Pdlim3 Cas9-KO Strategy

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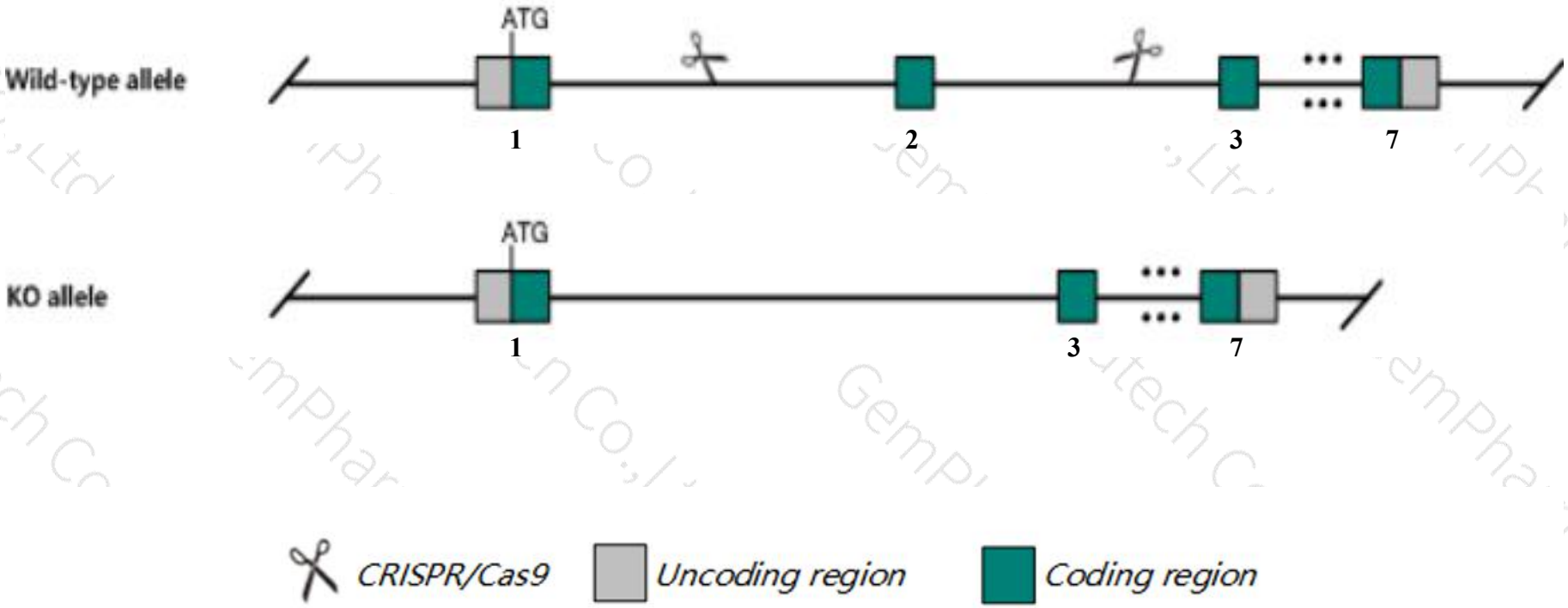
Project Overview

Project Name	***Pdlim3***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pdlim3* gene. The schematic diagram is as follows:



Technical routes

➢ The *Pdlim3* gene has 4 transcripts. According to the structure of *Pdlim3* gene, exon2 of *Pdlim3-201*(ENSMUST00000034053.6) transcript is recommended as the knockout region.The region contains 152bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Pdlim3* gene. The brief process is as follows: CRISPR/Cas9 system 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.

Notice

➢ According to the existing MGI data,homozygotes for a knock-out allele show no major defects in skeletal muscle. However, homozygotes for another knock-out allele show partial background-sensitive prenatal lethality, embryonic right ventricular (RV) dilation and dysplasia, hypotrabeculation, and RV cardiomyopathy in surviving adults.

➢ The *Pdlim3* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information （NCBI）

集萃药康 GemPharmatech

Pdlim3 PDZ and LIM domain 3 [*Mus musculus* (house mouse)]

Gene ID: 53318, updated on 26-Jun-2020

Summary

Official Symbol	Pdlim3 provided by MGI
Official Full Name	PDZ and LIM domain 3 provided by MGI
Primary source	MGI:MGI:1859274
See related	Ensembl:ENSMUSG00000031636
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	ALP; Actn2lp; AI463105
Expression	Biased expression in bladder adult (RPKM 302.3), colon adult (RPKM 44.0) and 8 other tissues See more
Orthologs	human all

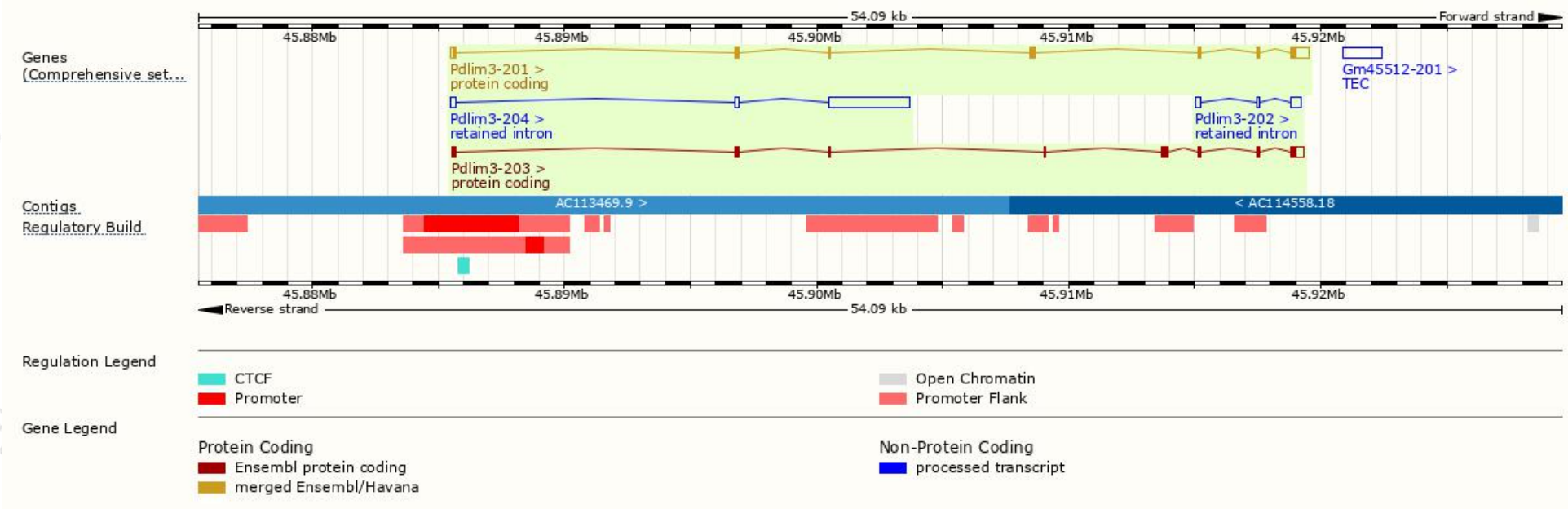
Transcript information（Ensembl）

The gene has 4 transcripts,all transcripts are shown below:

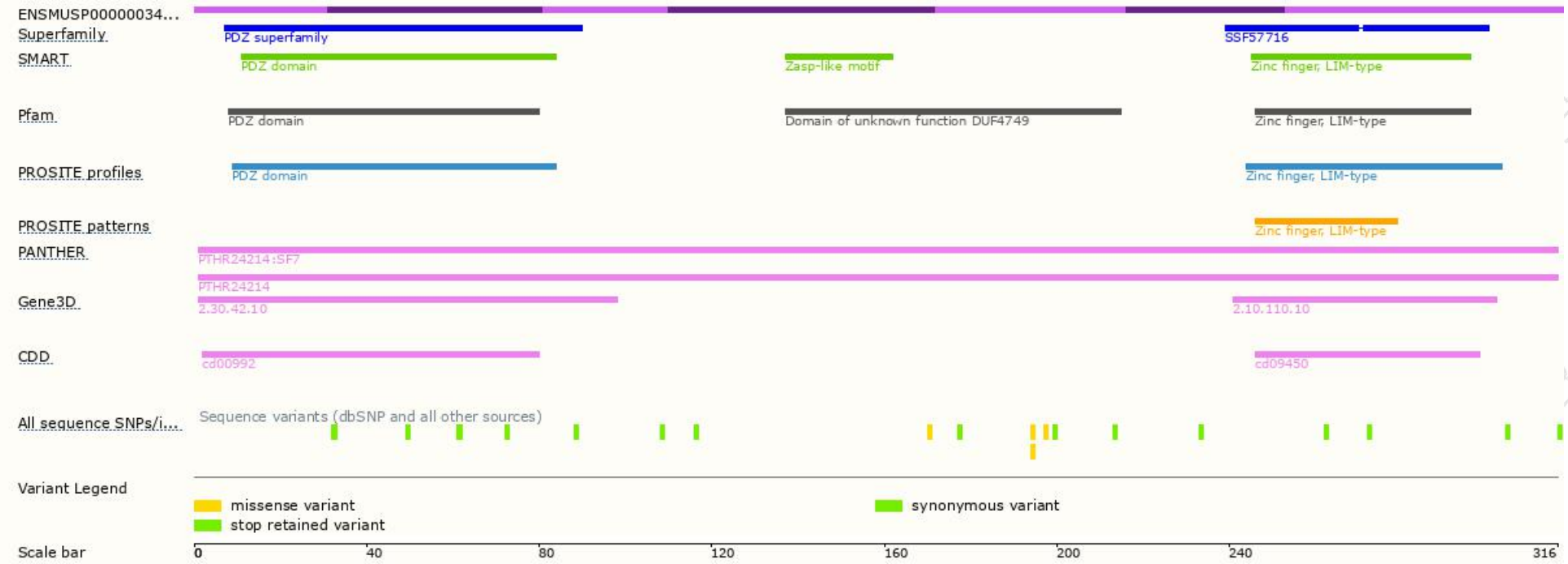
Name	Transcript ID	bp	Protein ▲	Biotype	CCDS	UniProt	Flags
Pdlim3-201	ENSMUST00000034053.6	1604	316aa	Protein coding	CCDS22281	O70209	TSL:1 GENCODE basic APPRIS P2
Pdlim3-203	ENSMUST00000210422.1	1479	364aa	Protein coding	-	A0A1B0GSX6	TSL:5 GENCODE basic APPRIS ALT1
Pdlim3-204	ENSMUST00000211190.1	3537	No protein	Retained intron	-	-	TSL:1
Pdlim3-202	ENSMUST00000209216.1	754	No protein	Retained intron	-	-	TSL:2

The strategy is based on the design of *Pdlim3-201* transcript,the transcription is shown below:

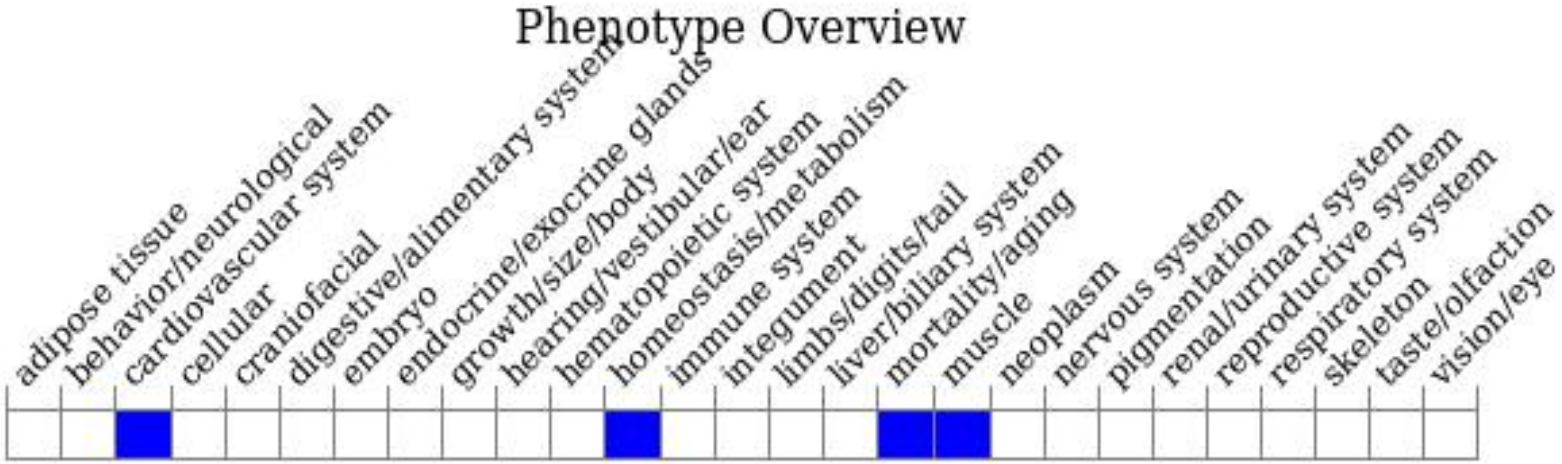
Genomic location distribution



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/).

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

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