

Ndufc1 Cas9-CKO Strategy

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Project Overview

Project Name

Ndufc1

Project type

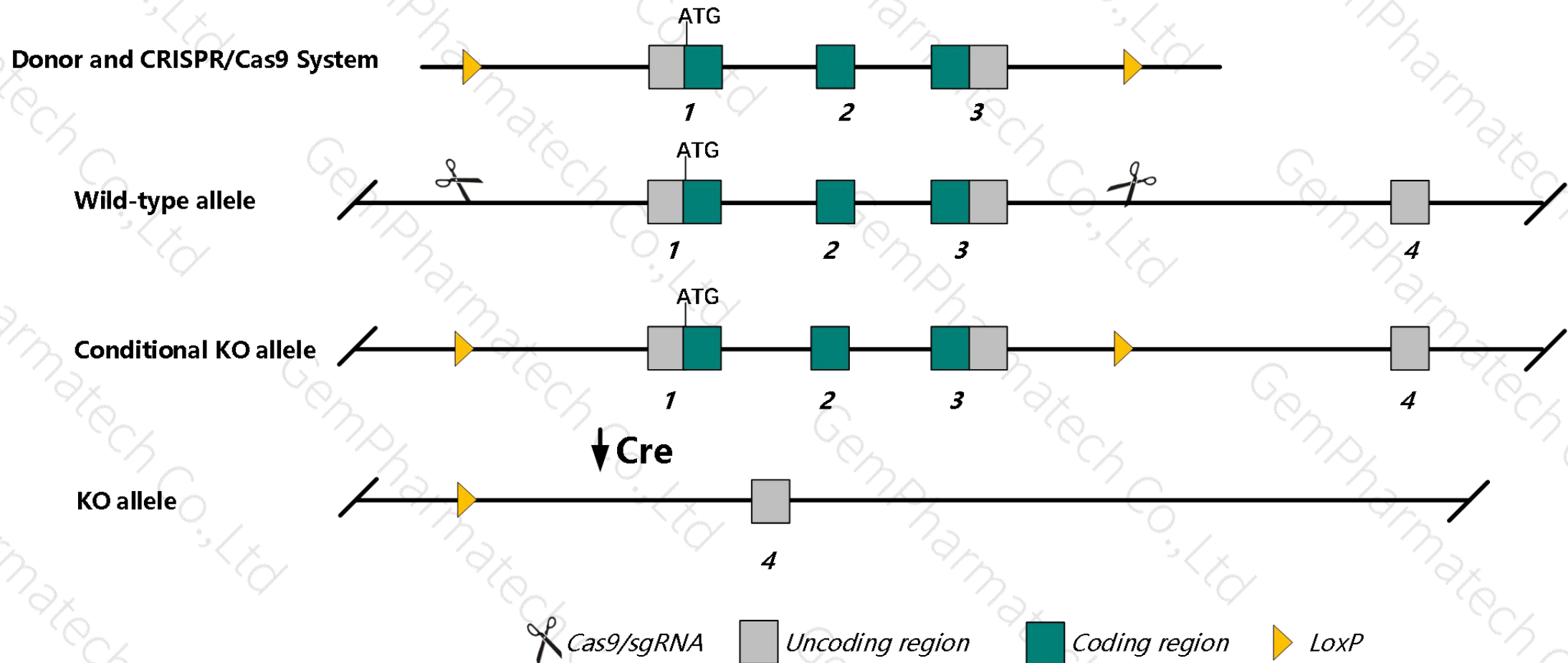
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ndufc1* gene. The schematic diagram is as follows:



- The *Ndufc1* gene has 4 transcripts. According to the structure of *Ndufc1* gene, exon1-exon3 of *Ndufc1*-204 (ENSMUST00000193279.1) transcript is recommended as the knockout region. The region contains all 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 *Ndufc1* 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 *Ndufc1* gene is located on the Chr3. 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 N-terminal of *Gm9442* gene and *Naal5* gene, this strategy may influence the regulatory function of the N-terminal of these genes.
- 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)

Ndufc1 NADH:ubiquinone oxidoreductase subunit C1 [Mus musculus (house mouse)]

Gene ID: 66377, updated on 13-Mar-2020

Summary



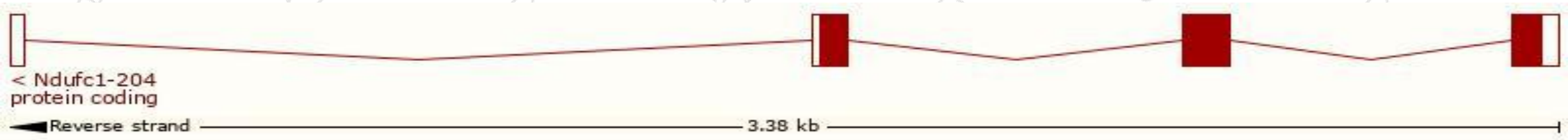
Official Symbol	Ndufc1 provided by MGI
Official Full Name	NADH:ubiquinone oxidoreductase subunit C1 provided by MGI
Primary source	MGI:MGI:1913627
See related	Ensembl:ENSMUSG000000037152
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2310016K22Rik, KFYI
Expression	Ubiquitous expression in heart adult (RPKM 91.1), testis adult (RPKM 62.3) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

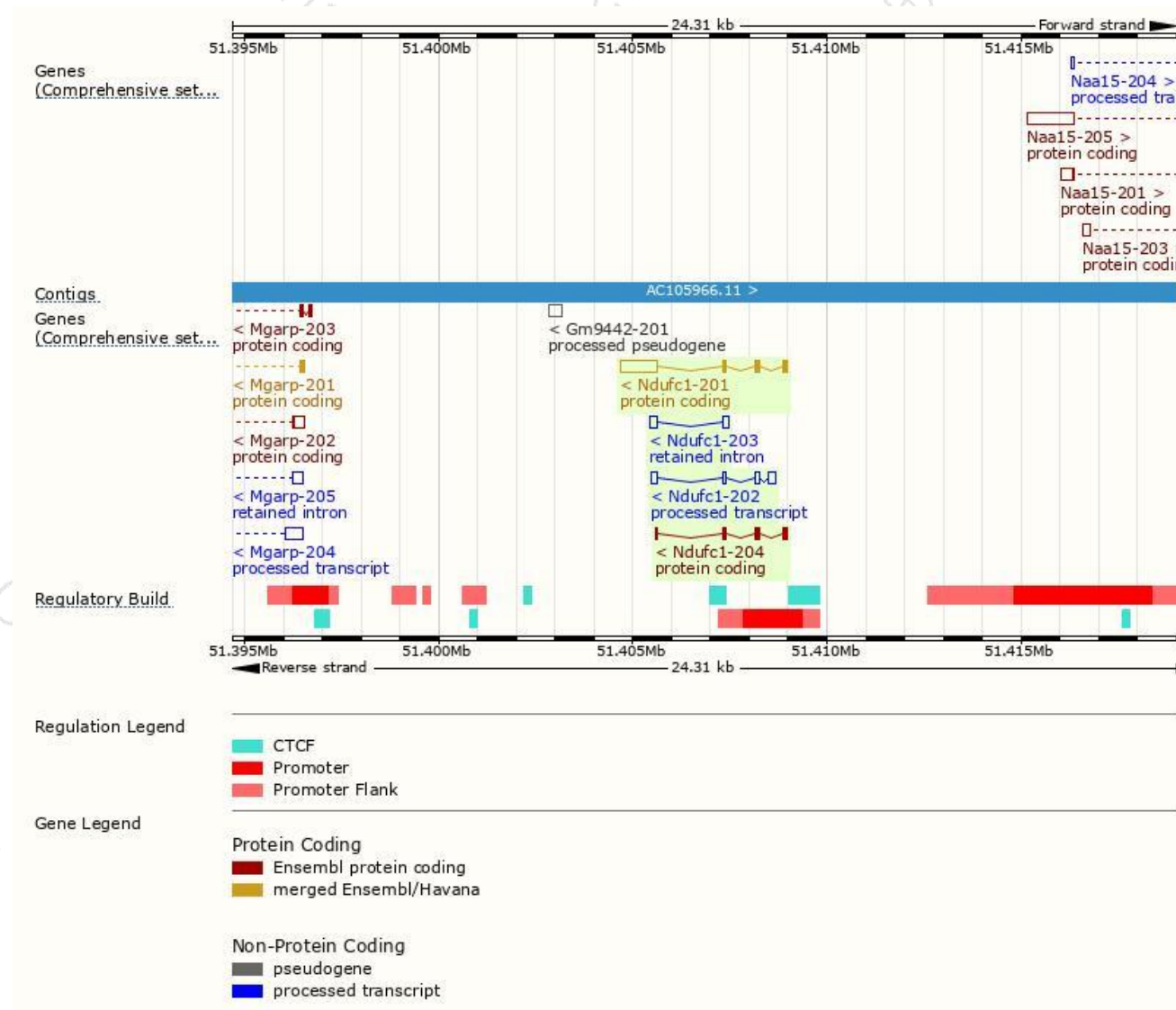
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ndufc1-201	ENSMUST00000038108.11	1249	76aa	Protein coding	CCDS38426	Q9CQY9	TSL:1 GENCODE basic APPRIS P1
Ndufc1-204	ENSMUST00000193279.1	315	76aa	Protein coding	CCDS38426	Q9CQY9	TSL:3 GENCODE basic APPRIS P1
Ndufc1-202	ENSMUST00000135602.2	500	No protein	Processed transcript	-	-	TSL:3
Ndufc1-203	ENSMUST00000145572.2	311	No protein	Retained intron	-	-	TSL:2

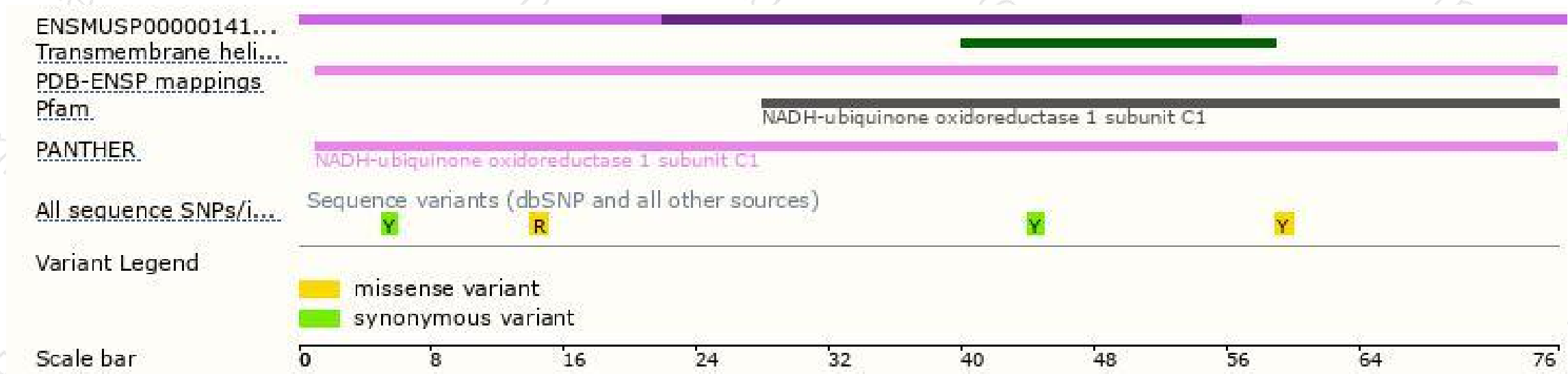
The strategy is based on the design of *Ndufc1-204* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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