

Tef Cas9-CKO Strategy

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Project Overview

Project Name

Tef

Project type

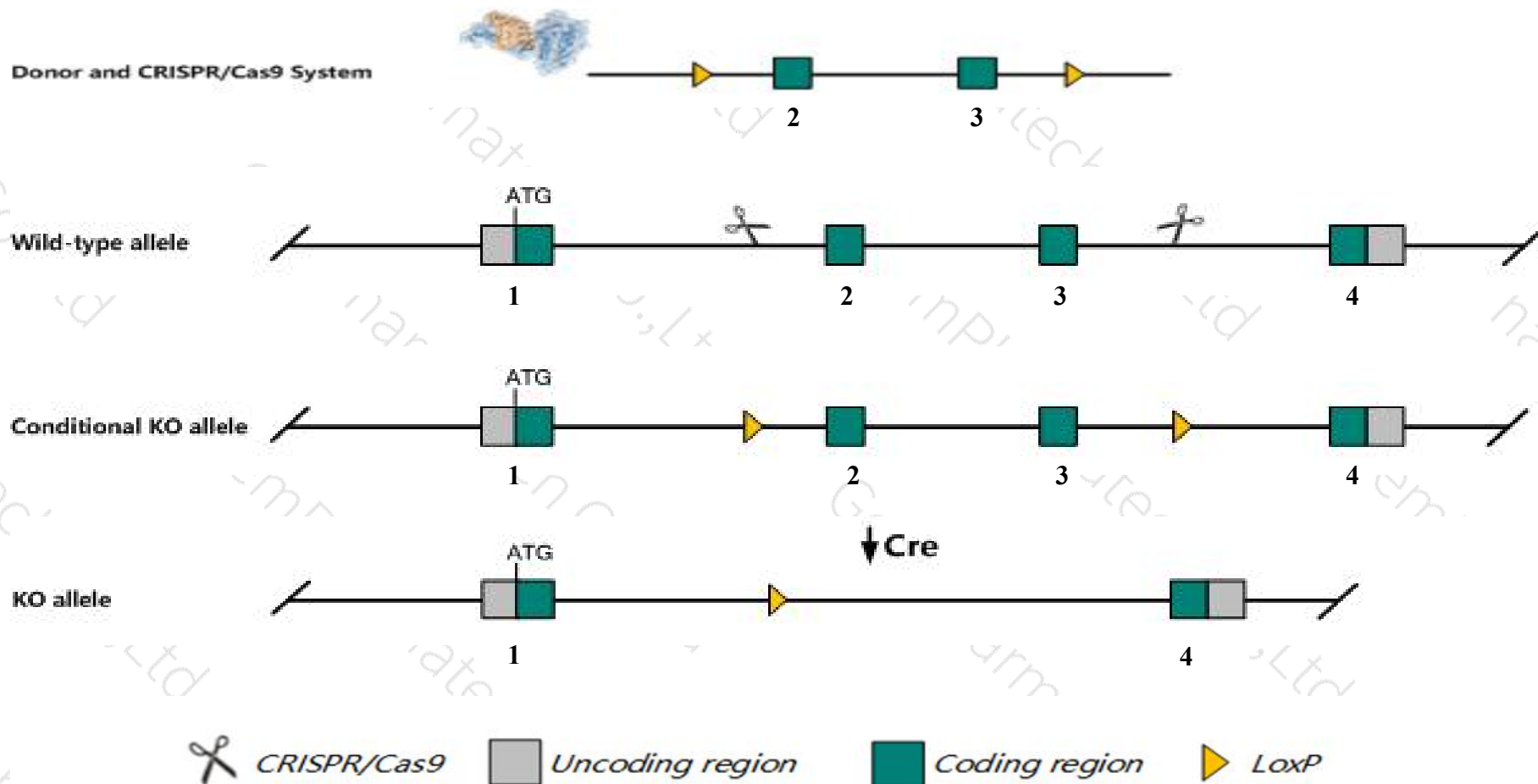
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



- The *Tef* gene has 10 transcripts. According to the structure of *Tef* gene, exon2-exon3 of *Tef*-202 (ENSMUST00000109553.9) transcript is recommended as the knockout region. The region contains 539bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Tef* gene. The brief process is as follows: gRNA was transcribed in vitro, donor was constructed. Cas9, gRNA 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

- According to the existing MGI data, Homozygous mutant are subject to seizures.
- The *Tef* gene is located on the Chr15. 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 gene transcription and translation processes, all risks cannot be predicted under existing information.

Gene information (NCBI)

Tef thyrotroph embryonic factor [Mus musculus (house mouse)]

Gene ID: 21685, updated on 31-Jan-2019

Summary



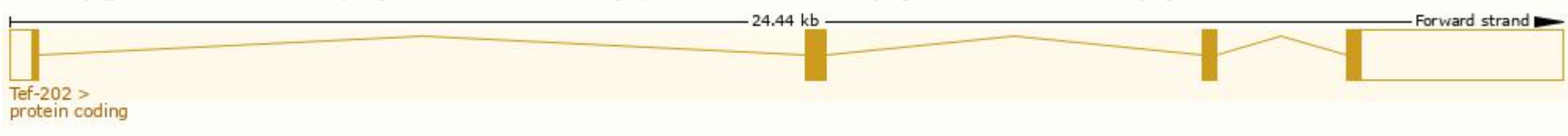
Official Symbol	Tef provided by MGI
Official Full Name	thyrotroph embryonic factor provided by MGI
Primary source	MGI:MGI:98663
See related	Ensembl:ENSMUSG00000022389
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2310028D20Rik
Expression	Broad expression in cortex adult (RPKM 46.8), bladder adult (RPKM 43.9) and 24 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

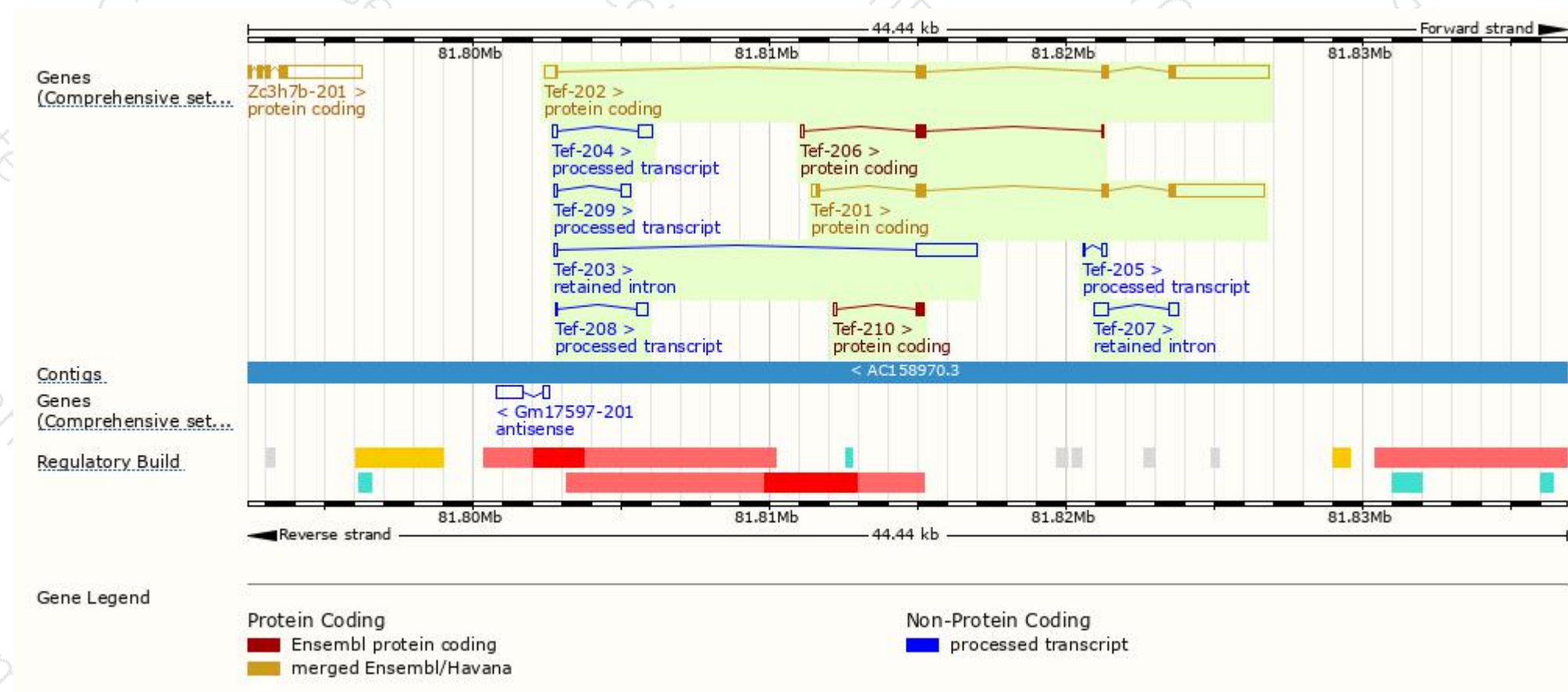
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tef-202	ENSMUST00000109553.9	4403	285aa	Protein coding	CCDS27671	Q9JLC6	TSL:1 GENCODE basic APPRIS P1
Tef-201	ENSMUST00000023024.7	4079	301aa	Protein coding	CCDS27672	Q9JLC6	TSL:1 GENCODE basic
Tef-206	ENSMUST00000168200.1	477	106aa	Protein coding	-	E9Q331	CDS 3' incomplete TSL:5
Tef-210	ENSMUST00000172208.1	399	70aa	Protein coding	-	E9Q3N8	CDS 3' incomplete TSL:2
Tef-204	ENSMUST00000166302.1	640	No protein	Processed transcript	-	-	TSL:2
Tef-209	ENSMUST00000170027.1	492	No protein	Processed transcript	-	-	TSL:1
Tef-208	ENSMUST00000169952.1	441	No protein	Processed transcript	-	-	TSL:3
Tef-205	ENSMUST00000167138.1	248	No protein	Processed transcript	-	-	TSL:1
Tef-203	ENSMUST00000164673.1	2219	No protein	Retained intron	-	-	TSL:1
Tef-207	ENSMUST00000168632.1	791	No protein	Retained intron	-	-	TSL:2

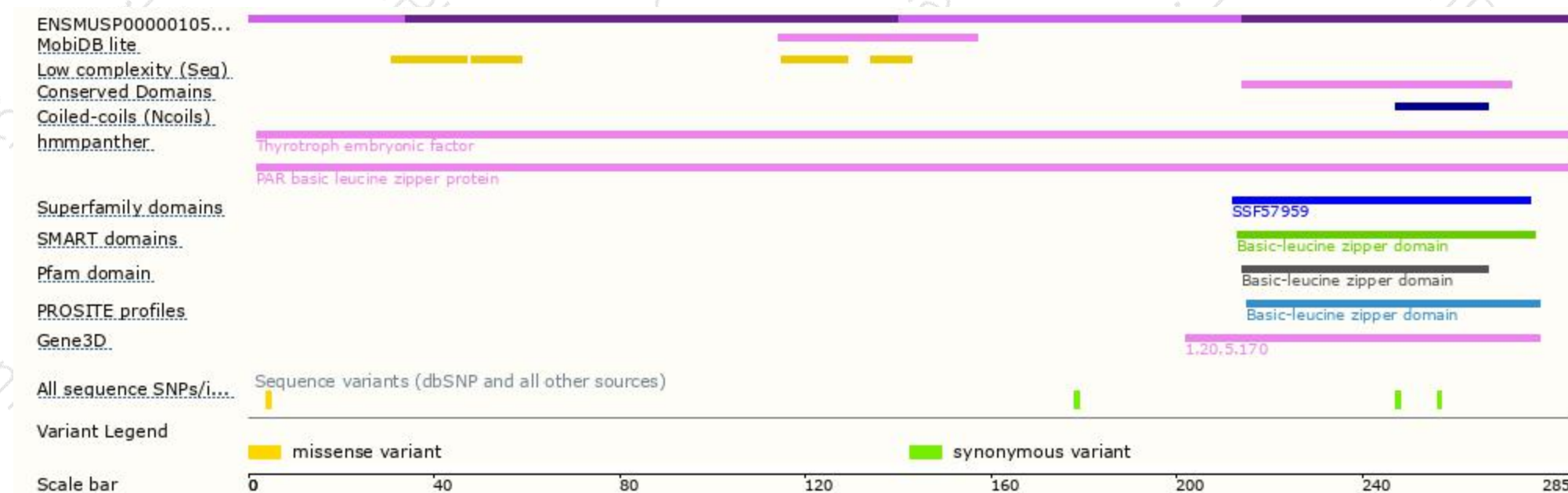
The strategy is based on the design of *Tef-202* transcript,The transcription is shown below



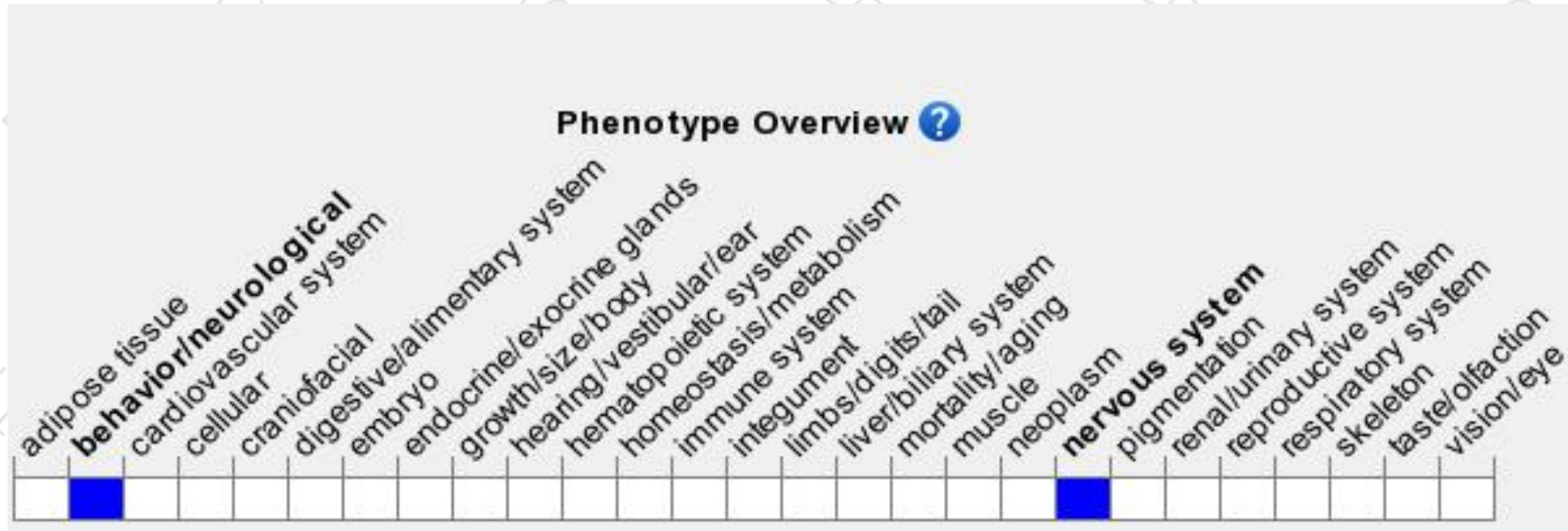
Genomic location distribution



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/>).

According to the existing MGI data, Homozygous mutant are subject to seizures.

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

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