Pdlim7 Cas9-KO Strategy

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Project Overview

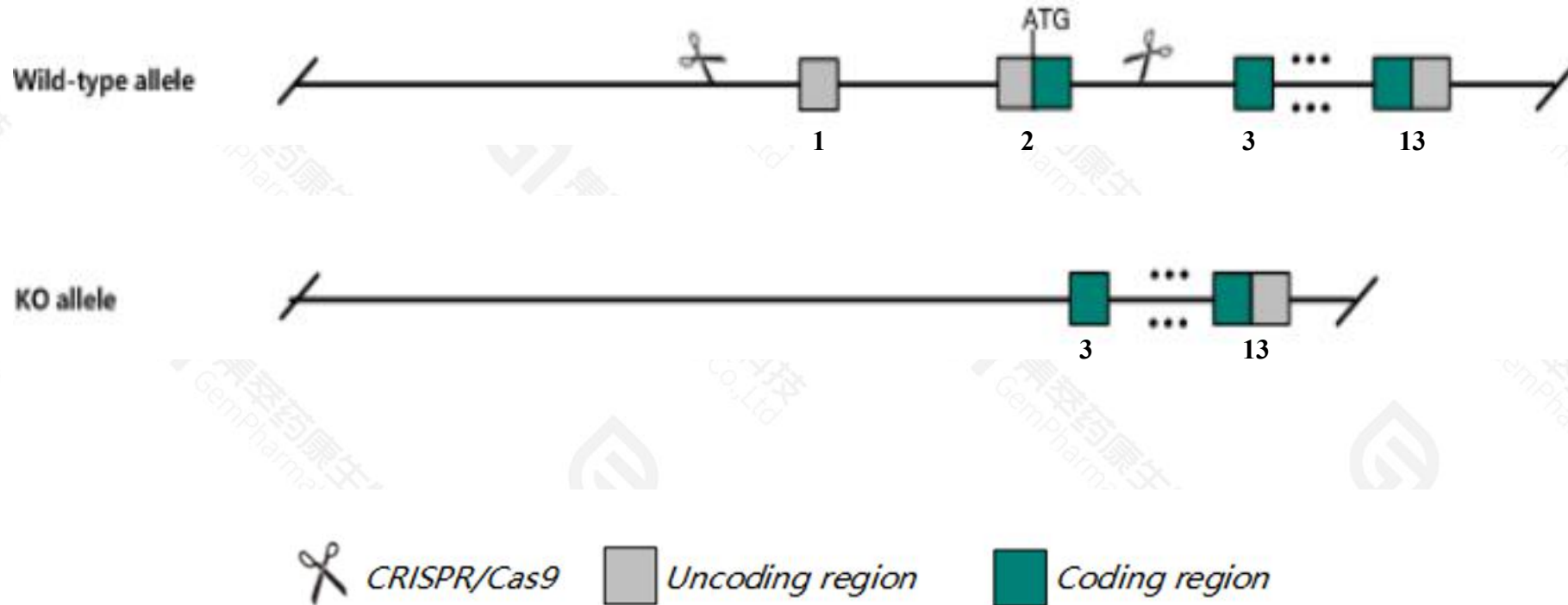| Project Name	*Pdlim7*
Project type	Cas9-KO
Strain background	C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pdlim7* gene. The schematic diagram is as follows:

Technical routes

➤ The *Pdlim7* gene has 11 transcripts. According to the structure of *Pdlim7* gene, exon1-exon2 of *Pdlim7-201*(ENSMUST00000046246.13) transcript is recommended as the knockout region. The region contains start codon ATG coding sequence. Knock out the region will result in disruption of protein function.

➤ In this project we use CRISPR/Cas9 technology to modify *Pdlim7* 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,mice homozygous for a gene trap allele exhibit heart defects and hemostatic dysfunction.

➤ KO region is close to the 5-terminal of *Mir6945* gene, which may affect the 5-terminal regulation of *Mir6945* gene.

➤ The *Pdlim7* gene is located on the Chr13. 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）

Pdlim7 PDZ and LIM domain 7 [Mus musculus (house mouse)]

Gene ID: 67399, updated on 31-Jan-2019

Summary

|	
Official Symbol	Pdlim7 provided by MGI
Official Full Name	PDZ and LIM domain 7 provided by MGI
Primary source	MGI:MGI:1914649
See related	Ensembl:ENSMUSG00000021493
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	LMP
Expression	Broad expression in bladder adult (RPKM 74.8), ovary adult (RPKM 59.7) and 26 other tissuesSee 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
Pdlim7-201	ENSMUST00000046246.12	1697	457aa	Protein coding	CCDS49275	Q3TJD7	TSL:1 GENCODE basic APPRIS P1
Pdlim7-203	ENSMUST00000069968.12	1006	222aa	Protein coding	CCDS49276	Q8BVJ7	TSL:1 GENCODE basic
Pdlim7-202	ENSMUST00000069929.12	899	188aa	Protein coding	CCDS26547	Q3TJD7	TSL:1 GENCODE basic
Pdlim7-206	ENSMUST00000131306.7	1915	219aa	Protein coding	-	B8JJB3	TSL:2 GENCODE basic
Pdlim7-208	ENSMUST00000144288.7	457	124aa	Protein coding	-	B8JJB2	CDS 3' incomplete TSL:5
Pdlim7-210	ENSMUST00000153426.1	365	58aa	Protein coding	-	B8JJB1	CDS 3' incomplete TSL:3
Pdlim7-211	ENSMUST00000155098.7	1756	457aa	Nonsense mediated decay	CCDS49275	Q3TJD7	TSL:1
Pdlim7-209	ENSMUST00000153230.7	3573	No protein	Retained intron	-	-	TSL:2
Pdlim7-204	ENSMUST00000128910.7	1694	No protein	Retained intron	-	-	TSL:2
Pdlim7-205	ENSMUST00000128911.1	450	No protein	Retained intron	-	-	TSL:3
Pdlim7-207	ENSMUST00000136583.1	396	No protein	Retained intron	-	-	TSL:2

The strategy is based on the design of *Pdlim7-201* transcript,the transcription is shown below:

< Pdlim7-201
protein coding
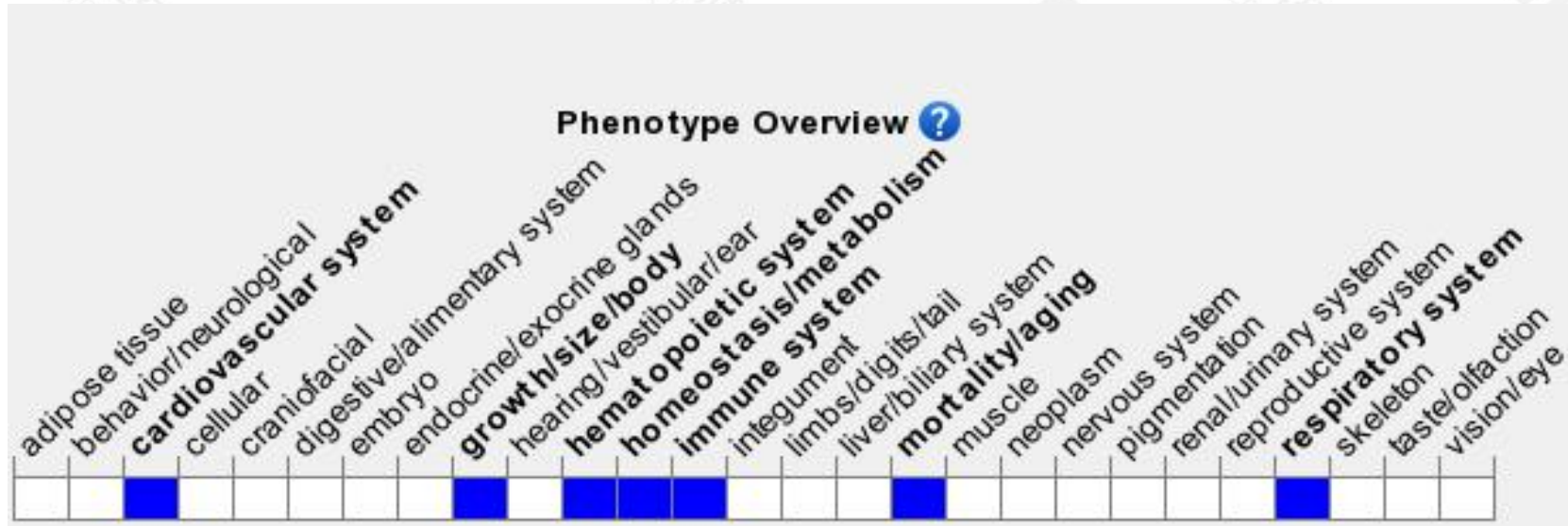
◄ Reverse strand

15.03 kb
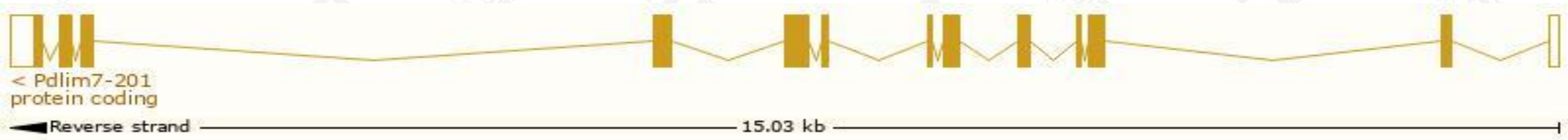
Genomic location distribution
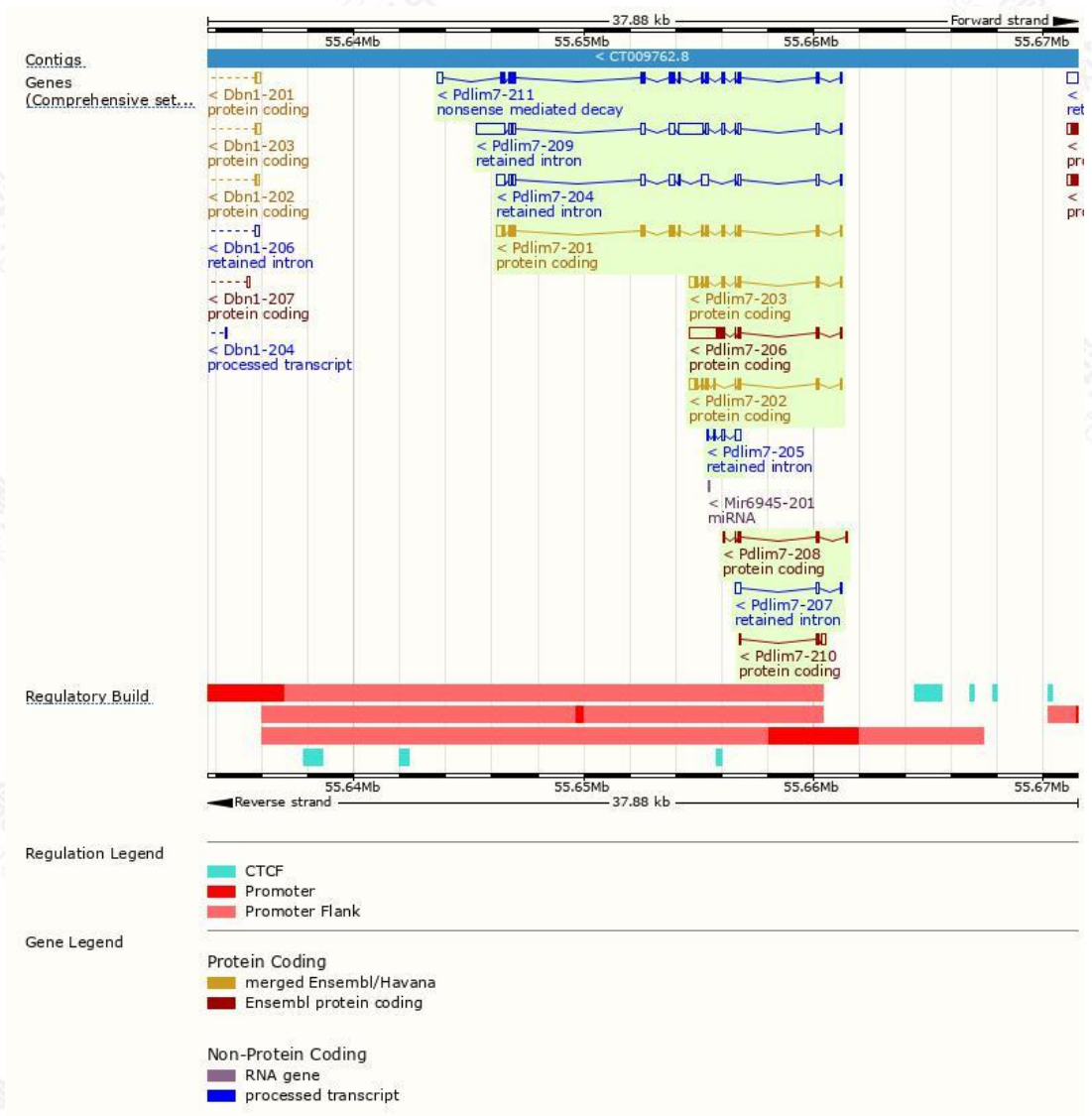
Protein domain
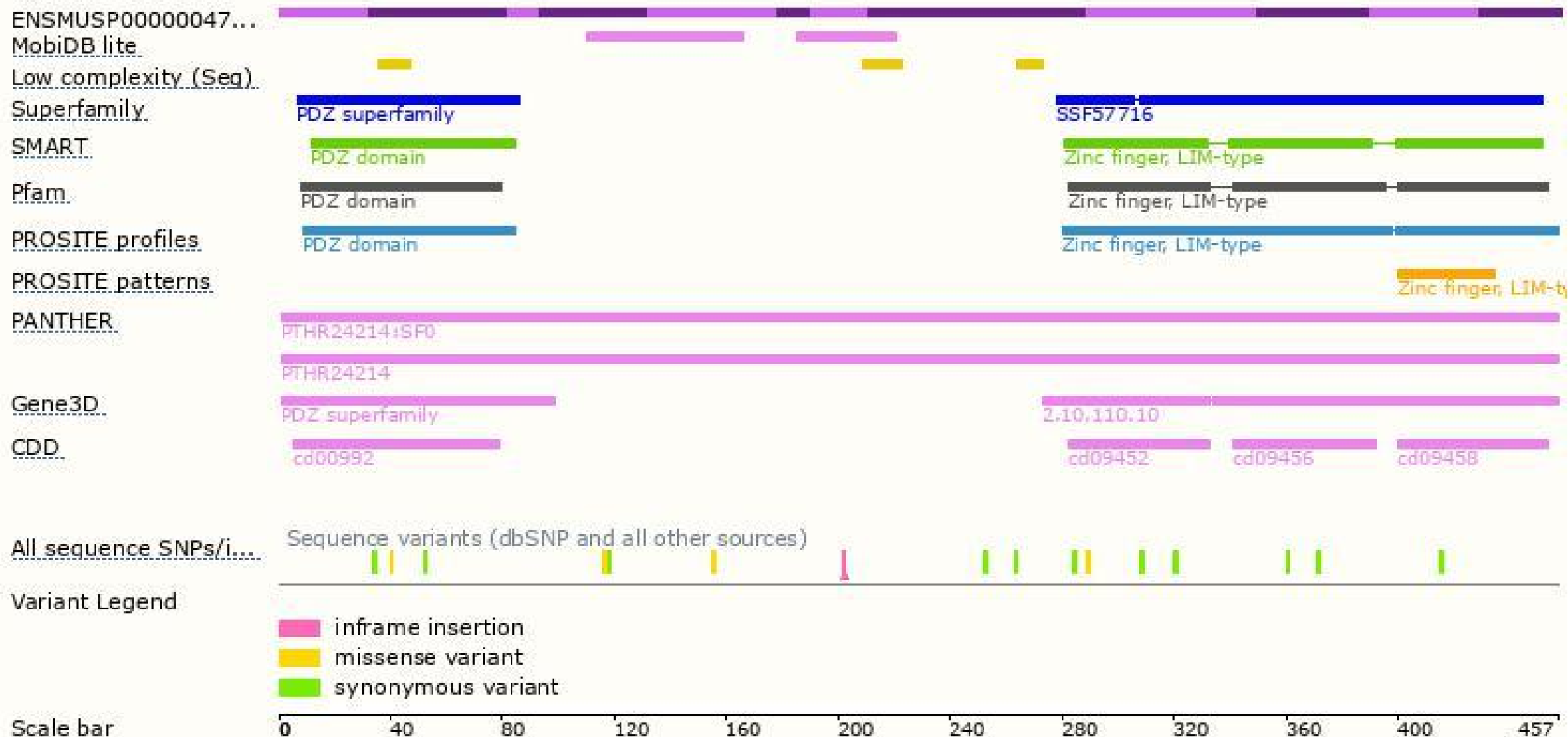
Mouse phenotype description(MGI)

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 gene trap allele exhibit heart defects and hemostatic dysfunction.

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