

Prpf19 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Prpf19

Project type

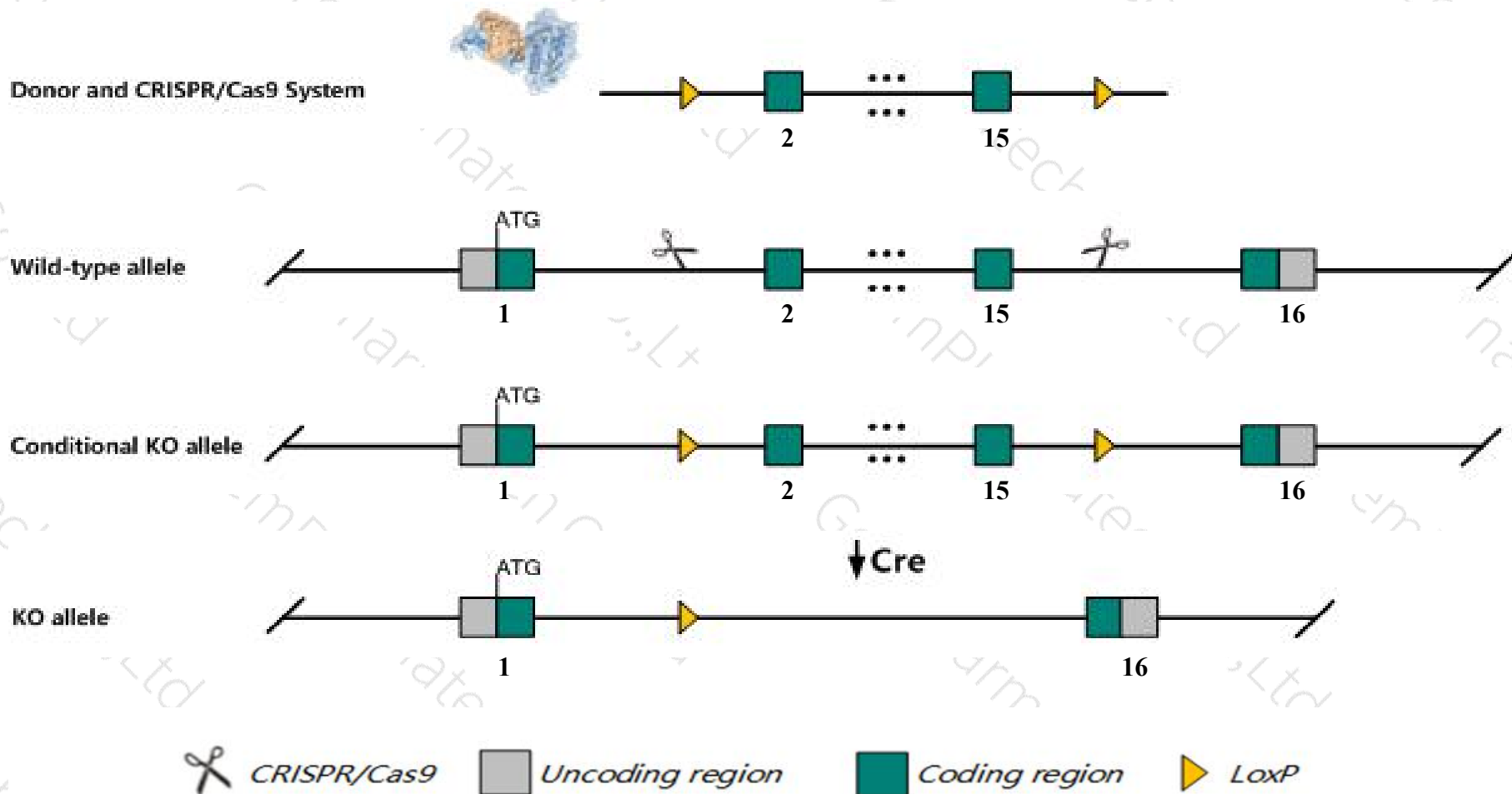
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Prpf19* gene. The schematic diagram is as follows:



- The *Prpf19* gene has 8 transcripts. According to the structure of *Prpf19* gene, exon2-exon15 of *Prpf19*-203 (ENSMUST00000179297.2) transcript is recommended as the knockout region. The region contains most of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Prpf19* 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.

- According to the existing MGI data, Mice homozygous for a null allele die prior to implantation and have defective cell proliferation.
- The *Prpf19* gene is located on the Chr19. 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)

Prpf19 pre-mRNA processing factor 19 [Mus musculus (house mouse)]

Gene ID: 28000, updated on 7-Apr-2019

Summary



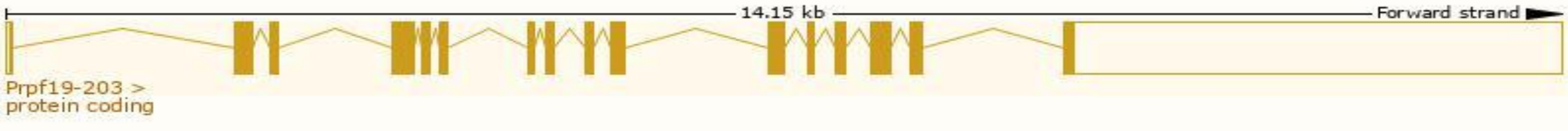
Official Symbol	Prpf19 provided by MGI
Official Full Name	pre-mRNA processing factor 19 provided by MGI
Primary source	MGI:MGI:106247
See related	Ensembl:ENSMUSG000000024735
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AA617263, AL024362, D19Wsu55e, NMP200, PSO4, Prp19, Snev
Expression	Ubiquitous expression in ovary adult (RPKM 53.7), adrenal adult (RPKM 44.5) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

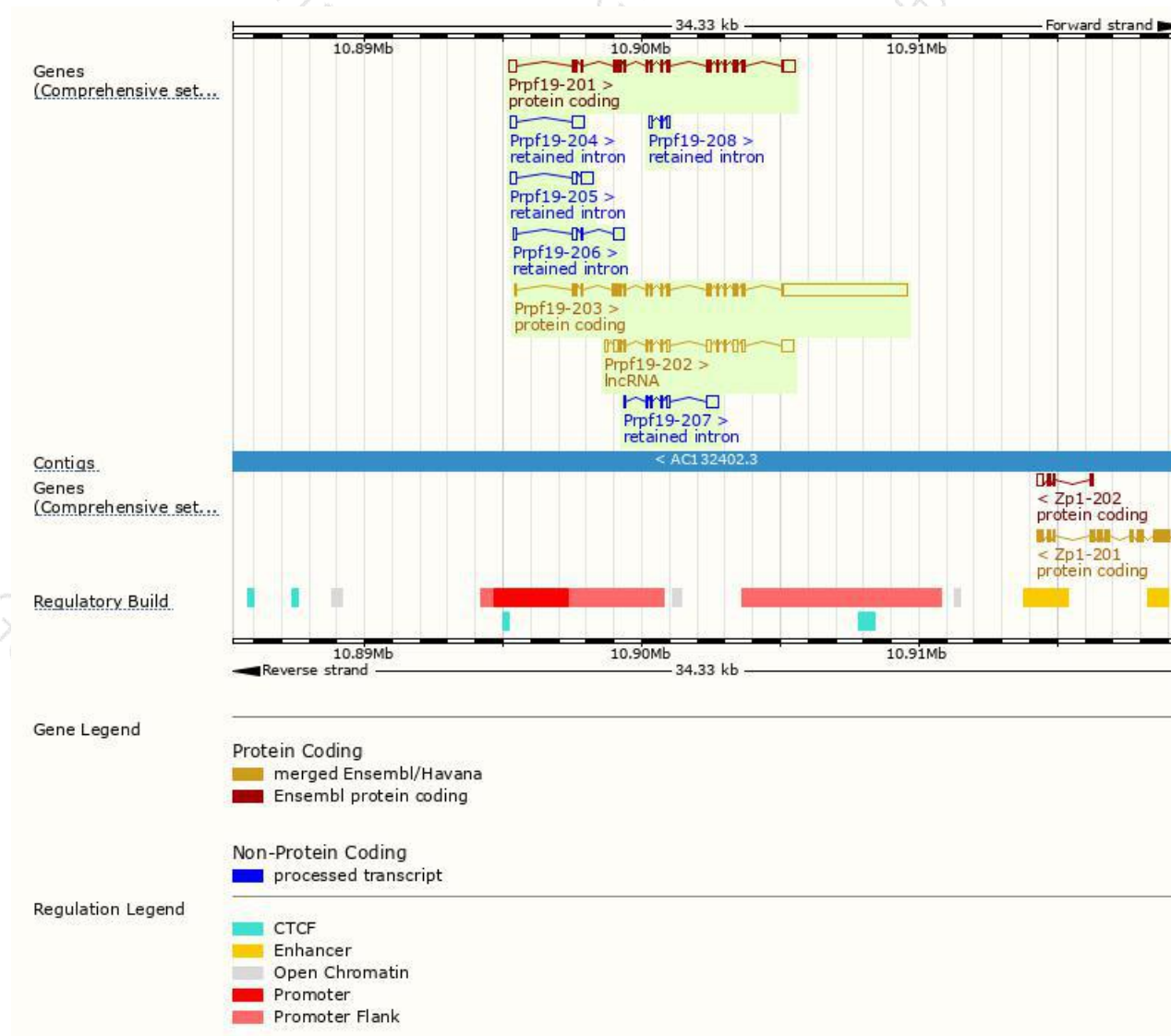
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Prpf19-203	ENSMUST00000179297.2	6035	523aa	Protein coding	CCDS57135	Q99KP6	TSL:1 GENCODE basic
Prpf19-201	ENSMUST00000025642.13	2134	504aa	Protein coding	CCDS79687	Q99KP6	TSL:1 GENCODE basic APPRIS P1
Prpf19-207	ENSMUST00000191092.6	784	No protein	Retained intron	-	-	TSL:2
Prpf19-205	ENSMUST00000187751.6	781	No protein	Retained intron	-	-	TSL:2
Prpf19-206	ENSMUST00000190275.1	708	No protein	Retained intron	-	-	TSL:1
Prpf19-204	ENSMUST00000186416.1	601	No protein	Retained intron	-	-	TSL:2
Prpf19-208	ENSMUST00000191552.1	260	No protein	Retained intron	-	-	TSL:5
Prpf19-202	ENSMUST00000178868.7	1758	No protein	lncRNA	-	-	TSL:1

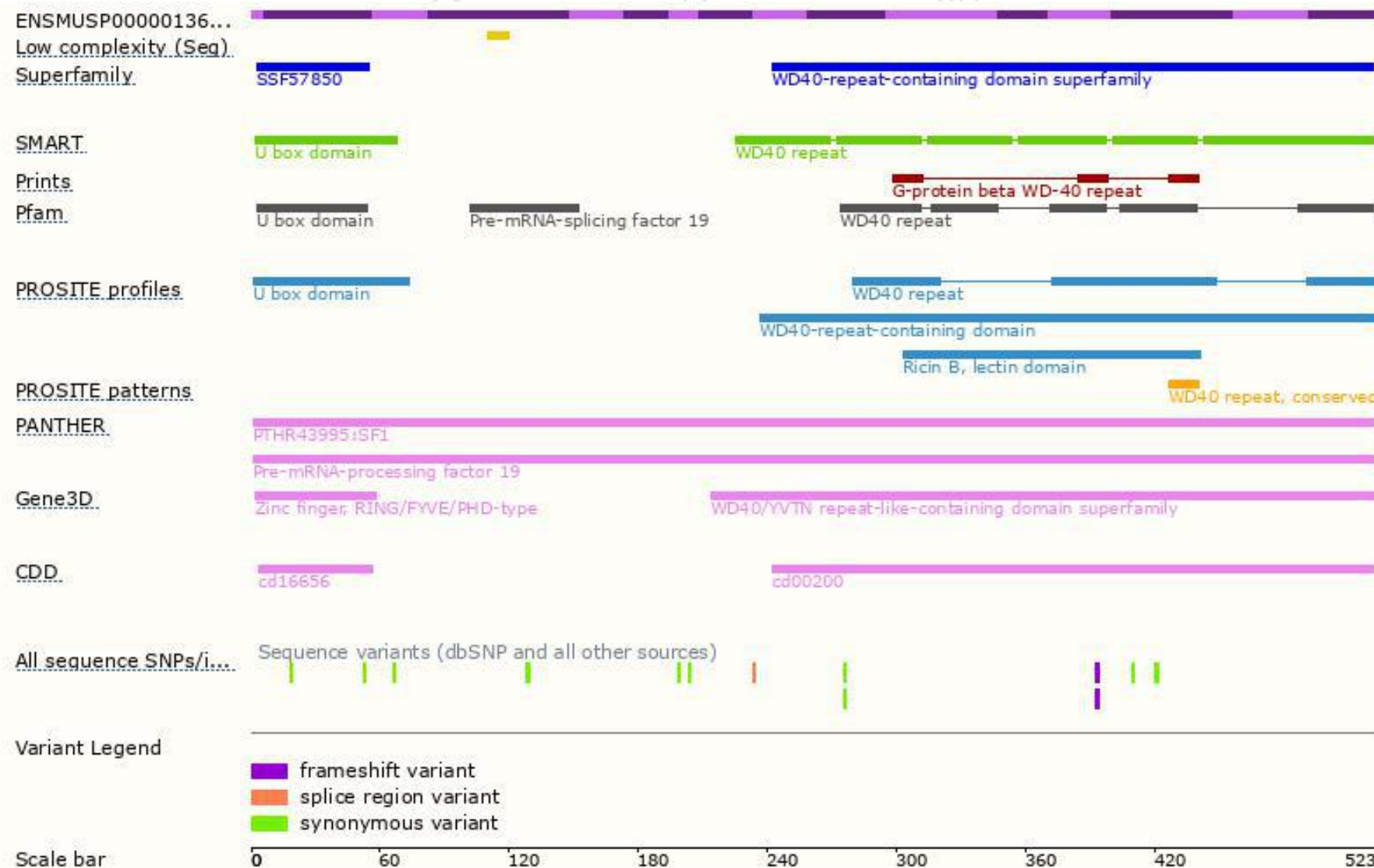
The strategy is based on the design of *Prpf19-203* transcript,The transcription is shown below



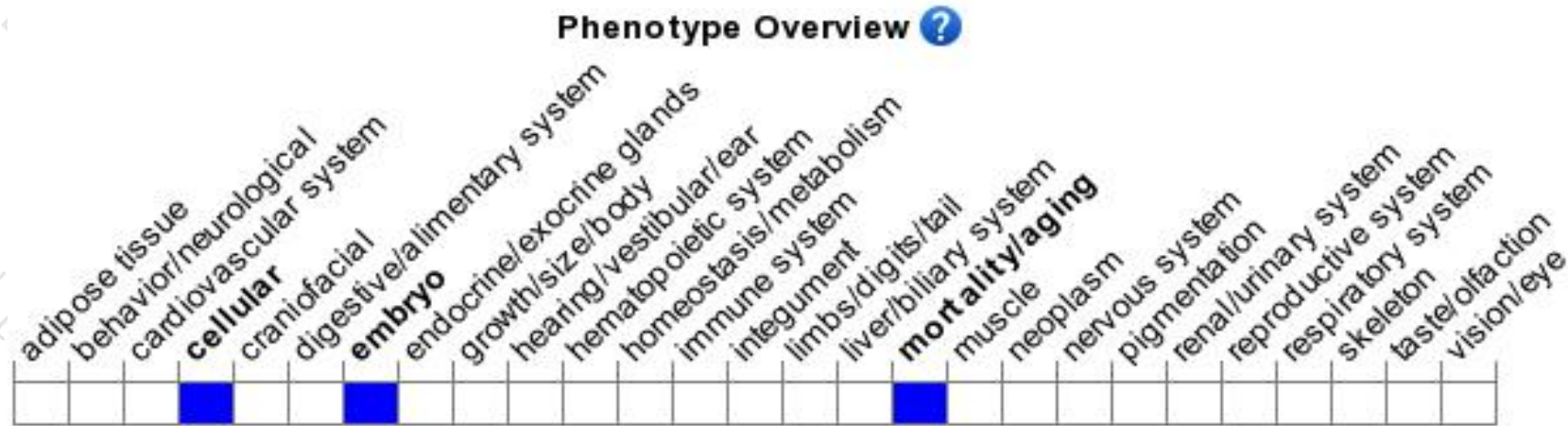
Genomic location distribution



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 null allele die prior to implantation and have defective cell proliferation.

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

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