

***Trmt10b* Cas9-CKO Strategy**

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Project Overview

Project Name

Trmt10b

Project type

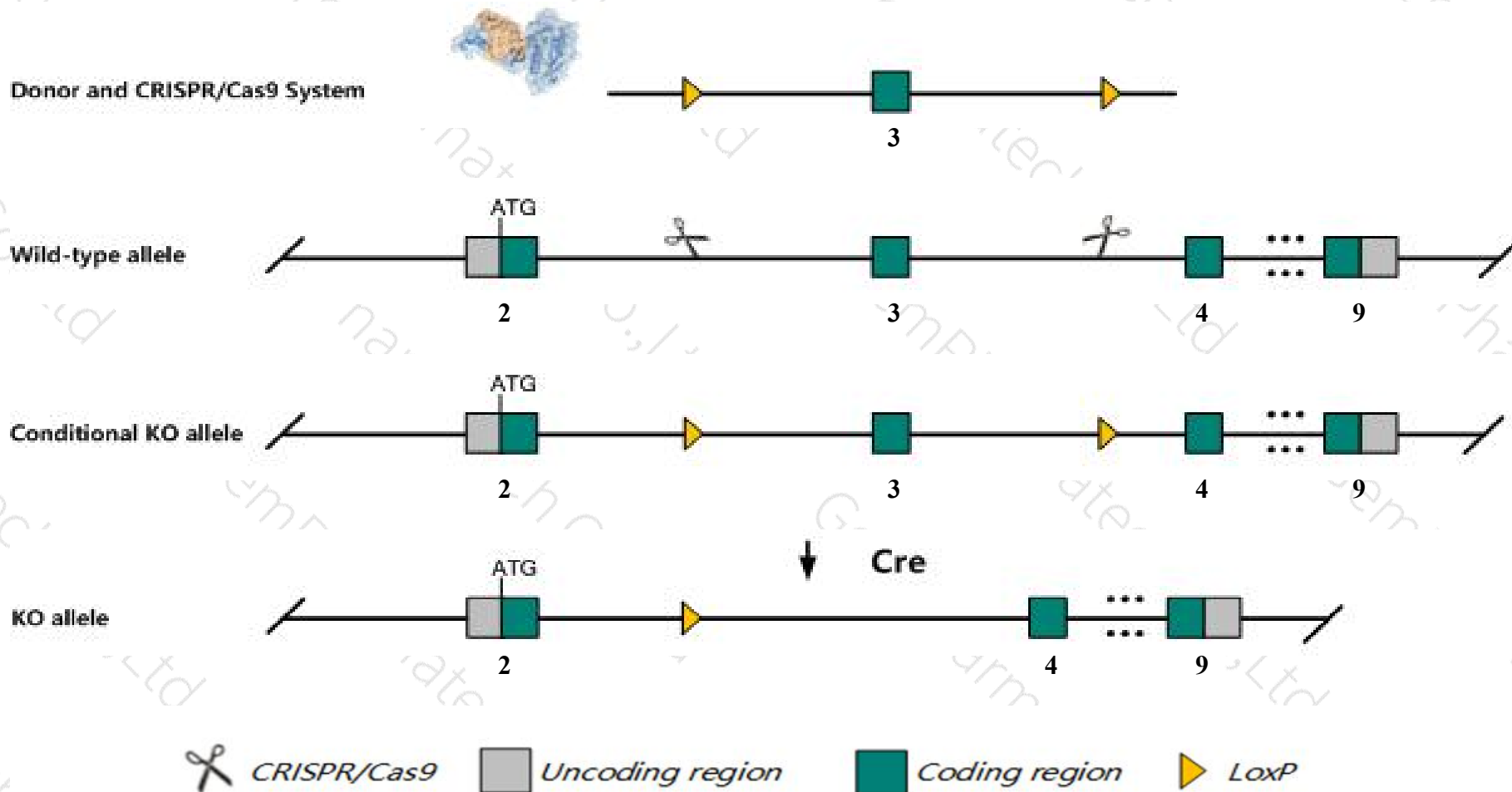
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Trmt10b* gene. The schematic diagram is as follows:



Technical routes

- The *Trmt10b* gene has 7 transcripts. According to the structure of *Trmt10b* gene, exon3 of *Trmt10b-201* (ENSMUST00000044673.8) transcript is recommended as the knockout region. The region contains 115bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Trmt10b* 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 effect on transcript *Trmt10b*-203 is unknown.
- Transcript *Trmt10b*-207 may not be affected.
- The *Trmt10b* gene is located on the Chr4. 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)

Trmt10b tRNA methyltransferase 10B [Mus musculus (house mouse)]

Gene ID: 69934, updated on 13-Mar-2020

Summary



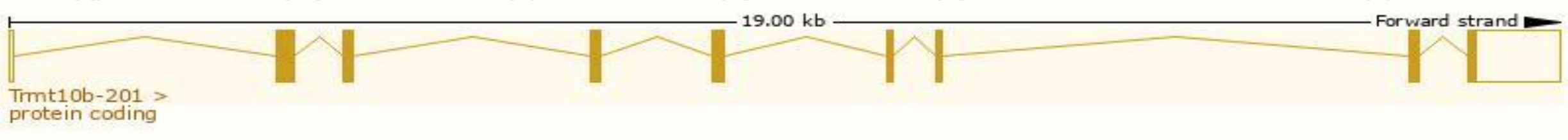
Official Symbol	Trmt10b provided by MGI
Official Full Name	tRNA methyltransferase 10B provided by MGI
Primary source	MGI:MGI:1917184
See related	Ensembl:ENSMUSG00000035601
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2610042J10Rik, Rg9mtd3, Rnmtd3
Expression	Ubiquitous expression in CNS E18 (RPKM 4.1), CNS E11.5 (RPKM 4.0) and 25 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

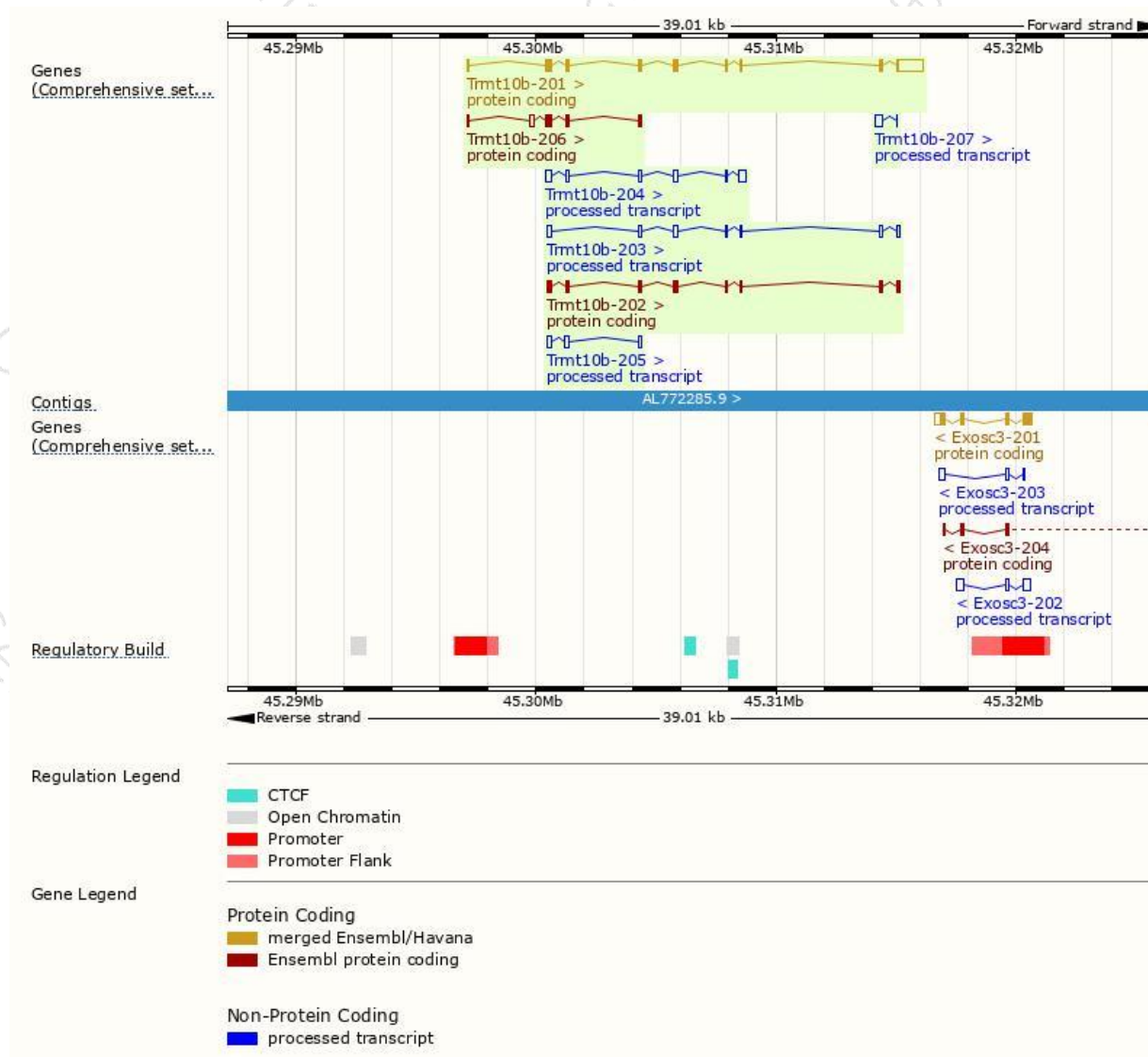
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Trmt10b-201	ENSMUST00000044673.8	2064	318aa	Protein coding	CCDS18135	Q9D075	TSL:1 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS P2
Trmt10b-202	ENSMUST00000107800.2	983	316aa	Protein coding	-	Z4YKN9	TSL:5 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS ALT2
Trmt10b-206	ENSMUST00000144781.2	643	141aa	Protein coding	-	Z4YLM5	CDS 3' incomplete TSL:3
Trmt10b-204	ENSMUST00000141659.7	963	No protein	Processed transcript	-	-	TSL:5
Trmt10b-203	ENSMUST00000126972.1	874	No protein	Processed transcript	-	-	TSL:5
Trmt10b-205	ENSMUST00000142785.7	459	No protein	Processed transcript	-	-	TSL:5
Trmt10b-207	ENSMUST00000145756.1	346	No protein	Processed transcript	-	-	TSL:2

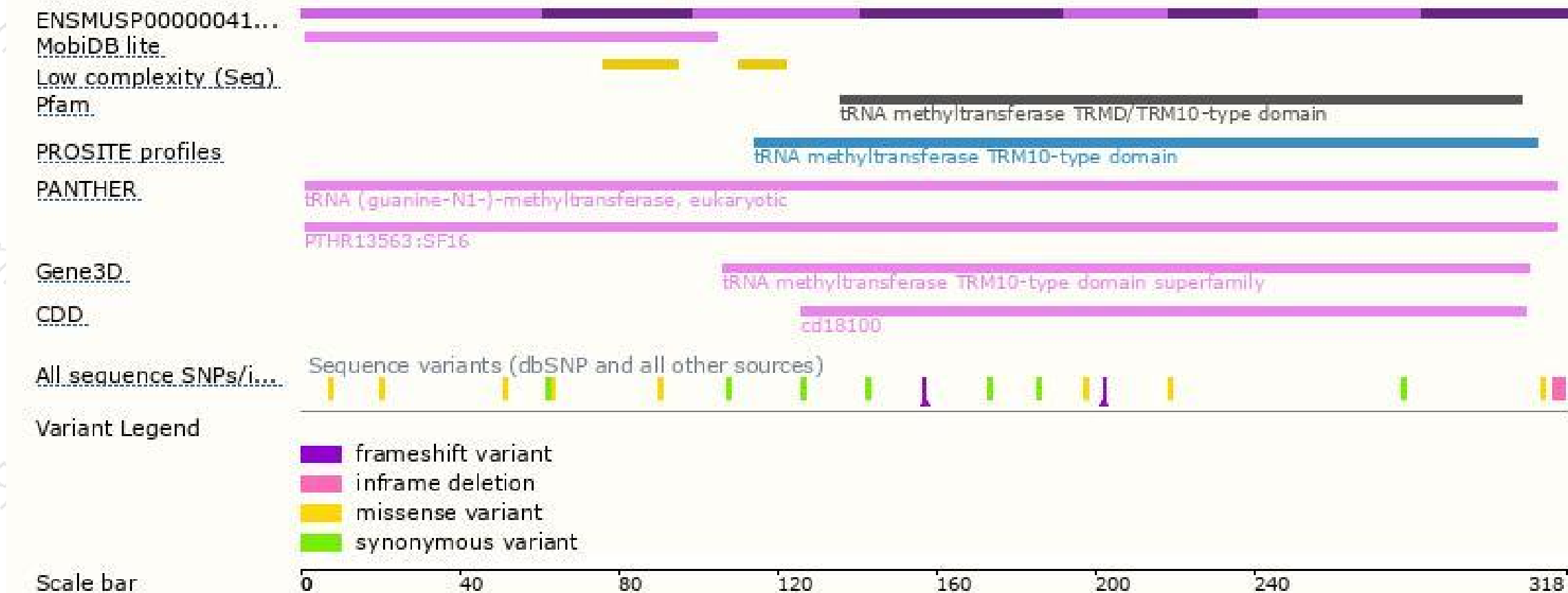
The strategy is based on the design of *Trmt10b-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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