

Ndufb6 Cas9-CKO Strategy

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Project Overview

Project Name

Ndufb6

Project type

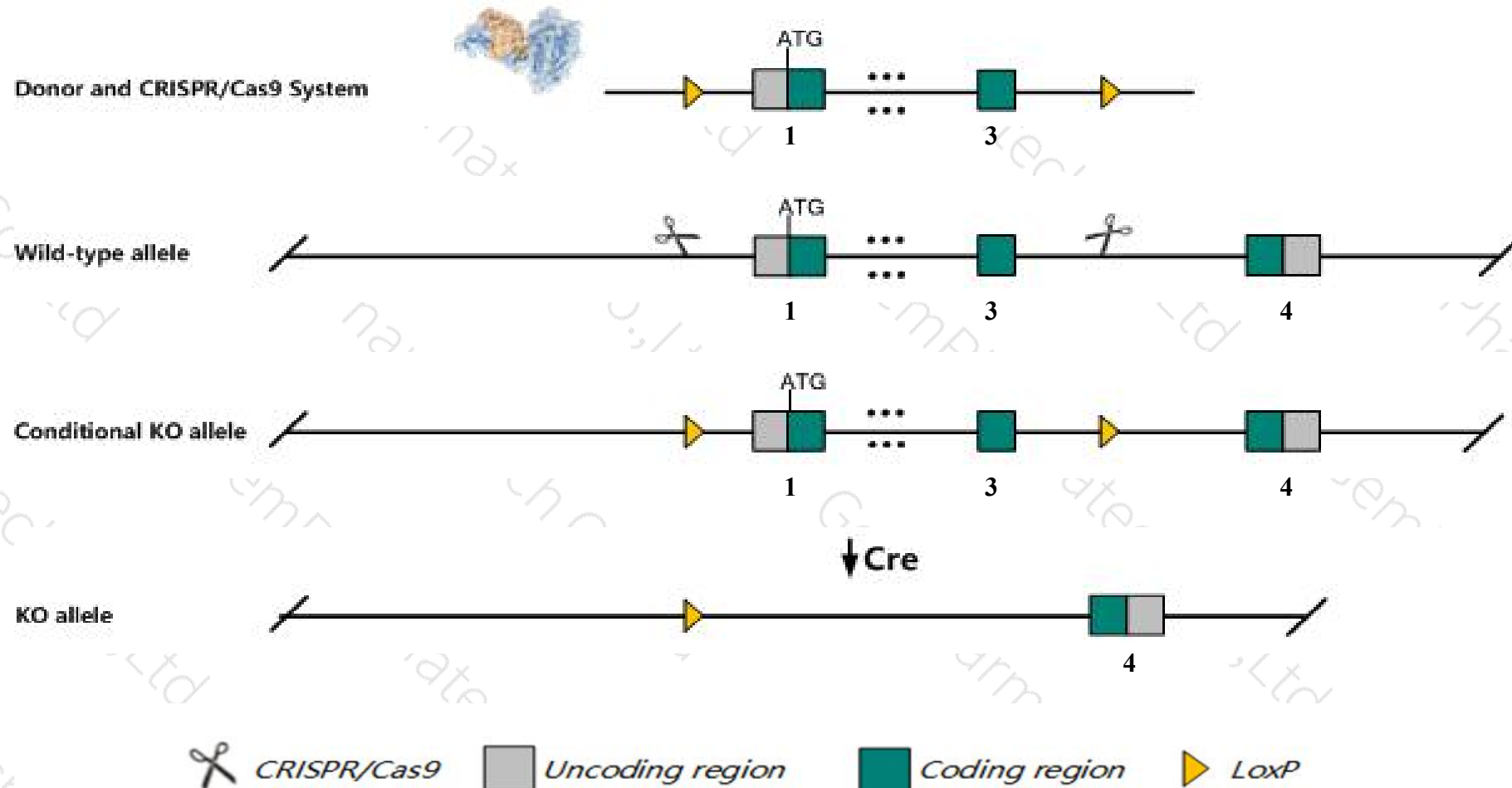
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ndufb6* gene. The schematic diagram is as follows:



Technical routes

- The *Ndufb6* gene has 2 transcripts. According to the structure of *Ndufb6* gene, exon1-exon3 of *Ndufb6*-201 (ENSMUST00000095128.9) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ndufb6* 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 floxed region is near to the N-terminal of *Topors* gene and C-terminal of *Smim27* gene, this strategy may influence the regulatory function of the N-terminal of *Topors* gene and C-terminal of *Smim27* gene.
- The *Ndufb6* gene is located on the Chr4. 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)

Ndufb6 NADH:ubiquinone oxidoreductase subunit B6 [Mus musculus (house mouse)]

Gene ID: 230075, updated on 26-Mar-2020

Summary



Official Symbol Ndufb6 provided by [MGI](#)

Official Full Name NADH:ubiquinone oxidoreductase subunit B6 provided by [MGI](#)

Primary source [MGI:MGI:2684983](#)

See related [Ensembl:ENSMUSG00000071014](#)

Gene type protein coding

RefSeq status REVIEWED

Organism [Mus musculus](#)

Lineage Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus

Also known as Cl-B17, Gm137

Summary This gene encodes a subunit of complex I (NADH:ubiquinone oxidoreductase) of the mitochondrial respiratory chain. This complex functions in electron transport and generation of a proton gradient across the inner mitochondrial membrane to drive ATP synthesis. Data from human cell lines suggests that the encoded subunit may be required for electron transfer activity. [provided by RefSeq, Aug 2015]

Expression Ubiquitous expression in heart adult (RPKM 89.9), kidney adult (RPKM 75.1) and 28 other tissues [See more](#)

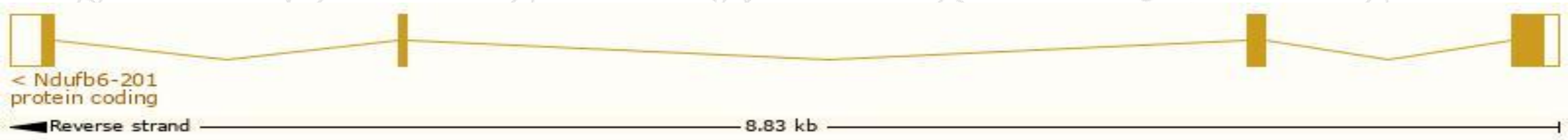
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

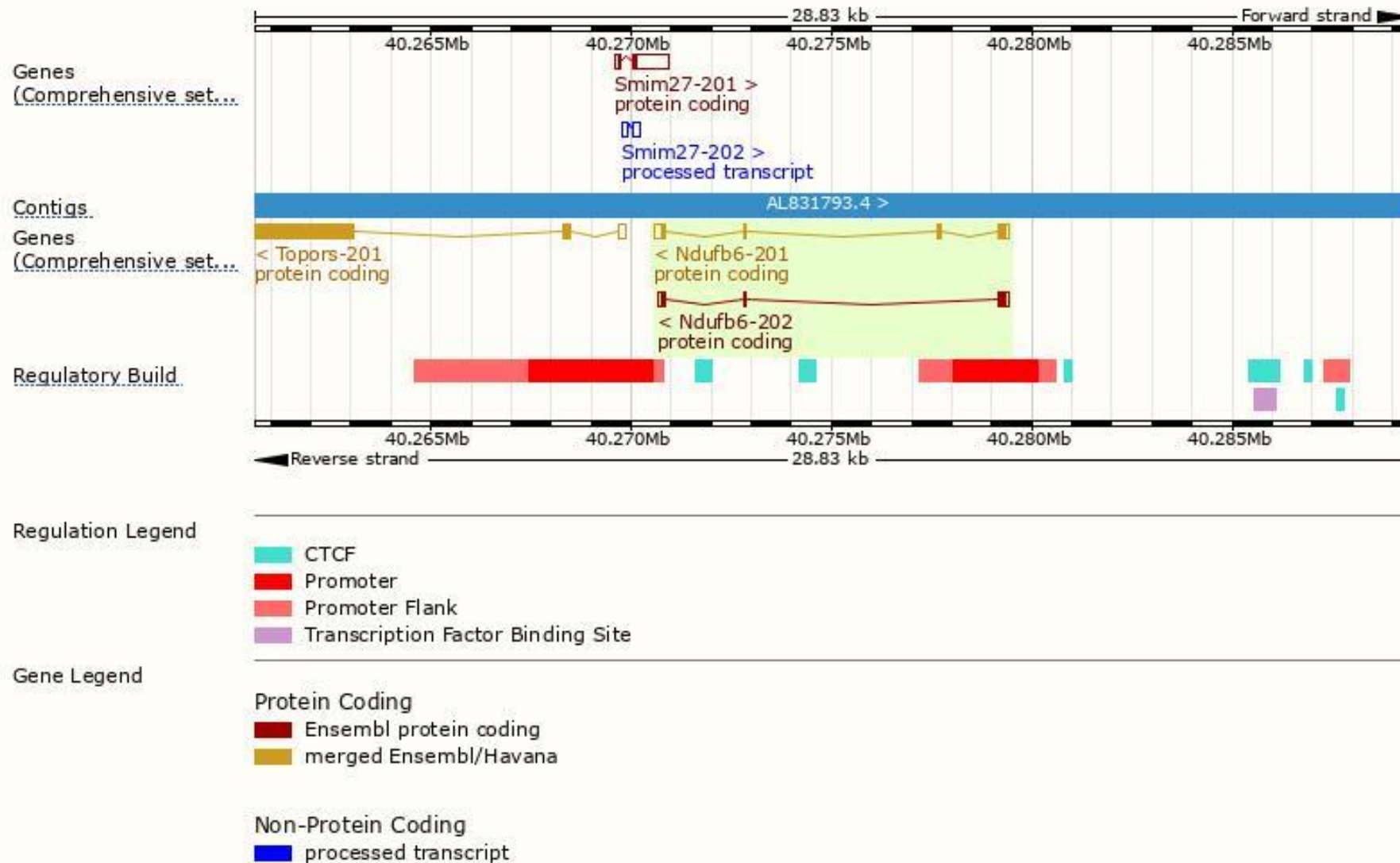
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ndufb6-201	ENSMUST00000095128.9	659	128aa	Protein coding	CCDS18045	A2AP31 Q3UIU2	TSL:1 GENCODE basic APPRIS P1
Ndufb6-202	ENSMUST00000108108.2	480	97aa	Protein coding	-	A2AP32	TSL:3 GENCODE basic

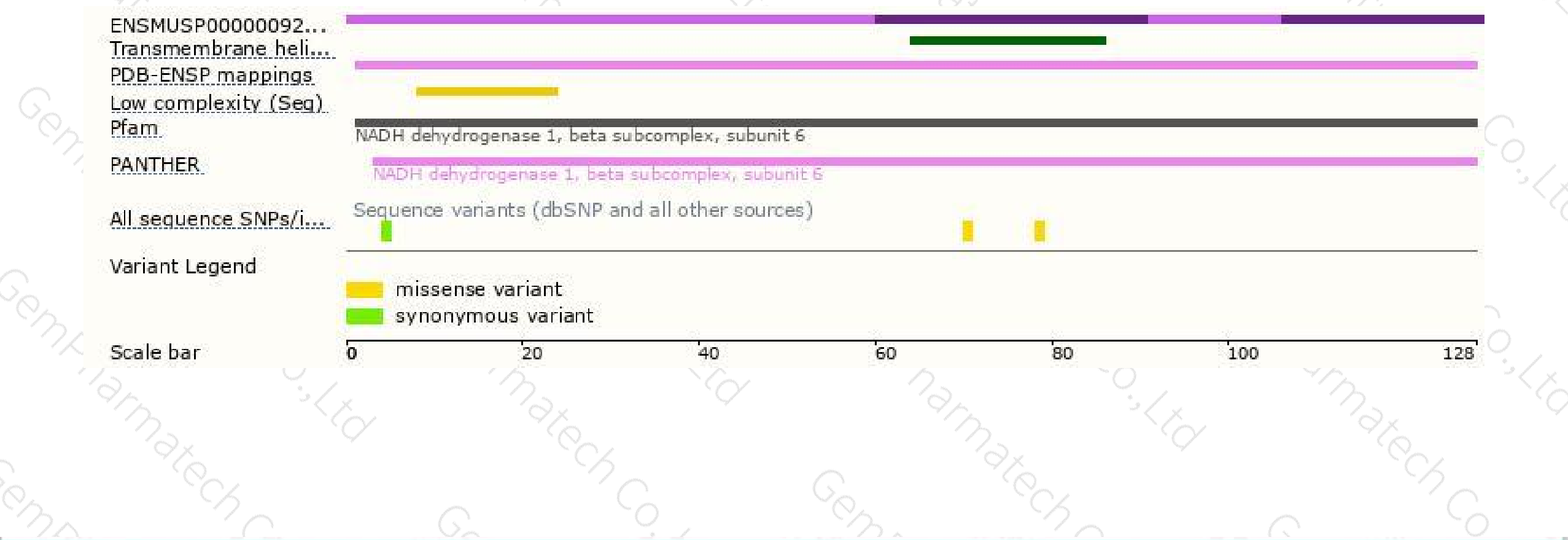
The strategy is based on the design of *Ndufb6-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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