

***Psd3* Cas9-CKO Strategy**

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Project Overview

Project Name

Psd3

Project type

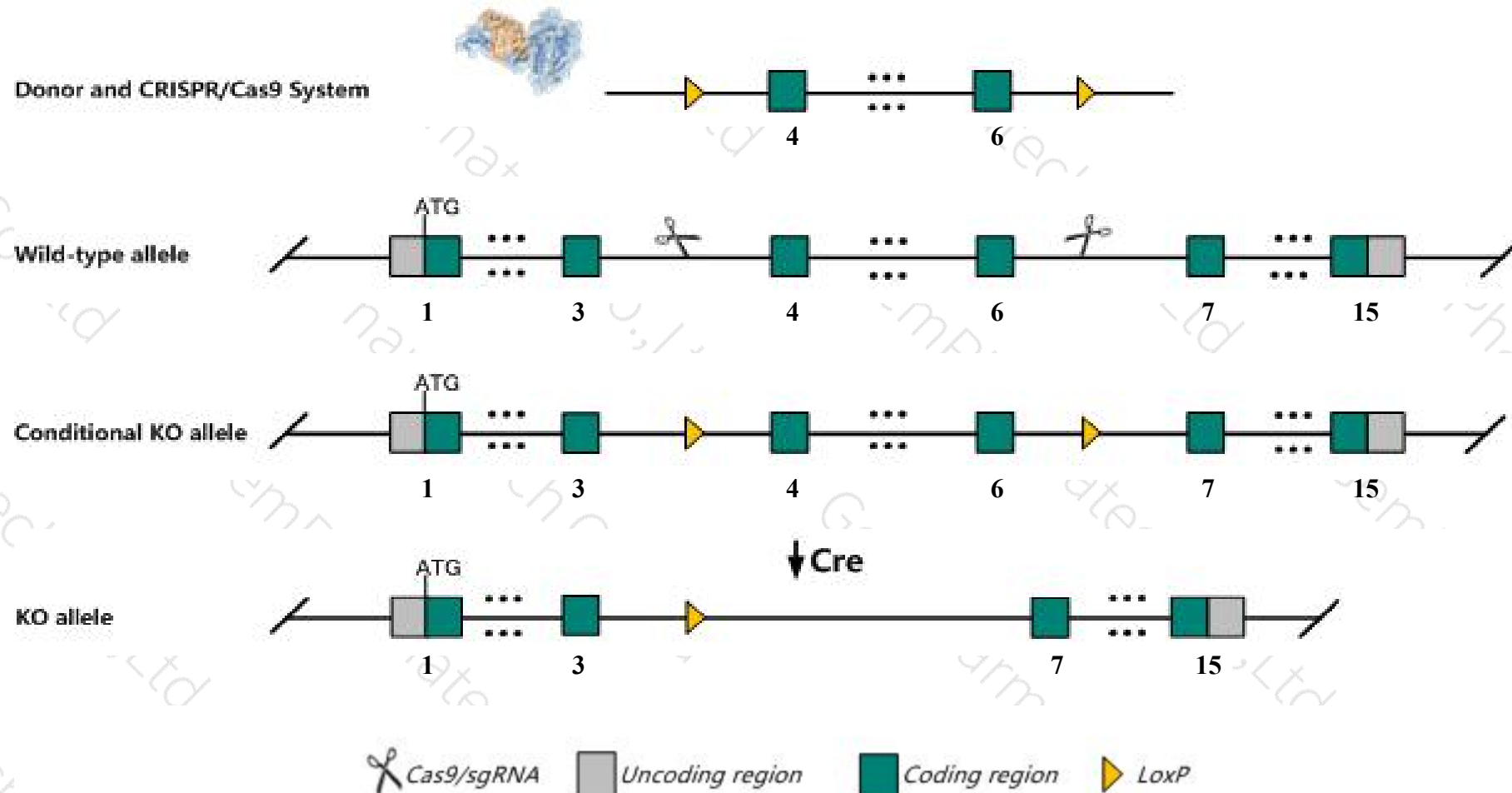
Cas9-CKO

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:



- The *Psd3* gene has 15 transcripts. According to the structure of *Psd3* gene, exon4-exon6 of *Psd3*-205(ENSMUST00000098696.9) transcript is recommended as the knockout region. The region contains 401bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Psd3* 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 *Psd3* gene is located on the Chr8. 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.
- The effect of this strategy on transcript *Psd3*-202,206,211 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)

Psd3 pleckstrin and Sec7 domain containing 3 [Mus musculus (house mouse)]

Gene ID: 234353, updated on 13-Mar-2020

Summary



Official Symbol	Psd3 provided by MGI
Official Full Name	pleckstrin and Sec7 domain containing 3 provided by MGI
Primary source	MGI:MGI:1918215
See related	Ensembl:ENSMUSG00000030465
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	4931420C21Rik, AI661273, BC003498, D430018P08, EFA6D
Expression	Broad expression in cortex adult (RPKM 13.0), frontal lobe adult (RPKM 12.7) and 15 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

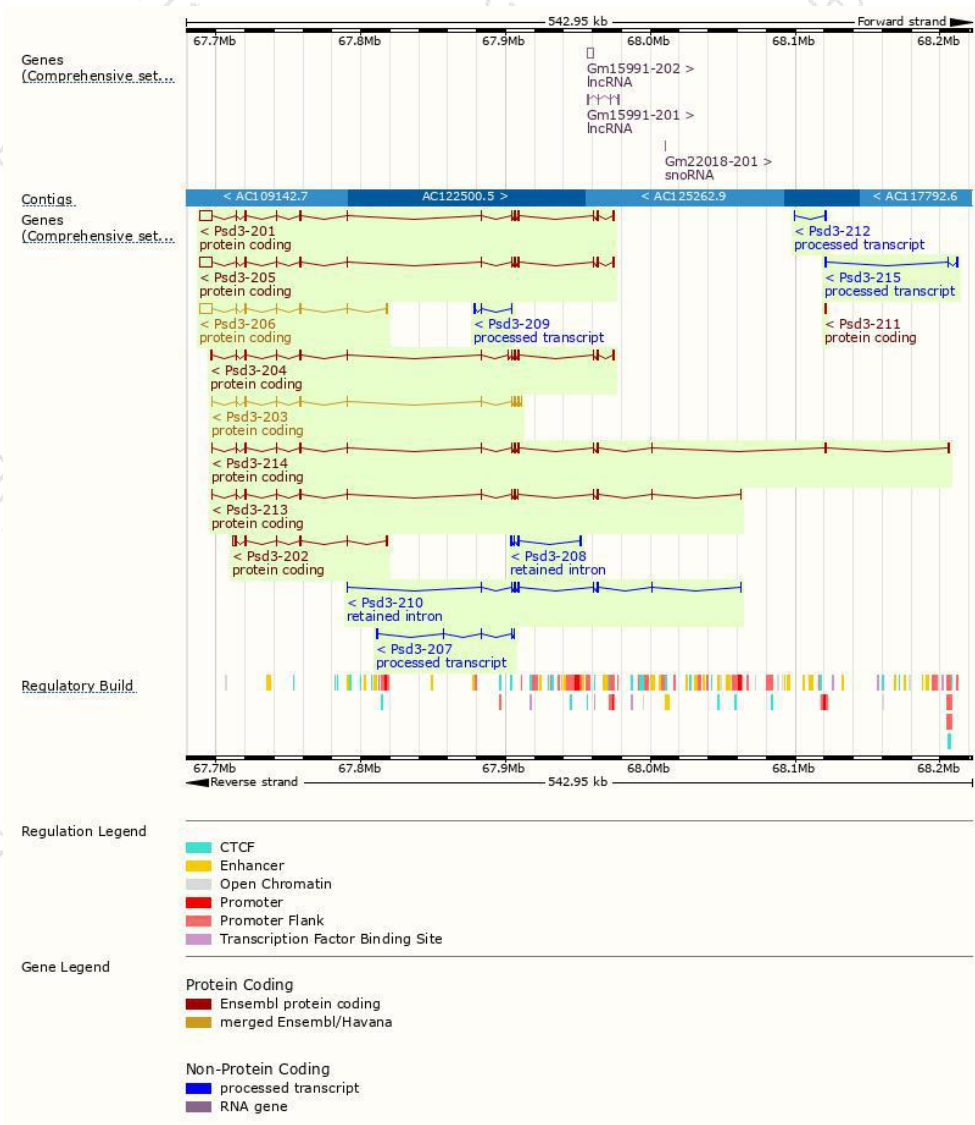
The gene has 15 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Psd3-205	ENSMUST00000098696.9	11316	1004aa	Protein coding	CCDS40355	Q2PFD7	TSL:1 GENCODE basic APPRIS ALT2
Psd3-206	ENSMUST00000120071.7	9203	376aa	Protein coding	CCDS52563	E9PUC5	TSL:1 GENCODE basic
Psd3-203	ENSMUST00000093468.11	1739	518aa	Protein coding	CCDS22340	Q2PFD7	TSL:1 GENCODE basic APPRIS P3
Psd3-201	ENSMUST00000038959.15	11319	1005aa	Protein coding	-	F6Z9E6	TSL:5 GENCODE basic APPRIS ALT2
Psd3-214	ENSMUST00000212960.1	4562	1289aa	Protein coding	-	A0A1D5RMH7	TSL:5 GENCODE basic APPRIS ALT2
Psd3-204	ENSMUST00000093469.10	4351	1004aa	Protein coding	-	Q2PFD7	TSL:5 GENCODE basic APPRIS ALT2
Psd3-213	ENSMUST00000212505.1	3253	1035aa	Protein coding	-	A0A1D5RLK2	TSL:5 GENCODE basic APPRIS ALT2
Psd3-202	ENSMUST00000059374.4	2876	390aa	Protein coding	-	Q8C0E9	TSL:1 GENCODE basic
Psd3-211	ENSMUST00000178529.1	828	276aa	Protein coding	-	A0A1D5RLM2	TSL:5 GENCODE basic
Psd3-215	ENSMUST00000212994.1	1471	No protein	Processed transcript	-	-	TSL:5
Psd3-212	ENSMUST00000185416.2	673	No protein	Processed transcript	-	-	TSL:3
Psd3-207	ENSMUST00000130307.2	524	No protein	Processed transcript	-	-	TSL:3
Psd3-209	ENSMUST00000146480.1	429	No protein	Processed transcript	-	-	TSL:5
Psd3-210	ENSMUST00000150169.7	2733	No protein	Retained intron	-	-	TSL:1
Psd3-208	ENSMUST00000145595.1	1049	No protein	Retained intron	-	-	TSL:1

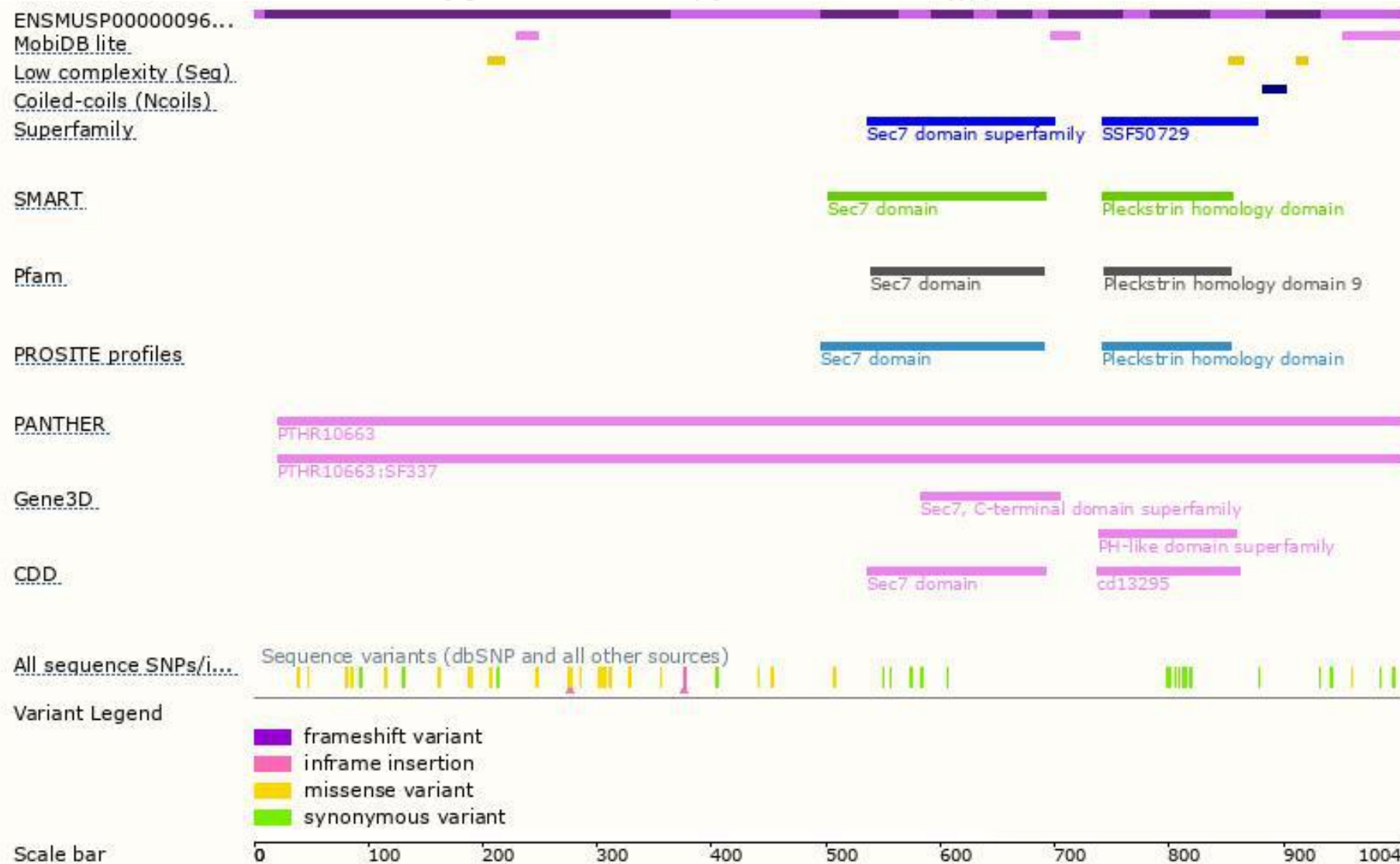
The strategy is based on the design of *Psd3-205* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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