

Mfsd7a Cas9-KO Strategy

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Project Overview

Project Name

Mfsd7a

Project type

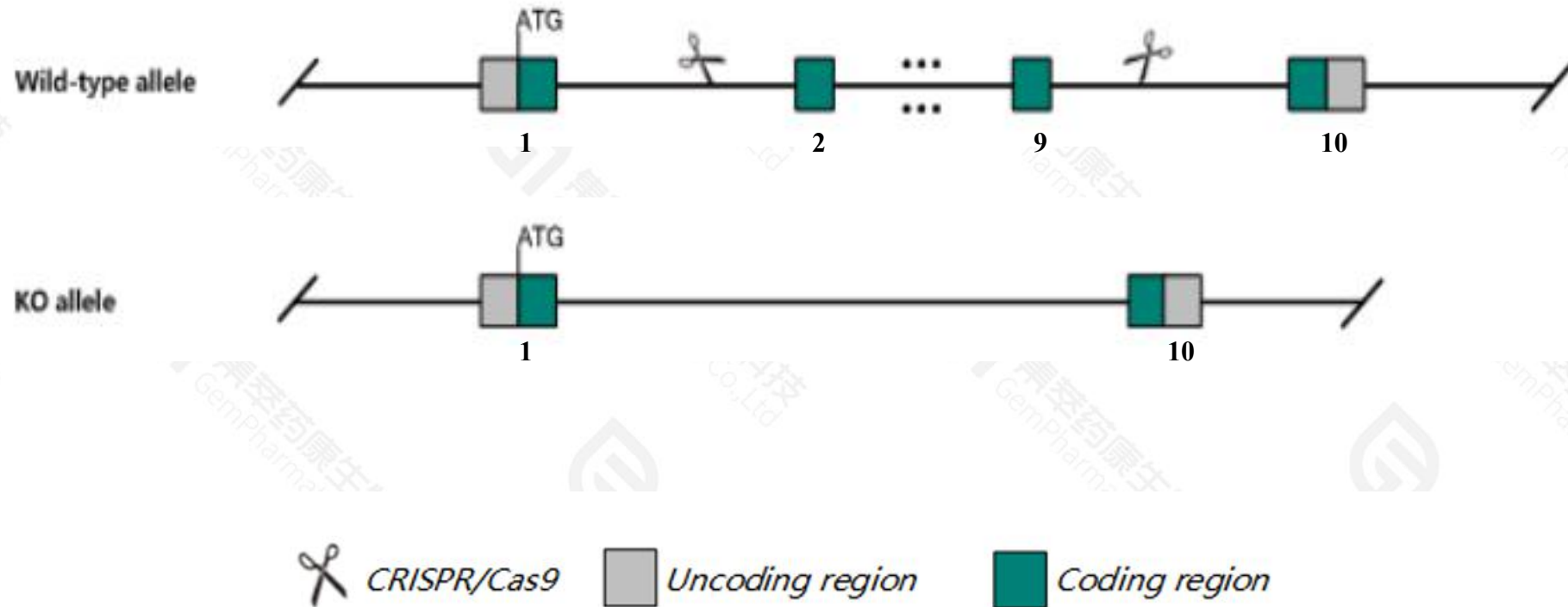
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mfsd7a* gene. The schematic diagram is as follows:



- The *Mfsd7a* gene has 4 transcripts. According to the structure of *Mfsd7a* gene, exon2-exon9 of *Mfsd7a*-201(ENSMUST00000031455.5) transcript is recommended as the knockout region. The region contains 1126bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Mfsd7a* 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.

- Transcript *Mfsd7a-204* may be destroyed directly.
- The *Mfsd7a* gene is located on the Chr5. 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.

Mfsd7a major facilitator superfamily domain containing 7A [Mus musculus (house mouse)]

Gene ID: 243197, updated on 17-Dec-2020

Summary



Official Symbol Mfsd7a provided by [MGI](#)

Official Full Name major facilitator superfamily domain containing 7A provided by [MGI](#)

Primary source [MGI:MGI:2442629](#)

See related [Ensembl:ENSMUSG00000029490](#)

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 4732482E20Rik, Mfsd, Mfsd7, Slc49a3

Expression Broad expression in stomach adult (RPKM 8.0), colon adult (RPKM 6.6) and 19 other tissues [See more](#)

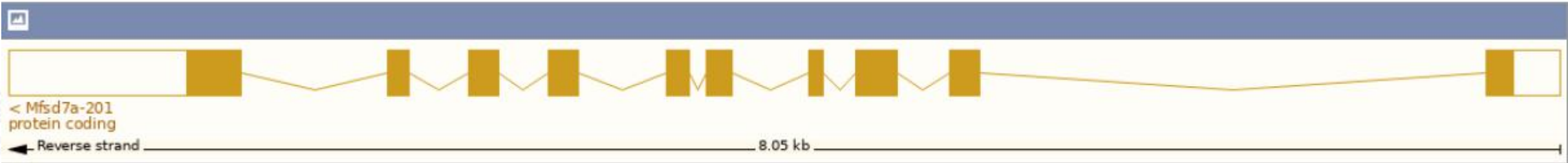
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

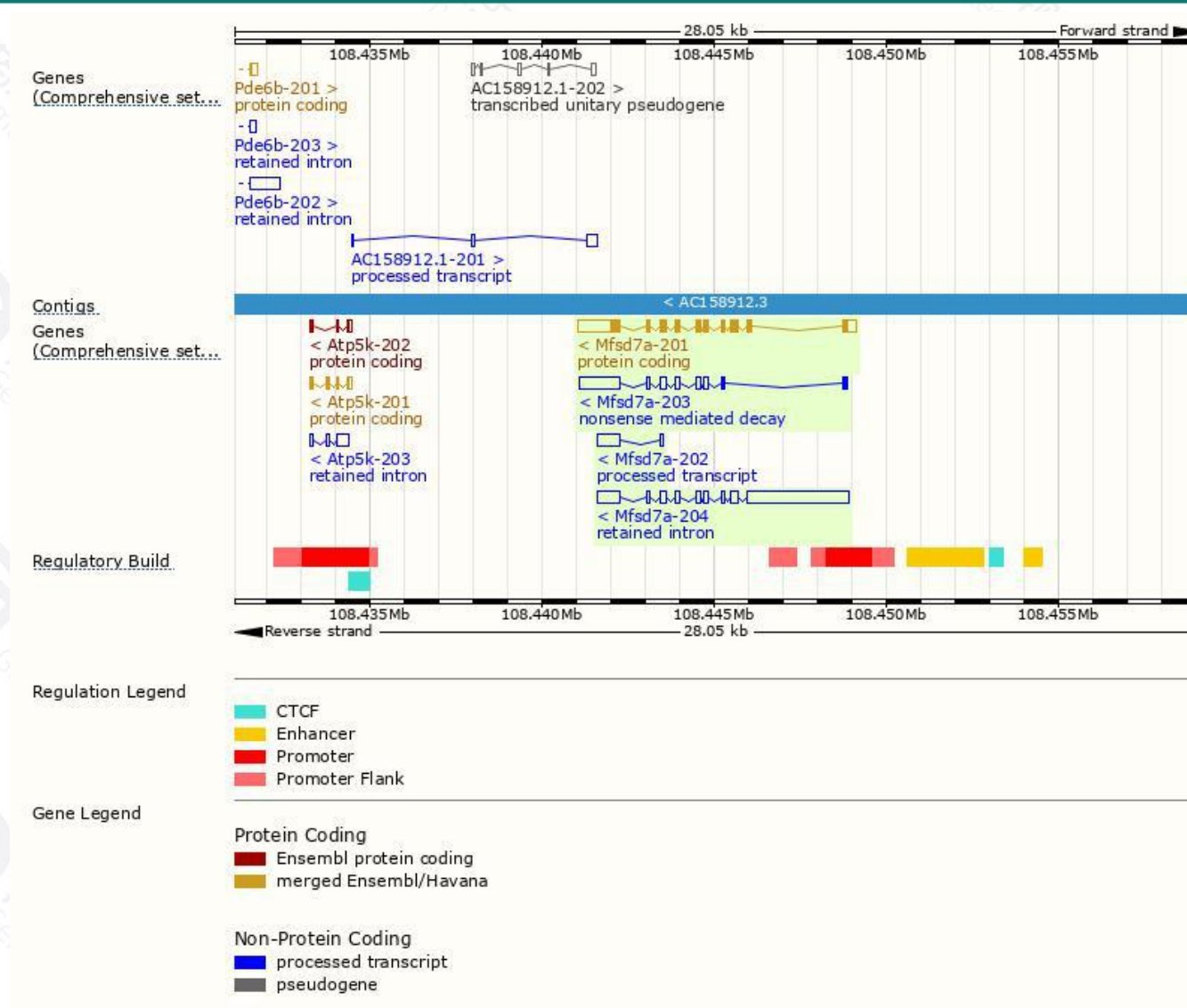
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mfsd7a-201	ENSMUST00000031455.5	2717	516aa	Protein coding	CCDS19511		TSL:1 , GENCODE basic , APPRIS P1 ,
Mfsd7a-203	ENSMUST00000238510.2	2111	64aa	Nonsense mediated decay	-		
Mfsd7a-202	ENSMUST00000238429.2	720	No protein	Processed transcript	-		
Mfsd7a-204	ENSMUST00000238630.2	4591	No protein	Retained intron	-		

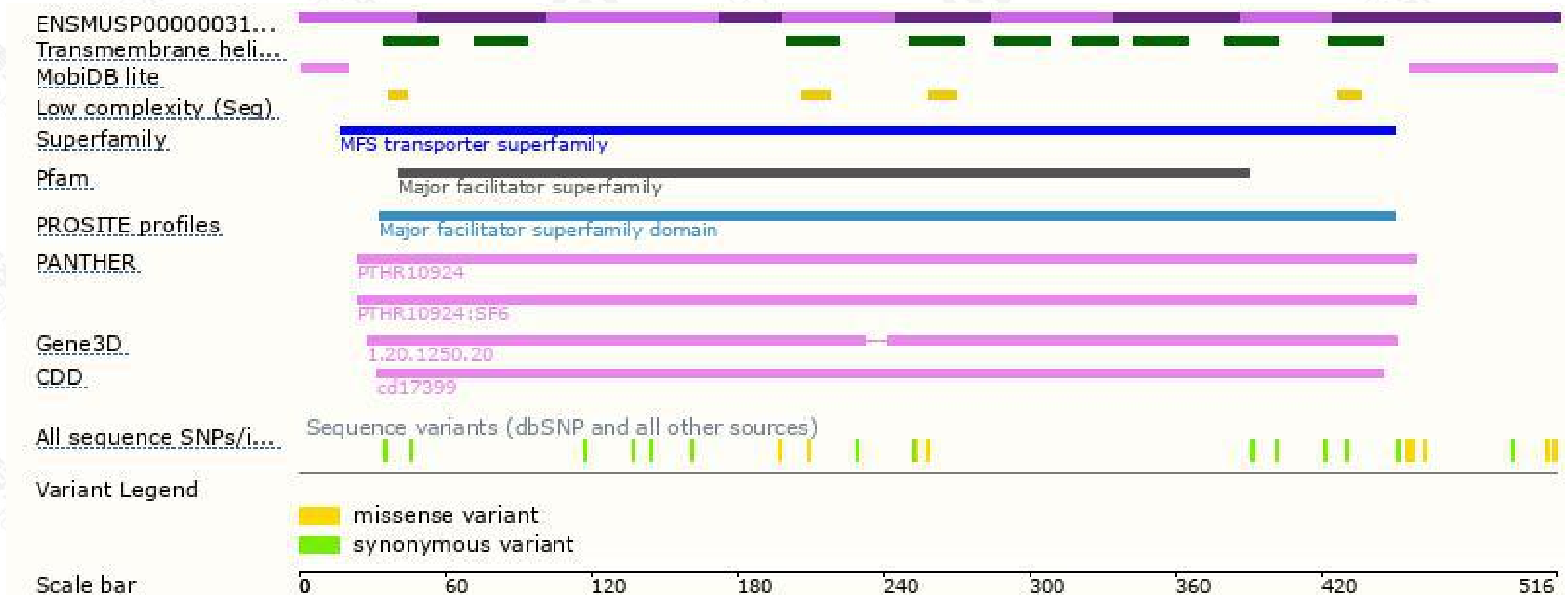
The strategy is based on the design of *Mfsd7a-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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