

Prrc2b Cas9-CKO Strategy

Designer:

Ruirui Zhang

Reviewer

Huimin Su

Design Date:

2019-8-20

Project Overview

Project Name

Prrc2b

Project type

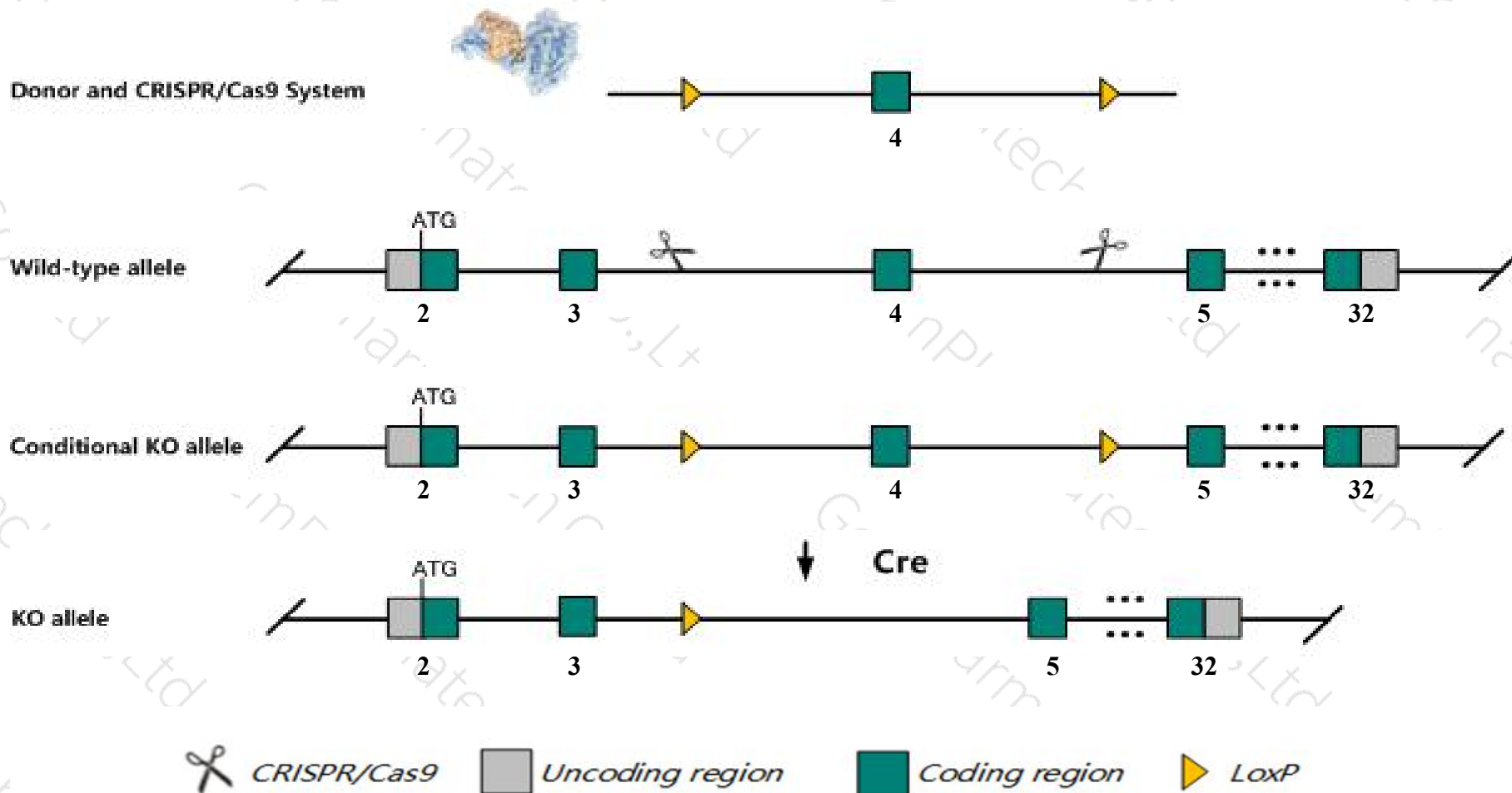
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Prrc2b* gene. The schematic diagram is as follows:



Technical routes

- The *Prirc2b* gene has 10 transcripts. According to the structure of *Prirc2b* gene, exon4 of *Prirc2b*-202 (ENSMUST00000069817.14) transcript is recommended as the knockout region. The region contains 103bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Prirc2b* 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

- The *Prrc2b* gene is located on the Chr2. 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.
- Transcript *Prrc2b*-204,210 may not be affected.
- 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)

Prrc2b proline-rich coiled-coil 2B [*Mus musculus* (house mouse)]

Gene ID: 227723, updated on 12-Aug-2019

Summary

Official Symbol Prrc2b provided by [MGI](#)

Official Full Name proline-rich coiled-coil 2B provided by [MGI](#)

Primary source [MGI:MGI:1923304](#)

See related [Ensembl:ENSMUSG00000039262](#)

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 Bat2l; Bat2l1; AI173903; mKIAA0515; D430039P21; 5830434P21Rik

Expression Ubiquitous expression in whole brain E14.5 (RPKM 35.1), ovary adult (RPKM 32.2) and 28 other tissues [See more](#)

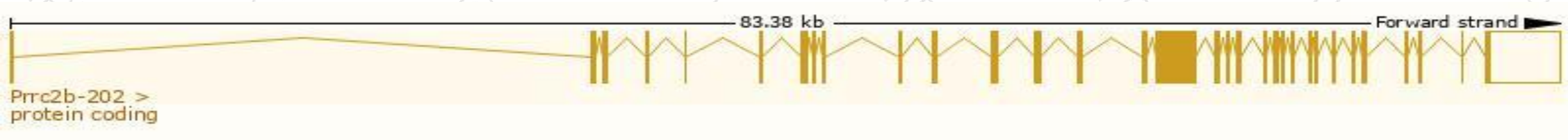
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

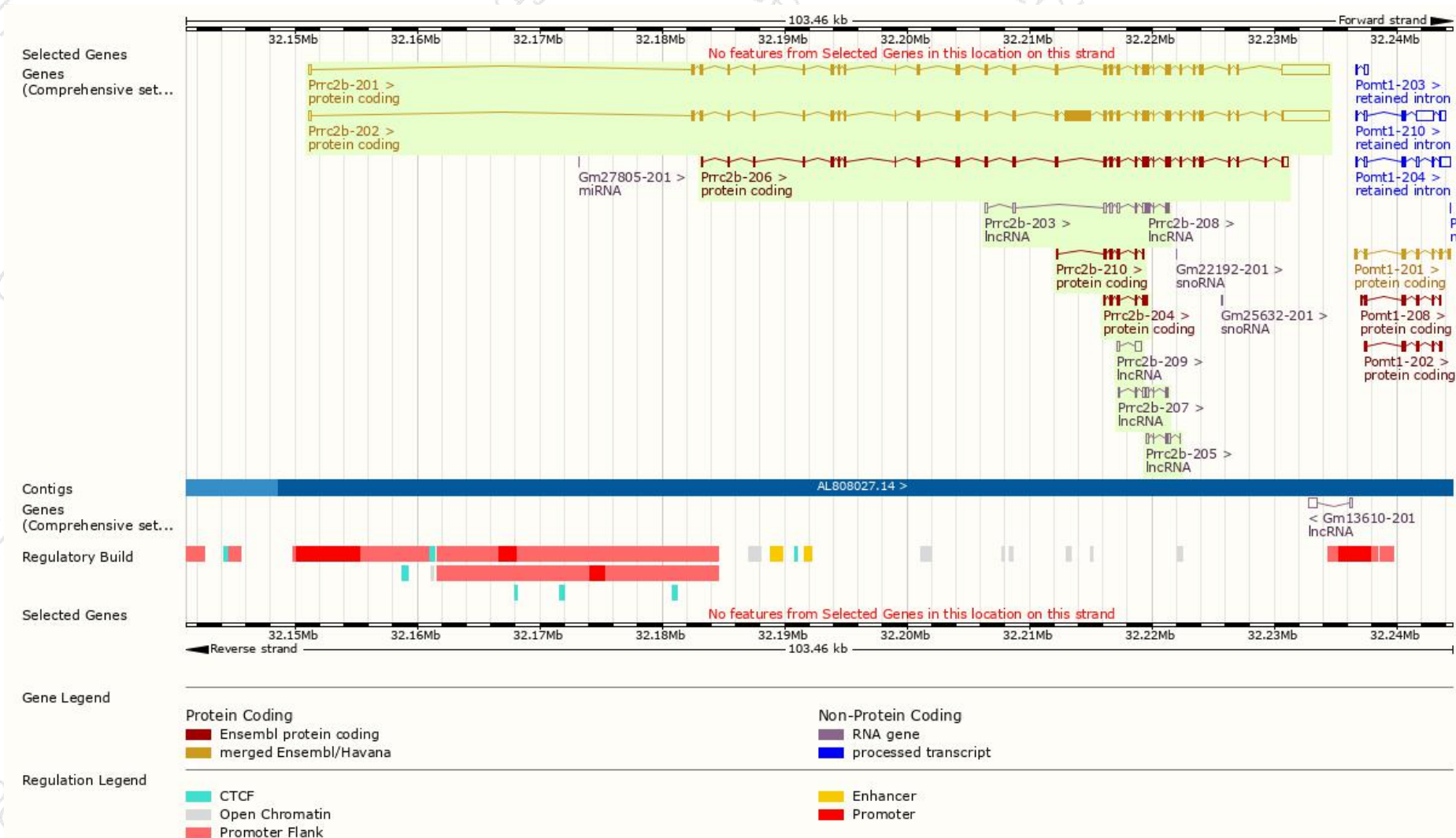
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Prrc2b-202	ENSMUST00000069817.14	10671	2230aa	Protein coding	CCDS50565	F8WHT3	TSL:1 GENCODE basic APPRIS ALT2
Prrc2b-201	ENSMUST00000036691.13	8612	1486aa	Protein coding	CCDS15907	Q7TPM1	TSL:1 GENCODE basic APPRIS P3
Prrc2b-206	ENSMUST00000132459.7	4837	1472aa	Protein coding	-	F7AYW2	CDS 5' incomplete TSL:1
Prrc2b-210	ENSMUST00000156313.7	751	250aa	Protein coding	-	F6V431	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:3
Prrc2b-204	ENSMUST00000128936.1	696	232aa	Protein coding	-	F6Q3E1	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:3
Prrc2b-203	ENSMUST00000123270.7	1258	No protein	Processed transcript	-	-	TSL:3
Prrc2b-207	ENSMUST00000140015.7	737	No protein	Processed transcript	-	-	TSL:3
Prrc2b-205	ENSMUST00000129626.7	623	No protein	Processed transcript	-	-	TSL:2
Prrc2b-209	ENSMUST00000142219.1	604	No protein	Processed transcript	-	-	TSL:5
Prrc2b-208	ENSMUST00000141053.1	383	No protein	Processed transcript	-	-	TSL:3

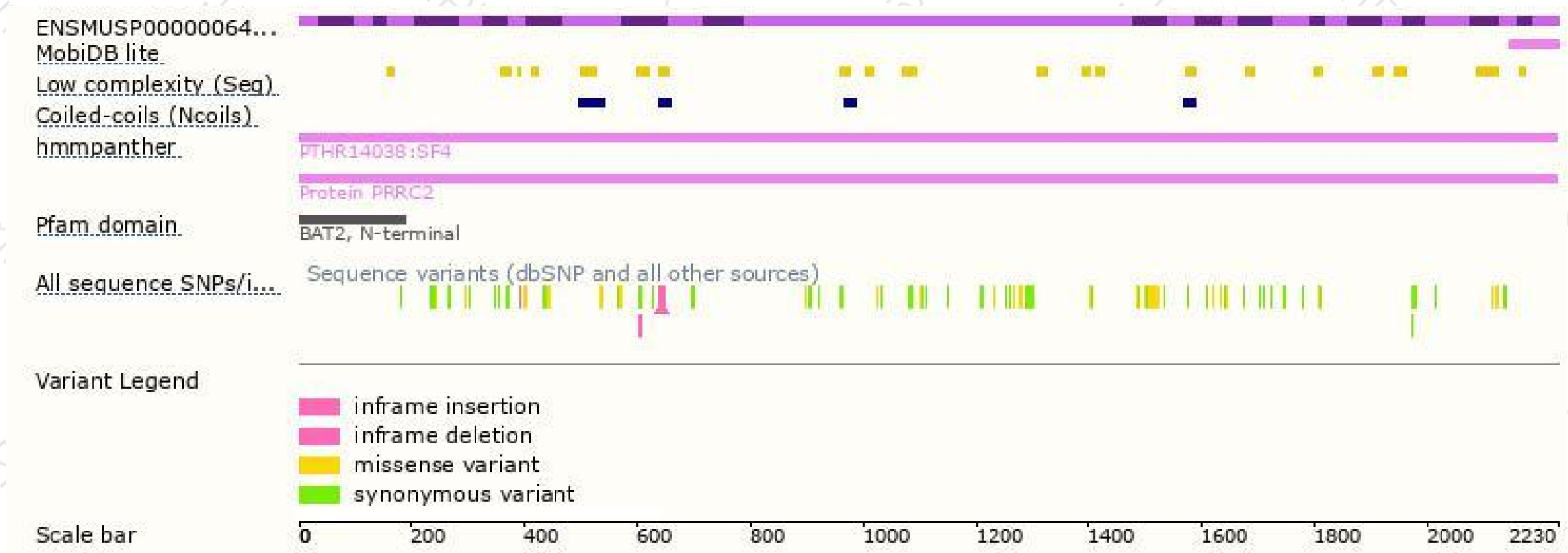
The strategy is based on the design of *Prrc2b-202* transcript,The transcription is shown below



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/>).

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

Tel: 400-9660890

