

Plcb1 Cas9-KO Strategy

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Project Overview

Project Name

Plcb1

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Plcb1* gene. The schematic diagram is as follows:



- The *Plcb1* gene has 8 transcripts. According to the structure of *Plcb1* gene, exon5-exon9 of *Plcb1*-205 (ENSMUST00000131552.4) transcript is recommended as the knockout region. The region contains 478bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Plcb1* gene. The brief process is as follows: CRISPR/Cas9 system w

- According to the existing MGI data, Homozygotes for a targeted null mutation exhibit spontaneous seizures and high mortality around 3 weeks of age. Mutant males show exhibit sperm with a reduced acrosome reaction rate and fertilizing capacity in vitro and decreased fertility in vivo.
- Some amino acids will remain at the N-terminus and some functions may be retained.
- The *Plcb1* 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.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risk of the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Plcb1 phospholipase C, beta 1 [*Mus musculus* (house mouse)]

Gene ID: 18795, updated on 10-Oct-2019

Summary

Official Symbol	Plcb1 provided by MGI
Official Full Name	phospholipase C, beta 1 provided by MGI
Primary source	MGI:MGI:97613
See related	Ensembl:ENSMUSG00000051177
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	Plcb; AI132408; mKIAA0581; 3110043I21Rik
Expression	Biased expression in frontal lobe adult (RPKM 9.1), cortex adult (RPKM 8.8) and 13 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

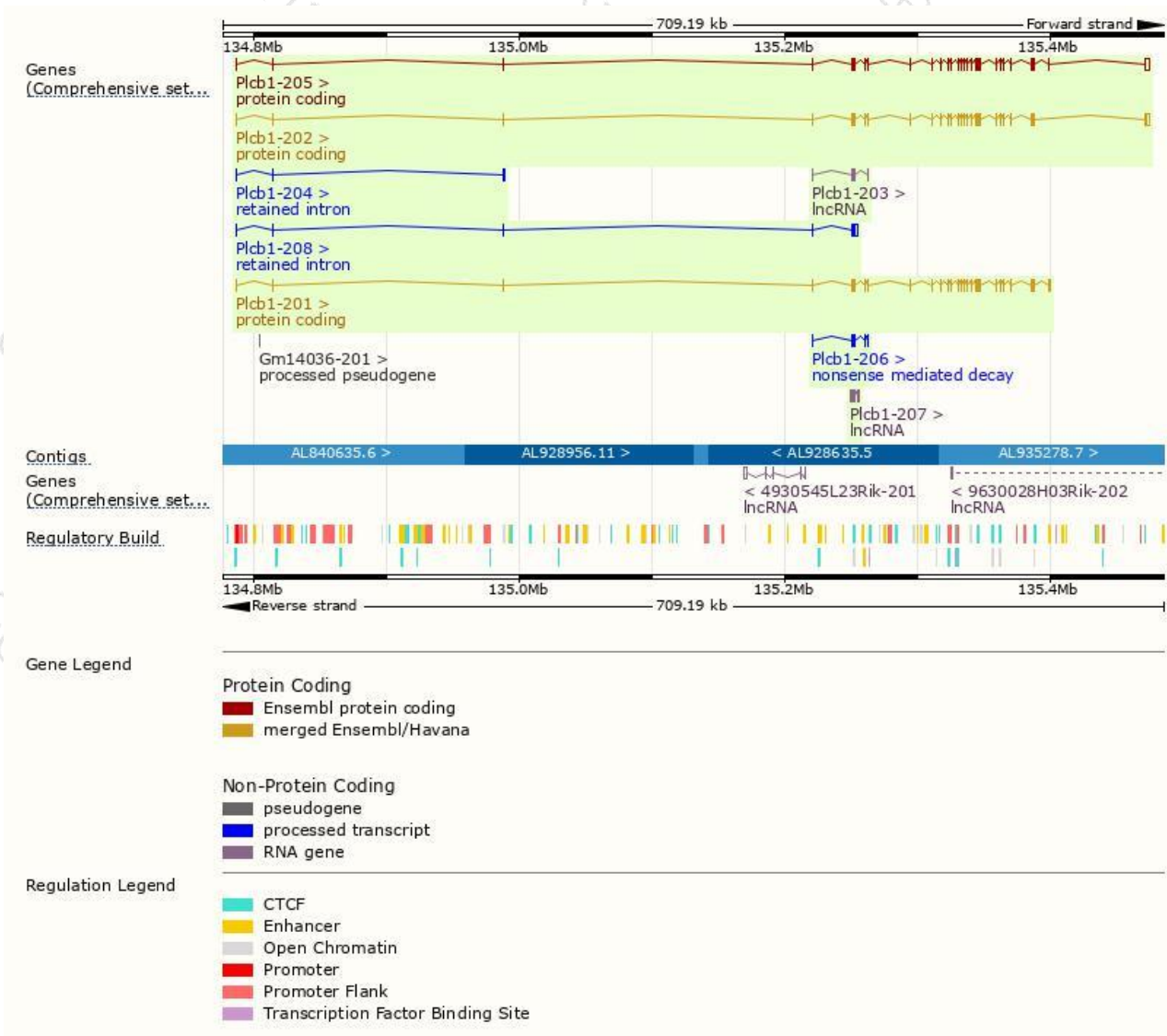
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Plcb1-205	ENSMUST00000131552.4	7202	1173aa	Protein coding	CCDS16787	Q9Z1B3	TSL:1 GENCODE basic APPRIS P3
Plcb1-202	ENSMUST00000110116.7	7003	1216aa	Protein coding	CCDS50729	Q9Z1B3	TSL:1 GENCODE basic APPRIS ALT 1
Plcb1-201	ENSMUST00000070724.11	3853	1173aa	Protein coding	CCDS16787	Q9Z1B3	TSL:1 GENCODE basic APPRIS P3
Plcb1-206	ENSMUST00000201485.3	626	59aa	Nonsense mediated decay	-	A0A0J9YUY5	CDS 5' incomplete TSL:3
Plcb1-208	ENSMUST00000202531.3	2672	No protein	Retained intron	-	-	TSL:1
Plcb1-204	ENSMUST00000130524.4	1785	No protein	Retained intron	-	-	TSL:1
Plcb1-207	ENSMUST00000201524.1	774	No protein	lncRNA	-	-	TSL:3
Plcb1-203	ENSMUST00000129382.4	493	No protein	lncRNA	-	-	TSL:5

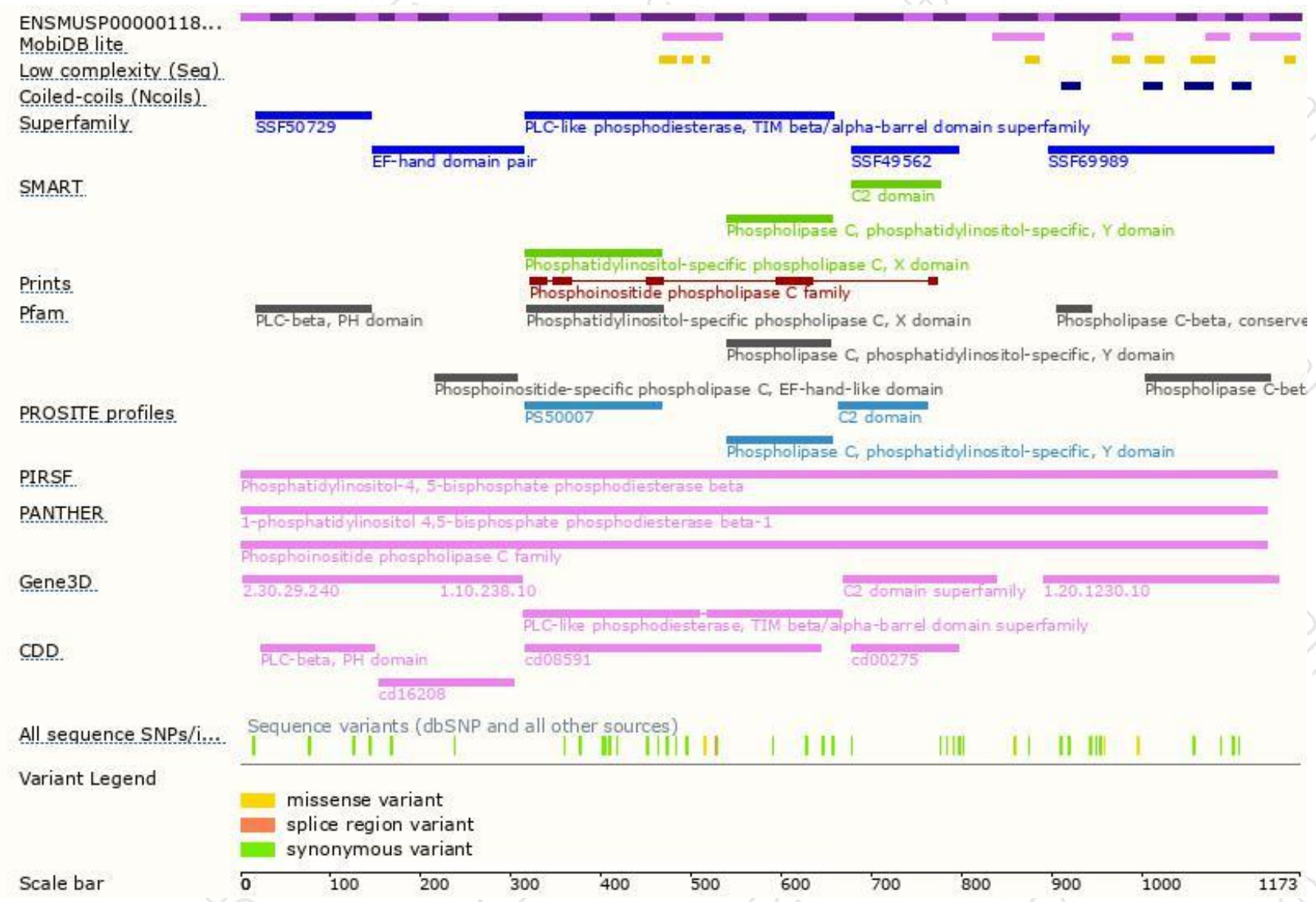
The strategy is based on the design of *Plcb1-205* transcript,The transcription is shown below



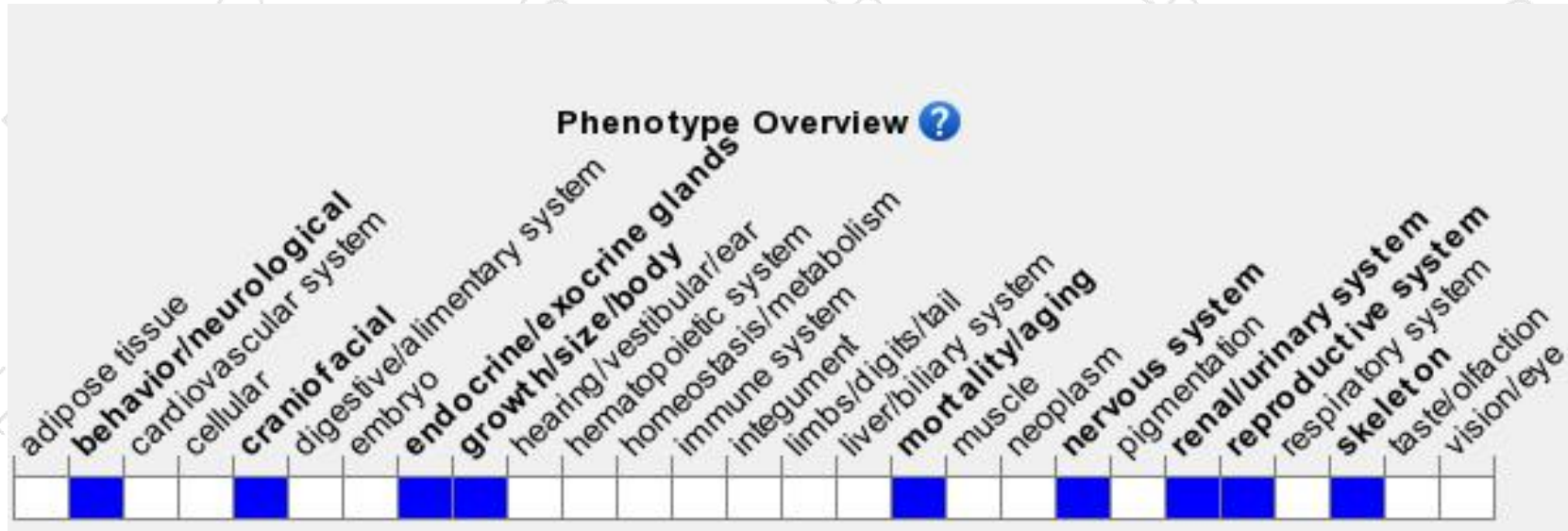
Genomic location distribution



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/>).

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

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