

Ndufv3 Cas9-CKO Strategy

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Project Overview

Project Name

Ndufv3

Project type

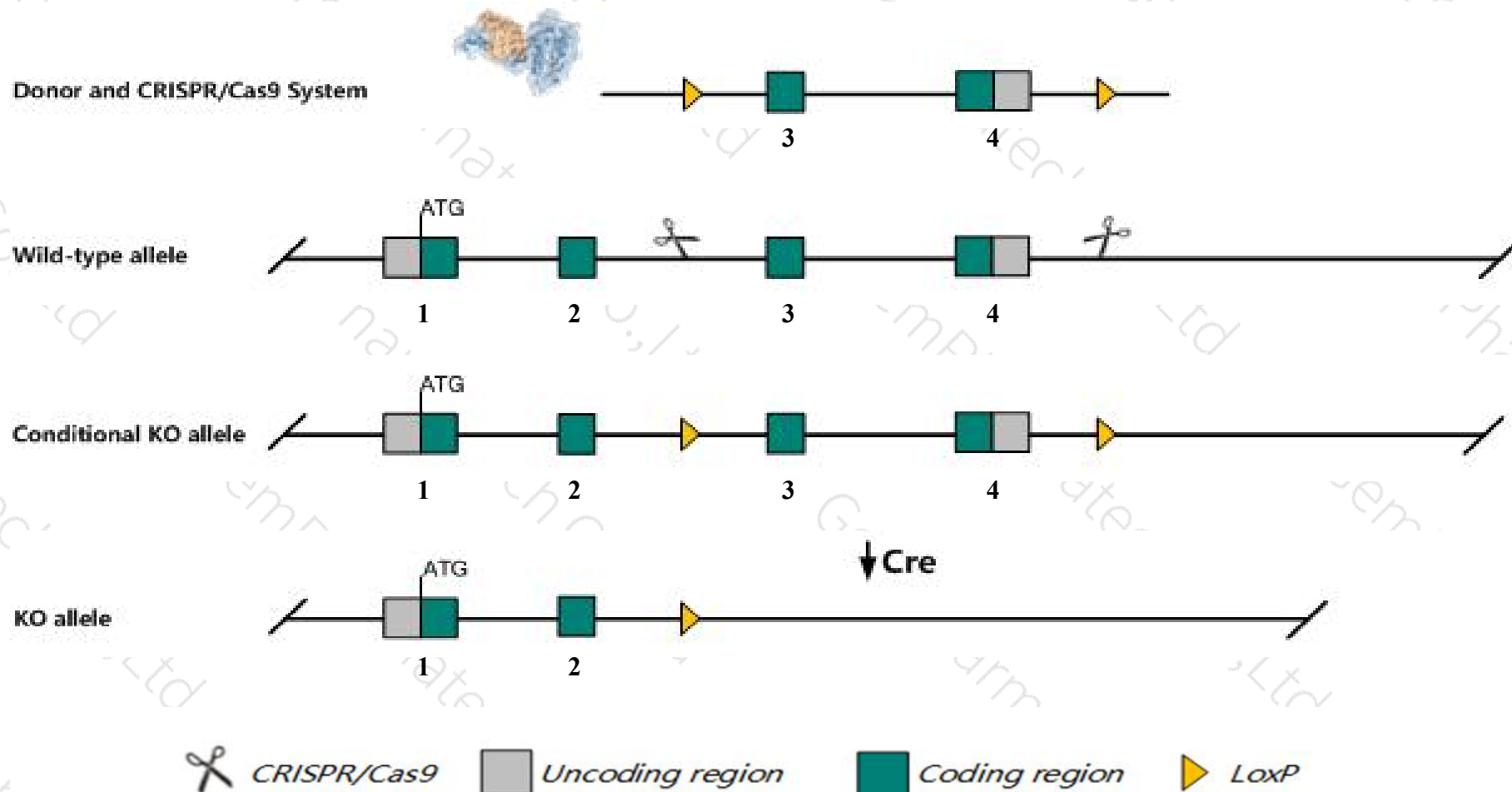
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ndufv3* gene. The schematic diagram is as follows:



- The *Ndufv3* gene has 5 transcripts. According to the structure of *Ndufv3* gene, exon3-exon4 of *Ndufv3-201* (ENSMUST00000046288.15) transcript is recommended as the knockout region. The region contains most of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ndufv3* 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.

- The *Ndufv3* gene is located on the Chr17. 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 floxed region is near to the C-terminal of *Gm38099* gene, this strategy may influence the regulatory function of the C-terminal of *Gm38099* gene.
- The N-terminal of *Ndufv3* gene will remain several amino acids, it may remain the partial function of *Ndufv3* gene.
- 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)

Ndufv3 NADH:ubiquinone oxidoreductase core subunit V3 [Mus musculus (house mouse)]

Gene ID: 78330, updated on 13-Mar-2020

Summary



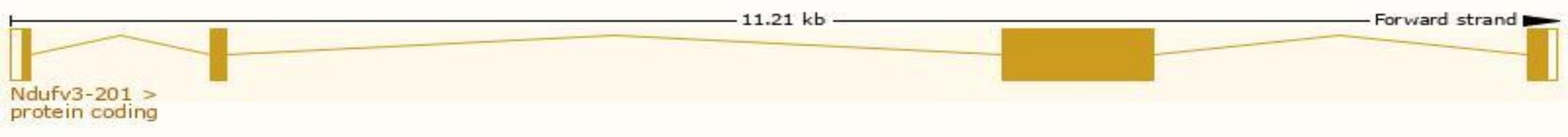
Official Symbol	Ndufv3 provided by MGI
Official Full Name	NADH:ubiquinone oxidoreductase core subunit V3 provided by MGI
Primary source	MGI:MGI:1890894
See related	Ensembl:ENSMUSG00000024038
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1500032D16Rik
Expression	Ubiquitous expression in heart adult (RPKM 60.1), kidney adult (RPKM 42.8) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

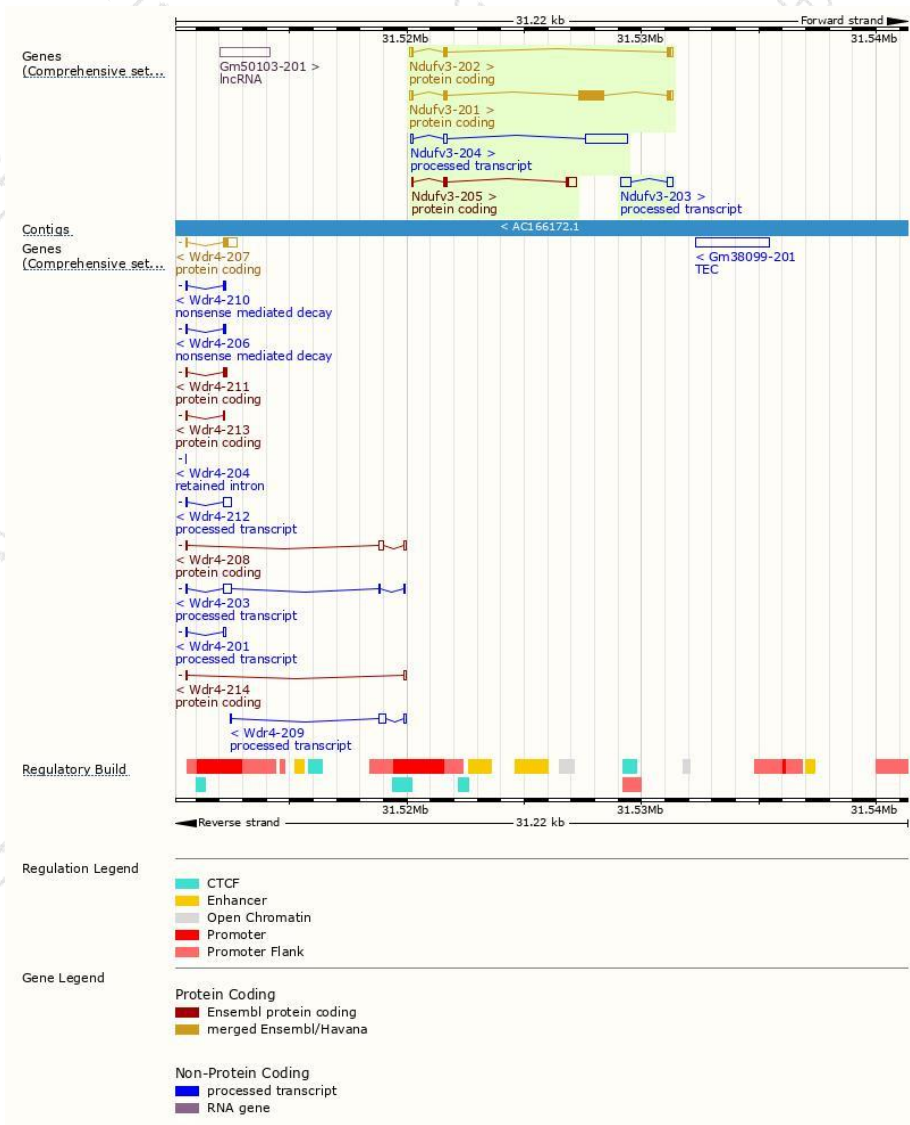
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ndufv3-201	ENSMUST00000046288.15	1582	468aa	Protein coding	CCDS37549	Q3U422	TSL:1 GENCODE basic APPRIS P4
Ndufv3-202	ENSMUST00000064798.15	493	104aa	Protein coding	CCDS37550	Q8BK30	TSL:1 GENCODE basic APPRIS ALT2
Ndufv3-205	ENSMUST00000191598.2	645	86aa	Protein coding	-	A0A087WQ40	TSL:1 GENCODE basic
Ndufv3-204	ENSMUST00000189436.2	2021	No protein	Processed transcript	-	-	TSL:5
Ndufv3-203	ENSMUST00000185273.1	686	No protein	Processed transcript	-	-	TSL:3

The strategy is based on the design of *Ndufv3-201* 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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