

Plcb2 Cas9-CKO Strategy

Designer:

Yang Zeng

Reviewer:

Jia Yu

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Project Overview

Project Name

Plcb2

Project type

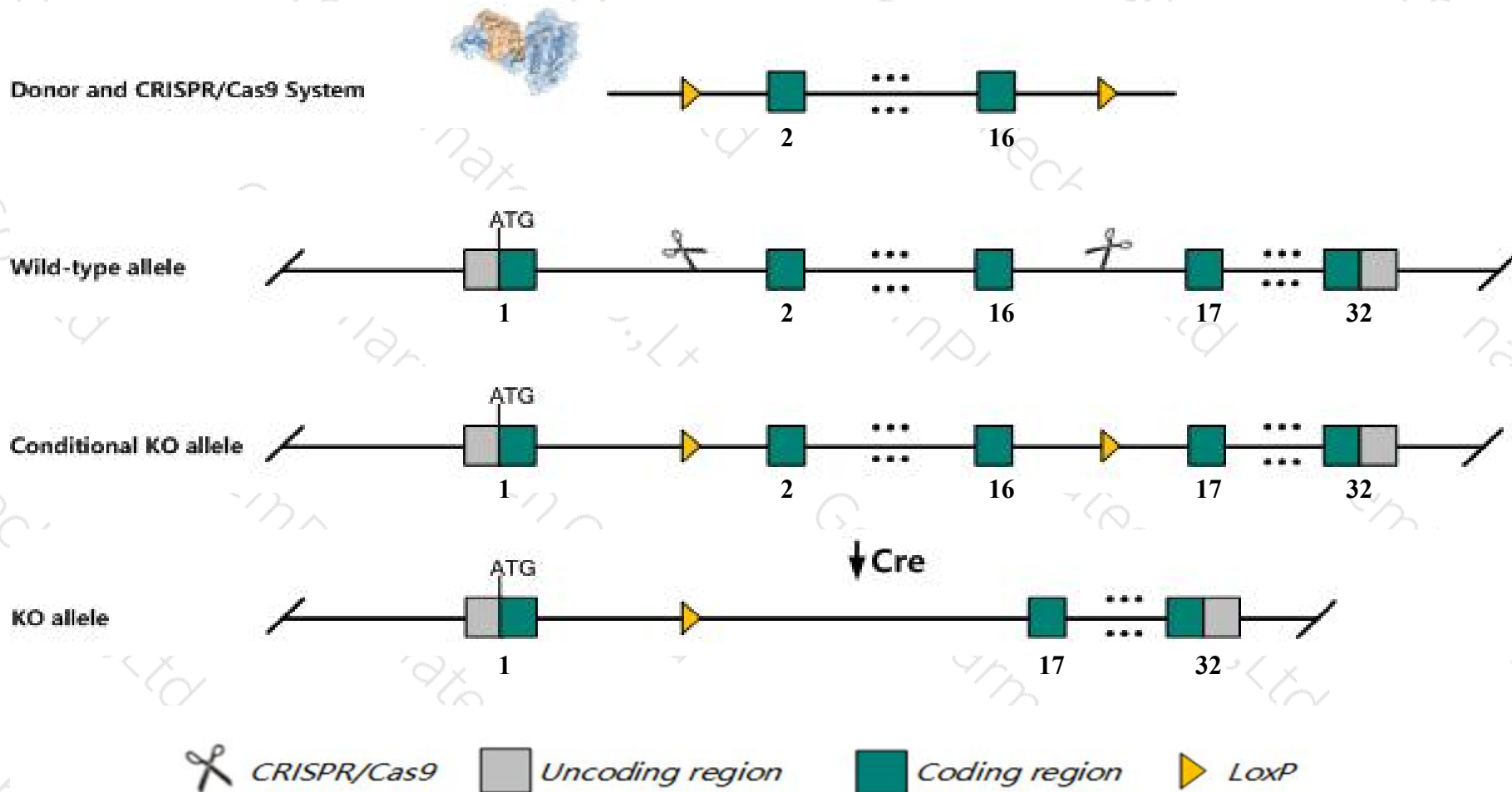
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Plcb2* gene. The schematic diagram is as follows:



Technical routes

- The *Plcb2* gene has 6 transcripts. According to the structure of *Plcb2* gene, exon2-exon16 of *Plcb2*-202 (ENSMUST00000102524.7) transcript is recommended as the knockout region. The region contains 1615bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Plcb2* 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.

- According to the existing MGI data, Homozygous mutant mice showed an increased sensitivity to both bacterial and viral infections and exhibited abnormal taste perception in which sweet, umami, and bitter stimuli could not be sensed.
- The *Plcb2* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

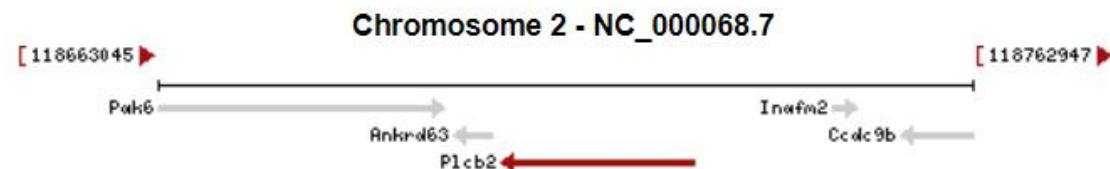
Gene information (NCBI)

Plcb2 phospholipase C, beta 2 [*Mus musculus* (house mouse)]

Gene ID: 18796, updated on 12-Aug-2019

Summary

Official Symbol	Plcb2 provided by MGI
Official Full Name	phospholipase C, beta 2 provided by MGI
Primary source	MGI:MGI:107465
See related	Ensembl:ENSMUSG00000040061
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	AI550384; B230399N12; B230205M18Rik
Expression	Biased expression in thymus adult (RPKM 18.9), spleen adult (RPKM 10.7) and 9 other tissues See more
Orthologs	human all

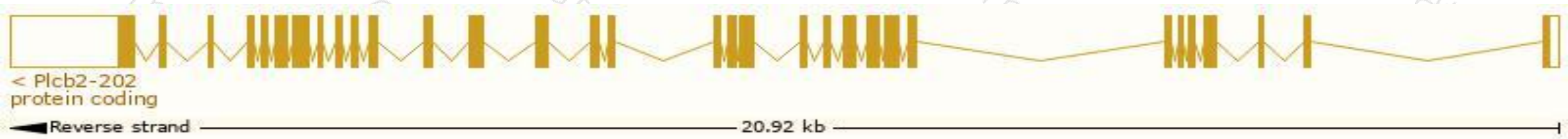


Transcript information (Ensembl)

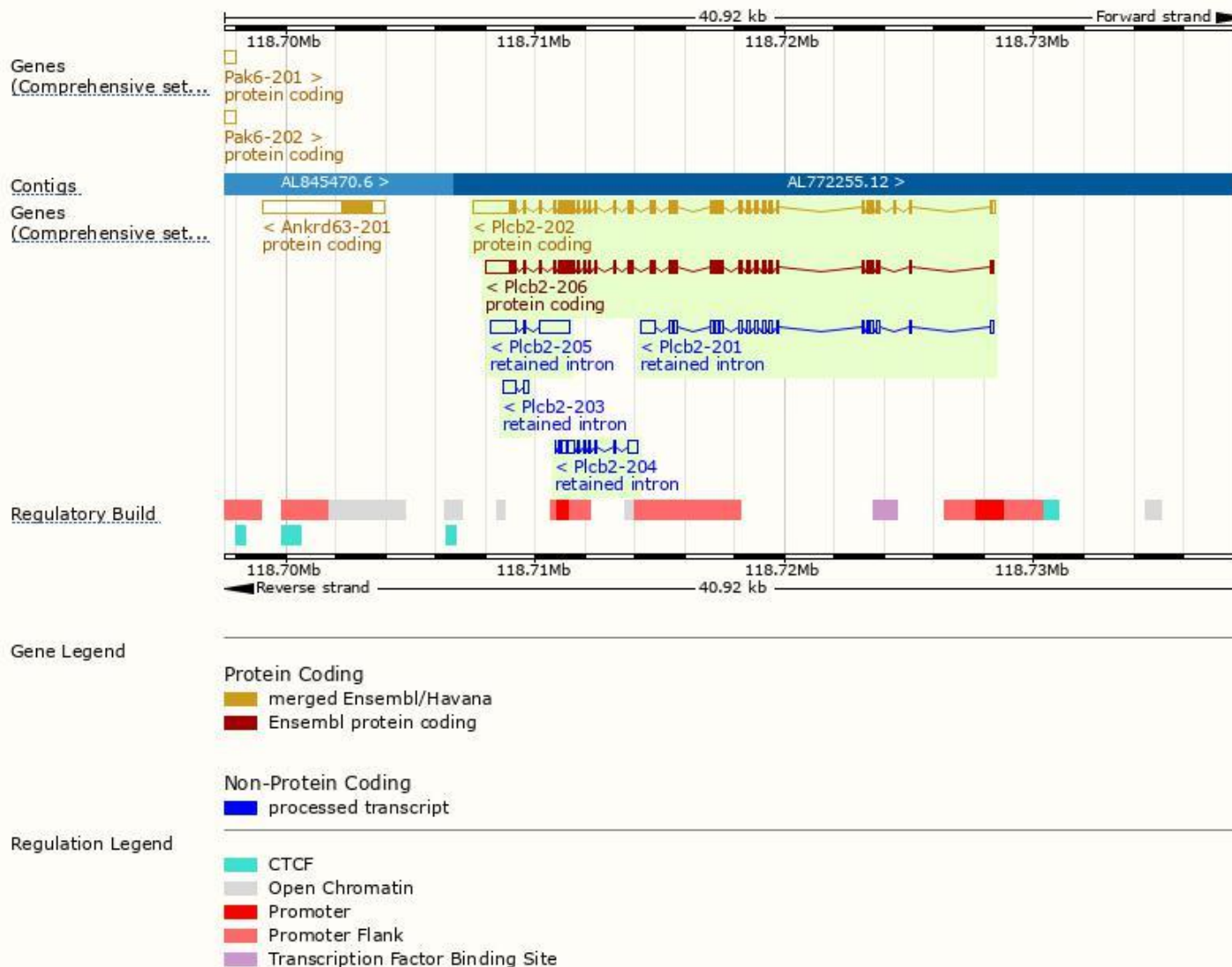
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Plcb2-202	ENSMUST00000102524.7	5145	1181aa	ENSMUSP00000099583.1	Protein coding	CCDS16582	A3KGF7	TSL:2 GENCODE basic APPRIS P3
Plcb2-206	ENSMUST00000159756.1	4518	1158aa	ENSMUSP00000124364.1	Protein coding	CCDS71117	E9PYI3	TSL:1 GENCODE basic APPRIS ALT2
Plcb2-201	ENSMUST00000006415.5	2456	No protein	-	Retained intron	-	-	TSL:1
Plcb2-205	ENSMUST00000129153.1	2278	No protein	-	Retained intron	-	-	TSL:1
Plcb2-204	ENSMUST00000127248.1	1248	No protein	-	Retained intron	-	-	TSL:5
Plcb2-203	ENSMUST00000126907.1	708	No protein	-	Retained intron	-	-	TSL:3

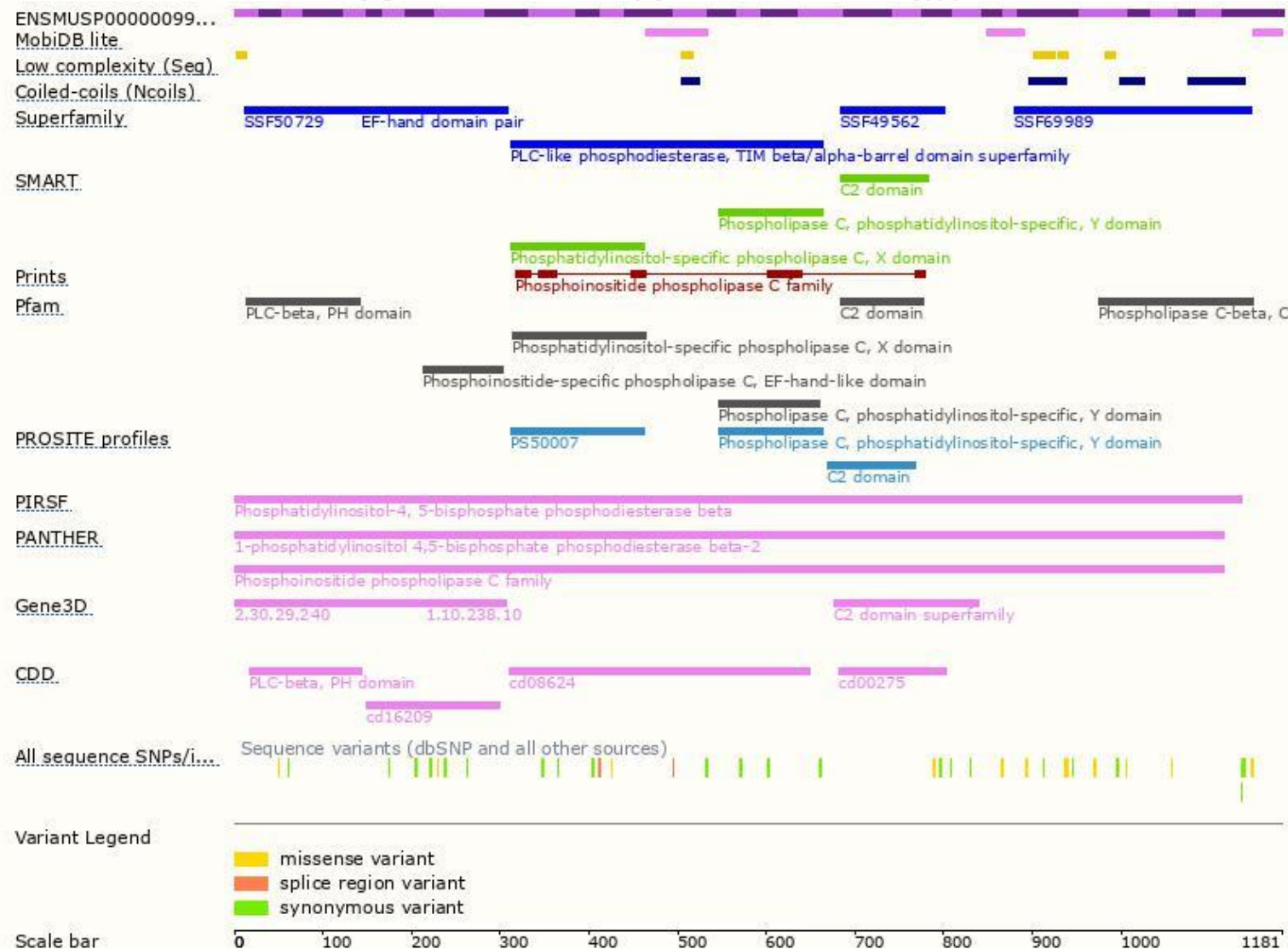
The strategy is based on the design of *Plcb2-202* transcript,The transcription is shown below



Genomic location distribution

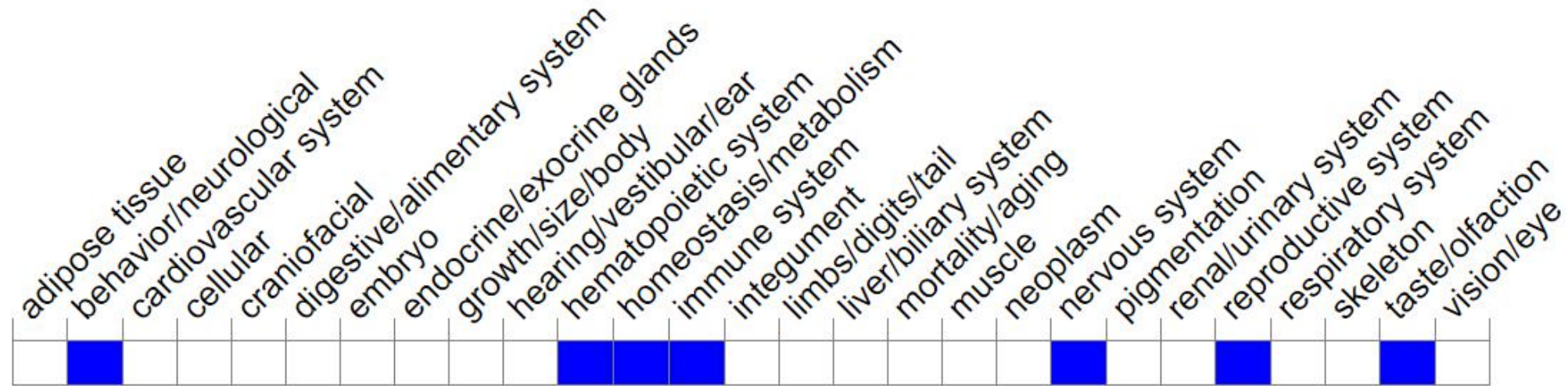


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview ?



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

According to the existing MGI data, Homozygous mutant mice showed an increased sensitivity to both bacterial and viral infections and exhibited abnormal taste perception in which sweet, umami, and bitter stimuli could not be sensed.

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

Tel: 400-9660890

