

Tmem135 Cas9-CKO Strategy

Designer:

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Project Overview

Project Name

Tmem135

Project type

Cas9-CKO

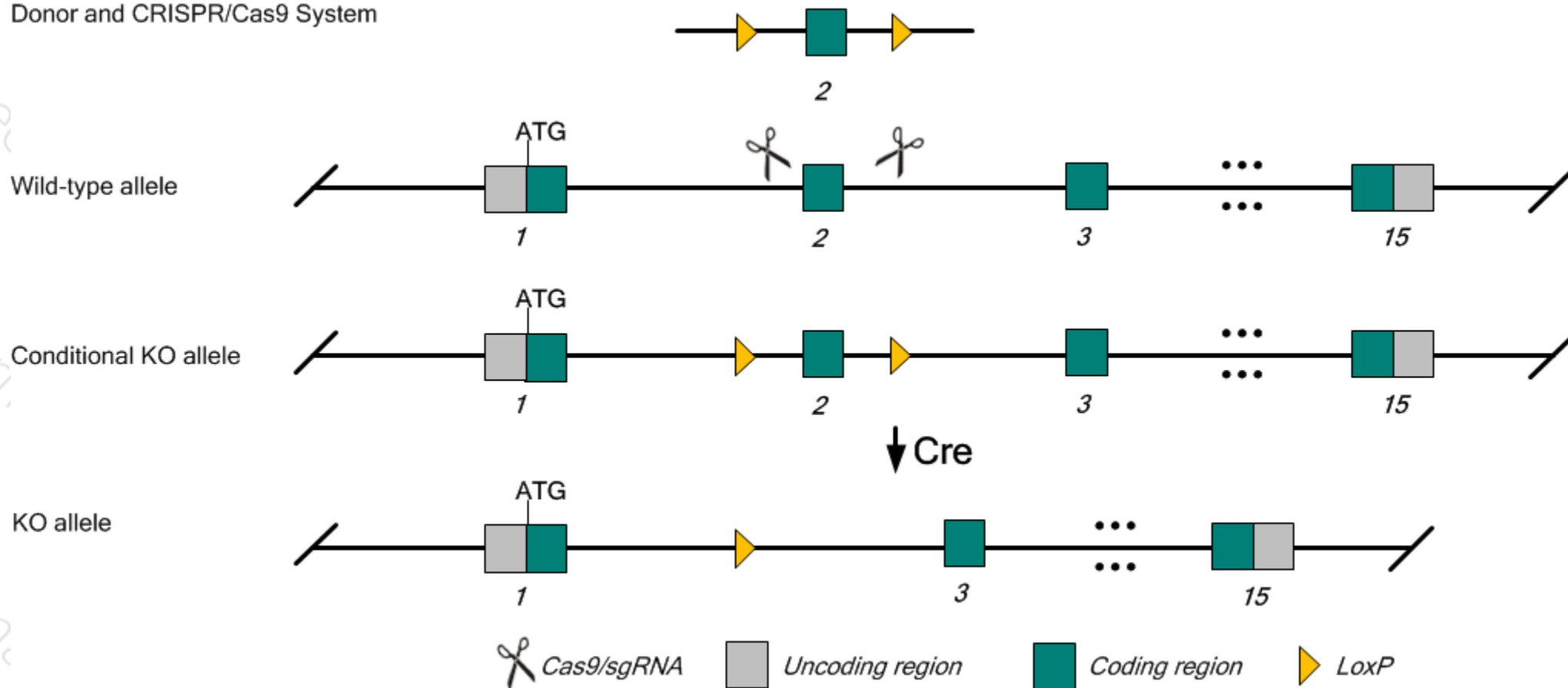
Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tmem135* gene. The schematic diagram is as follows:

Donor and CRISPR/Cas9 System



- The *Tmem135* gene has 9 transcripts, According to the structure of *Tmem135* gene, exon2 of *Tmem135-201* transcript is recommended as the knockout region. The region contains the 128bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Tmem135* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues or cell types.

- Transcript *Tmem135-204*, *Tmem135-206*, *Tmem135-208*, *Tmem135-209* may not be affected.
- The *Tmem135* gene is located in 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Tmem135 transmembrane protein 135 [*Mus musculus* (house mouse)]

Gene ID: 72759, updated on 31-Jan-2019

Summary

Official Symbol	Tmem135 provided by MGI
Official Full Name	transmembrane protein 135 provided by MGI
Primary source	MGI:MGI:1920009
See related	Ensembl:ENSMUSG000000039428
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	PMP52; AW319712; 2810439K08Rik
Expression	Ubiquitous expression in adrenal adult (RPKM 32.4), subcutaneous fat pad adult (RPKM 19.0) and 27 other tissues See more
Orthologs	human all

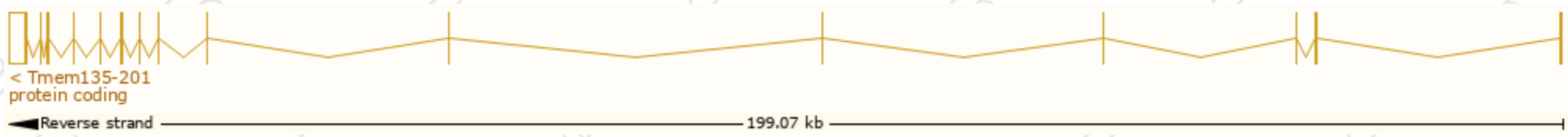
Transcript information (Ensembl)



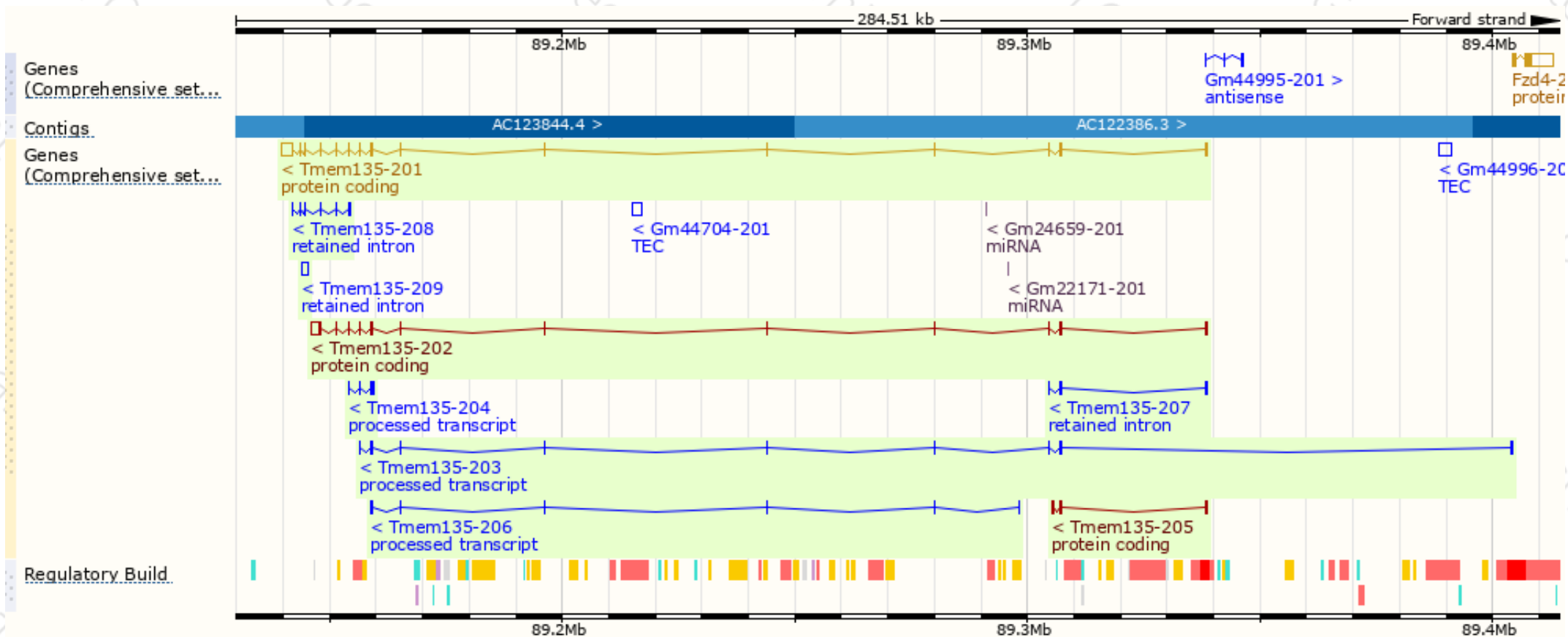
The gene has 9 transcripts, and all transcripts are shown below :

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags
Tmem135-201	ENSMUST00000041968.10	3700	458aa	Protein coding	CCDS21440	Q9CYV5	NM_028343 NP_082619	TSL:1 GENCODE basic APPRIS P1
Tmem135-202	ENSMUST00000117852.7	2986	371aa	Protein coding	-	Q8C8G3	-	TSL:1 GENCODE basic
Tmem135-205	ENSMUST00000137723.1	490	113aa	Protein coding	-	D3YUX0	-	CDS 3' incomplete TSL:3
Tmem135-203	ENSMUST00000124477.7	756	No protein	Processed transcript	-	-	-	TSL:5
Tmem135-204	ENSMUST00000136267.7	388	No protein	Processed transcript	-	-	-	TSL:3
Tmem135-206	ENSMUST00000139320.1	280	No protein	Processed transcript	-	-	-	TSL:5
Tmem135-209	ENSMUST00000207335.1	1558	No protein	Retained intron	-	-	-	TSL:NA
Tmem135-208	ENSMUST00000156153.1	696	No protein	Retained intron	-	-	-	TSL:2
Tmem135-207	ENSMUST00000154434.2	659	No protein	Retained intron	-	-	-	TSL:2

The strategy is based on the design of *Tmem135-201* 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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