Tmed9 Cas9-CKO Strategy

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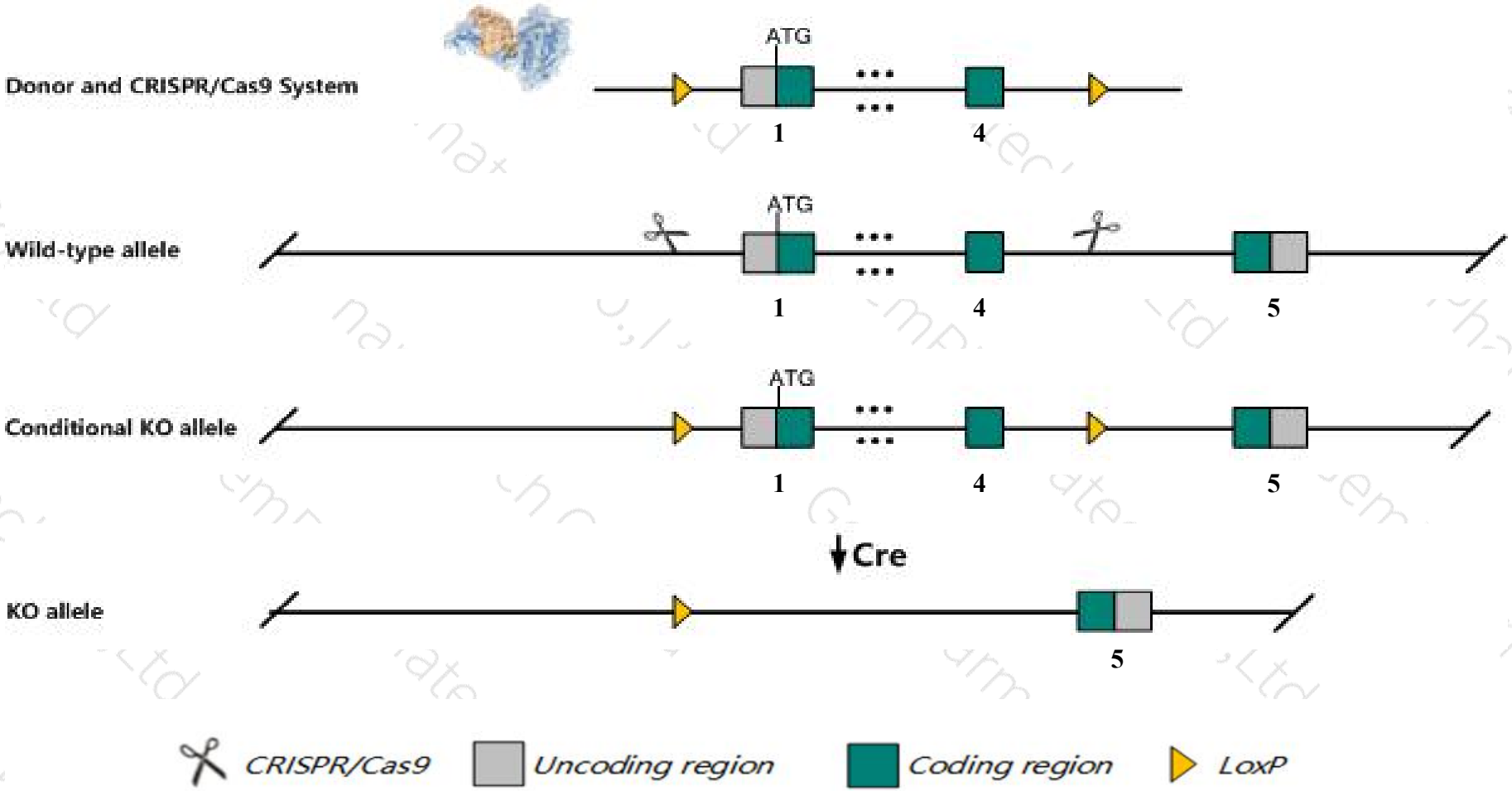
Project Overview

Project Name	***Tmed9***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tmed9* gene. The schematic diagram is as follows:



Technical routes

- The *Tmed9* gene has 5 transcripts. According to the structure of *Tmed9* gene, exon1-exon4 of *Tmed9-201* (ENSMUST00000109905.4) transcript is recommended as the knockout region.The region contains start codon ATG. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Tmed9* 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.

Notice

➢ The *Tmed9* gene is located on the Chr13. 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.

➢ The floxed region is near to the N-terminal of *B4galt7* gene,this strategy may influence the regulatory function of the N-terminal of *B4galt7* gene.

➢ 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）

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Tmed9 transmembrane p24 trafficking protein 9 [Mus musculus (house mouse)]

Gene ID: 67511, updated on 13-Mar-2020

Summary

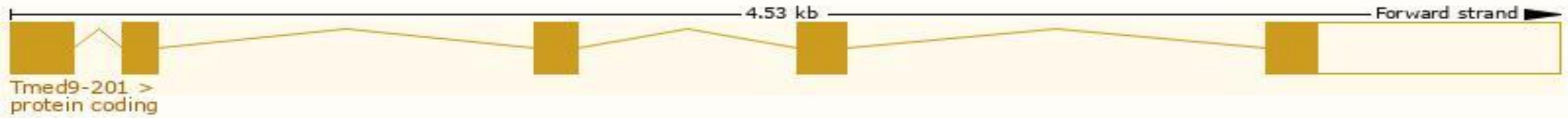
Official Symbol	Tmed9 provided by MGI
Official Full Name	transmembrane p24 trafficking protein 9 provided by MGI
Primary source	MGI:MGI:1914761
See related	Ensembl:ENSMUSG00000058569
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2400003B06Rik
Expression	Ubiquitous expression in placenta adult (RPKM 76.5), limb E14.5 (RPKM 60.5) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

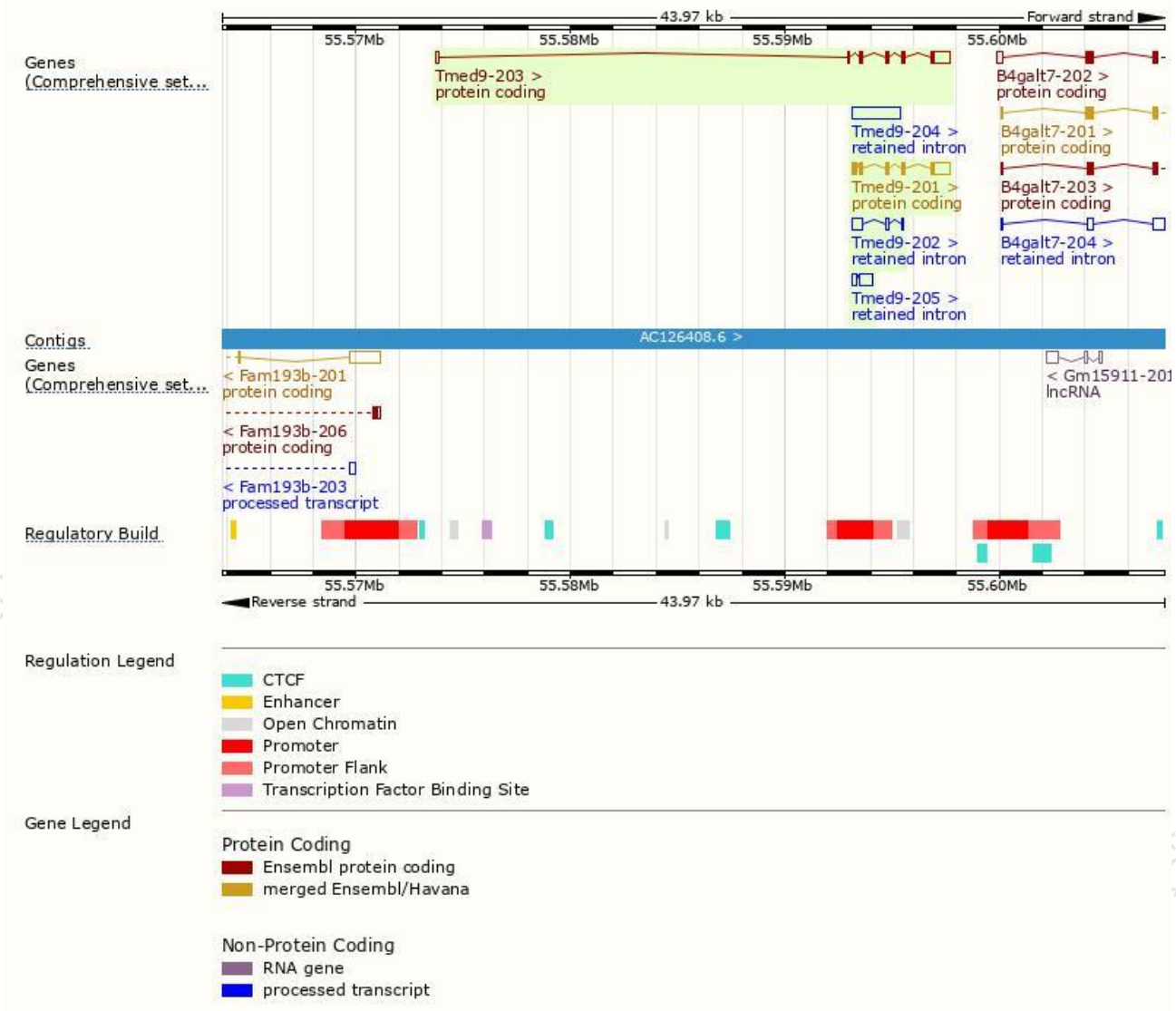
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tmed9-201	ENSMUST00000109905.4	1420	235aa	Protein coding	CCDS49277	Q6PDC2 Q99KF1	TSL:1 GENCODE basic APPRIS P1
Tmed9-203	ENSMUST00000224741.1	1450	209aa	Protein coding	-	A0A286YDS5	GENCODE basic
Tmed9-204	ENSMUST00000225723.1	2206	No protein	Retained intron	-	-	
Tmed9-205	ENSMUST00000225888.1	793	No protein	Retained intron	-	-	
Tmed9-202	ENSMUST00000224634.1	603	No protein	Retained intron	-	-	

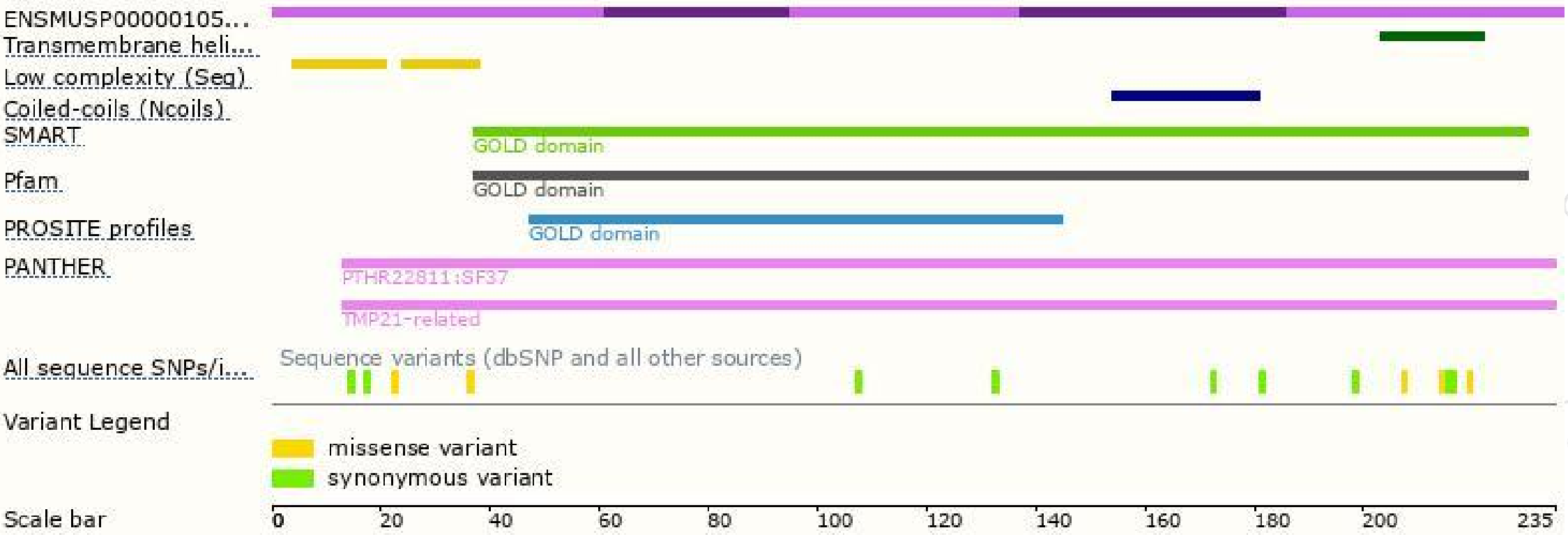
The strategy is based on the design of *Tmed9-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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