

***Psd4* Cas9-CKO Strategy**

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Project Overview

Project Name

Psd4

Project type

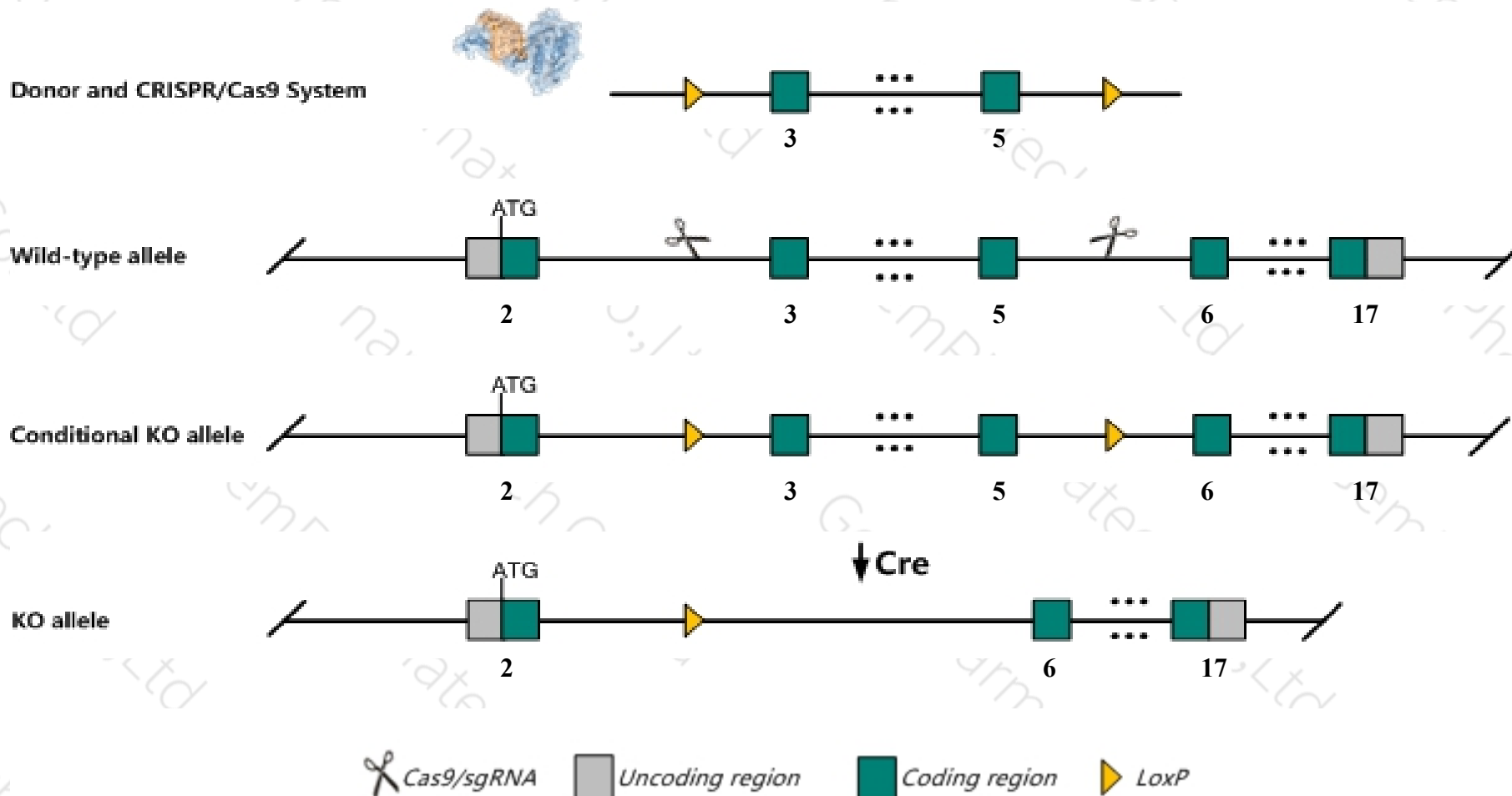
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



Technical routes

- The *Psd4* gene has 10 transcripts. According to the structure of *Psd4* gene, exon3-exon5 of *Psd4-201*(ENSMUST00000056641.14) transcript is recommended as the knockout region. The region contains 593bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Psd4* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was 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.

- The *Psd4* gene is located on the Chr2. 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.
- Transcript 203.204,208,209 CDS 3' incomplete the influences is unknown.
- 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)

Psd4 pleckstrin and Sec7 domain containing 4 [Mus musculus (house mouse)]

Gene ID: 215632, updated on 13-Mar-2020

Summary



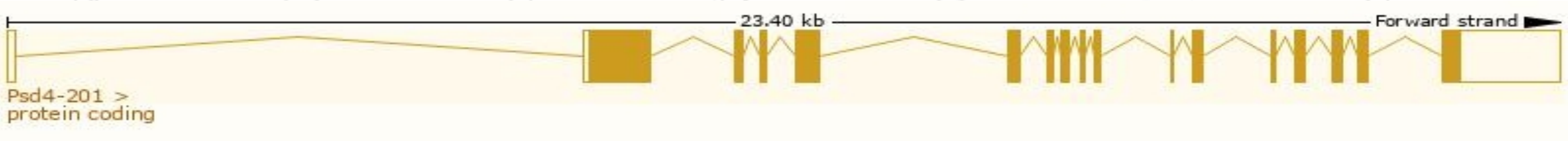
Official Symbol	Psd4 provided by MGI
Official Full Name	pleckstrin and Sec7 domain containing 4 provided by MGI
Primary source	MGI:MGI:2674093
See related	Ensembl:ENSMUSG00000026979
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	BC046518, EFA6B
Expression	Broad expression in thymus adult (RPKM 18.9), spleen adult (RPKM 12.4) and 15 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

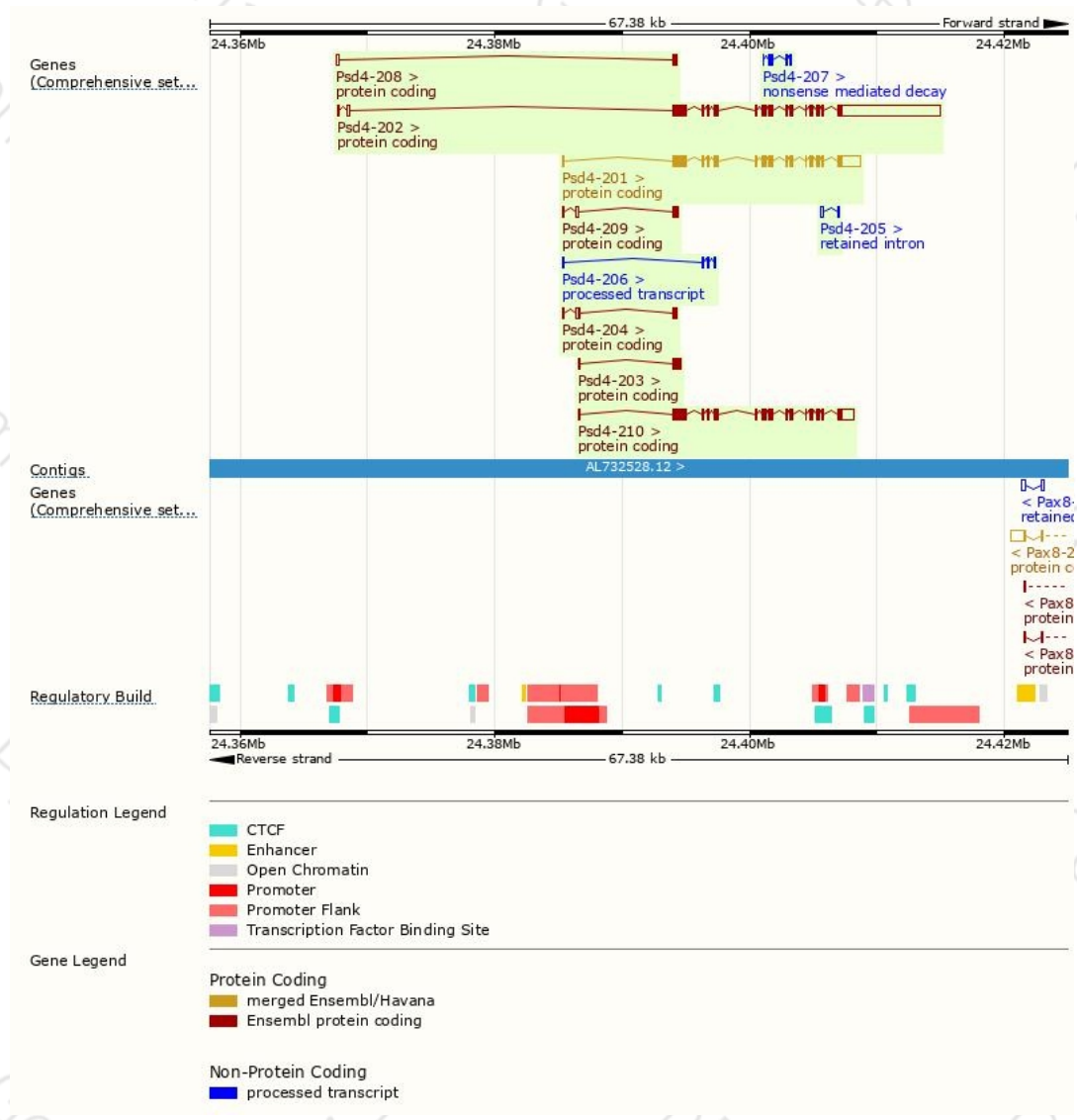
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Psd4-202	ENSMUST00000102942.7	11265	1005aa	Protein coding	CCDS15737	Q8BLR5	TSL:1 GENCODE basic APPRIS P1
Psd4-201	ENSMUST00000056641.14	4748	1005aa	Protein coding	CCDS15737	Q8BLR5	TSL:1 GENCODE basic APPRIS P1
Psd4-210	ENSMUST00000166388.1	4181	1005aa	Protein coding	CCDS15737	Q8BLR5	TSL:1 GENCODE basic APPRIS P1
Psd4-203	ENSMUST00000127242.1	711	155aa	Protein coding	-	A0A0A6YX36	CDS 3' incomplete TSL:2
Psd4-209	ENSMUST00000142522.7	679	95aa	Protein coding	-	A0A0A6YXA6	CDS 3' incomplete TSL:5
Psd4-204	ENSMUST00000131930.1	632	60aa	Protein coding	-	A0A0A6YY70	CDS 3' incomplete TSL:2
Psd4-208	ENSMUST00000140547.1	460	44aa	Protein coding	-	A0A0A6YXD4	CDS 3' incomplete TSL:2
Psd4-207	ENSMUST00000140303.1	305	32aa	Nonsense mediated decay	-	A0A0A6YXQ2	CDS 5' incomplete TSL:5
Psd4-206	ENSMUST00000133730.1	475	No protein	Processed transcript	-	-	TSL:3
Psd4-205	ENSMUST00000132924.1	233	No protein	Retained intron	-	-	TSL:2

The strategy is based on the design of *Psd4-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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