

Tnrc6c Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Tnrc6c

Project type

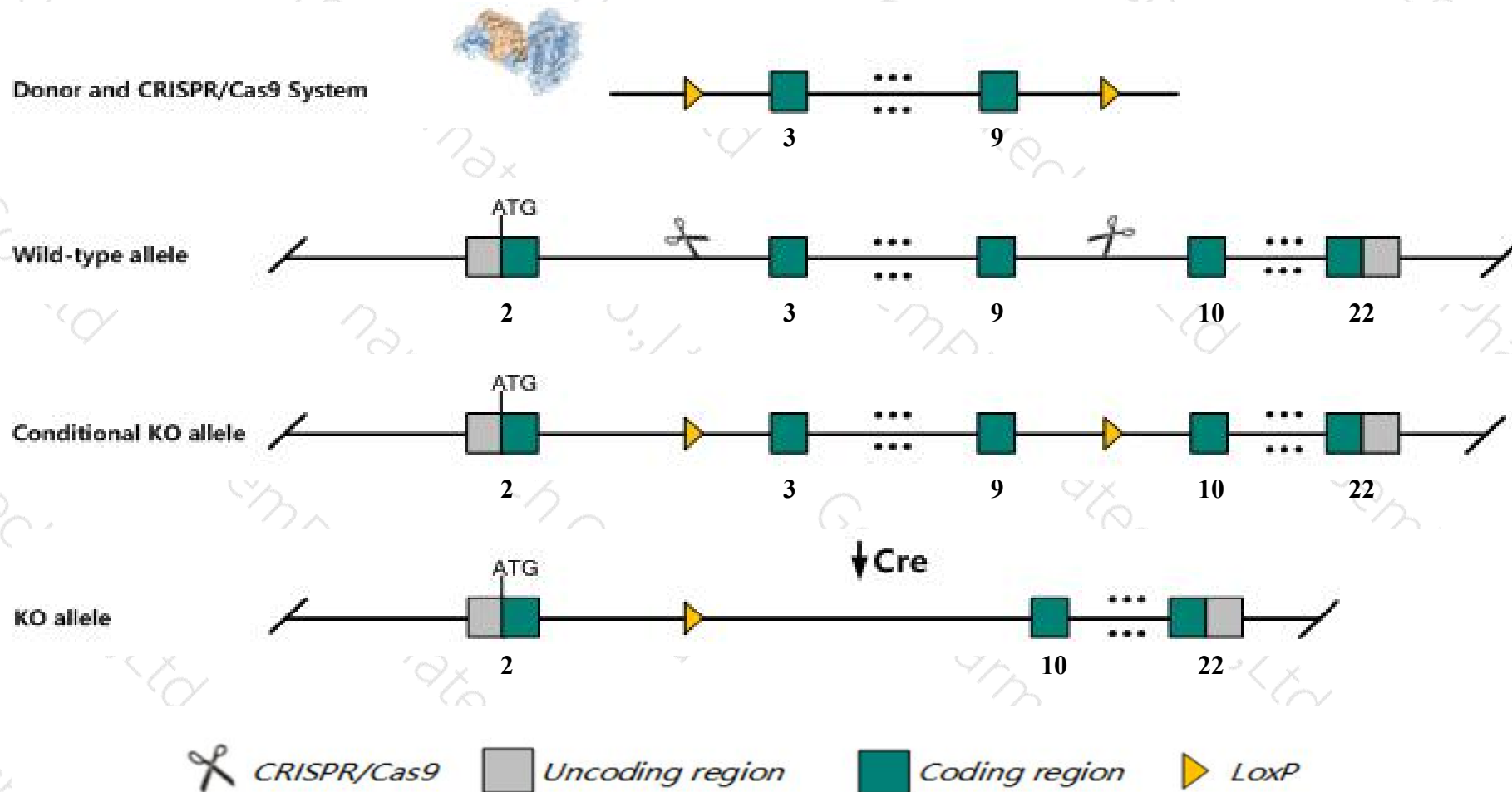
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tnrc6c* gene. The schematic diagram is as follows:



- The *Tnrc6c* gene has 6 transcripts. According to the structure of *Tnrc6c* gene, exon3-exon9 of *Tnrc6c-202* (ENSMUST00000106344.7) transcript is recommended as the knockout region. The region contains 3469bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Tnrc6c* 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 gene trap allele exhibit complete neonatal lethality with cyanosis, respiratory distress and thickened mesenchyme in air sacs.
- Transcripts 204,206 may not be affected. The effect of transcript 203 is unknown.
- The *Tnrc6c* gene is located on the Chr11. 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)

Tnrc6c trinucleotide repeat containing 6C [Mus musculus (house mouse)]

Gene ID: 217351, updated on 13-Mar-2020

Summary



Official Symbol	Tnrc6c provided by MGI
Official Full Name	trinucleotide repeat containing 6C provided by MGI
Primary source	MGI:MGI:2443265
See related	Ensembl:ENSMUSG00000025571
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	9930033H14Rik, mKIAA1582
Expression	Ubiquitous expression in thymus adult (RPKM 16.4), whole brain E14.5 (RPKM 14.1) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

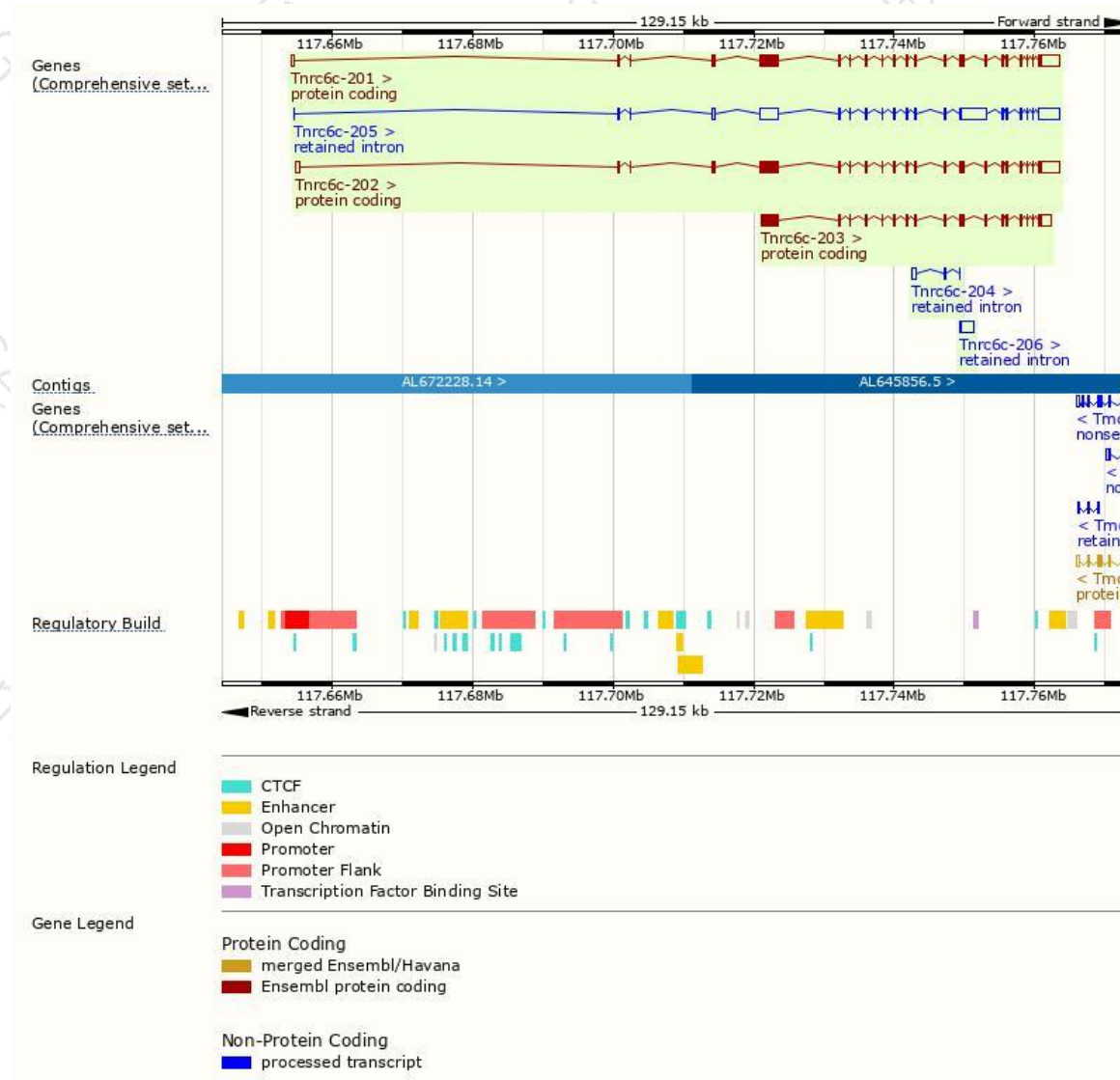
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tnrc6c-202	ENSMUST00000106344.7	8847	1900aa	Protein coding	CCDS36381	B1ATC3	TSL:5 GENCODE basic APPRIS P1
Tnrc6c-201	ENSMUST00000026658.12	8724	1900aa	Protein coding	CCDS36381	B1ATC3	TSL:5 GENCODE basic APPRIS P1
Tnrc6c-203	ENSMUST00000138299.1	6612	1732aa	Protein coding	-	B7ZC94	CDS 5' incomplete TSL:1
Tnrc6c-205	ENSMUST00000141115.7	11590	No protein	Retained intron	-	-	TSL:1
Tnrc6c-206	ENSMUST00000141287.1	1829	No protein	Retained intron	-	-	TSL:1
Tnrc6c-204	ENSMUST00000140347.1	742	No protein	Retained intron	-	-	TSL:3

The strategy is based on the design of *Tnrc6c-202* transcript,The transcription is shown below



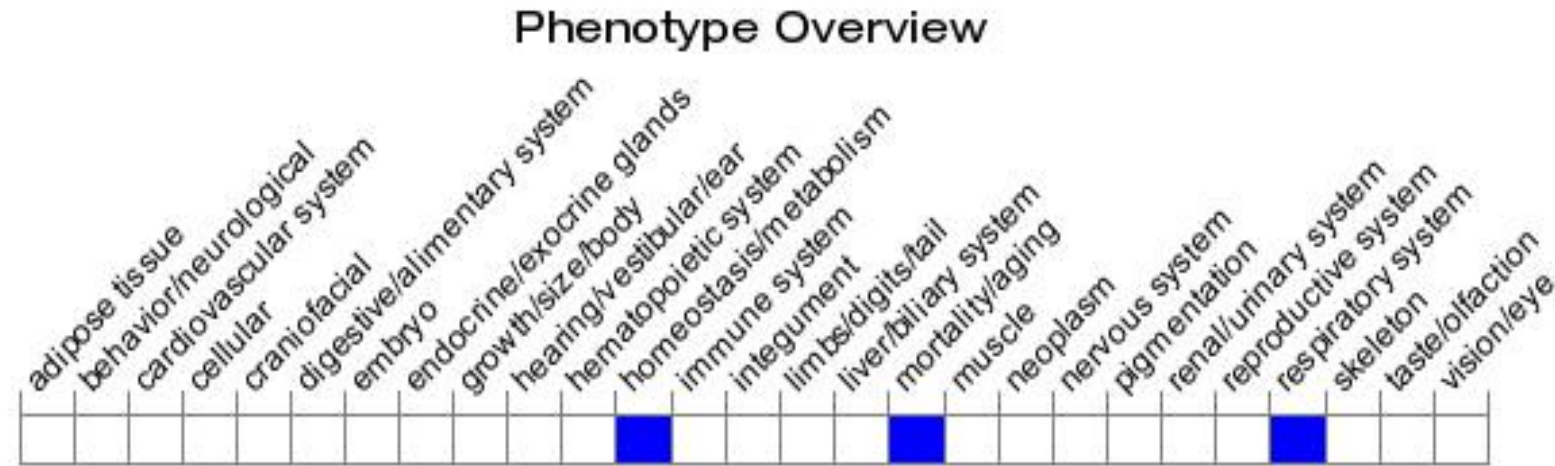
Genomic location distribution



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, mice homozygous for a gene trap allele exhibit complete neonatal lethality with cyanosis, respiratory distress and thickened mesenchyme in air sacs.

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

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