

March1 Cas9-CKO Strategy

Designer:

Daohua Xu

Reviewer:

Huimin Su

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Project Overview

Project Name

March1

Project type

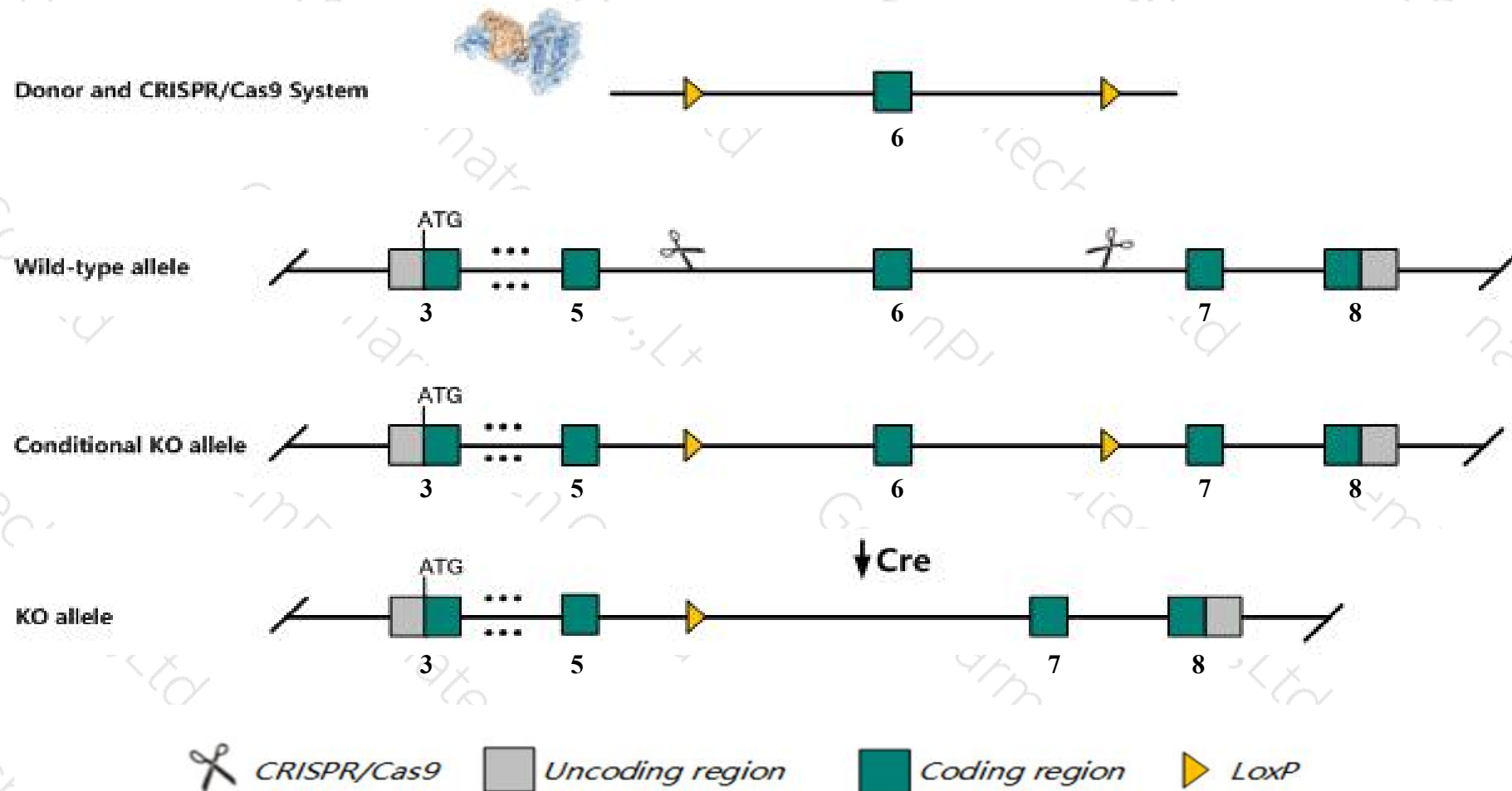
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *March1* gene. The schematic diagram is as follows:



Technical routes

- The *March1* gene has 11 transcripts. According to the structure of *March1* gene, exon6 of *March1*-205 (ENSMUST00000110255.7) transcript is recommended as the knockout region. The region contains 181bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *March1* 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 knock-out allele exhibit abnormal dendritic cell morphology and physiology.
- The *March1* 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)

March1 membrane-associated ring finger (C3HC4) 1 [Mus musculus (house mouse)]

Gene ID: 72925, updated on 25-Mar-2019

Summary



Official Symbol	March1 provided by MGI
Official Full Name	membrane-associated ring finger (C3HC4) 1 provided by MGI
Primary source	MGI:MGI:1920175
See related	Ensembl:ENSMUSG00000036469
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	2900024D24Rik, BB085186
Expression	Broad expression in CNS E18 (RPKM 3.6), spleen adult (RPKM 2.6) and 17 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

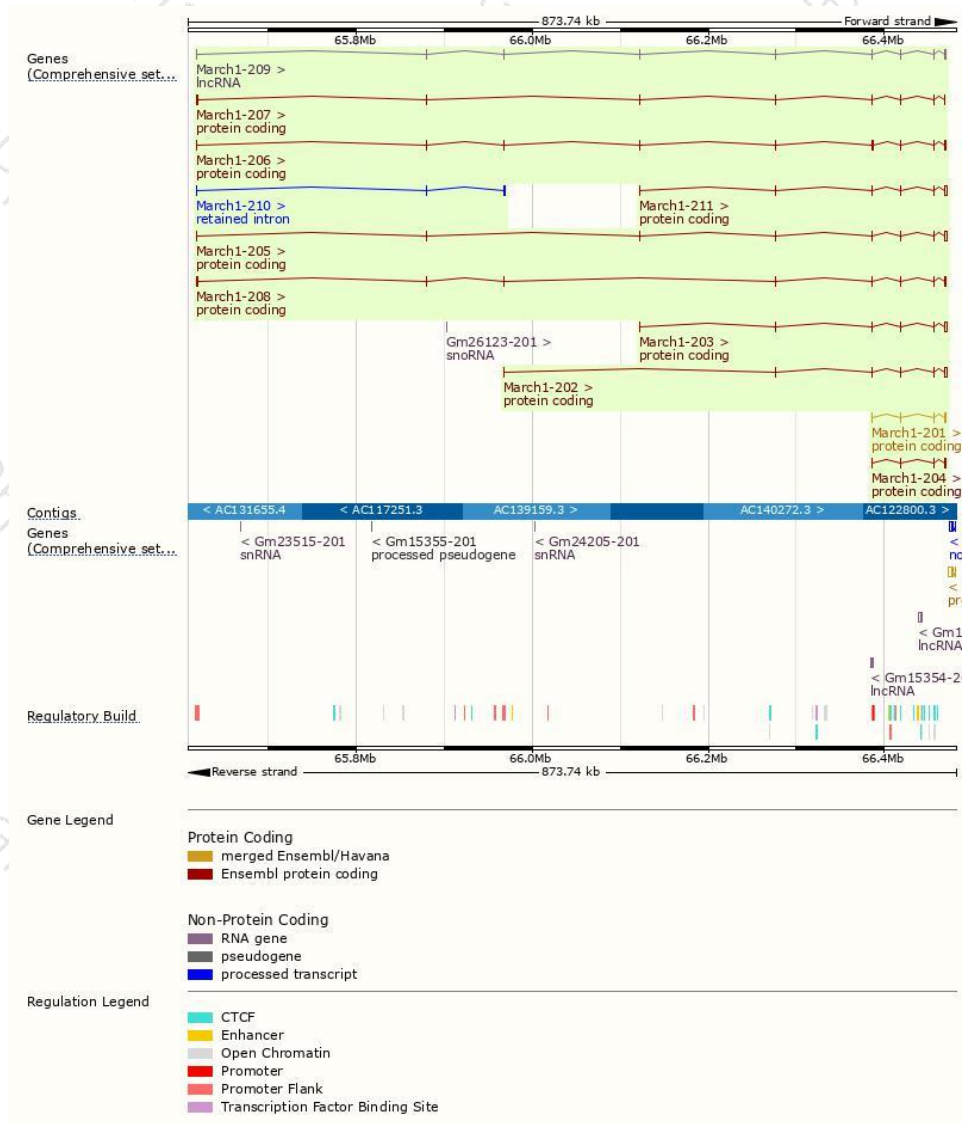
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
March1-205	ENSMUST00000110255.7	4177	285aa	Protein coding	CCDS52560	Q6NZQ8	TSL:1 GENCODE basic APPRIS P3
March1-211	ENSMUST00000178982.7	4012	289aa	Protein coding	CCDS80884	Q6NZQ8	TSL:5 GENCODE basic APPRIS ALT 1
March1-203	ENSMUST00000098708.10	4000	285aa	Protein coding	CCDS52560	Q6NZQ8	TSL:5 GENCODE basic APPRIS P3
March1-202	ENSMUST00000072482.12	3953	285aa	Protein coding	CCDS22333	Q6NZQ8	TSL:5 GENCODE basic
March1-208	ENSMUST00000110259.7	3181	285aa	Protein coding	CCDS22333	Q6NZQ8	TSL:1 GENCODE basic
March1-201	ENSMUST00000039540.11	2733	275aa	Protein coding	CCDS52561	Q6NZQ8	TSL:1 GENCODE basic
March1-207	ENSMUST00000110258.7	2581	289aa	Protein coding	CCDS80884	Q6NZQ8	TSL:5 GENCODE basic APPRIS ALT 1
March1-206	ENSMUST00000110256.7	3288	540aa	Protein coding	-	D3YVY0	TSL:5 GENCODE basic
March1-204	ENSMUST00000110253.2	2748	279aa	Protein coding	-	Q6NZQ8	TSL:1 GENCODE basic
March1-210	ENSMUST00000155804.7	1505	No protein	Retained intron	-	-	TSL:1
March1-209	ENSMUST00000152320.7	2907	No protein	lncRNA	-	-	TSL:1

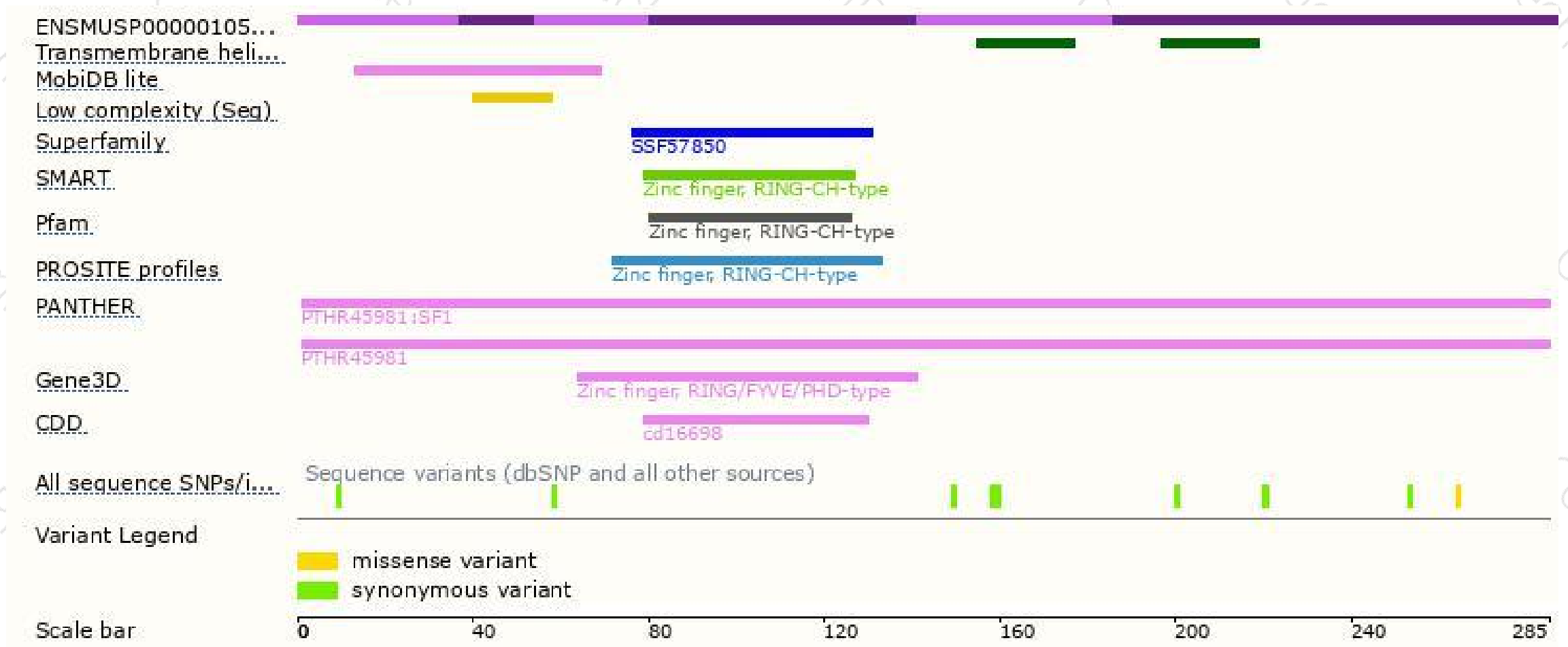
The strategy is based on the design of *March1-205* transcript,The transcription is shown below



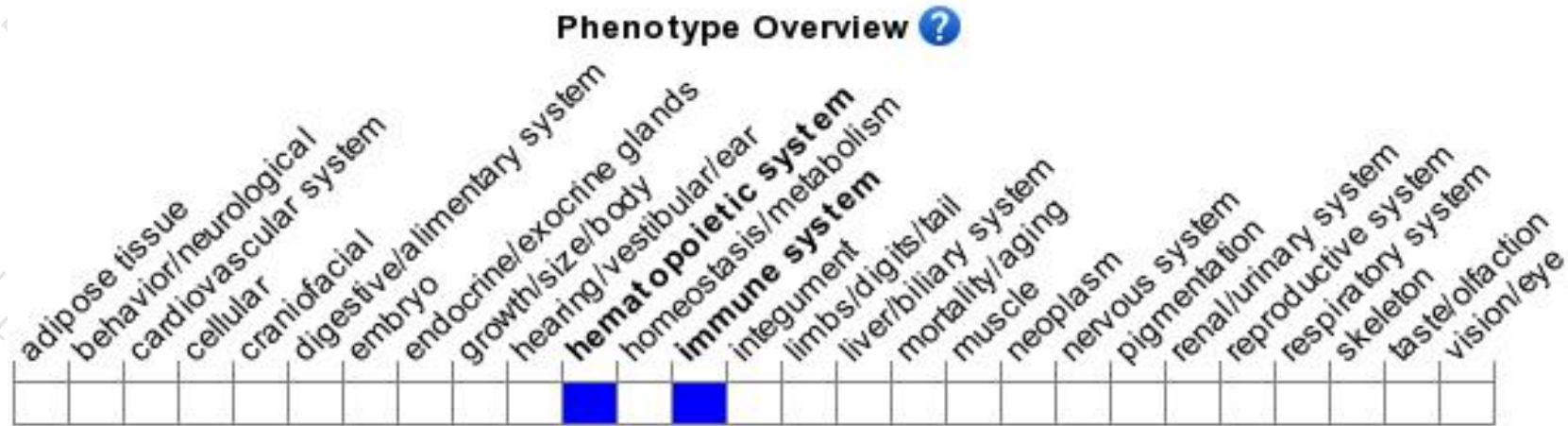
Genomic location distribution



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/>).

According to the existing MGI data, Mice homozygous for a knock-out allele exhibit abnormal dendritic cell morphology and physiology.

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

Tel: 400-9660890

