

***Mtmr12* Cas9-KO Strategy**

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Project Overview

Project Name

Mtmr12

Project type

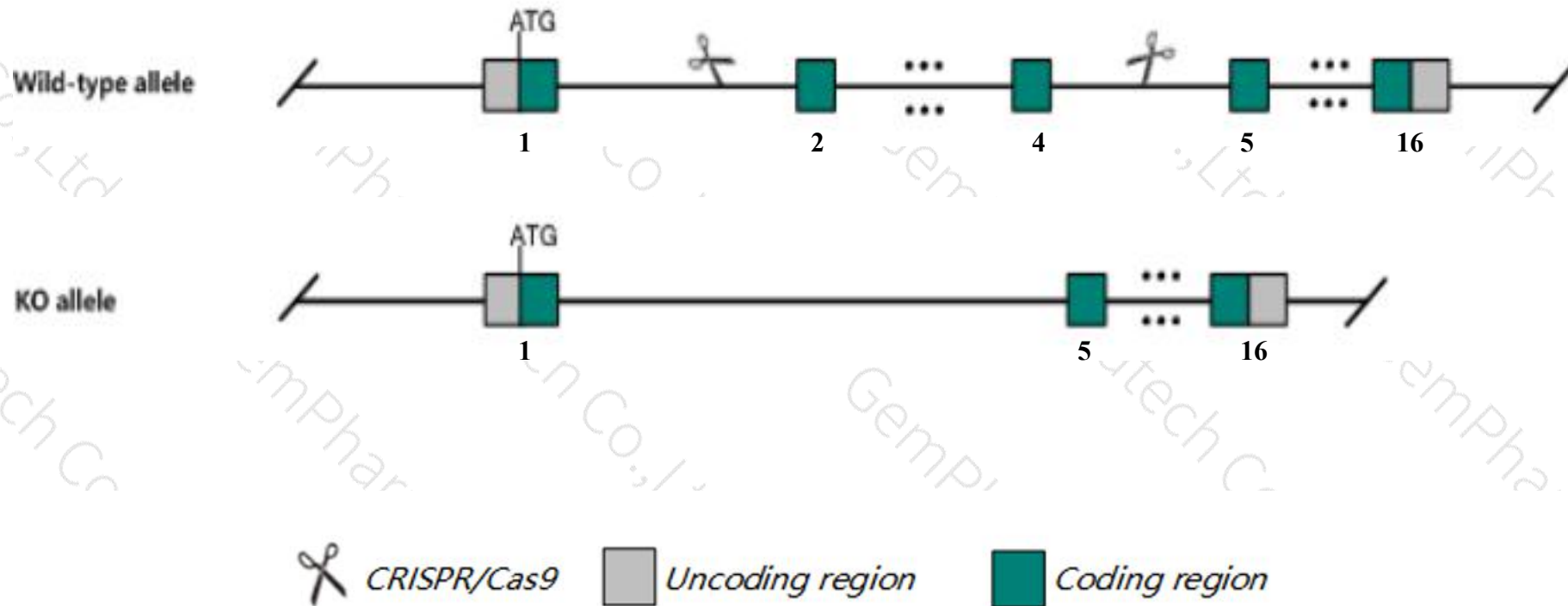
Cas9-KO

Strain background

C57BL/6J

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mtmr12* gene. The schematic diagram is as follows:



- The *Mtmr12* gene has 5 transcripts. According to the structure of *Mtmr12* gene, exon2-exon4 of *Mtmr12-201* (ENSMUST00000038172.15) transcript is recommended as the knockout region. The region contains 280bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Mtmr12* gene. The brief process is as follows: CRISPR/Cas9 system

- The *Mtmr12* gene is located on the Chr15. 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)

Mtmt12 myotubularin related protein 12 [Mus musculus (house mouse)]

Gene ID: 268783, updated on 13-Mar-2020

Summary



Official Symbol	Mtmt12 provided by MGI
Official Full Name	myotubularin related protein 12 provided by MGI
Primary source	MGI:MGI:2443034
See related	Ensembl:ENSMUSG00000039458
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	3Pap, 4932703C11, C730015A02Rik, Pip3ap, mKIAA1682
Expression	Ubiquitous expression in thymus adult (RPKM 13.2), testis adult (RPKM 11.0) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

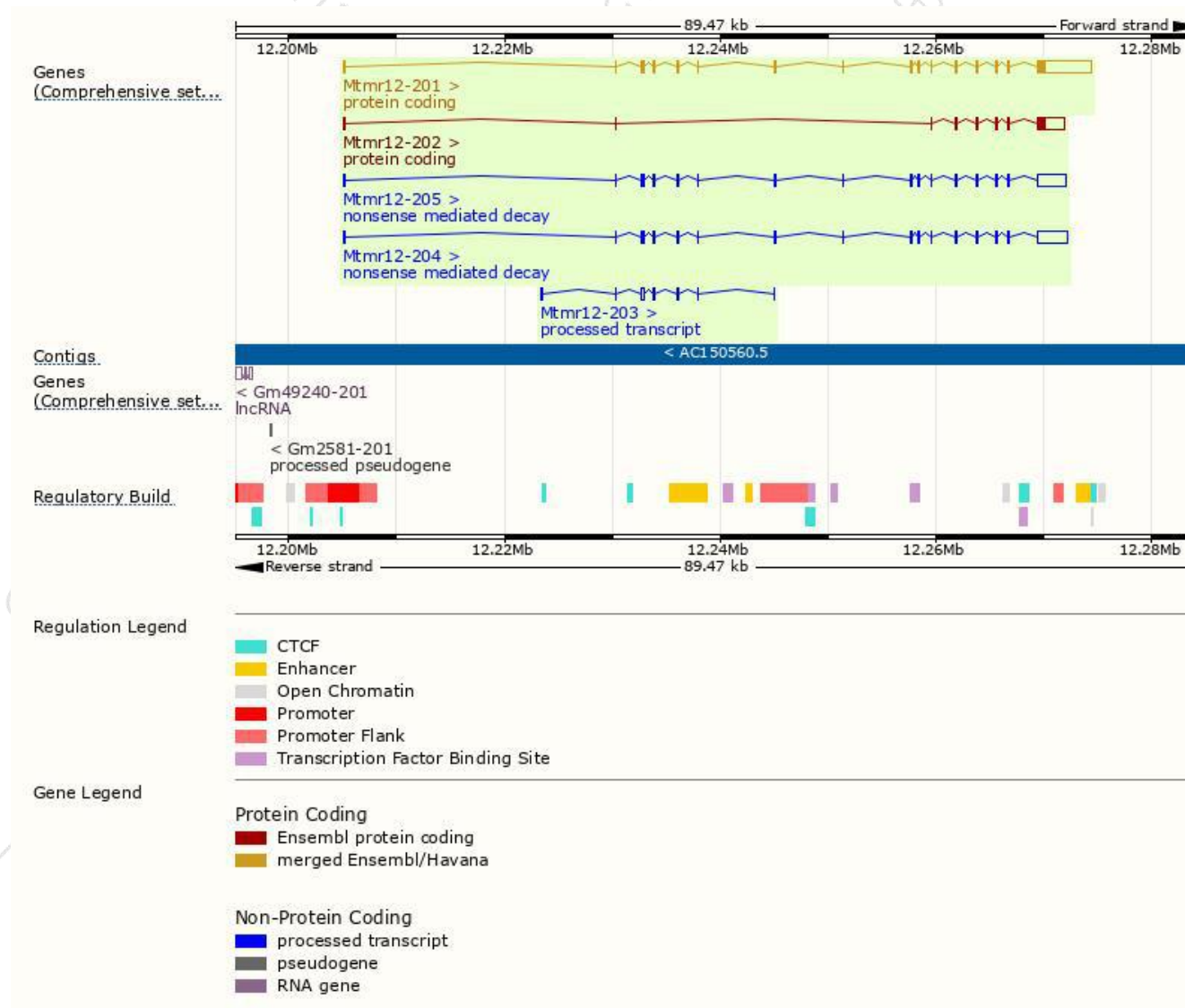
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mtmr12-201	ENSMUST00000038172.15	6840	747aa	Protein coding	CCDS27388	Q80TA6	TSL:1 GENCODE basic APPRIS P1
Mtmr12-202	ENSMUST00000071993.12	3351	437aa	Protein coding	-	Q80TA6	TSL:1 GENCODE basic
Mtmr12-204	ENSMUST00000174160.2	4489	526aa	Nonsense mediated decay	-	G3UZ04	TSL:1
Mtmr12-205	ENSMUST00000174418.7	4359	159aa	Nonsense mediated decay	-	G3XA69	TSL:1
Mtmr12-203	ENSMUST00000173071.1	772	No protein	Processed transcript	-	-	TSL:5

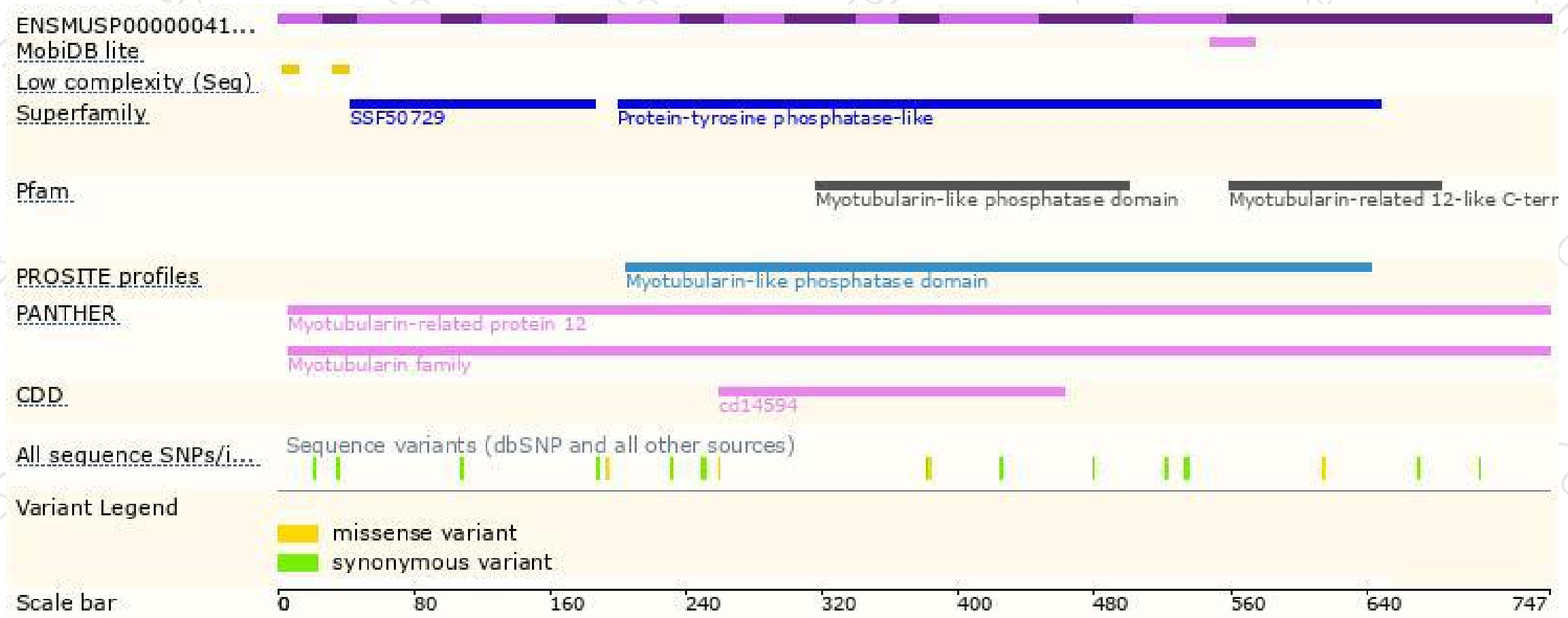
The strategy is based on the design of *Mtmr12-201* transcript,the transcription is shown below:



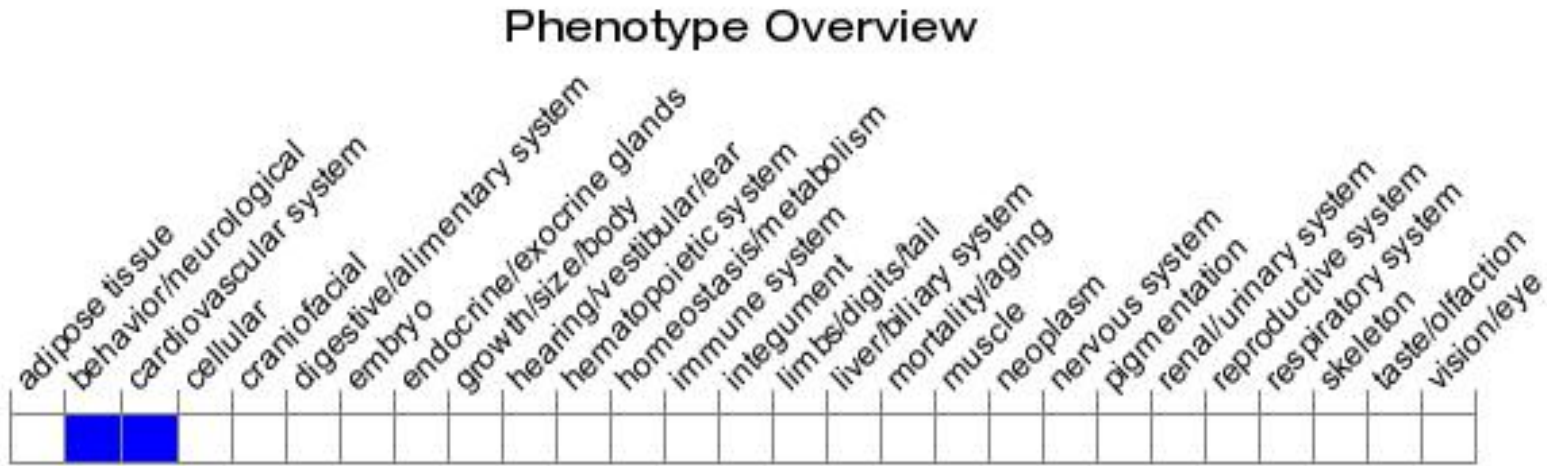
Genomic location distribution



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/>).

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

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