

Pdlim2 Cas9-CKO Strategy

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Project Overview

Project Name

Pdlim2

Project type

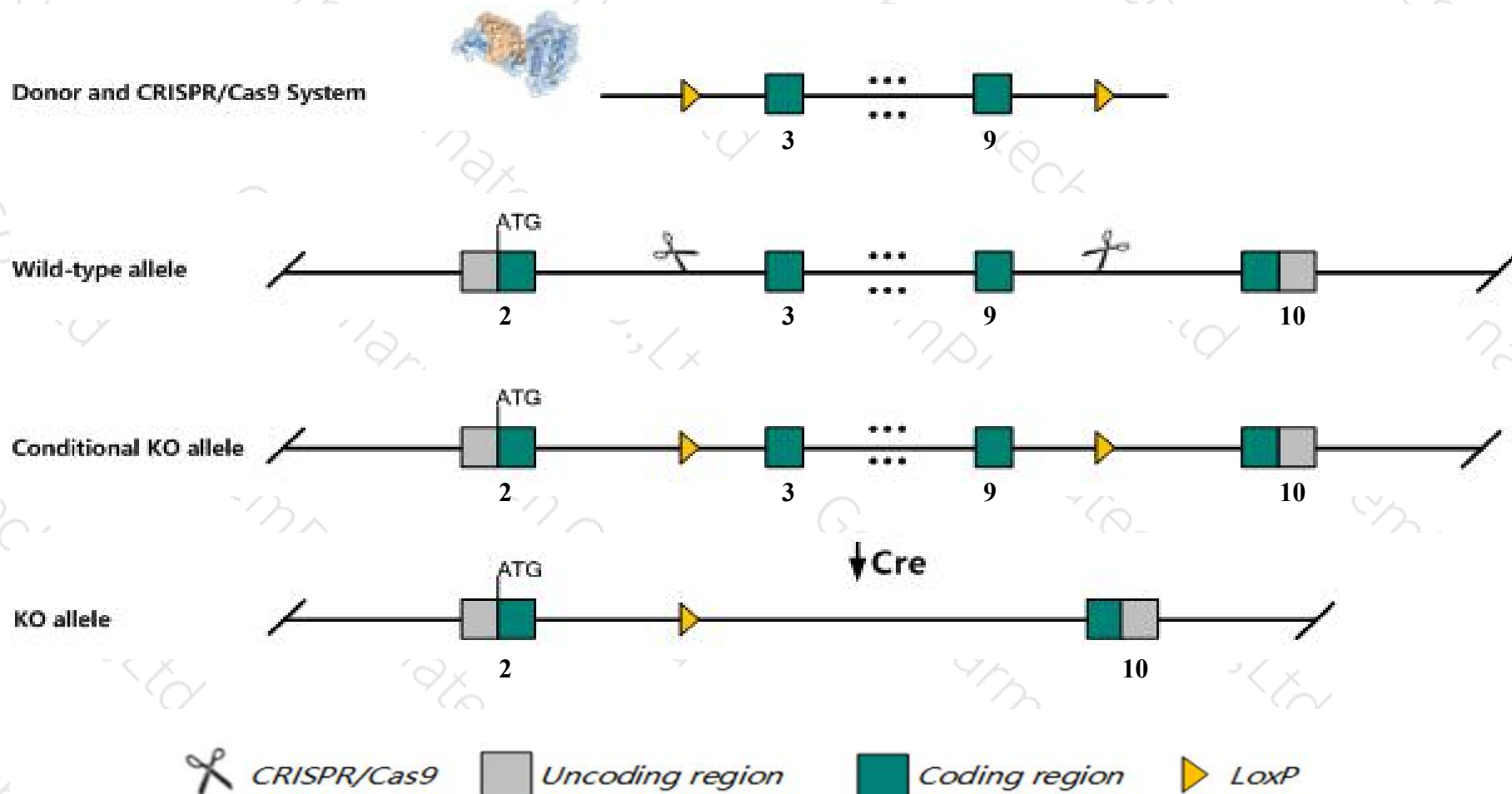
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pdlim2* gene. The schematic diagram is as follows:



Technical routes

- The *Pdlim2* gene has 10 transcripts. According to the structure of *Pdlim2* gene, exon3-exon9 of *Pdlim2-210* (ENSMUST00000153735.7) transcript is recommended as the knockout region. The region contains 779bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pdlim2* 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.

- According to the existing MGI data, Mice homozygous for a knock-out allele display increased IFN-gamma production by Th1 cells and an enhanced inflammatory response to in vivo challenge with heat-killed *Listeria monocytogenes*.
- The floxed region is near to the N-terminal of *9930012K11Rik* gene, this strategy may influence the regulatory function of the N-terminal of *9930012K11Rik* gene.
- The *Pdlim2* 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 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)

Pdlim2 PDZ and LIM domain 2 [*Mus musculus* (house mouse)]

Gene ID: 213019, updated on 14-Aug-2019

Summary

- Official Symbol

Pdlim2 provided by [MGI](#)
- Official Full Name

PDZ and LIM domain 2 provided by [MGI](#)
- Primary source

[MGI:MGI:2384850](#)
- See related

[Ensembl:ENSMUSG00000022090](#)
- 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

Slim; 4732462F18Rik
- Expression

Broad expression in lung adult (RPKM 101.4), small intestine adult (RPKM 50.1) and 16 other tissues [See more](#)
- Orthologs

[human](#) [all](#)

Genomic context

Location:

14; 14 D2

See Pdlim2 in [Genome Data Viewer](#)

Exon count:

12

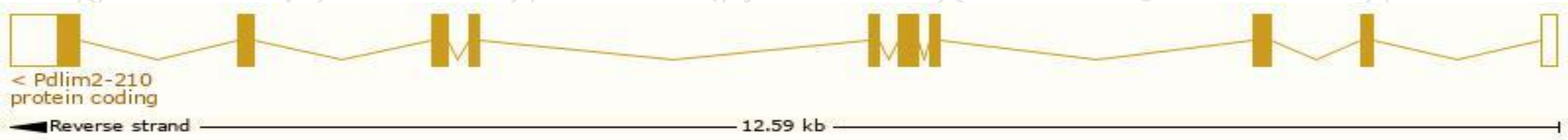
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	14	NC_000080.6 (70162621..70177672, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	14	NC_000080.5 (70564025..70577479, complement)

Transcript information (Ensembl)

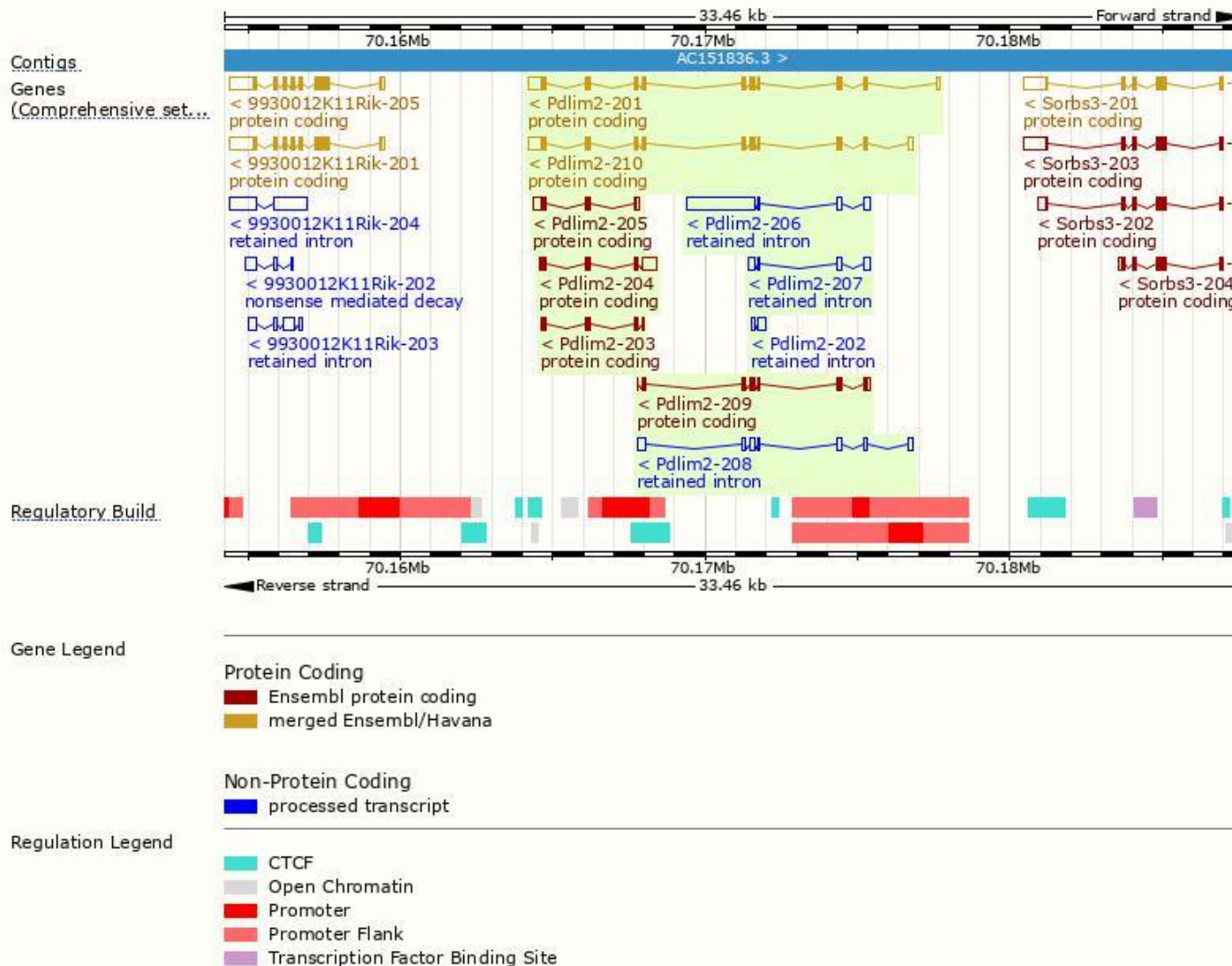
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pdlim2-210	ENSMUST00000153735.7	1578	349aa	Protein coding	CCDS27248	Q8R1G6	TSL:5 GENCODE basic APPRIS P1
Pdlim2-201	ENSMUST00000022681.10	1523	349aa	Protein coding	CCDS27248	Q8R1G6	TSL:1 GENCODE basic APPRIS P1
Pdlim2-204	ENSMUST00000127836.7	920	128aa	Protein coding	-	A0A087WPL1	TSL:5 GENCODE basic
Pdlim2-209	ENSMUST00000143393.1	779	217aa	Protein coding	-	E9Q996	CDS 3' incomplete TSL:5
Pdlim2-205	ENSMUST00000129174.7	729	128aa	Protein coding	-	A0A087WPL1	TSL:2 GENCODE basic
Pdlim2-203	ENSMUST00000125300.2	473	151aa	Protein coding	-	F7C957	CDS 5' incomplete TSL:3
Pdlim2-206	ENSMUST00000135944.7	2635	No protein	Retained intron	-	-	TSL:2
Pdlim2-208	ENSMUST00000141363.7	944	No protein	Retained intron	-	-	TSL:3
Pdlim2-207	ENSMUST00000138792.1	608	No protein	Retained intron	-	-	TSL:2
Pdlim2-202	ENSMUST00000123125.1	372	No protein	Retained intron	-	-	TSL:3

The strategy is based on the design of *Pdlim2-210* transcript,The transcription is shown below



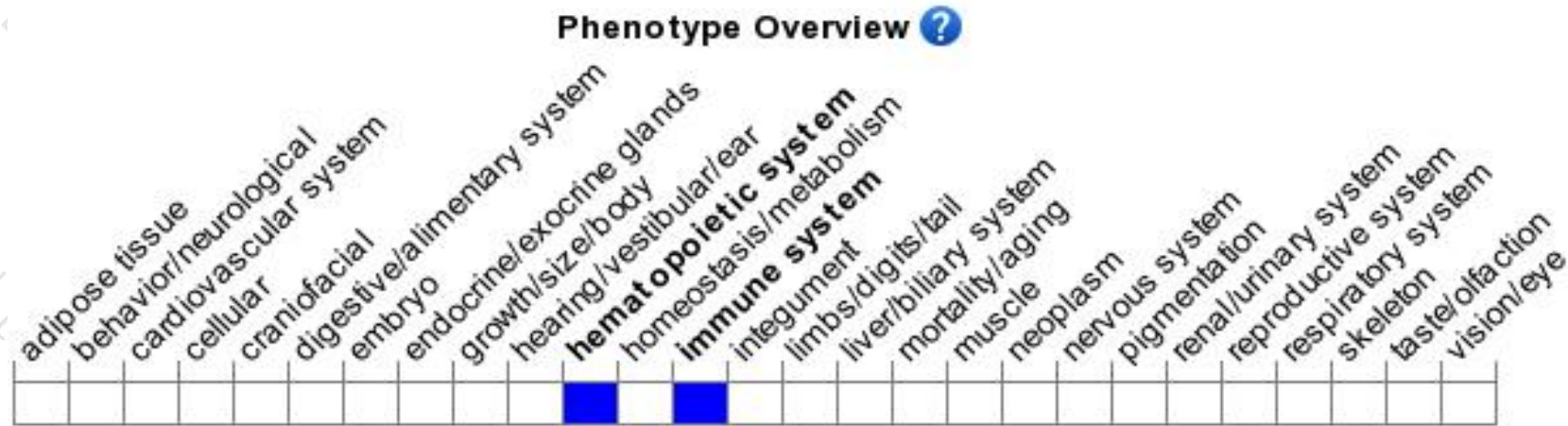
Genomic location distribution



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 display increased IFN-gamma production by Th cells and an enhanced inflammatory response to in vivo challenge with heat-killed *Listeria monocytogenes*.

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

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