

Mphosph10 Cas9-KO Strategy

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Design Date: 2021-7-9

Project Overview

Project Name

Mphosph10

Project type

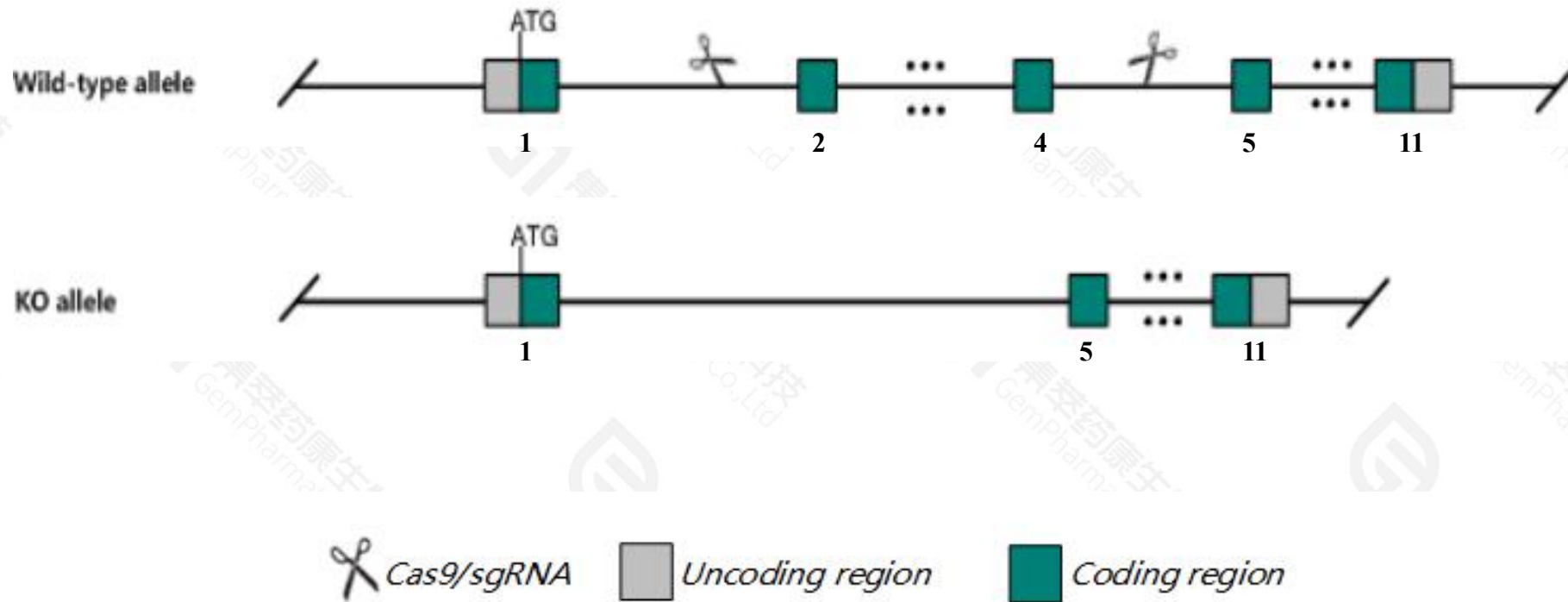
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mphosph10* gene. The schematic diagram is as follows:



- The *Mphosph10* gene has 3 transcripts. According to the structure of *Mphosph10* gene, exon2-exon4 of *Mphosph10*-201(ENSMUST00000032735.8) transcript is recommended as the knockout region. The region contains 1012bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Mphosph10* 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.

- The KO region is about ~2.3kb away from the N-terminal of *Mcee* gene, this strategy may influence the regulatory function of the N-terminal of *Mcee* gene.
- The *Mphosph10* gene is located on the Chr7. 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)

Mphosph10 M-phase phosphoprotein 10 (U3 small nucleolar ribonucleoprotein) [Mus musculus (house mouse)]

Gene ID: 67973, updated on 14-Jan-2021

Summary



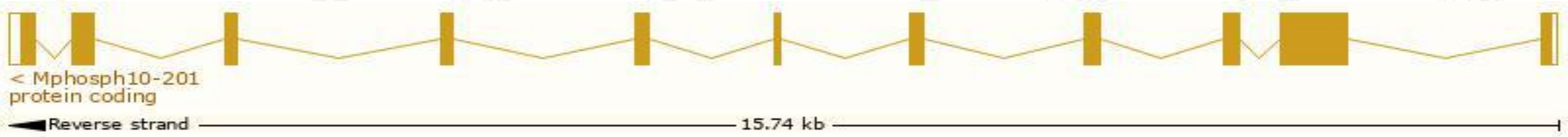
Official Symbol	Mphosph10 provided by MGI
Official Full Name	M-phase phosphoprotein 10 (U3 small nucleolar ribonucleoprotein) provided by MGI
Primary source	MGI:MGI:1915223
See related	Ensembl:ENSMUSG00000030521
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2810453H10Rik, 5730405D16Rik, AI326008
Expression	Biased expression in CNS E11.5 (RPKM 16.9), liver E14 (RPKM 10.4) and 11 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

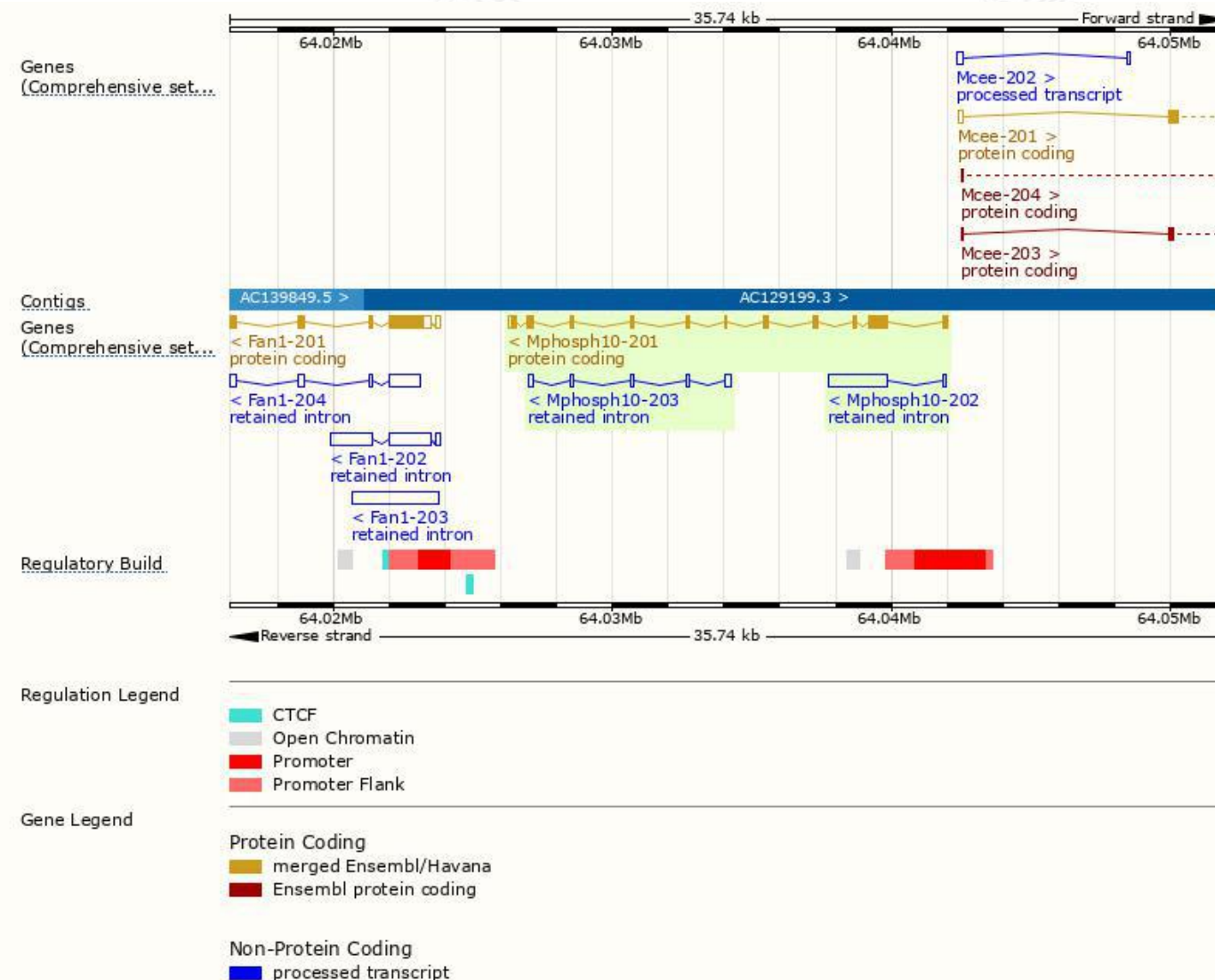
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mphosph10-201	ENSMUST00000032735.8	2248	681aa	Protein coding	CCDS21333		TSL:1 , GENCODE basic , APPRIS P1 ,
Mphosph10-202	ENSMUST00000205516.2	2276	No protein	Retained intron	-		TSL:1 ,
Mphosph10-203	ENSMUST00000206047.2	695	No protein	Retained intron	-		TSL:3 ,

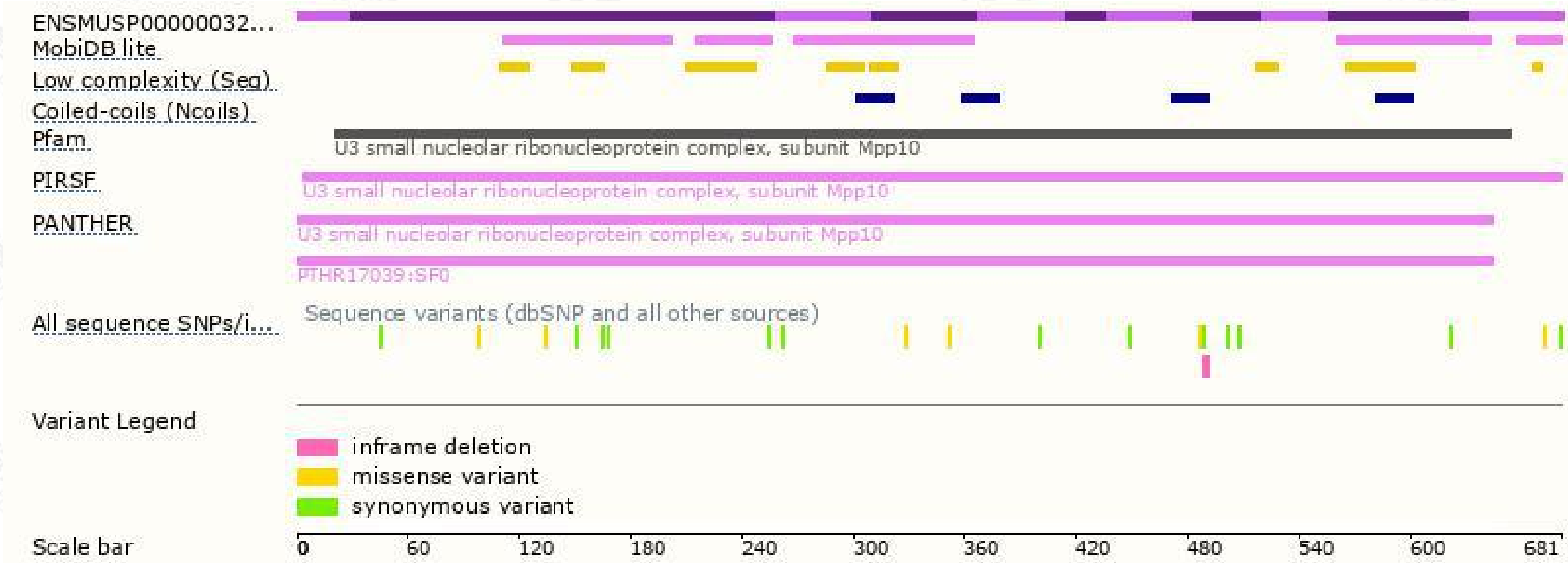
The strategy is based on the design of *Mphosph10-201* transcript,the transcription is shown below:



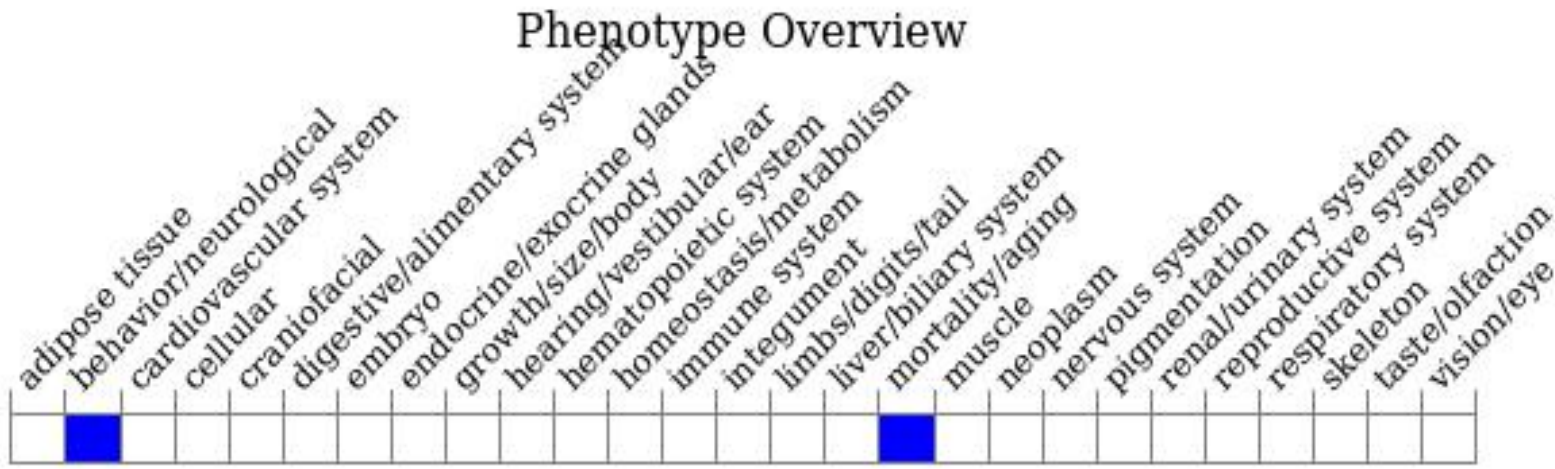
Genomic location distribution



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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