

Ndufa12 Cas9-KO Strategy

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Project Overview

Project Name

Ndufa12

Project type

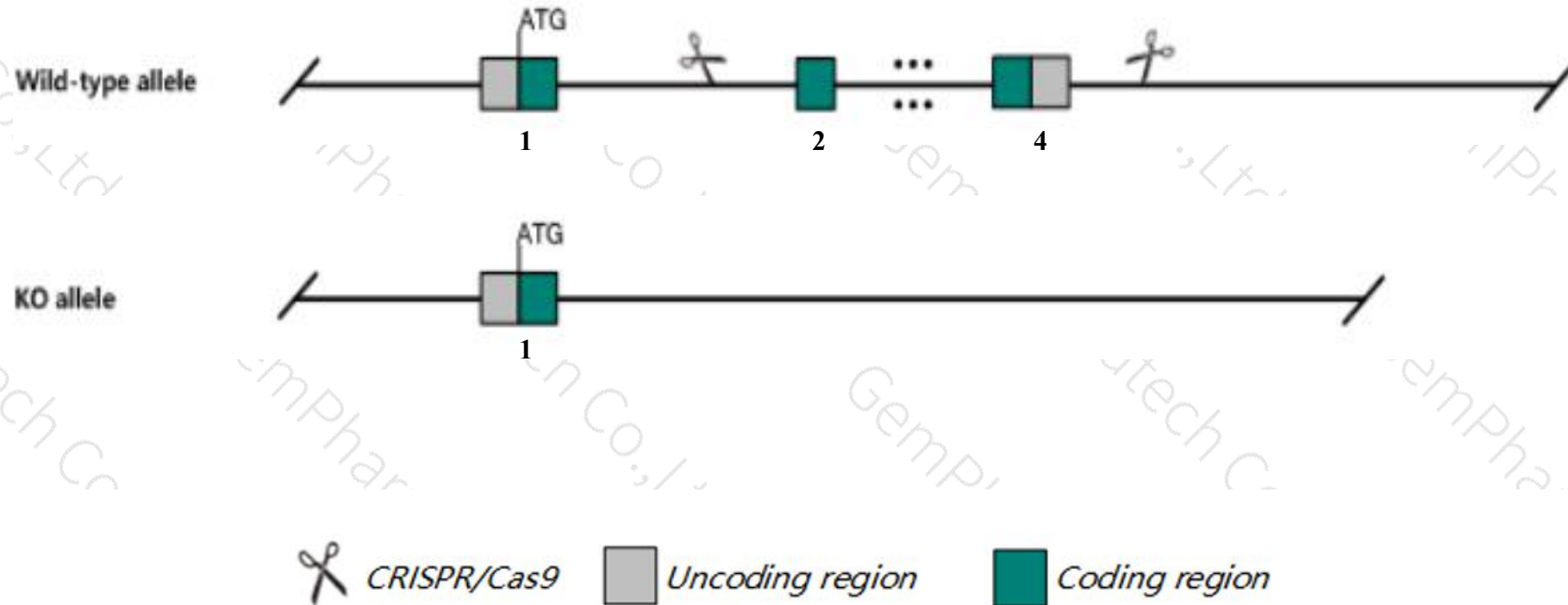
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ndufa12* gene. The schematic diagram is as follows:



- The *Ndufa12* gene has 4 transcripts. According to the structure of *Ndufa12* gene, exon2-exon4 of *Ndufa12-204* (ENSMUST00000179990.7) 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 *Ndufa12* gene. The brief process is as follows: CRISPR/Cas9 system

- The *Ndufa12* gene is located on the Chr10. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Ndufa12 NADH:ubiquinone oxidoreductase subunit A12 [Mus musculus (house mouse)]

Gene ID: 66414, updated on 13-Mar-2020

Summary



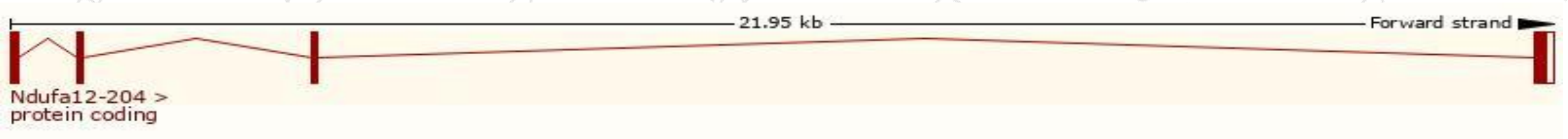
Official Symbol	Ndufa12 provided by MGI
Official Full Name	NADH:ubiquinone oxidoreductase subunit A12 provided by MGI
Primary source	MGI:MGI:1913664
See related	Ensembl:ENSMUSG00000020022
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2410011G03Rik, AW112974, Cl-B17.2, CIB17.2
Expression	Ubiquitous expression in heart adult (RPKM 187.5), kidney adult (RPKM 133.3) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

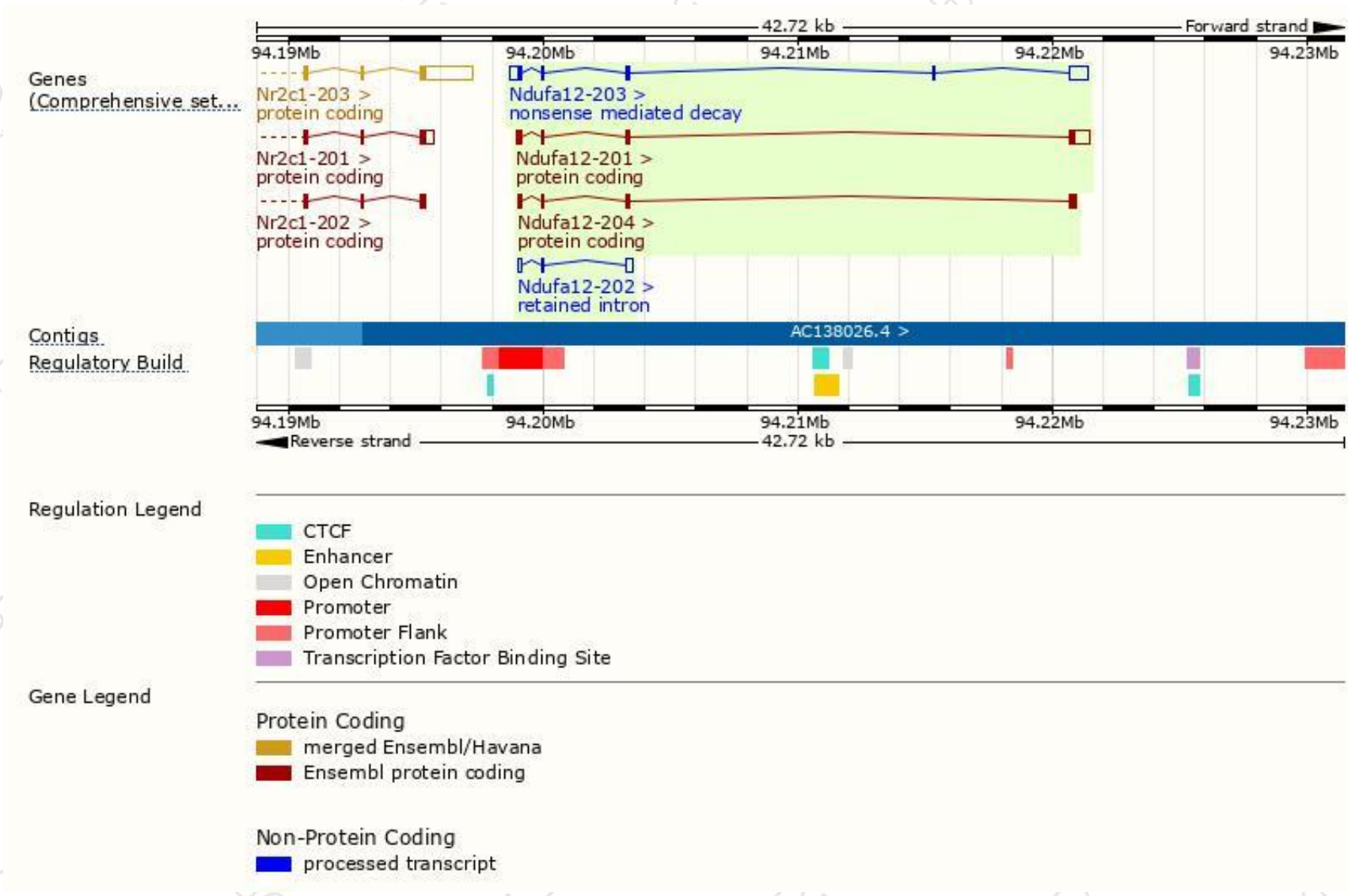
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ndufa12-204	ENSMUST00000179990.7	566	149aa	Protein coding	CCDS24132	A0A0R4J275	TSL:1 GENCODE basic
Ndufa12-201	ENSMUST00000020209.15	1110	145aa	Protein coding	-	Q7TMF3	TSL:1 GENCODE basic APPRIS P1
Ndufa12-203	ENSMUST00000135292.2	1386	85aa	Nonsense mediated decay	-	F6RBR6	TSL:5
Ndufa12-202	ENSMUST00000125379.1	428	No protein	Retained intron	-	-	TSL:2

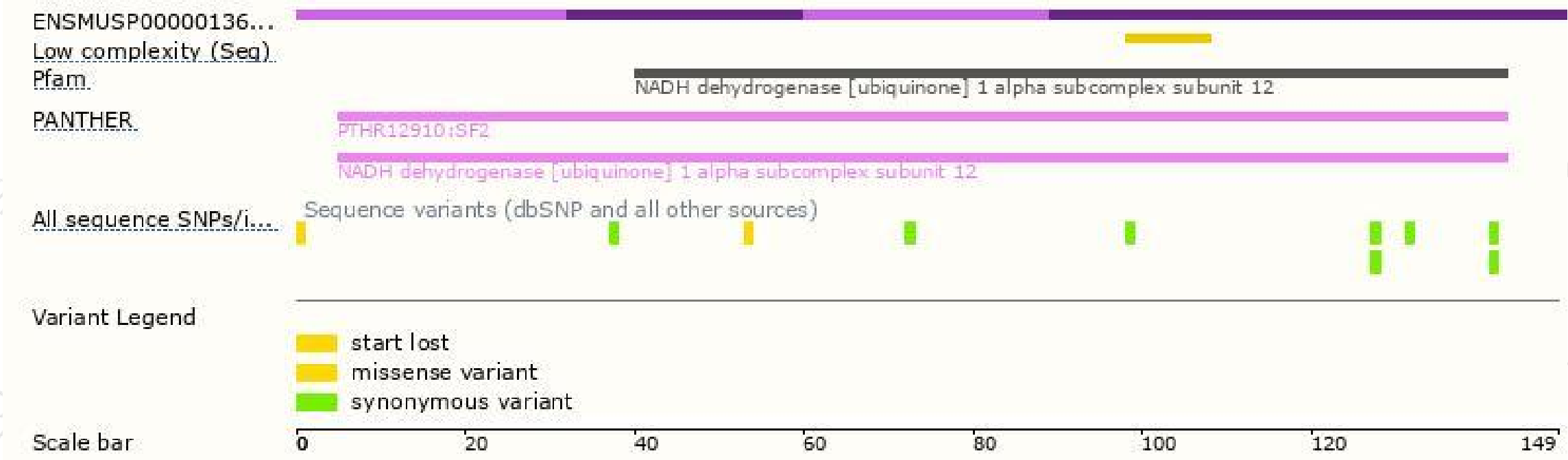
The strategy is based on the design of *Ndufa12-204* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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