

# *Prpf39* Cas9-CKO Strategy

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# Project Overview

**Project Name**

*Prpf39*

**Project type**

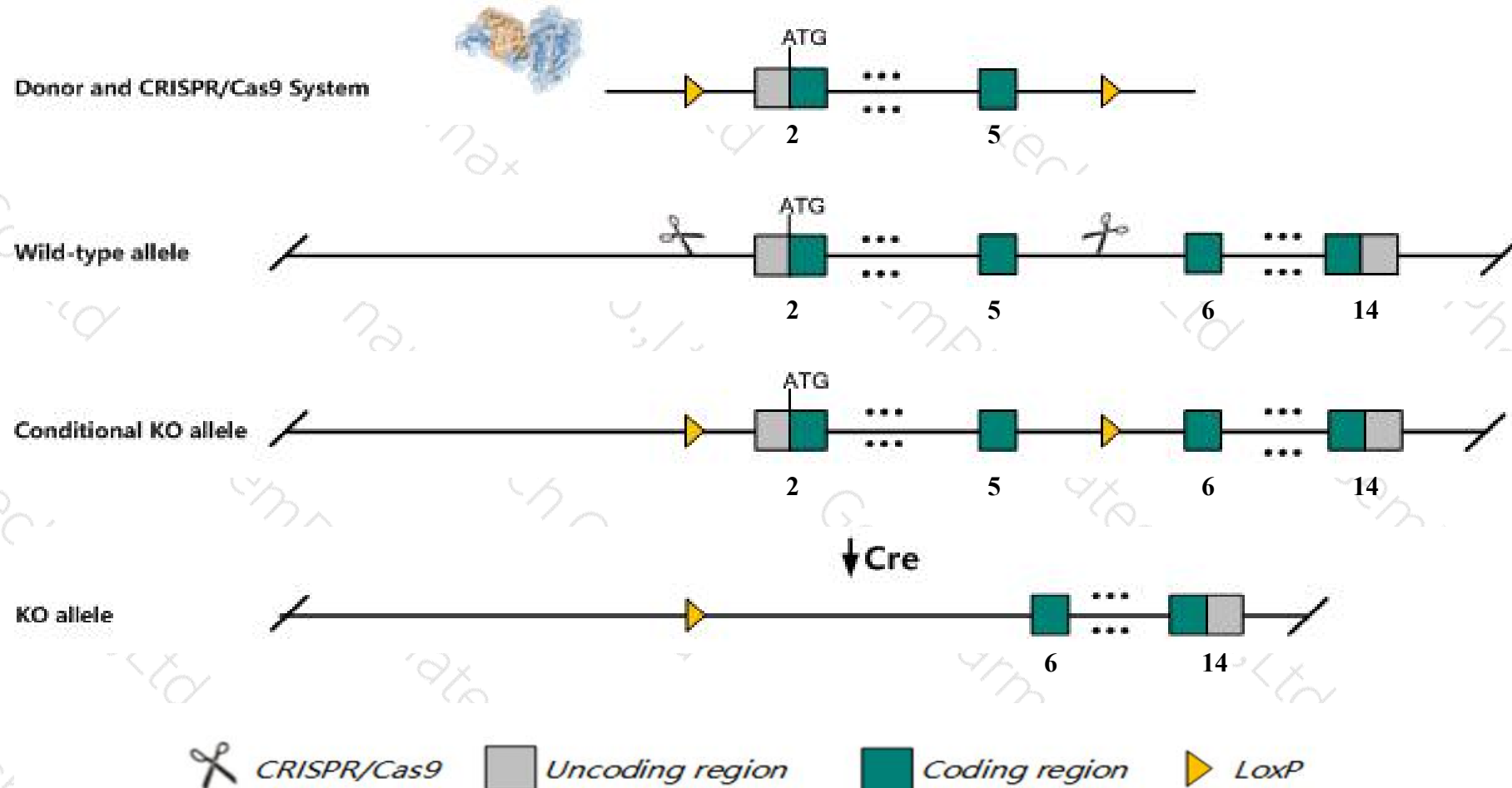
**Cas9-CKO**

**Strain background**

**C57BL/6J**

# Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Prpf39* gene. The schematic diagram is as follows:



# Technical routes

- The *Prpf39* gene has 10 transcripts. According to the structure of *Prpf39* gene, exon2-exon5 of *Prpf39-201* (ENSMUST00000120580.7) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Prpf39* gene. The brief process is as follows: CRISPR/Cas9 system and Donor were microinjected into the fertilized eggs of C57BL/6J 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/6J 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 *Prpf39* gene is located on the Chr12. 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)

## Prpf39 pre-mRNA processing factor 39 [Mus musculus (house mouse)]

Gene ID: 328110, updated on 20-Mar-2020

### Summary



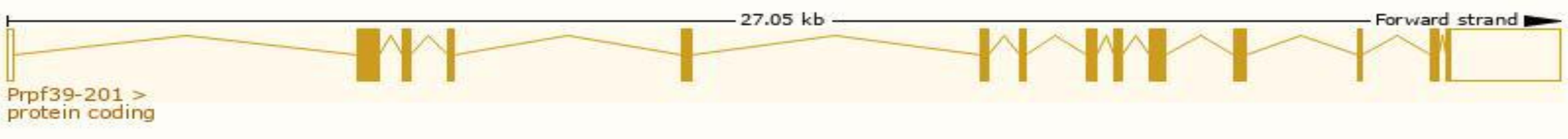
<b>Official Symbol</b>	Prpf39 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	pre-mRNA processing factor 39 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:104602</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000035597</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	VALIDATED
<b>Organism</b>	<a href="#">Mus musculus</a>
<b>Lineage</b>	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
<b>Also known as</b>	Srcl1
<b>Expression</b>	Broad expression in CNS E18 (RPKM 13.3), CNS E11.5 (RPKM 12.7) and 25 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

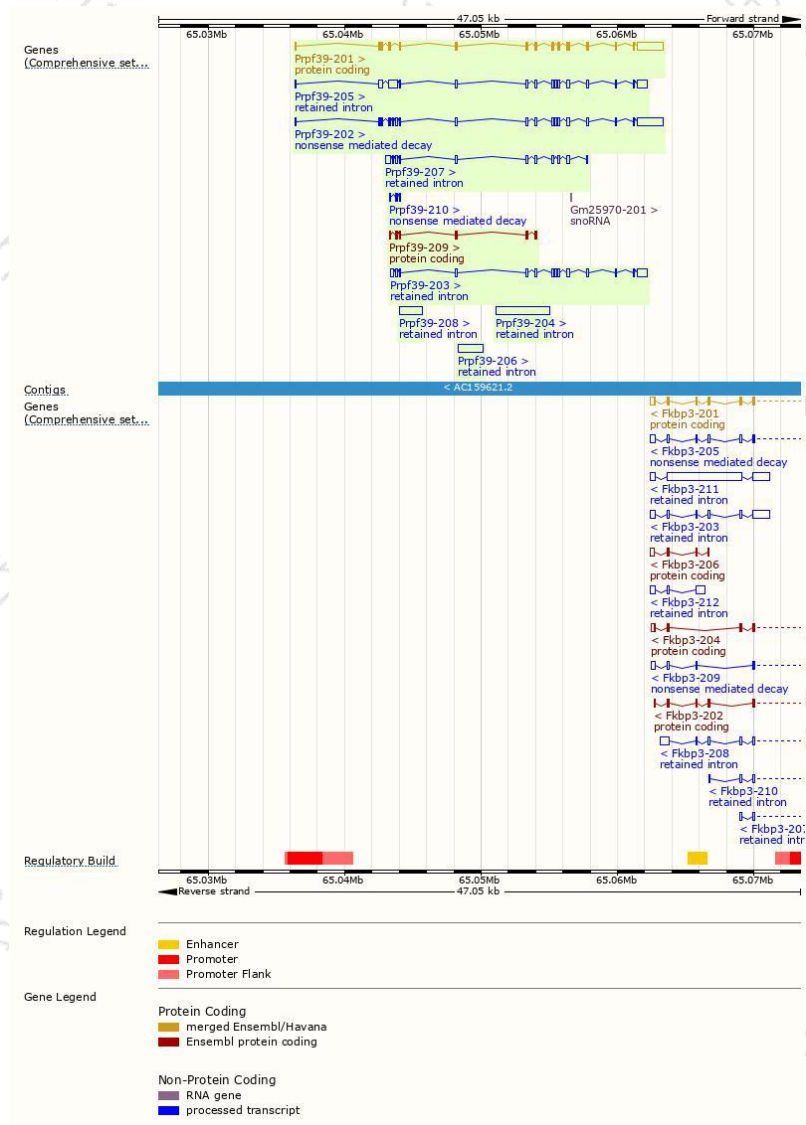
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Prpf39-201	<a href="#">ENSMUST00000120580.7</a>	4069	<a href="#">665aa</a>	Protein coding	<a href="#">CCDS25939</a>	<a href="#">E9QJV4</a>	TSL:2 GENCODE basic APPRIS P1
Prpf39-209	<a href="#">ENSMUST00000223315.1</a>	732	<a href="#">208aa</a>	Protein coding	-	<a href="#">A0A1Y7VM45</a>	CDS 3' incomplete TSL:3
Prpf39-202	<a href="#">ENSMUST00000129956.1</a>	4314	<a href="#">150aa</a>	Nonsense mediated decay	-	<a href="#">D6RDR5</a>	TSL:1
Prpf39-210	<a href="#">ENSMUST00000223341.1</a>	297	<a href="#">37aa</a>	Nonsense mediated decay	-	<a href="#">A0A1Y7VP14</a>	CDS 5' incomplete TSL:5
Prpf39-204	<a href="#">ENSMUST00000220729.1</a>	3917	No protein	Retained intron	-	-	TSL:NA
Prpf39-205	<a href="#">ENSMUST00000220798.1</a>	3457	No protein	Retained intron	-	-	TSL:2
Prpf39-203	<a href="#">ENSMUST00000220462.1</a>	2777	No protein	Retained intron	-	-	TSL:1
Prpf39-206	<a href="#">ENSMUST00000221221.1</a>	1810	No protein	Retained intron	-	-	TSL:NA
Prpf39-207	<a href="#">ENSMUST00000222154.1</a>	1779	No protein	Retained intron	-	-	TSL:1
Prpf39-208	<a href="#">ENSMUST00000223105.1</a>	1692	No protein	Retained intron	-	-	TSL:NA

The strategy is based on the design of *Prpf39-201* transcript,the transcription is shown below:

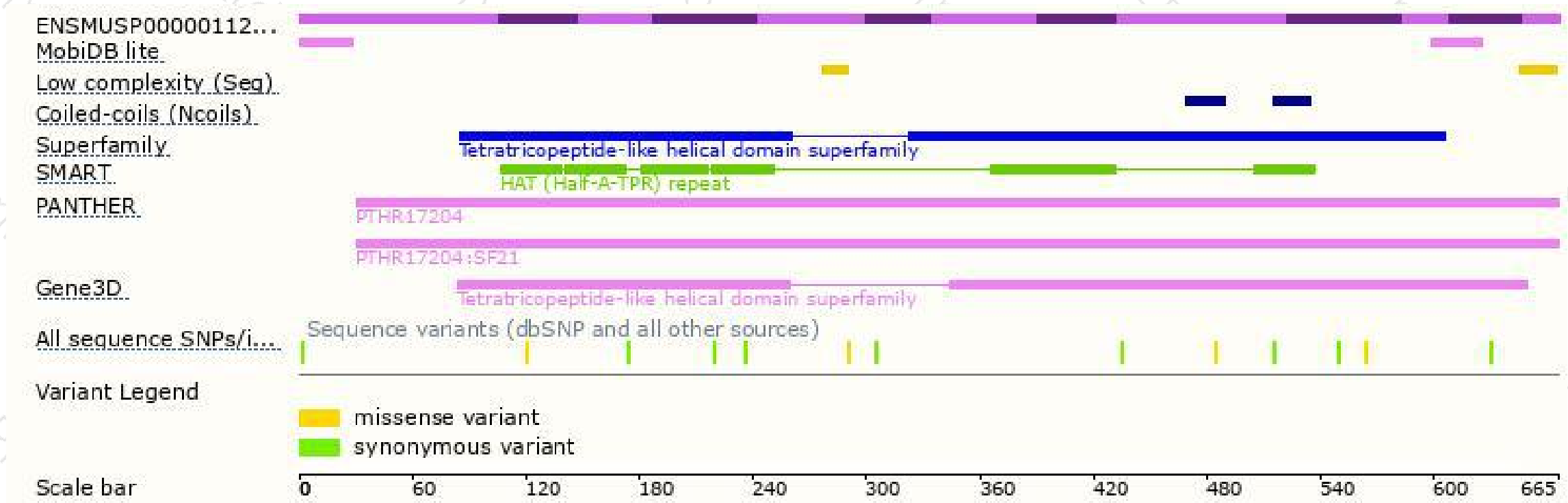


# Genomic location distribution





# Protein domain



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

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