

Tmprss7 Cas9-CKO Strategy

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Project Overview

Project Name

Tmprss7

Project type

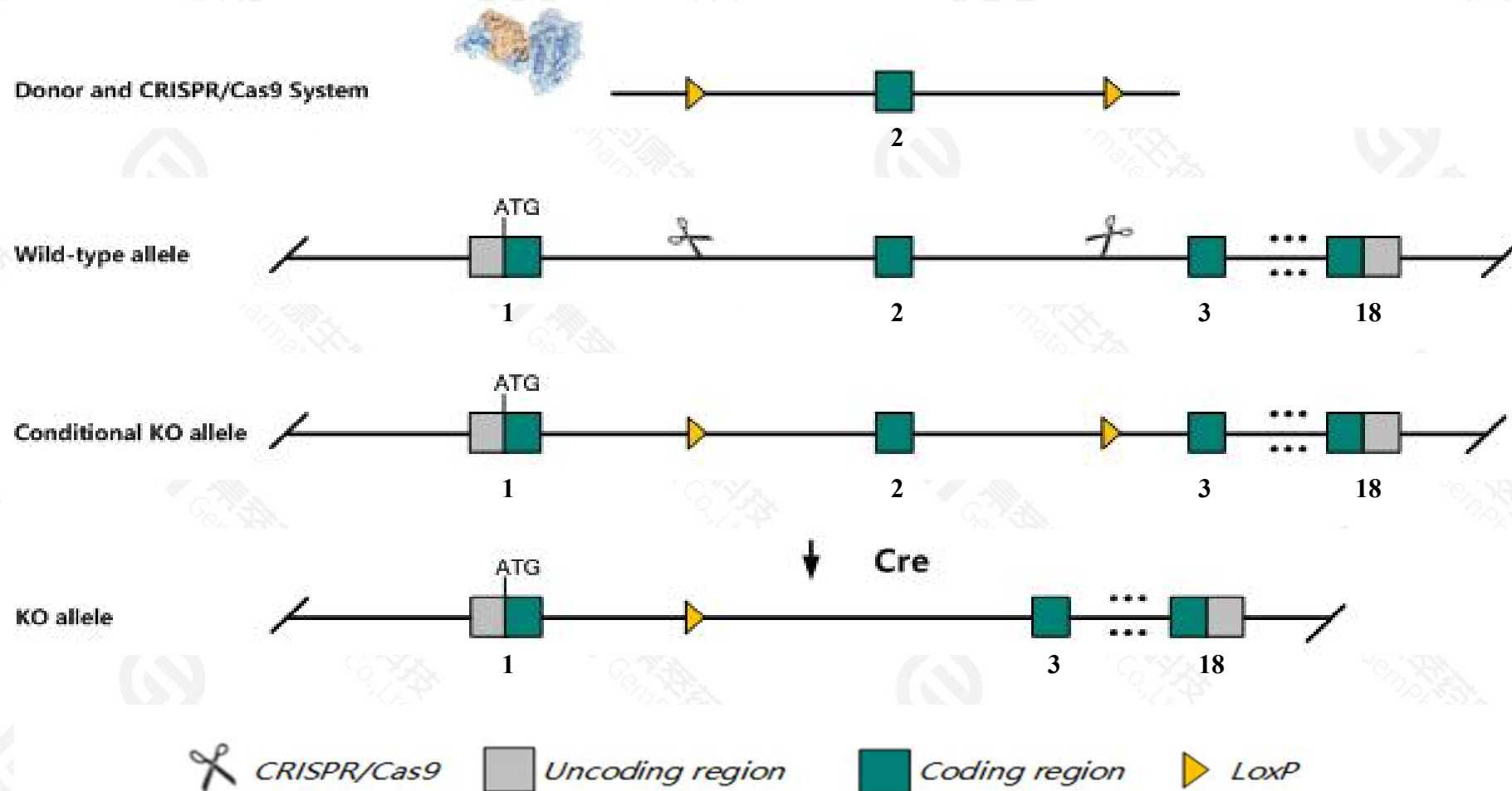
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tmprss7* gene. The schematic diagram is as follows:



Technical routes

- The *Tmprss7* gene has 5 transcripts. According to the structure of *Tmprss7* gene, exon2 of *Tmprss7-201*(ENSMUST00000114562.3) transcript is recommended as the knockout region. The region contains 208bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Tmprss7* 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 *Tmprss7* gene is located on the Chr16. 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.

Gene information (NCBI)

Tmprss7 transmembrane serine protease 7 [Mus musculus (house mouse)]

Gene ID: 208171, updated on 17-Feb-2021

Summary



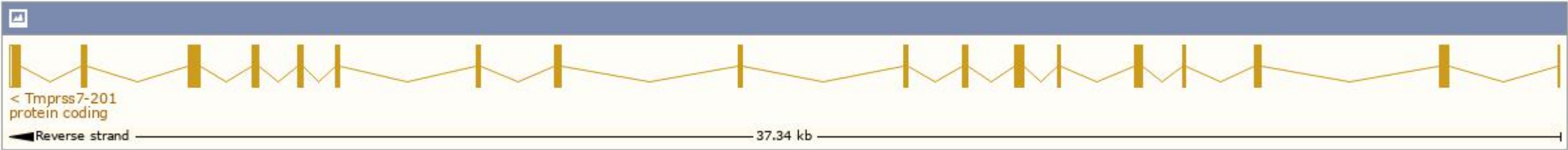
Official Symbol	Tmprss7 provided by MGI
Official Full Name	transmembrane serine protease 7 provided by MGI
Primary source	MGI:MGI:2686594
See related	Ensembl:ENSMUSG00000033177
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	B230219I23Rik, Gm1748
Expression	Low expression observed in reference dataset See more
Orthologs	human all

Transcript information (Ensembl)

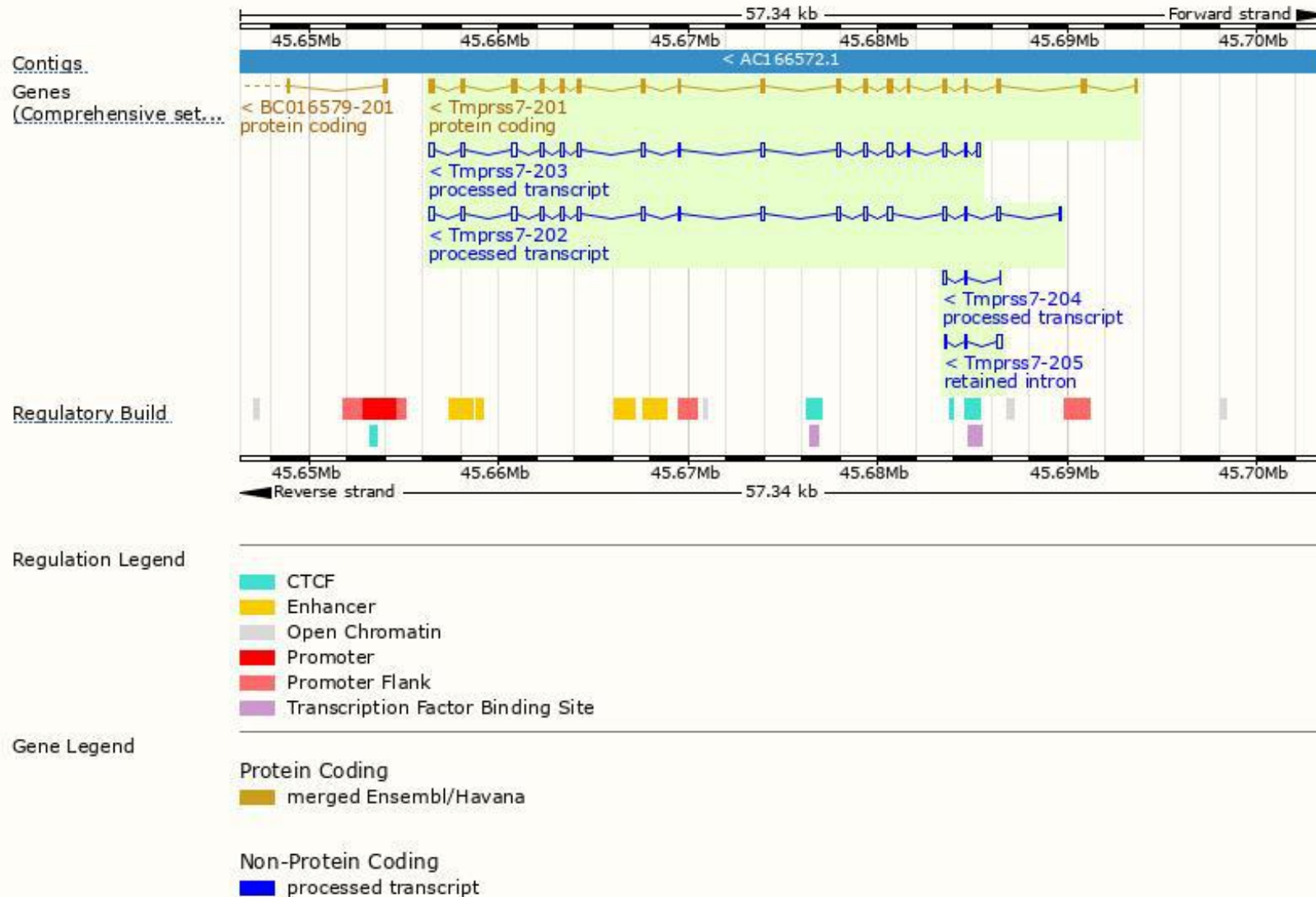
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tmprss7-201	ENSMUST00000114562.3	2587	829aa	Protein coding	CCDS37347		TSL:1 , GENCODE basic , APPRIS P1 ,
Tmprss7-203	ENSMUST00000170951.8	2334	No protein	Processed transcript	-		TSL:1 ,
Tmprss7-202	ENSMUST00000169421.9	2307	No protein	Processed transcript	-		TSL:5 ,
Tmprss7-204	ENSMUST00000178150.8	313	No protein	Processed transcript	-		TSL:5 ,
Tmprss7-205	ENSMUST00000178323.2	338	No protein	Retained intron	-		TSL:2 ,

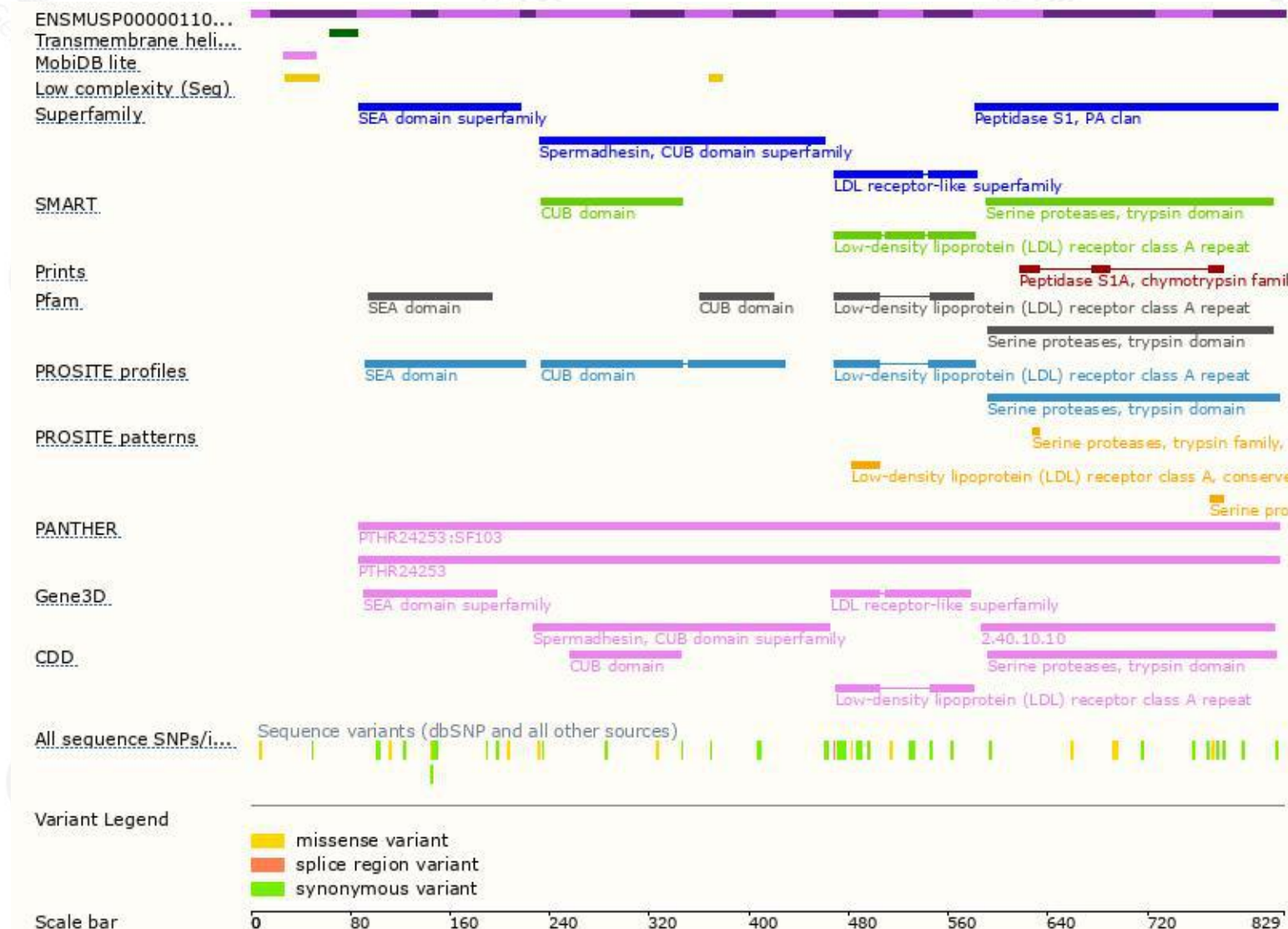
The strategy is based on the design of *Tmprss7-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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