

Atp13a1 Cas9-CKO Strategy

Designer:

Daohua Xu

Reviewer:

Huimin Su

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Project Overview

Project Name

Atp13a1

Project type

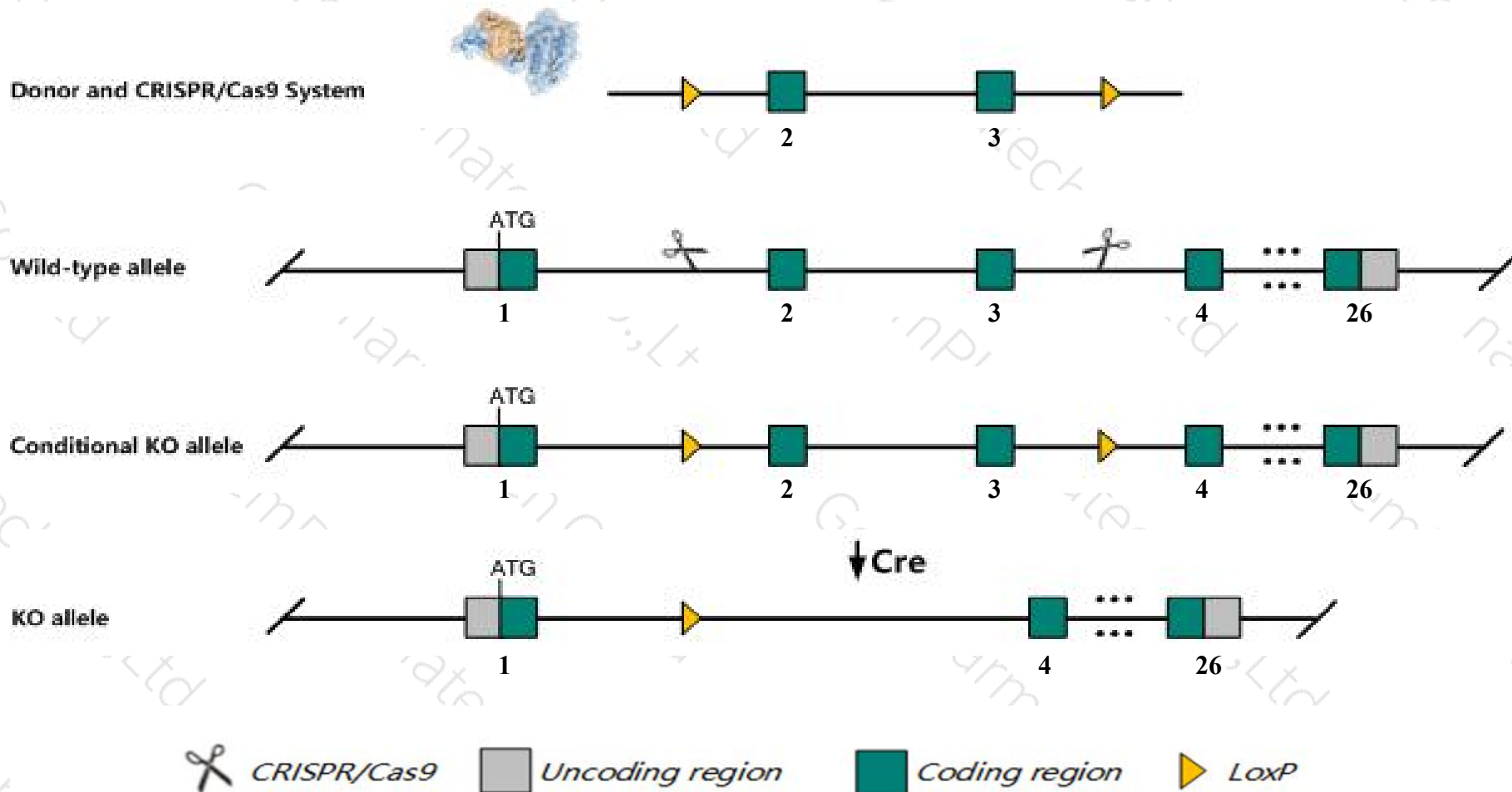
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Atp13a1* gene. The schematic diagram is as follows:



Technical routes

- The *Atp13a1* gene has 11 transcripts. According to the structure of *Atp13a1* gene, exon2-exon3 of *Atp13a1-201* (ENSMUST00000034326.6) transcript is recommended as the knockout region. The region contains 281bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Atp13a1* 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 *Atp13a1* gene is located on the Chr8. 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)

Atp13a1 ATPase type 13A1 [Mus musculus (house mouse)]

Gene ID: 170759, updated on 2-Mar-2019

Summary



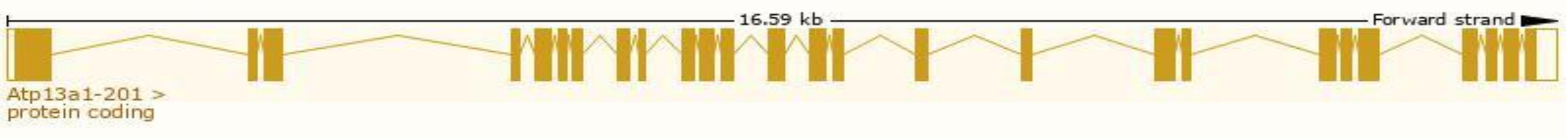
Official Symbol	Atp13a1 provided by MGI
Official Full Name	ATPase type 13A1 provided by MGI
Primary source	MGI:MGI:2180801
See related	Ensembl:ENSMUSG000000031862
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Atp13a, Cgi152, catp
Expression	Ubiquitous expression in thymus adult (RPKM 77.4), ovary adult (RPKM 67.7) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

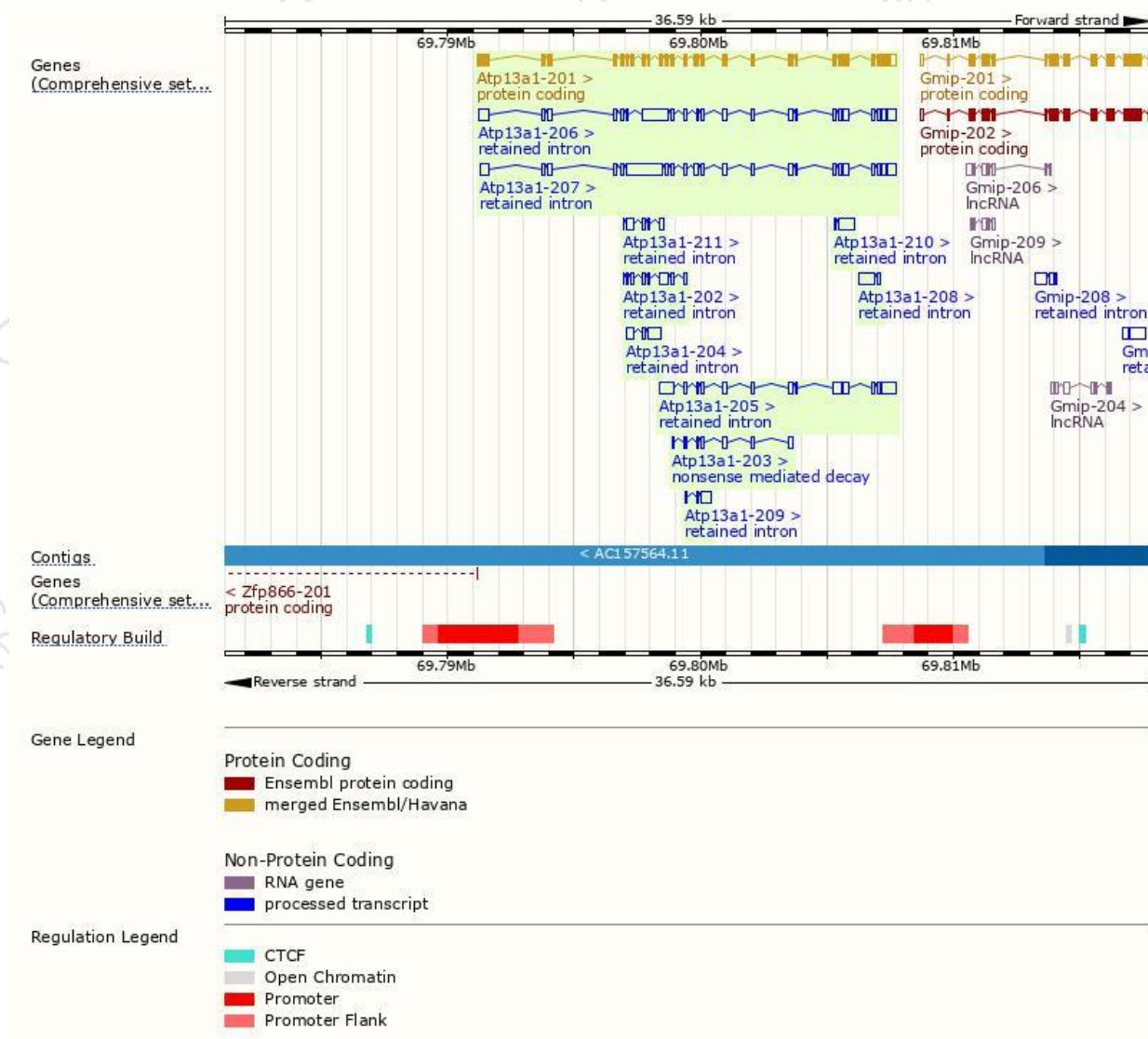
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Atp13a1-201	ENSMUST00000034326.6	3915	1200aa	Protein coding	CCDS22349	Q9EPE9	TSL:1 GENCODE basic APPRIS P1
Atp13a1-203	ENSMUST00000238316.1	838	69aa	Nonsense mediated decay	-	-	CDS 5' incomplete
Atp13a1-207	ENSMUST00000238491.1	4746	No protein	Retained intron	-	-	
Atp13a1-206	ENSMUST00000238453.1	4211	No protein	Retained intron	-	-	
Atp13a1-205	ENSMUST00000238442.1	2776	No protein	Retained intron	-	-	
Atp13a1-202	ENSMUST00000238217.1	943	No protein	Retained intron	-	-	
Atp13a1-204	ENSMUST00000238353.1	886	No protein	Retained intron	-	-	
Atp13a1-208	ENSMUST00000238550.1	730	No protein	Retained intron	-	-	
Atp13a1-210	ENSMUST00000238648.1	707	No protein	Retained intron	-	-	
Atp13a1-211	ENSMUST00000238710.1	644	No protein	Retained intron	-	-	
Atp13a1-209	ENSMUST00000238646.1	587	No protein	Retained intron	-	-	

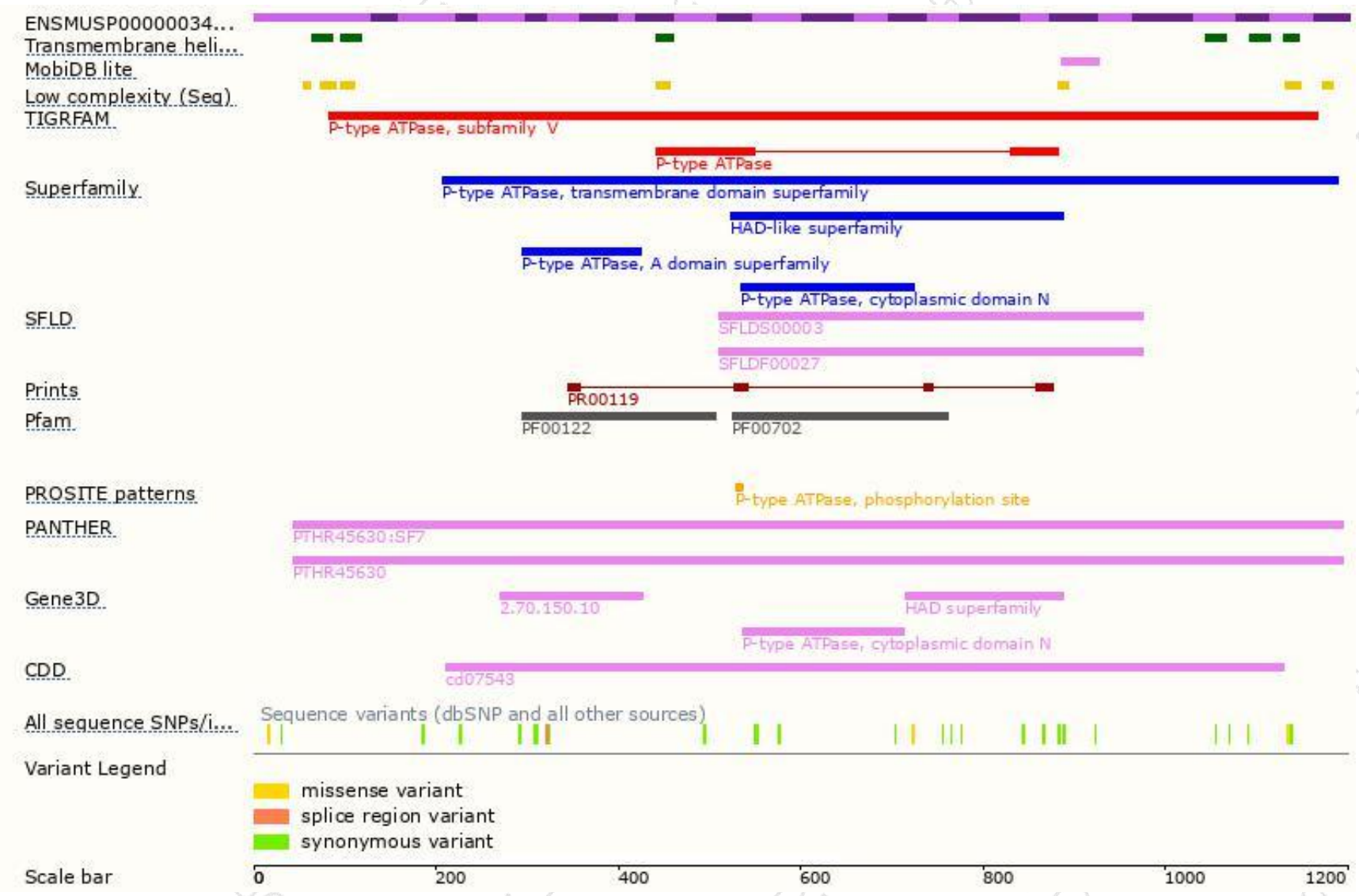
The strategy is based on the design of *Atp13a1-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

Tel: 400-9660890

