Atp9b Cas9-KO Strategy

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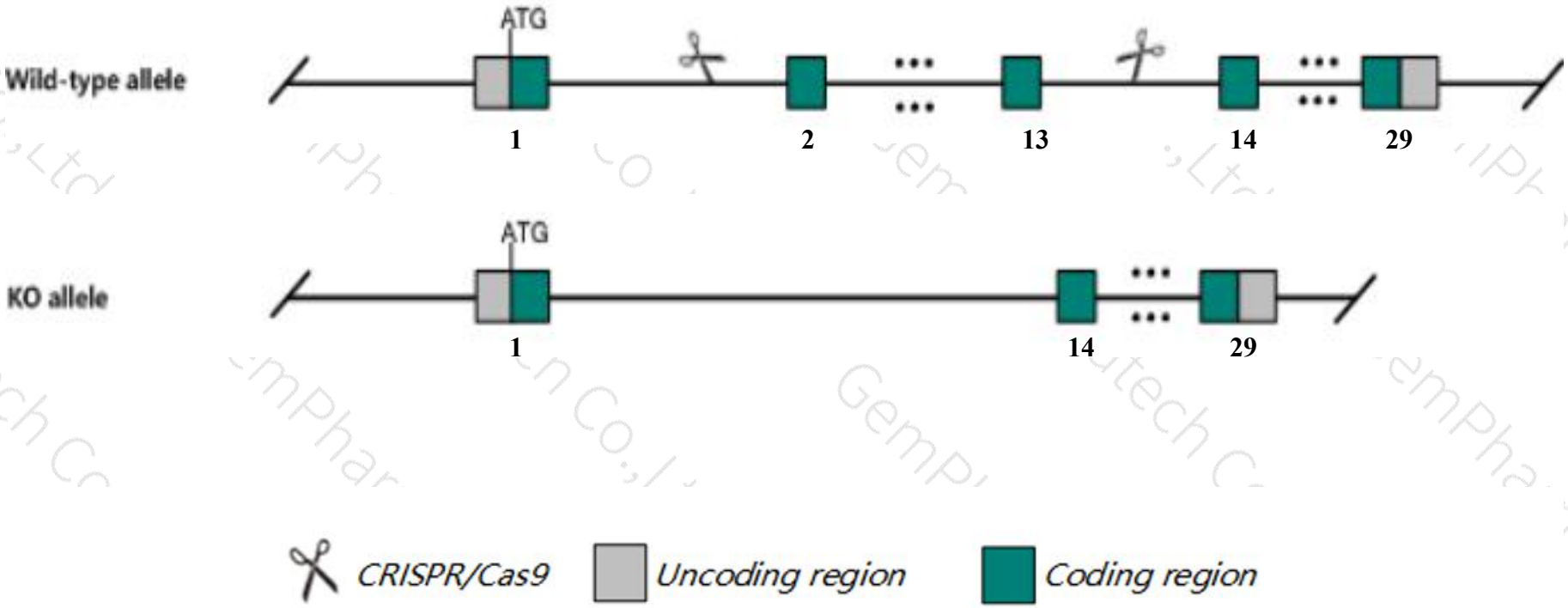
Project Overview

Project Name	***Atp9b***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Atp9b* gene. The schematic diagram is as follows:



Technical routes

➢ The *Atp9b* gene has 15 transcripts. According to the structure of *Atp9b* gene, exon2-exon13 of *Atp9b-212* (ENSMUST00000225980.1) transcript is recommended as the knockout region.The region contains 1292bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Atp9b* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

- The *Atp9b* gene is located on the Chr18. 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）

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Atp9b ATPase, class II, type 9B [Mus musculus (house mouse)]

Gene ID: 50771, updated on 13-Mar-2020

Summary

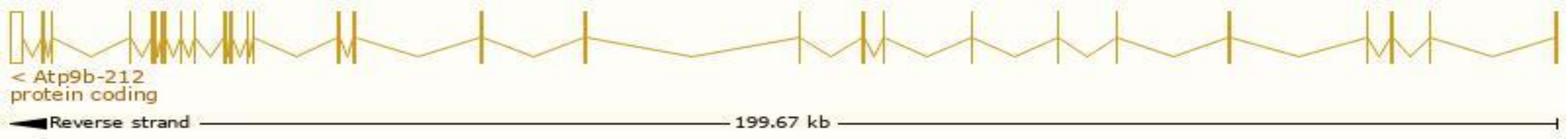
Official Symbol	Atp9b provided by MGI
Official Full Name	ATPase, class II, type 9B provided by MGI
Primary source	MGI:MGI:1354757
See related	Ensembl:ENSMUSG00000024566
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AA934181, Atpc2b, IIb, MMR
Expression	Ubiquitous expression in testis adult (RPKM 29.2), thymus adult (RPKM 16.9) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

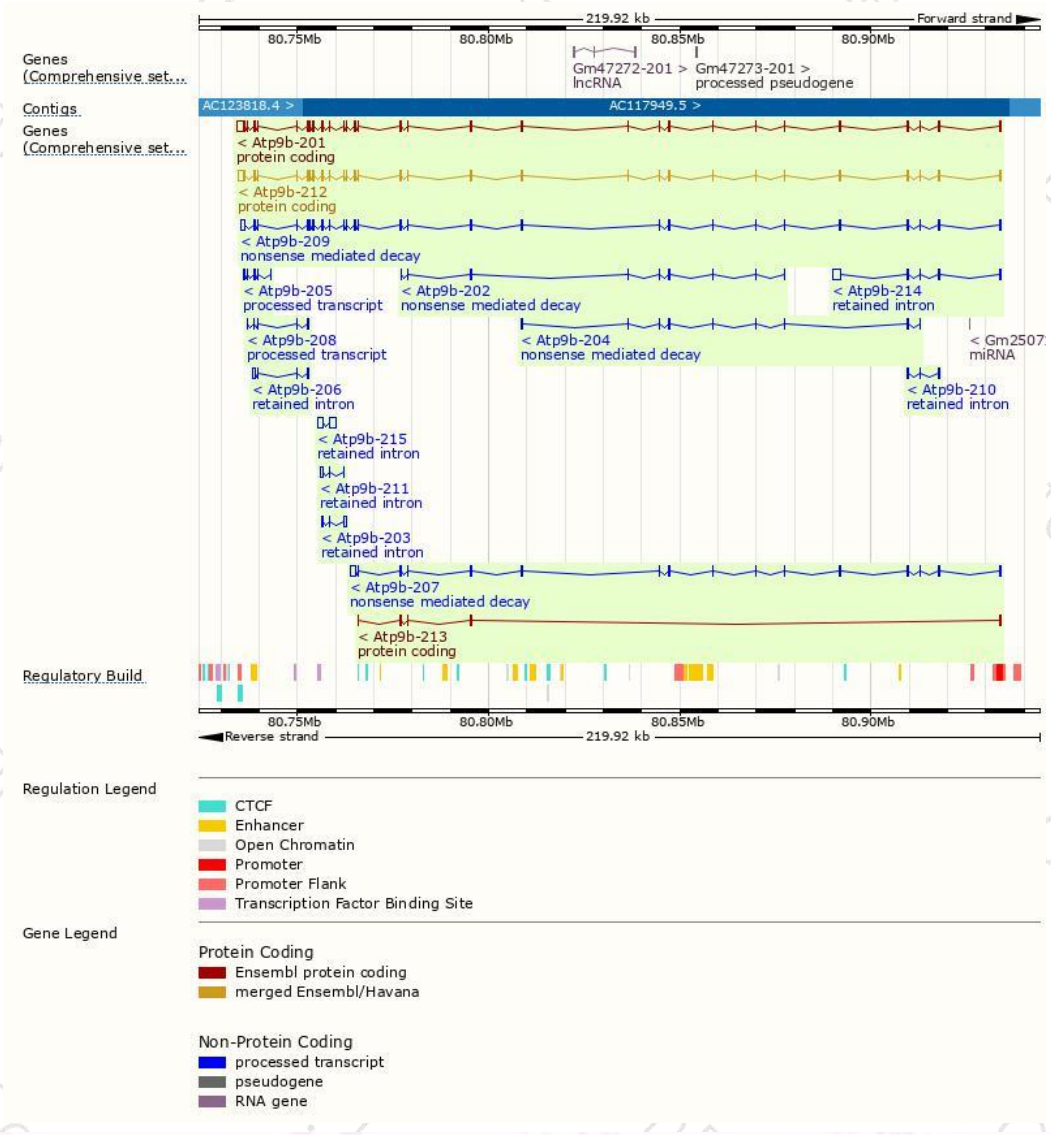
The gene has 15 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Atp9b-212	ENSMUST00000225980.1	5150	1135aa	Protein coding	CCDS29370	A0A286YCV0	GENCODE basic APPRIS P1
Atp9b-201	ENSMUST00000091790.4	5357	1146aa	Protein coding	-	D3YV00	TSL:5 GENCODE basic
Atp9b-213	ENSMUST00000226064.1	815	235aa	Protein coding	-	A0A286YDR0	CDS 3' incomplete
Atp9b-209	ENSMUST00000225235.1	4326	380aa	Nonsense mediated decay	-	A0A286YCT2	
Atp9b-207	ENSMUST00000225205.1	3038	380aa	Nonsense mediated decay	-	A0A286YCT2	
Atp9b-204	ENSMUST00000224709.1	770	78aa	Nonsense mediated decay	-	A0A286YDF8	CDS 5' incomplete
Atp9b-202	ENSMUST00000223926.1	732	163aa	Nonsense mediated decay	-	A0A286YDZ3	CDS 5' incomplete
Atp9b-208	ENSMUST00000225218.1	456	No protein	Processed transcript	-	-	
Atp9b-205	ENSMUST00000225075.1	454	No protein	Processed transcript	-	-	
Atp9b-215	ENSMUST00000237845.1	2920	No protein	Retained intron	-	-	
Atp9b-214	ENSMUST00000235385.1	2533	No protein	Retained intron	-	-	
Atp9b-203	ENSMUST00000224283.1	794	No protein	Retained intron	-	-	
Atp9b-206	ENSMUST00000225092.1	748	No protein	Retained intron	-	-	
Atp9b-211	ENSMUST00000225692.1	721	No protein	Retained intron	-	-	
Atp9b-210	ENSMUST00000225345.1	533	No protein	Retained intron	-	-	

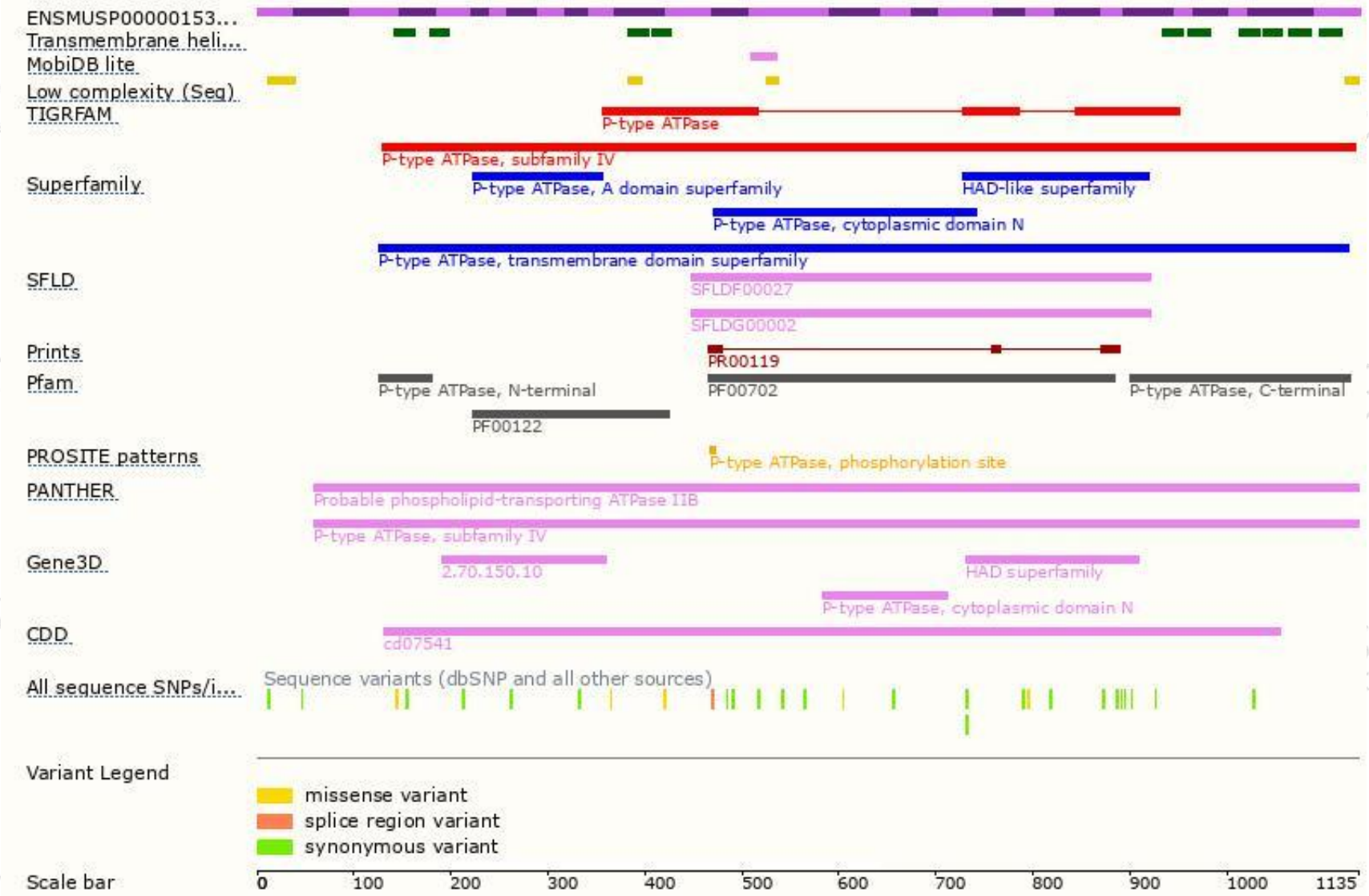
The strategy is based on the design of *Atp9b-212* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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