

Ndufb2 Cas9-CKO Strategy

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Project Overview

Project Name

Ndufb2

Project type

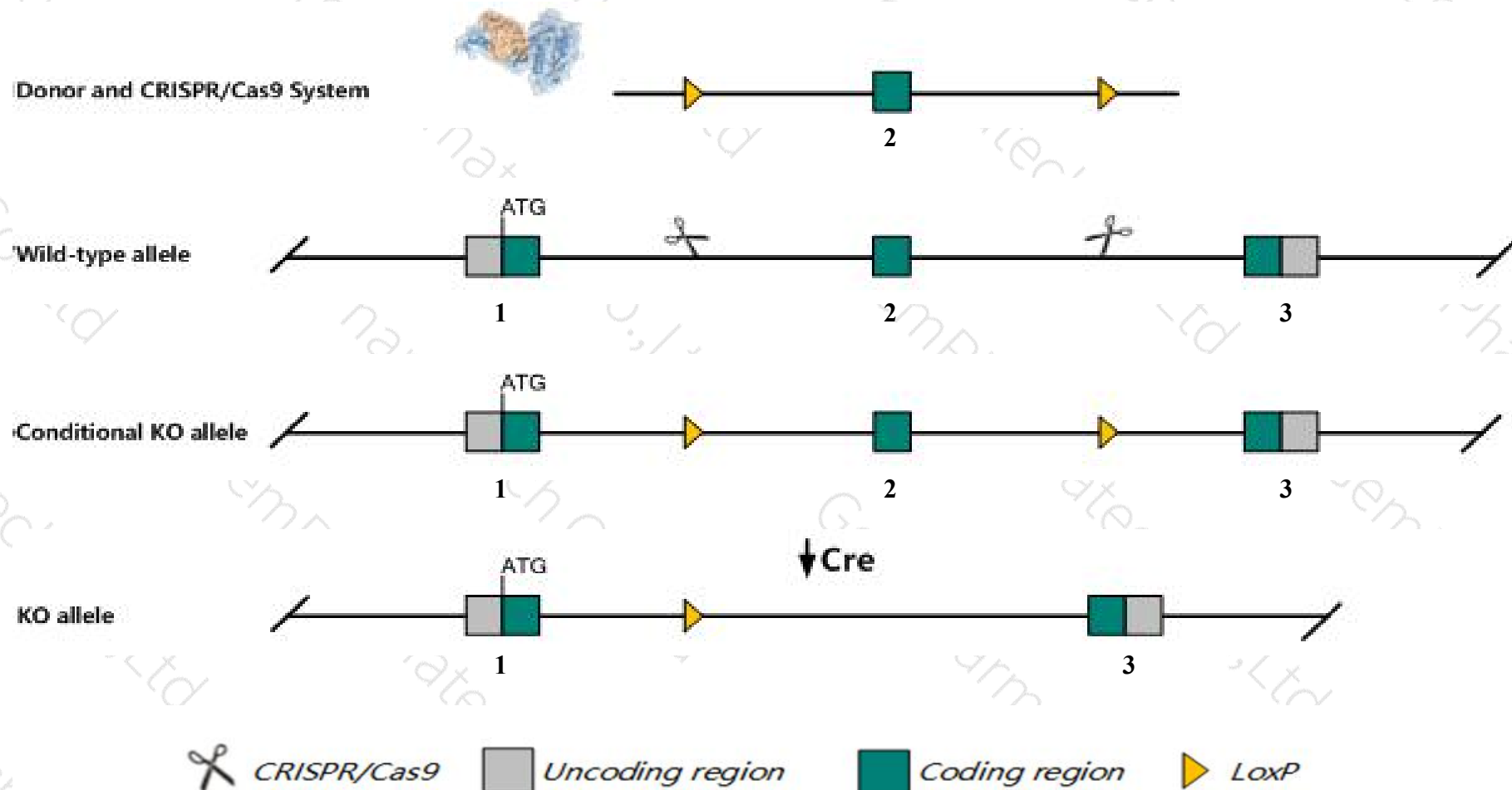
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ndufb2* gene. The schematic diagram is as follows:



- The *Ndufb2* gene has 6 transcripts. According to the structure of *Ndufb2* gene, exon2 of *Ndufb2-202* (ENSMUST00000119379.1) transcript is recommended as the knockout region. The region contains 145bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ndufb2* 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 *Ndufb2* gene is located on the Chr6. 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.
- *Gm42420* gene will be deleted.
- The floxed region is near to the N-terminal of *Gm16272* gene, this strategy may influence the regulatory function of the N-terminal of *Gm16272* gene.
- Transcript *Ndufb2*-203&204 may not be affected.
- 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)

Ndufb2 NADH:ubiquinone oxidoreductase subunit B2 [Mus musculus (house mouse)]

Gene ID: 68198, updated on 13-Mar-2020

Summary



Official Symbol	Ndufb2 provided by MGI
Official Full Name	NADH:ubiquinone oxidoreductase subunit B2 provided by MGI
Primary source	MGI:MGI:1915448
See related	Ensembl:ENSMUSG00000002416
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	1810011O01Rik, 8kDa, AGGG, AI325567, CI-AGGG
Expression	Ubiquitous expression in adrenal adult (RPKM 286.4), duodenum adult (RPKM 227.7) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

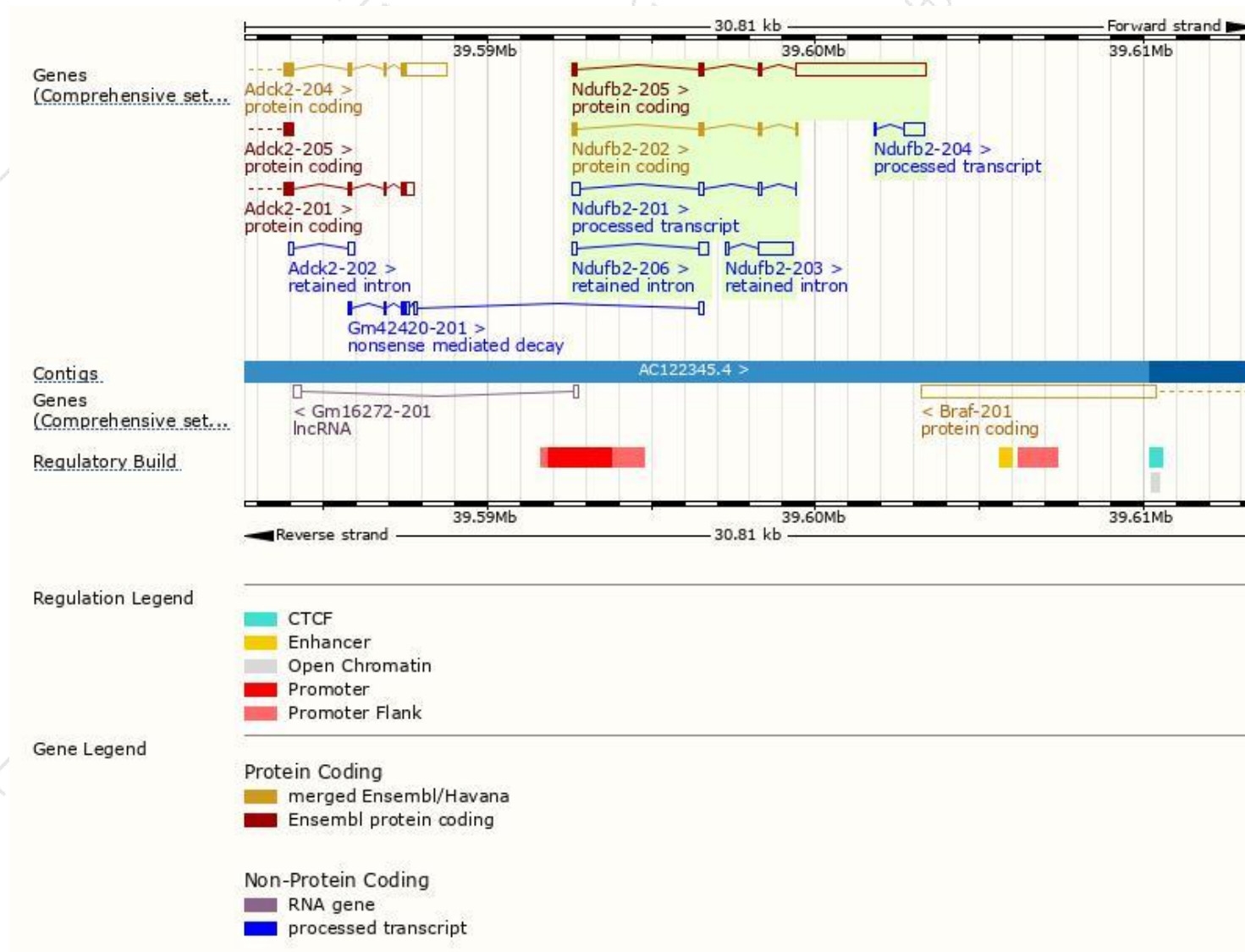
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ndufb2-205	ENSMUST00000135671.7	4371	105aa	Protein coding	CCDS20025	Q9CPU2	TSL:1 GENCODE basic APPRIS P1
Ndufb2-202	ENSMUST00000119379.1	455	105aa	Protein coding	CCDS20025	Q9CPU2	TSL:1 GENCODE basic APPRIS P1
Ndufb2-204	ENSMUST00000135239.1	653	No protein	Processed transcript	-	-	TSL:5
Ndufb2-201	ENSMUST00000002490.6	491	No protein	Processed transcript	-	-	TSL:5
Ndufb2-203	ENSMUST00000128064.1	1110	No protein	Retained intron	-	-	TSL:1
Ndufb2-206	ENSMUST00000146793.1	422	No protein	Retained intron	-	-	TSL:2

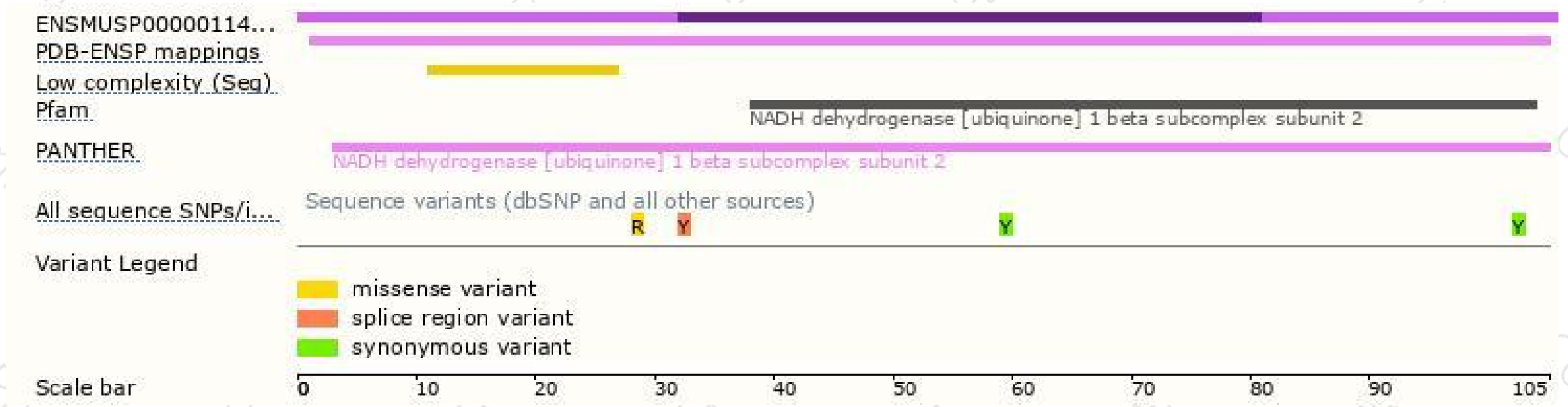
The strategy is based on the design of *Ndufb2-202* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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