

# *Tpm4* Cas9-KO Strategy

Designer:

# Project Overview

**Project Name**

*Tpm4*

**Project type**

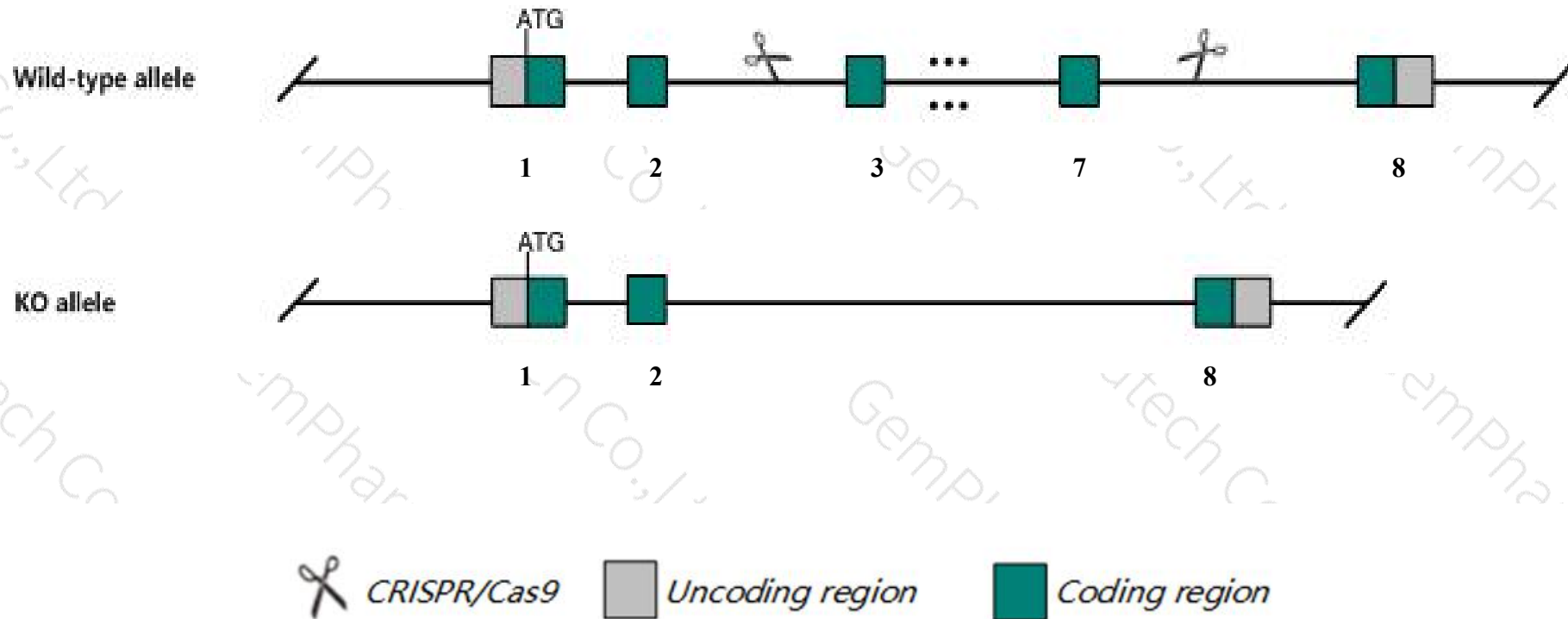
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# 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

- 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



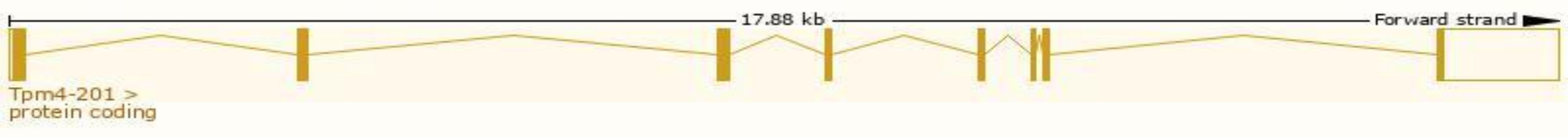
|                           |                                                                                                                                                                           |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <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)

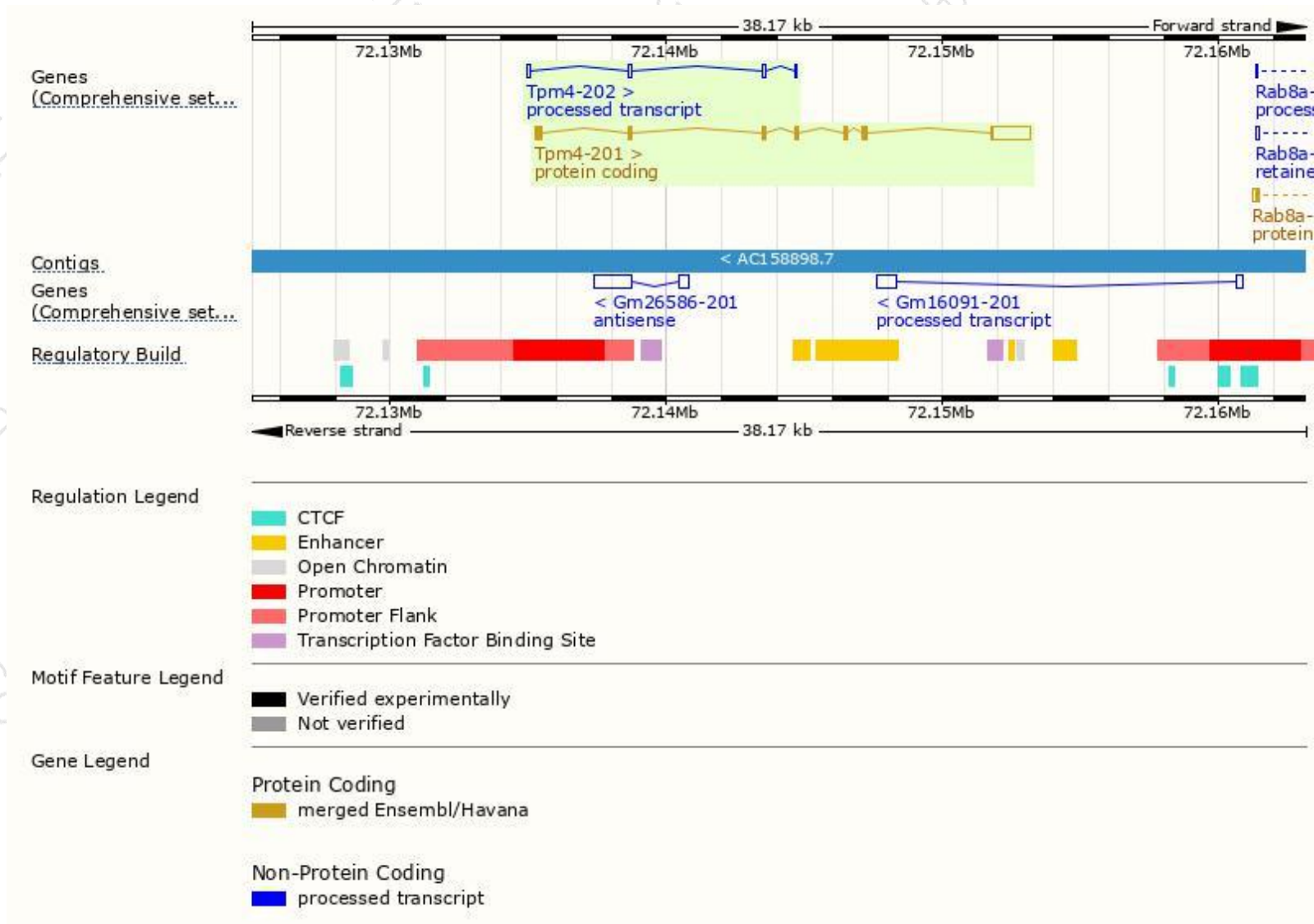
The gene has 2 transcript,all transcripts are shown below:

| 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                         |

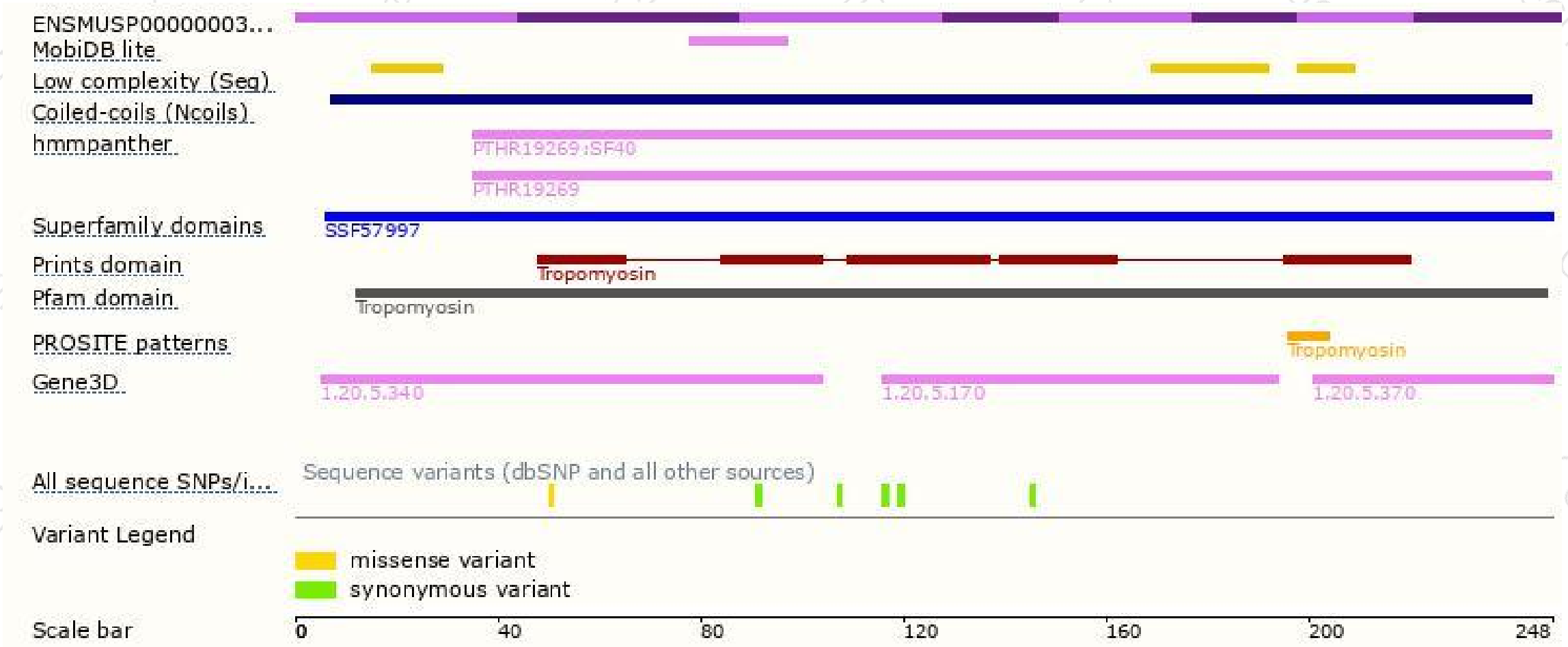
The strategy is based on the design of *Tpm4-201* transcript,The transcription is shown below



# Genomic location distribution



# Protein domain



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

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