Flnc Cas9-CKO Strategy

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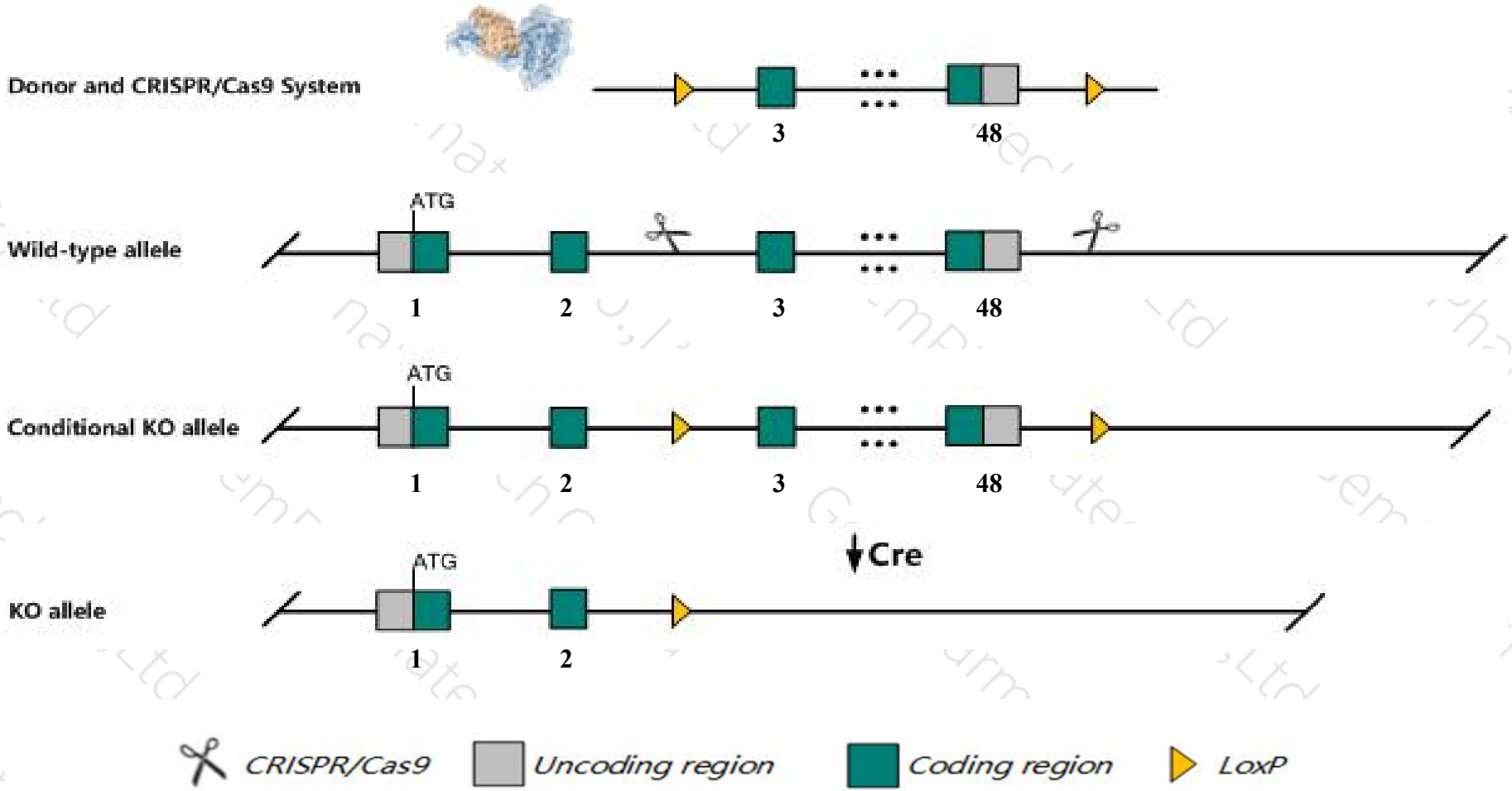
Design Date:2020-3-9

Project Overview

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

Conditional Knockout strategy

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



Technical routes

- The *Flnc* gene has 3 transcripts. According to the structure of *Flnc* gene, exon3-exon48 of *Flnc-201* (ENSMUST00000065090.7) transcript is recommended as the knockout region.The region contains 7577bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Flnc* 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,Mice homozygous for a hypomorphic allele display neonatal lethality, respiratory failure, reduced skeletal muscle mass, and abnormal skeletal muscle fiber morphology.

- The *Flnc* gene is located on the Chr6. 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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Flnc filamin C, gamma [*Mus musculus* (house mouse)]

Gene ID: 68794, updated on 12-Aug-2019

Summary

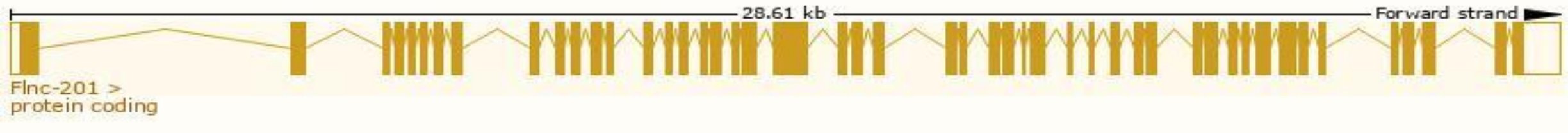
Official Symbol	Flnc provided by MGI
Official Full Name	filamin C, gamma provided by MGI
Primary source	MGI:MGI:95557
See related	Ensembl:ENSMUSG00000068699
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	ABPL; Fln2; ABP-280; 1110055E19Rik
Expression	Broad expression in bladder adult (RPKM 22.4), heart adult (RPKM 22.2) and 16 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

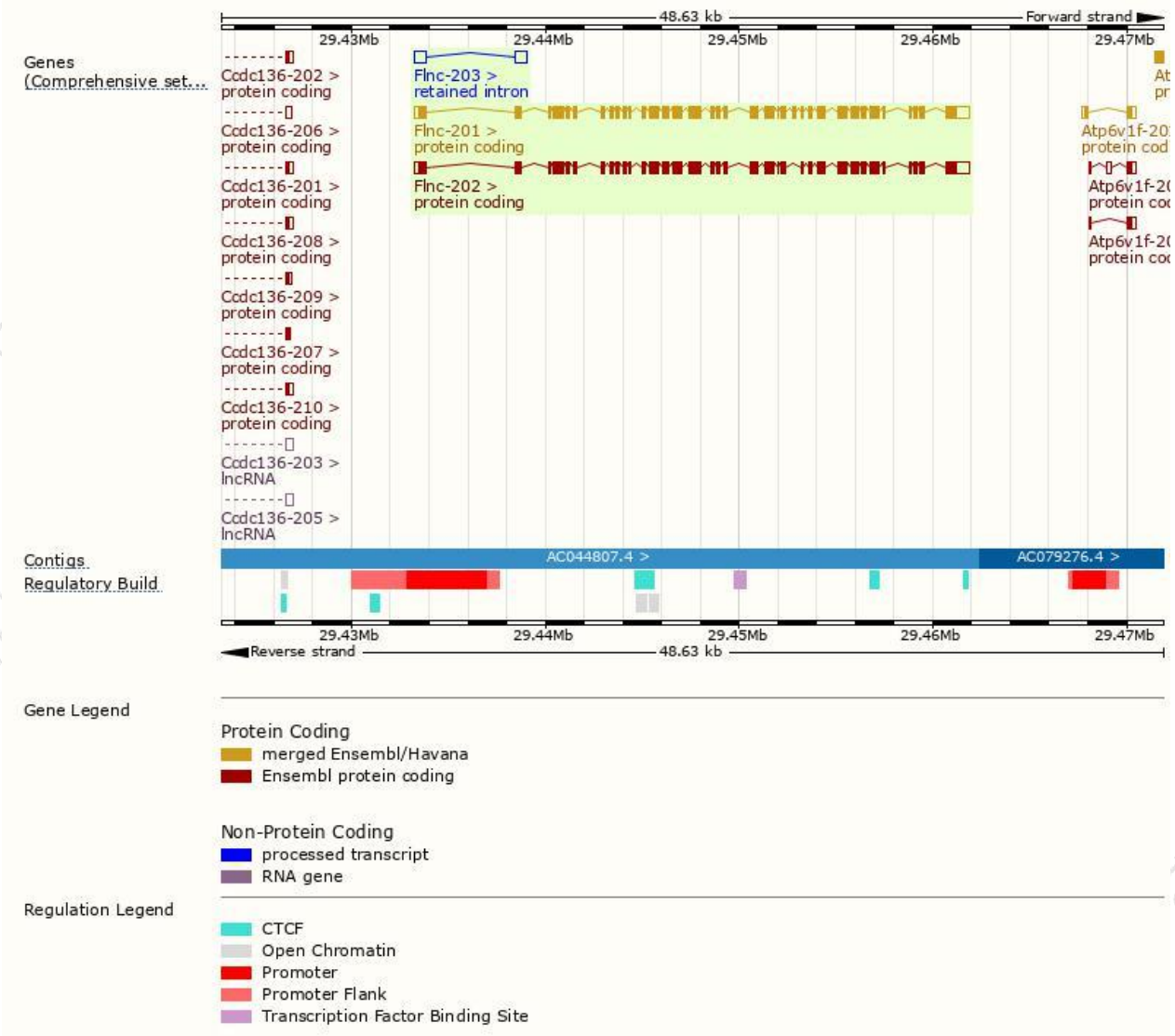
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Flnc-201	ENSMUST00000065090.7	9038	2726aa	Protein coding	CCDS39452	Q8VHX6	TSL:1 GENCODE basic
Flnc-202	ENSMUST00000101617.8	8939	2693aa	Protein coding	CCDS80503	Q8VHX6	TSL:1 GENCODE basic APPRIS P1
Flnc-203	ENSMUST00000148404.1	1151	No protein	Retained intron	-	-	TSL:1

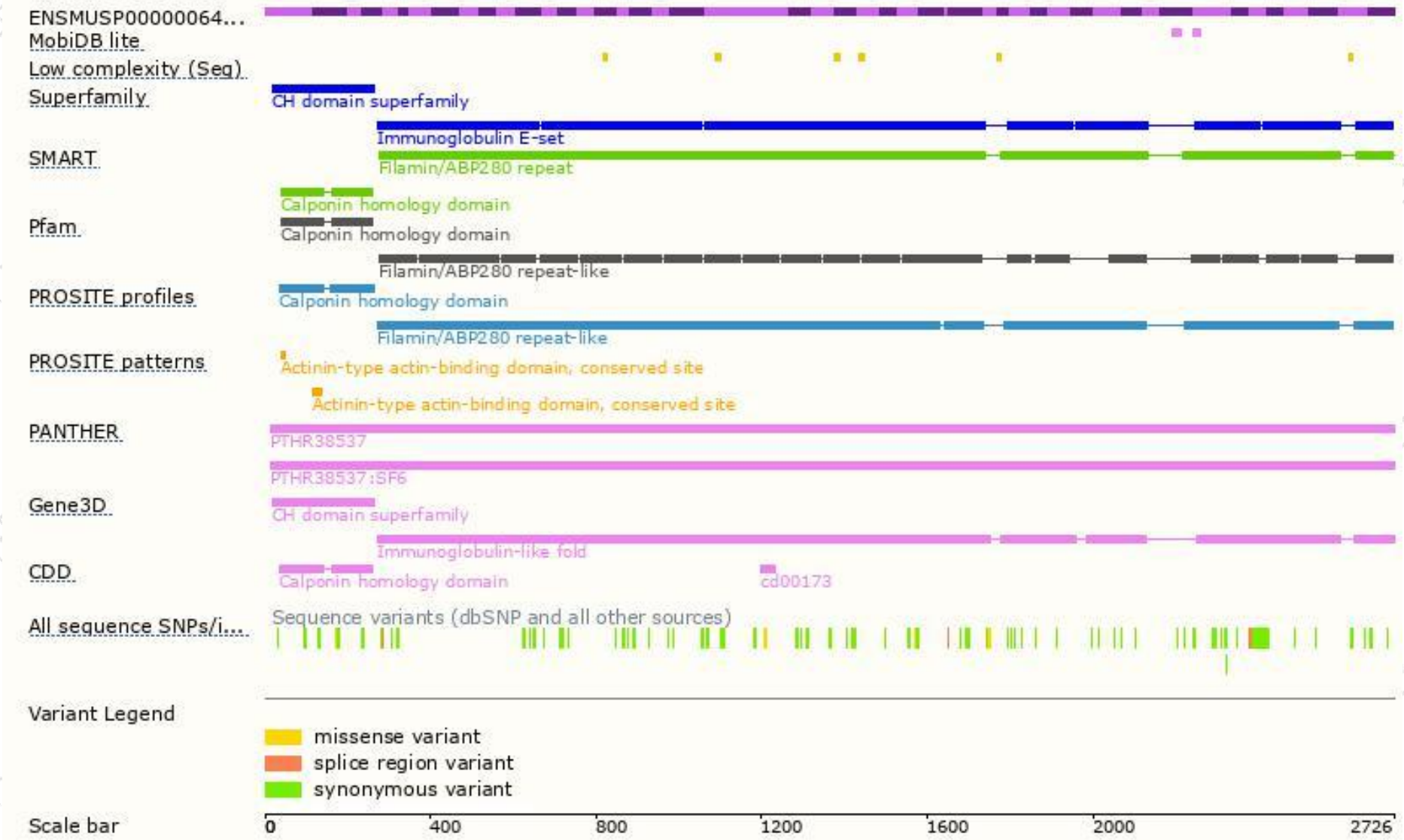
The strategy is based on the design of *Flnc-201* transcript,The transcription is shown below



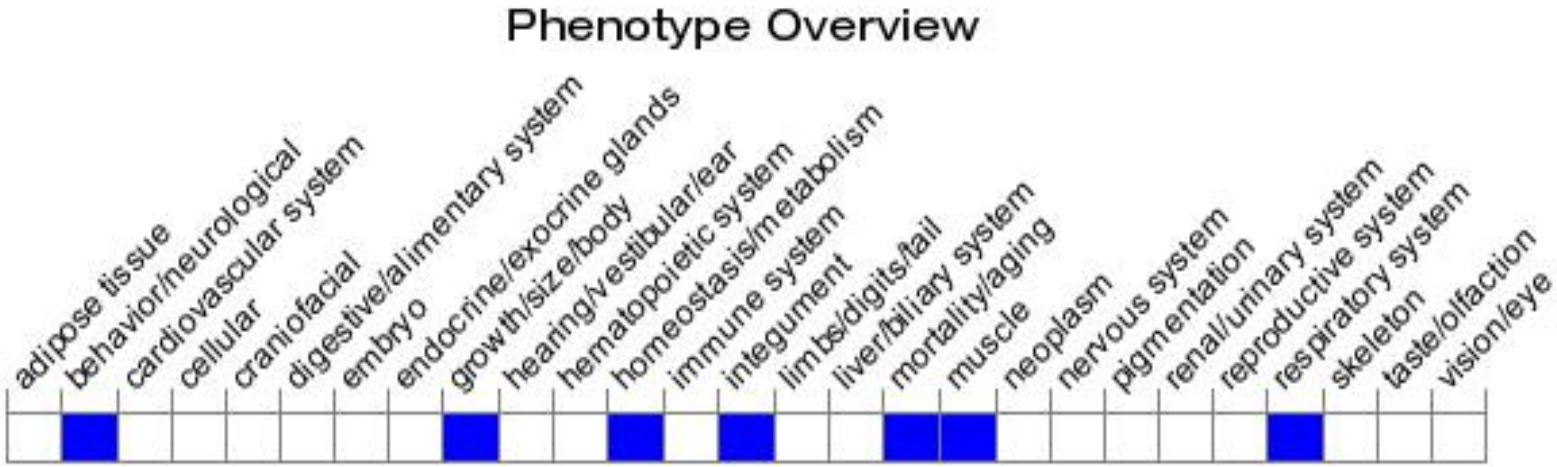
Genomic location distribution



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 hypomorphic allele display neonatal lethality, respiratory failure, reduced skeletal muscle mass, and abnormal skeletal muscle fiber morphology.

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

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