Pdlim5 Cas9-KO Strategy

Designer: Daohua Xu
Reviewer: Huimin Su

Design Date: 2019-10-15

集萃药康 GemPharmatech
GemPharmatech Co.,Ltd

Project Overview

Project Name	***Pdlim5***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pdlim5* gene. The schematic diagram is as follows:

Technical routes

集萃药康 GemPharmatech

- The *Pdlim5* gene has 13 transcripts. According to the structure of *Pdlim5* gene, exon3 of *Pdlim5-201* (ENSMUST00000029941.15) 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 *Pdlim5* gene. The brief process is as follows: CRISPR/Cas9 systen

Notice

- According to the existing MGI data,Mice homozygous for a knock-out allele exhibit impaired cardiac muscle contractility, wider Z-lines, and dilated cardiomyopathy. Mice heterozygous for a gene trap allele exhibit impaired response to methamphetamine.

- Transcript *Pdlim5-210 and Pdlim5-213* may not be affected.

- The *Pdlim5* gene is located on the Chr3. 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

Pdlim5 PDZ and LIM domain 5 [Mus musculus (house mouse)]

Gene ID: 56376, updated on 19-Mar-2019

Summary

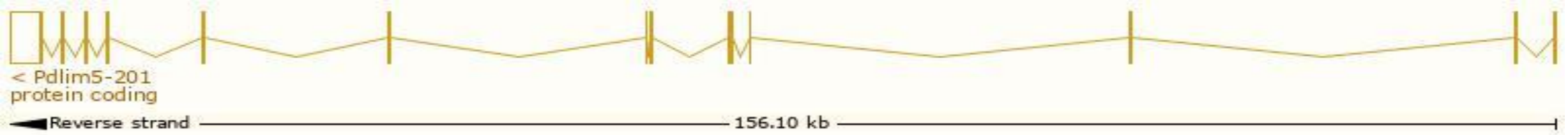
Official Symbol	Pdlim5 provided by MGI
Official Full Name	PDZ and LIM domain 5 provided byMGI
Primary source	MGI:MGI:1927489
See related	Ensembl:ENSMUSG00000028273
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1110001A05Rik, AI987914, C87059, Enh, Enh1, Enh2, Enh3, LIM
Expression	Broad expression in heart adult (RPKM 41.4), bladder adult (RPKM 16.5) and 27 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

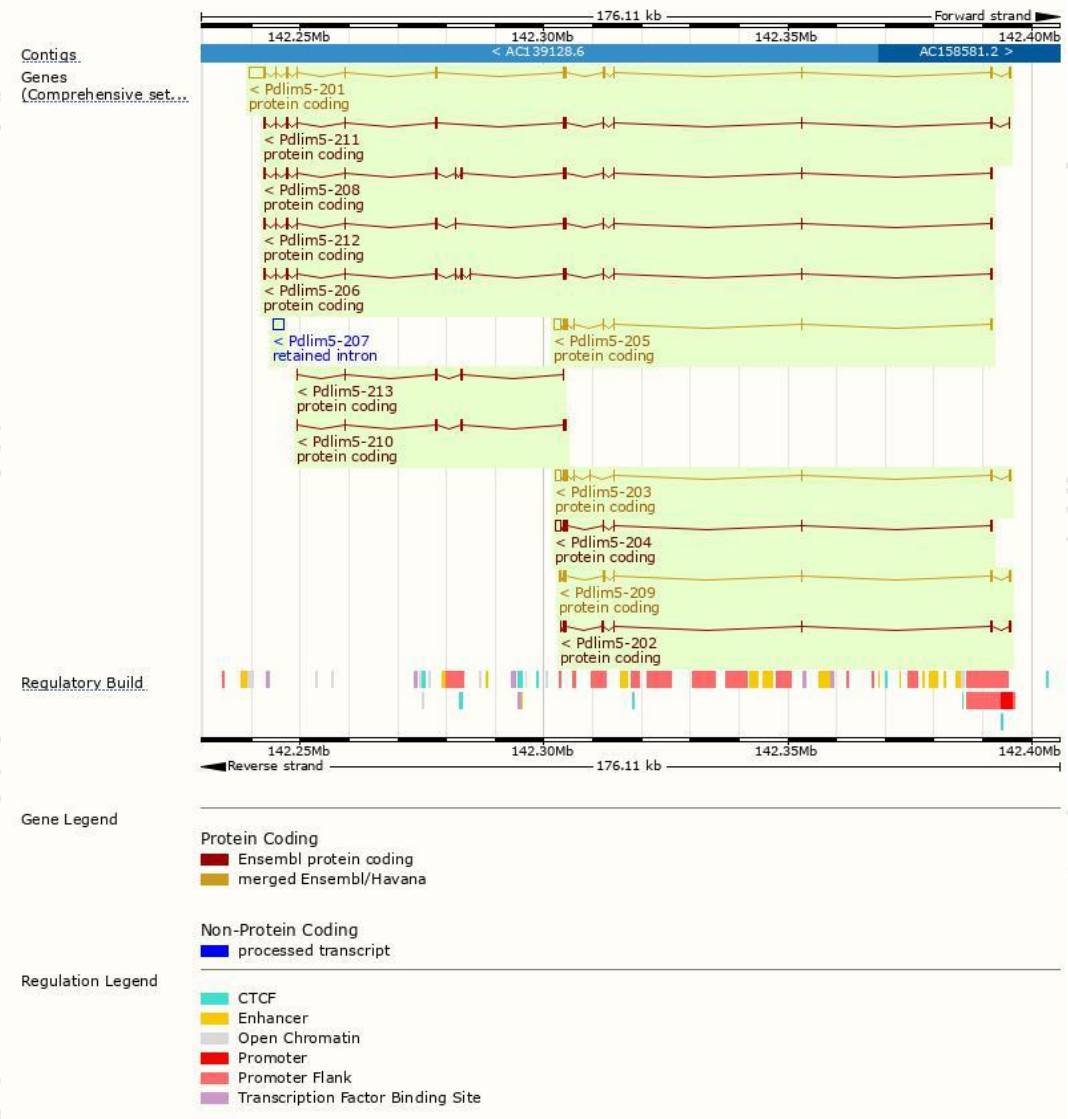
The gene has 13 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pdlim5-201	ENSMUST00000029941.15	5016	591aa	Protein coding	CCDS17875	Q8CI51	TSL:1 GENCODE basic APPRIS P3
Pdlim5-205	ENSMUST00000170361.8	2010	239aa	Protein coding	CCDS38656	E9Q8P5	TSL:5 GENCODE basic
Pdlim5-206	ENSMUST00000195975.4	1845	614aa	Protein coding	CCDS80038	D9J302	TSL:1 GENCODE basic APPRIS ALT2
Pdlim5-204	ENSMUST00000168967.8	1755	234aa	Protein coding	CCDS80039	D9J303	TSL:1 GENCODE basic
Pdlim5-208	ENSMUST00000196220.4	1725	574aa	Protein coding	CCDS80037	D9J301	TSL:1 GENCODE basic APPRIS ALT2
Pdlim5-203	ENSMUST00000090134.11	1722	214aa	Protein coding	CCDS57258	Q9CRA2	TSL:1 GENCODE basic
Pdlim5-212	ENSMUST00000200043.4	1581	526aa	Protein coding	CCDS80036	D9J300	TSL:1 GENCODE basic APPRIS ALT2
Pdlim5-211	ENSMUST00000198381.4	1555	482aa	Protein coding	CCDS80035	D9J2Z9	TSL:5 GENCODE basic APPRIS ALT2
Pdlim5-209	ENSMUST00000196908.4	1196	337aa	Protein coding	CCDS17876	Q8CI51	TSL:1 GENCODE basic
Pdlim5-202	ENSMUST00000058626.8	873	239aa	Protein coding	-	F8WJI6	TSL:5 GENCODE basic
Pdlim5-210	ENSMUST00000197808.4	759	253aa	Protein coding	-	A0A0G2JEJ0	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:3
Pdlim5-213	ENSMUST00000200650.4	669	223aa	Protein coding	-	A0A0G2JGZ5	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:5
Pdlim5-207	ENSMUST00000196050.1	2089	No protein	Retained intron	-	-	TSL:NA

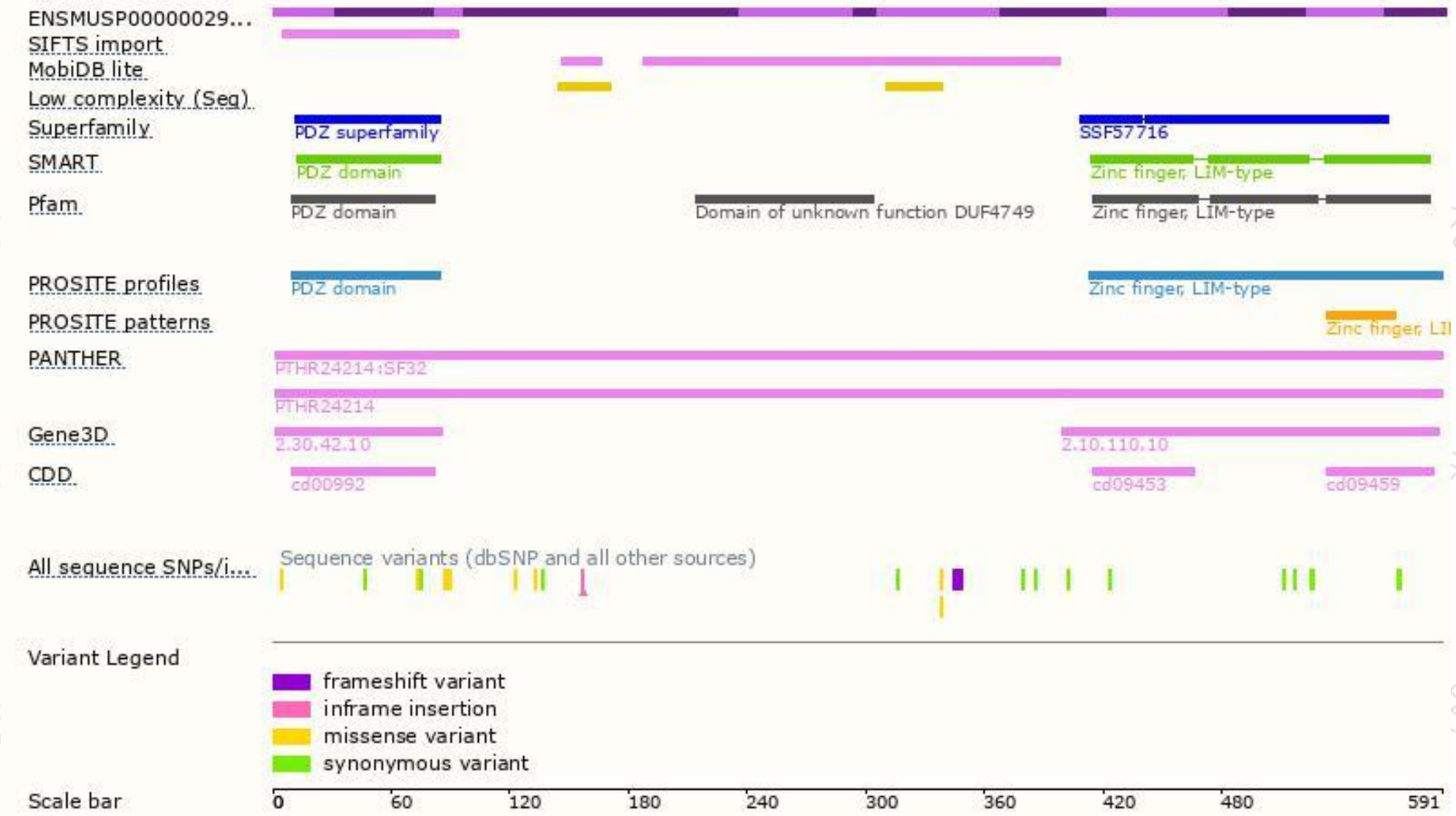
The strategy is based on the design of *Pdlim5-201* transcript,The transcription is shown below



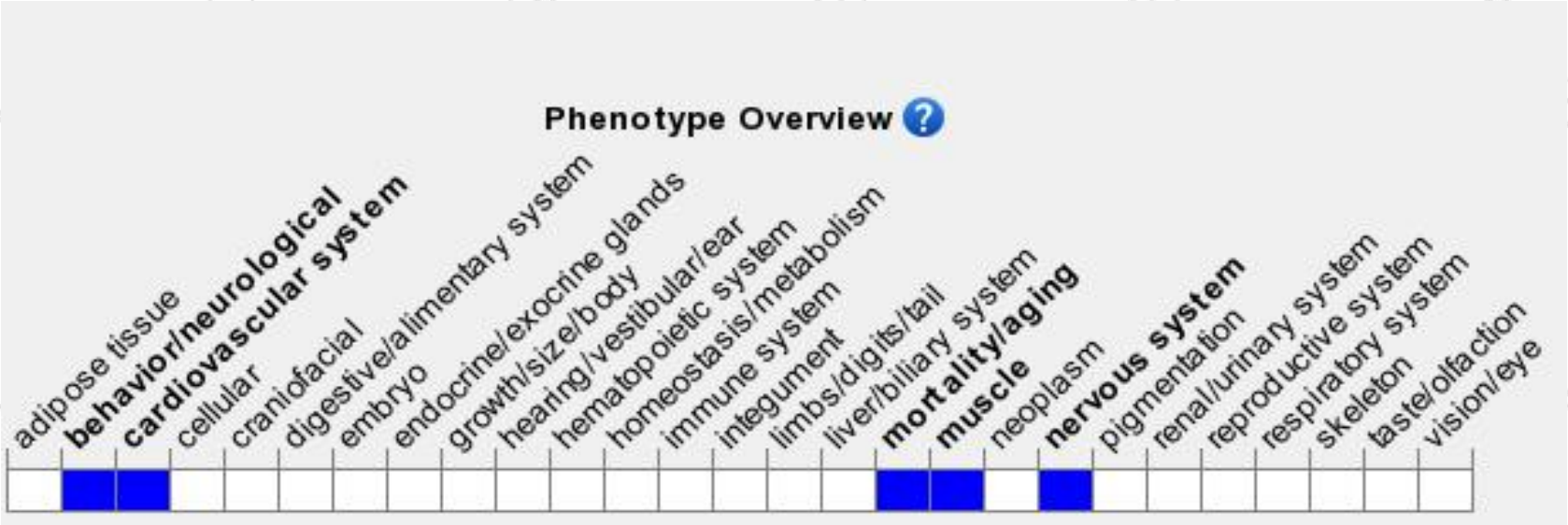
Genomic location distribution



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 cardiac muscle contractility, wider Z-lines, and dilated cardiomyopathy. Mice heterozygous for a gene trap allele exhibit impaired response to methamphetamine.

集萃药康
GemPharmatech

If you have any questions, you are welcome to inquire.
Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd