

# ***Tpm4*** Cas9-CKO Strategy

Designer:

# Project Overview

**Project Name**

*Tpm4*

**Project type**

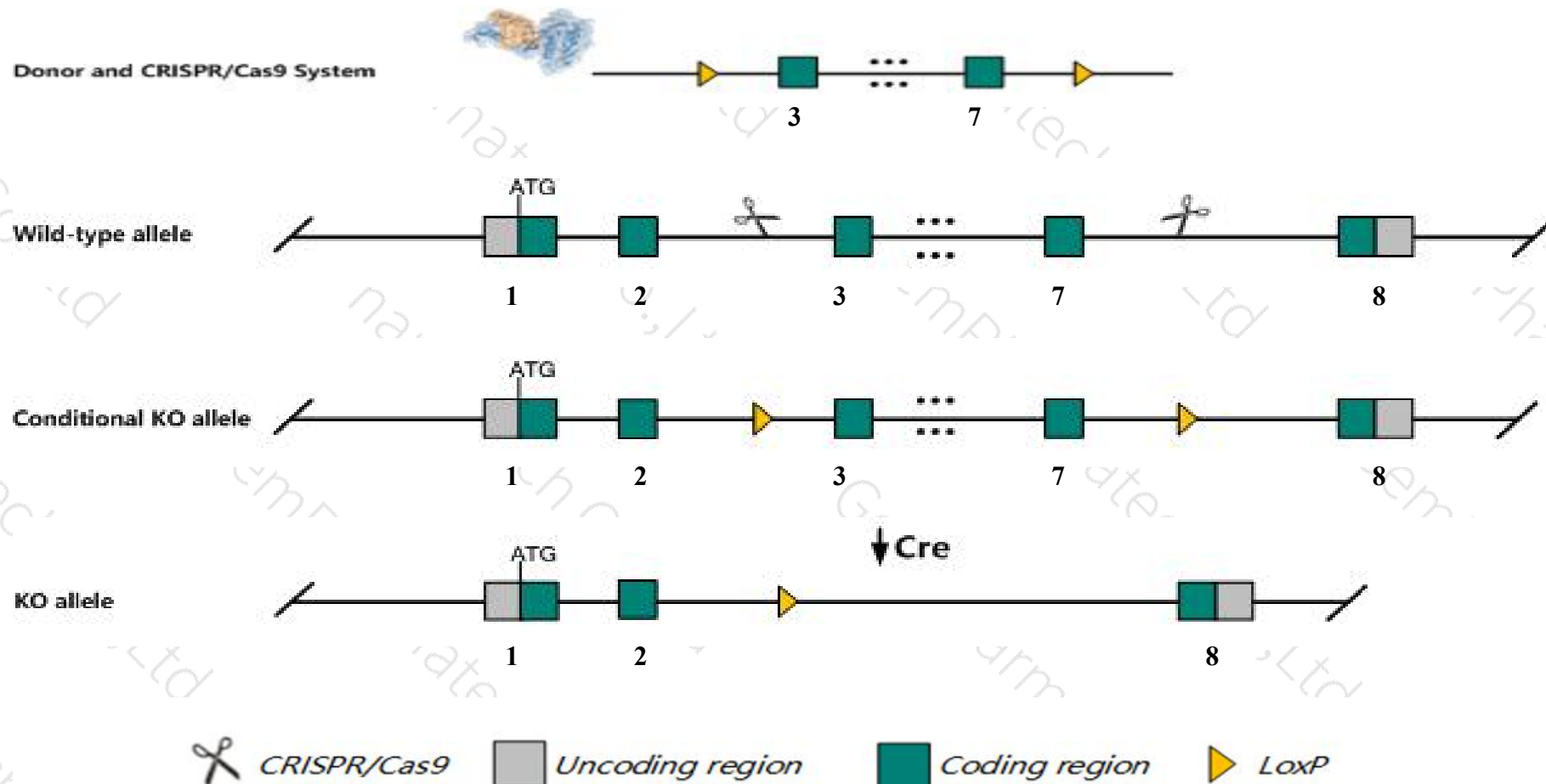
**Cas9-CKO**

**Strain background**

**C57BL/6JGpt**

# Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tpm4* gene. The schematic diagram is as follows:



- The *Tpm4* gene has 2 transcripts. According to the structure of *Tpm4* gene, exon3-exon7 of *Tpm4-201* (ENSMUST00000003575.9) transcript is recommended as the knockout region. The region contains 398bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Tpm4* 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 *Tpm4* gene is located on the Chr8. 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.
- The KO region contains the functional region of the *Gm16091* gene. Knockout the region may affect its function of *Gm16091* gene .
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of gene transcription and translation processes, all risks cannot be predicted under existing information.



# Gene information (NCBI)

## Tpm4 tropomyosin 4 [Mus musculus (house mouse)]

Gene ID: 326618, updated on 31-Jan-2019

### Summary



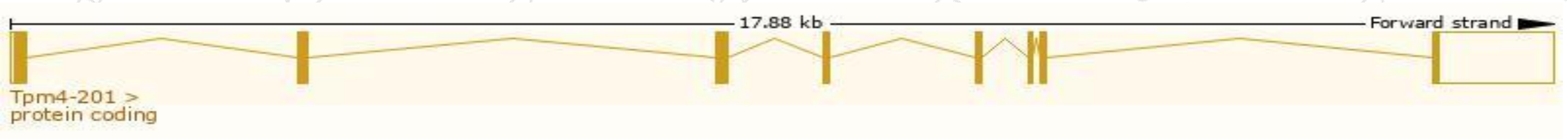
<b>Official Symbol</b>	Tpm4 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	tropomyosin 4 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:2449202</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG000000031799</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	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>	2610528G24Rik, Tpm4.2, Tpm4.2cy
<b>Expression</b>	Broad expression in placenta adult (RPKM 203.2), CNS E11.5 (RPKM 138.7) and 24 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

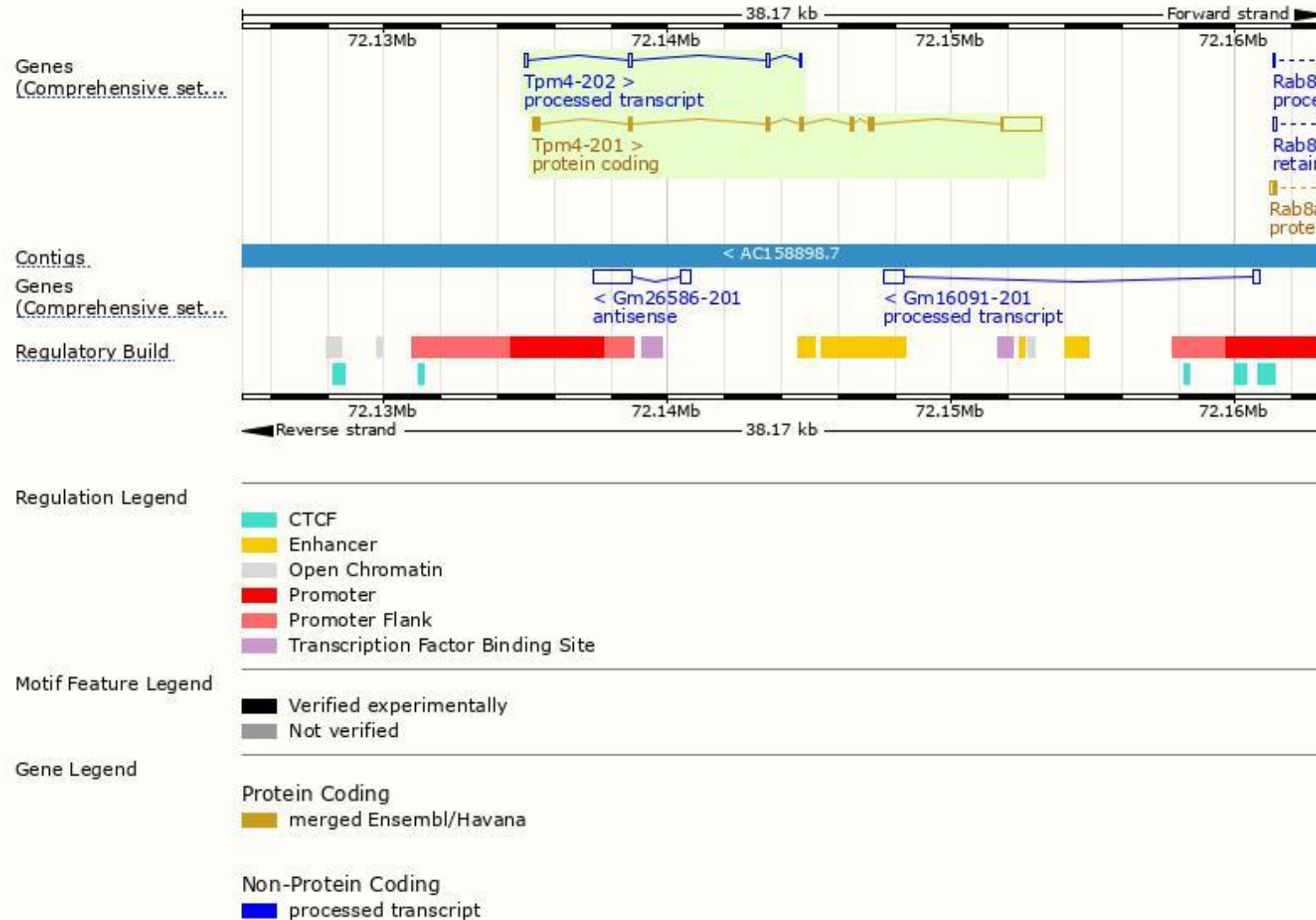
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tpm4-201	<a href="#">ENSMUST00000003575.9</a>	2128	<a href="#">248aa</a>	Protein coding	<a href="#">CCDS22408</a>	<a href="#">Q6IRU2</a>	TSL:1 GENCODE basic APPRIS P1
Tpm4-202	<a href="#">ENSMUST00000123177.1</a>	359	No protein	Processed transcript	-	-	TSL:5

The strategy is based on the design of *Tpm4-201* transcript,The transcription is shown below



# Genomic location distribution





# Protein domain

ENSMUSP000000003...

MobiDB lite

Low complexity (Seg)

Coiled-coils (Ncoils)

hmmpanther

PTHR19269:SF40

PTHR19269

Superfamily domains

SSF57997

Prints domain

Tropomyosin

Pfam domain

Tropomyosin

PROSITE patterns

Tropomyosin

Gene3D

1.20.5.340



1.20.5.170

1.20.5.370

All sequence SNPs/i...

Sequence variants (dbSNP and all other sources)

Variant Legend

 missense variant  
 synonymous variant

Scale bar

0 40 80 120 160 200 248

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

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