

Myo1f Cas9-CKO Strategy

Designer:

Daohua Xu

Design Date:

2019-7-22

Project Overview

Project Name

Myo1f

Project type

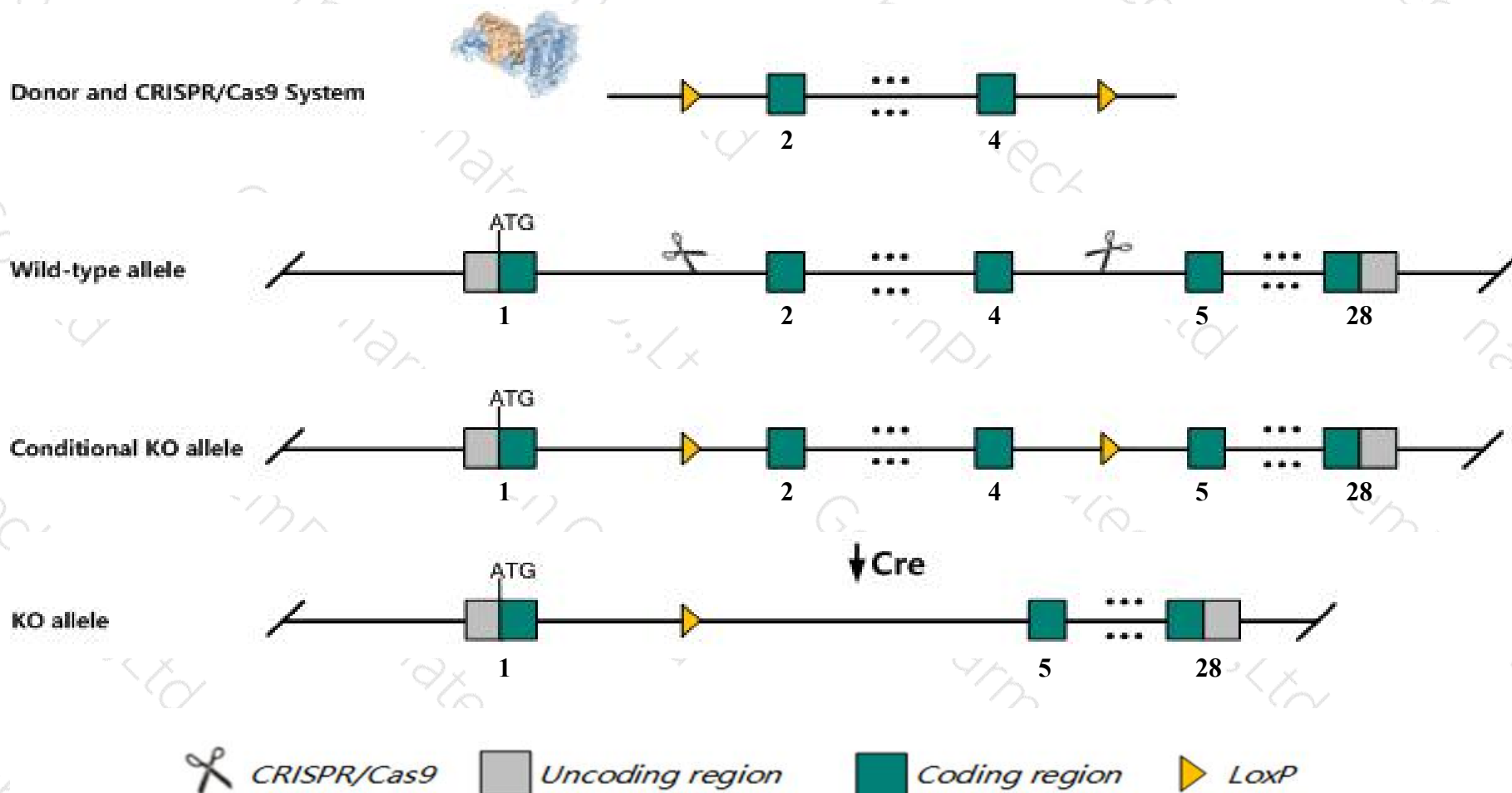
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Myo1f* gene. The schematic diagram is as follows:



Technical routes

- The *Myo1f* gene has 5 transcripts. According to the structure of *Myo1f* gene, exon2-exon4 of *Myo1f*-201 (ENSMUST00000087605.12) transcript is recommended as the knockout region. The region contains 323bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Myo1f* 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 impaired neutrophil migration and adhesion.
- The *Myo1f* gene is located on the Chr17. 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)

Myo1f myosin IF [Mus musculus (house mouse)]

Gene ID: 17916, updated on 31-Jan-2019

Summary



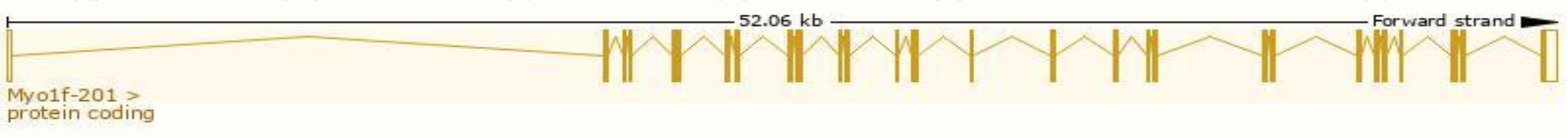
Official Symbol	Myo1f provided by MGI
Official Full Name	myosin IF provided by MGI
Primary source	MGI:MGI:107711
See related	Ensembl:ENSMUSG00000024300
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	C330006B10Rik
Expression	Broad expression in spleen adult (RPKM 12.7), lung adult (RPKM 7.1) and 18 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

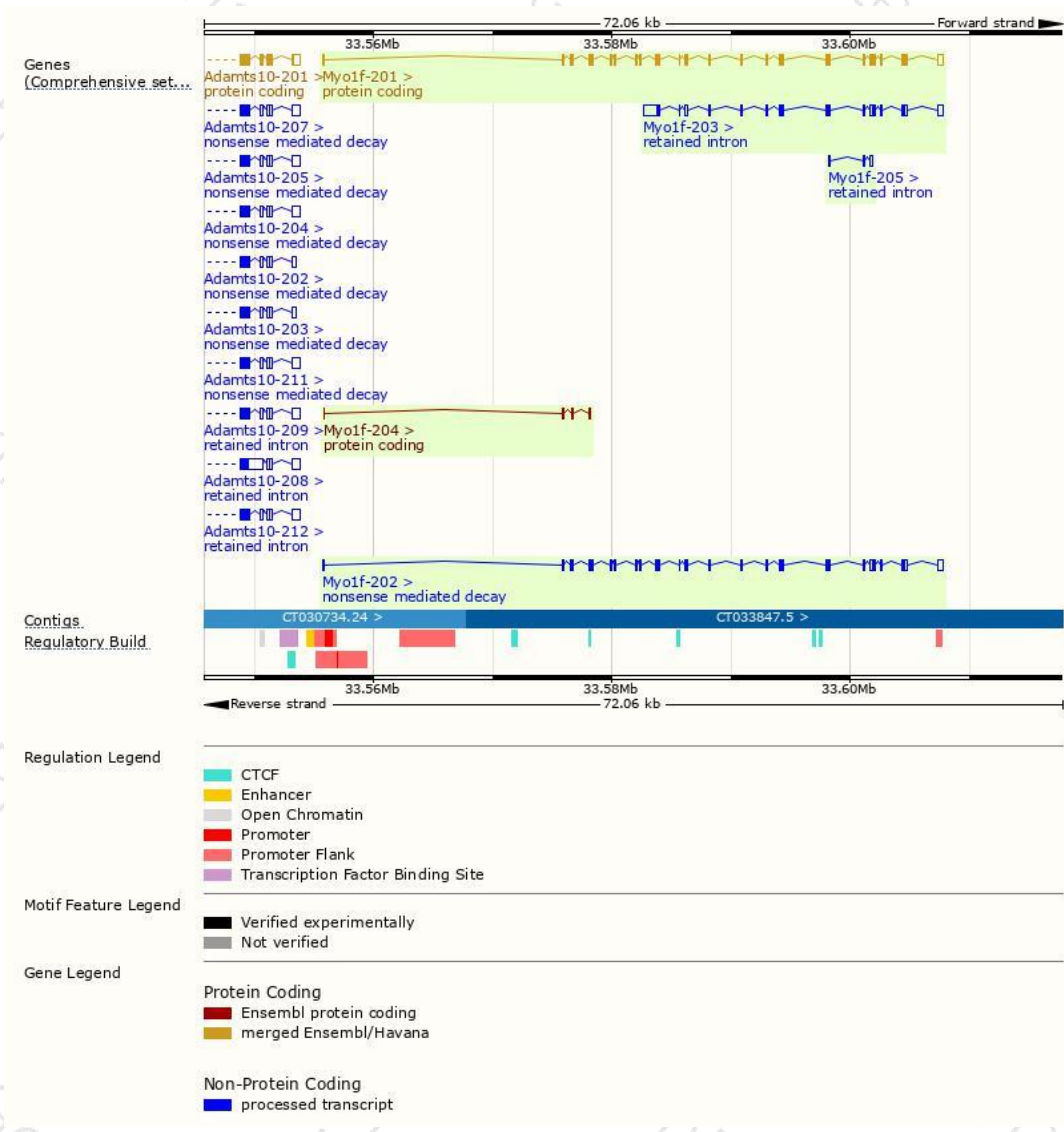
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Myo1f-201	ENSMUST00000087605.12	3831	1098aa	Protein coding	CCDS37567	Q8CG29	TSL:1 GENCODE basic APPRIS P1
Myo1f-204	ENSMUST00000174695.1	382	97aa	Protein coding	-	G3UZR3	CDS 3' incomplete TSL:2
Myo1f-202	ENSMUST00000173372.7	3800	785aa	Nonsense mediated decay	-	G3V011	TSL:1
Myo1f-203	ENSMUST00000173426.1	3667	No protein	Retained intron	-	-	TSL:1
Myo1f-205	ENSMUST00000235099.1	507	No protein	Retained intron	-	-	

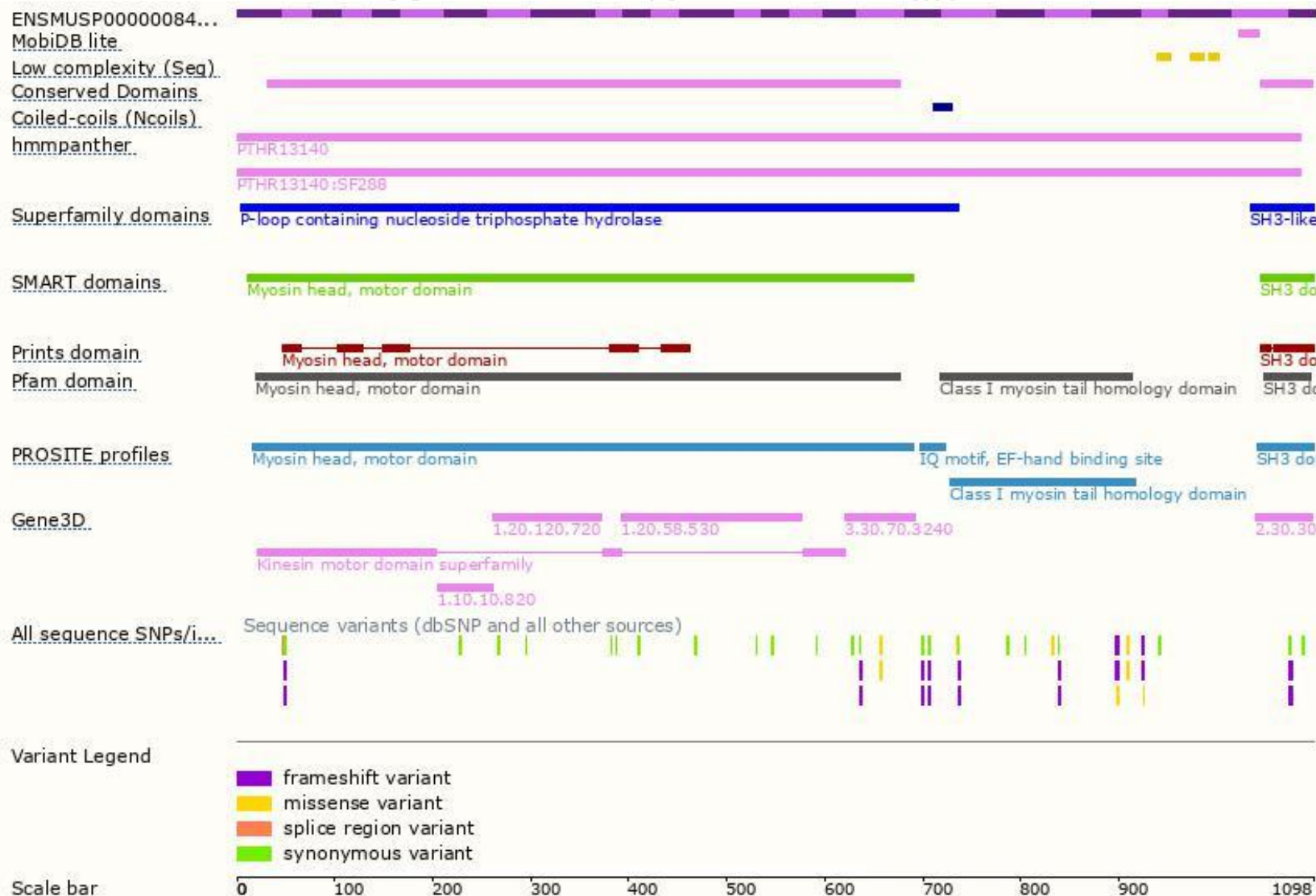
The strategy is based on the design of *Myo1f-201* transcript,The transcription is shown below



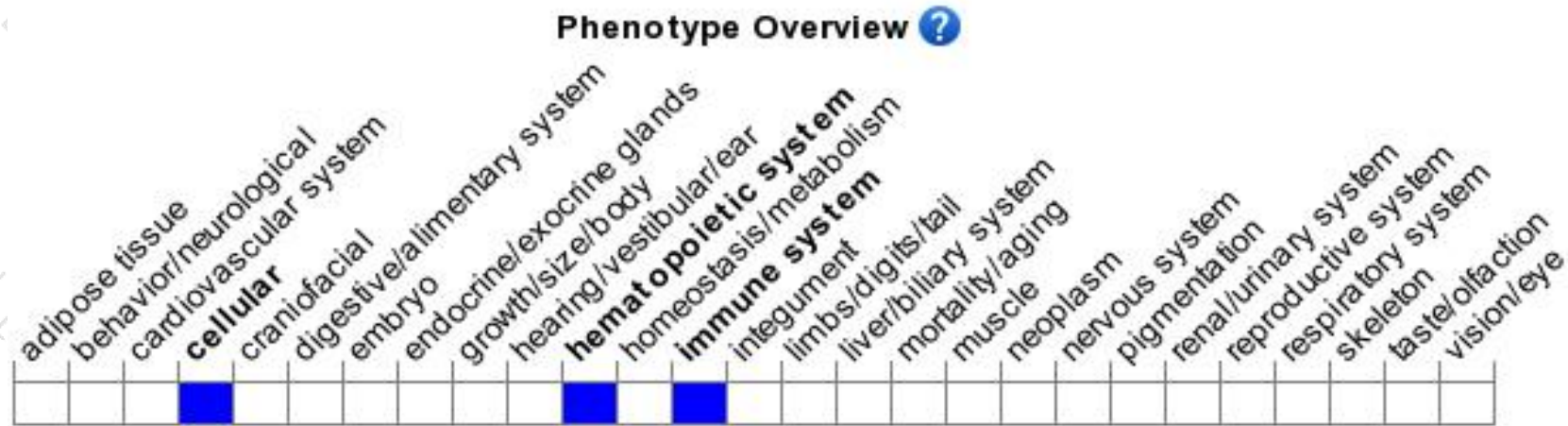
Genomic location distribution



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/>).

According to the existing MGI data, Mice homozygous for a knock-out allele exhibit impaired neutrophil migration and adhesion.

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

Tel: 400-9660890

