

Mbip Cas9-KO Strategy

Designer: Zihe Cui

Reviewer: Daohua Xu

Design Date: 2020-9-30

Project Overview

Project Name

Mbip

Project type

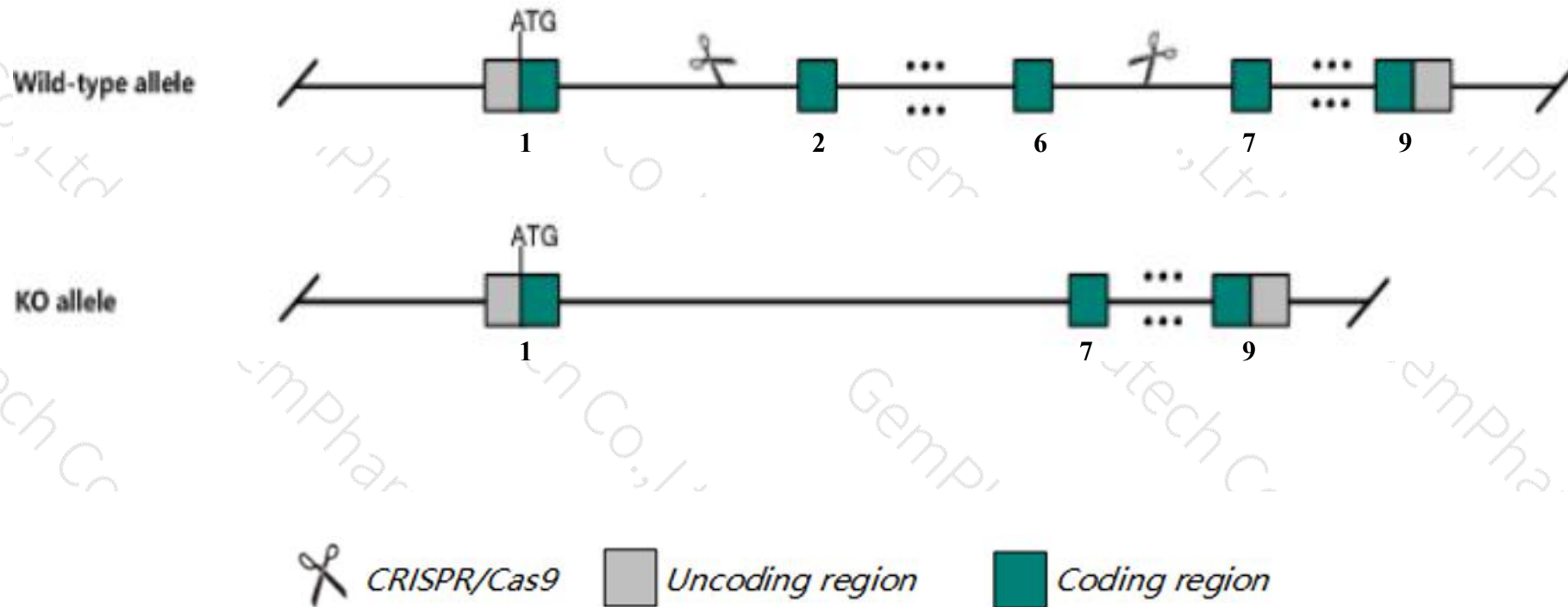
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Mbip* gene has 3 transcripts. According to the structure of *Mbip* gene, exon2-exon6 of *Mbip*-201(ENSMUST00000021416.8) transcript is recommended as the knockout region. The region contains 655bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Mbip* gene. The brief process is as follows: CRISPR/Cas9 system 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 *Mbip* gene is located on the Chr12. 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)

Mbip MAP3K12 binding inhibitory protein 1 [*Mus musculus* (house mouse)]

Gene ID: 217588, updated on 25-Sep-2020

Summary

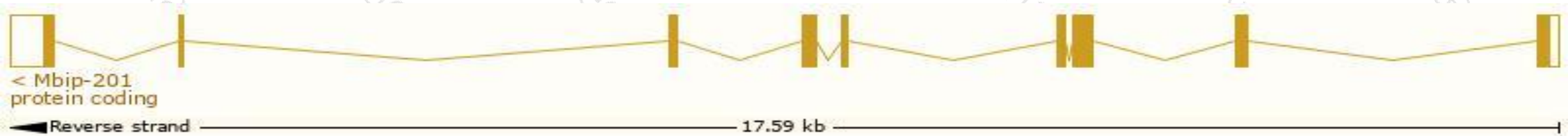
Official Symbol	Mbip provided by MGI
Official Full Name	MAP3K12 binding inhibitory protein 1 provided by MGI
Primary source	MGI:MGI:1918320
See related	Ensembl:ENSMUSG00000021028
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	4933408E06Rik
Expression	Ubiquitous expression in CNS E14 (RPKM 9.9), CNS E11.5 (RPKM 9.1) and 26 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

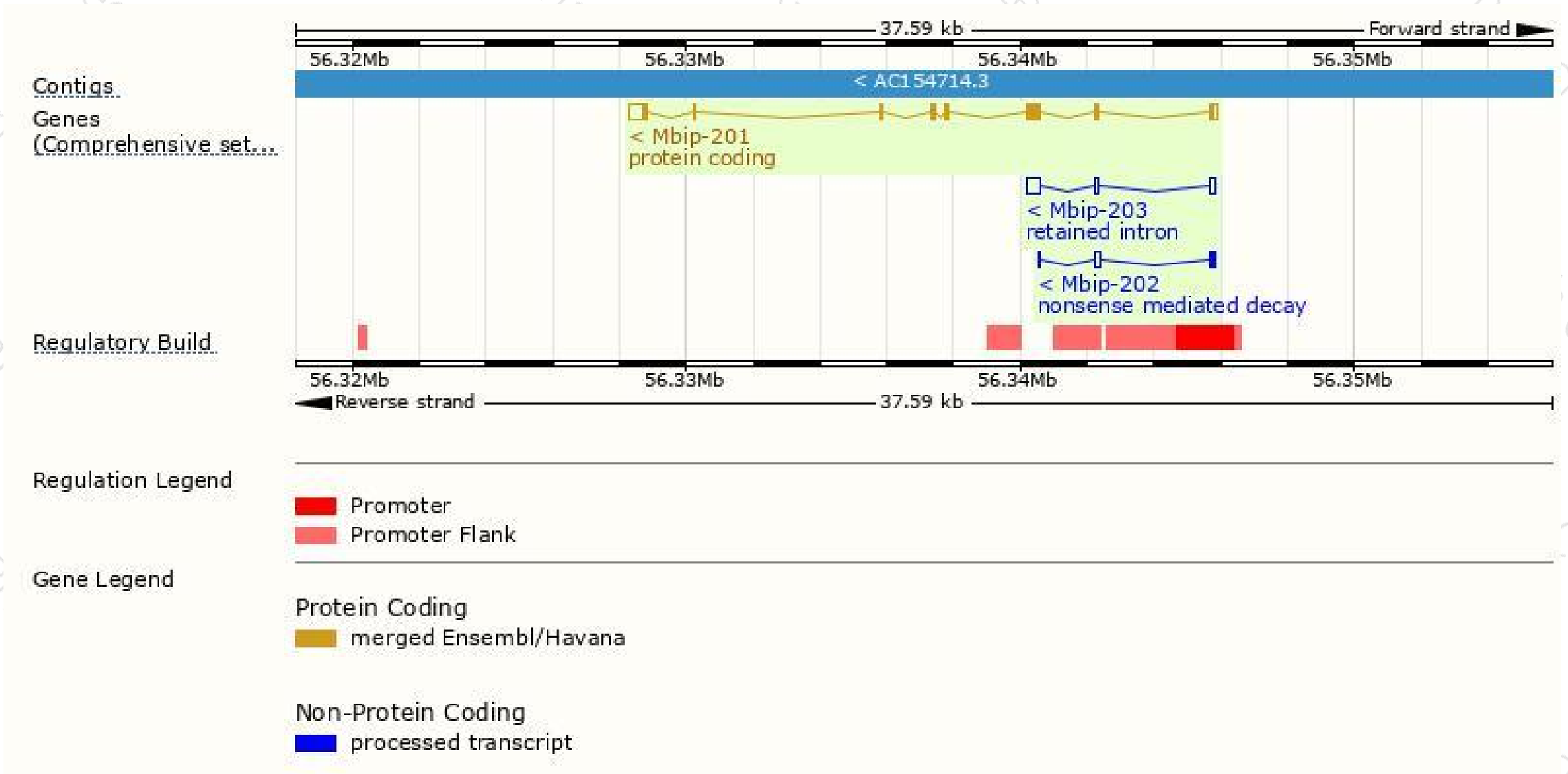
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mbip-201	ENSMUST00000021416.8	1512	341aa	Protein coding	CCDS25920	Q99LQ1	TSL:1 GENCODE basic APPRIS P1
Mbip-202	ENSMUST00000218118.1	417	49aa	Nonsense mediated decay	-	A0A1W2P7F0	TSL:2
Mbip-203	ENSMUST00000218321.1	724	No protein	Retained intron	-	-	TSL:2

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



Genomic location distribution



Protein domain



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

Tel: 400-9660890

