

***Tdrd9* Cas9-CKO Strategy**

Designer:Xiaojing Li

Reviewer:JiaYu

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Project Overview

Project Name

Tdrd9

Project type

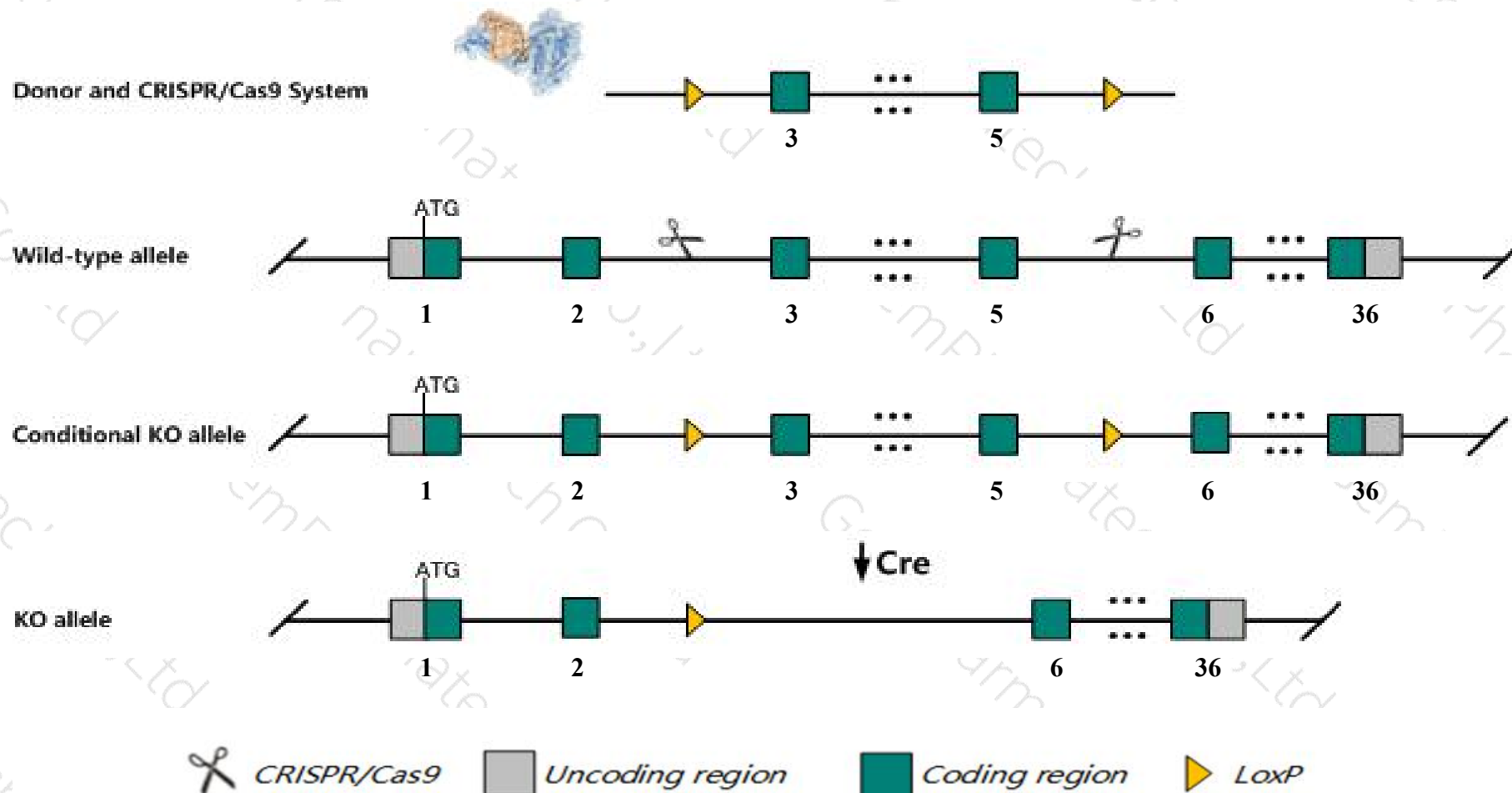
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tdrd9* gene. The schematic diagram is as follows:



Technical routes

- The *Tdrd9* gene has 6 transcripts. According to the structure of *Tdrd9* gene, exon3-exon5 of *Tdrd9-201* (ENSMUST00000079009.10) transcript is recommended as the knockout region. The region contains 443bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Tdrd9* 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, Male homozygous mice are sterile, displaying small testis, arrest of male meiosis and abnormal spermatocyte morphology. Females are fertile.
- The *Tdrd9* gene is located on the Chr12. 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)

Tdrd9 tudor domain containing 9 [*Mus musculus* (house mouse)]

Gene ID: 74691, updated on 27-Feb-2020

Summary

Official Symbol Tdrd9 provided by [MGI](#)

Official Full Name tudor domain containing 9 provided by [MGI](#)

Primary source [MGI:MGI:1921941](#)

See related [Ensembl:ENSMUSG00000054003](#)

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 4930441E05Rik

Expression Restricted expression toward testis adult (RPKM 20.7) [See more](#)

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

Transcript information (Ensembl)

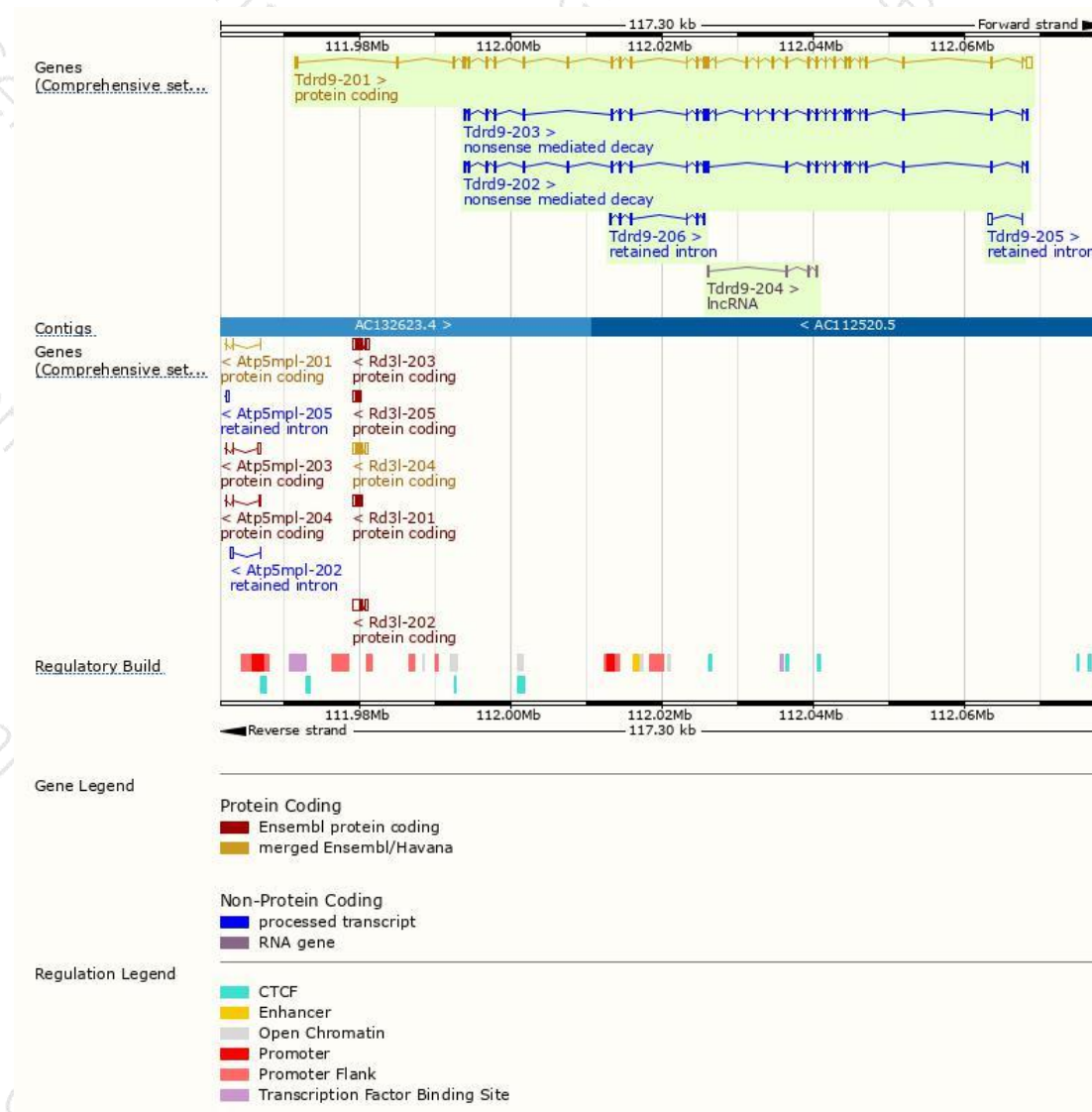
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tdrd9-201	ENSMUST00000079009.10	4809	1383aa	Protein coding	CCDS49184	Q14BI7	TSL:1 GENCODE basic APPRIS P1
Tdrd9-203	ENSMUST00000192125.5	3681	217aa	Nonsense mediated decay	-	A0A0A6YY15	CDS 5' incomplete TSL:1
Tdrd9-202	ENSMUST00000191808.5	3366	540aa	Nonsense mediated decay	-	A0A0A6YWV8	CDS 5' incomplete TSL:1
Tdrd9-206	ENSMUST00000194800.1	799	No protein	Retained intron	-	-	TSL:3
Tdrd9-205	ENSMUST00000193630.1	484	No protein	Retained intron	-	-	TSL:5
Tdrd9-204	ENSMUST00000193586.1	456	No protein	lncRNA	-	-	TSL:3

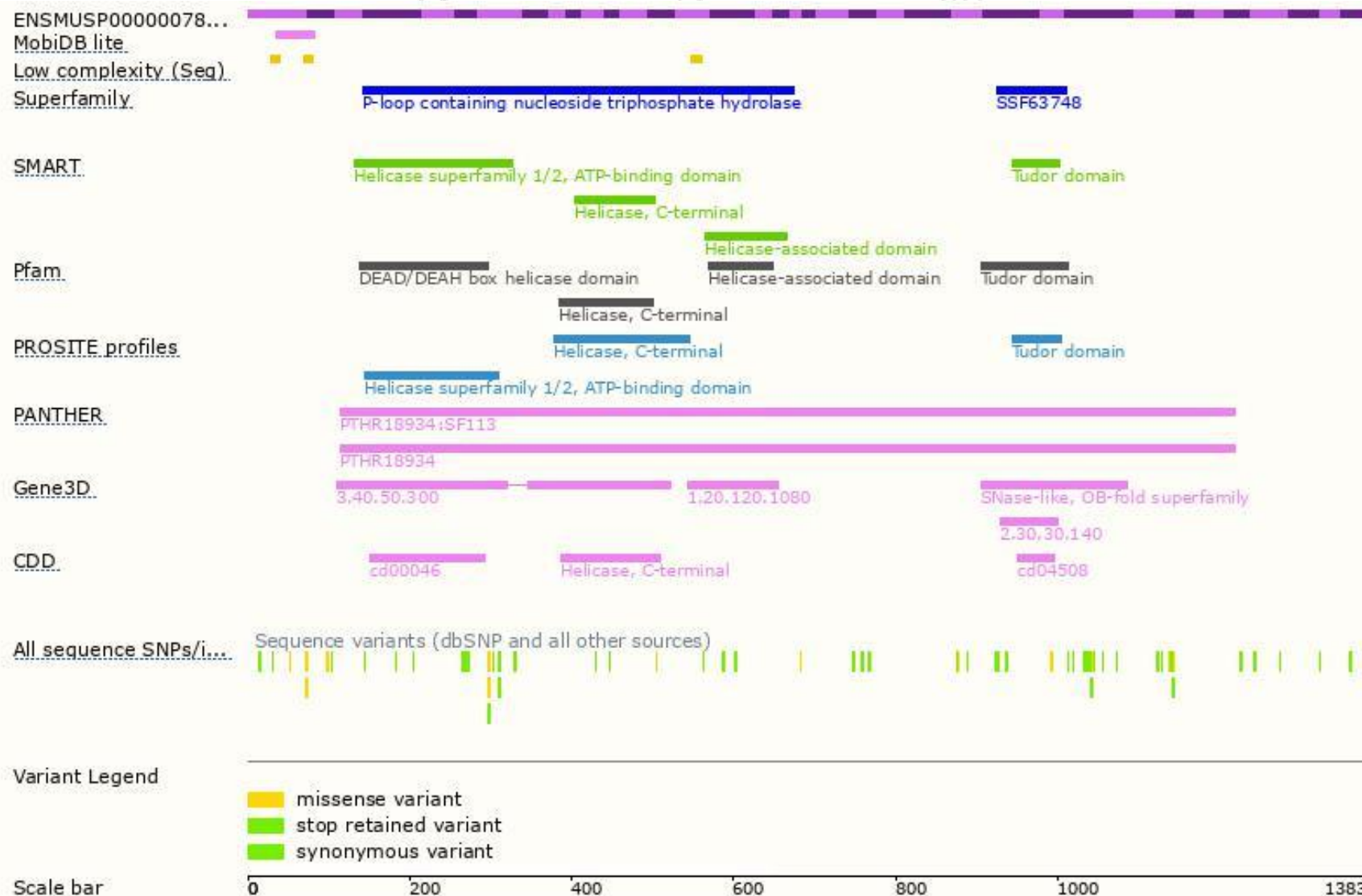
The strategy is based on the design of *Tdrd9-201* transcript,The transcription is shown below



Genomic location distribution

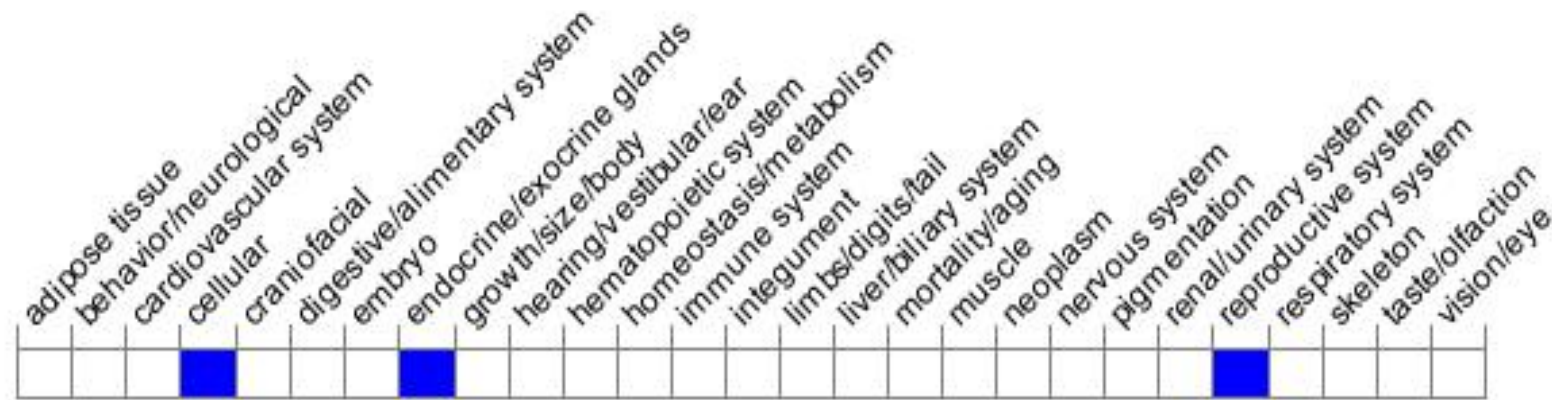


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview



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, Male homozygous mice are sterile, displaying small testis, arrest of male meiosis and abnormal spermatocyte morphology. Females are fertile.

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

Tel: 400-9660890

