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Tomm22 Cas9-KO Strategy

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Overview

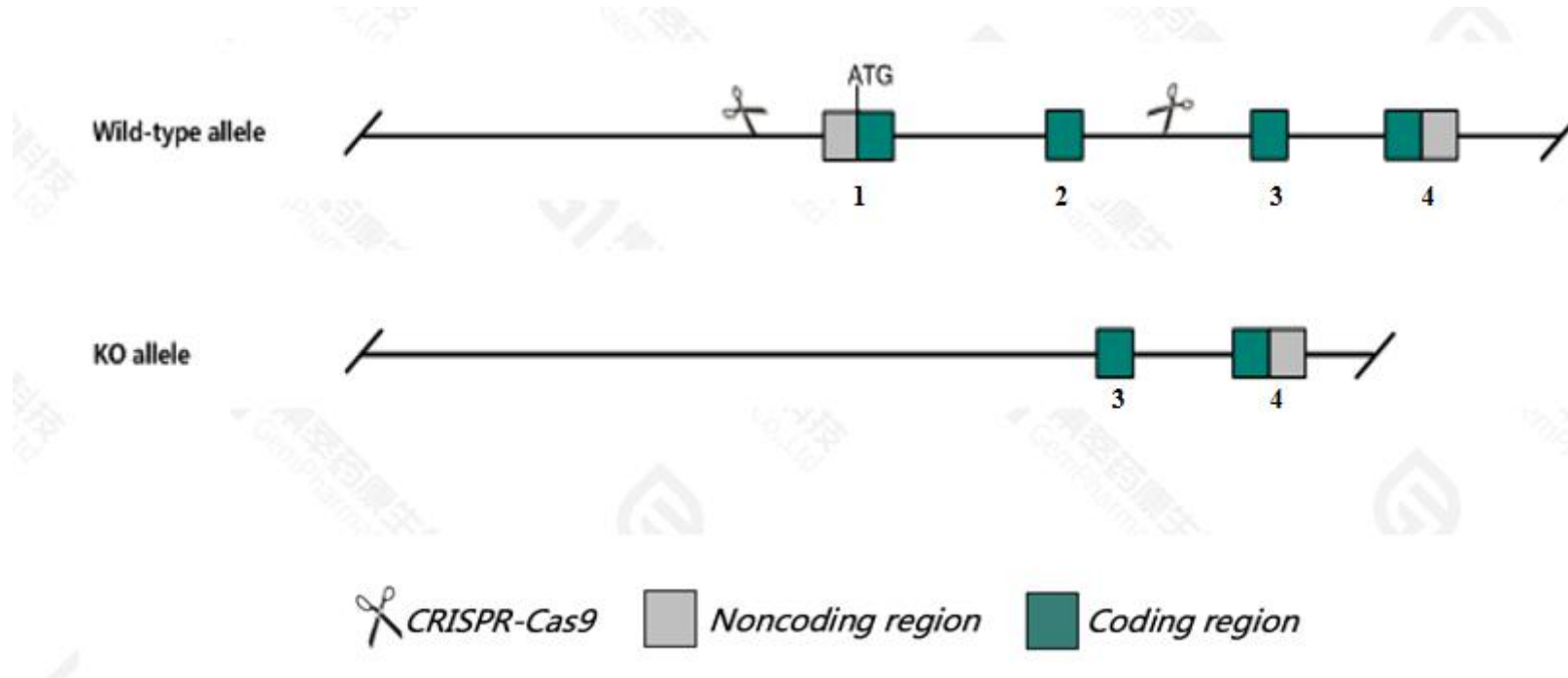## Target Gene Name

- Tomm22

Project Type

- Cas9-KO

Genetic Background

- C57BL/6JGpt

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Strain Strategy

Schematic representation of CRISPR-Cas9 engineering used to edit the *Tomm22* gene.

Technical Information

- The *Tomm22* gene has 3 transcripts. According to the structure of *Tomm22* gene, exon1-exon2 of *Tomm22-201*(ENSMUST00000023062.5) 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 *Tomm22* gene. The brief process is as follows: gRNAs were transcribed in vitro. Cas9 and gRNAs 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 on-target amplicon sequencing. A stable F1-generation mouse strain was obtained by mating positive F0-generation mice with C57BL/6JGpt mice and confirmation of the desired mutant allele was carried out by PCR and on-target amplicon sequencing.

Gene Information

Tomm22 translocase of outer mitochondrial membrane 22 [Mus musculus (house mouse)]

Gene ID: 223696, updated on 24-Apr-2022

▲Summary   ⟨⟩ ?

Official Symbol	Tomm22 provided by MGI
Official Full Name	translocase of outer mitochondrial membrane 22 provided by MGI
Primary source	MGI:MGI:2450248
See related	Ensembl:ENSMUSG00000022427
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2310047D01, Tom22
Expression	Ubiquitous expression in testis adult (RPKM 96.9), placenta adult (RPKM 50.2) and 28 other tissuesSee more
Orthologs	human all

Source: https://www.ncbi.nlm.nih.gov/

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Transcript Information

The gene has 3 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tomm22-201	ENSMUST00000023062.5	1569	142aa	Protein coding	CCDS27646		TSL:1 , GENCODE basic , APPRIS P2 ,
Tomm22-202	ENSMUST00000127292.2	783	89aa	Protein coding	-		TSL:2 , GENCODE basic , APPRIS ALT2 ,
Tomm22-203	ENSMUST00000229502.2	595	61aa	Nonsense mediated decay	-		

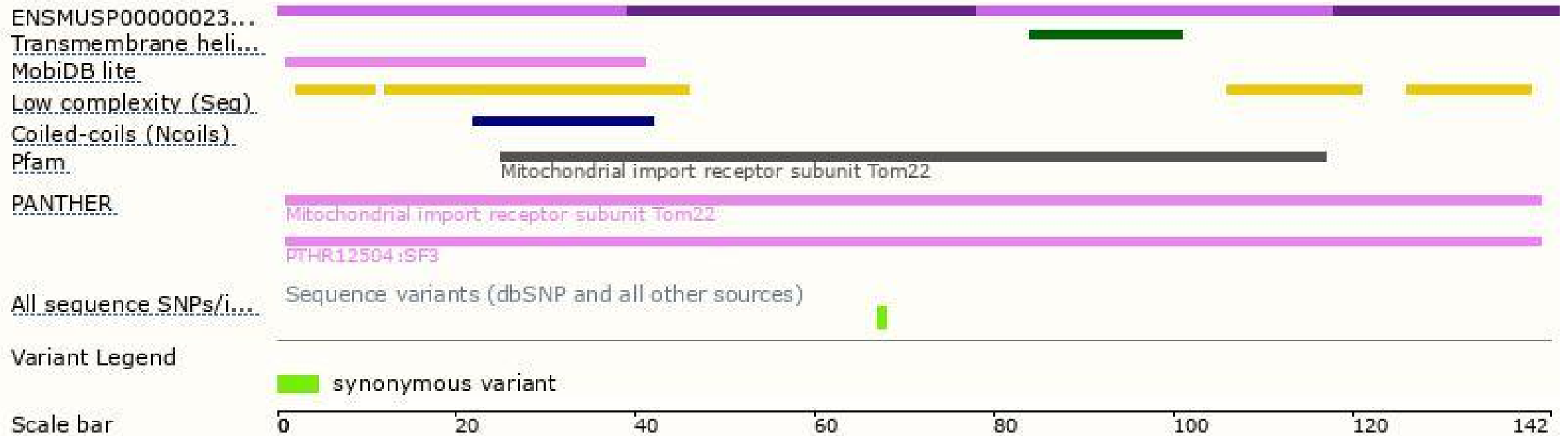The strategy is based on the design of *Tomm22*-201 transcript, the transcription is shown below:

Source: https://www.ensembl.org
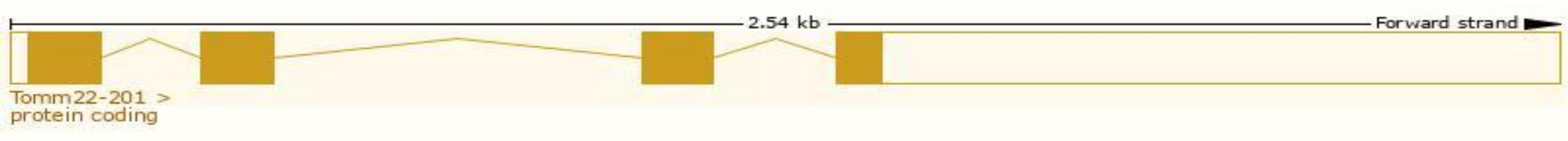
Genomic Information

Protein Information

Source: : https://www.ensembl.org
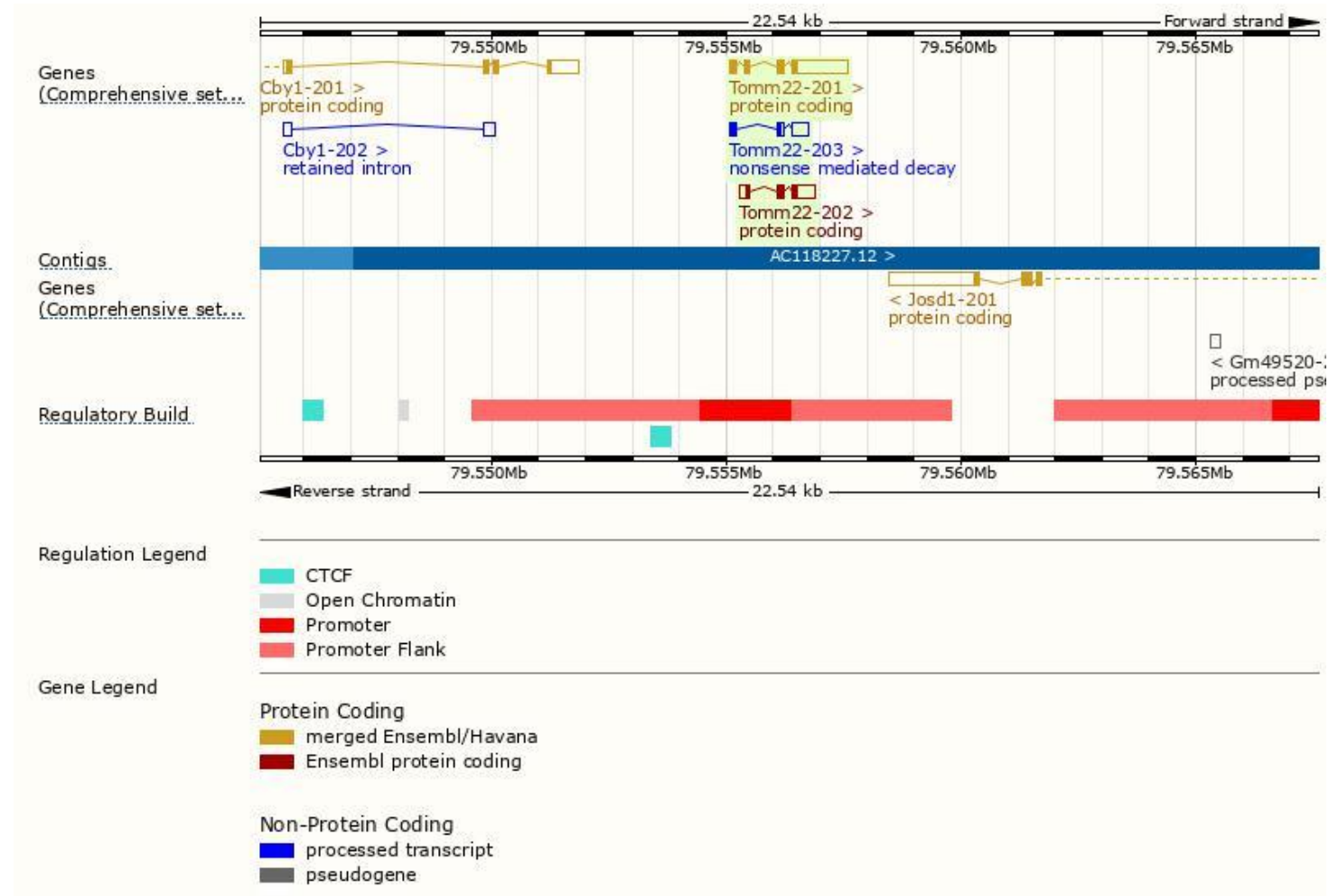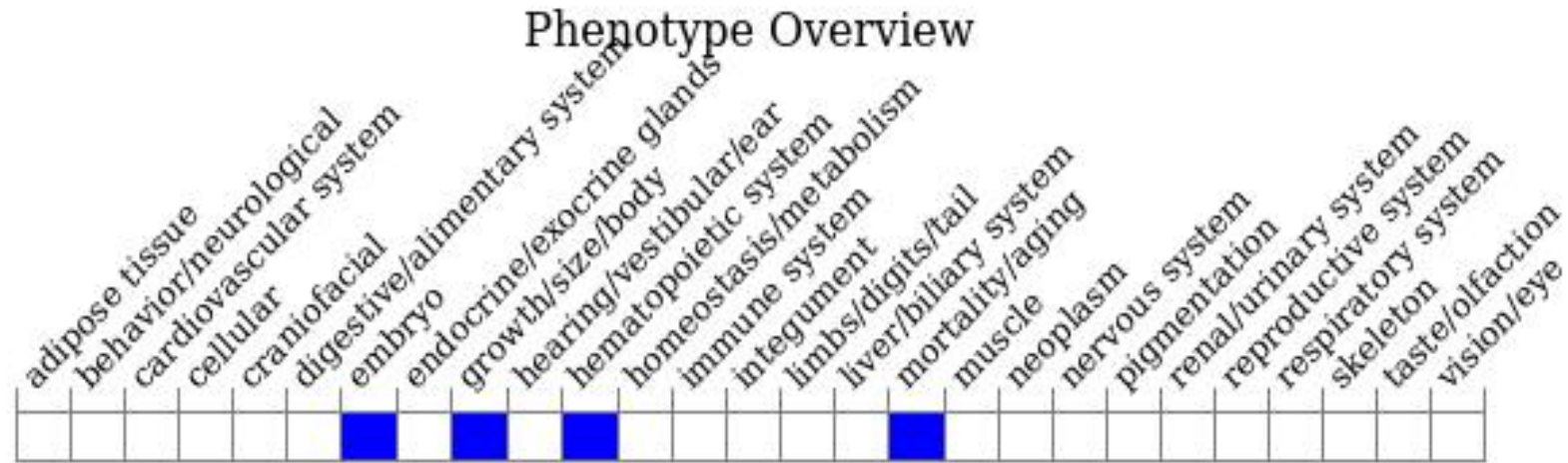
Mouse Phenotype Information (MGI)

- Phenotypes affected by the gene are marked in blue.Data quoted from MGI database(http://www.informatics.jax.org/).

Source: https://www.informatics.jax.org

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Important Information

- The effect of *Cby1* and *Josd1* gene is unknown.

- *Tomm22* is located on Chr15. If the knockout mice are crossed with other mouse strains to obtain double homozygous mutant offspring, please avoid the situation that the second gene is on the same chromosome.

- This Strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risks of the mutation on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.