

Timm9 Cas9-CKO Strategy

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Project Overview

Project Name

Timm9

Project type

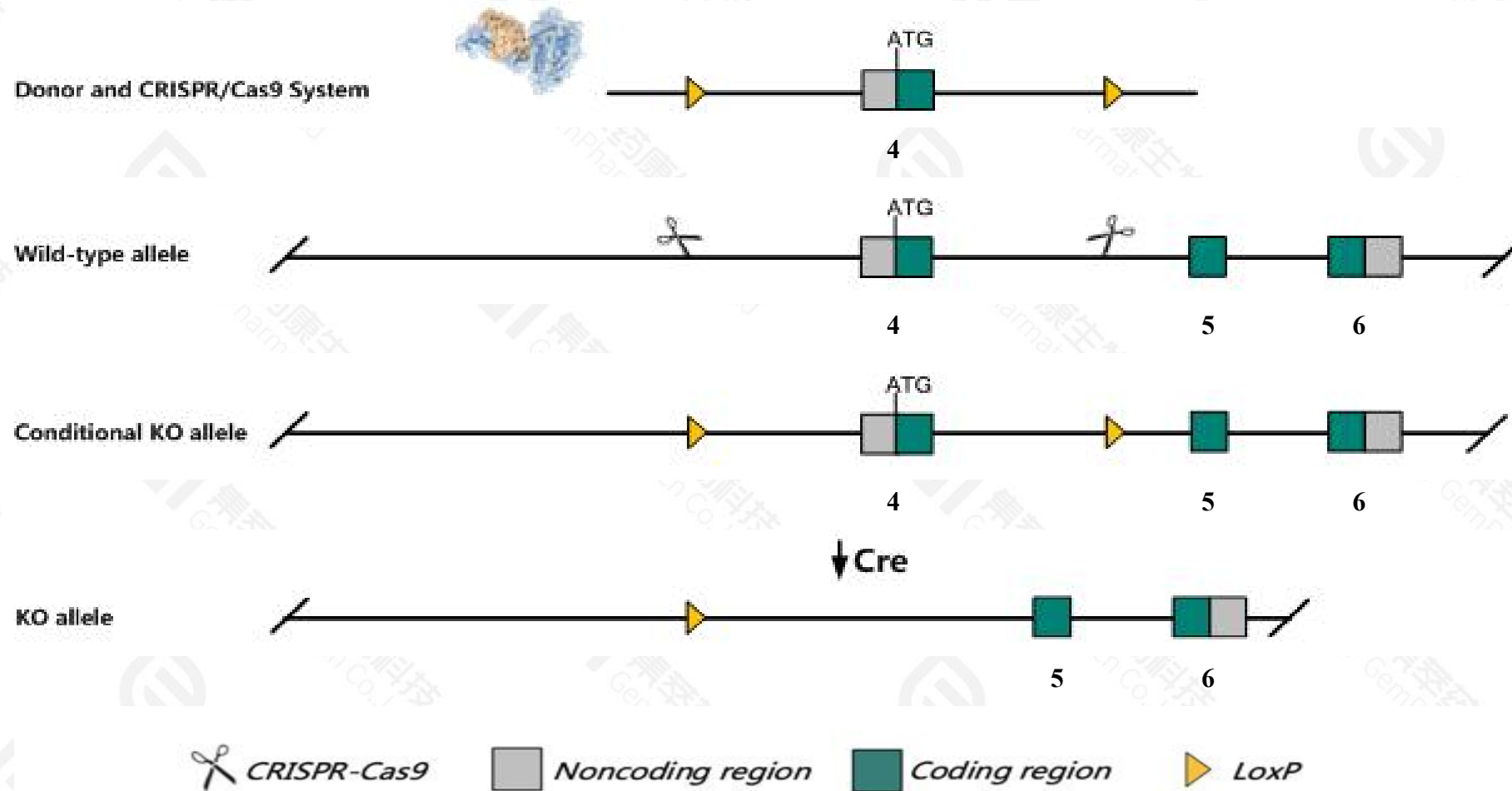
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR-Cas9 technology to edit the *Timm9* gene. The schematic diagram is as follows:



- The *Timm9* gene has 11 transcripts. According to the structure of *Timm9* gene, exon4 of *Timm9*-202(ENSMUST00000166120.9) 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 *Timm9* 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.

- The *Timm9* 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)

Timm9 translocase of inner mitochondrial membrane 9 [Mus musculus (house mouse)]

Gene ID: 30056, updated on 17-Feb-2021

Summary



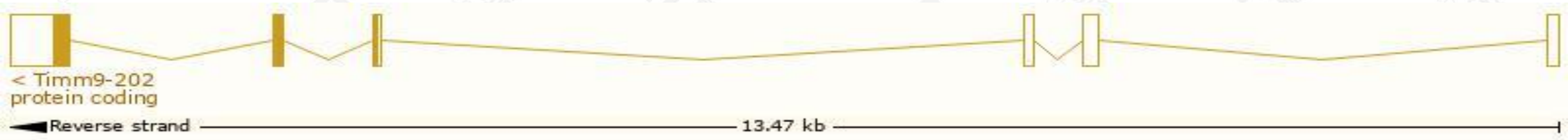
Official Symbol	Timm9 provided by MGI
Official Full Name	translocase of inner mitochondrial membrane 9 provided by MGI
Primary source	MGI:MGI:1353436
See related	Ensembl:ENSMUSG00000021079
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2810011L15Rik, Tim1, Tim10a, Timm1, Timm10
Expression	Ubiquitous expression in CNS E18 (RPKM 12.2), frontal lobe adult (RPKM 9.7) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

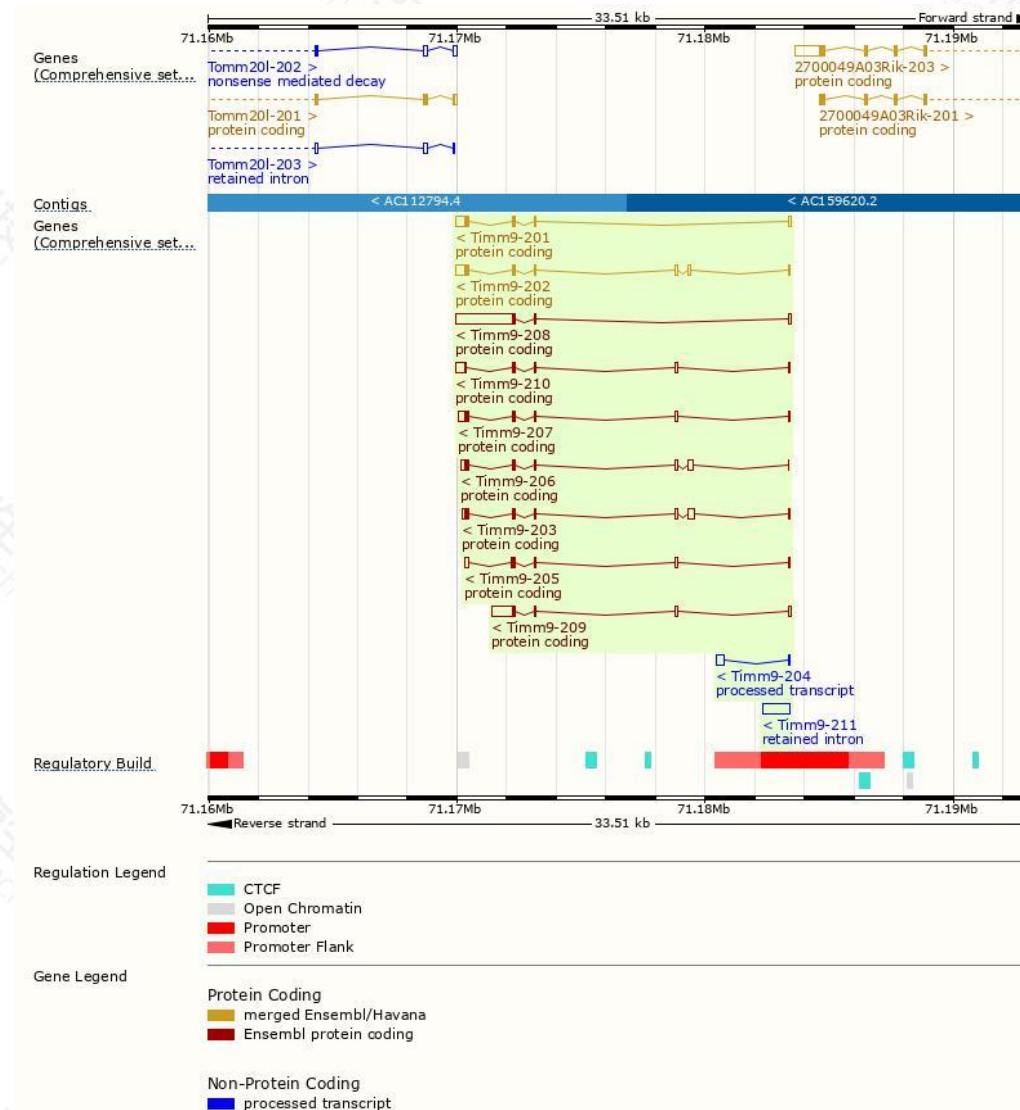
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Timm9-202	ENSMUST00000166120.9	990	89aa	Protein coding	CCDS25962		TSL:1 , GENCODE basic , APPRIS P1 ,
Timm9-203	ENSMUST00000220482.2	859	89aa	Protein coding	CCDS25962		TSL:3 , GENCODE basic , APPRIS P1 ,
Timm9-206	ENSMUST00000221367.2	836	89aa	Protein coding	CCDS25962		TSL:5 , GENCODE basic , APPRIS P1 ,
Timm9-201	ENSMUST00000021486.10	794	89aa	Protein coding	CCDS25962		TSL:1 , GENCODE basic , APPRIS P1 ,
Timm9-207	ENSMUST00000221559.2	718	89aa	Protein coding	CCDS25962		TSL:1 , GENCODE basic , APPRIS P1 ,
Timm9-208	ENSMUST00000221797.2	2564	46aa	Protein coding	-		TSL:1 , GENCODE basic ,
Timm9-209	ENSMUST00000221815.2	1193	46aa	Protein coding	-		TSL:1 , GENCODE basic ,
Timm9-210	ENSMUST00000221892.2	734	61aa	Protein coding	-		TSL:5 , GENCODE basic ,
Timm9-205	ENSMUST00000221178.2	529	46aa	Protein coding	-		TSL:3 , GENCODE basic ,
Timm9-204	ENSMUST00000220841.2	362	No protein	Processed transcript	-		TSL:3 ,
Timm9-211	ENSMUST00000223544.2	1098	No protein	Retained intron	-		TSL:NA ,

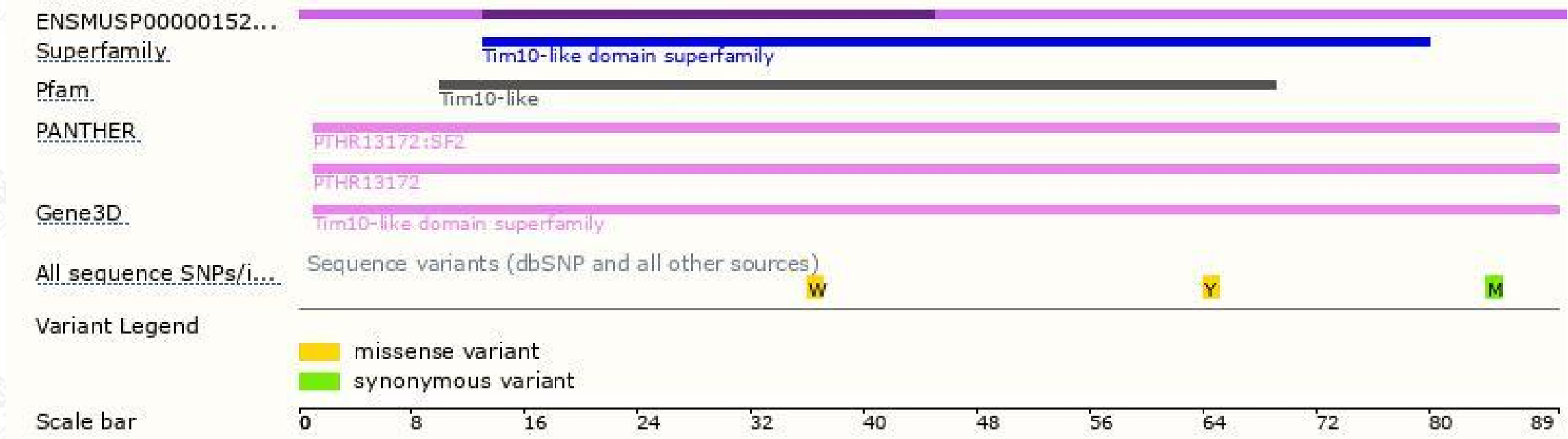
The strategy is based on the design of *Timm9-202* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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