

Tcaf2 Cas9-CKO Strategy

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Project Overview

Project Name

Tcaf2

Project type

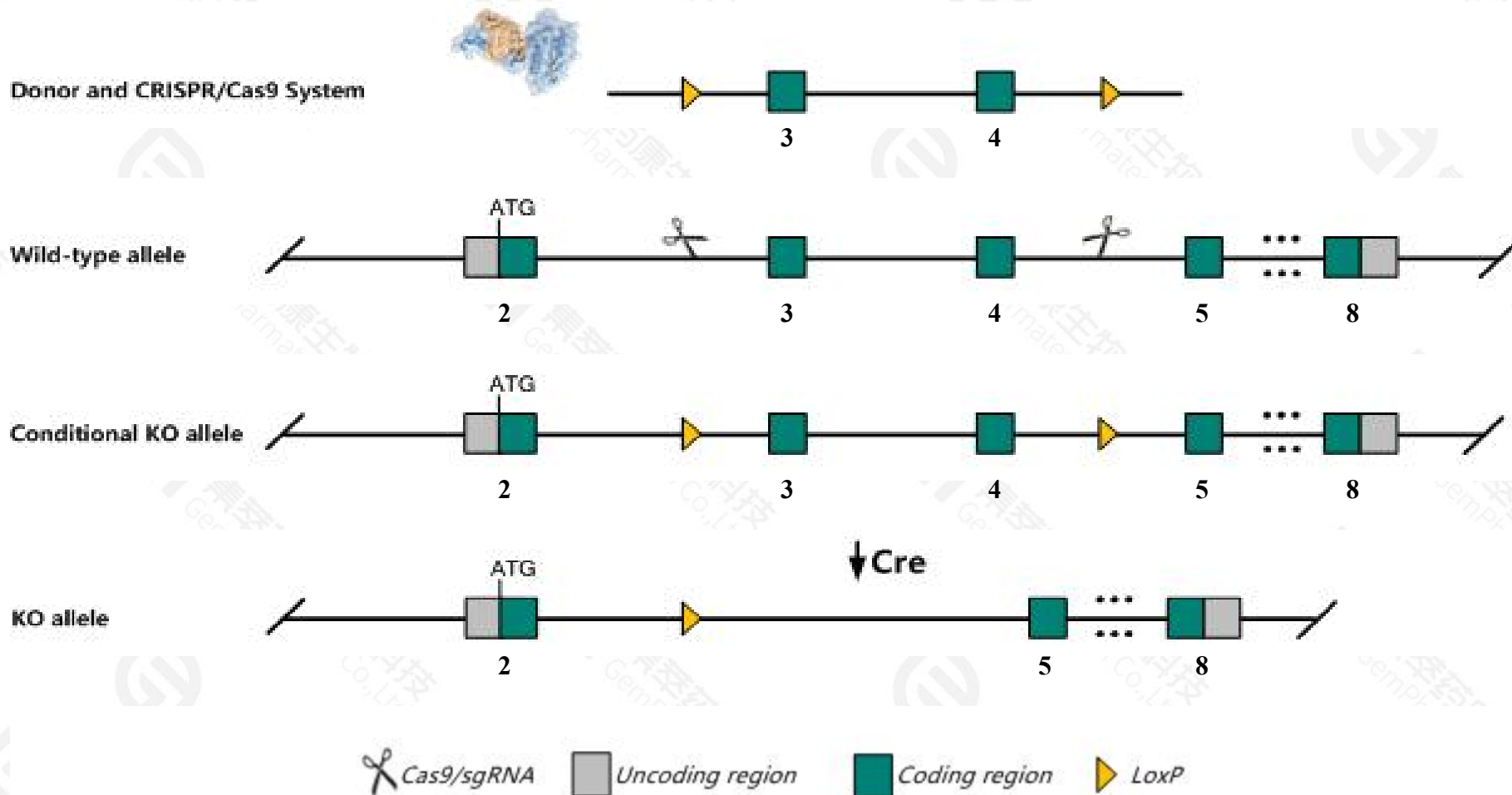
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tcaf2* gene. The schematic diagram is as follows:



Technical routes

- The *Tcaf2* gene has 2 transcripts. According to the structure of *Tcaf2* gene, exon3-exon4 of *Tcaf2*-201(ENSMUST00000031879.5) transcript is recommended as the knockout region. The region contains 1093bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Tcaf2* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor was constructed. Cas9, sgRNA 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 was 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.

- The *Tcaf2* gene is located on the Chr6. 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)

Tcaf2 TRPM8 channel-associated factor 2 [Mus musculus (house mouse)]

Gene ID: 232748, updated on 25-Sep-2020

Summary



Official Symbol Tcaf2 provided by [MGI](#)

Official Full Name TRPM8 channel-associated factor 2 provided by [MGI](#)

Primary source [MGI:MGI:2385258](#)

See related [Ensembl:ENSMUSG00000029851](#)

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 Fam115, Fam115c

Expression Broad expression in bladder adult (RPKM 1.9), thymus adult (RPKM 1.9) and 22 other tissues [See more](#)

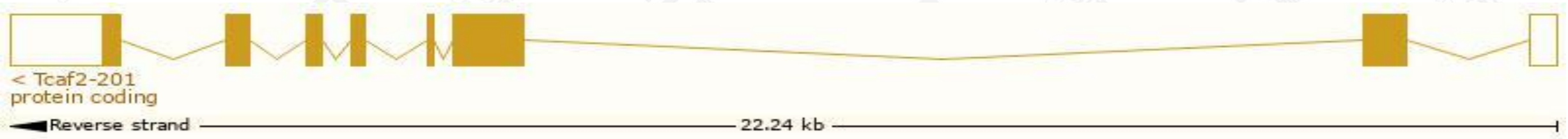
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

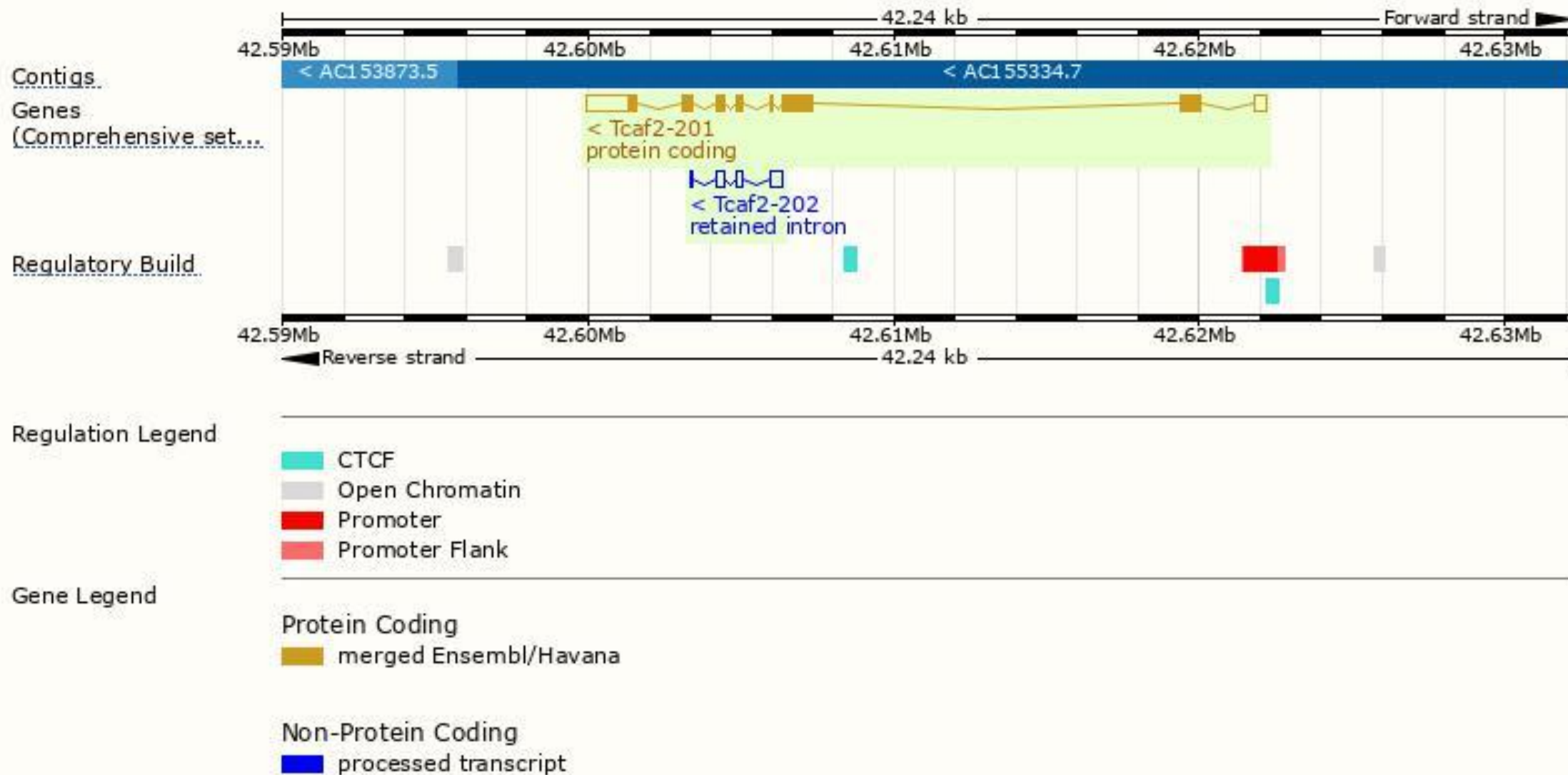
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tcaf2-201	ENSMUST00000031879.5	4497	919aa	Protein coding	CCDS20075		TSL:1 , GENCODE basic , APPRIS P1 ,
Tcaf2-202	ENSMUST00000131341.2	918	No protein	Retained intron	-		TSL:2 ,

The strategy is based on the design of *Tcaf2-201* 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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