

***Mtss2* Cas9-CKO Strategy**

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Project Overview

Project Name

Mtss2

Project type

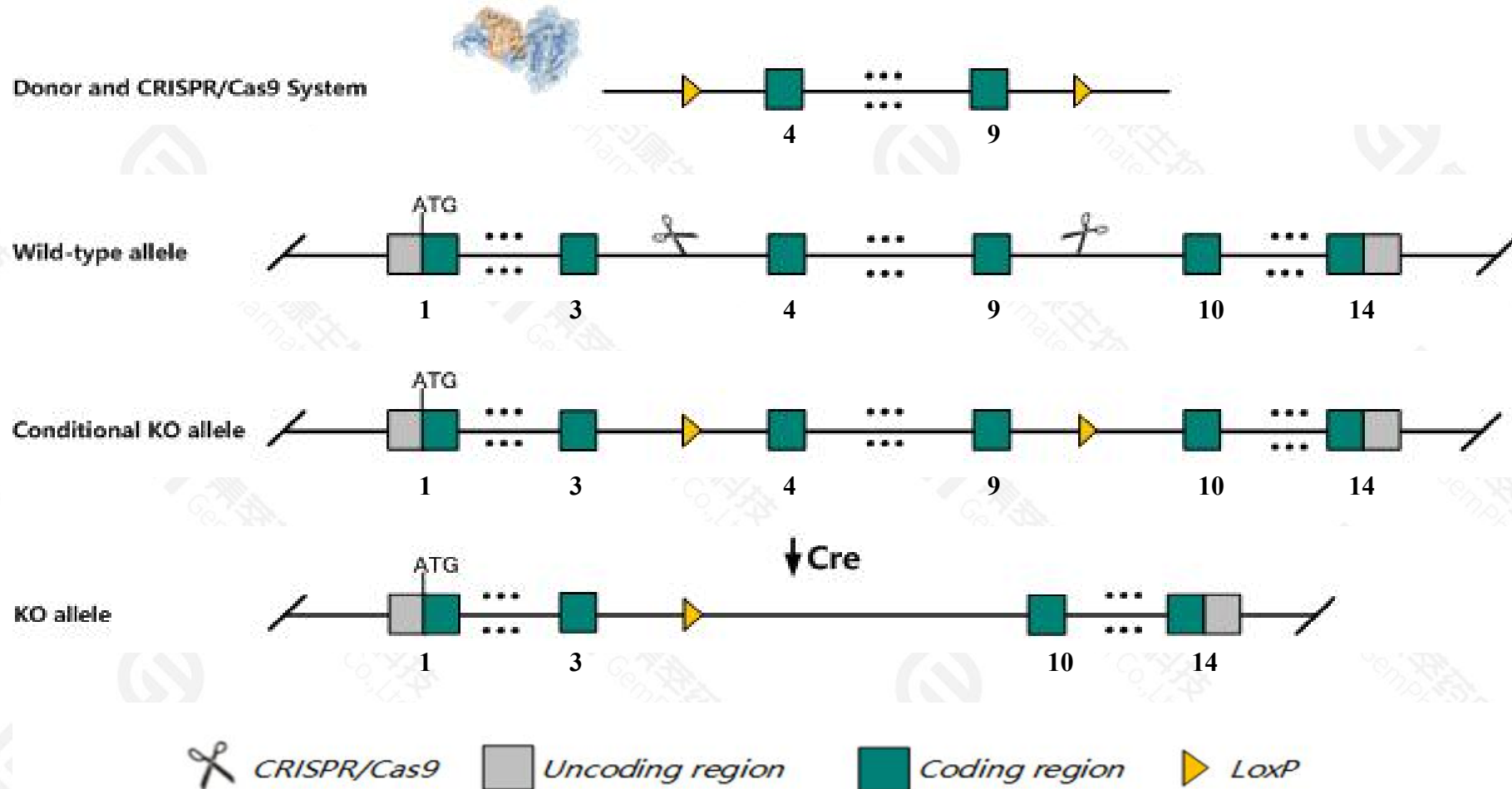
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mtss2* gene. The schematic diagram is as follows:



- The *Mtss2* gene has 6 transcripts. According to the structure of *Mtss2* gene, exon4-exon9 of *Mtss2-201*(ENSMUST00000052457.15) transcript is recommended as the knockout region. The region contains 616bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Mtss2* gene. The brief process is as follows: CRISPR/Cas9 system and Donor 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.
- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

- The *Mtss2* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Mtss2 MTSS I-BAR domain containing 2 [Mus musculus (house mouse)]

Gene ID: 244654, updated on 3-Jan-2021

Summary



Official Symbol Mtss2 provided by [MGI](#)

Official Full Name MTSS I-BAR domain containing 2 provided by [MGI](#)

Primary source [MGI:MGI:3039591](#)

See related [Ensembl:ENSMUSG00000033763](#)

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 AB, ABBA, Mts, Mtss1l

Expression Broad expression in cerebellum adult (RPKM 29.3), ovary adult (RPKM 22.9) and 24 other tissues [See more](#)

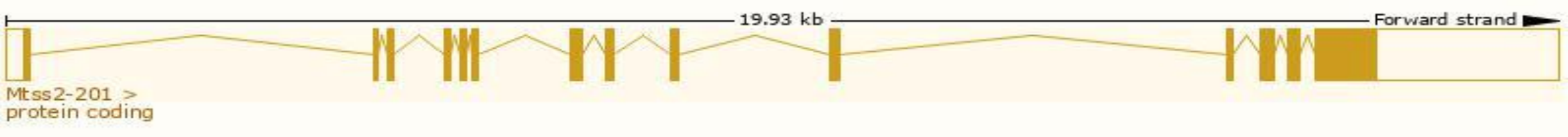
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

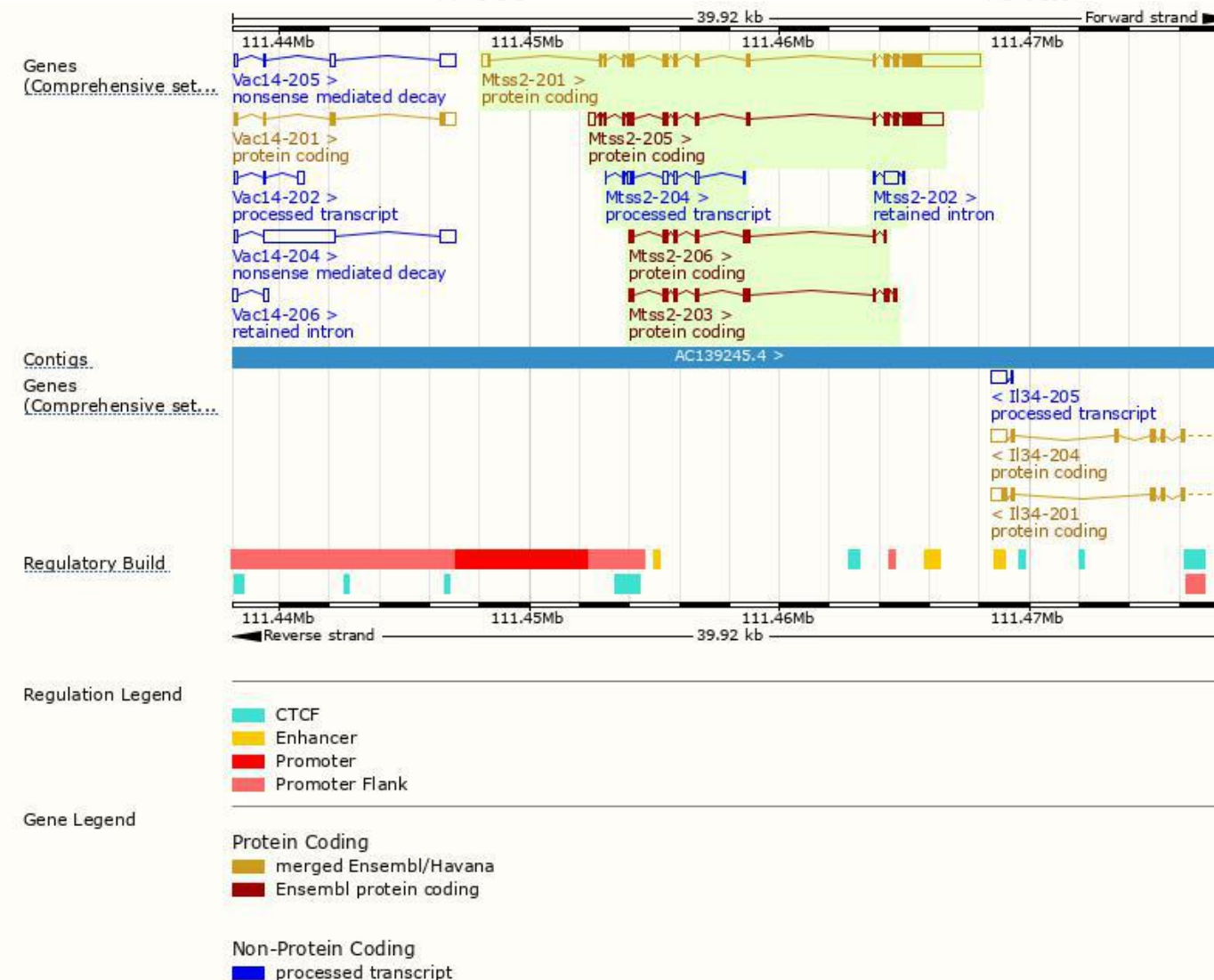
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mtss2-201	ENSMUST00000052457.15	4717	715aa	Protein coding	CCDS22664		TSL:1 , GENCODE basic , APPRIS P1 ,
Mtss2-205	ENSMUST00000144041.8	3225	653aa	Protein coding	CCDS80930		TSL:1 , GENCODE basic ,
Mtss2-203	ENSMUST00000141302.2	1091	364aa	Protein coding	-		CDS 5' and 3' incomplete , TSL:5 ,
Mtss2-206	ENSMUST00000149273.8	866	289aa	Protein coding	-		CDS 5' and 3' incomplete , TSL:3 ,
Mtss2-204	ENSMUST00000141527.2	697	No protein	Processed transcript	-		TSL:3 ,
Mtss2-202	ENSMUST00000133848.2	720	No protein	Retained intron	-		TSL:3 ,

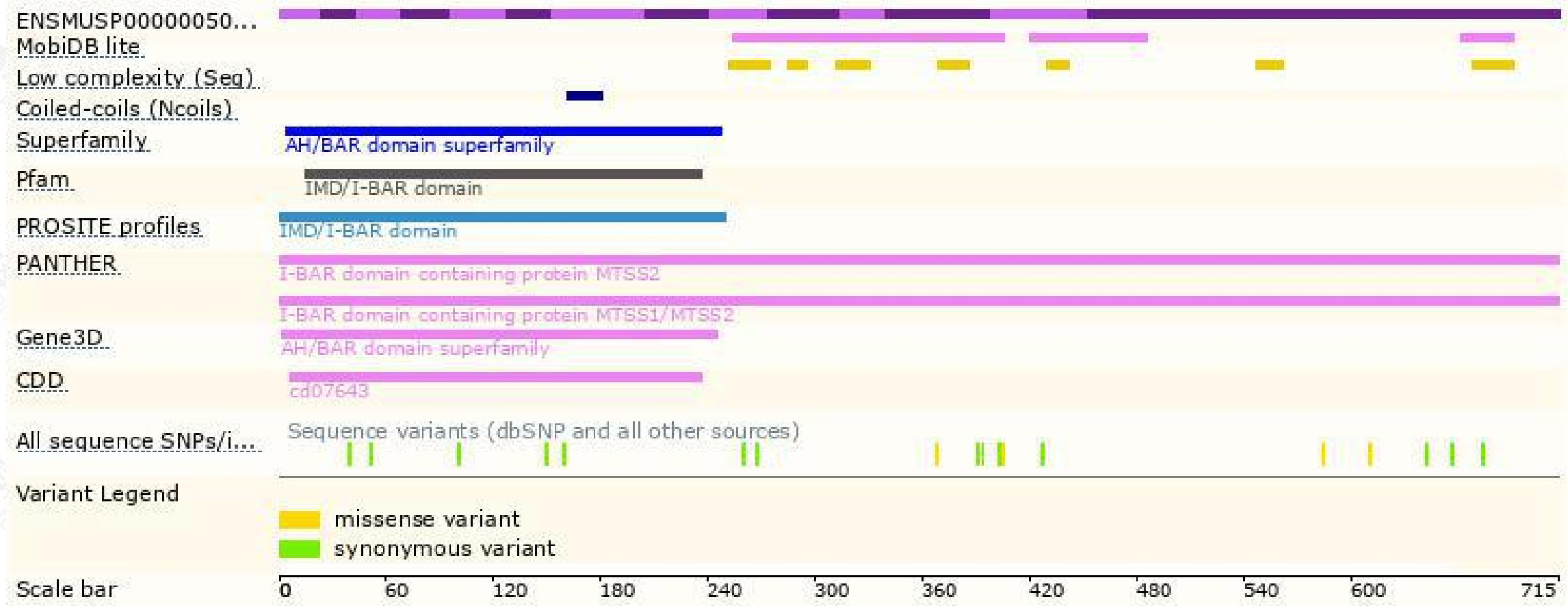
The strategy is based on the design of *Mtss2-201* transcript,the transcription is shown below:



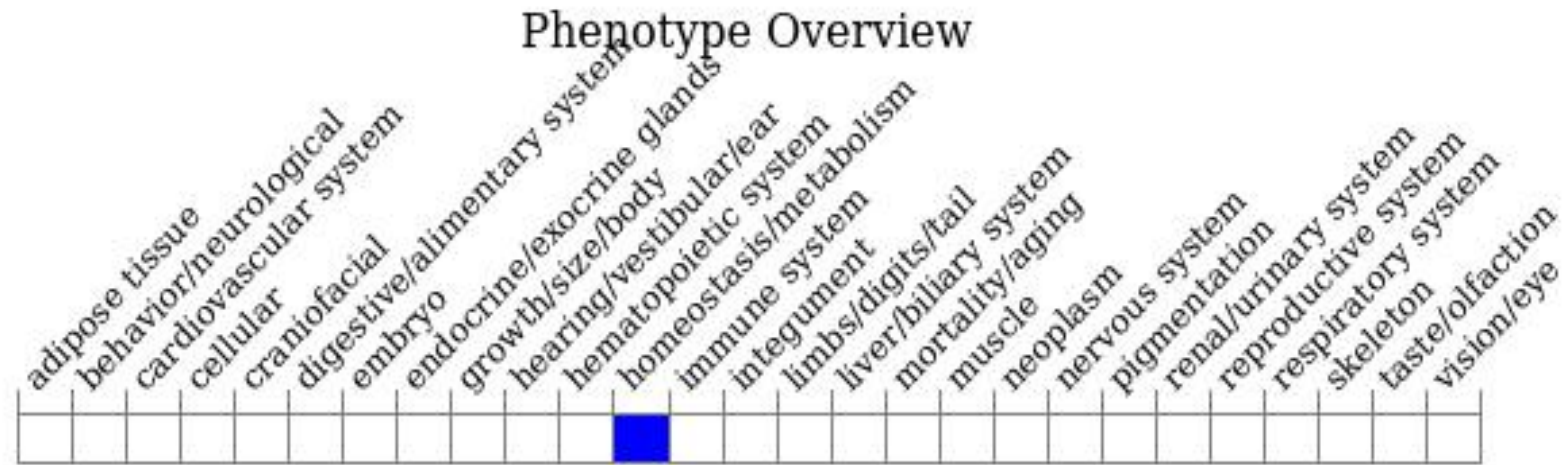
Genomic location distribution



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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