Mprip Cas9-CKO Strategy

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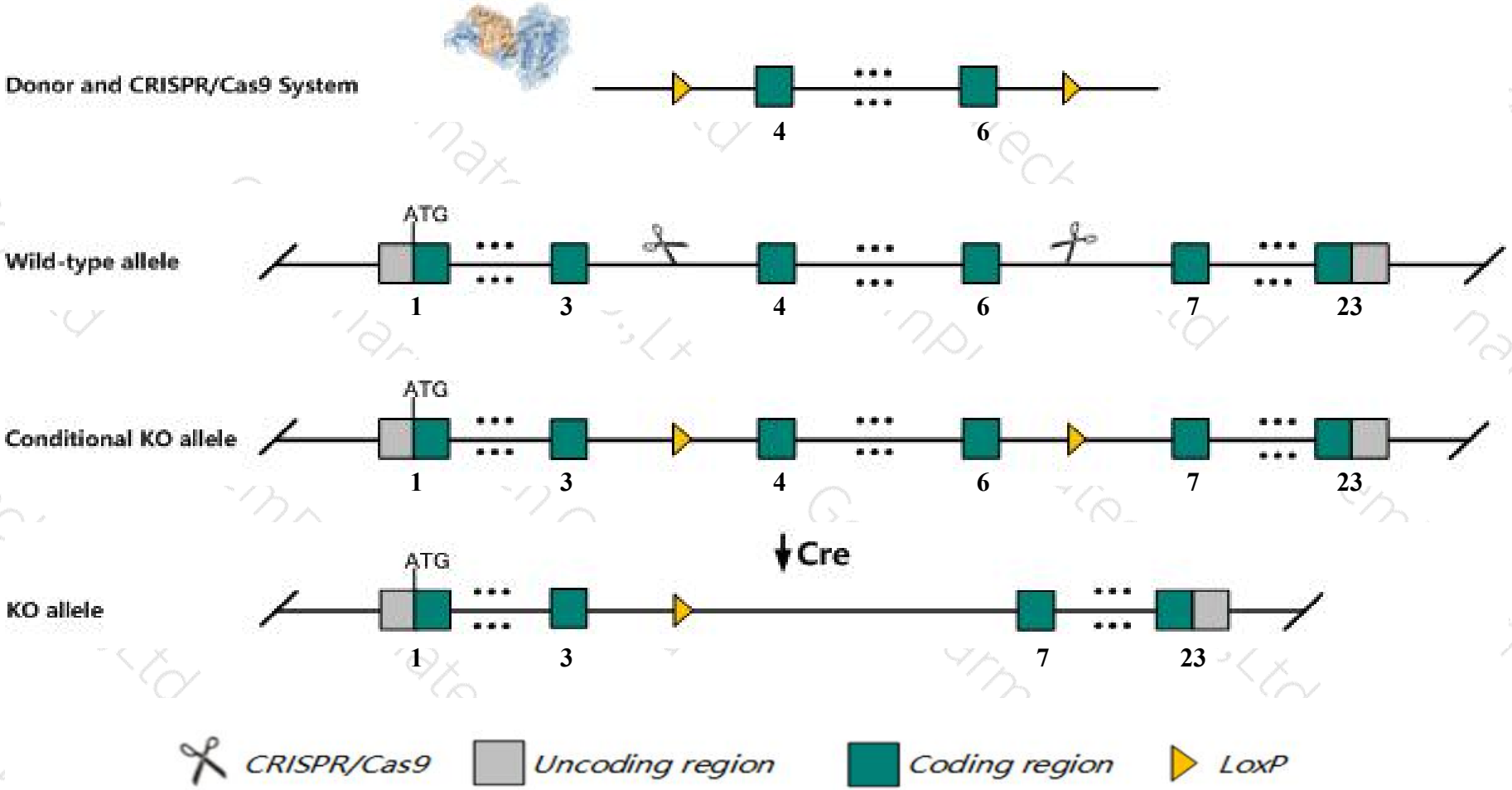
Project Overview

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

Conditional Knockout strategy

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



Technical routes

- The *Mprip* gene has 9 transcripts. According to the structure of *Mprip* gene, exon4-exon6 of *Mprip-204* (ENSMUST00000116371.7) transcript is recommended as the knockout region.The region contains 472bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Mprip* 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 *Mprip* gene is located on the Chr11. 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）

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Mprip myosin phosphatase Rho interacting protein [Mus musculus (house mouse)]

Gene ID: 26936, updated on 10-Mar-2019

Summary

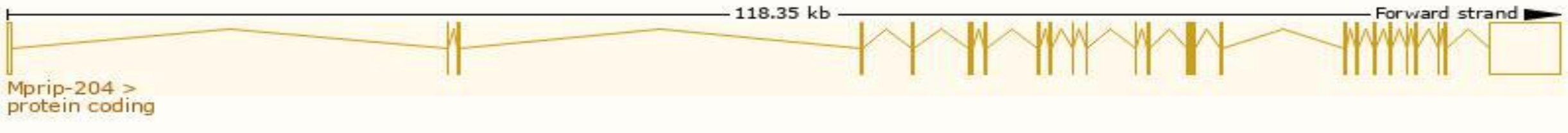
Official Symbol	Mprip provided by MGI
Official Full Name	myosin phosphatase Rho interacting protein provided by MGI
Primary source	MGI:MGI:1349438
See related	Ensembl:ENSMUSG00000005417
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9530046C02, AA536749, AI647711, C76423, Gm34094, RIP3, Rhoip3, mKIAA0864, p116Rip
Expression	Ubiquitous expression in lung adult (RPKM 20.1), testis adult (RPKM 18.9) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

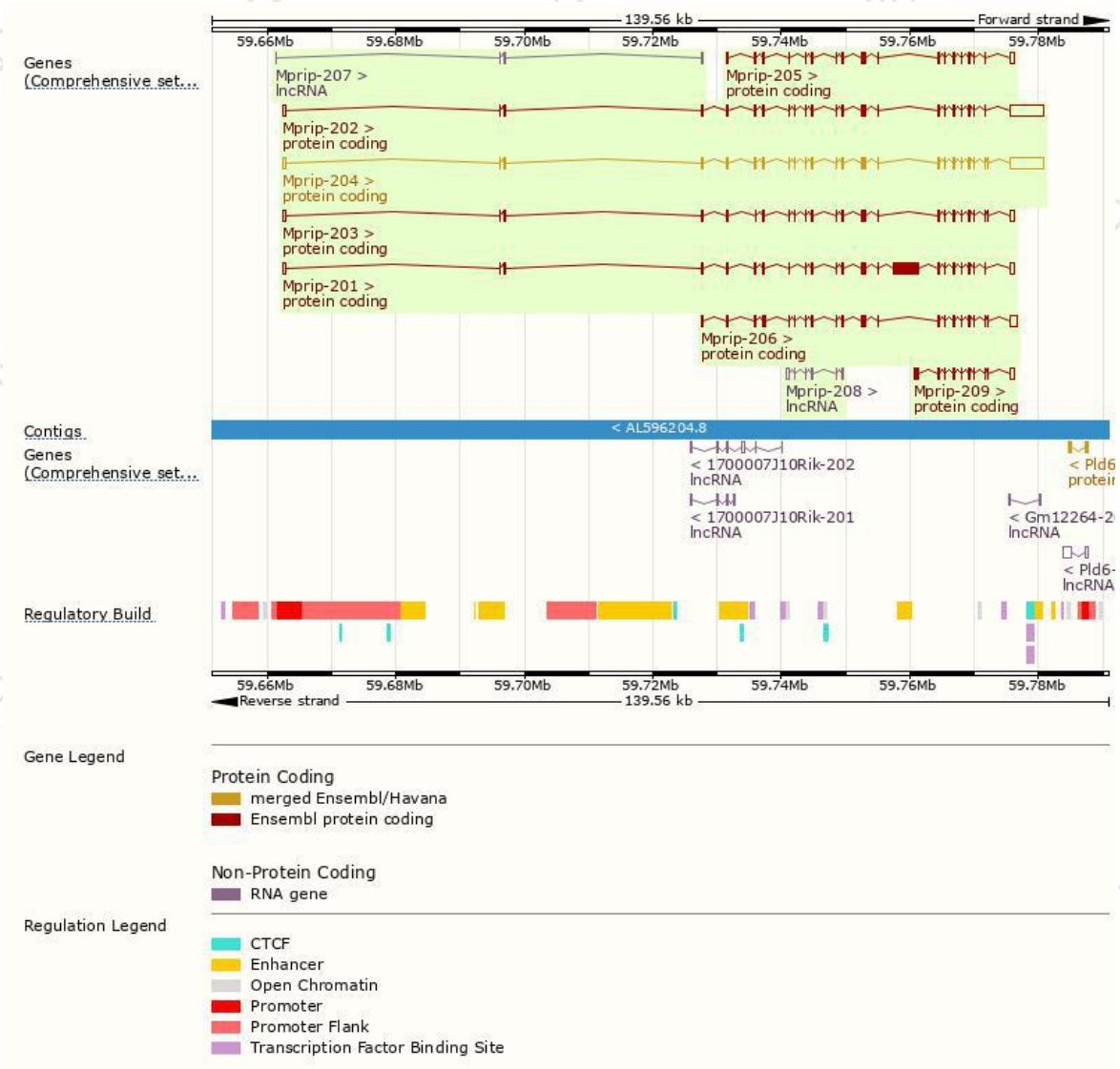
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mprip-204	ENSMUST00000116371.7	8766	1024aa	Protein coding	CCDS24775	P97434	TSL:1 GENCODE basic APPRIS ALT2
Mprip-202	ENSMUST00000072031.12	8718	1037aa	Protein coding	CCDS24774	P97434	TSL:1 GENCODE basic APPRIS P4
Mprip-201	ENSMUST00000066330.14	7765	2269aa	Protein coding	-	Q5SWZ5	TSL:5 GENCODE basic APPRIS ALT2
Mprip-206	ENSMUST00000133861.7	4153	1010aa	Protein coding	-	F6RND9	CDS 5' incomplete TSL:5
Mprip-203	ENSMUST00000108751.7	4021	986aa	Protein coding	-	P97434	TSL:1 GENCODE basic APPRIS ALT2
Mprip-205	ENSMUST00000132620.7	3181	848aa	Protein coding	-	F6S5I0	CDS 5' incomplete TSL:5
Mprip-209	ENSMUST00000156111.1	2236	498aa	Protein coding	-	F6XZM9	CDS 5' incomplete TSL:1
Mprip-208	ENSMUST00000153531.1	784	No protein	lncRNA	-	-	TSL:2
Mprip-207	ENSMUST00000138234.1	392	No protein	lncRNA	-	-	TSL:3

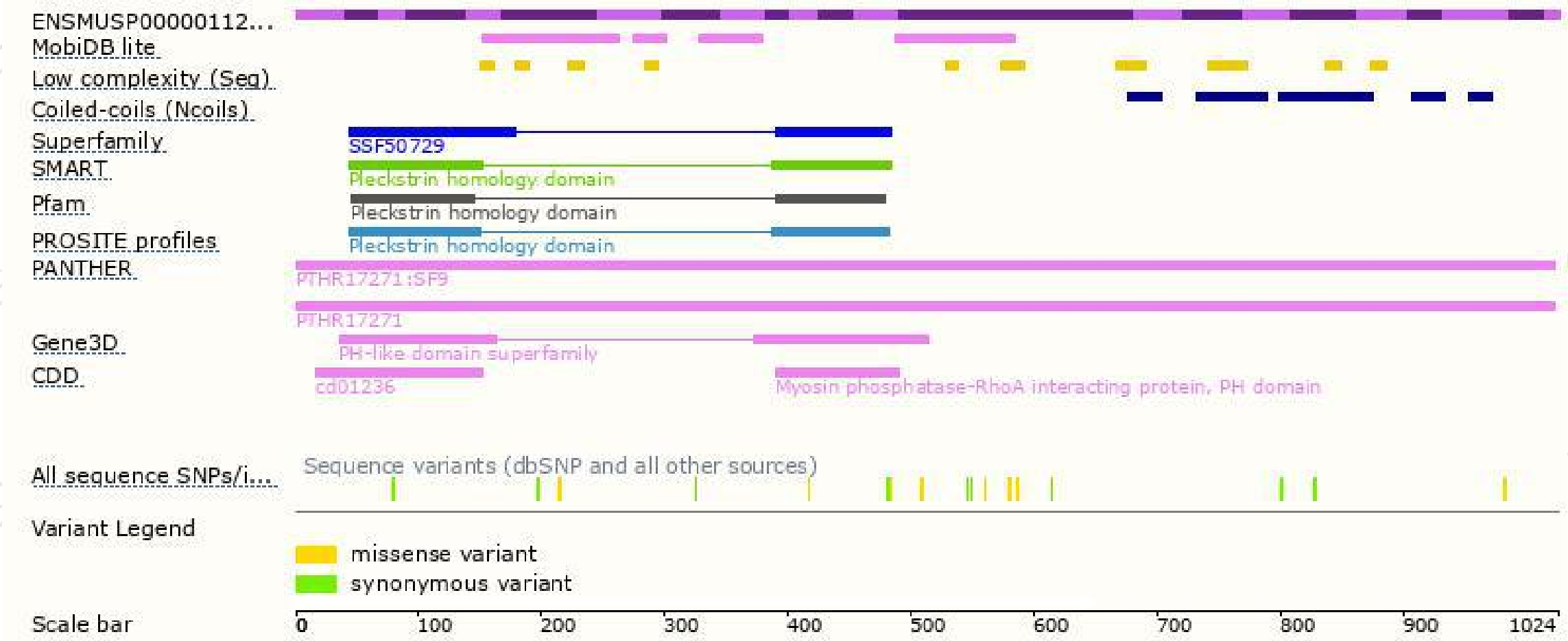
The strategy is based on the design of *Mprip-204* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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