

Mcm3ap Cas9-CKO Strategy

Designer:

Project Overview

Project Name

Mcm3ap

Project type

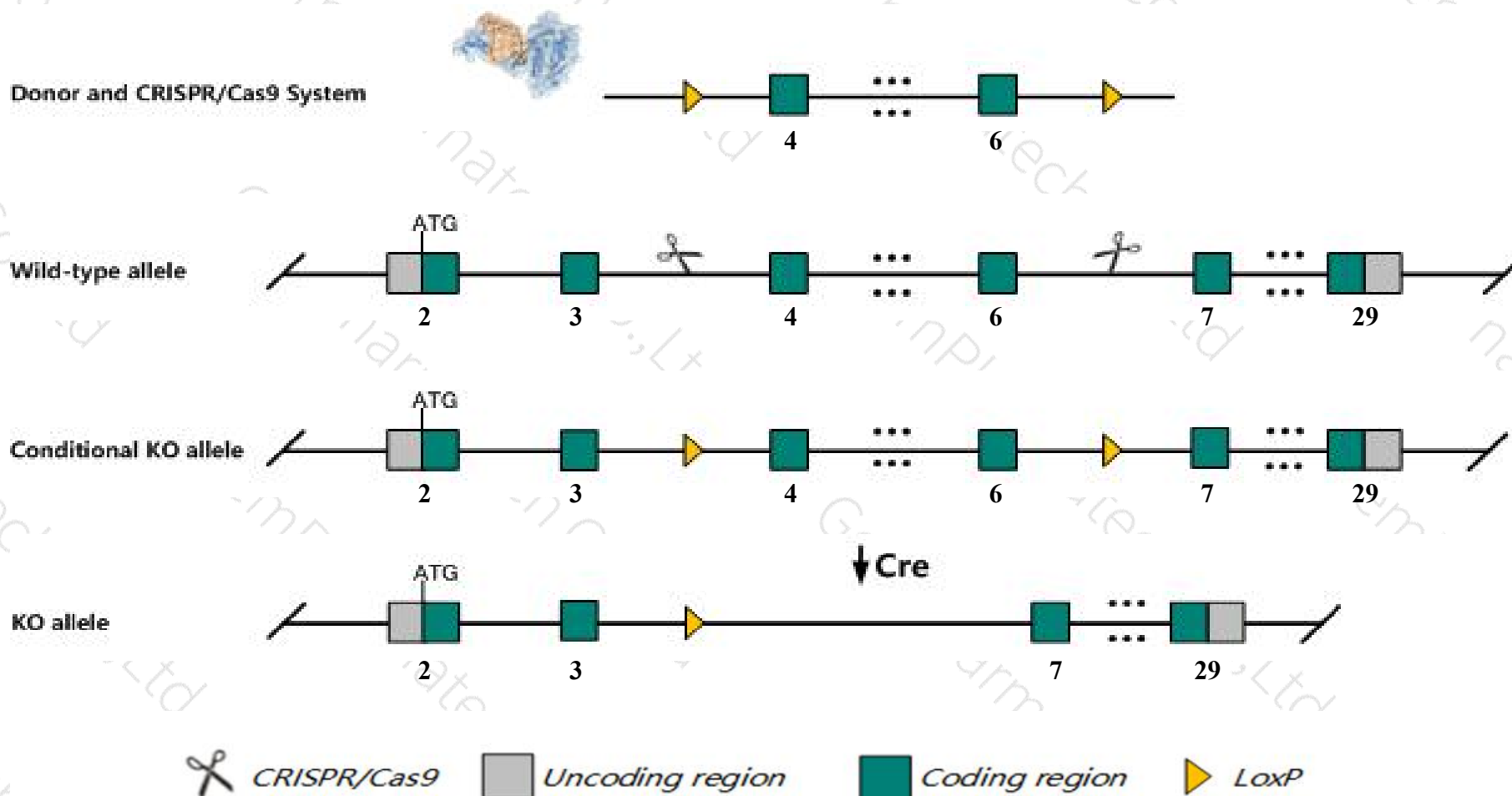
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mcm3ap* gene. The schematic diagram is as follows:



Technical routes

- The *Mcm3ap* gene has 6 transcripts. According to the structure of *Mcm3ap* gene, exon4-exon6 of *Mcm3ap-201* (ENSMUST00000170795.2) transcript is recommended as the knockout region. The region contains 412bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Mcm3ap* 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.

- According to the existing MGI data, Mice homozygous for a null allele die by E12.
- The *Mcm3ap* gene is located on the Chr10. 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)

Mcm3ap minichromosome maintenance complex component 3 associated protein [Mus musculus (house mouse)]

Gene ID: 54387, updated on 19-Mar-2019

Summary



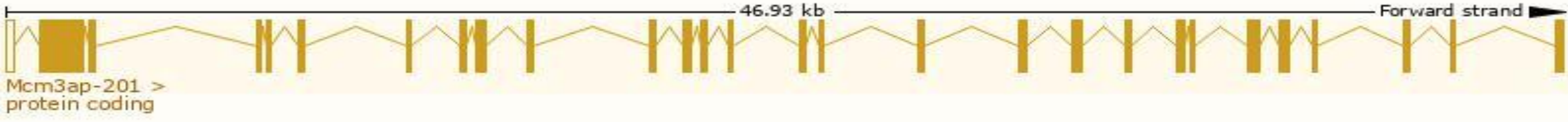
Official Symbol	Mcm3ap provided by MGI
Official Full Name	minichromosome maintenance complex component 3 associated protein provided by MGI
Primary source	MGI:MGI:1930089
See related	Ensembl:ENSMUSG00000001150
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	GANP
Expression	Ubiquitous expression in thymus adult (RPKM 11.2), CNS E14 (RPKM 10.8) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

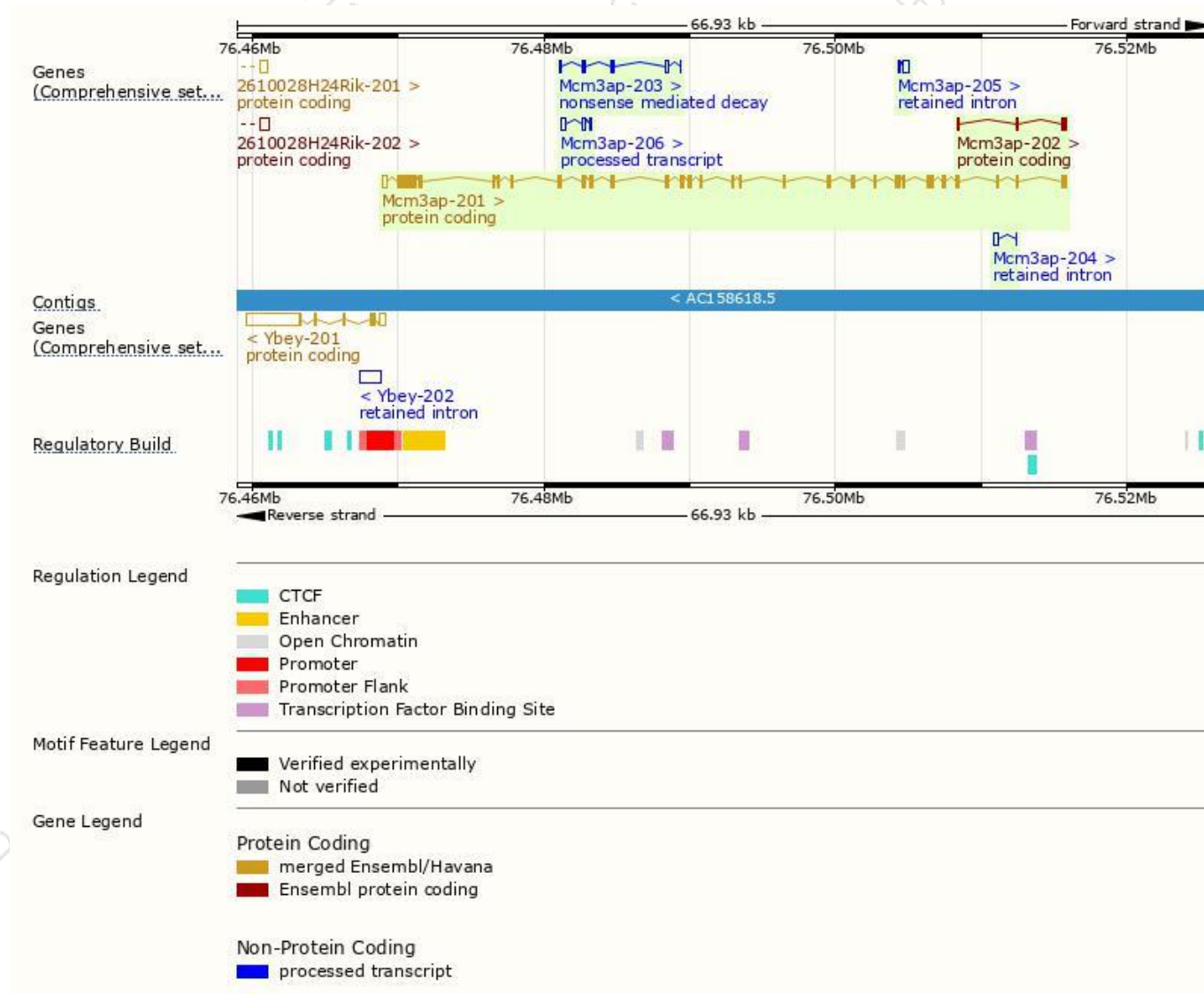
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mcm3ap-201	ENSMUST00000170795.2	6427	1971aa	Protein coding	CCDS23947	Q9WUU9	TSL:1 GENCODE basic APPRIS P1
Mcm3ap-202	ENSMUST00000218361.1	465	116aa	Protein coding	-	A0A1W2P8E2	CDS 5' incomplete TSL:3
Mcm3ap-203	ENSMUST00000218881.1	578	81aa	Nonsense mediated decay	-	A0A1W2P6M1	CDS 5' incomplete TSL:5
Mcm3ap-206	ENSMUST00000220410.1	698	No protein	Processed transcript	-	-	TSL:3
Mcm3ap-205	ENSMUST00000219811.1	565	No protein	Retained intron	-	-	TSL:2
Mcm3ap-204	ENSMUST00000218904.1	378	No protein	Retained intron	-	-	TSL:3

The strategy is based on the design of *Mcm3ap-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain

ENSMUSP00000125...

MobiDB lite

Low complexity (Seq)

Conserved Domains

Coiled-coils (Ncoils)

hmmpanther

PTHR12436

PTHR12436:SF27

Superfamily domains

RNA-binding domain superfamily

Pfam domain

SAC3/GANP/THP3

Germinal-centre associated nuclear protein, CID domain

Germinal-centre associated nuclear protein, nucleoporin homology domain

Germinal-centre associated nuclear protein, MCM

PROSITE profiles

Proteasome component (PCI) domain

Gene3D

1.25.40.990

All sequence SNPs/i....

Sequence variants (dbSNP and all other sources)

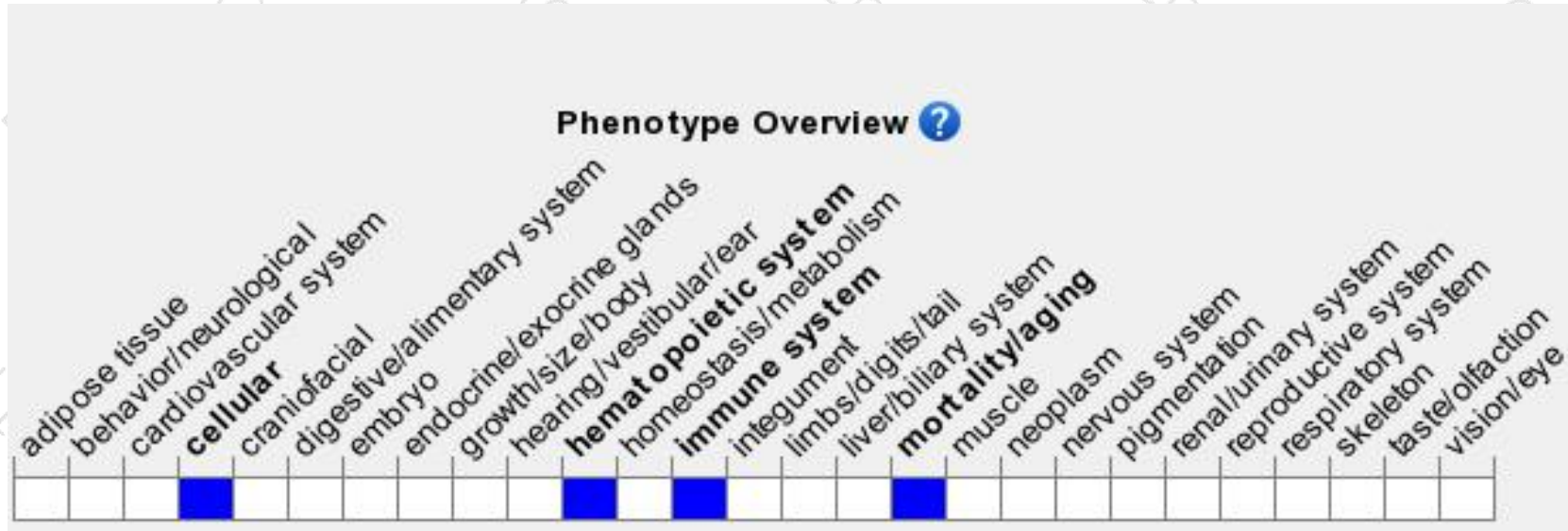
Variant Legend

- inframe insertion
- missense variant
- splice region variant
- synonymous variant

Scale bar

0 200 400 600 800 1000 1200 1400 1600 1800 1971

Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

According to the existing MGI data, Mice homozygous for a null allele die by E12.

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

Tel: 400-9660890

