

Ndufab1 Cas9-CKO Strategy

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Project Overview

Project Name

Ndufab1

Project type

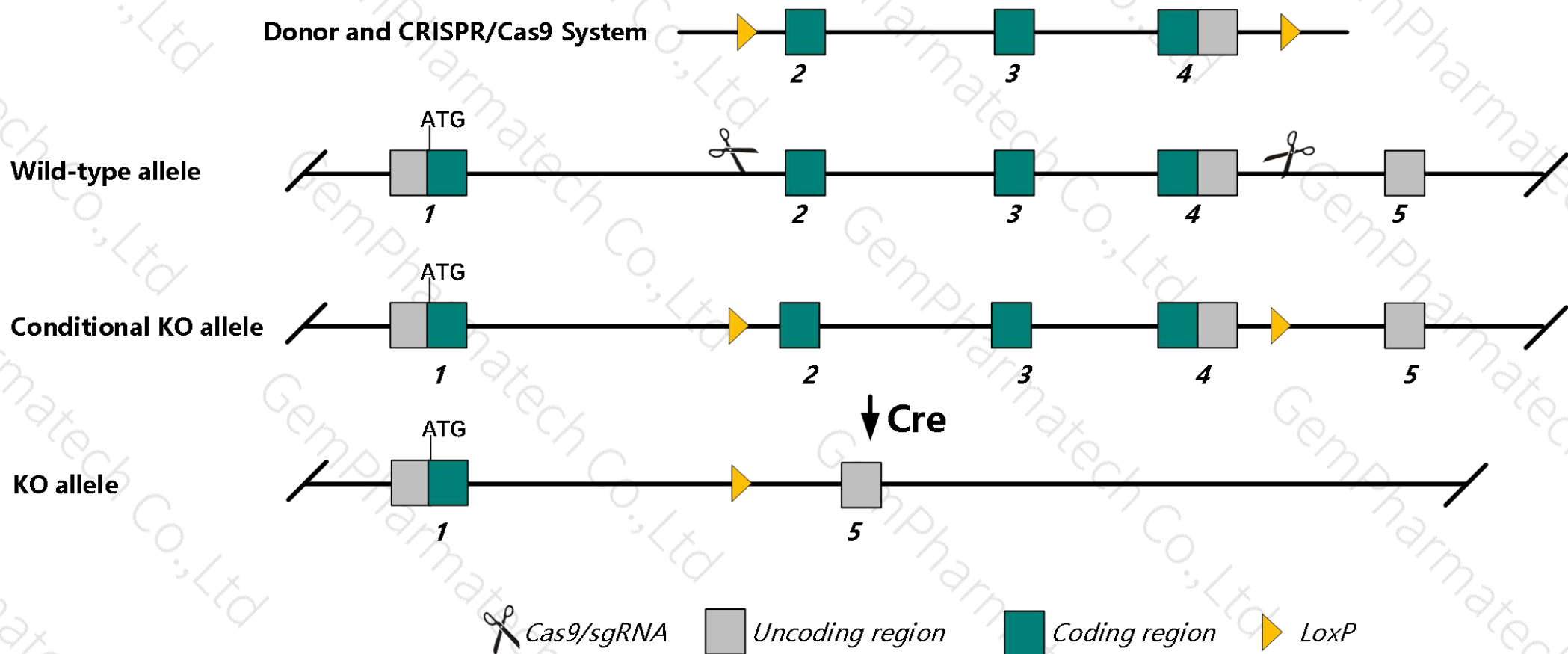
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ndufab1* gene. The schematic diagram is as follows:



Technical routes

- The *Ndufab1* gene has 10 transcripts. According to the structure of *Ndufab1* gene, exon2-exon4 of *Ndufab1*-201 (ENSMUST00000033157.9) 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 *Ndufab1* 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

- *Gm44986* gene will be deleted.
- The *Ndufab1* gene is located on the Chr7. 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)



Ndufab1 NADH:ubiquinone oxidoreductase subunit AB1 [*Mus musculus* (house mouse)]

Gene ID: 70316, updated on 13-Mar-2020

Summary

- Official Symbol

Ndufab1 provided by [MGI](#)
- Official Full Name

NADH:ubiquinone oxidoreductase subunit AB1 provided by [MGI](#)
- Primary source

[MGI:MGI:1917566](#)
- See related

[Ensembl:ENSMUSG00000030869](#)
- 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

ACP; 8kDa; SDAP; CI-SDAP; 2210401F17Rik; 2310039H15Rik; 2610003B19Rik; 9130423F15Rik
- Expression

Broad expression in adrenal adult (RPKM 768.6), duodenum adult (RPKM 586.0) and 16 other tissues [See more](#)
- Orthologs

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

Genomic context

Location: 7; 7 F2

See Ndufab1 in [Genome Data Viewer](#)

Exon count: 6

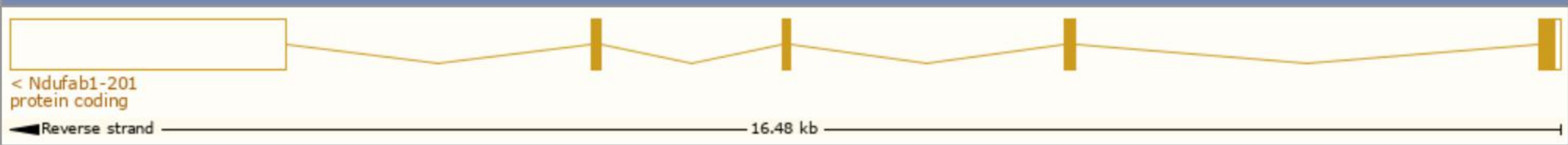
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	7	NC_000073.6 (122086815..122101848, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	7	NC_000073.5 (129231558..129245362, complement)

Transcript information (Ensembl)

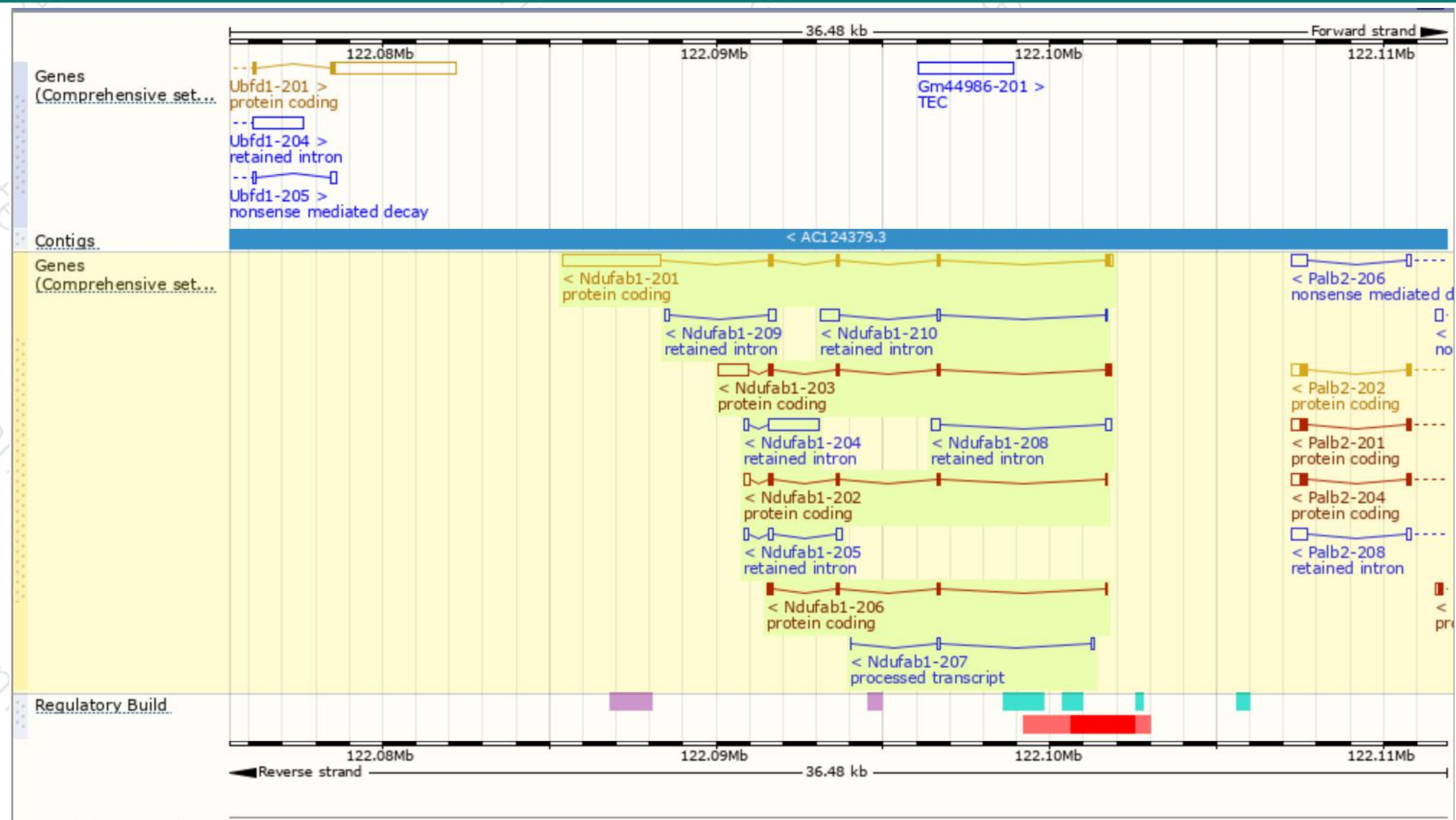
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ndufab1-201	ENSMUST00000033157.9	3479	156aa	Protein coding	CCDS21809	Q569N0 Q9CR21	TSL:1 GENCODE basic APPRIS P1
Ndufab1-203	ENSMUST00000123296.7	1416	156aa	Protein coding	CCDS21809	Q569N0 Q9CR21	TSL:1 GENCODE basic APPRIS P1
Ndufab1-202	ENSMUST00000106471.8	552	128aa	Protein coding	-	F8WJ64	CDS 5' incomplete TSL:3
Ndufab1-206	ENSMUST00000139456.1	452	127aa	Protein coding	-	F6ZFT1	CDS 5' incomplete TSL:2
Ndufab1-207	ENSMUST00000145863.1	261	No protein	Processed transcript	-	-	TSL:5
Ndufab1-204	ENSMUST00000130857.1	1653	No protein	Retained intron	-	-	TSL:1
Ndufab1-210	ENSMUST00000153173.7	755	No protein	Retained intron	-	-	TSL:2
Ndufab1-208	ENSMUST00000146022.1	443	No protein	Retained intron	-	-	TSL:2
Ndufab1-205	ENSMUST00000130904.1	397	No protein	Retained intron	-	-	TSL:2
Ndufab1-209	ENSMUST00000146964.1	351	No protein	Retained intron	-	-	TSL:3

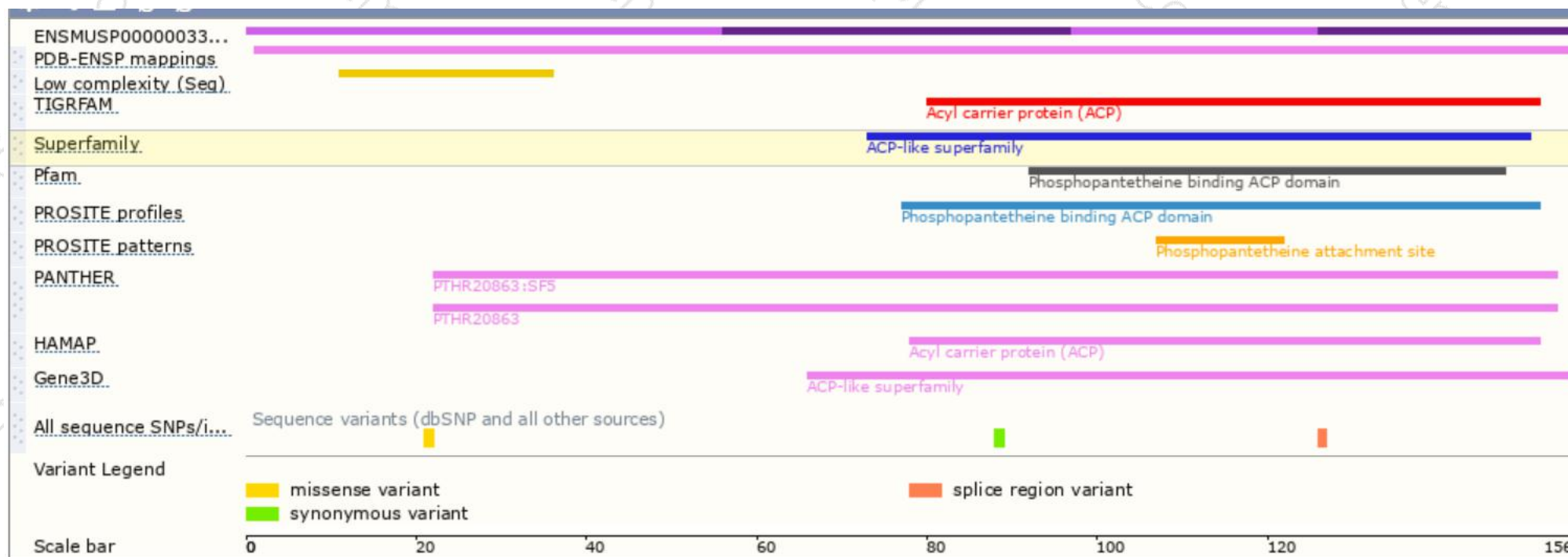
The strategy is based on the design of *Ndufab1-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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