

Tex10 Cas9-CKO Strategy

Designer:

Yanhua Shen

Reviewer:

Xueting Zhang

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Project Overview

Project Name

Tex10

Project type

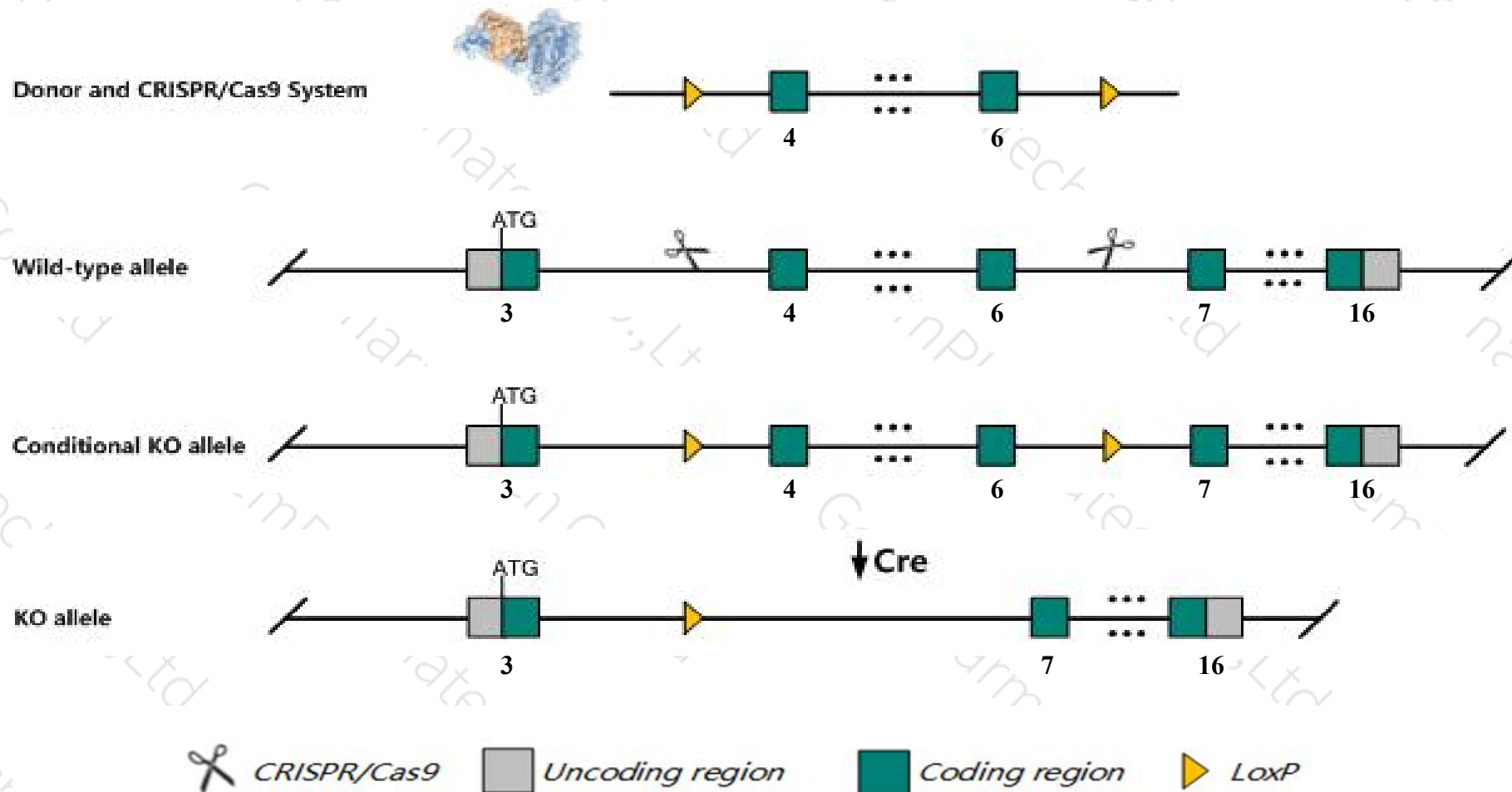
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tex10* gene. The schematic diagram is as follows:



Technical routes

- The *Tex10* gene has 6 transcripts. According to the structure of *Tex10* gene, exon4-exon6 of *Tex10-206* (ENSMUST00000164866.1) transcript is recommended as the knockout region. The region contains 1067bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Tex10* 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.

- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit embryonic lethality prior to E7.5 with impaired inner cell mass proliferation in culture.
- The effect of transcripts 202,205 is unknown.
- The *Tex10* gene is located on the Chr4. 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)

Tex10 testis expressed gene 10 [*Mus musculus* (house mouse)]

Gene ID: 269536, updated on 24-Oct-2019

Summary

Official Symbol	Tex10 provided by MGI
Official Full Name	testis expressed gene 10 provided by MGI
Primary source	MGI:MGI:1344413
See related	Ensembl:ENSMUSG00000028345
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	BC006867; 2610206N19Rik; 2810462N03Rik
Expression	Ubiquitous expression in testis adult (RPKM 12.4), placenta adult (RPKM 9.7) and 26 other tissues See more
Orthologs	human all

Genomic context

Location: 4; 4 B1

Exon count: 16

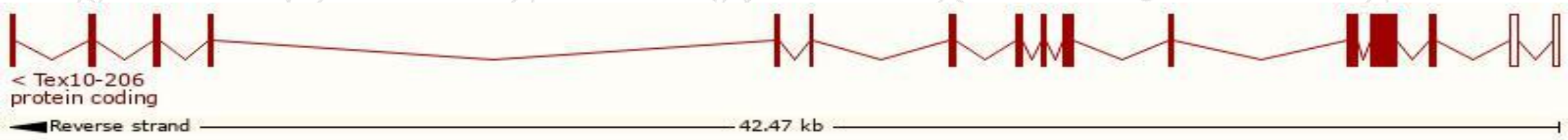
See Tex10 in [Genome Data Viewer](#)

Transcript information (Ensembl)

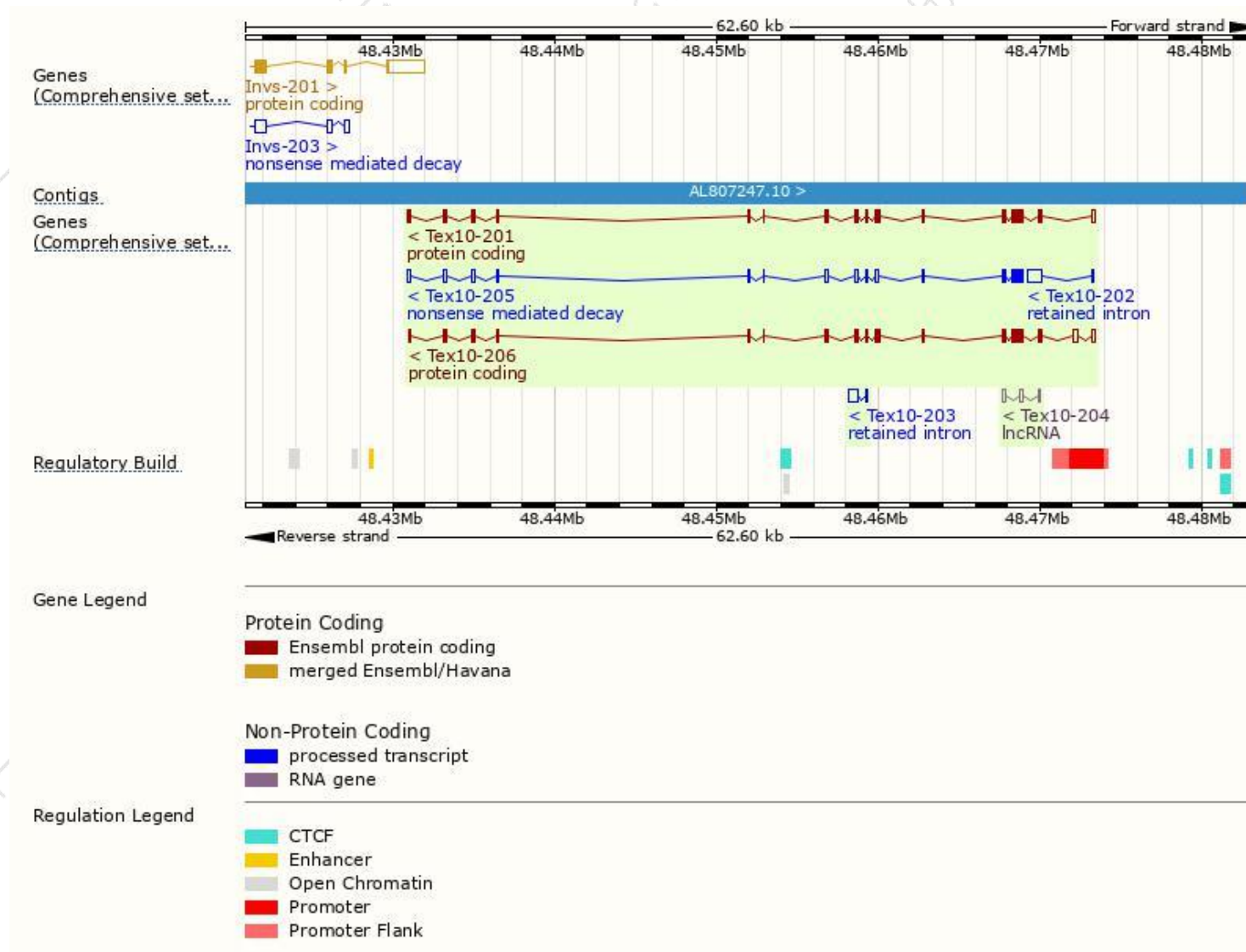
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tex10-206	ENSMUST00000164866.1	3203	928aa	Protein coding	CCDS38760	Q3URQ0	TSL:1 GENCODE basic APPRIS P1
Tex10-201	ENSMUST00000030030.14	3102	928aa	Protein coding	CCDS38760	Q3URQ0	TSL:1 GENCODE basic APPRIS P1
Tex10-205	ENSMUST00000155905.7	2547	338aa	Nonsense mediated decay	-	F6ZZ61	CDS 5' incomplete TSL:1
Tex10-202	ENSMUST00000132911.1	942	No protein	Retained intron	-	-	TSL:1
Tex10-203	ENSMUST00000138531.1	598	No protein	Retained intron	-	-	TSL:3
Tex10-204	ENSMUST00000155750.1	551	No protein	lncRNA	-	-	TSL:2

The strategy is based on the design of *Tex10-206* transcript,The transcription is shown below



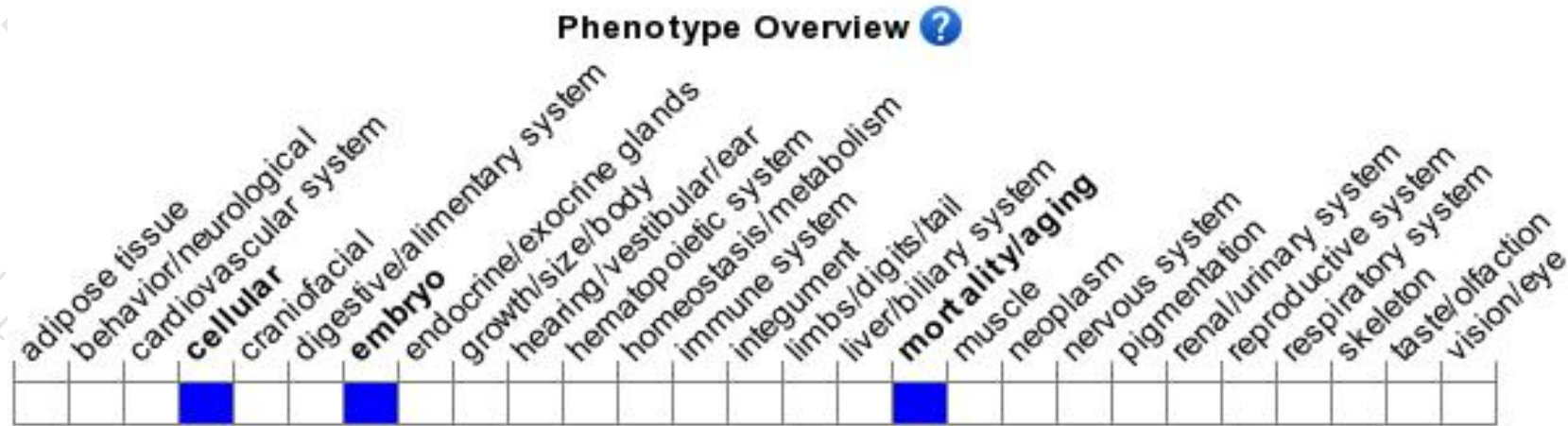
Genomic location distribution



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, Mice homozygous for a knock-out allele exhibit embryonic lethality prior to E7.5 with impaired inner cell mass proliferation in culture.

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

Tel: 400-9660890

