

Atp10b Cas9-CKO Strategy

Designer: Daohua Xu

Reviewer: Xueting Zhang

Design Date: 2021-3-23

Project Overview

Project Name

Atp10b

Project type

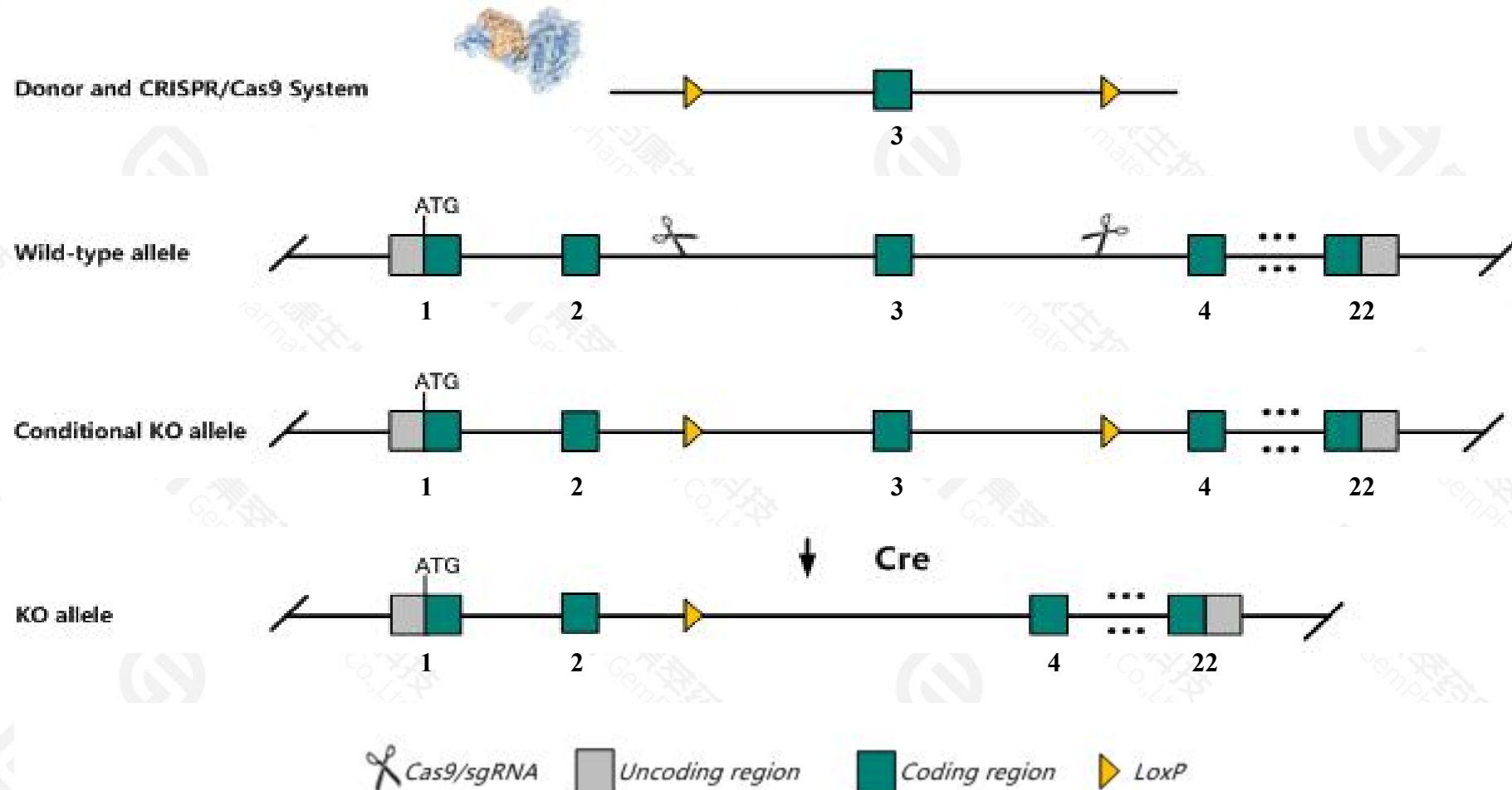
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Atp10b* gene. The schematic diagram is as follows:



- The *Atp10b* gene has 3 transcripts. According to the structure of *Atp10b* gene, exon3 of *Atp10b-201*(ENSMUST00000077659.6) transcript is recommended as the knockout region. The region contains 205bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Atp10b* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor was constructed. Cas9, sgRNA 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 was 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 *Atp10b* gene is located on the Chr11. 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)

Atp10b ATPase, class V, type 10B [Mus musculus (house mouse)]

Gene ID: 319767, updated on 17-Dec-2020

Summary



Official Symbol Atp10b provided by [MGI](#)

Official Full Name ATPase, class V, type 10B provided by [MGI](#)

Primary source [MGI:MGI:2442688](#)

See related [Ensembl:ENSMUSG00000055415](#)

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 5930426O13Rik, 9030605H24Rik

Expression Biased expression in genital fat pad adult (RPKM 11.0), large intestine adult (RPKM 9.6) and 6 other tissues [See more](#)

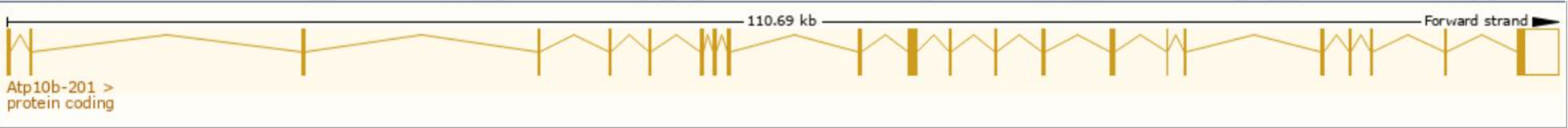
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

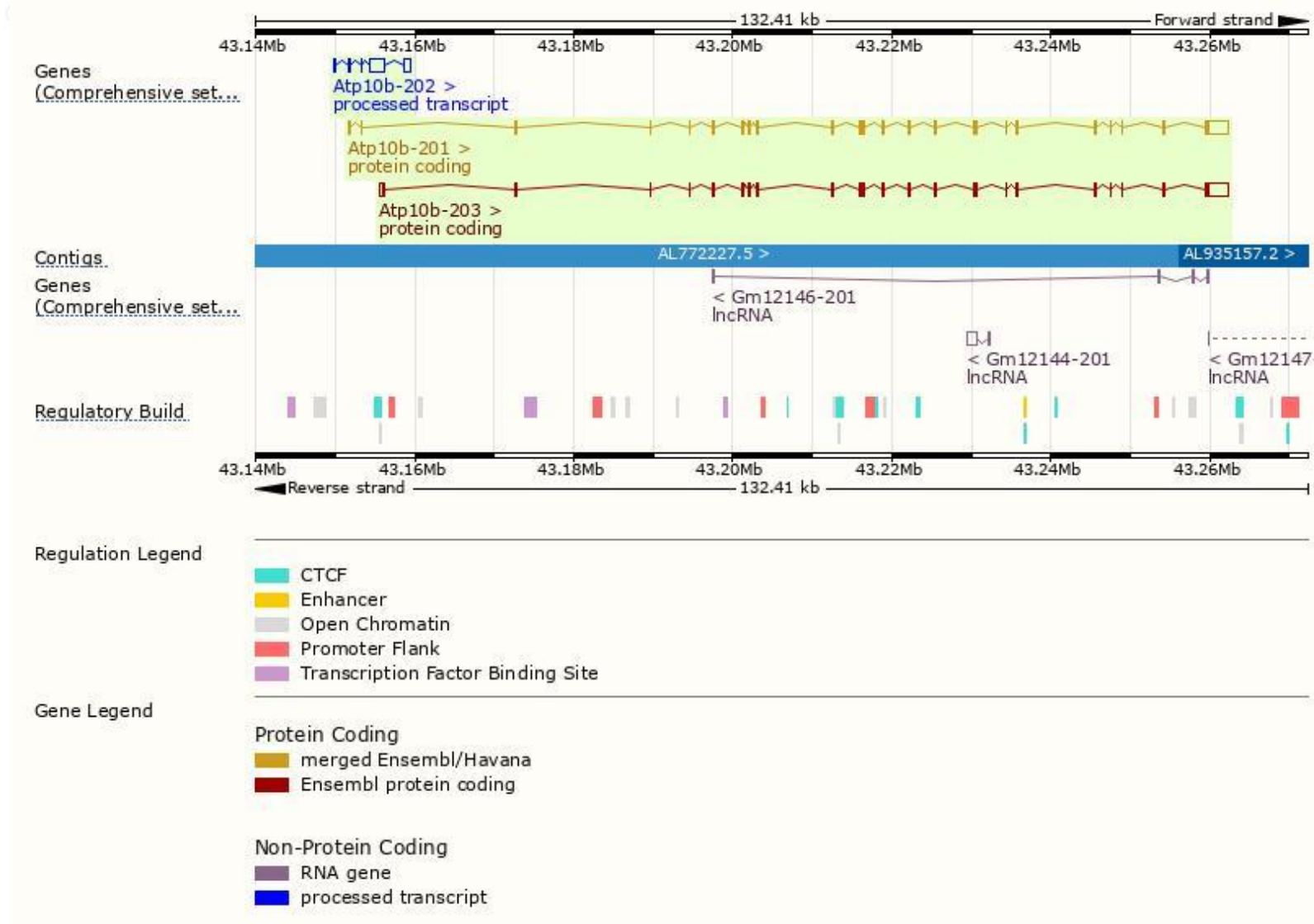
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Atp10b-201	ENSMUST00000077659.6	6825	1474aa	Protein coding	CCDS36129		TSL:5 , GENCODE basic , APPRIS P2 ,
Atp10b-203	ENSMUST00000238415.2	6949	1446aa	Protein coding	-		APPRIS ALT2 ,
Atp10b-202	ENSMUST00000148911.2	3477	No protein	Processed transcript	-		TSL:1 ,

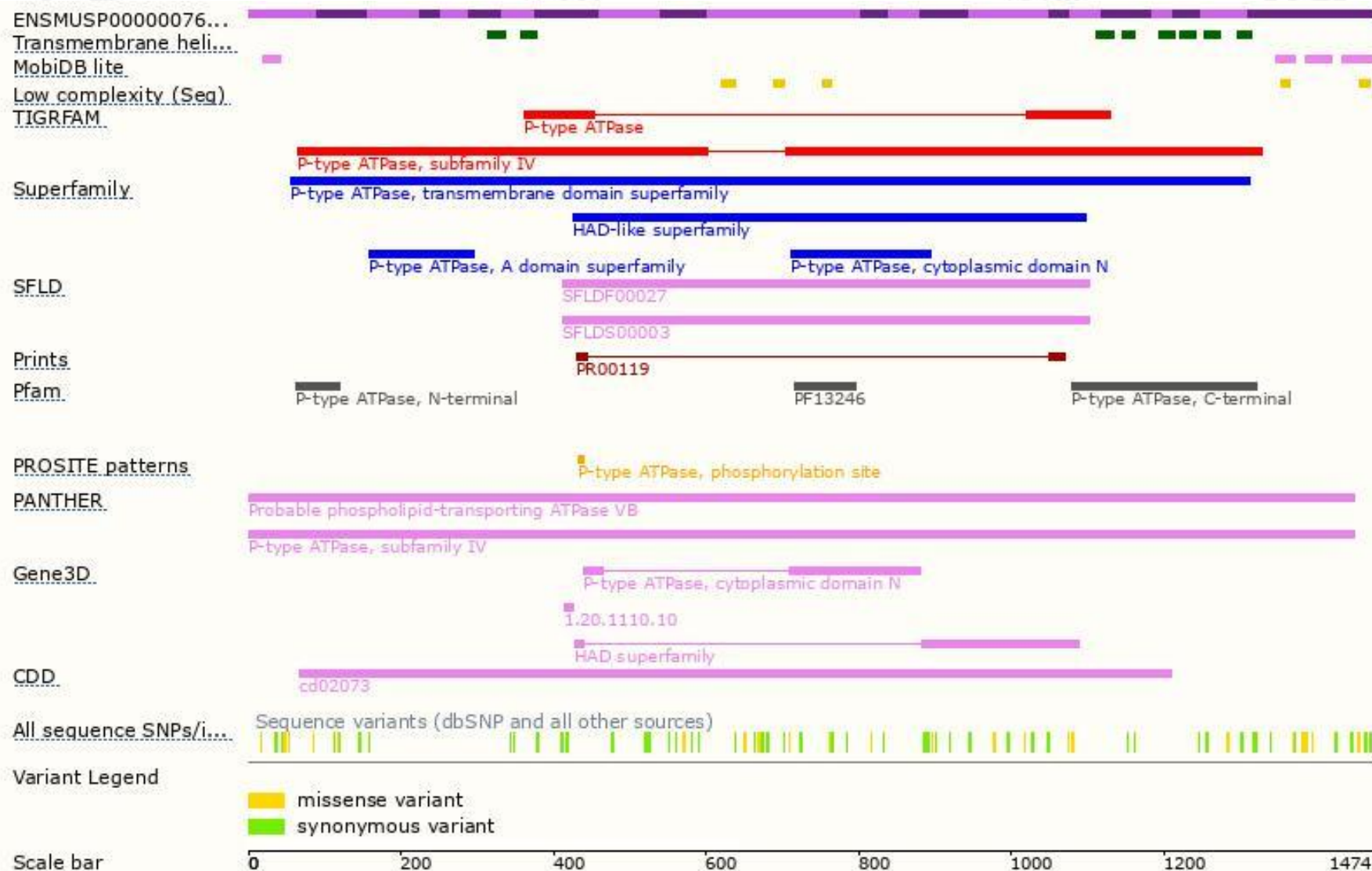
The strategy is based on the design of *Atp10b-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

Tel: 025-5864 1534

