

Thumpd3 Cas9-KO Strategy

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Project Overview

Project Name

Thumpd3

Project type

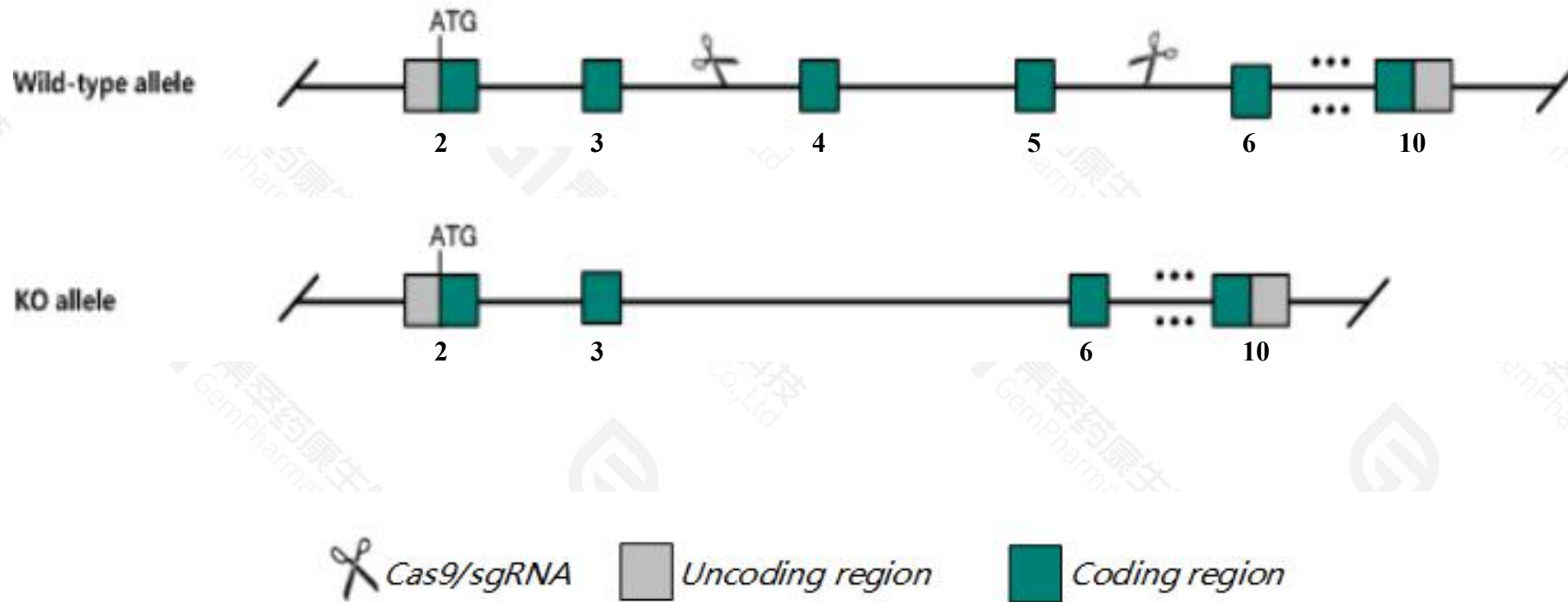
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Thumpd3* gene. The schematic diagram is as follows:



- The *Thumpd3* gene has 10 transcripts. According to the structure of *Thumpd3* gene, exon4-exon5 of *Thumpd3*-201(ENSMUST00000032398.15) transcript is recommended as the knockout region. The region contains 608bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Thumpd3* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA 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.

- Transcript *Thumpd3*-204&210 may not be affected.
- *Gm22591* may be deleted.
- The *Thumpd3* gene is located on the Chr6. 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)

Thumpd3 THUMP domain containing 3 [Mus musculus (house mouse)]

Gene ID: 14911, updated on 13-Mar-2020

Summary

Official Symbol Thumpd3 provided by [MGI](#)

Official Full Name THUMP domain containing 3 provided by [MGI](#)

Primary source [MGI:MGI:1277973](#)

See related [Ensembl:ENSMUSG00000030264](#)

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 AW556087, Gt(ROSA)26asSor, Gtrosa26as

Expression Ubiquitous expression in testis adult (RPKM 10.3), placenta adult (RPKM 8.3) and 25 other tissues [See more](#)

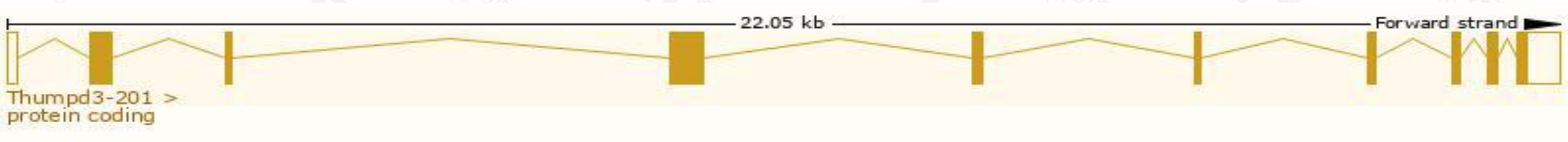
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

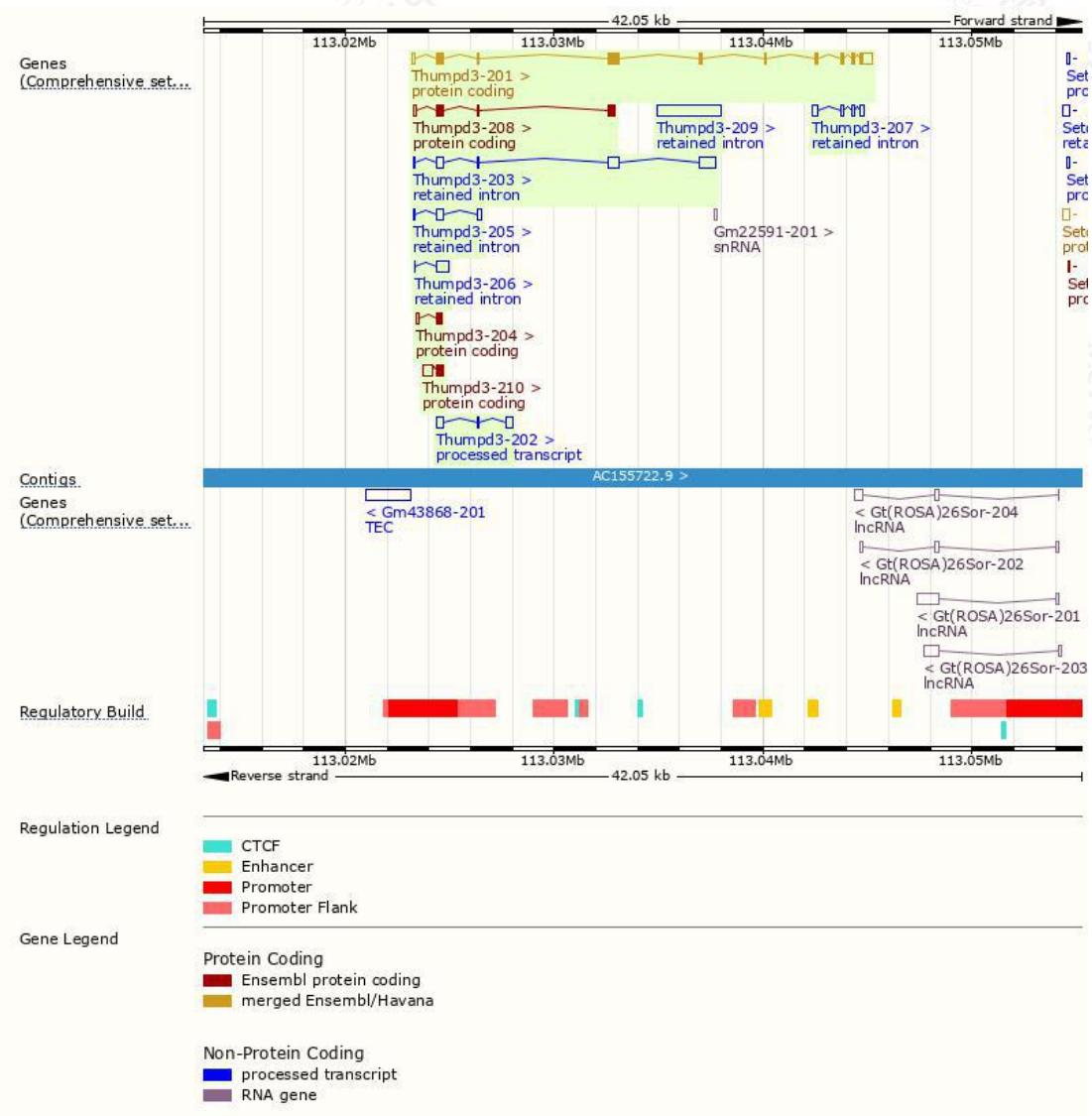
The gene has 10 transcripts,all transcripts are shown below:

| Name | Transcript ID | bp | Protein | Biotype | CCDS | UniProt | Flags |
|-------------|---------------------------------------|------|-----------------------|----------------------|---------------------------|----------------------------|---|
| Thumpd3-201 | ENSMUST00000032398.14 | 2163 | 505aa | Protein coding | CCDS20410 | P97770 | TSL:1 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS P1 |
| Thumpd3-208 | ENSMUST00000155378.1 | 855 | 221aa | Protein coding | - | D3YYB2 | CDS 3' incomplete TSL:2 |
| Thumpd3-210 | ENSMUST00000204866.2 | 727 | 86aa | Protein coding | - | A0A0N4SUS5 | CDS 3' incomplete TSL:3 |
| Thumpd3-204 | ENSMUST00000138278.1 | 371 | 77aa | Protein coding | - | A0A0N4SW81 | CDS 3' incomplete TSL:3 |
| Thumpd3-202 | ENSMUST00000134657.2 | 649 | No protein | Processed transcript | - | - | TSL:2 |
| Thumpd3-209 | ENSMUST00000204786.1 | 3072 | No protein | Retained intron | - | - | TSL:NA |
| Thumpd3-203 | ENSMUST00000137396.7 | 1764 | No protein | Retained intron | - | - | TSL:1 |
| Thumpd3-207 | ENSMUST00000153310.1 | 692 | No protein | Retained intron | - | - | TSL:2 |
| Thumpd3-206 | ENSMUST00000152795.1 | 638 | No protein | Retained intron | - | - | TSL:2 |
| Thumpd3-205 | ENSMUST00000145054.7 | 558 | No protein | Retained intron | - | - | TSL:2 |

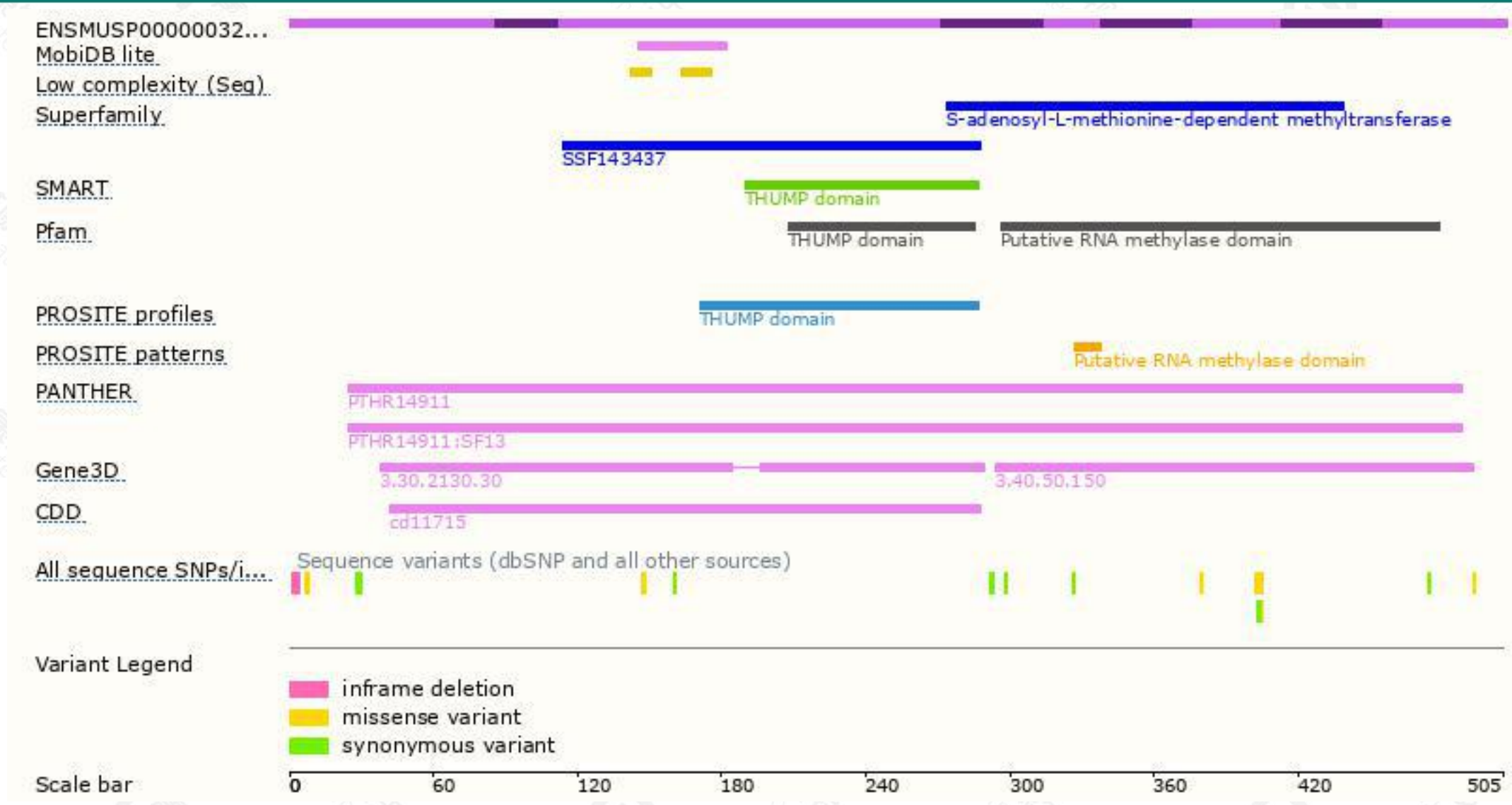
The strategy is based on the design of *Thumpd3-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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