

Tpr Cas9-CKO Strategy

Designer:

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Design Date:

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Project Overview

Project Name

Tpr

Project type

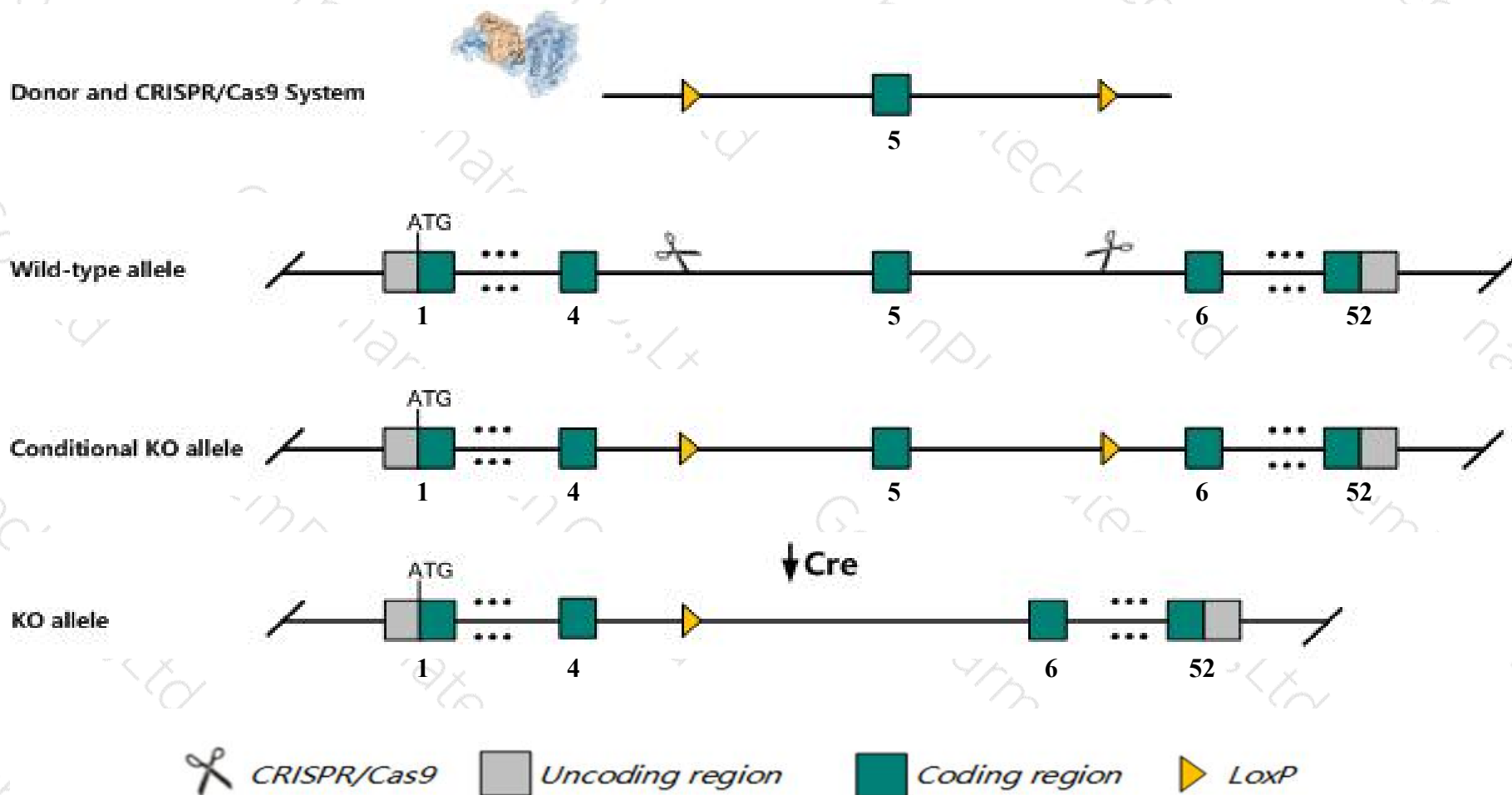
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



Technical routes

- The *Tpr* gene has 14 transcripts. According to the structure of *Tpr* gene, exon5 of *Tpr-203* (ENSMUST00000124973.8) transcript is recommended as the knockout region. The region contains 97bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Tpr* 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 *Tpr* 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.
- Transcript *Tpr*-202,213 may not be affected.
- 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)

Tpr translocated promoter region, nuclear basket protein [*Mus musculus* (house mouse)]

Gene ID: 108989, updated on 10-Aug-2019

Summary

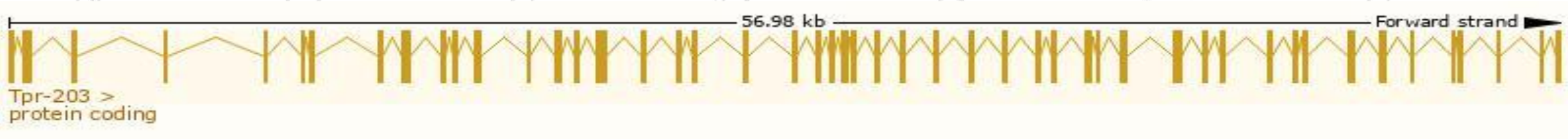
Official Symbol	Tpr provided by MGI
Official Full Name	translocated promoter region, nuclear basket protein provided by MGI
Primary source	MGI:MGI:1922066
See related	Ensembl:ENSMUSG000000006005
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	C77892; 2610029M07Rik
Expression	Ubiquitous expression in CNS E11.5 (RPKM 19.4), placenta adult (RPKM 13.2) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

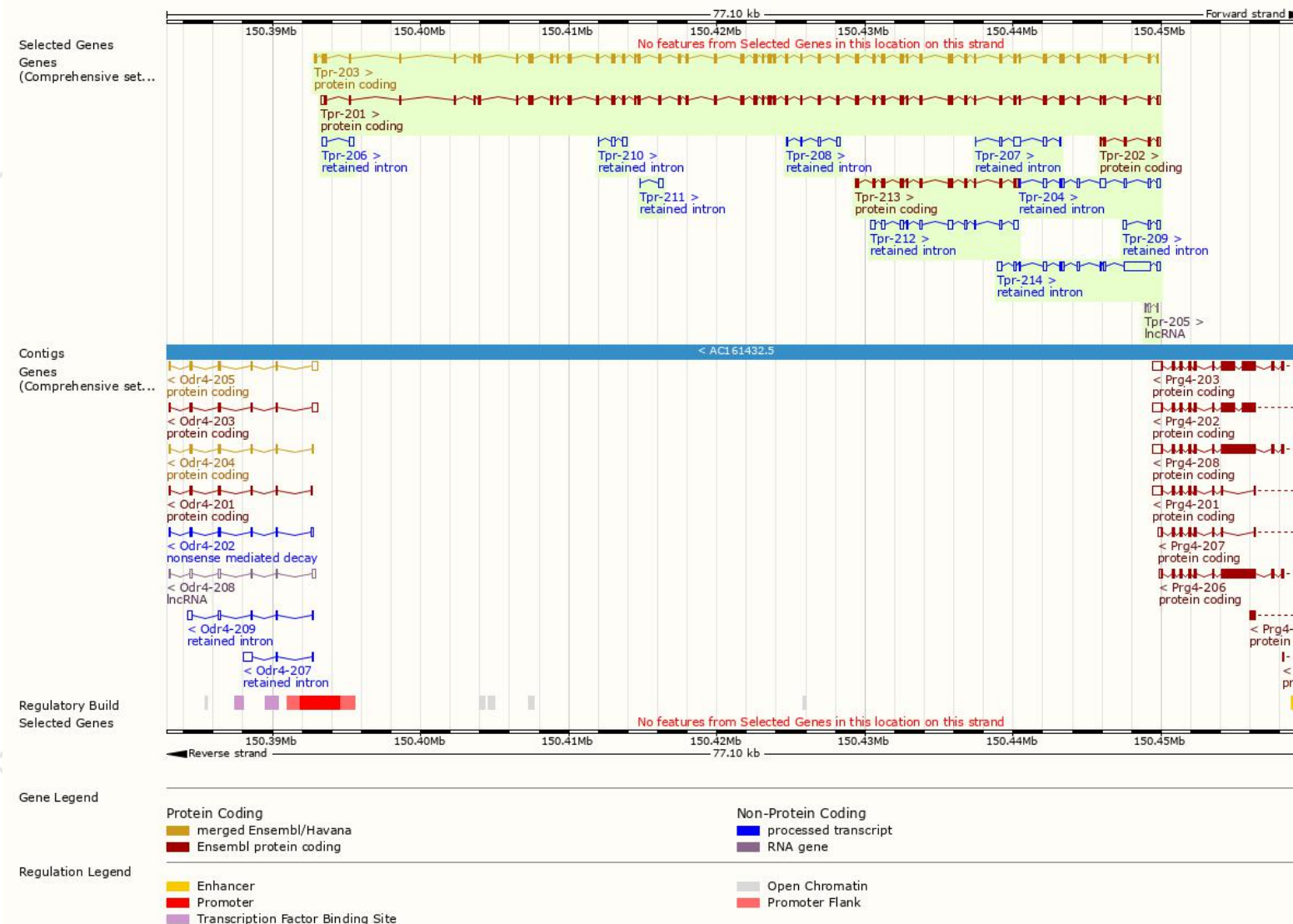
The gene has 14 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tpr-203	ENSMUST00000124973.8	7430	2431aa	Protein coding	CCDS35734	F6ZDS4	TSL:1 GENCODE basic APPRIS P2
Tpr-201	ENSMUST00000119161.8	7480	2357aa	Protein coding	-	Q7M739	TSL:5 GENCODE basic APPRIS ALT 2
Tpr-213	ENSMUST00000151563.1	1940	611aa	Protein coding	-	F6RX08	CDS 5' incomplete TSL:1
Tpr-202	ENSMUST00000124484.1	575	144aa	Protein coding	-	F6R5D8	CDS 5' incomplete TSL:3
Tpr-205	ENSMUST00000130779.1	229	No protein	Processed transcript	-	-	TSL:2
Tpr-214	ENSMUST00000152967.7	3200	No protein	Retained intron	-	-	TSL:2
Tpr-212	ENSMUST00000150752.8	1892	No protein	Retained intron	-	-	TSL:1
Tpr-204	ENSMUST00000128417.8	1332	No protein	Retained intron	-	-	TSL:5
Tpr-207	ENSMUST00000132257.8	934	No protein	Retained intron	-	-	TSL:5
Tpr-208	ENSMUST00000132522.1	576	No protein	Retained intron	-	-	TSL:3
Tpr-206	ENSMUST00000131701.1	572	No protein	Retained intron	-	-	TSL:2
Tpr-210	ENSMUST00000141827.2	559	No protein	Retained intron	-	-	TSL:5
Tpr-209	ENSMUST00000138718.7	470	No protein	Retained intron	-	-	TSL:2
Tpr-211	ENSMUST00000147769.1	362	No protein	Retained intron	-	-	TSL:2

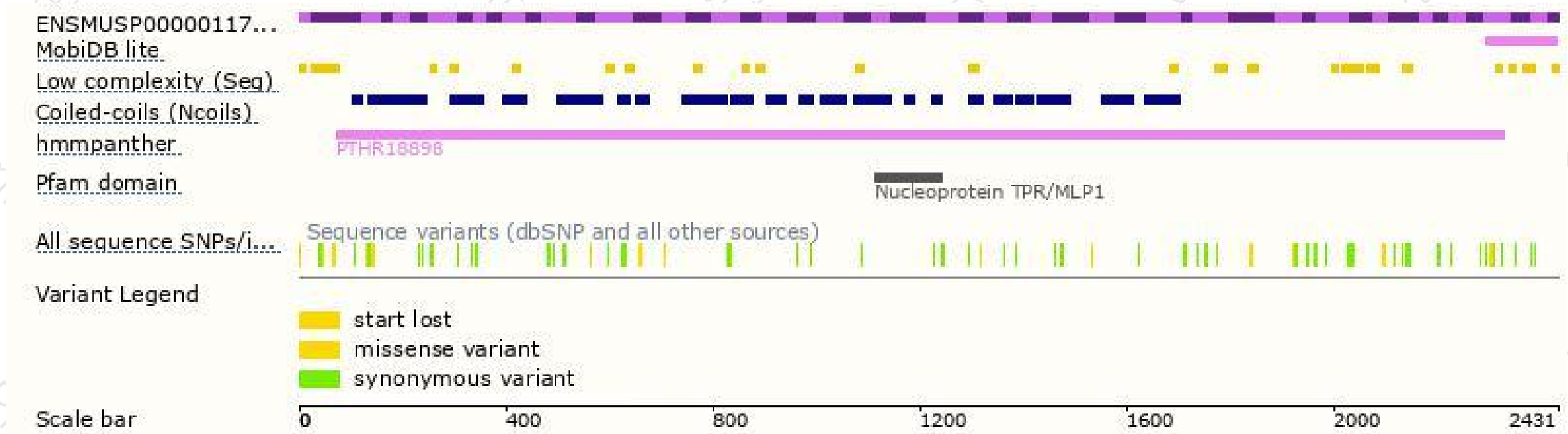
The strategy is based on the design of *Tpr-203* transcript,The transcription is shown below



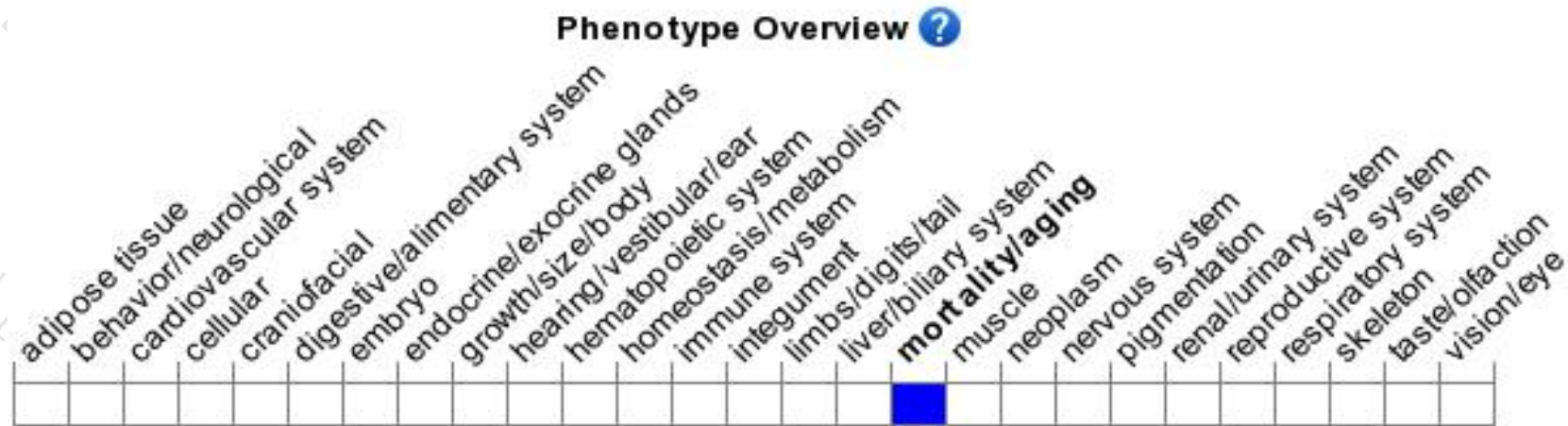
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

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

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