

***Ndufab1* Cas9-KO Strategy**

Designer: Xueting Zhang

Reviewer: Yanhua Shen

Date: 2020-03-16

Project Overview

Project Name

Ndufab1

Project type

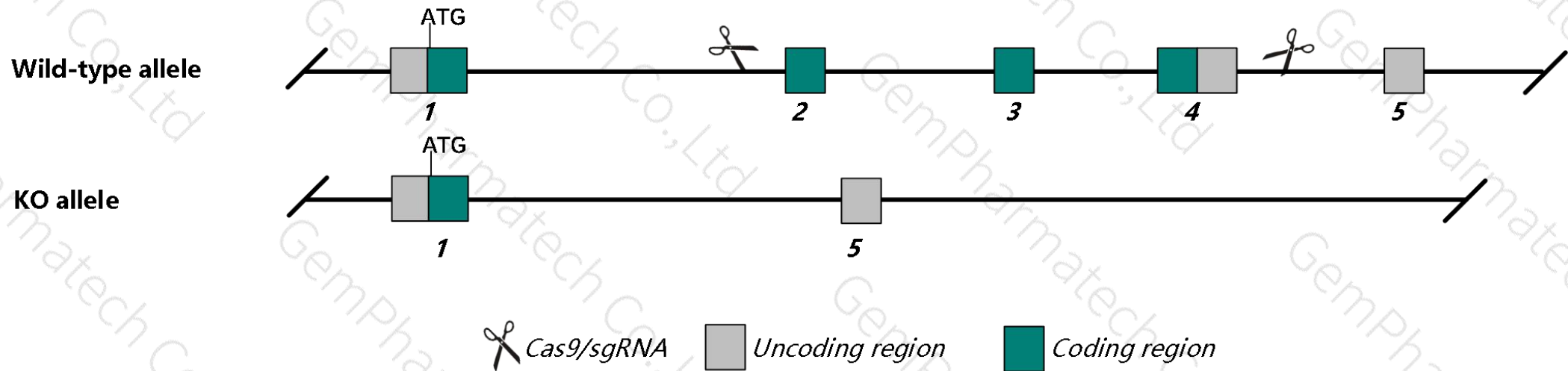
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- 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

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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology 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

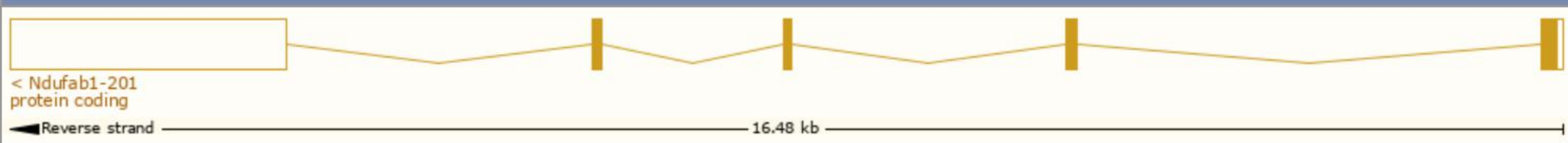
| Annotation release | Status | Assembly | Chr | Location |
|---------------------|-------------------|--|-----|--|
| 108 | current | GRCm38.p6 (GCF_000001635.26) | 7 | NC_000073.6 (122086815..122101848, complement) |
| Build 37.2 | previous assembly | MGSCv37 (GCF_000001635.18) | 7 | NC_000073.5 (129231558..129245362,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

Transcript information (Ensembl)

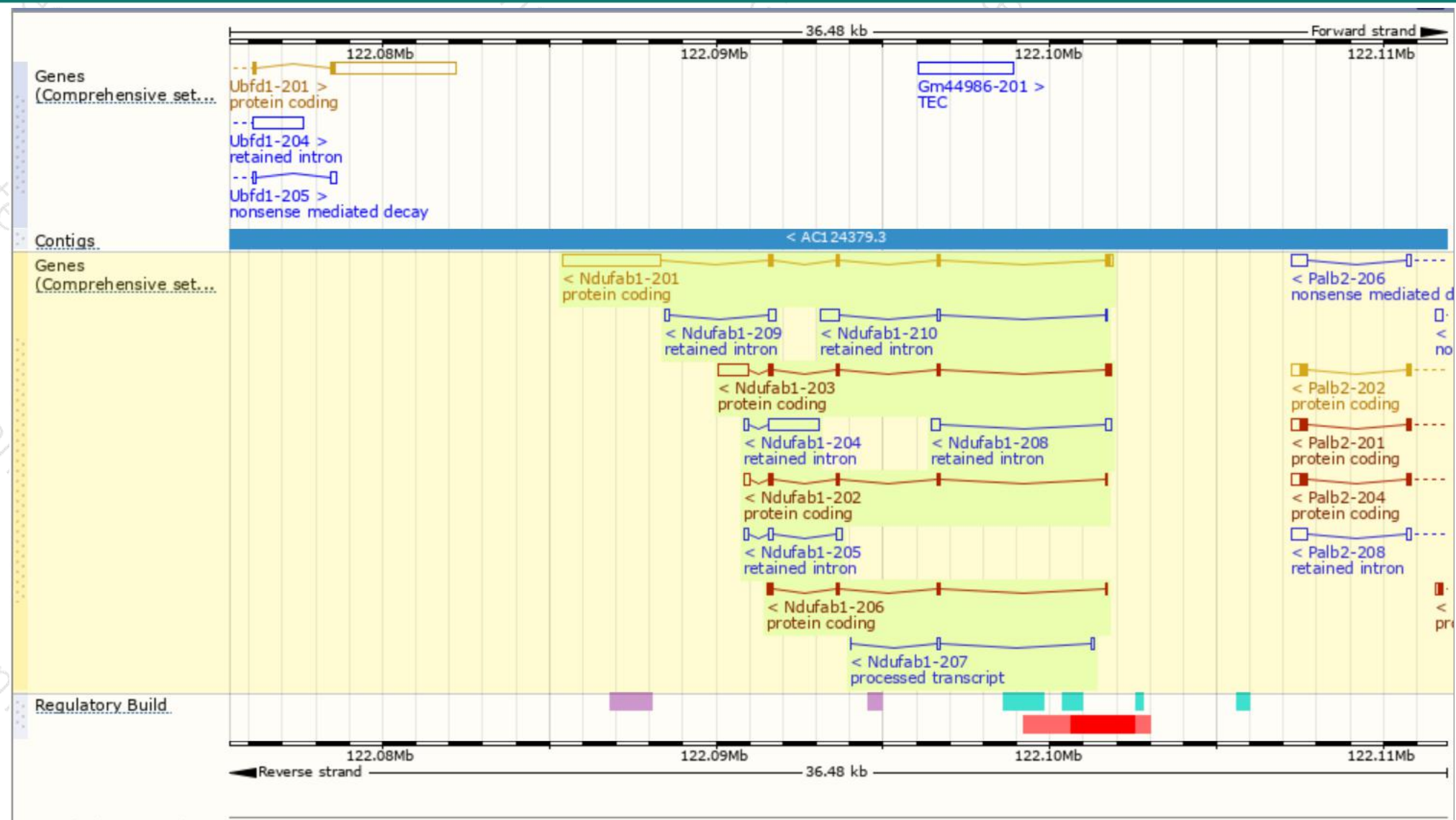
The gene has 10 transcripts,all transcripts are shown below:

| 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 |

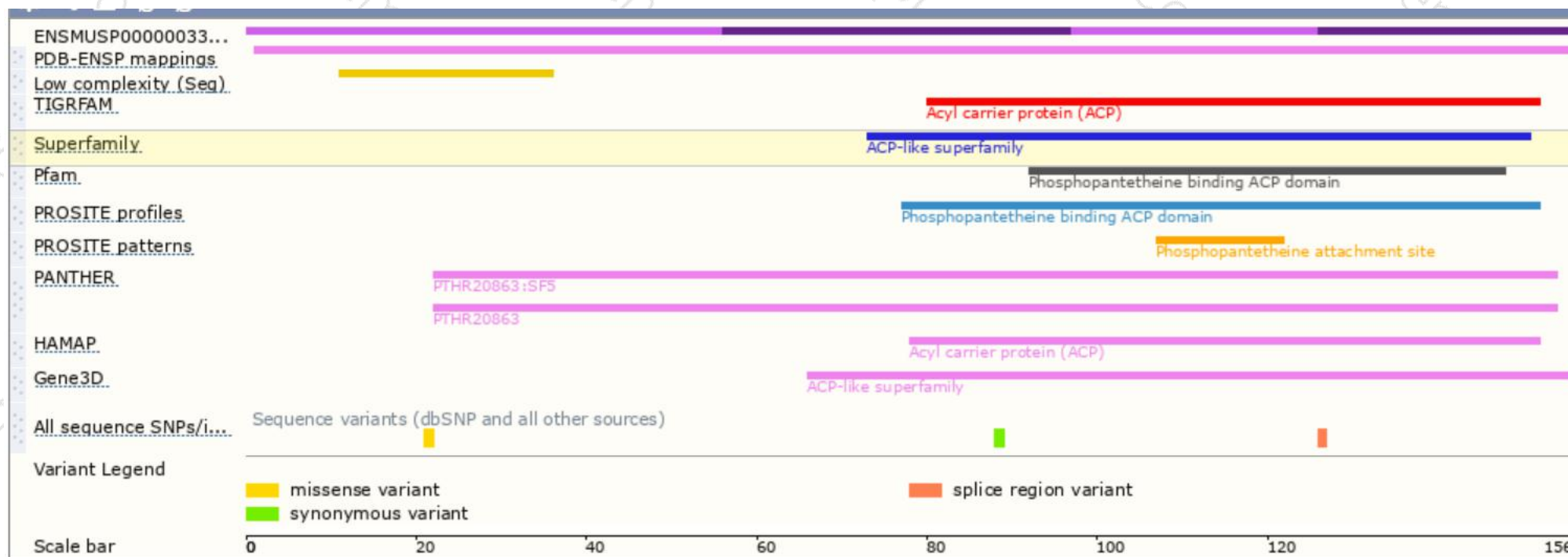
The strategy is based on the design of *Ndufab1-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

Tel: 400-9660890

