

***Tmtc2* Cas9-KO Strategy**

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Design Date: 2021-4-12

Project Overview

Project Name

Tmtc2

Project type

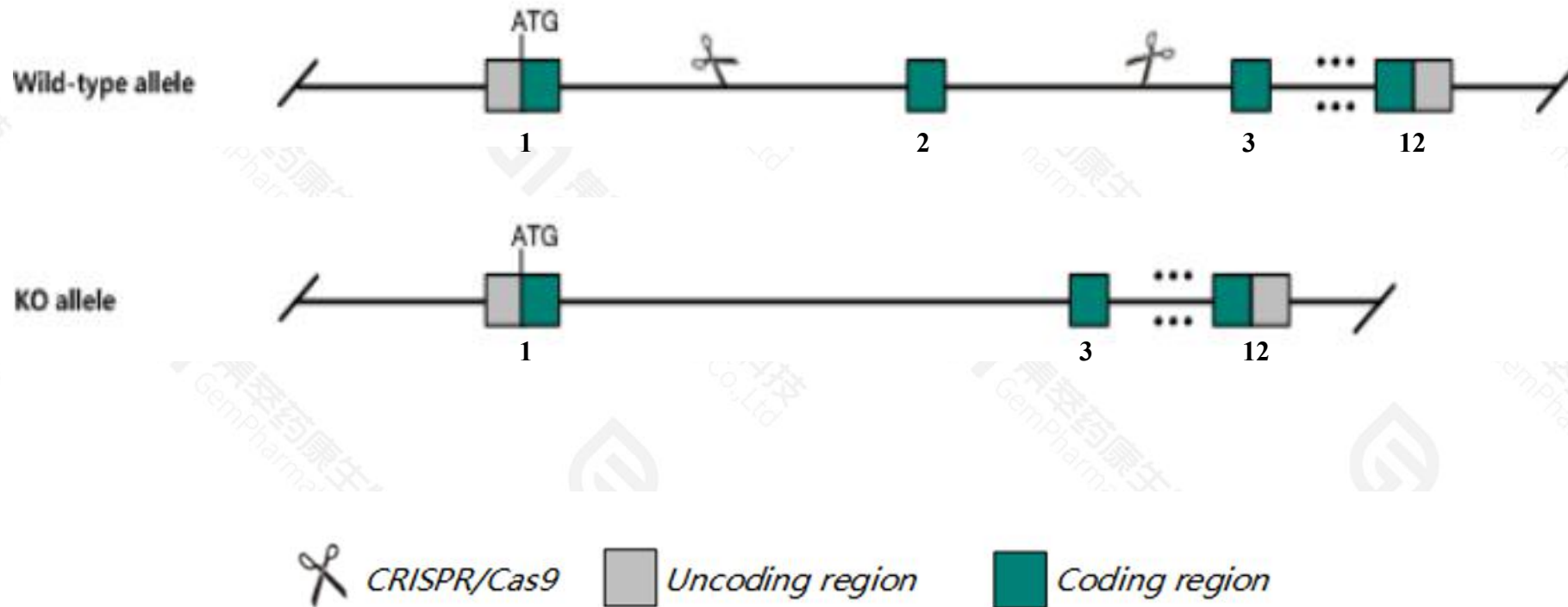
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tmtc2* gene. The schematic diagram is as follows:



- The *Tmtc2* gene has 6 transcripts. According to the structure of *Tmtc2* gene, exon2 of *Tmtc2-201*(ENSMUST00000061506.9) transcript is recommended as the knockout region. The region contains 571bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Tmtc2* gene. The brief process is as follows: CRISPR/Cas9 system 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 *Tmtc2* gene is located on the Chr10. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Tmtc2 transmembrane and tetratricopeptide repeat containing 2 [Mus musculus (house mouse)]

Gene ID: 278279, updated on 25-Sep-2020

Summary



Official Symbol Tmtc2 provided by [MGI](#)

Official Full Name transmembrane and tetratricopeptide repeat containing 2 provided by [MGI](#)

Primary source [MGI:MGI:1914057](#)

See related [Ensembl:ENSMUSG00000036019](#)

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 8430438D04Rik, D330034A10Rik

Expression Broad expression in limb E14.5 (RPKM 7.3), lung adult (RPKM 5.4) and 23 other tissues [See more](#)

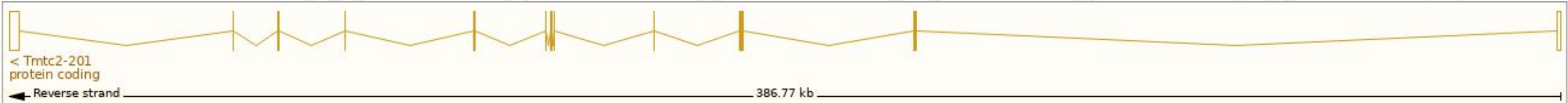
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

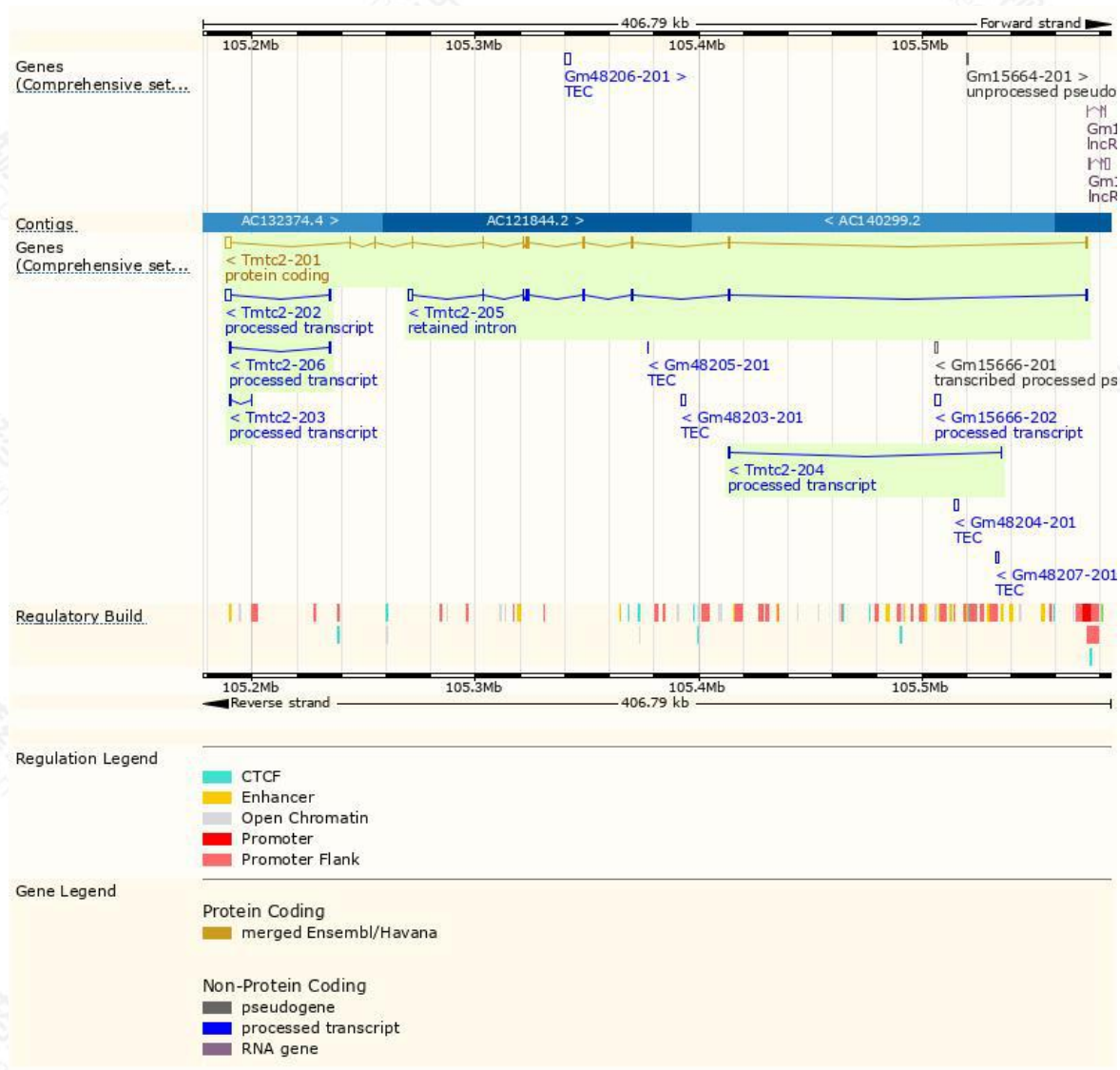
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tmtc2-201	ENSMUST00000061506.9	5629	836aa	Protein coding	CCDS24157		TSL:1 , GENCODE basic , APPRIS P1 ,
Tmtc2-202	ENSMUST00000130665.2	2779	No protein	Processed transcript	-		TSL:1 ,
Tmtc2-206	ENSMUST00000147997.2	924	No protein	Processed transcript	-		TSL:1 ,
Tmtc2-203	ENSMUST00000133441.2	689	No protein	Processed transcript	-		TSL:3 ,
Tmtc2-204	ENSMUST00000139741.2	624	No protein	Processed transcript	-		TSL:3 ,
Tmtc2-205	ENSMUST00000143691.2	4466	No protein	Retained intron	-		TSL:1 ,

The strategy is based on the design of *Tmtc2-201* 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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