

# *Atp13a1* Cas9-KO Strategy

**Designer:**

**Daohua Xu**

**Reviewer:**

**Huimin Su**

**Design Date:**

**2020-1-20**

# Project Overview

**Project Name**

*Atp13a1*

**Project type**

**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

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



- 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

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

# Gene information (NCBI)

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

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

### Summary



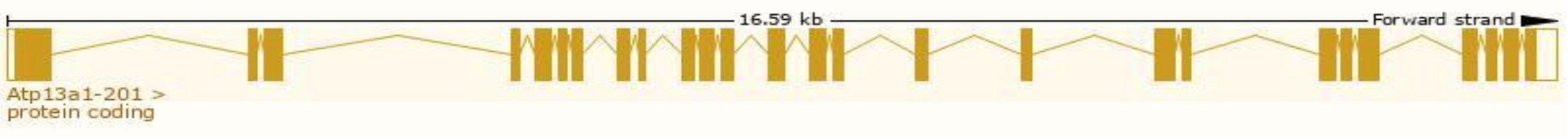
|                           |                                                                                                                                                                           |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------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

# Transcript information (Ensembl)

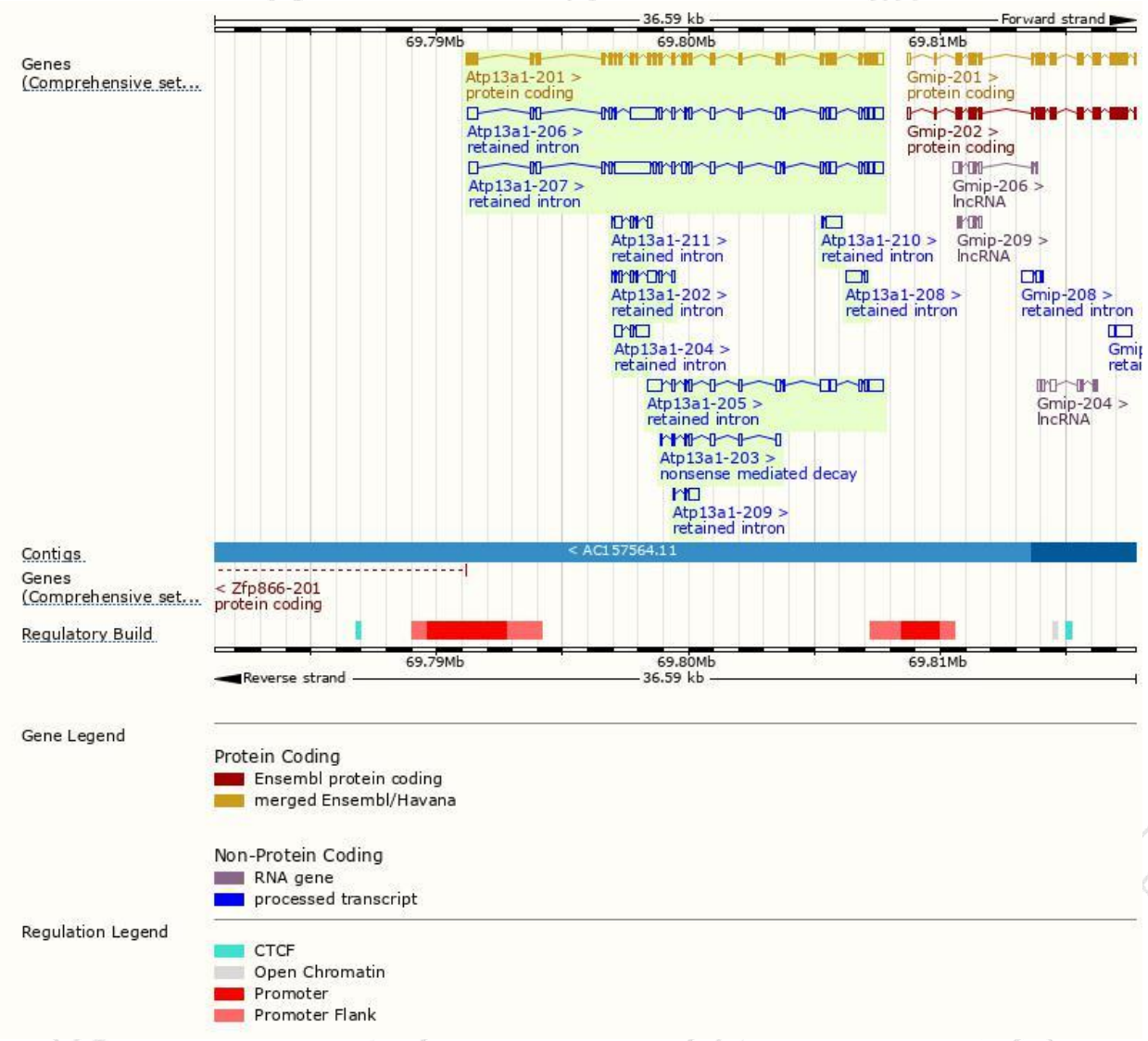
The gene has 11 transcripts,all transcripts are shown below:

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

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



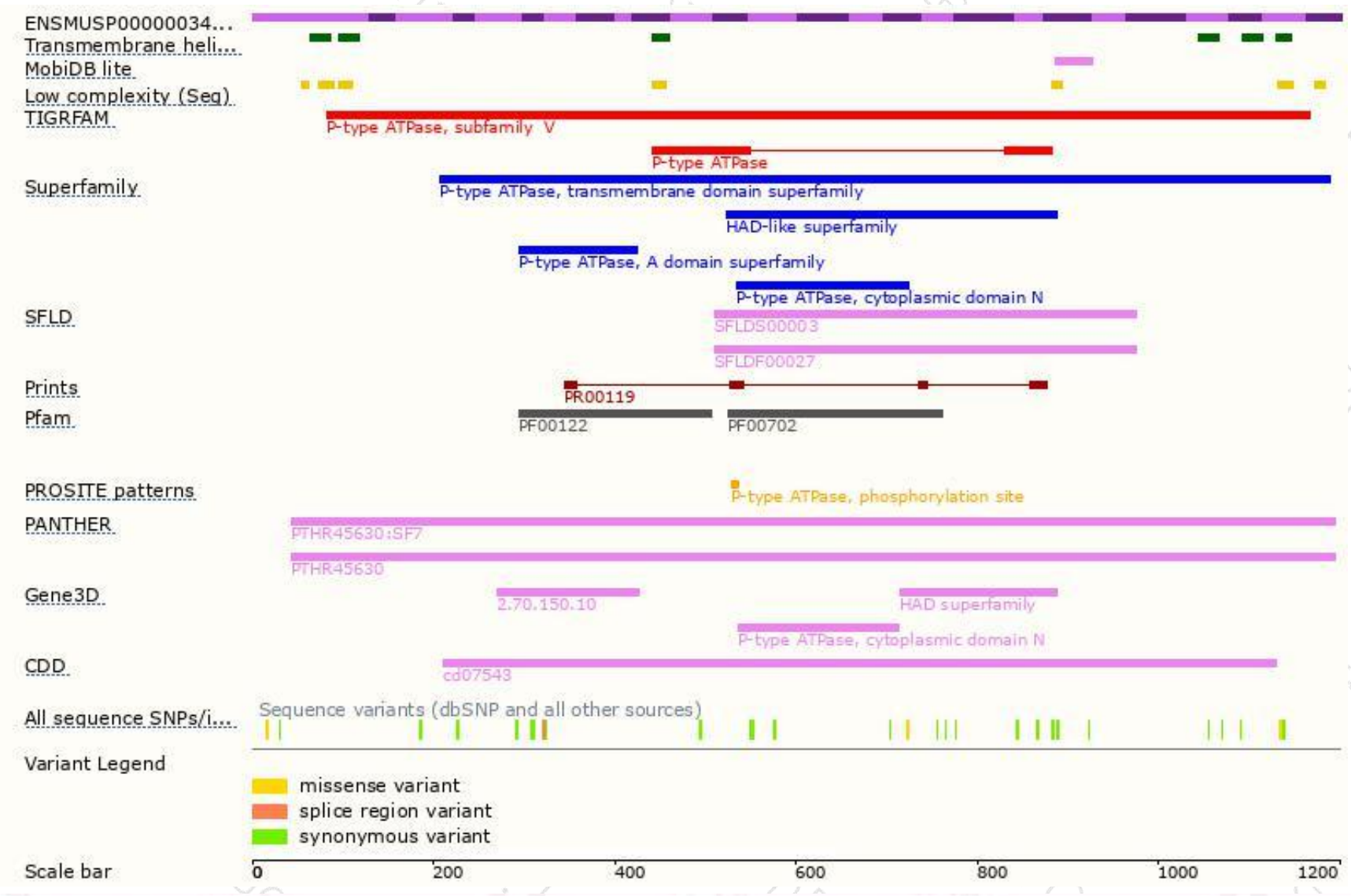
# Genomic location distribution



# Protein domain



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

Tel: 400-9660890

