

Dnajc1 Cas9-CKO Strategy

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Design Date:

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Project Overview

Project Name

Dnajc1

Project type

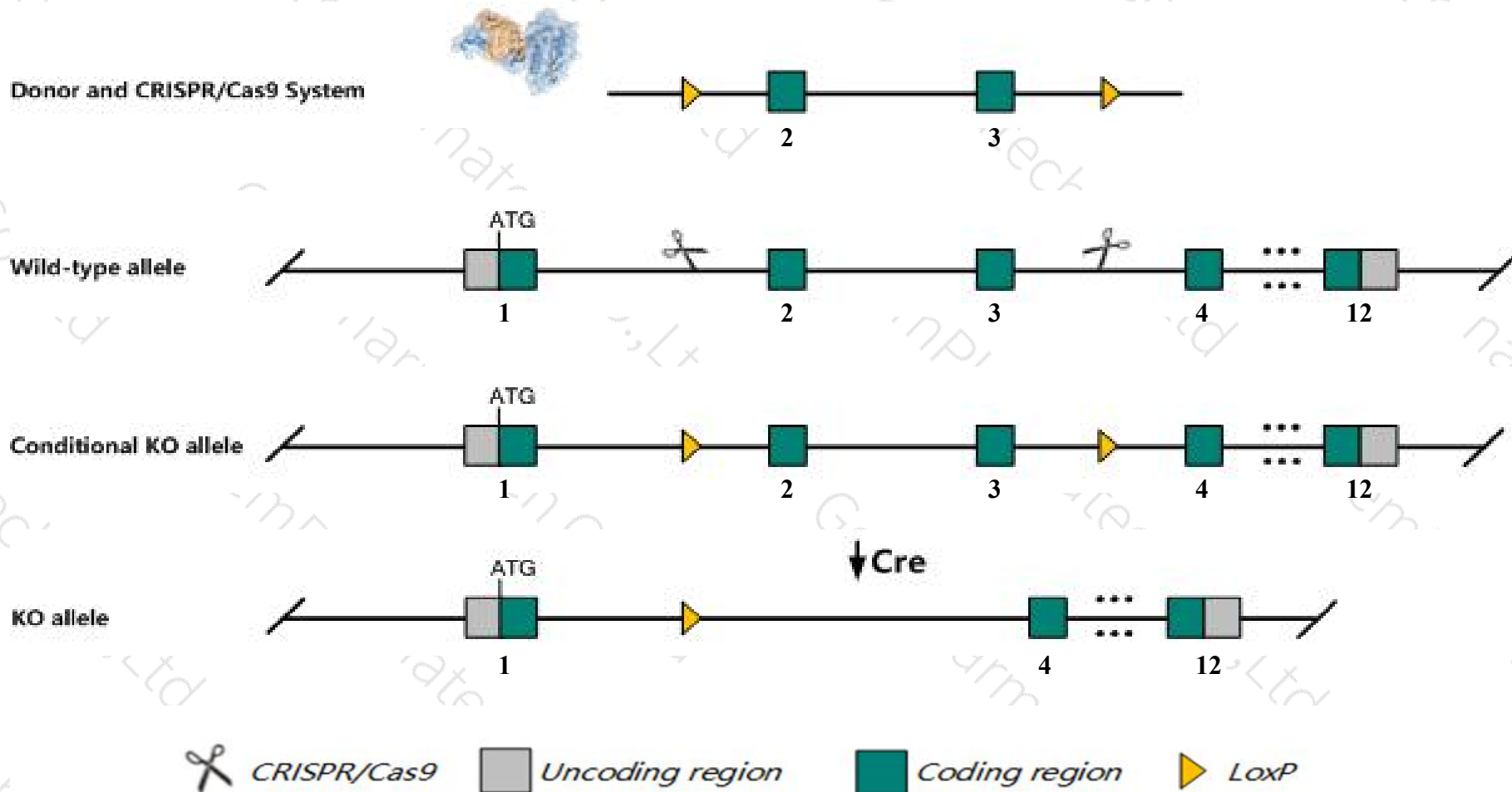
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dnajc1* gene. The schematic diagram is as follows:



- The *Dnajc1* gene has 11 transcripts. According to the structure of *Dnajc1* gene, exon2-exon3 of *Dnajc1*-209 (ENSMUST00000166495.7) transcript is recommended as the knockout region. The region contains 149bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Dnajc1* 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.

Notice

- The *Dnajc1* gene is located on the Chr2. 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.
- The transcript *Dnajc1-210*(incomplete) may not be affect.
- 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)

Dnajc1 DnaJ heat shock protein family (Hsp40) member C1 [*Mus musculus* (house mouse)]

Gene ID: 13418, updated on 12-Aug-2019

Summary

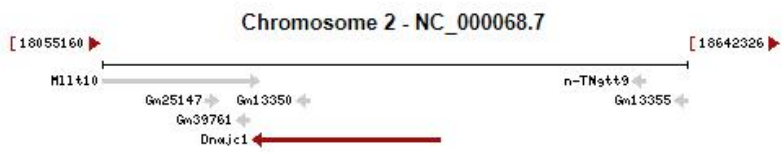
- Official Symbol** Dnajc1 provided by [MGI](#)
- Official Full Name** DnaJ heat shock protein family (Hsp40) member C1 provided by [MGI](#)
- Primary source** [MGI:MGI:103268](#)
- See related** [Ensembl:ENSMUSG00000026740](#)
- Gene type** protein coding
- RefSeq status** VALIDATED
- Organism** [Mus musculus](#)
- Lineage** Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
- Also known as** MTJ1; ERdj1; ERj1p; Dnajl1; AA960110; 4733401K02Rik; D230036H06Rik
- Expression** Ubiquitous expression in testis adult (RPKM 10.4), thymus adult (RPKM 9.4) and 28 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

Genomic context

Location: 2; 2 A3 [See Dnajc1 in Genome Data Viewer](#)

Exon count: 13

Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	2	NC_000068.7 (18205634..18394099, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	2	NC_000068.6 (18138762..18314134, complement)

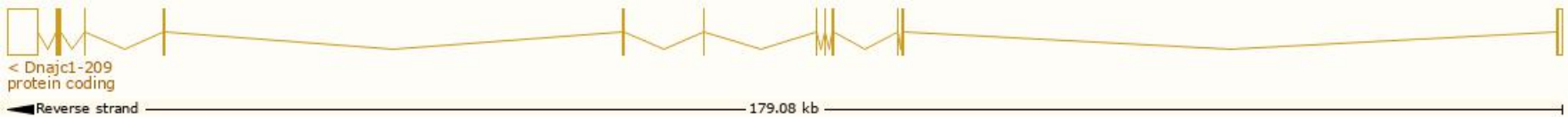


Transcript information (Ensembl)

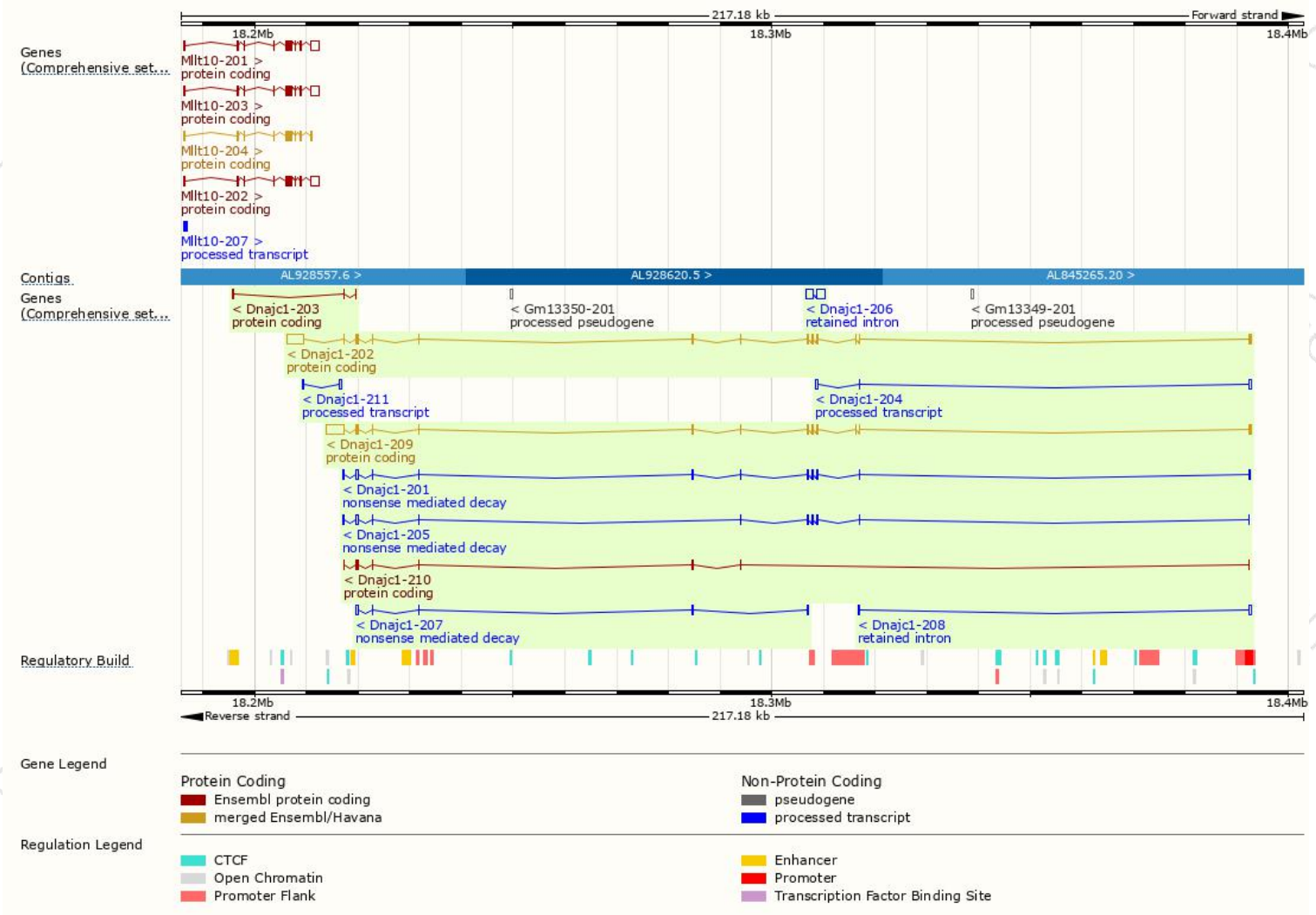
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dnajc1-209	ENSMUST00000166495.7	5497	552aa	Protein coding	CCDS15709	Q61712	TSL:1 GENCODE basic APPRIS P1
Dnajc1-202	ENSMUST00000091418.11	5070	552aa	Protein coding	CCDS15709	Q61712	TSL:1 GENCODE basic APPRIS P1
Dnajc1-210	ENSMUST00000168723.1	1175	357aa	Protein coding	-	F6ZL86	CDS 5' incomplete TSL:5
Dnajc1-203	ENSMUST00000148401.7	456	58aa	Protein coding	-	F6WEH1	CDS 5' incomplete TSL:3
Dnajc1-201	ENSMUST00000028072.12	1876	105aa	Nonsense mediated decay	-	F8WH68	TSL:5
Dnajc1-205	ENSMUST00000163130.7	1490	79aa	Nonsense mediated decay	-	F6YK70	CDS 5' incomplete TSL:5
Dnajc1-207	ENSMUST00000164835.1	746	34aa	Nonsense mediated decay	-	F7C8U2	CDS 5' incomplete TSL:3
Dnajc1-204	ENSMUST00000153055.2	1001	No protein	Processed transcript	-	-	TSL:1
Dnajc1-211	ENSMUST00000172210.1	720	No protein	Processed transcript	-	-	TSL:3
Dnajc1-206	ENSMUST00000164606.1	2850	No protein	Retained intron	-	-	TSL:1
Dnajc1-208	ENSMUST00000165793.1	749	No protein	Retained intron	-	-	TSL:2

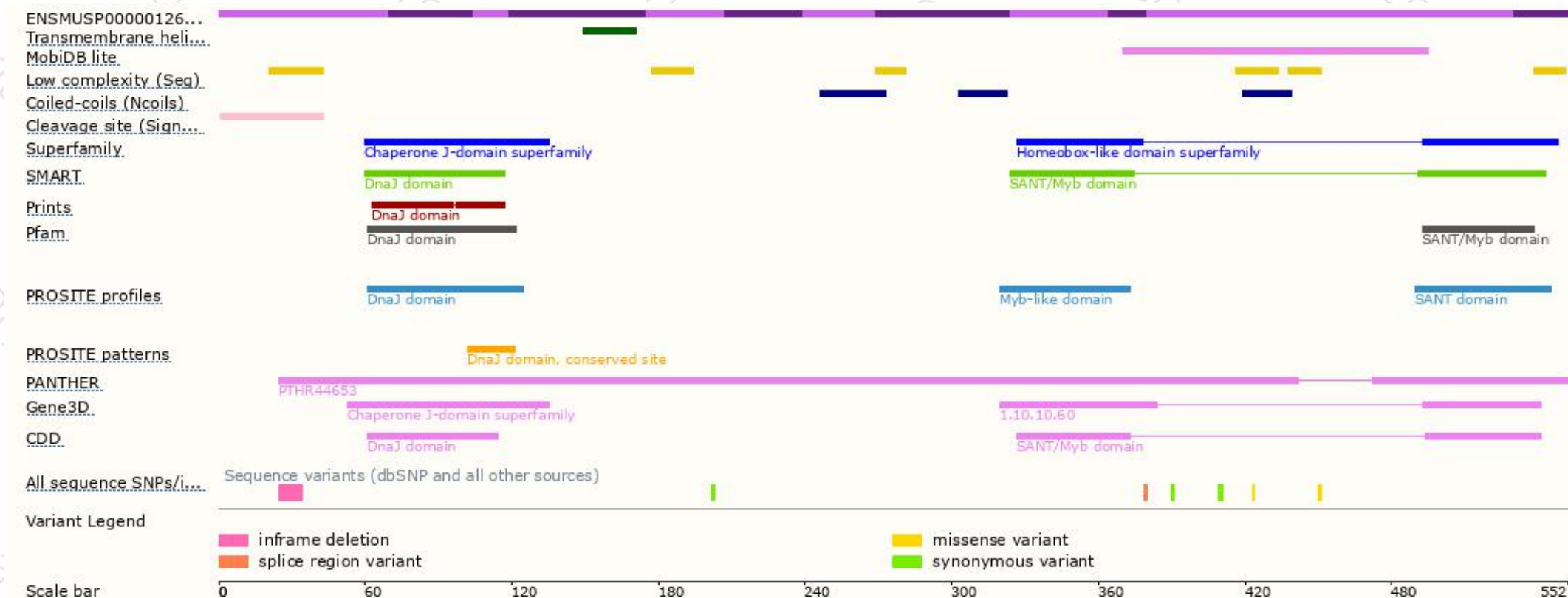
The strategy is based on the design of *Dnajc1-209* transcript, the transcription is shown below:



Genomic location distribution



Protein domain



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

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