Myo9b Cas9-CKO Strategy

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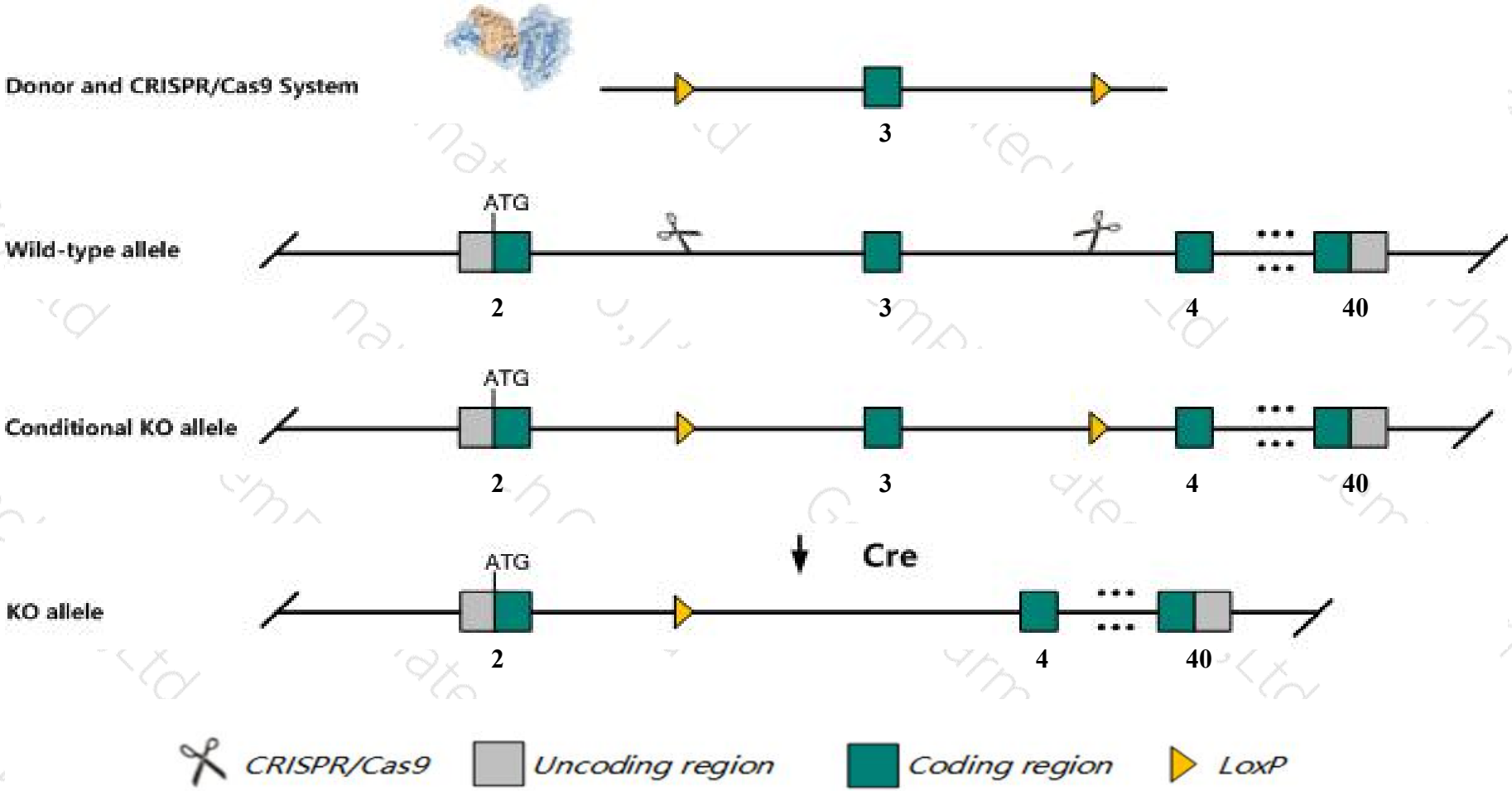
Design Date: 2020-3-6

Project Overview

Project Name	***Myo9b***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Myo9b* gene. The schematic diagram is as follows:



Technical routes

- The *Myo9b* gene has 6 transcripts. According to the structure of *Myo9b* gene, exon3 of *Myo9b-203* (ENSMUST00000170242.7) transcript is recommended as the knockout region.The region contains 95bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Myo9b* 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.

Notice

- According to the existing MGI data,Homozygous null mutants breed normal, but shows defect in macrophage motility and chemotaxis.

- The *Myo9b* 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）

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Myo9b myosin IXb [Mus musculus (house mouse)]

Gene ID: 17925, updated on 31-Jan-2019

Summary

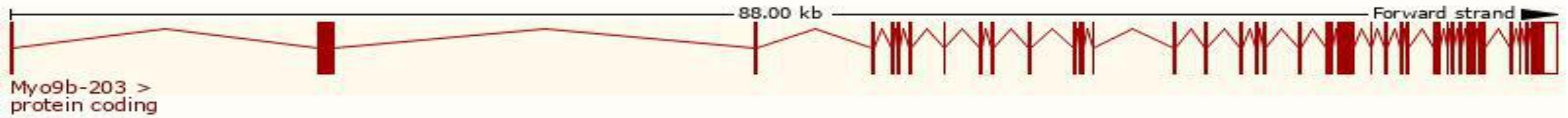
Official Symbol	Myo9b provided by MGI
Official Full Name	myosin IXb provided by MGI
Primary source	MGI:MGI:106624
See related	Ensembl:ENSMUSG00000004677
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Expression	Ubiquitous expression in thymus adult (RPKM 15.8), spleen adult (RPKM 13.0) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

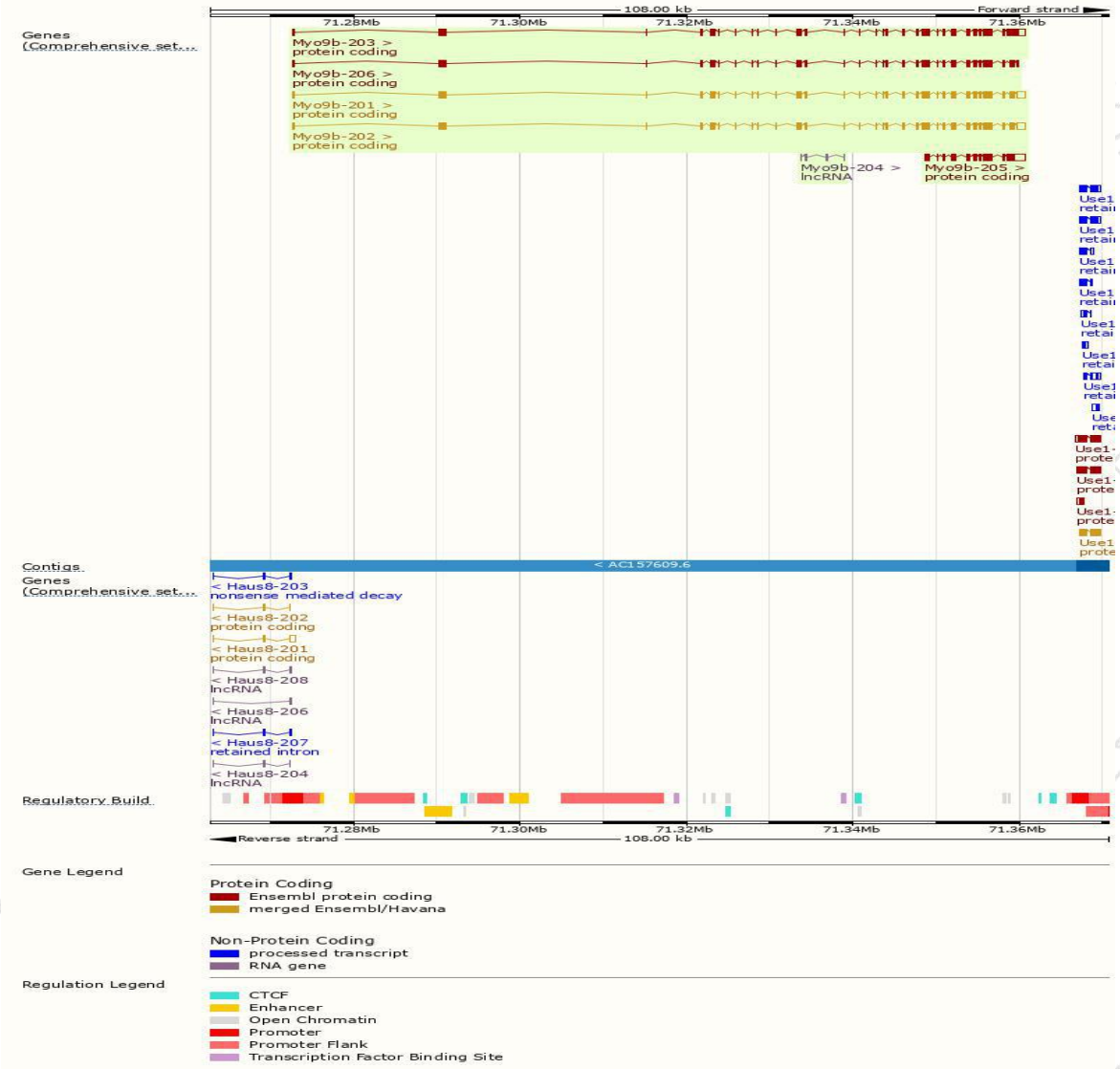
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Myo9b-203	ENSMUST00000170242.7	7297	2128aa	Protein coding	CCDS52580	E9PZW8	TSL:5 GENCODE basic APPRIS ALT2
Myo9b-202	ENSMUST00000168839.8	7102	1975aa	Protein coding	CCDS52581	E9PWZ6	TSL:5 GENCODE basic APPRIS ALT2
Myo9b-201	ENSMUST00000071935.6	7082	1961aa	Protein coding	CCDS40379	E9QKV6	TSL:5 GENCODE basic APPRIS P3
Myo9b-206	ENSMUST00000212935.1	6316	1963aa	Protein coding	-	A0A1D5RLD1	TSL:5 GENCODE basic APPRIS ALT2
Myo9b-205	ENSMUST00000212412.1	3614	787aa	Protein coding	-	A0A1D5RLW4	CDS 5' incomplete TSL:5
Myo9b-204	ENSMUST00000212173.2	289	No protein	lncRNA	-	-	TSL:1

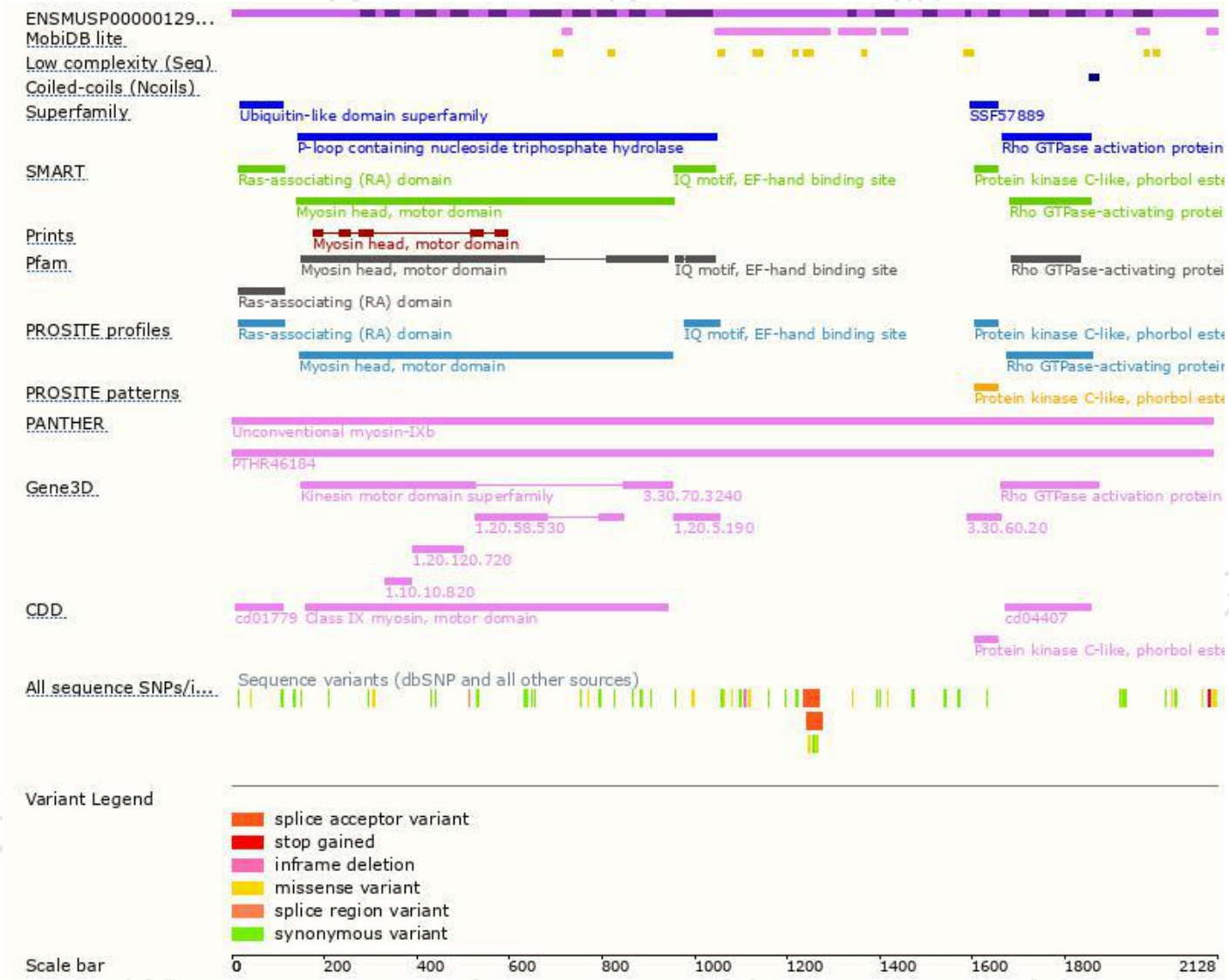
The strategy is based on the design of *Myo9b-203* transcript,The transcription is shown below



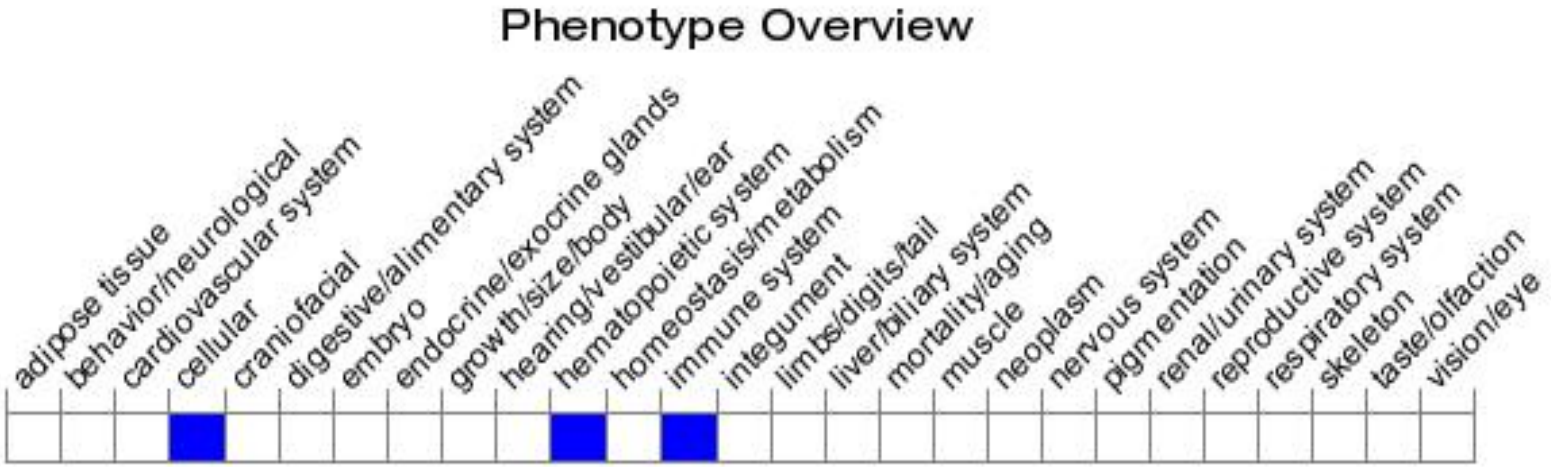
Genomic location distribution



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/).

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

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