

Ndufaf6 Cas9-CKO Strategy

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Project Overview

Project Name

Ndufaf6

Project type

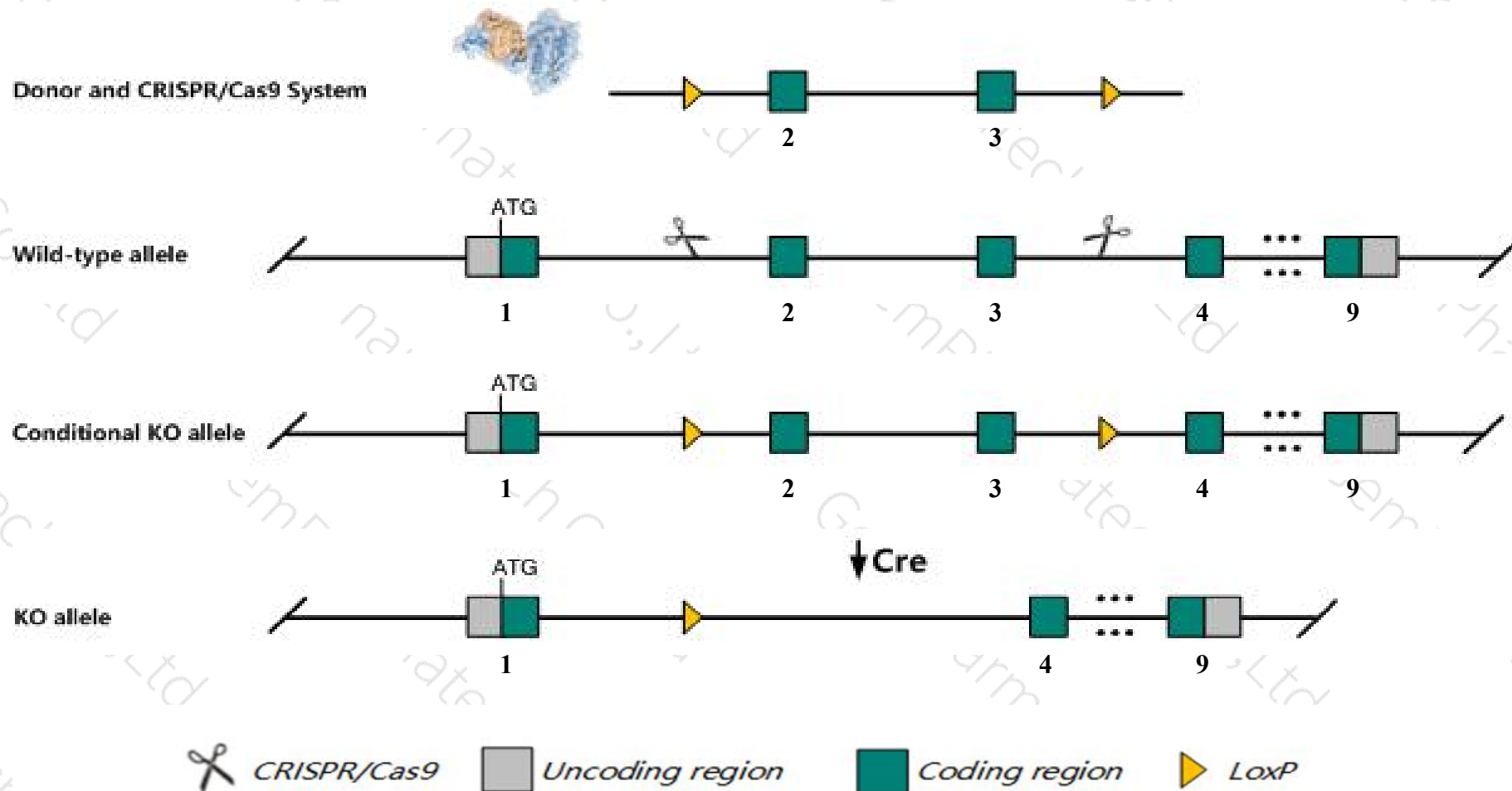
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ndufa6* gene. The schematic diagram is as follows:



Technical routes

- The *Ndufaf6* gene has 7 transcripts. According to the structure of *Ndufaf6* gene, exon2-exon3 of *Ndufaf6*-201(ENSMUST00000058183.8) transcript is recommended as the knockout region. The region contains 223bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ndufaf6* 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 *Ndufa6* 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)

Ndutfaf6 NADH:ubiquinone oxidoreductase complex assembly factor 6 [Mus musculus (house mouse)]

Gene ID: 76947, updated on 13-Mar-2020

Summary



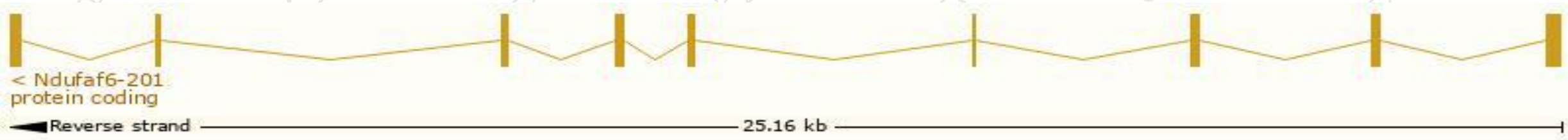
Official Symbol	Ndutfaf6 provided by MGI
Official Full Name	NADH:ubiquinone oxidoreductase complex assembly factor 6 provided by MGI
Primary source	MGI:MGI:1924197
See related	Ensembl:ENSMUSG00000050323
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2310030N02Rik
Expression	Ubiquitous expression in adrenal adult (RPKM 4.2), kidney adult (RPKM 4.2) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

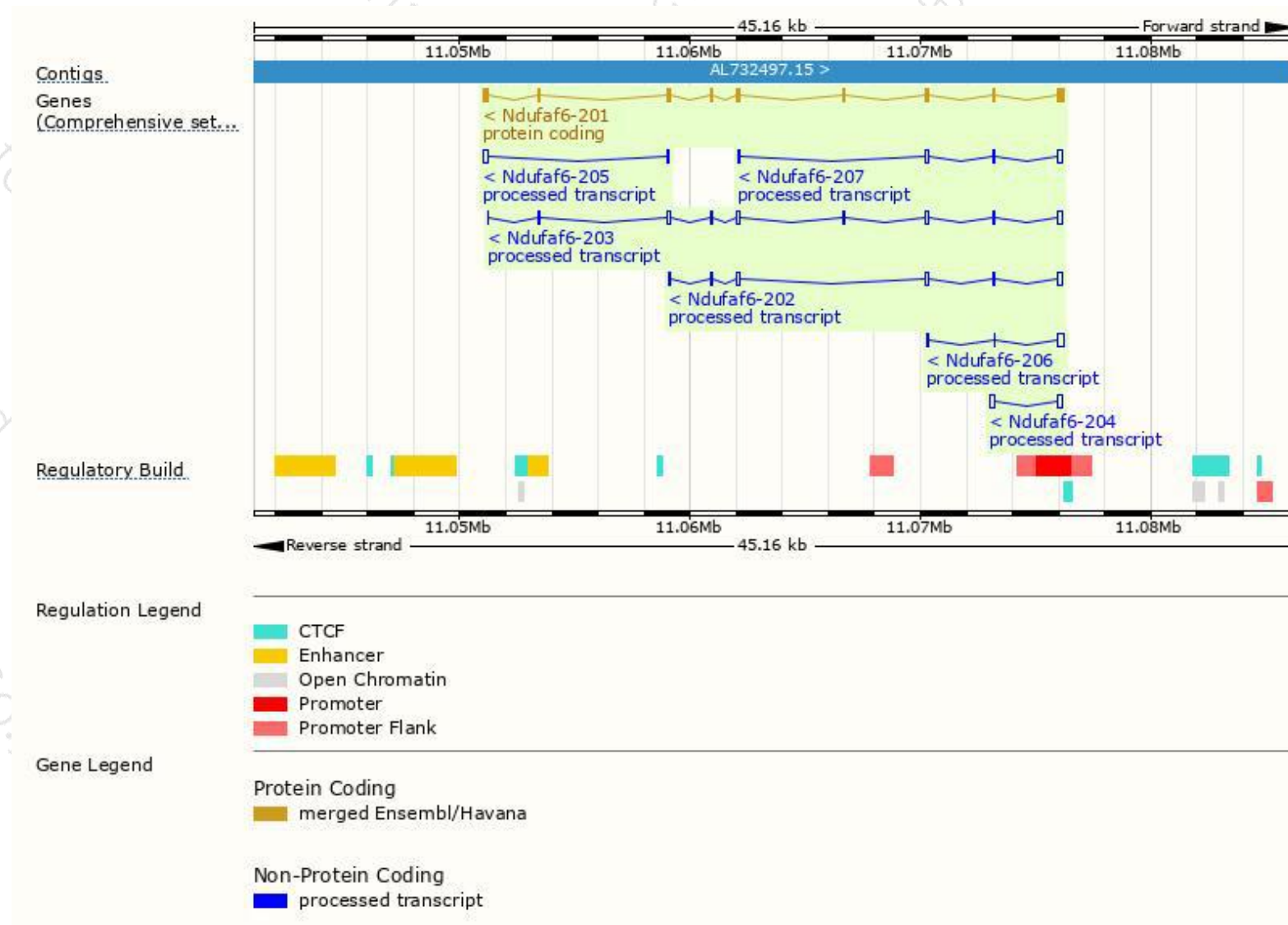
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ndufaf6-201	ENSMUST00000058183.8	1082	333aa	Protein coding	CCDS38691	A2AIL4	TSL:1 GENCODE basic APPRIS P1
Ndufaf6-203	ENSMUST00000126468.7	863	No protein	Processed transcript	-	-	TSL:5
Ndufaf6-202	ENSMUST00000124607.7	675	No protein	Processed transcript	-	-	TSL:5
Ndufaf6-207	ENSMUST00000154122.1	528	No protein	Processed transcript	-	-	TSL:5
Ndufaf6-204	ENSMUST00000141019.1	461	No protein	Processed transcript	-	-	TSL:1
Ndufaf6-206	ENSMUST00000148127.1	352	No protein	Processed transcript	-	-	TSL:5
Ndufaf6-205	ENSMUST00000144475.1	248	No protein	Processed transcript	-	-	TSL:3

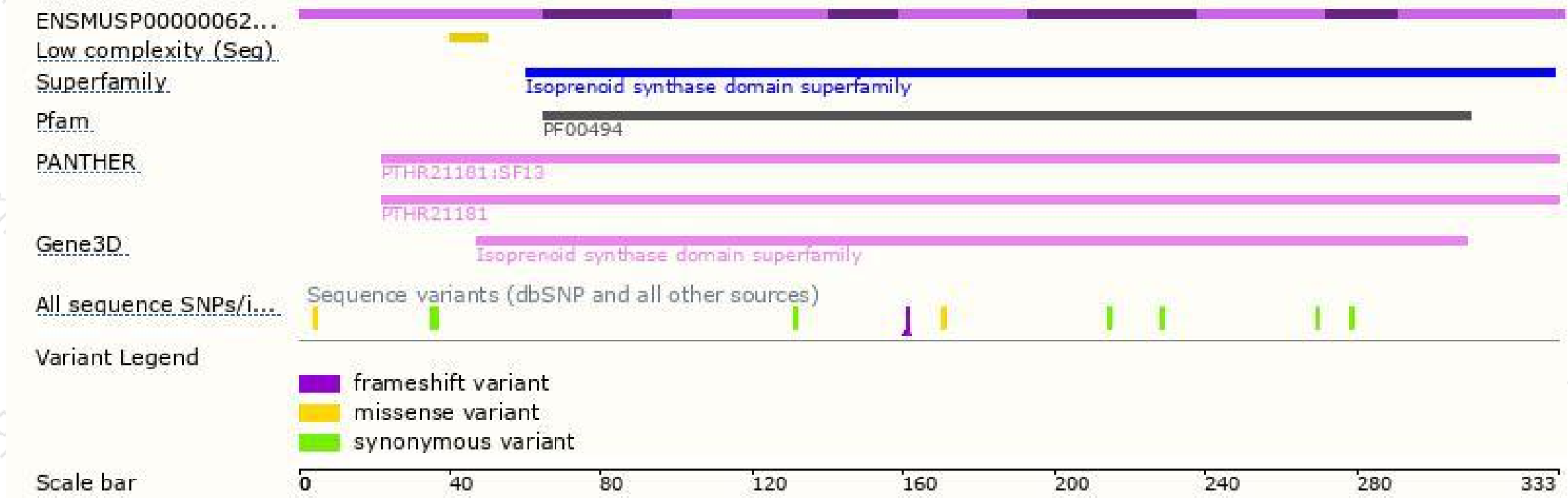
The strategy is based on the design of *Ndufaf6-201* transcript,the transcription is shown below:



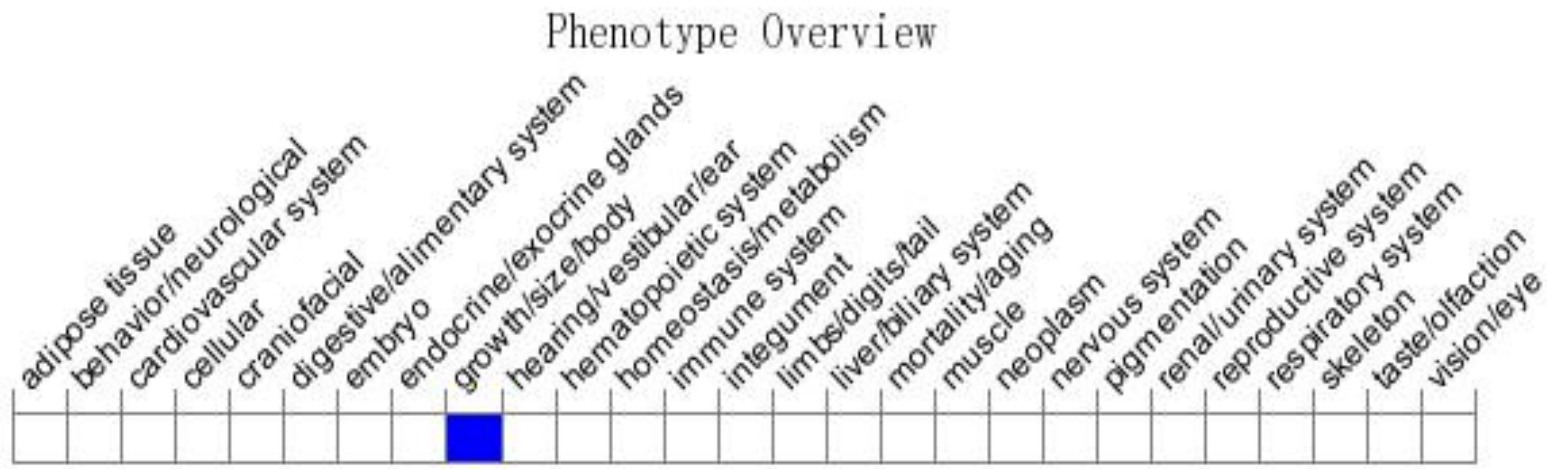
Genomic location distribution



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/>).

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

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