

***Fermt2* Cas9-KO Strategy**

Designer: QiongZhou

Project Overview

Project Name

Fermt2

Project type

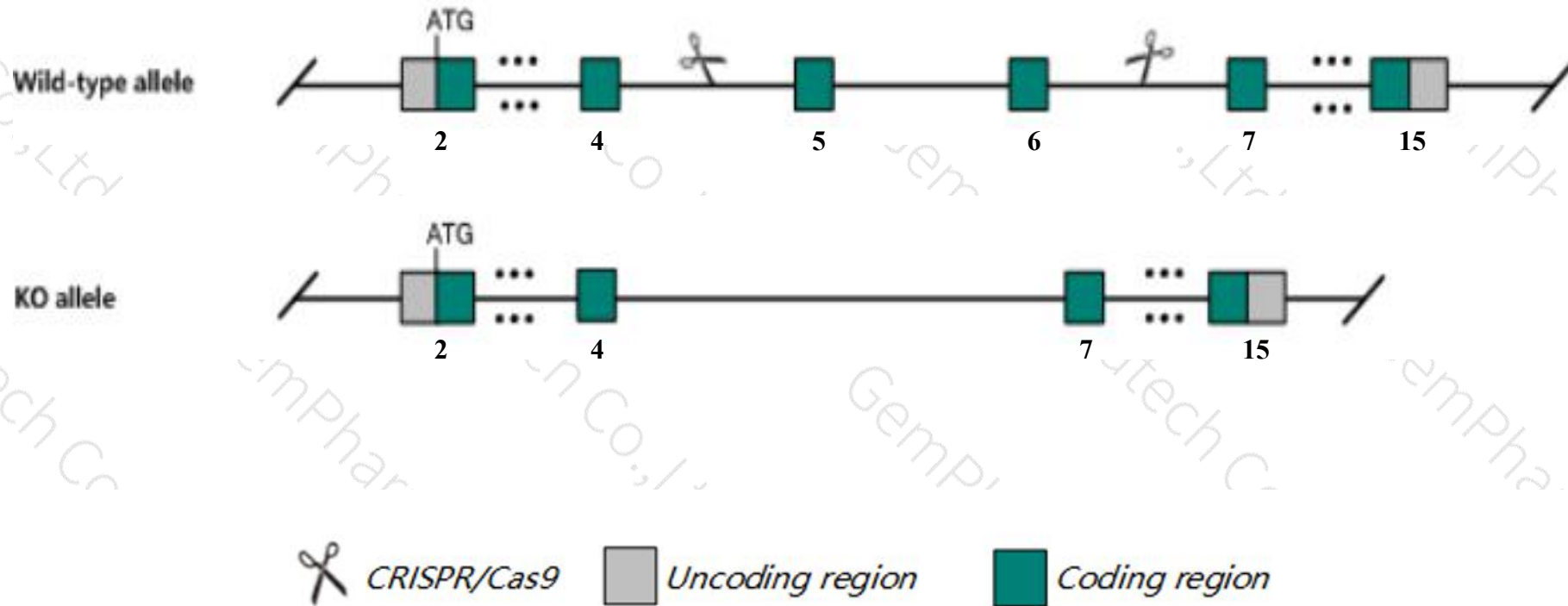
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fermt2* gene. The schematic diagram is as follows:



- The *Fermt2* gene has 6 transcripts. According to the structure of *Fermt2* gene, exon5-exon6 of *Fermt2-201* (ENSMUST00000045905.13) transcript is recommended as the knockout region. The region contains 329bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Fermt2* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, homozygous mice are embryonic lethal at or before e7.5.
- The *Fermt2* gene is located on the Chr14. 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)

Fermt2 fermitin family member 2 [Mus musculus (house mouse)]

Gene ID: 218952, updated on 13-Mar-2020

Summary



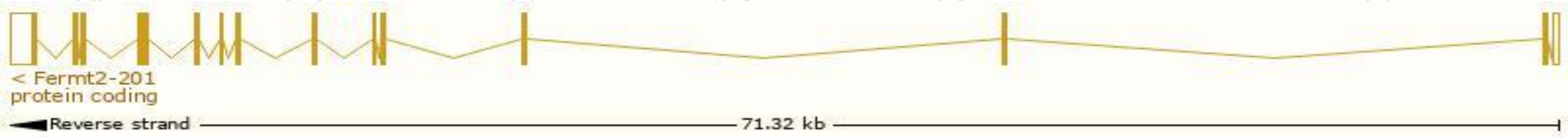
| | |
|---------------------------|---|
| Official Symbol | Fermt2 provided by MGI |
| Official Full Name | fermitin family member 2 provided by MGI |
| Primary source | MGI:MGI:2385001 |
| See related | Ensembl:ENSMUSG00000037712 |
| Gene type | protein coding |
| RefSeq status | VALIDATED |
| Organism | Mus musculus |
| Lineage | Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus |
| Also known as | AA960555, Kindlin-2, Mig2, Plekhc1 |
| Expression | Broad expression in bladder adult (RPKM 89.4), placenta adult (RPKM 48.8) and 21 other tissues See more |
| Orthologs | human all |

Transcript information (Ensembl)

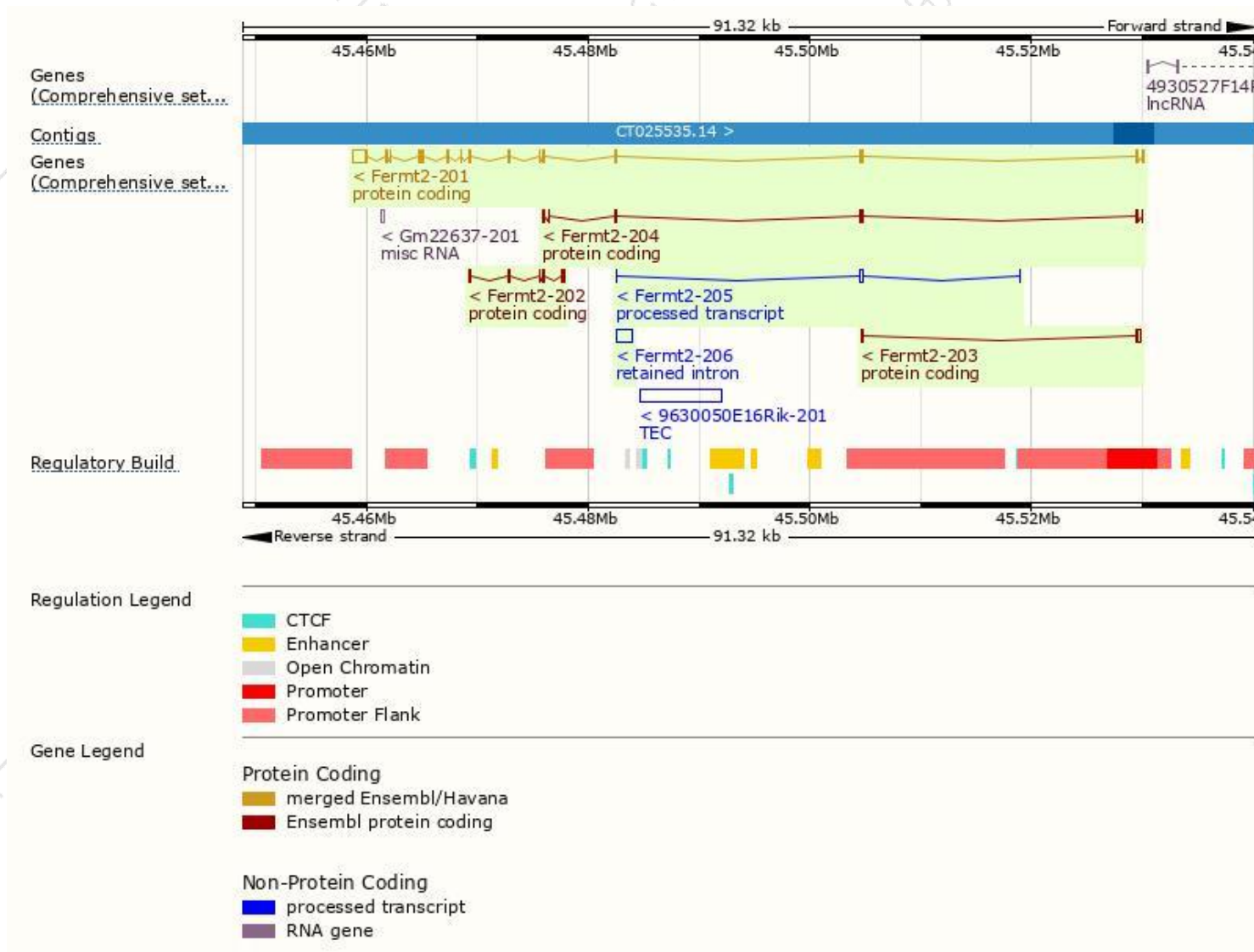
The gene has 6 transcripts,all transcripts are shown below:

| Name | Transcript ID | bp | Protein | Biotype | CCDS | UniProt | Flags |
|------------|---------------------------------------|------|-----------------------|----------------------|---------------------------|---|-------------------------------|
| Fermt2-201 | ENSMUST00000045905.13 | 3293 | 680aa | Protein coding | CCDS26977 | Q3TLE2 Q8CIB5 | TSL:1 GENCODE basic APPRIS P1 |
| Fermt2-204 | ENSMUST00000150660.1 | 816 | 258aa | Protein coding | - | A6X940 | CDS 3' incomplete TSL:5 |
| Fermt2-202 | ENSMUST00000141424.1 | 720 | 180aa | Protein coding | - | A6X941 | CDS 3' incomplete TSL:3 |
| Fermt2-203 | ENSMUST00000149723.1 | 421 | 72aa | Protein coding | - | A0A2I3BPQ7 | CDS 3' incomplete TSL:2 |
| Fermt2-205 | ENSMUST00000228208.1 | 331 | No protein | Processed transcript | - | - | |
| Fermt2-206 | ENSMUST00000228769.1 | 1453 | No protein | Retained intron | - | - | |

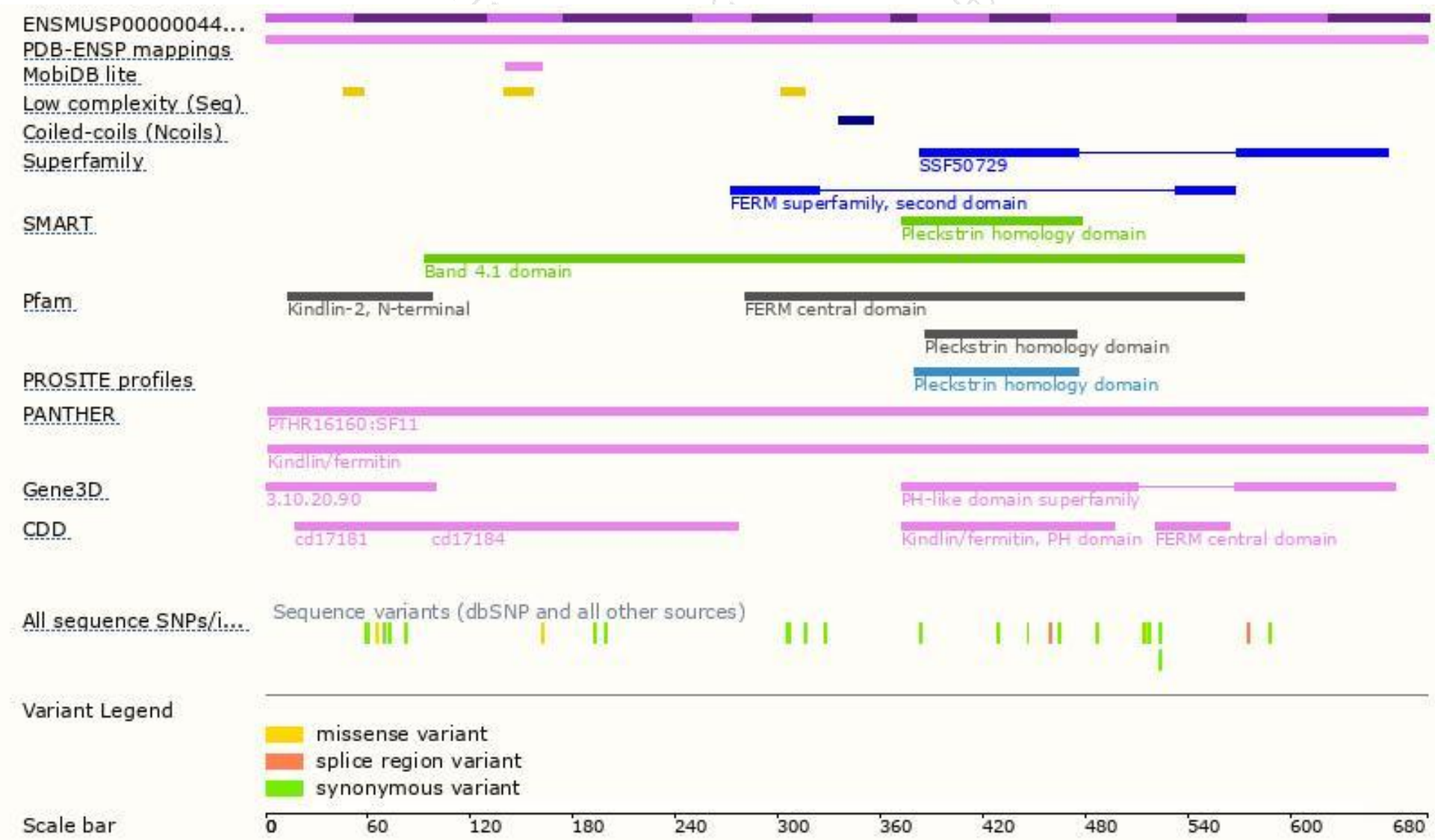
The strategy is based on the design of *Fermt2-201* transcript,the transcription is shown below:



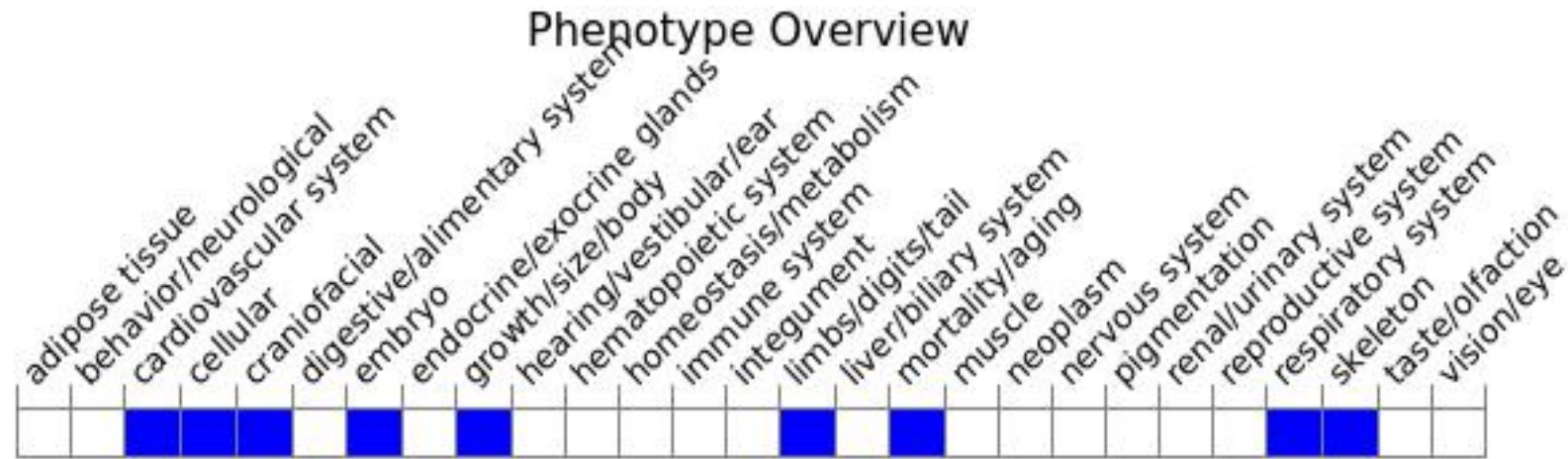
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

According to the existing MGI data, homozygous mice are embryonic lethal at or before E7.5.

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

Tel: 400-9660890

