein phosphatase 2, regulatory subunit B, beta provided by MGI
Primary source	MGI:MGI:1920180
See related	Ensembl:ENSMUSG00000024500
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	2900026H06Rik, 6330404L05Rik, E130009M08Rik, PP2A-, PP2A-PR55B, PR55-B, PR55-BETA, SCA, SCA12
Expression	Biased expression in CNS E18 (RPKM 44.9), CNS E14 (RPKM 31.0) and 9 other tissues See more
Orthologs	human all

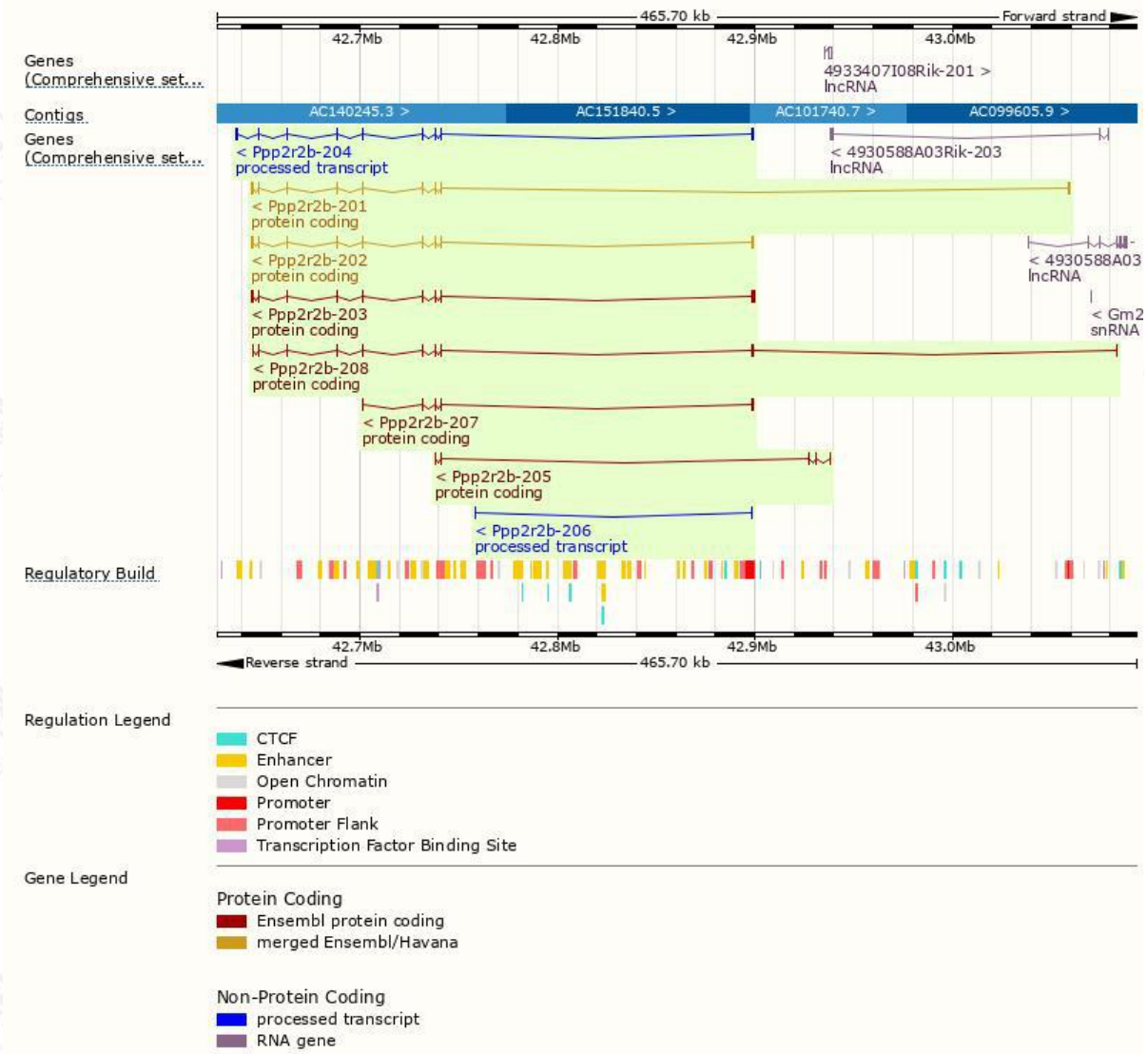
Transcript information（Ensembl）

The gene has 8 transcripts,all transcripts are shown below:

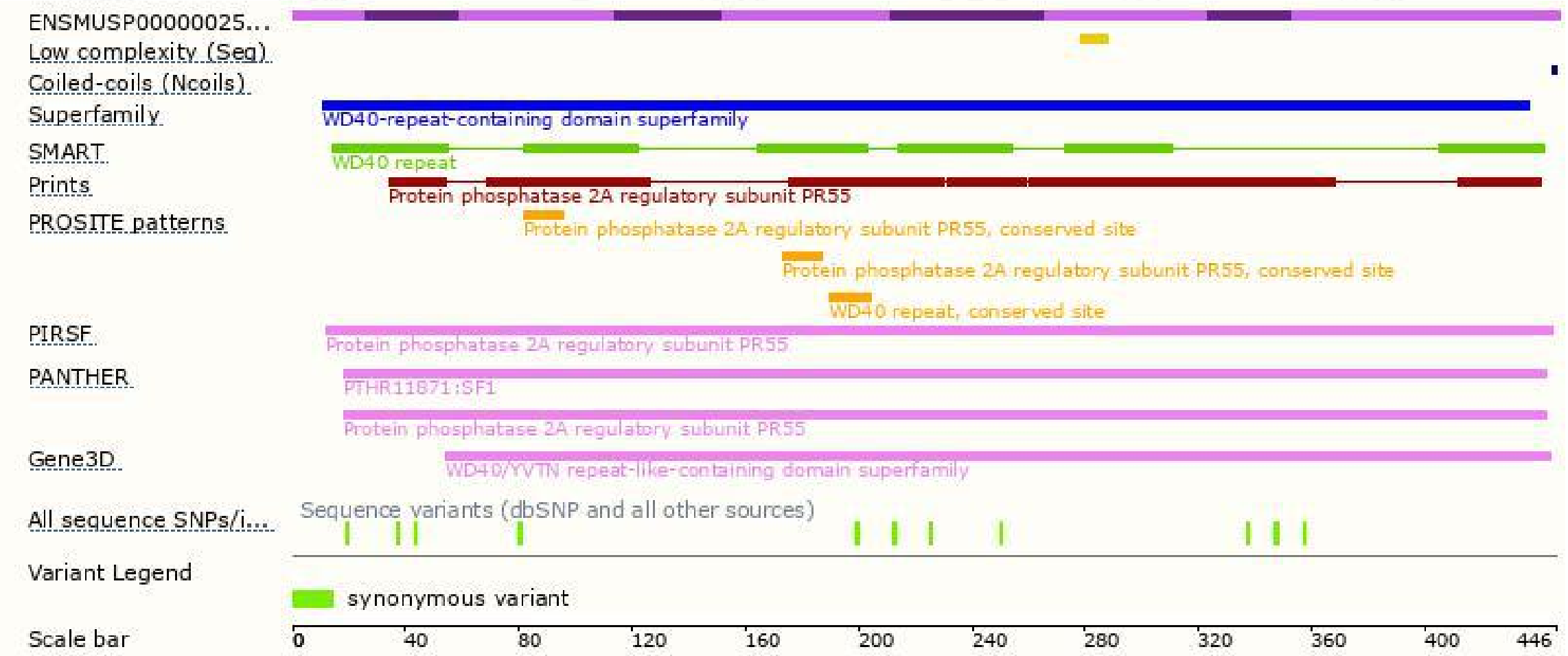
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ppp2r2b-201	ENSMUST00000025377.13	2031	446aa	Protein coding	CCDS29216	Q6ZWR4	TSL:1 GENCODE basic APPRIS P2
Ppp2r2b-202	ENSMUST00000117687.7	2271	443aa	Protein coding	-	Q6ZWR4	TSL:1 GENCODE basic APPRIS ALT1
Ppp2r2b-203	ENSMUST00000120632.1	2081	443aa	Protein coding	-	Q6ZWR4	TSL:5 GENCODE basic APPRIS ALT1
Ppp2r2b-208	ENSMUST00000239360.1	1506	501aa	Protein coding	-	-	GENCODE basic APPRIS ALT1
Ppp2r2b-207	ENSMUST00000236238.1	723	163aa	Protein coding	-	A0A494B8Z0	CDS 3' incomplete
Ppp2r2b-205	ENSMUST00000153737.1	528	79aa	Protein coding	-	A0A494B941	CDS 3' incomplete TSL:3
Ppp2r2b-204	ENSMUST00000136118.7	2237	No protein	Processed transcript	-	-	TSL:1
Ppp2r2b-206	ENSMUST00000155262.1	323	No protein	Processed transcript	-	-	TSL:2

The strategy is based on the design of *Ppp2r2b-201* transcript,the transcription is shown below:

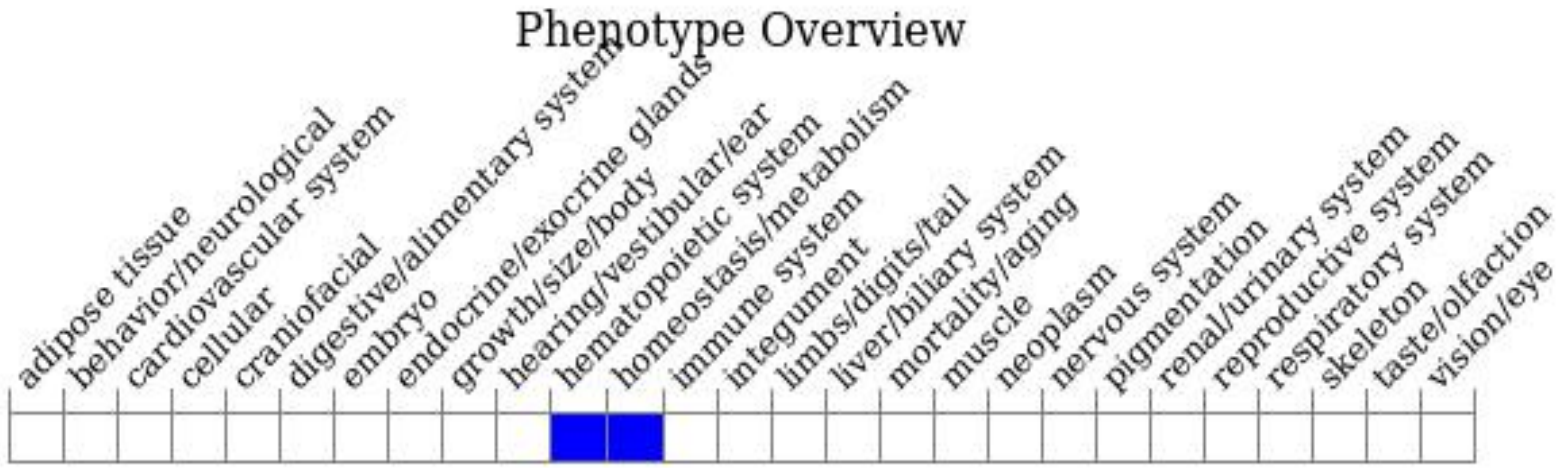
Genomic location distribution



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/).

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

Tel: 025-5864 1534

集萃药康生物科技
GemPharmatech Co.,Ltd