

Micall1 Cas9-CKO Strategy

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Project Overview

Project Name

Micall1

Project type

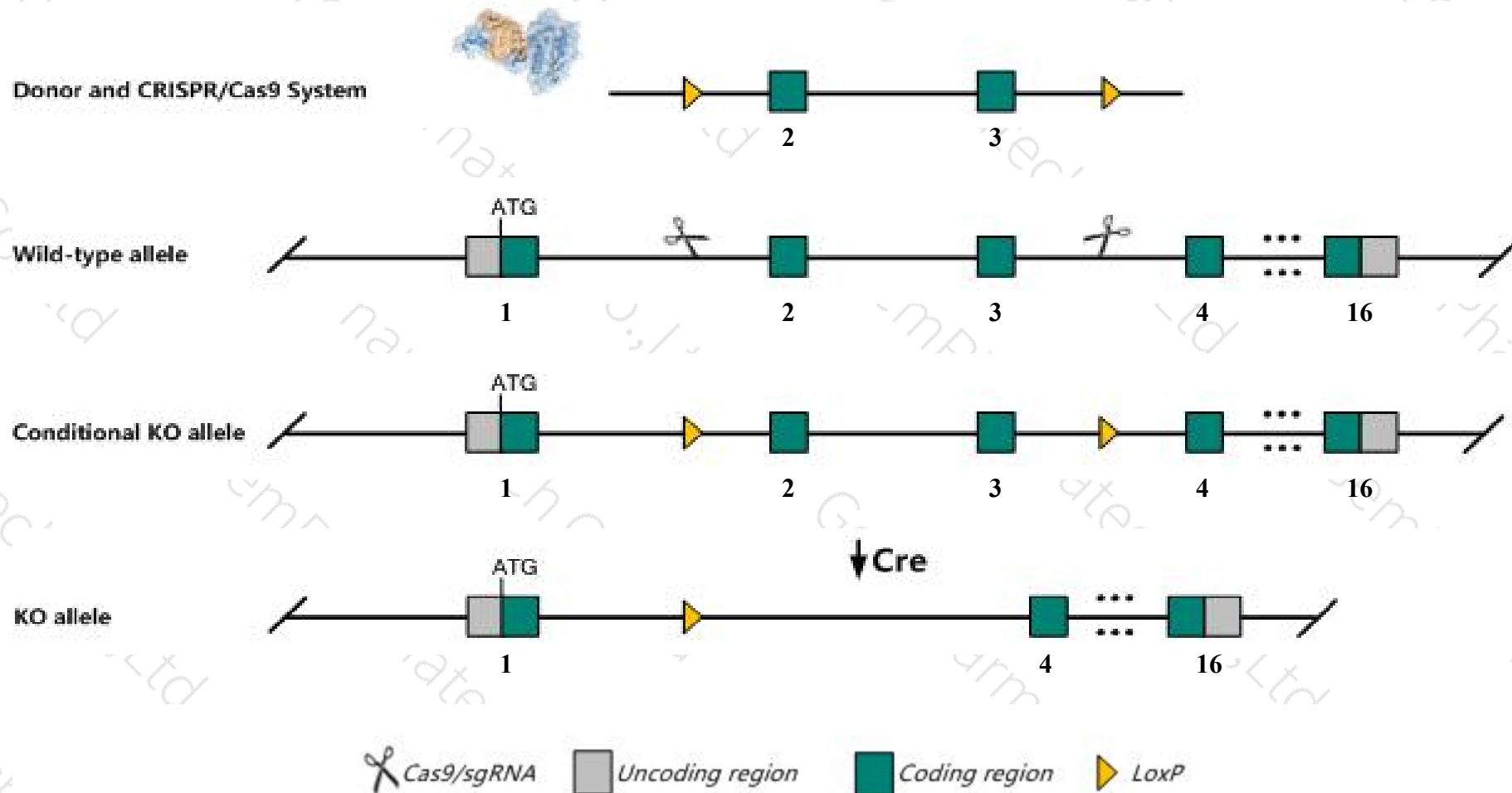
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Micall1* gene. The schematic diagram is as follows:



Technical routes

- The *Micall1* gene has 8 transcripts. According to the structure of *Micall1* gene, exon2-exon3 of *Micall1-201*(ENSMUST00000040320.9) transcript is recommended as the knockout region. The region contains 191bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Micall1* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was 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 *Micall1* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Micall1 microtubule associated monooxygenase, calponin and LIM domain containing -like 1 [Mus musculus (house mouse)]

Gene ID: 27008, updated on 13-Mar-2020

Summary



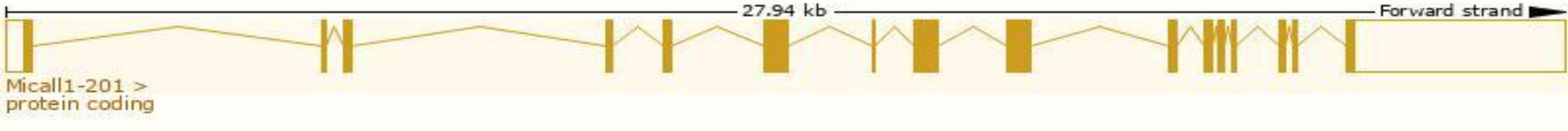
Official Symbol	Micall1 provided by MGI
Official Full Name	microtubule associated monooxygenase, calponin and LIM domain containing -like 1 provided by MGI
Primary source	MGI:MGI:105870
See related	Ensembl:ENSMUSG00000033039
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI448246, D15Mit260, D15N2e, EST573322, EST820961, MIRab13, mKIAA1668
Expression	Ubiquitous expression in adrenal adult (RPKM 29.6), testis adult (RPKM 25.5) and 25 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

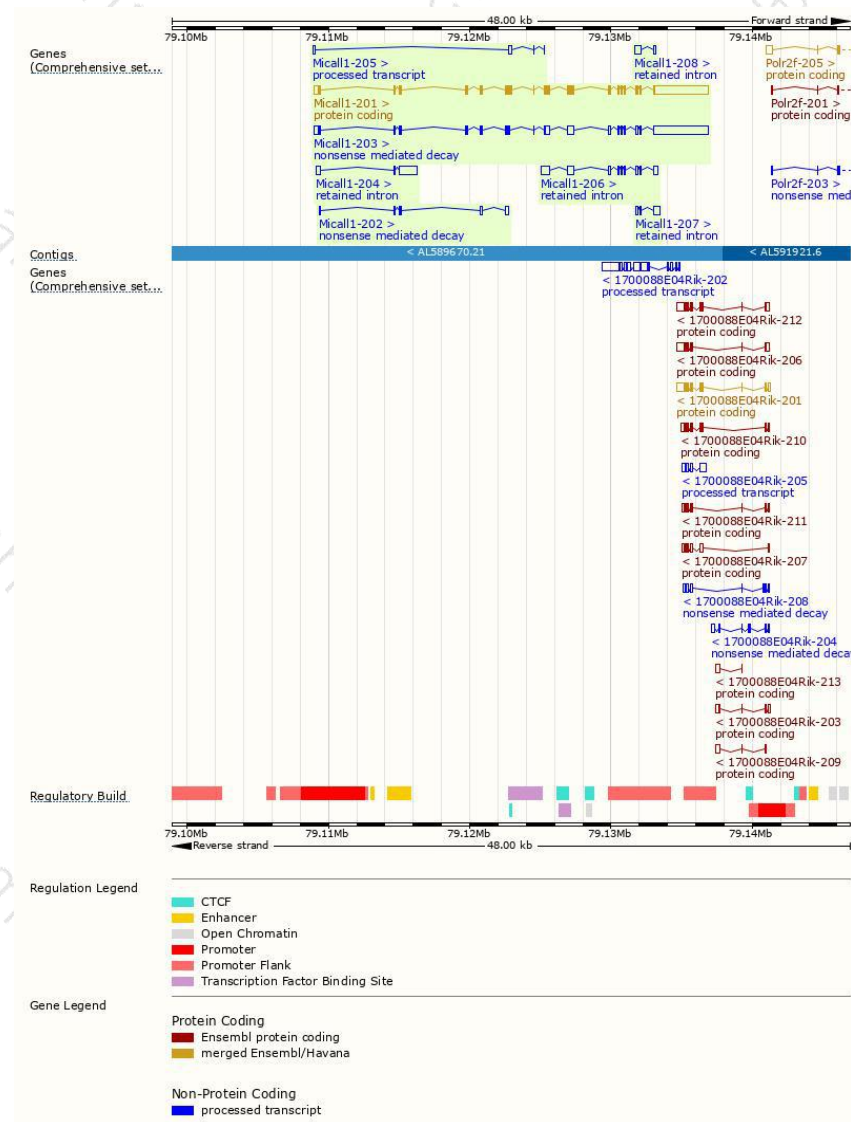
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Micall1-201	ENSMUST00000040320.9	6712	870aa	Protein coding	CCDS49667	Q8BGT6	TSL:1 GENCODE basic APPRIS P1
Micall1-203	ENSMUST00000229031.1	6490	324aa	Nonsense mediated decay	-	A0A2R8W6G4	
Micall1-202	ENSMUST00000229004.1	661	98aa	Nonsense mediated decay	-	A0A2R8W6U3	CDS 5' incomplete
Micall1-205	ENSMUST00000229113.1	468	No protein	Processed transcript	-	-	
Micall1-206	ENSMUST00000229694.1	1907	No protein	Retained intron	-	-	
Micall1-204	ENSMUST00000229048.1	1580	No protein	Retained intron	-	-	
Micall1-207	ENSMUST00000230202.1	700	No protein	Retained intron	-	-	
Micall1-208	ENSMUST00000230779.1	605	No protein	Retained intron	-	-	

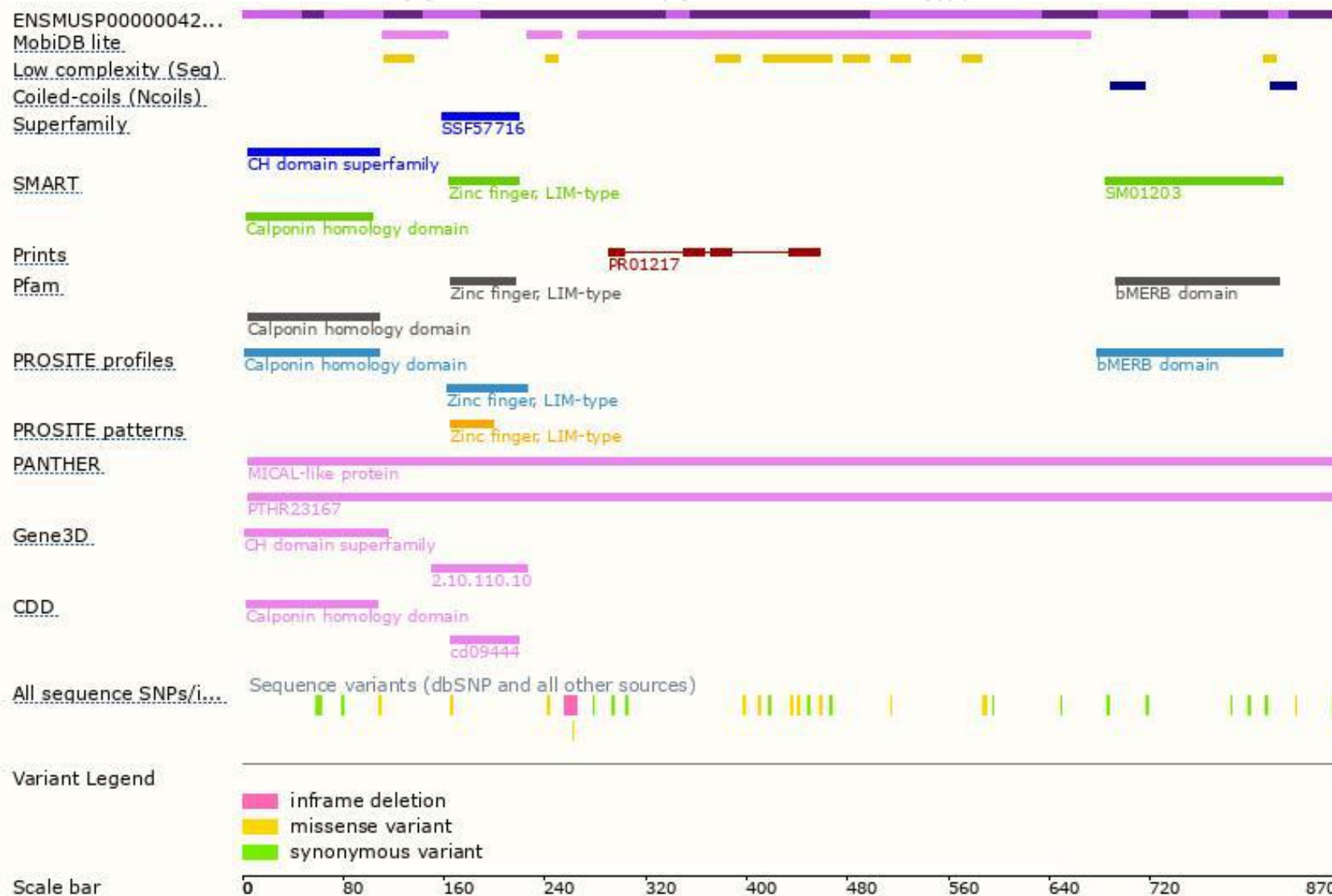
The strategy is based on the design of *Micall1-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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