Ppp1r10 Cas9-CKO Strategy

Designer: Huimin Su

Reviewer: Ruiuri Zhang

Design Date: 2020-8-10

集萃药康 GemPharmatech

GemPharmatech Co.,Ltd

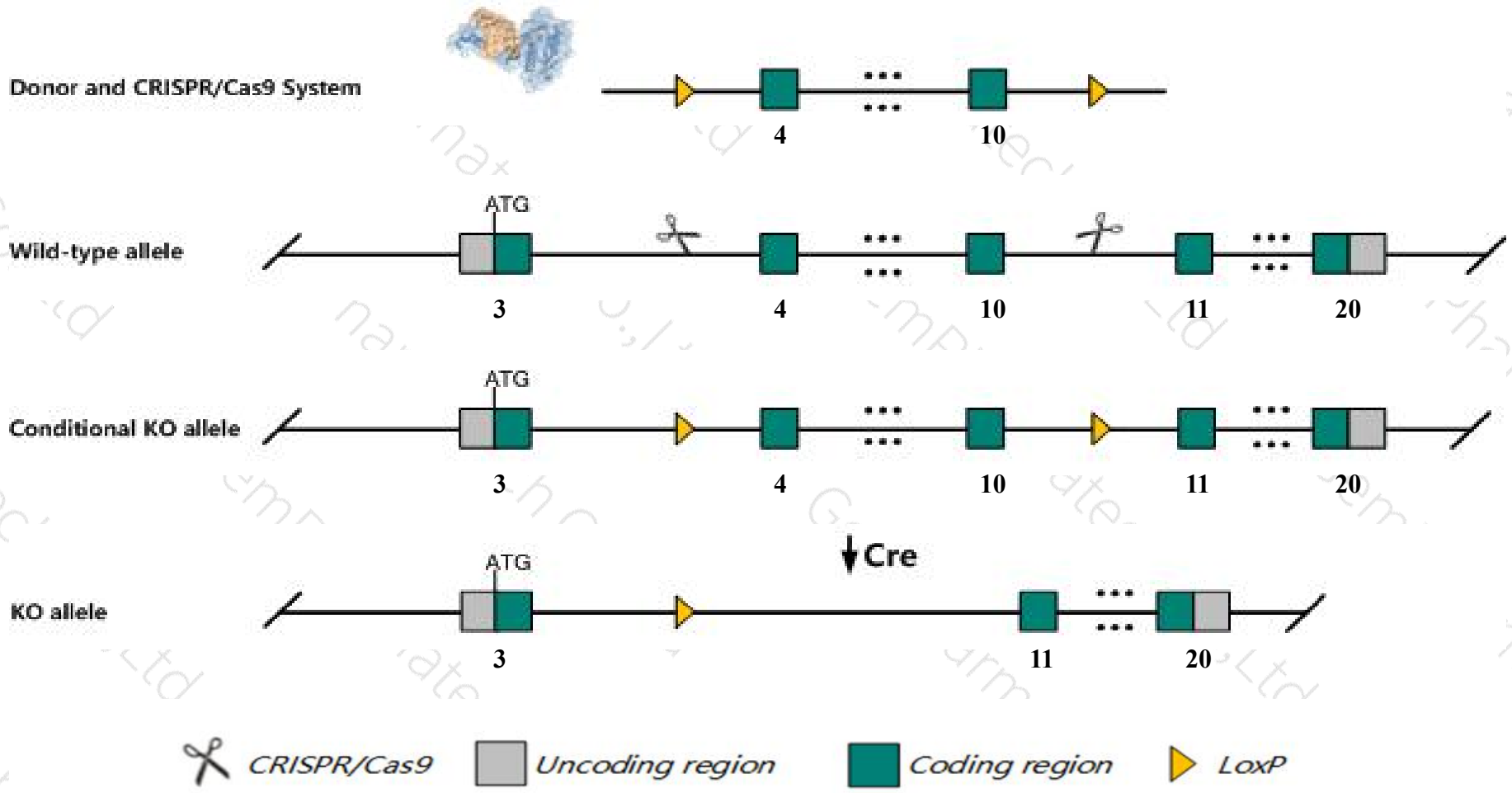
Project Overview

Project Name	***Ppp1r10***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

集萃药康 GemPharmatech

This model will use CRISPR/Cas9 technology to edit the *Ppp1r10* gene. The schematic diagram is as follows:



Technical routes

➢ The *Ppp1r10* gene has 7 transcripts. According to the structure of *Ppp1r10* gene, exon4-exon10 of *Ppp1r10-202*(ENSMUST00000087211.8) transcript is recommended as the knockout region.The region contains 746bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Ppp1r10* 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 transgenic gene disruption exhibit embryonic lethality at E7.

➢ The *Ppp1r10* gene is located on the Chr17. 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）

集萃药康 GemPharmatech

Ppp1r10 protein phosphatase 1, regulatory subunit 10 [*Mus musculus* (house mouse)]

Gene ID: 52040, updated on 26-Jun-2020

Summary

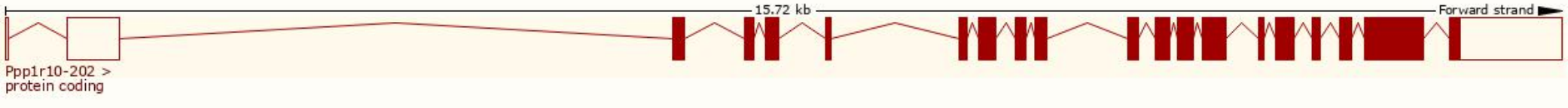
Official Symbol	Ppp1r10 provided by MGI
Official Full Name	protein phosphatase 1, regulatory subunit 10 provided by MGI
Primary source	MGI:MGI:1289273
See related	Ensembl:ENSMUSG00000039220
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Fb19; Cat53; Pnuts; D17Ertd808e; 2610025H06Rik
Expression	Ubiquitous expression in testis adult (RPKM 26.6), thymus adult (RPKM 16.2) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

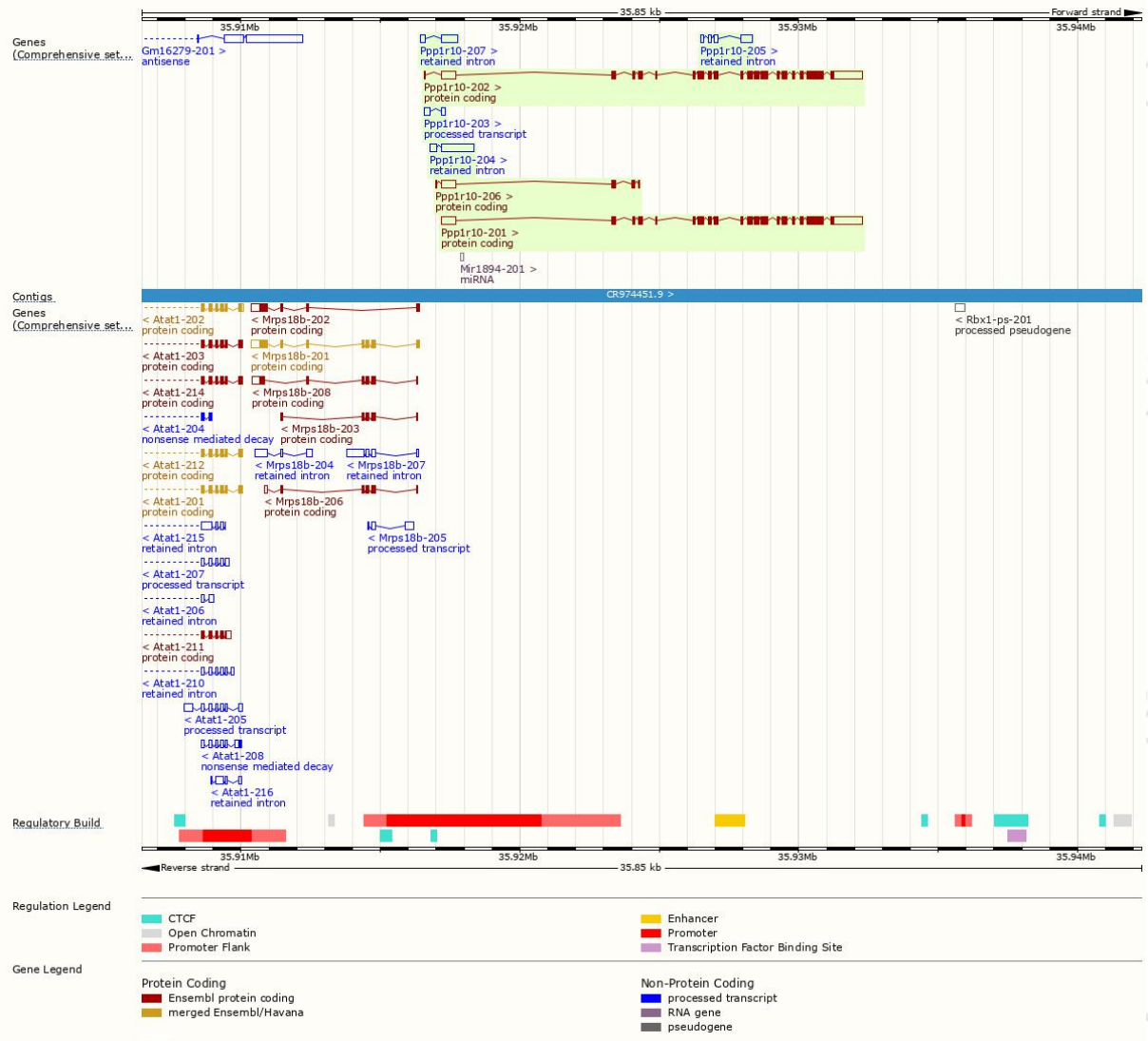
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ppp1r10-206	ENSMUST00000151664.7	807	89aa	Protein coding	-	S4R164	CDS 3' incomplete TSL:3
Ppp1r10-202	ENSMUST00000087211.8	4255	888aa	Protein coding	CCDS50098	Q80W00	TSL:5 GENCODE basic APPRIS P1
Ppp1r10-201	ENSMUST00000087210.6	4222	888aa	Protein coding	CCDS50098	Q80W00	TSL:1 GENCODE basic APPRIS P1
Ppp1r10-203	ENSMUST00000130124.1	336	No protein	Processed transcript	-	-	TSL:3
Ppp1r10-204	ENSMUST00000133641.1	1385	No protein	Retained intron	-	-	TSL:1
Ppp1r10-207	ENSMUST00000154856.1	732	No protein	Retained intron	-	-	TSL:2
Ppp1r10-205	ENSMUST00000151375.1	719	No protein	Retained intron	-	-	TSL:5

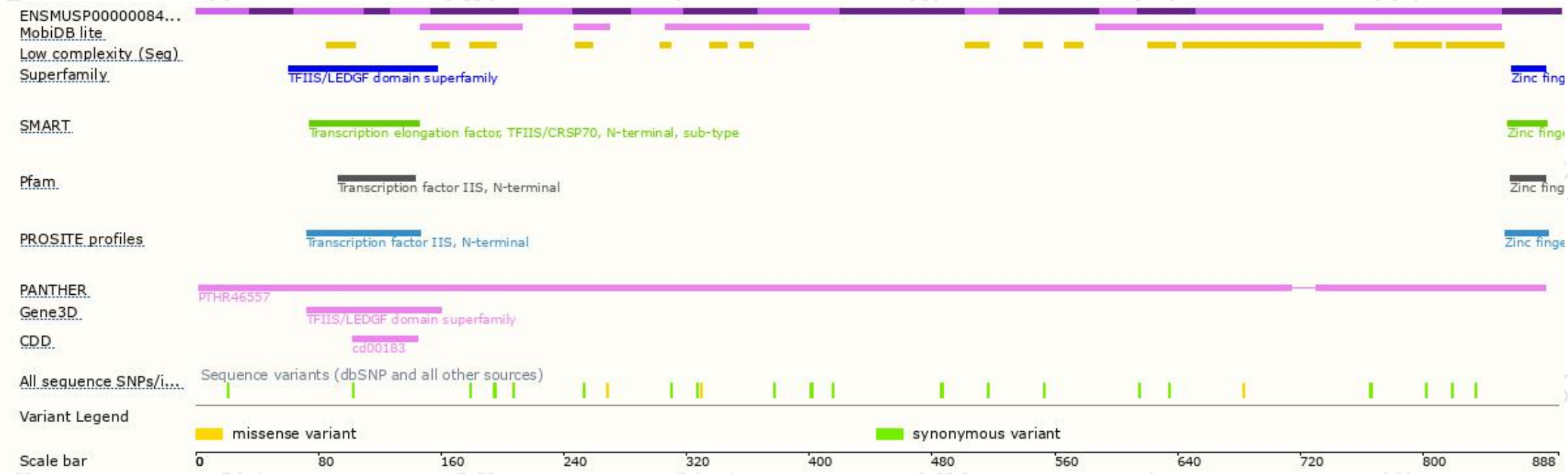
The strategy is based on the design of *Ppp1r10-202* transcript,the transcription is shown below:



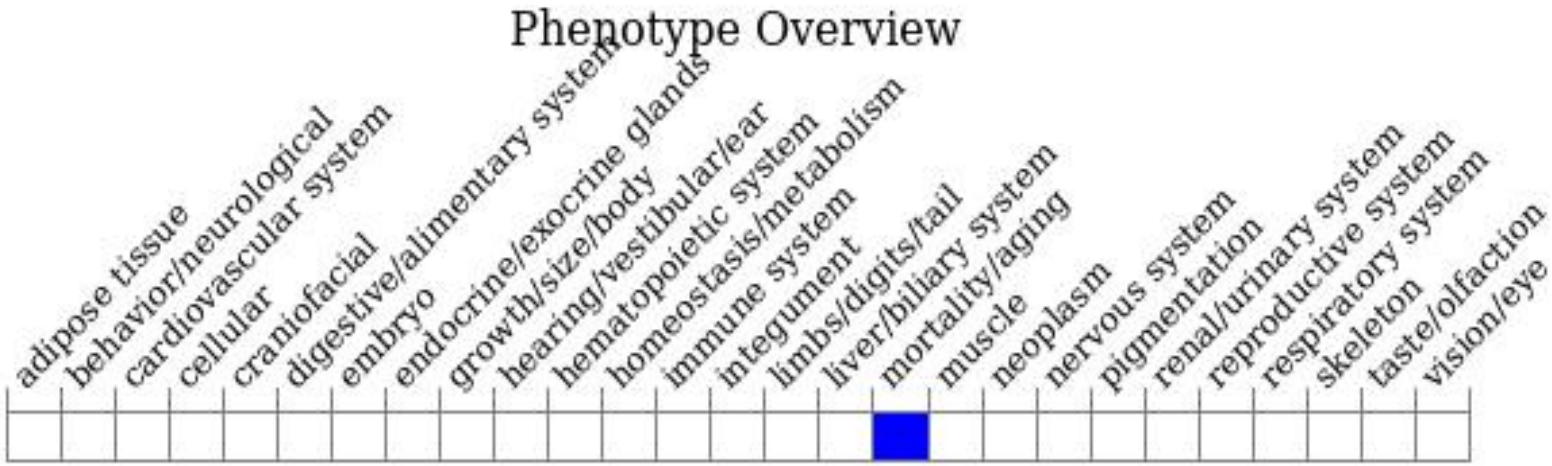
Genomic location distribution



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 transgenic gene disruption exhibit embryonic lethality at E7.

集萃药康
GemPharmatech

If you have any questions, you are welcome to inquire.
Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd