

# ***Erlin1*** Cas9-KO Strategy

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# Project Overview

**Project Name**

***Erlin1***

**Project type**

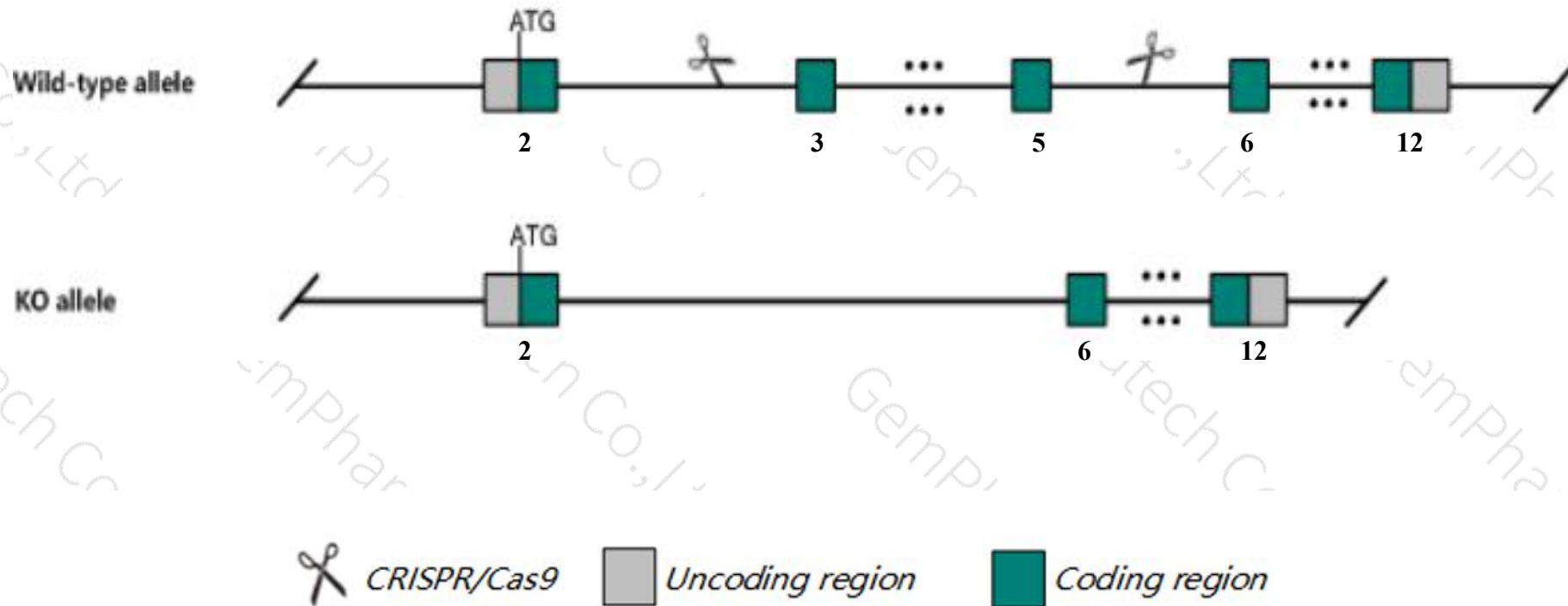
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Erlin1* gene. The schematic diagram is as follows:



- The *Erlin1* gene has 9 transcripts. According to the structure of *Erlin1* gene, exon3-exon5 of *Erlin1-201* (ENSMUST00000071698.12) transcript is recommended as the knockout region. The region contains 191bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Erlin1* gene. The brief process is as follows: CRISPR/Cas9 system

- The *Erlin1* gene is located on the Chr19. 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.
- Transcript *Erlin1-204* may not be affected.
- 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)

## Erlin1 ER lipid raft associated 1 [Mus musculus (house mouse)]

Gene ID: 226144, updated on 13-Mar-2020

### Summary



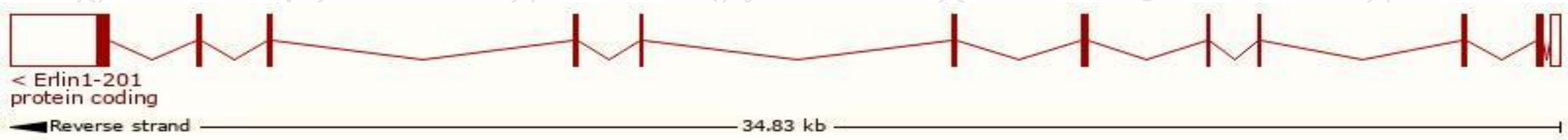
|                           |                                                                                                                                                                           |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Official Symbol</b>    | Erlin1 provided by <a href="#">MGI</a>                                                                                                                                    |
| <b>Official Full Name</b> | ER lipid raft associated 1 provided by <a href="#">MGI</a>                                                                                                                |
| <b>Primary source</b>     | <a href="#">MGI:MGI:2387613</a>                                                                                                                                           |
| <b>See related</b>        | <a href="#">Ensembl:ENSMUSG000000025198</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>      | 2810439N09Rik, C80197, Keo4, Spfh1                                                                                                                                        |
| <b>Expression</b>         | Ubiquitous expression in placenta adult (RPKM 17.3), limb E14.5 (RPKM 8.7) and 27 other tissues <a href="#">See more</a>                                                  |
| <b>Orthologs</b>          | <a href="#">human</a> <a href="#">all</a>                                                                                                                                 |

# Transcript information (Ensembl)

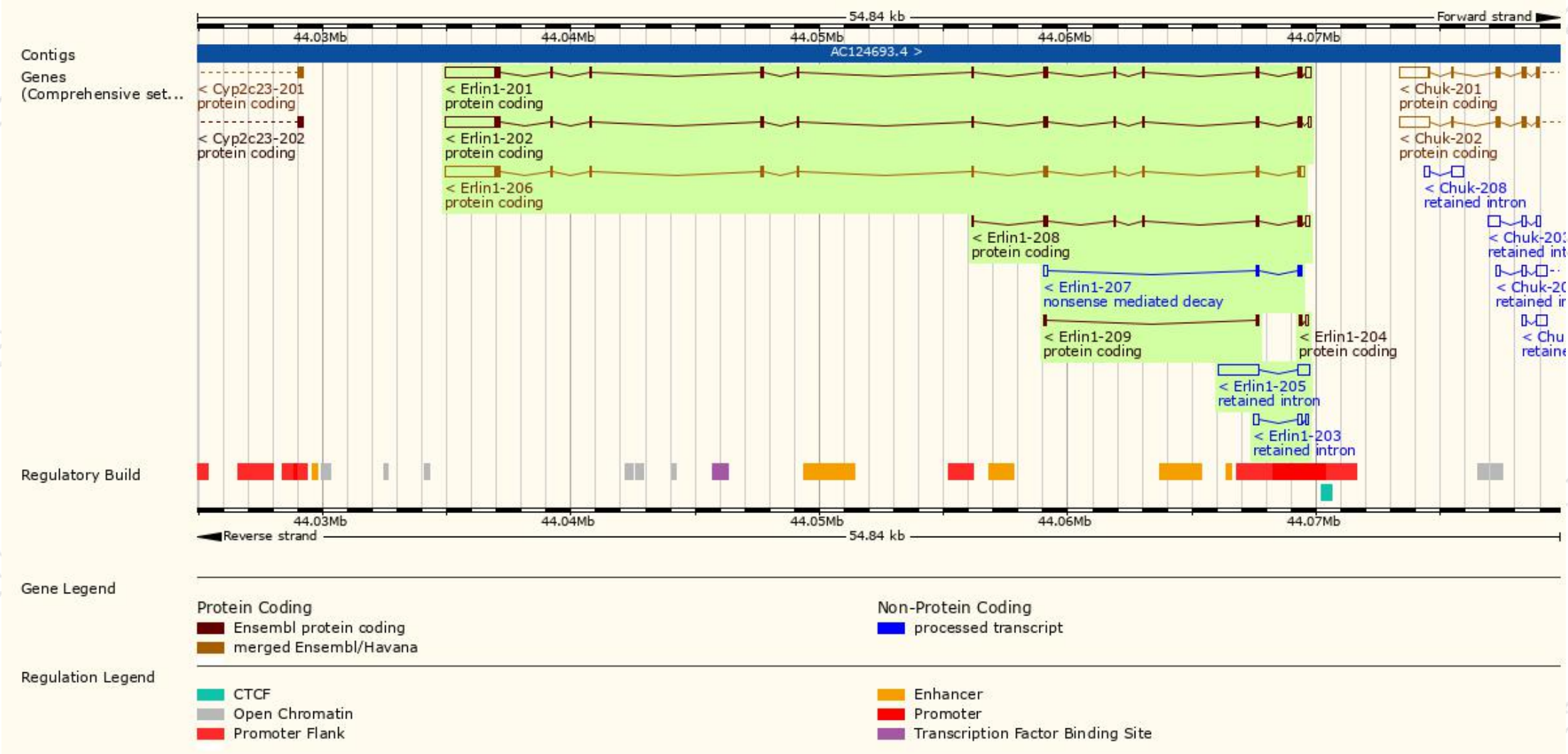
The gene has 9 transcripts,all transcripts are shown below:

| Name       | Transcript ID                         | bp   | Protein               | Biotype                 | CCDS                      | UniProt                | Flags                          |
|------------|---------------------------------------|------|-----------------------|-------------------------|---------------------------|------------------------|--------------------------------|
| Erlin1-205 | <a href="#">ENSMUST00000170577.1</a>  | 2083 | No protein            | Retained intron         | -                         | -                      | TSL:1                          |
| Erlin1-203 | <a href="#">ENSMUST00000168602.1</a>  | 441  | No protein            | Retained intron         | -                         | -                      | TSL:2                          |
| Erlin1-201 | <a href="#">ENSMUST00000071698.12</a> | 3228 | <a href="#">348aa</a> | Protein coding          | <a href="#">CCDS29842</a> | <a href="#">Q91X78</a> | TSL:5 Gencode basic APPRIS P1  |
| Erlin1-206 | <a href="#">ENSMUST00000170801.7</a>  | 3172 | <a href="#">348aa</a> | Protein coding          | <a href="#">CCDS29842</a> | <a href="#">Q91X78</a> | TSL:1 Gencode basic APPRIS P1  |
| Erlin1-202 | <a href="#">ENSMUST00000112028.9</a>  | 3136 | <a href="#">348aa</a> | Protein coding          | <a href="#">CCDS29842</a> | <a href="#">Q91X78</a> | TSL:1 Gencode basic APPRIS P1  |
| Erlin1-208 | <a href="#">ENSMUST00000172041.7</a>  | 654  | <a href="#">158aa</a> | Protein coding          | -                         | <a href="#">E9PUH5</a> | CDS 3' incomplete TSL:3        |
| Erlin1-209 | <a href="#">ENSMUST00000172262.1</a>  | 178  | <a href="#">59aa</a>  | Protein coding          | -                         | <a href="#">F6Z6D6</a> | CDS 5' and 3' incomplete TSL:5 |
| Erlin1-204 | <a href="#">ENSMUST00000169092.1</a>  | 172  | <a href="#">23aa</a>  | Protein coding          | -                         | <a href="#">E9PVM2</a> | CDS 3' incomplete TSL:3        |
| Erlin1-207 | <a href="#">ENSMUST00000171952.1</a>  | 332  | <a href="#">69aa</a>  | Nonsense mediated decay | -                         | <a href="#">E9PZB0</a> | TSL:5                          |

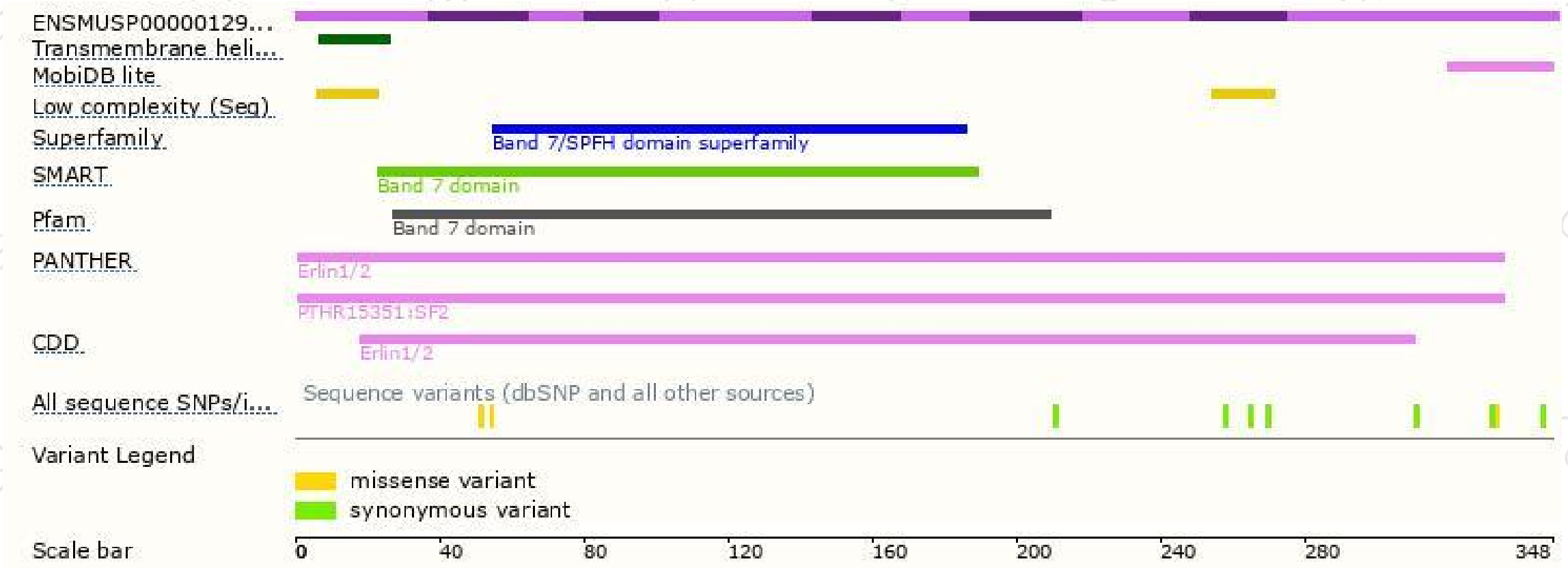
The strategy is based on the design of *Erlin1-201* transcript,the transcription is shown below:



# Genomic location distribution



# Protein domain



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

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