Psd **Cas9-KO** *Strategy*

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Reviewer ：   **Huimin Su**

Design Date: **2019-9-28**

Project Overview

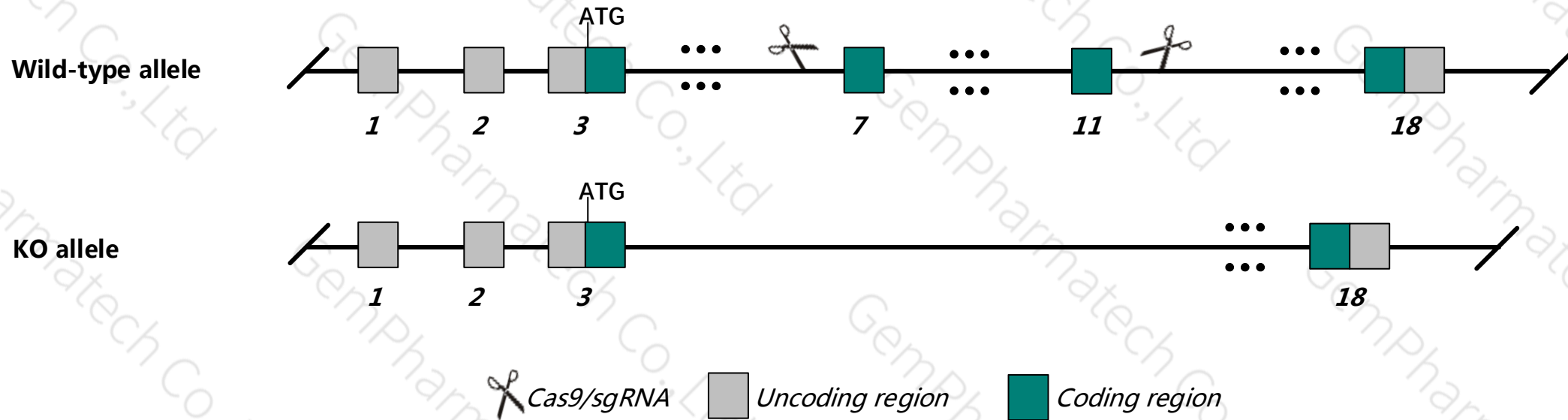|	
Project Name	*Psd*
Project type	Cas9-KO
Animal background	C57BL/6JGpt

Knockout strategy

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

Technical routes

- The *Psd* gene has 14 transcripts, According to the structure of *Psd* gene, exon7-exon11 of *Psd-201* transcript is recommended as the knockout region.The region contains the 538bp coding seqence.Knock out the region,result in destruction of protein.

- This project uses CRISPR/Cas9 technology to modify *Psd* gene. The brief process is as follows: sgRNA was transcribed in vitro, Cas9, sgRNA were microinjected into fertilized eggs of C57BL/6JGpt mice and homologous recombination was carried out to obtain F0 mice. A stable and hereditary F1 generation mouse model was obtained by mating F0 generation mice with C57BL/6JGpt mice which were confirmed positive by PCR-sequencing.

Notice

- The *Psd* gene is located in the Chr19. If the knockout mice are mixed with other mice, two target genes are avoided on the same chromosome as possible, otherwise the offspring of mice with double gene positive and homozygous gene knockout can not be obtained.

- 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.

Psd   pleckstrin and Sec7 domain containing [*Mus musculus* (house mouse)]

Gene ID: 73728, updated on 31-Jan-2019

▲ Summary

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Official Symbol	Psd provided by MGI
Official Full Name	pleckstrin and Sec7 domain containing provided by MGI
Primary source	MGI:MGI:1920978
See related	Ensembl:ENSMUSG00000037126
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	Efa6; Psdl; Efa6a; mKIAA2011; A930015K15; 1110007H17Rik
Expression	Broad expression in frontal lobe adult (RPKM 68.1), cortex adult (RPKM 65.1) and 16 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

The gene has 14 transcripts, and all transcripts are shown below：

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags
Psd-202	ENSMUST00000096029.11	3903	1025aa	Protein coding	CCDS84449	Q5DTT2	NM_001347454 NP_001334383	TSL:5 GENCODE basic APPRIS ALT2
Psd-201	ENSMUST00000041391.4	3900	1024aa	Protein coding	CCDS29875	Q5DTT2	NM_028627 NP_082903	TSL:1 GENCODE basic APPRIS P3
Psd-210	ENSMUST00000225323.1	3398	1025aa	Protein coding	CCDS84449	Q5DTT2	-	GENCODE basic APPRIS ALT2
Psd-208	ENSMUST00000224556.1	2034	393aa	Protein coding	-	Q5DTT2	-	GENCODE basic
Psd-207	ENSMUST00000224447.1	445	105aa	Protein coding	-	A0A286YDE5	-	CDS 3' incomplete
Psd-213	ENSMUST00000225781.1	443	65aa	Protein coding	-	A0A286YCR6	-	CDS 3' incomplete
Psd-203	ENSMUST00000223903.1	361	25aa	Protein coding	-	A0A286YDW2	-	CDS 3' incomplete
Psd-204	ENSMUST00000223917.1	332	14aa	Protein coding	-	A0A286YDD4	-	CDS 3' incomplete
Psd-211	ENSMUST00000225748.1	1705	No protein	Processed transcript	-	-	-	
Psd-206	ENSMUST00000224444.1	328	No protein	Processed transcript	-	-	-	
Psd-205	ENSMUST00000224094.1	3860	No protein	Retained intron	-	-	-	
Psd-214	ENSMUST00000226062.1	735	No protein	Retained intron	-	-	-	
Psd-212	ENSMUST00000225770.1	722	No protein	Retained intron	-	-	-	
Psd-209	ENSMUST00000225072.1	437	No protein	Retained intron	-	-	-	

The strategy is based on the design of *Psd-201* transcript,The transcription is shown below：
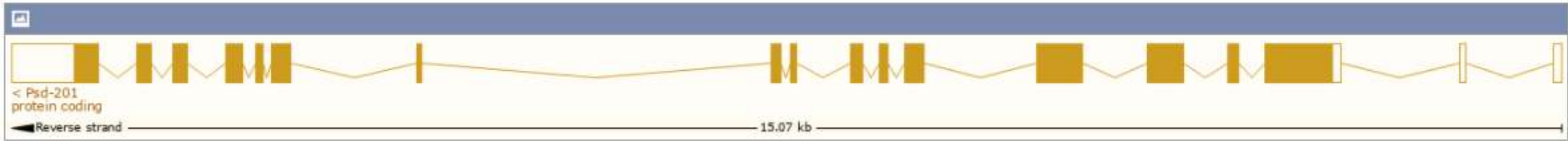
Genomic location distribution
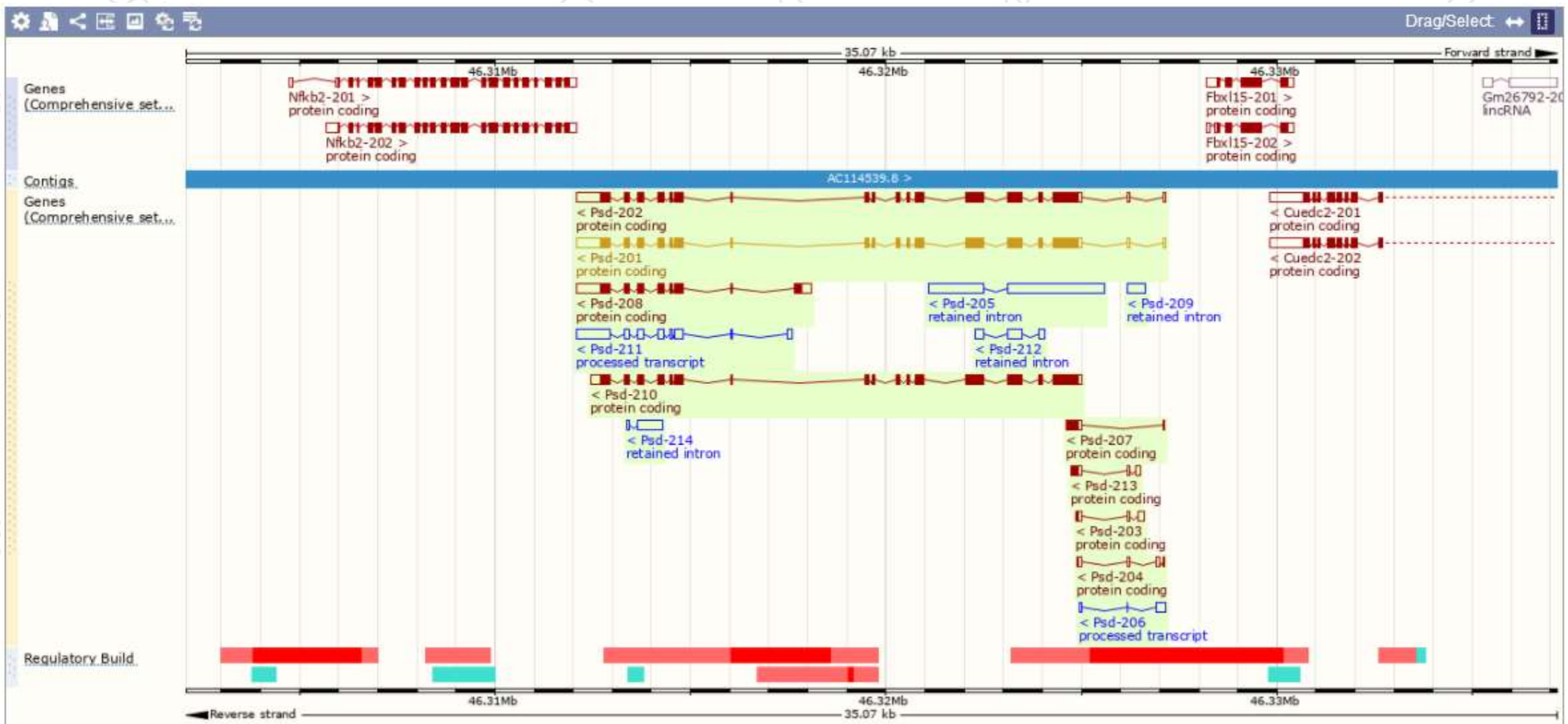
Protein domain

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