

***Tsen15* Cas9-CKO Strategy**

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Project Overview

Project Name

Tsen15

Project type

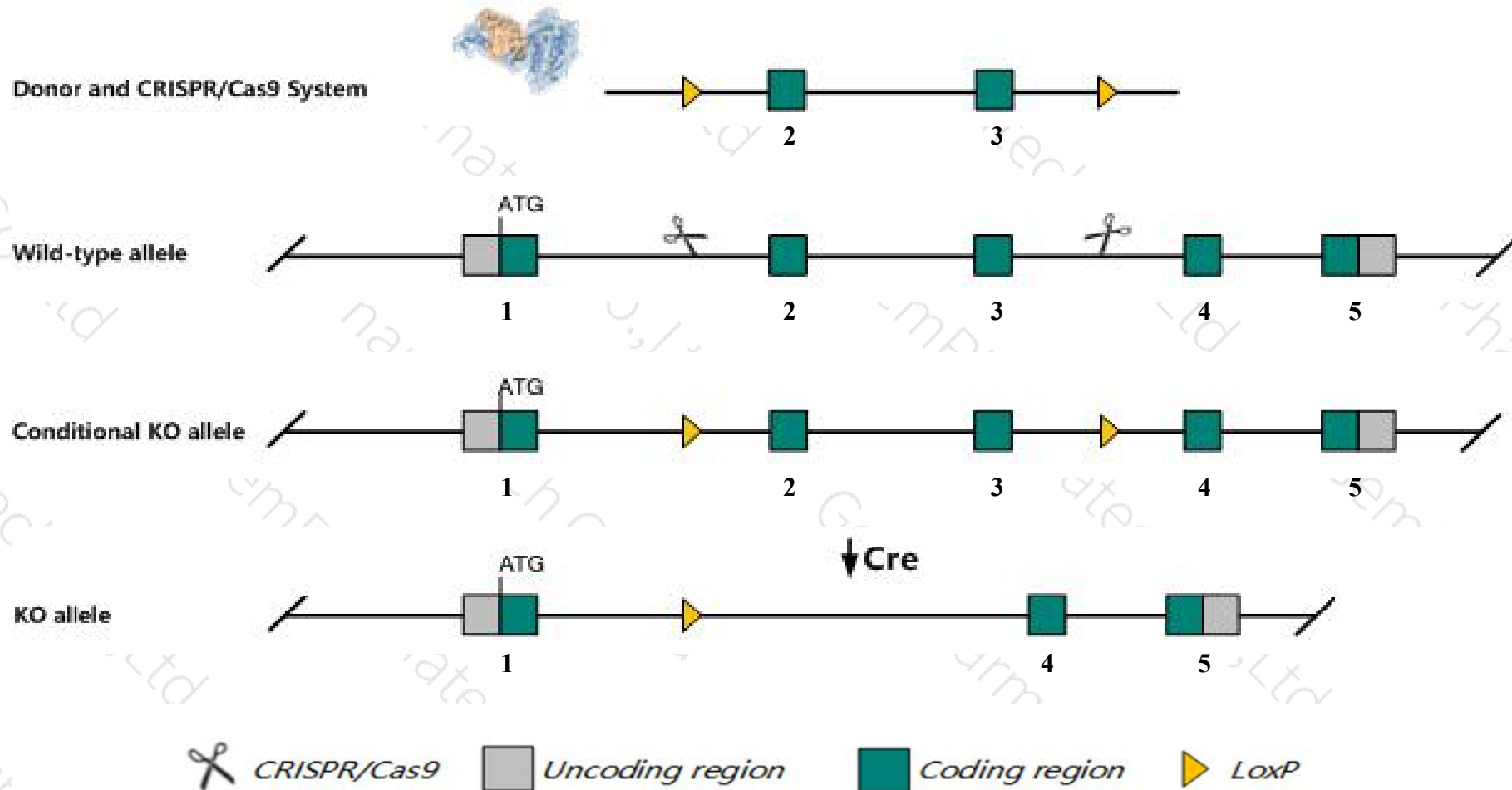
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tsen15* gene. The schematic diagram is as follows:



Technical routes

- The *Tsen15* gene has 7 transcripts. According to the structure of *Tsen15* gene, exon2-exon3 of *Tsen15-201*(ENSMUST00000015124.14) transcript is recommended as the knockout region. The region contains 218bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Tsen15* 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 *Tsen15* gene is located on the Chr1. 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)

Tsen15 tRNA splicing endonuclease subunit 15 [Mus musculus (house mouse)]

Gene ID: 66637, updated on 13-Mar-2020

Summary



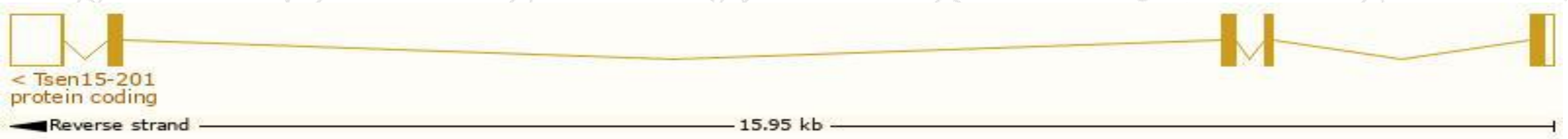
Official Symbol	Tsen15 provided by MGI
Official Full Name	tRNA splicing endonuclease subunit 15 provided by MGI
Primary source	MGI:MGI:1913887
See related	Ensembl:ENSMUSG00000014980
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	5730449L18Rik, AL023077, Sen15
Expression	Ubiquitous expression in limb E14.5 (RPKM 14.7), placenta adult (RPKM 11.9) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

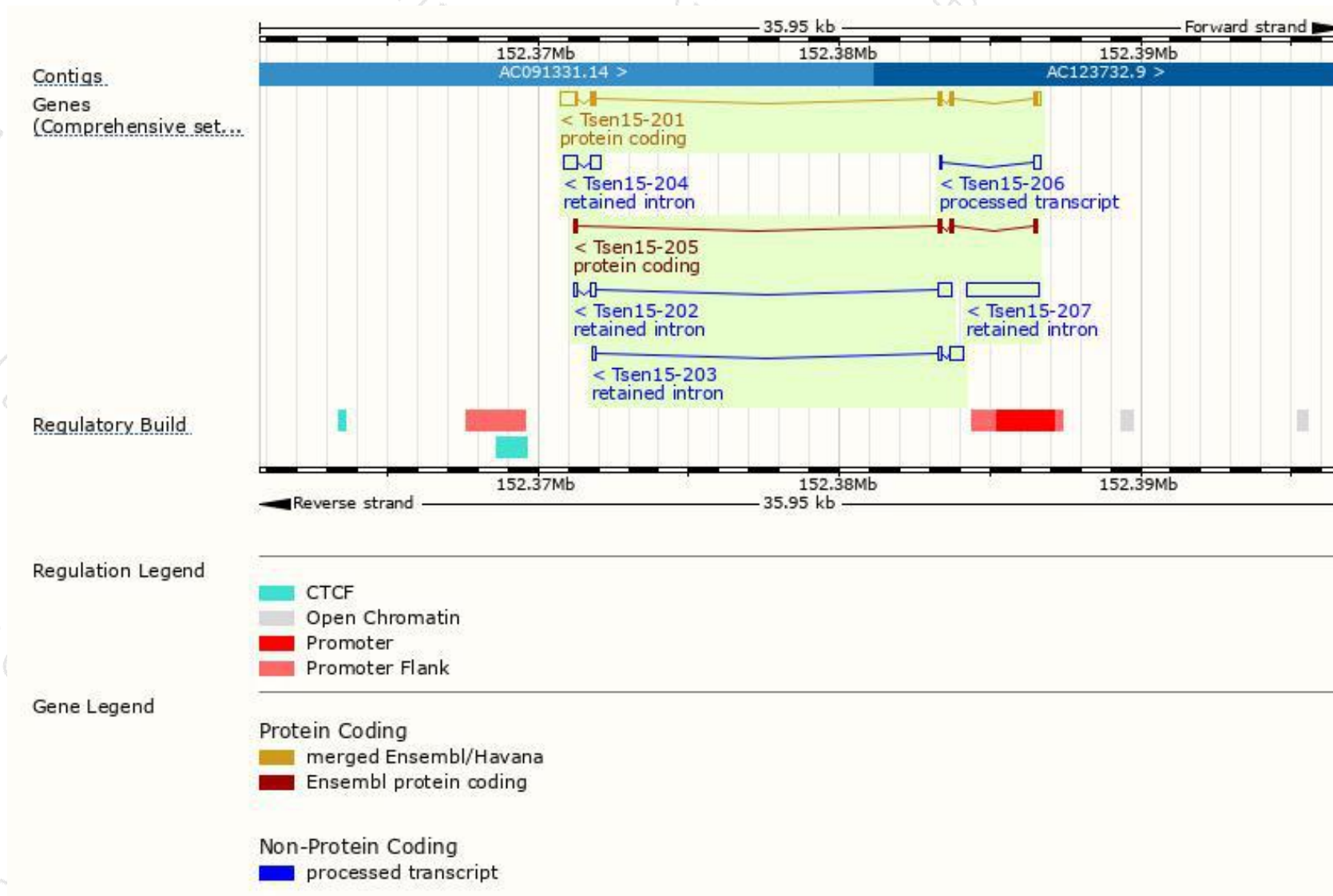
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tsen15-201	ENSMUST00000015124.14	1133	168aa	Protein coding	CCDS15363	G3X8S8	TSL:1 GENCODE basic APPRIS P1
Tsen15-205	ENSMUST000000162371.1	431	128aa	Protein coding	-	E0CY96	TSL:5 GENCODE basic
Tsen15-206	ENSMUST000000163027.1	283	No protein	Processed transcript	-	-	TSL:3
Tsen15-207	ENSMUST000000188105.1	2418	No protein	Retained intron	-	-	TSL:NA
Tsen15-204	ENSMUST000000161717.1	775	No protein	Retained intron	-	-	TSL:2
Tsen15-202	ENSMUST000000159270.1	698	No protein	Retained intron	-	-	TSL:2
Tsen15-203	ENSMUST000000159717.1	651	No protein	Retained intron	-	-	TSL:5

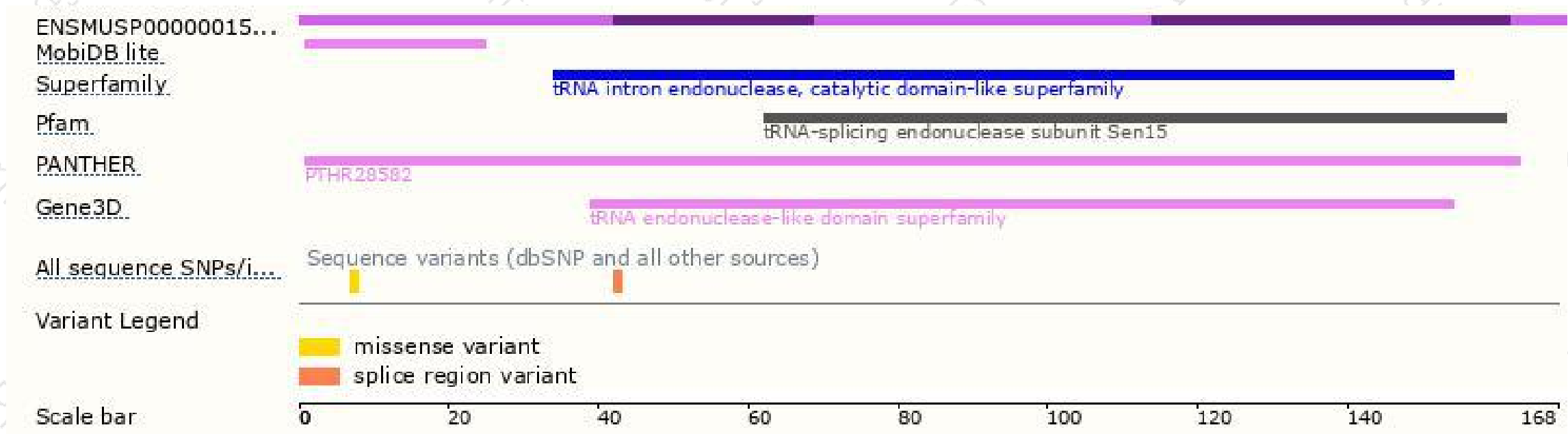
The strategy is based on the design of *Tsen15-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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