

***Tmc3* Cas9-KO Strategy**

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Design Date: 2021-11-10

Project Overview

Project Name

Tmc3

Project type

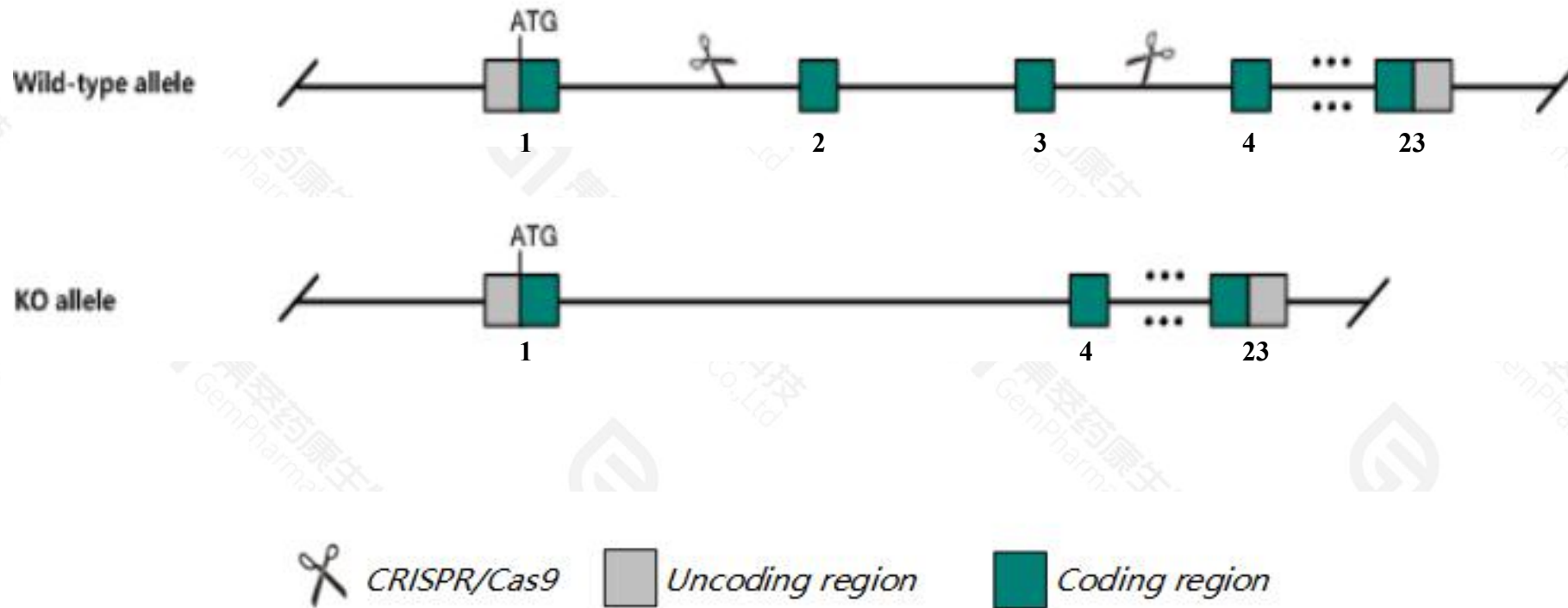
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tmc3* gene. The schematic diagram is as follows:



- The *Tmc3* gene has 5 transcripts. According to the structure of *Tmc3* gene, exon2-exon3 of *Tmc3-201*(ENSMUST00000039317.14) transcript is recommended as the knockout region. The region contains 223bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Tmc3* 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 *Tmc3* gene is located on the Chr7. 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.

Tmc3 transmembrane channel-like gene family 3 [Mus musculus (house mouse)]

Gene ID: 233424, updated on 17-Dec-2020

Summary



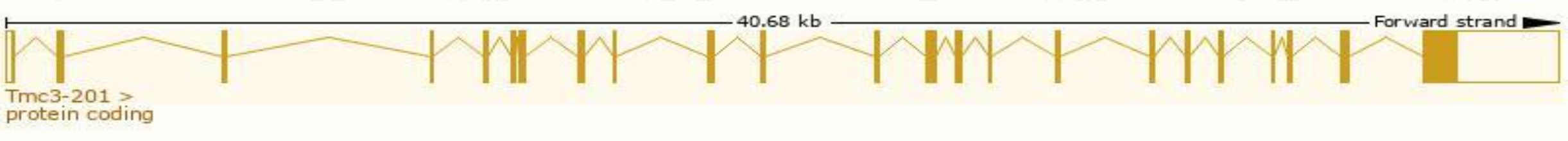
Official Symbol	Tmc3 provided by MGI
Official Full Name	transmembrane channel-like gene family 3 provided by MGI
Primary source	MGI:MGI:2669033
See related	Ensembl:ENSMUSG00000038540
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9030203A06
Expression	Ubiquitous expression in bladder adult (RPKM 1.4), cerebellum adult (RPKM 1.0) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

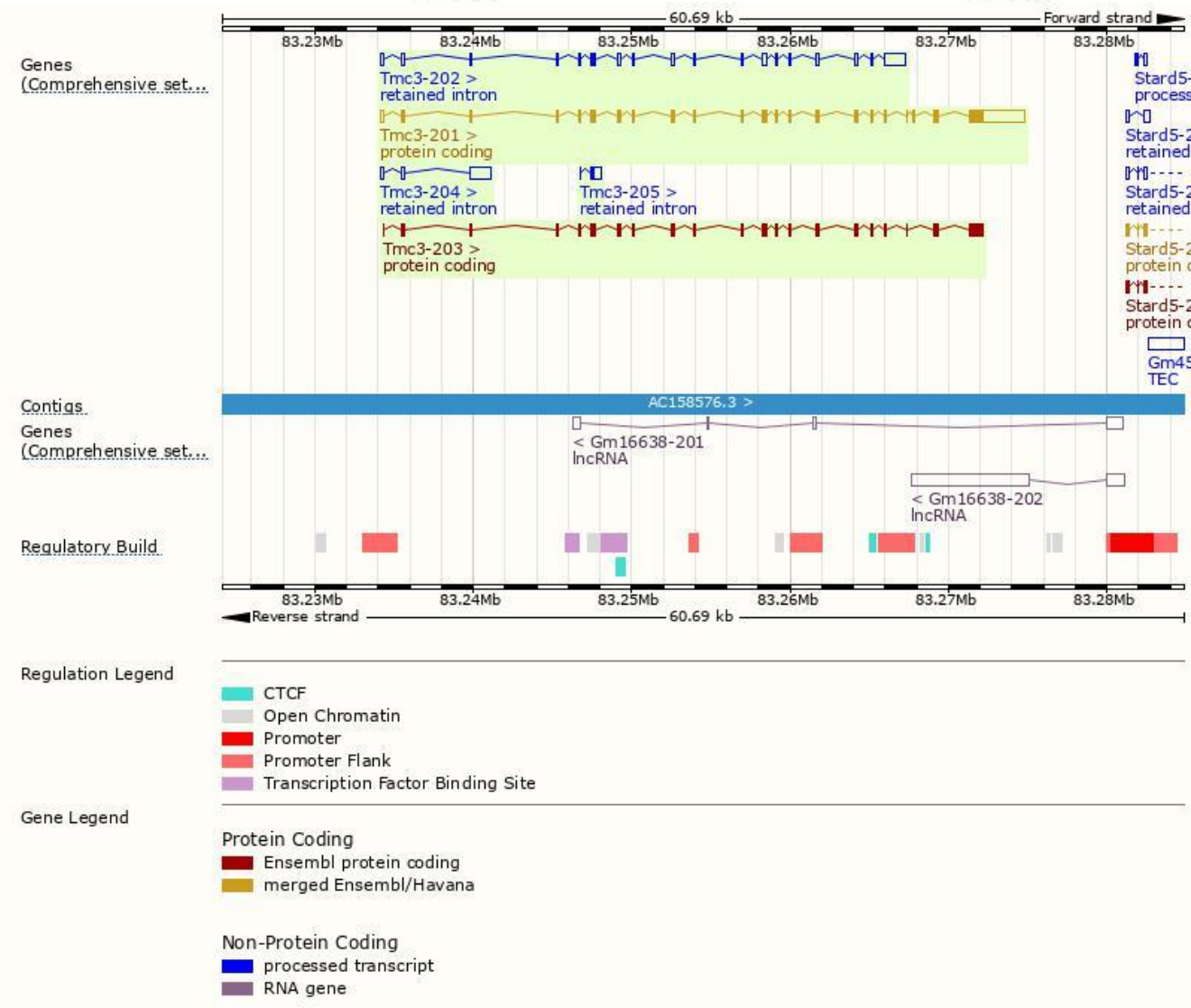
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tmc3-201	ENSMUST00000039317.14	6221	1130aa	Protein coding	CCDS40012		TSL:1 , GENCODE basic , APPRIS P2 ,
Tmc3-203	ENSMUST00000164944.2	3306	1101aa	Protein coding	-		TSL:5 , GENCODE basic , APPRIS ALT2 ,
Tmc3-202	ENSMUST00000163297.8	3621	No protein	Retained intron	-		TSL:1 ,
Tmc3-204	ENSMUST00000165388.2	1621	No protein	Retained intron	-		TSL:1 ,
Tmc3-205	ENSMUST00000171397.2	627	No protein	Retained intron	-		TSL:5 ,

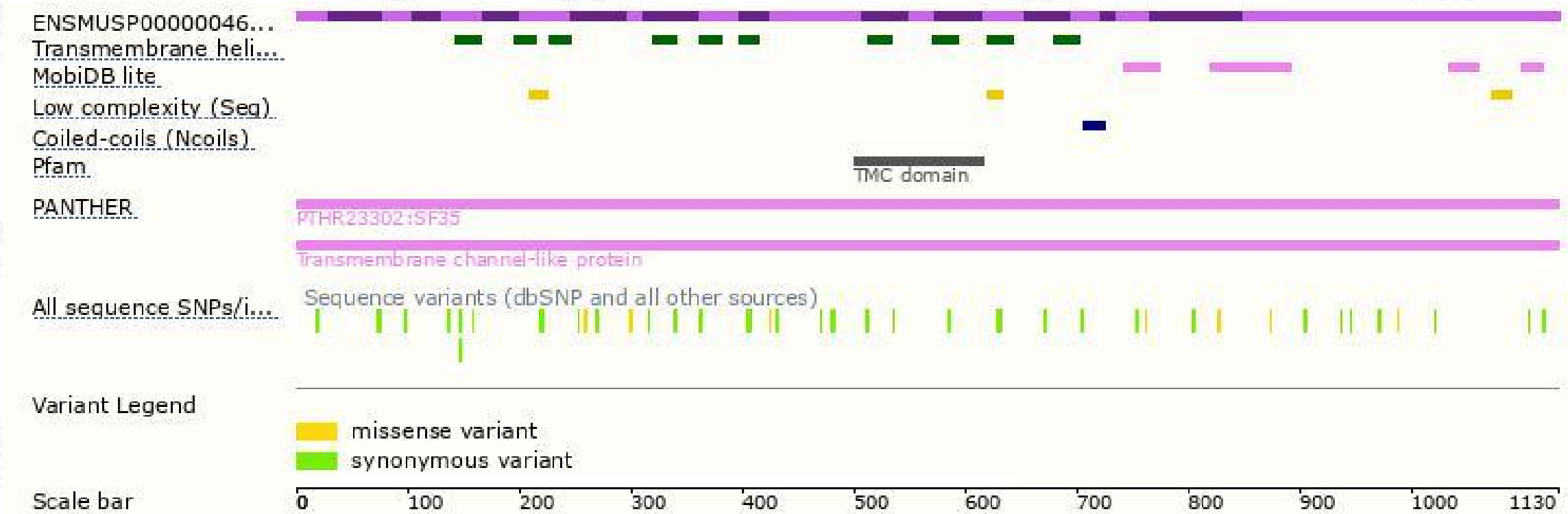
The strategy is based on the design of *Tmc3-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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