

Tshz2 Cas9-CKO Strategy

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Overview

Target Gene Name

- Tshz2

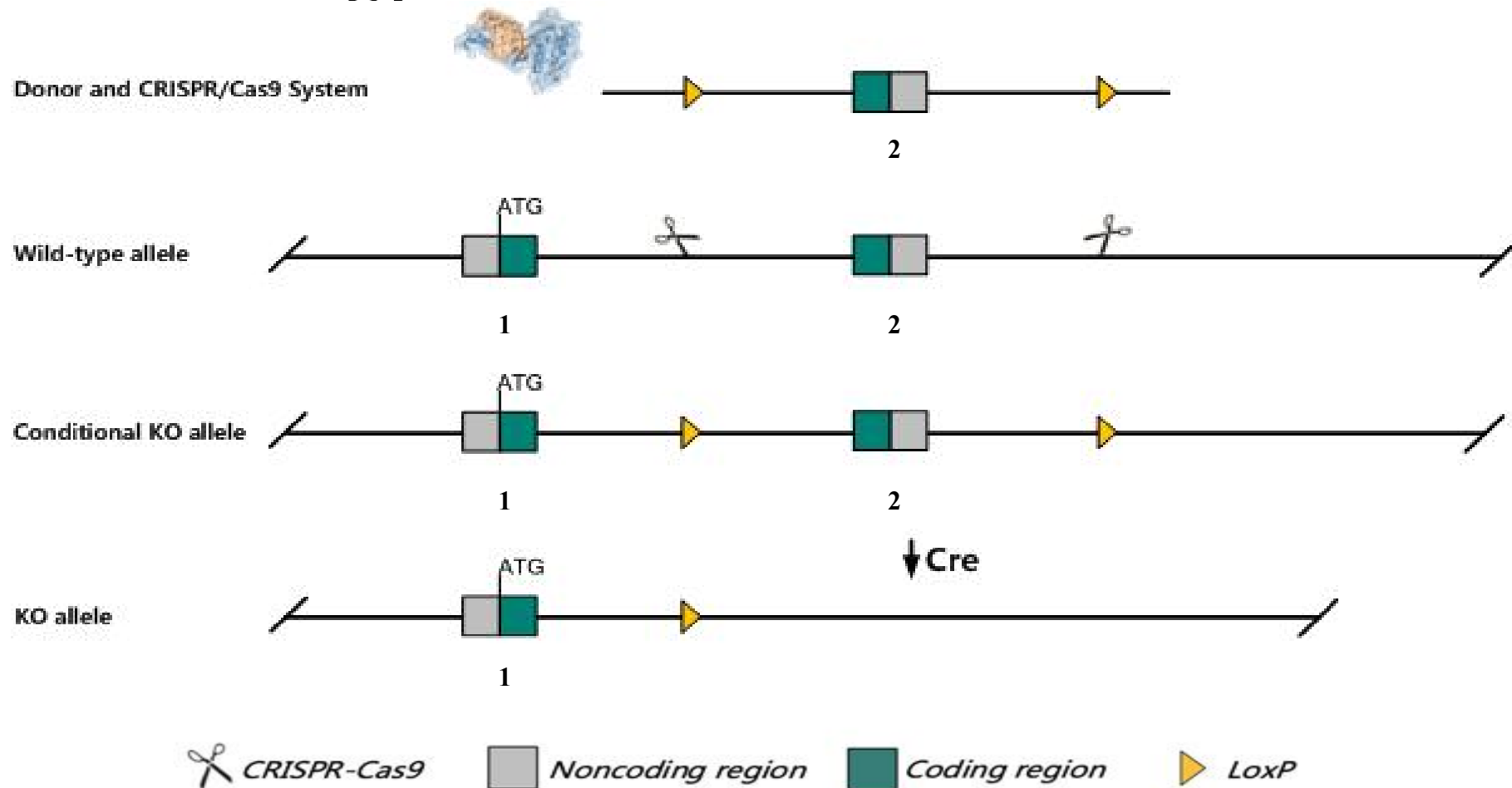
Project Type

- Cas9-CKO

Genetic Background

- C57BL/6JGpt

Strain Strategy



Schematic representation of CRISPR-Cas9 engineering used to edit the *Tshz2* gene.

Technical Information

- The *Tshz2* gene has 5 transcripts. According to the structure of *Tshz2* gene, exon2 of *Tshz2-201*(ENSMUST00000109157.2) transcript is recommended as the knockout region. The region contains most of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR-Cas9 technology to modify *Tshz2* 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 on-target amplicon sequencing. A stable F1-generation mouse strain was obtained by mating positive F0-generation mice with C57BL/6JGpt mice and confirmation of the desired mutant allele was carried out by PCR and on-target amplicon sequencing.
- 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.

Gene Information

Tshz2 teashirt zinc finger family member 2 [Mus musculus (house mouse)]

Gene ID: 228911, updated on 12-Jul-2022

Summary



Official Symbol	Tshz2 provided by MGI
Official Full Name	teashirt zinc finger family member 2 provided by MGI
Primary source	MGI:MGI:2153084
See related	Ensembl:ENSMUSG00000047907
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	2900073F20Rik, B830045G17, Mtsh2, Sdccag33l, Tsh2, Zfp218, mKIAA4248, teashirt2
Expression	Broad expression in genital fat pad adult (RPKM 8.3), bladder adult (RPKM 7.5) and 25 other tissues See more
Orthologs	human all

Source: <https://www.ncbi.nlm.nih.gov/>

Transcript Information

The gene has 5 transcripts, the transcripts are shown below:

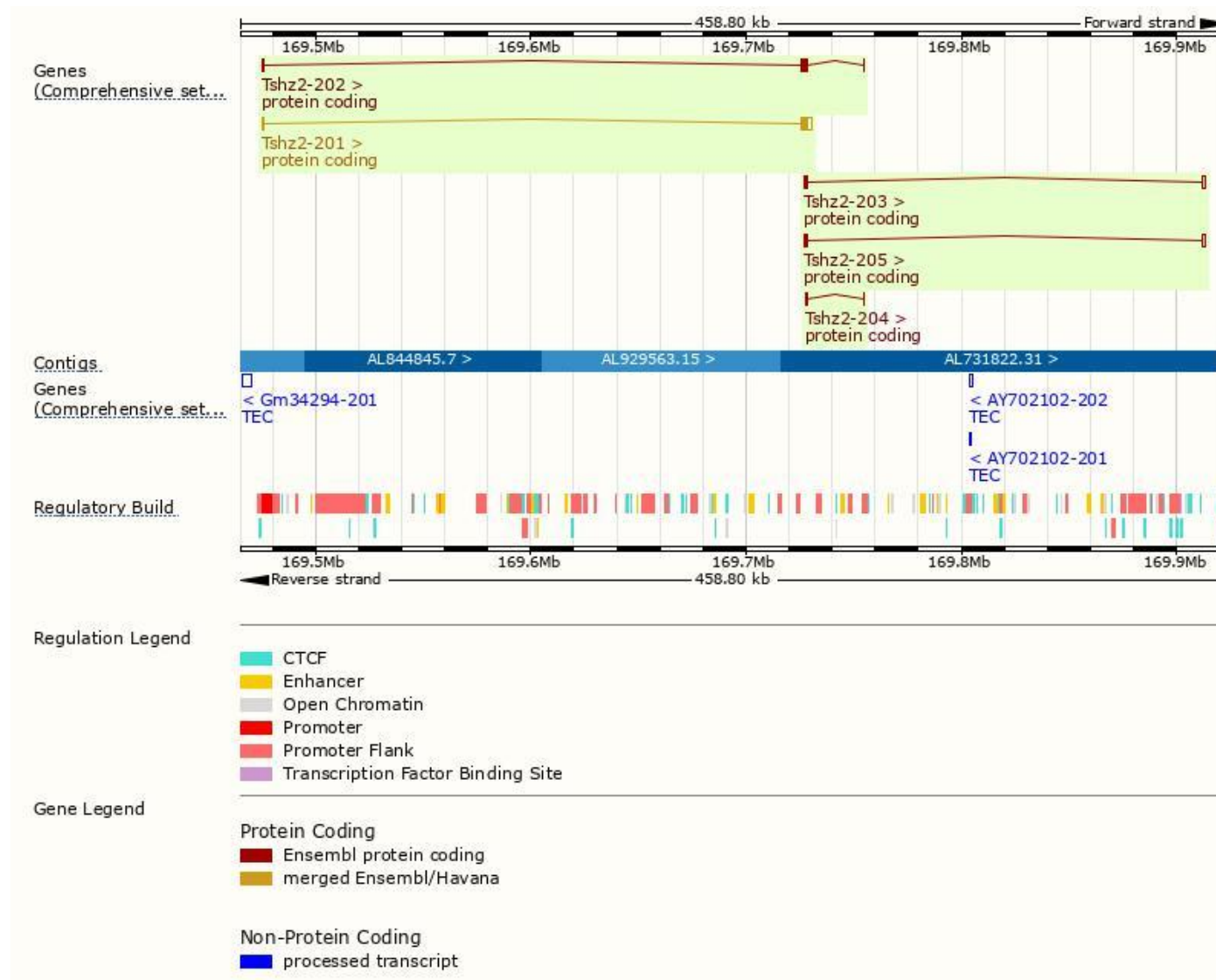
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tshz2-201	ENSMUST00000109157.2	5083	1030aa	Protein coding	CCDS50805		TSL:2 , GENCODE basic , APPRIS P1 ,
Tshz2-202	ENSMUST00000109159.3	4314	1030aa	Protein coding	CCDS50805		TSL:1 , GENCODE basic , APPRIS P1 ,
Tshz2-203	ENSMUST00000123300.3	3243	561aa	Protein coding	-		CDS 5' incomplete , TSL:1 ,
Tshz2-205	ENSMUST00000185239.2	3116	522aa	Protein coding	-		CDS 5' incomplete , TSL:1 ,
Tshz2-204	ENSMUST00000140699.2	1111	208aa	Protein coding	-		CDS 5' incomplete , TSL:1 ,

The strategy is based on the design of *Tshz2*-201 transcript, the transcription is shown below:

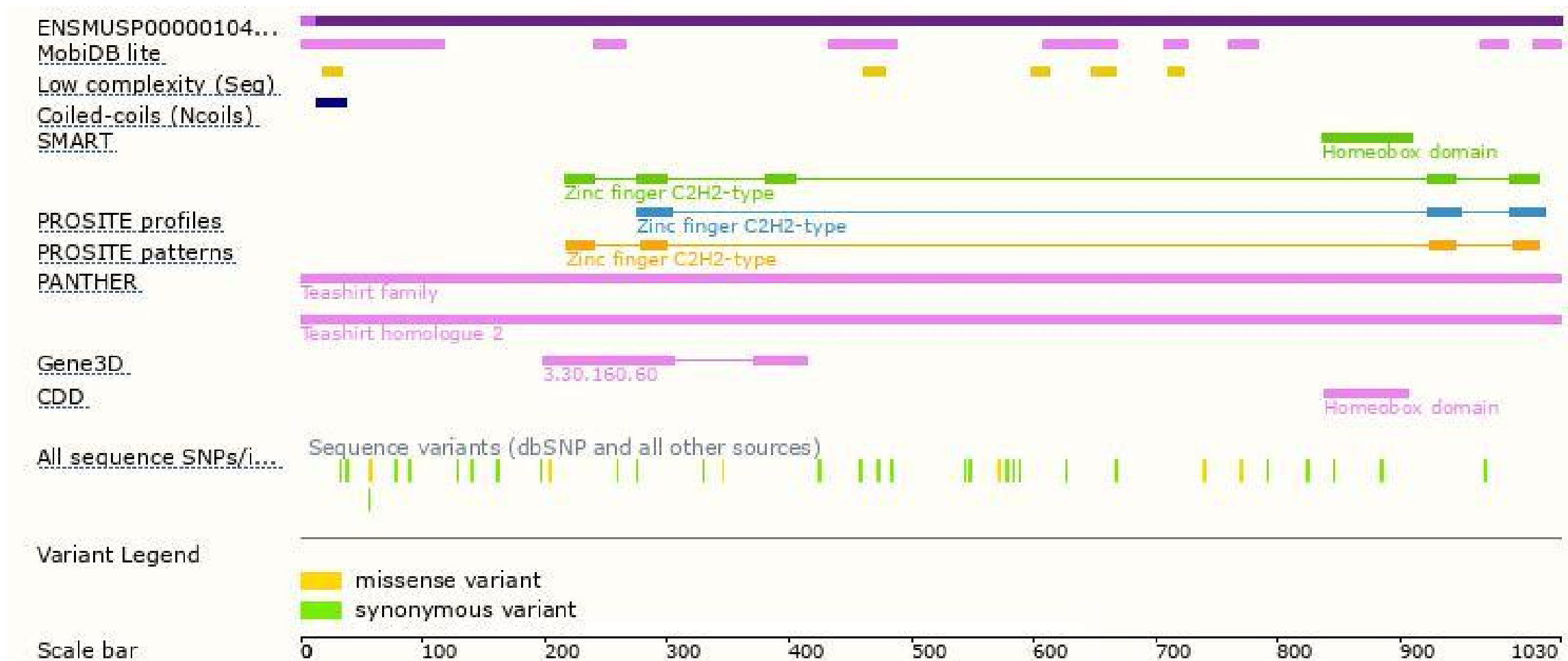


Source: <https://www.ensembl.org>

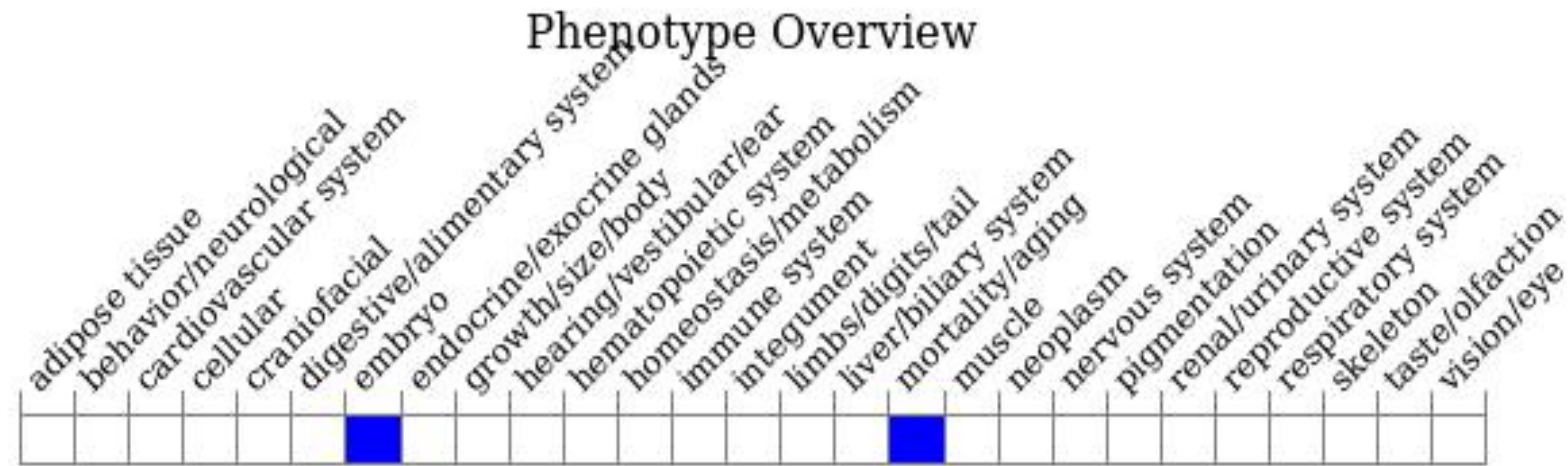
Genomic Information



Protein Information



Mouse Phenotype Information (MGI)



- According to the existing MGI data, mice homozygous for a transposon induced allele die in utero; cultured blastocysts fail to hatch.

Important Information

- According to the existing MGI data, mice homozygous for a transposon induced allele die in utero; cultured blastocysts fail to hatch.
- The effect on *Tshz2*-203&204&205 is unknown.
- *Tshz2* is located on Chr2. If the knockout mice are crossed with other mouse strains to obtain double homozygous mutant offspring, please avoid the situation that the second gene is 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 the existing technology level.