

Ldb3 Cas9-KO Strategy

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Project Overview

Project Name

Ldb3

Project type

Cas9-KO

Strain background

C57BL/6J

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ldb3* gene. The schematic diagram is as follows:



- The *Ldb3* gene has 8 transcripts. According to the structure of *Ldb3* gene, exon3 of *Ldb3-201* (ENSMUST00000022327.12) 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 *Ldb3* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

- According to the existing MGI data, Homozygous mutation of this gene results in lethality within a few days after birth from muscle abnormalities. Mutant mice exhibit myopathy, dysphagia, heart vascular congestion, dilated heart ventricles, cyanosis, and respiratory distress.
- The *Ldb3* gene is located on the Chr14. 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 gene transcription and translation processes, all risks cannot be predicted under existing information.

Gene information (NCBI)

Ldb3 LIM domain binding 3 [Mus musculus (house mouse)]

Gene ID: 24131, updated on 31-Jan-2019

Summary



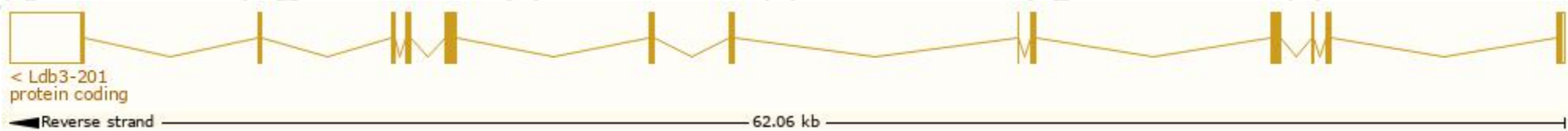
Official Symbol	Ldb3 provided by MGI
Official Full Name	LIM domain binding 3 provided by MGI
Primary source	MGI:MGI:1344412
See related	Ensembl:ENSMUSG000000021798
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AW742271, PDLIM6, ZASP
Expression	Biased expression in heart adult (RPKM 122.1), mammary gland adult (RPKM 32.6) and 6 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

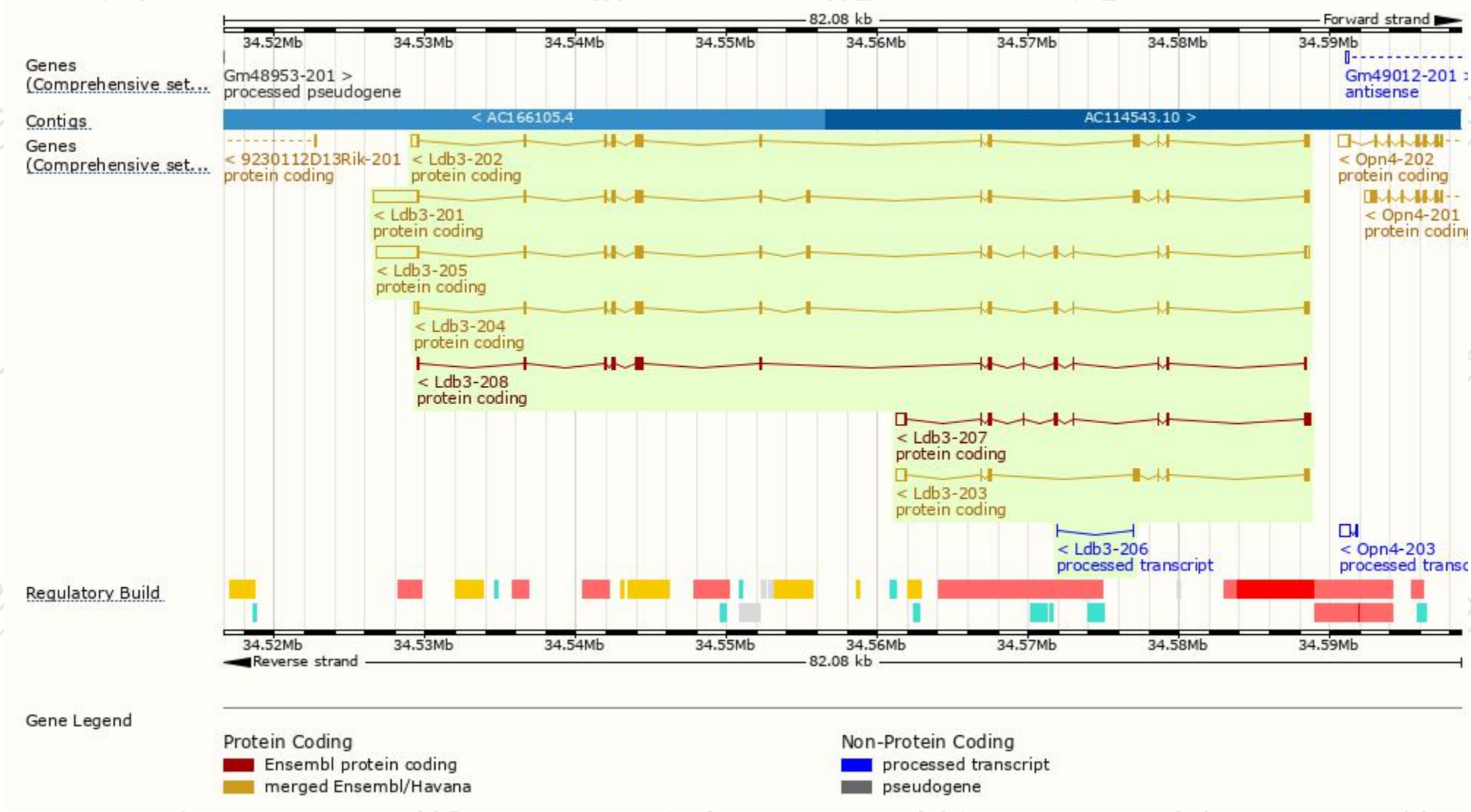
The gene has 8 transcript,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ldb3-201	ENSMUST00000022327.12	5119	723aa	Protein coding	CCDS26941	Q9JKS4	TSL:1 GENCODE basic APPRIS P4
Ldb3-205	ENSMUST00000090040.11	4981	684aa	Protein coding	CCDS36879	Q9JKS4	TSL:1 GENCODE basic APPRIS ALT2
Ldb3-202	ENSMUST00000022328.13	2468	661aa	Protein coding	CCDS26940	Q9JKS4	TSL:1 GENCODE basic APPRIS ALT2
Ldb3-204	ENSMUST00000064098.13	2299	679aa	Protein coding	CCDS36878	E9PYJ9	TSL:1 GENCODE basic APPRIS ALT2
Ldb3-203	ENSMUST00000022330.8	1586	327aa	Protein coding	CCDS26942	Q9JKS4	TSL:1 GENCODE basic
Ldb3-208	ENSMUST000000228044.1	1883	622aa	Protein coding	-	Q9JKS4	GENCODE basic APPRIS ALT2
Ldb3-207	ENSMUST000000227819.1	1499	288aa	Protein coding	-	Q9JKS4	GENCODE basic
Ldb3-206	ENSMUST000000226226.1	17	No protein	Processed transcript	-	-	-

The strategy is based on the design of *Ldb3-201* transcript,The transcription is shown below



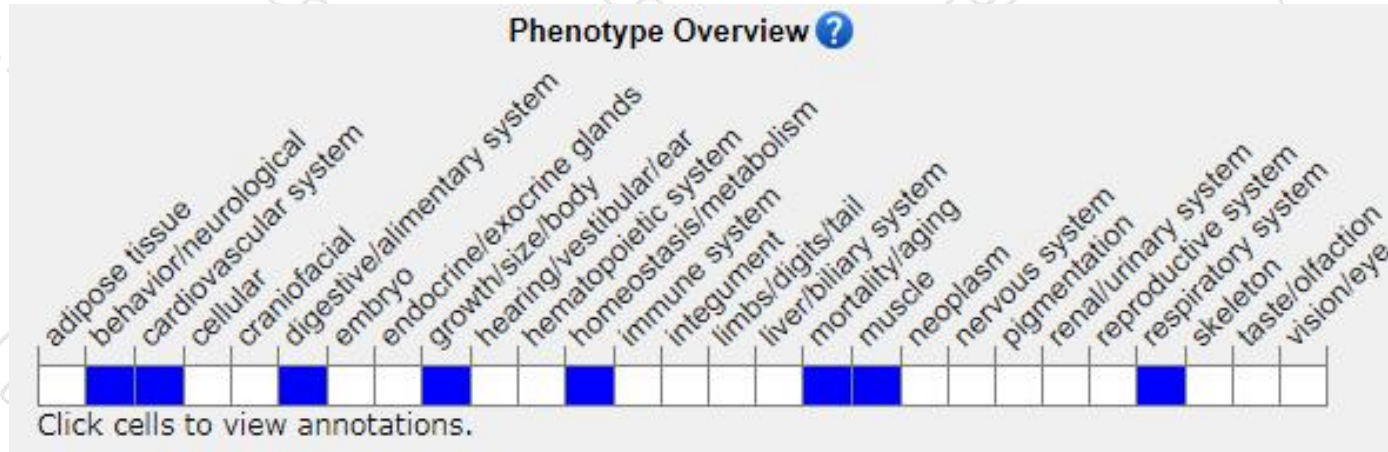
Genomic location distribution



集萃药康
GemPharmatech



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, Homozygous mutation of this gene results in lethality within a few days after birth from muscle abnormalities. Mutant mice exhibit myopathy, dysphagia, heart vascular congestion, dilated heart ventricles, cyanosis, and respiratory distress.

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

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