

Tmcc2 Cas9-CKO Strategy

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Project Overview

Project Name

Tmcc2

Project type

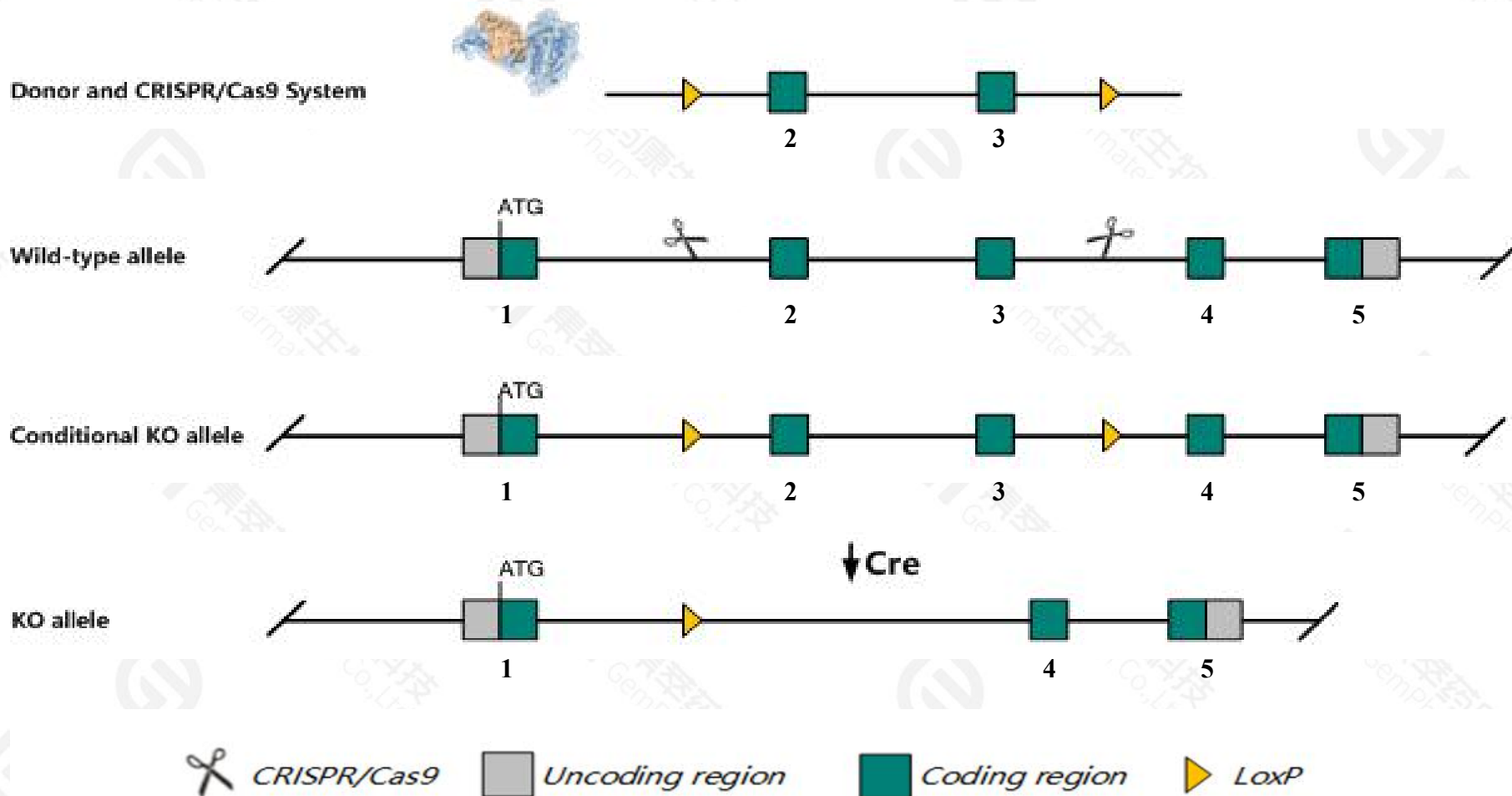
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tmcc2* gene. The schematic diagram is as follows:



The *Tmcc2* gene has 6 transcripts. According to the structure of *Tmcc2* gene, exon2-exon3 of *Tmcc2*-201(ENSMUST00000045473.16) transcript is recommended as the knockout region. The region contains 1466bp coding sequence. Knock out the region will result in disruption of protein function.

In this project we use CRISPR/Cas9 technology to modify *Tmcc2* 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 *Tmcc2* gene is located on the Chr1. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Tmcc2 transmembrane and coiled-coil domains 2 [Mus musculus (house mouse)]

Gene ID: 68875, updated on 17-Dec-2020

Summary



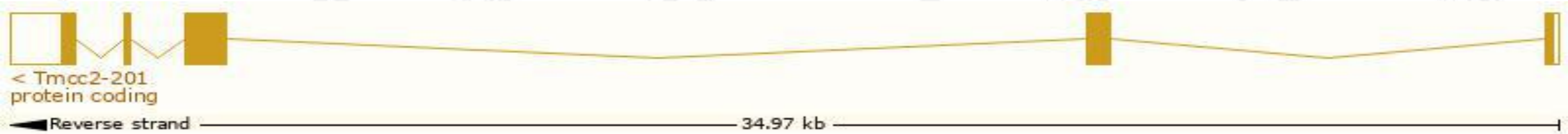
Official Symbol	Tmcc2 provided by MGI
Official Full Name	transmembrane and coiled-coil domains 2 provided by MGI
Primary source	MGI:MGI:1916125
See related	Ensembl:ENSMUSG00000042066
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1110063G11Rik
Expression	Biased expression in liver E14.5 (RPKM 143.8), liver E14 (RPKM 110.6) and 10 other tissues See more
Orthologs	human all

Transcript information Ensembl

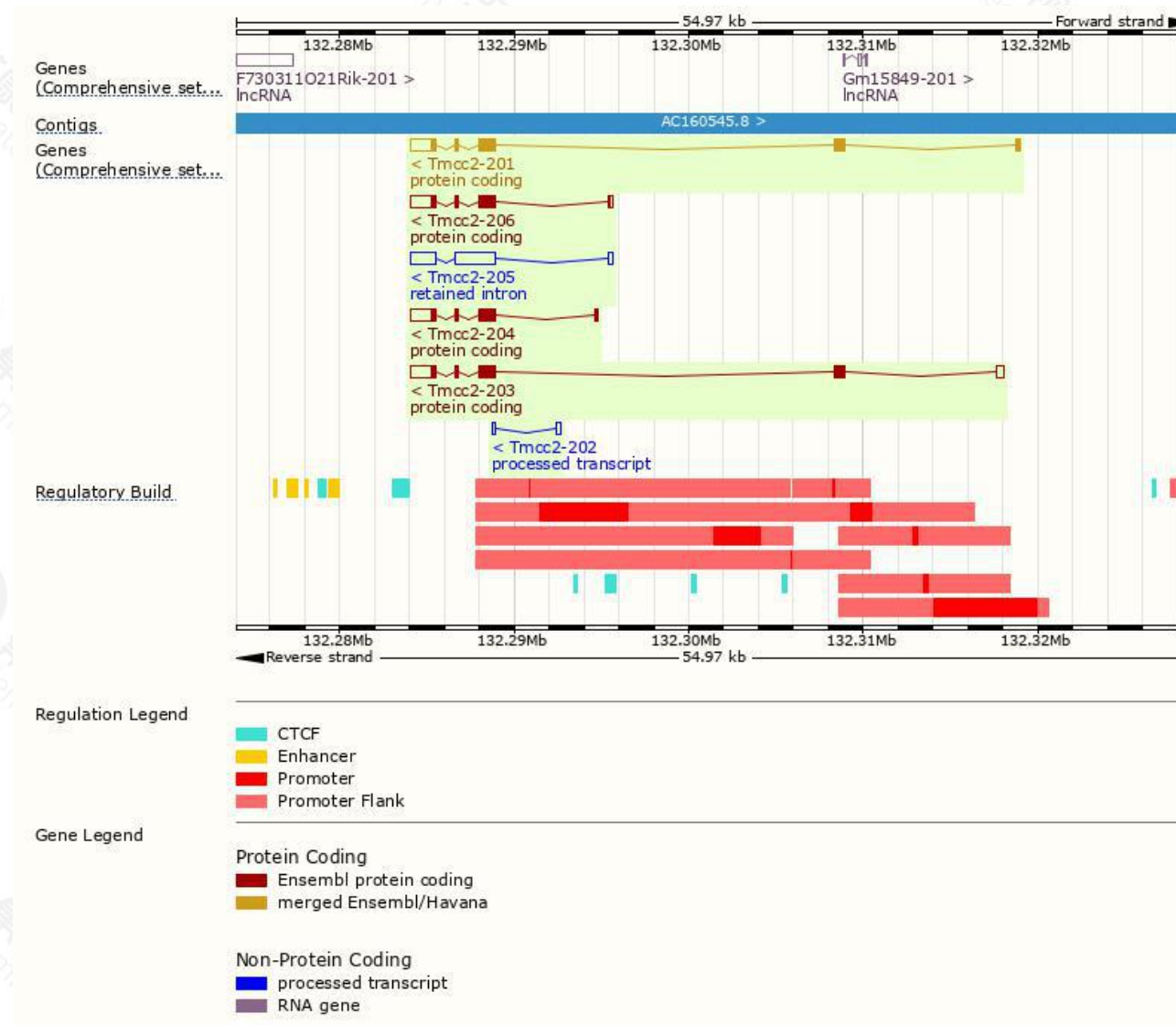
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tmcc2-203	ENSMUST00000132435.2	3514	628aa	Protein coding	CCDS78682		TSL:1 , GENCODE basic ,
Tmcc2-201	ENSMUST00000045473.16	3410	706aa	Protein coding	CCDS15284		TSL:1 , GENCODE basic ,
Tmcc2-206	ENSMUST00000142609.8	2769	471aa	Protein coding	CCDS78681		TSL:1 , GENCODE basic , APPRIS P2 ,
Tmcc2-204	ENSMUST00000136828.3	2771	524aa	Protein coding	-		TSL:3 , GENCODE basic , APPRIS ALT1 ,
Tmcc2-202	ENSMUST00000125439.2	437	No protein	Processed transcript	-		TSL:3 ,
Tmcc2-205	ENSMUST00000138717.2	4004	No protein	Retained intron	-		TSL:2 ,

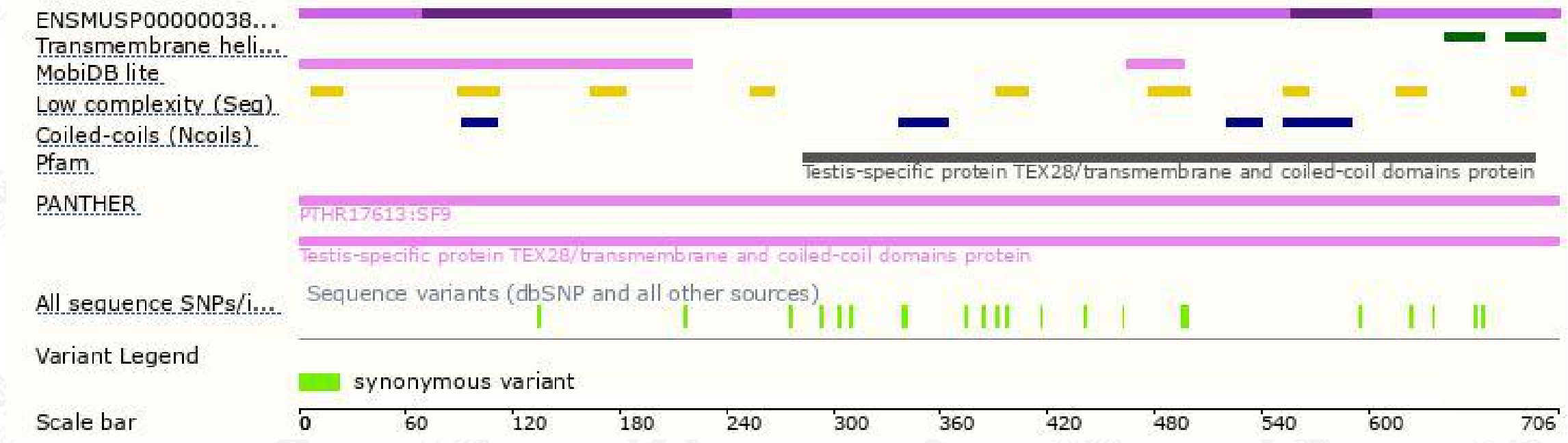
The strategy is based on the design of *Tmcc2-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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