

Atp5k Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Atp5k

Project type

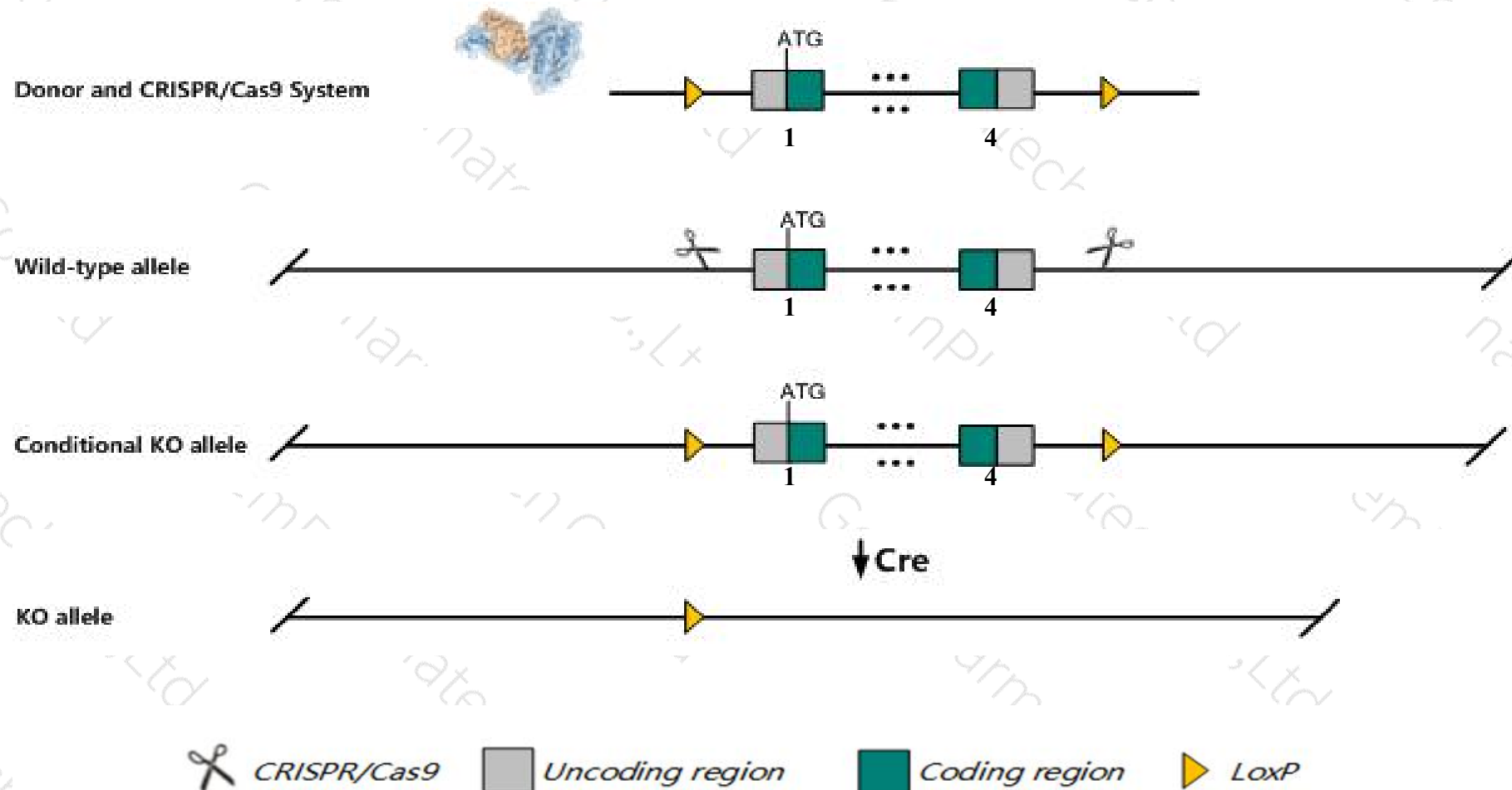
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Atp5k* gene. The schematic diagram is as follows:



- The *Atp5k* gene has 3 transcripts. According to the structure of *Atp5k* gene, exon1-exon4 of *Atp5k-201* (ENSMUST00000049628.15) 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 *Atp5k* 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

- The *Atp5k* gene is located on the Chr5. 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)

Atp5k ATP synthase, H⁺ transporting, mitochondrial F1F0 complex, subunit E [Mus musculus (house mouse)]

Gene ID: 11958, updated on 2-Apr-2019

Summary



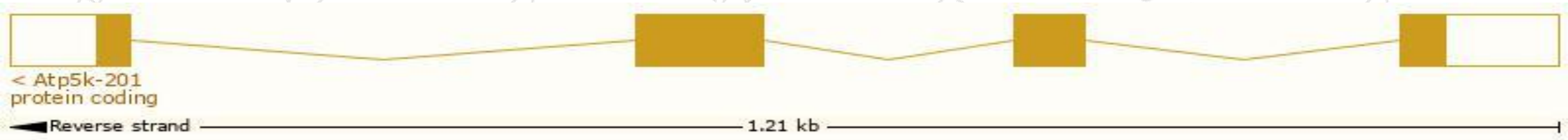
Official Symbol	Atp5k provided by MGI
Official Full Name	ATP synthase, H ⁺ transporting, mitochondrial F1F0 complex, subunit E provided by MGI
Primary source	MGI:MGI:106636
See related	Ensembl:ENSMUSG00000050856
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2610008D24Rik, Atp5i, Atp5me, Lfm1
Expression	Ubiquitous expression in placenta adult (RPKM 62.8), heart adult (RPKM 59.6) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

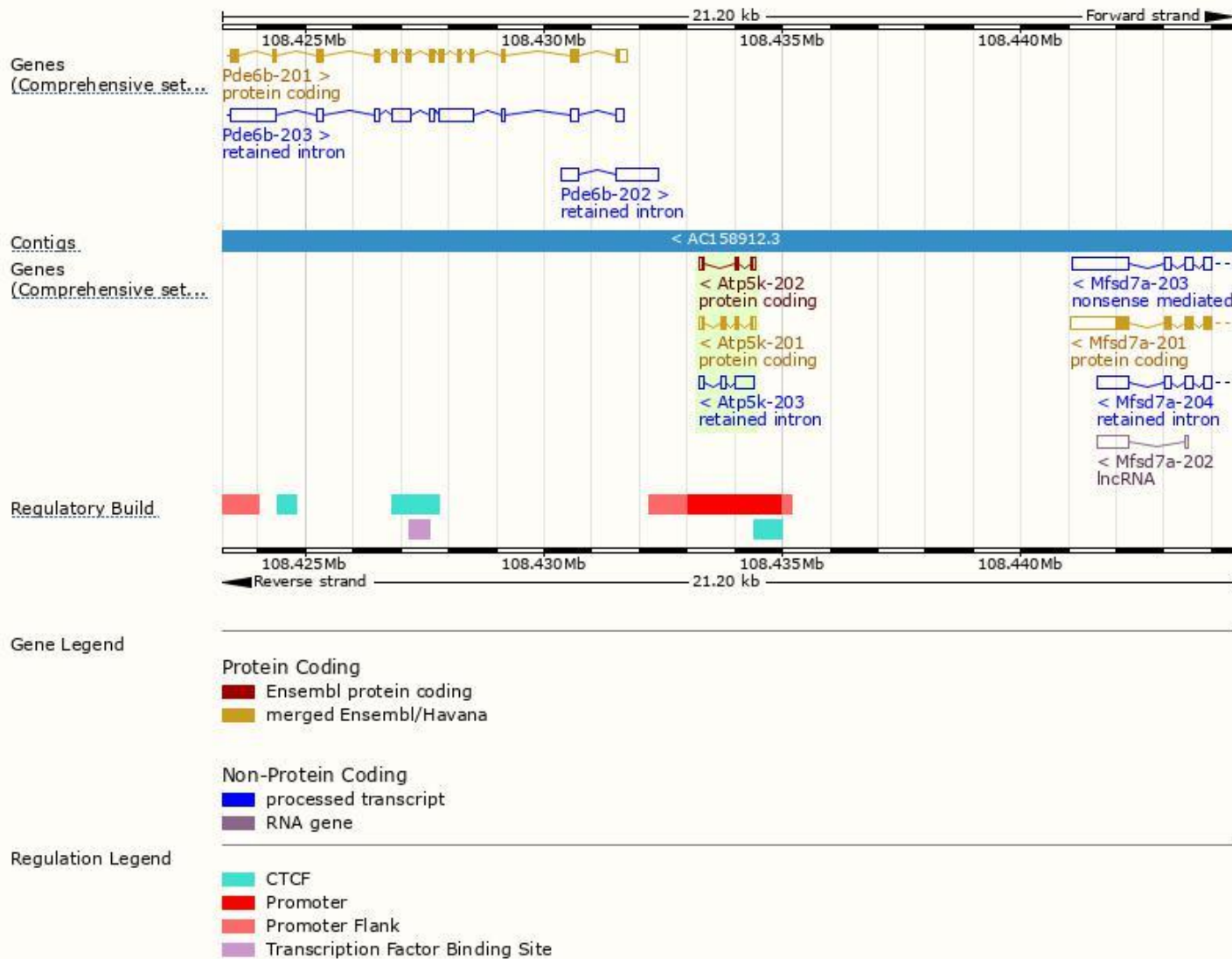
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Atp5k-201	ENSMUST00000049628.15	371	71aa	Protein coding	CCDS39204	Q06185	TSL:1 GENCODE basic APPRIS P1
Atp5k-202	ENSMUST00000118632.1	272	38aa	Protein coding	-	Q8BTB6	TSL:1 GENCODE basic
Atp5k-203	ENSMUST00000123184.1	563	No protein	Retained intron	-	-	TSL:2

The strategy is based on the design of *Atp5k-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain

ENSMUSP00000051...

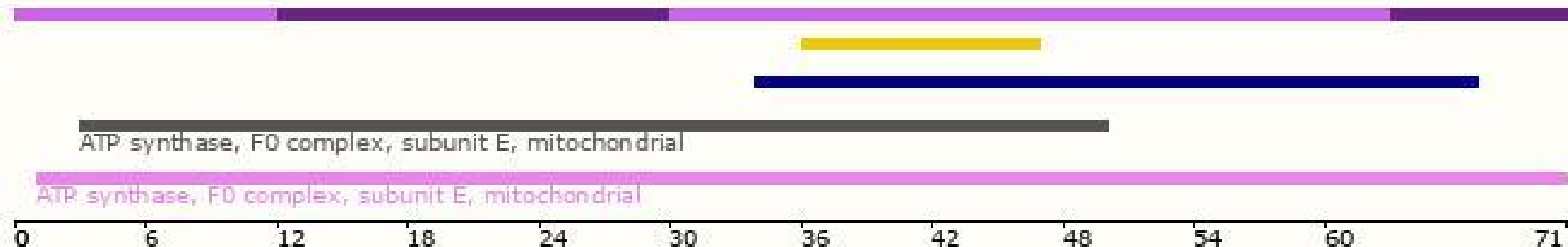
Low complexity (Seq)

Coiled-coils (Ncoils)

Pfam

PANTHER

Scale bar



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

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