

Psph Cas9-CKO Strategy

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Project Overview

Project Name

Psph

Project type

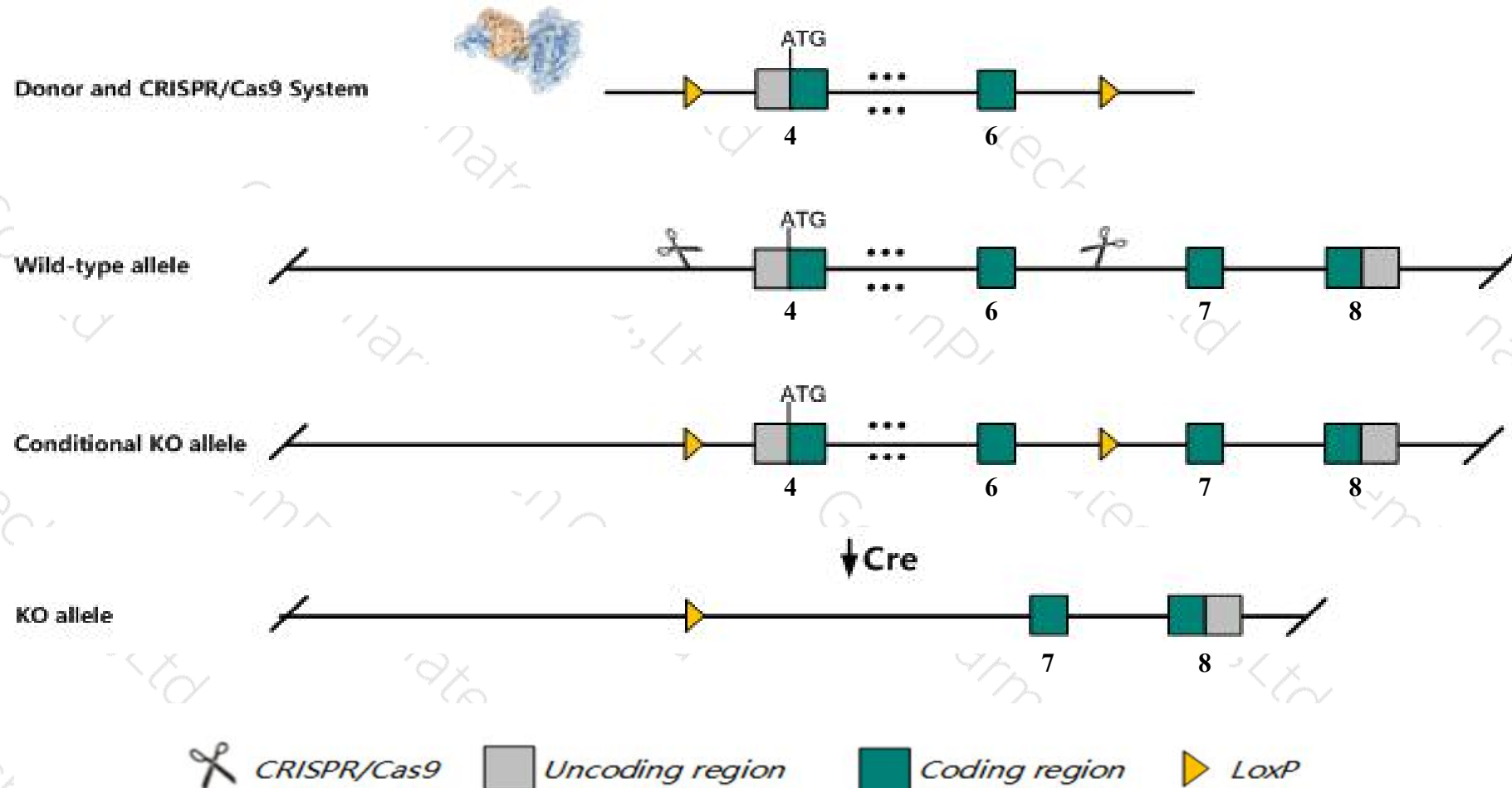
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



- The *Psph* gene has 8 transcripts. According to the structure of *Psph* gene, exon4-exon6 of *Psph-201* (ENSMUST00000031399.12) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Psph* 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.

Notice

- The *Psph* gene is located on the Chr5. 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)

Psph phosphoserine phosphatase [*Mus musculus* (house mouse)]

Gene ID: 100678, updated on 12-Aug-2019

Summary

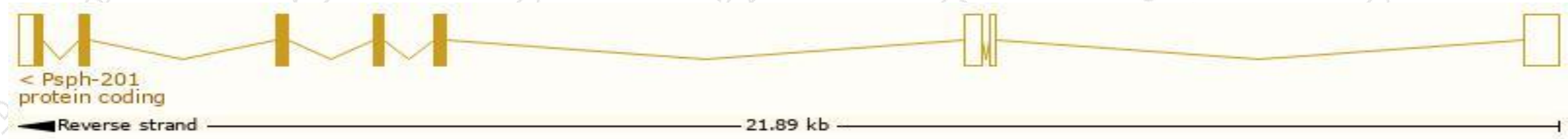
Official Symbol	Psph provided by MGI
Official Full Name	phosphoserine phosphatase provided by MGI
Primary source	MGI:MGI:97788
See related	Ensembl:ENSMUSG000000029446
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	PSP; PSPase; AI480570
Expression	Ubiquitous expression in placenta adult (RPKM 14.8), liver E14 (RPKM 8.2) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

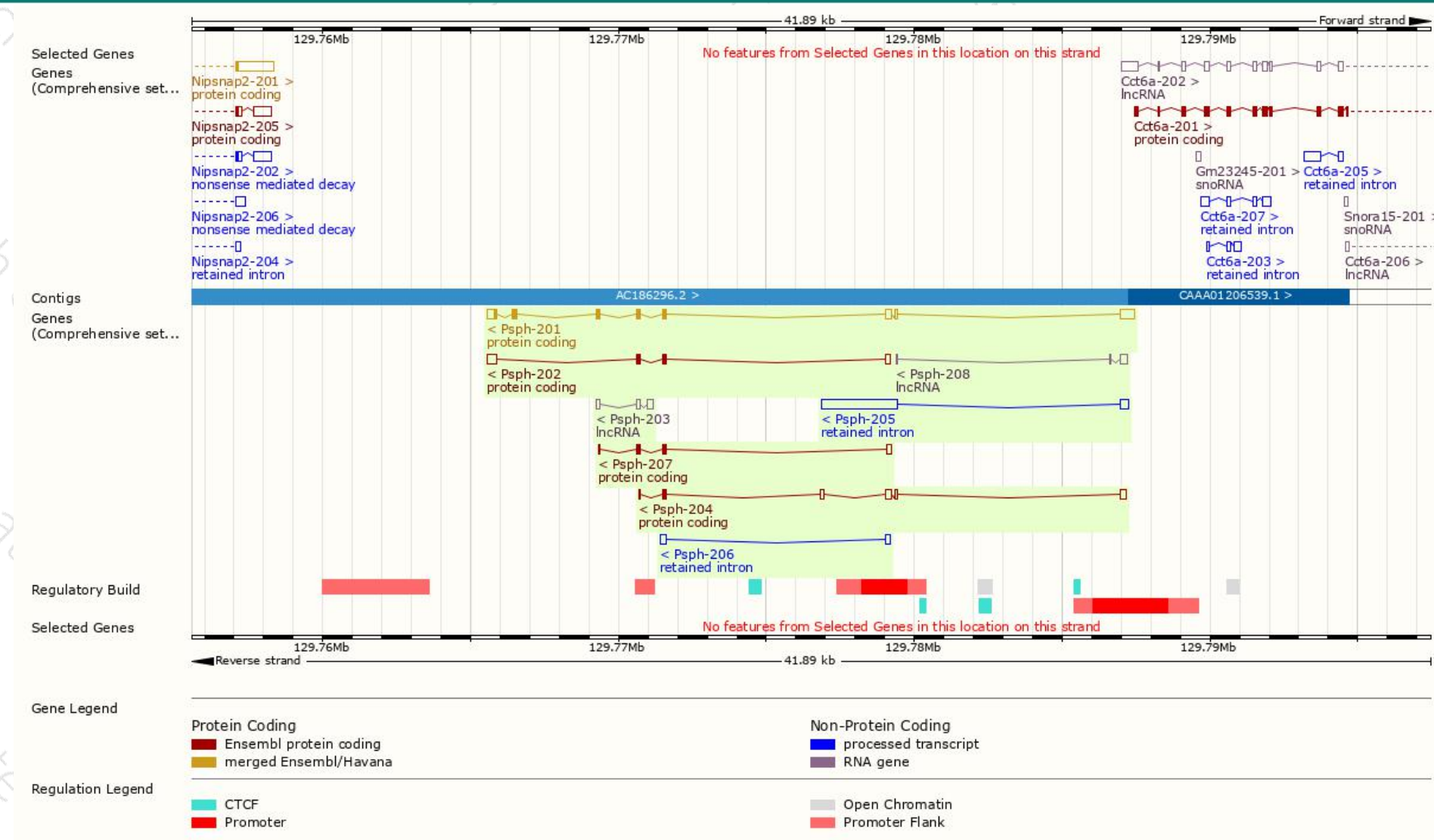
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Psph-201	ENSMUST00000031399.12	1733	225aa	Protein coding	CCDS19699	Q99LS3	TSL:1 GENCODE basic APPRIS P1
Psph-204	ENSMUST00000136507.3	820	60aa	Protein coding	-	D3Z666	CDS 3' incomplete TSL:5
Psph-202	ENSMUST00000118268.8	785	101aa	Protein coding	-	D3Z4T3	TSL:5 GENCODE basic
Psph-207	ENSMUST00000201394.3	510	113aa	Protein coding	-	A0A0J9YVH9	CDS 3' incomplete TSL:3
Psph-205	ENSMUST00000178244.1	2877	No protein	Retained intron	-	-	TSL:1
Psph-206	ENSMUST00000201022.1	398	No protein	Retained intron	-	-	TSL:2
Psph-203	ENSMUST00000136280.1	446	No protein	lncRNA	-	-	TSL:2
Psph-208	ENSMUST00000202374.1	383	No protein	lncRNA	-	-	TSL:3

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



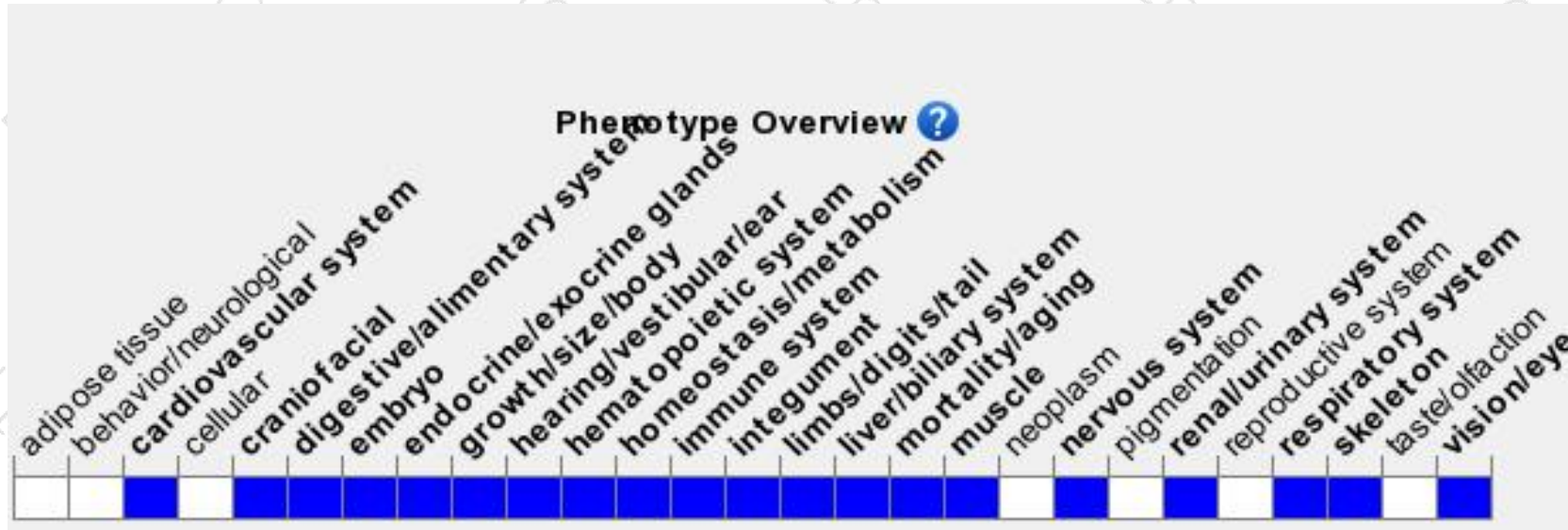
Genomic location distribution



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/>).

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

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