

Dnajc7 Cas9-CKO Strategy

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Project Overview

Project Name

Dnajc7

Project type

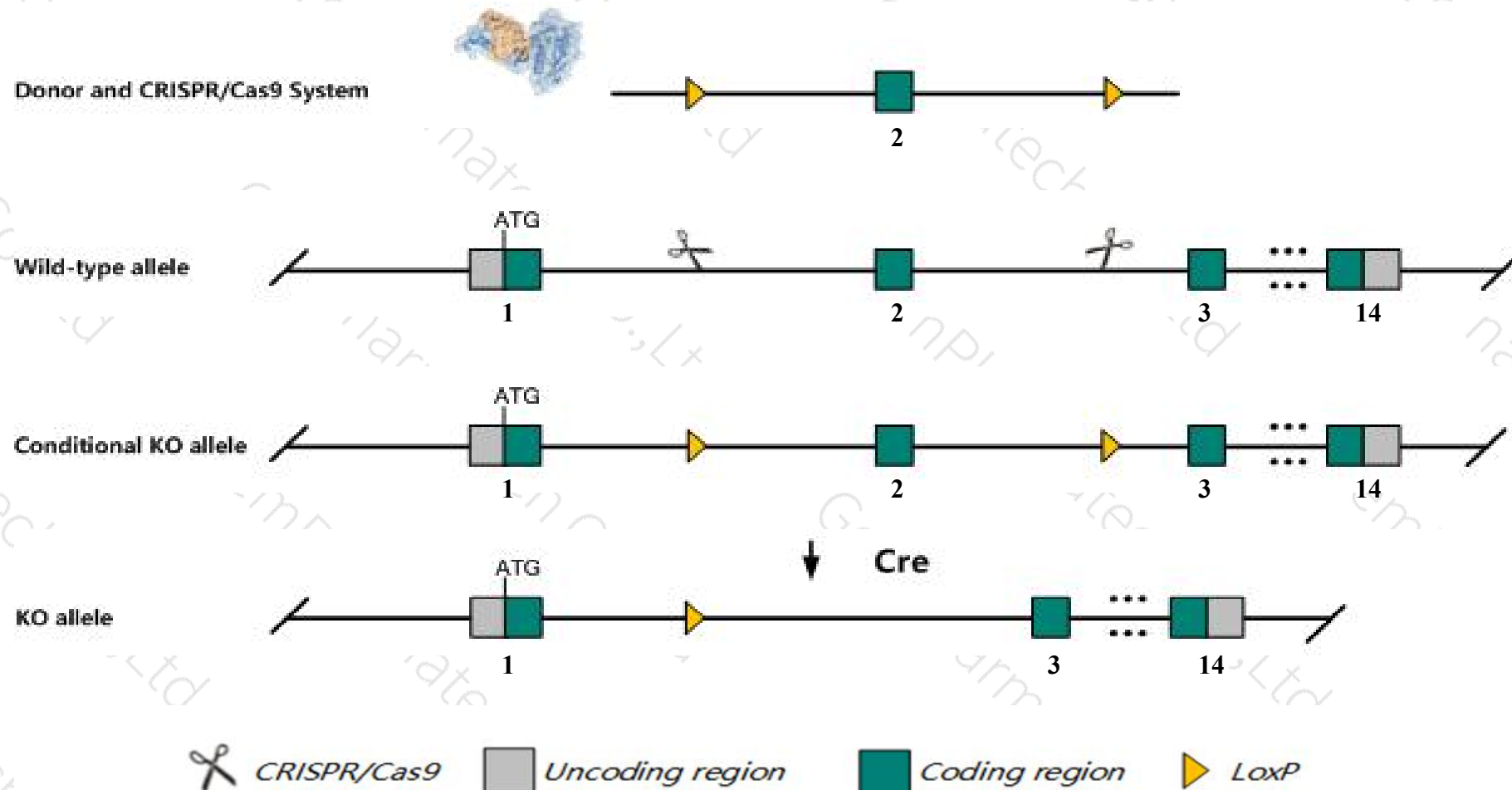
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dnajc7* gene. The schematic diagram is as follows:



Technical routes

- The *Dnajc7* gene has 10 transcripts. According to the structure of *Dnajc7* gene, exon2 of *Dnajc7-201* (ENSMUST00000014339.14) transcript is recommended as the knockout region. The region contains 89bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Dnajc7* 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 mice homozygous for a knock-out allele exhibit hepatic steatosis and increased serum cholesterol.
- Transcript *Dnajc7*-202&203&205&208 may not be affected.
- The *Dnajc7* 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)

Dnajc7 DnaJ heat shock protein family (Hsp40) member C7 [*Mus musculus* (house mouse)]

Gene ID: 56354, updated on 8-Oct-2019

Summary

- Official Symbol** Dnajc7 provided by MGI
- Official Full Name** DnaJ heat shock protein family (Hsp40) member C7 provided by MGI
- Primary source** MGI:MGI:1928373
- See related** Ensembl:ENSMUSG00000014195
- 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** CCRP; Ttc2; mDj11; mTpr2; 2010003F24Rik; 2010004G07Rik
- Expression** Broad expression in CNS E11.5 (RPKM 43.0), CNS E14 (RPKM 34.9) and 23 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

Genomic context

Location: 11 D; 11 63.47 cM [See Dnajc7 in Genome Data Viewer](#)

Exon count: 17

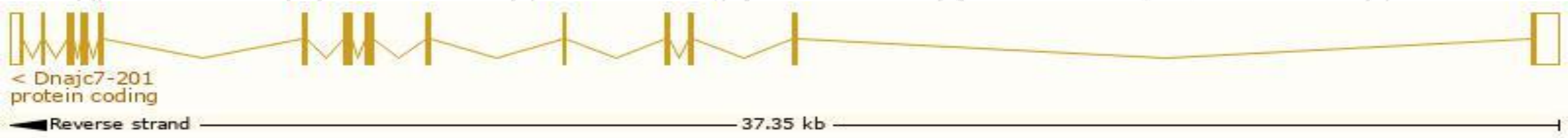
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	11	NC_000077.6 (100582818..100620292, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	11	NC_000077.5 (100444150..100481482, complement)

Transcript information (Ensembl)

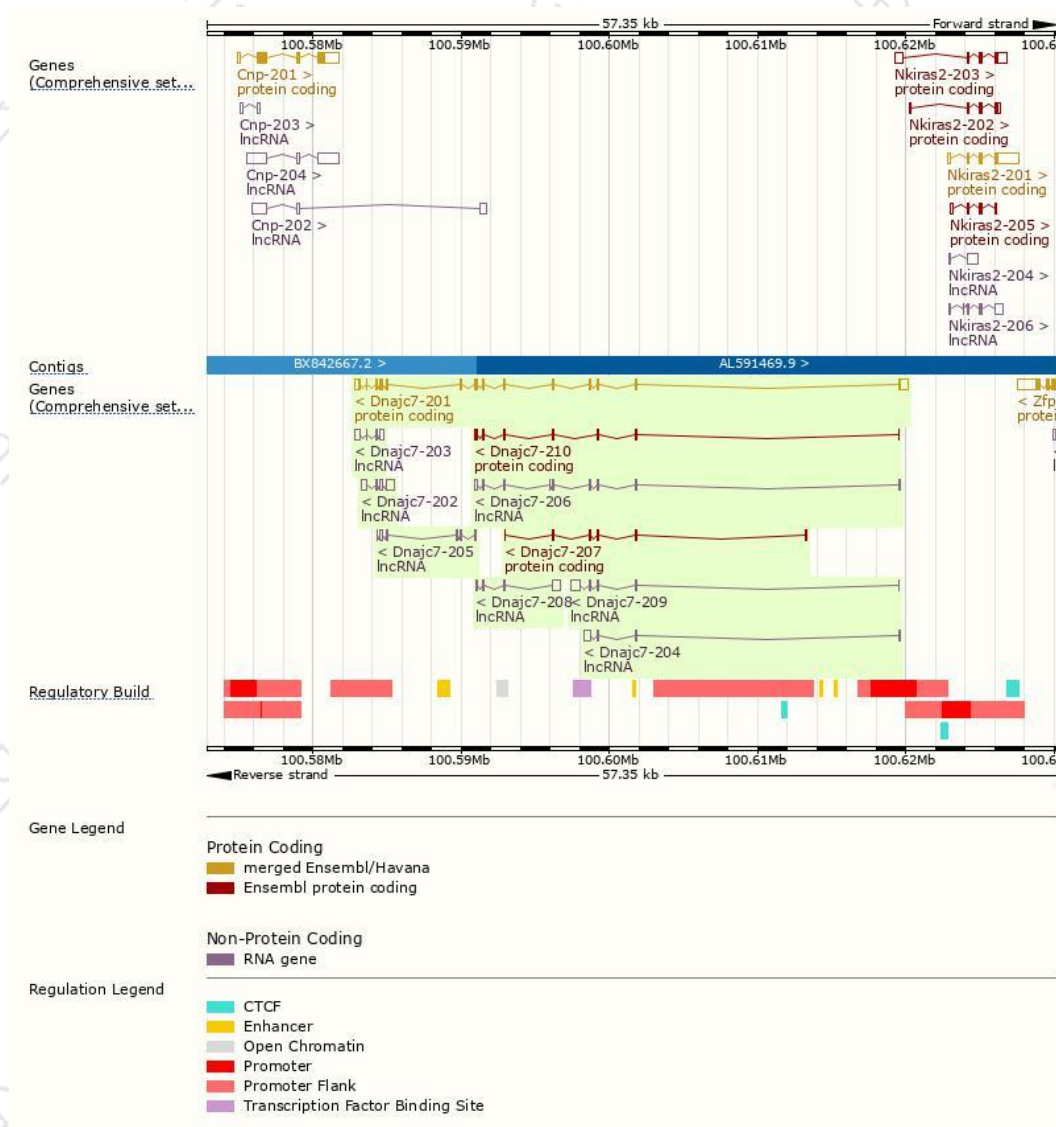
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dnajc7-201	ENSMUST00000014339.14	2330	494aa	Protein coding	CCDS25428	Q9QYI3	TSL:1 GENCODE basic APPRIS P1
Dnajc7-210	ENSMUST00000155152.7	776	259aa	Protein coding	-	F7BTP8	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:5
Dnajc7-207	ENSMUST00000146840.1	564	147aa	Protein coding	-	A2A5E1	CDS 3' incomplete TSL:5
Dnajc7-202	ENSMUST00000128414.7	1204	No protein	lncRNA	-	-	TSL:2
Dnajc7-209	ENSMUST00000154972.7	1008	No protein	lncRNA	-	-	TSL:3
Dnajc7-206	ENSMUST00000137688.7	956	No protein	lncRNA	-	-	TSL:5
Dnajc7-208	ENSMUST00000148098.1	849	No protein	lncRNA	-	-	TSL:2
Dnajc7-203	ENSMUST00000129346.7	770	No protein	lncRNA	-	-	TSL:1
Dnajc7-204	ENSMUST00000132886.1	739	No protein	lncRNA	-	-	TSL:2
Dnajc7-205	ENSMUST00000136199.1	579	No protein	lncRNA	-	-	TSL:5

The strategy is based on the design of *Dnajc7-201* transcript,The transcription is shown below



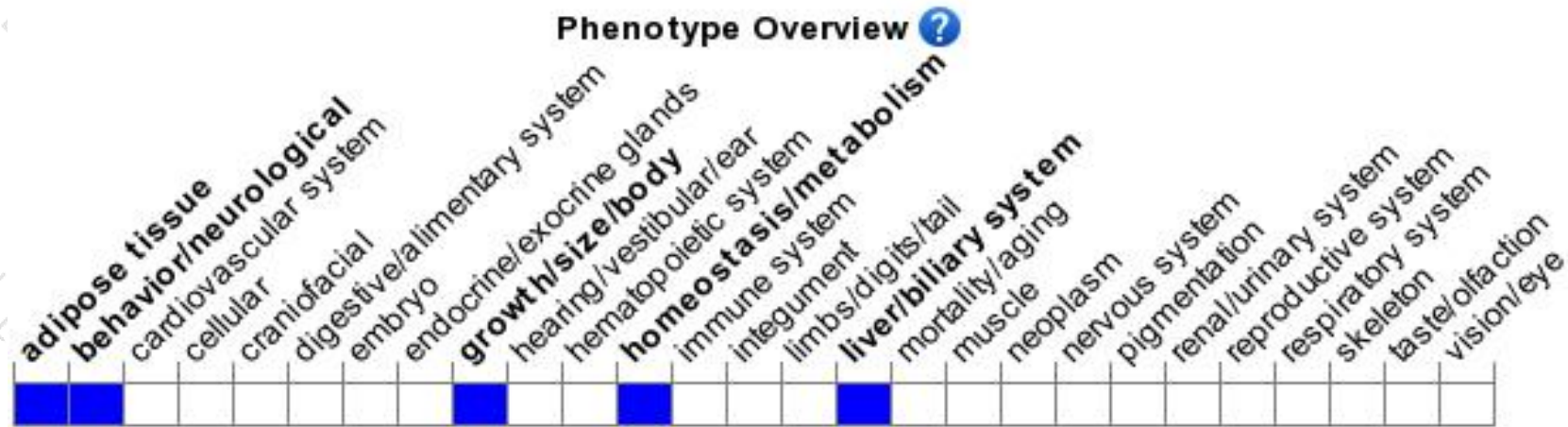
Genomic location distribution



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, Male mice homozygous for a knock-out allele exhibit hepatic steatosis and increased serum cholesterol.

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

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