

Tmprss15 Cas9-KO Strategy

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Reviewer:

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Project Overview

Project Name

Tmprss15

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tmprss15* gene. The schematic diagram is as follows:



- The *Tmprss15* gene has 2 transcripts. According to the structure of *Tmprss15* gene, exon2-exon3 of *Tmprss15-201* (ENSMUST00000023566.10) transcript is recommended as the knockout region. The region contains 199bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Tmprss15* gene. The brief process is as follows: CRISPR/Cas9 sys

- The *Tmprss15* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Tmprss15 transmembrane protease, serine 15 [Mus musculus (house mouse)]

Gene ID: 19146, updated on 31-Jan-2019

Summary



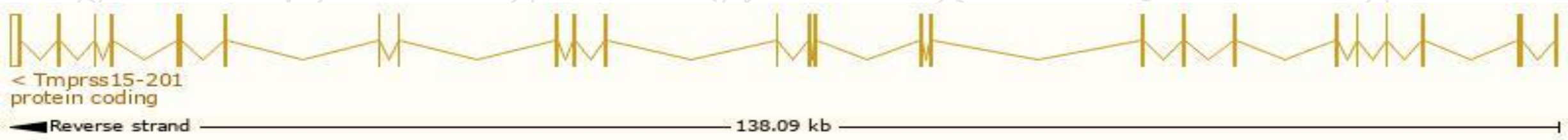
Official Symbol	Tmprss15 provided by MGI
Official Full Name	transmembrane protease, serine 15 provided by MGI
Primary source	MGI:MGI:1197523
See related	Ensembl:ENSMUSG000000022857
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Entk, Prss7
Summary	This gene encodes an enzyme that proteolytically activates the pancreatic proenzyme trypsinogen, converting it into trypsin. The encoded protein is cleaved into two chains that form a heterodimer linked by a disulfide bond. Alternatively spliced transcript variants encoding multiple isoforms have been observed for this gene. [provided by RefSeq, Jan 2013]
Expression	Biased expression in small intestine adult (RPKM 1.8) and duodenum adult (RPKM 0.4) See more
Orthologs	human all

Transcript information (Ensembl)

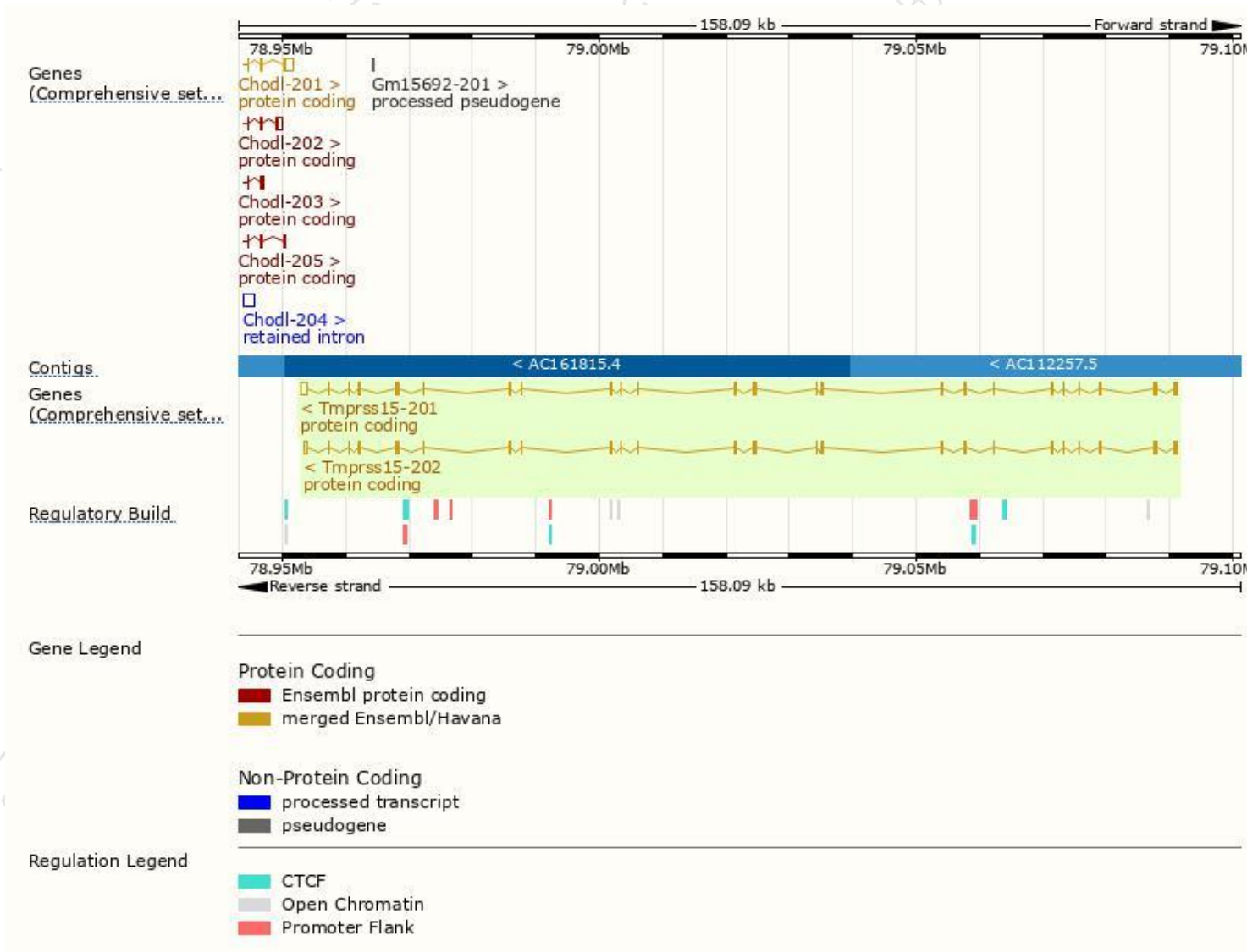
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tmprss15-201	ENSMUST00000023566.10	4177	1069aa	Protein coding	CCDS28280	P97435	TSL:1 GENCODE basic APPRIS P3
Tmprss15-202	ENSMUST00000060402.5	3681	1054aa	Protein coding	CCDS37380	E9Q6Y6	TSL:2 GENCODE basic APPRIS ALT2

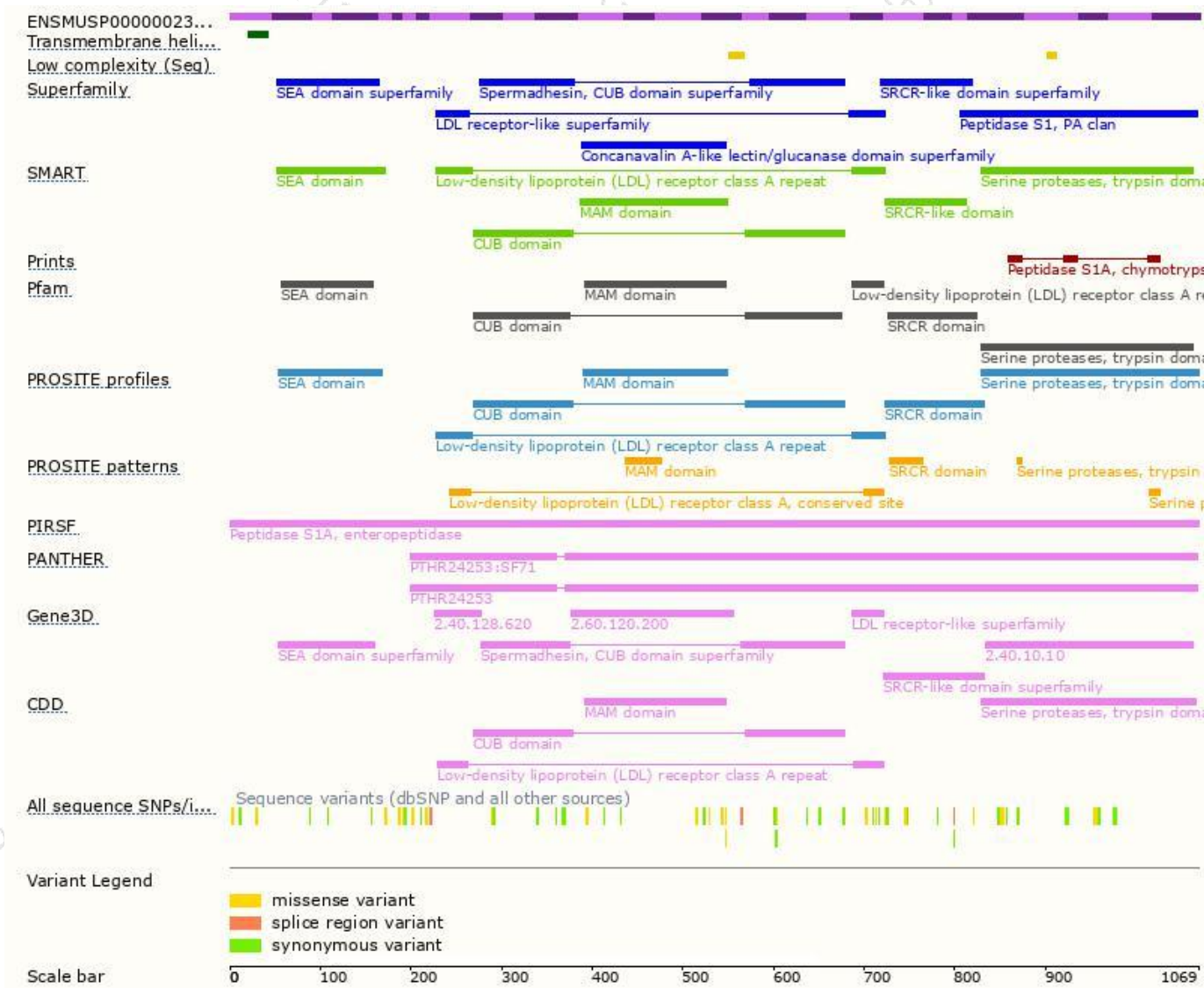
The strategy is based on the design of *Tmprss15-201* transcript,The transcription is shown below



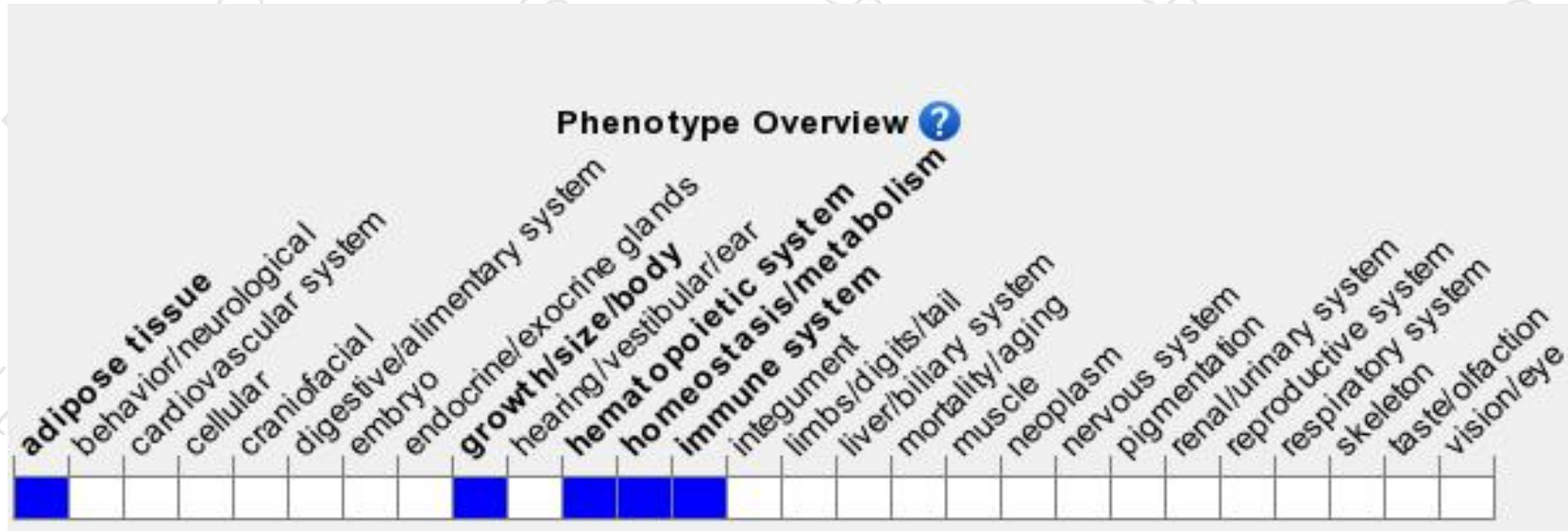
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



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

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

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