

Pja2 Cas9-CKO Strategy

Designer:

JiaYu

Reviewer:

Xiaojing Li

Design Date:

2020-3-4

Project Overview

Project Name

Pja2

Project type

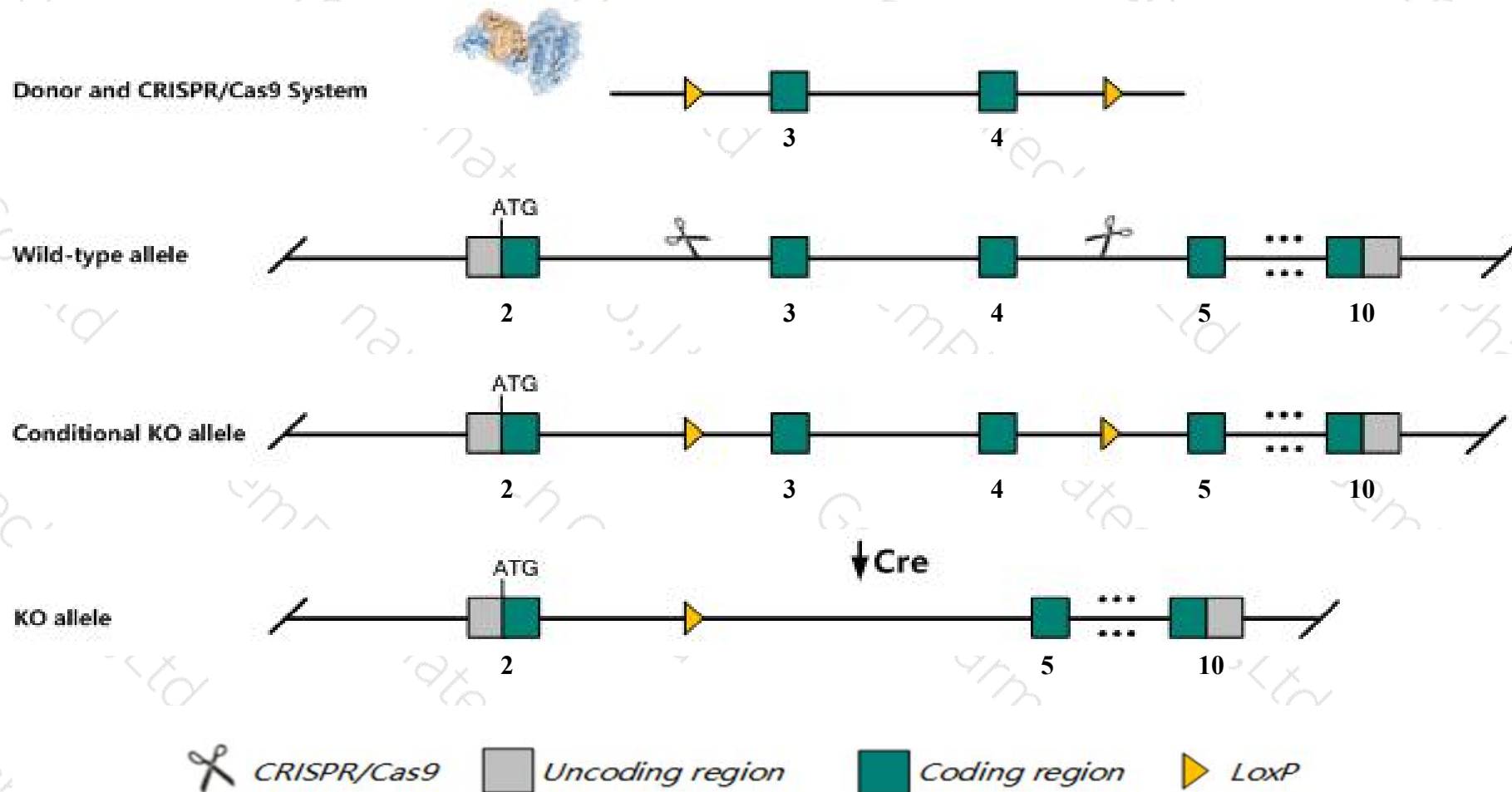
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pja2* gene. The schematic diagram is as follows:



Technical routes

- The *Pja2* gene has 5 transcripts. According to the structure of *Pja2* gene, exon3-exon4 of *Pja2*-204 (ENSMUST00000172818.7) transcript is recommended as the knockout region. The region contains 1246bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pja2* 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 *Pja2* gene is located on the Chr17. 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)

Pja2 praja ring finger ubiquitin ligase 2 [Mus musculus (house mouse)]

Gene ID: 224938, updated on 31-Jan-2019

Summary



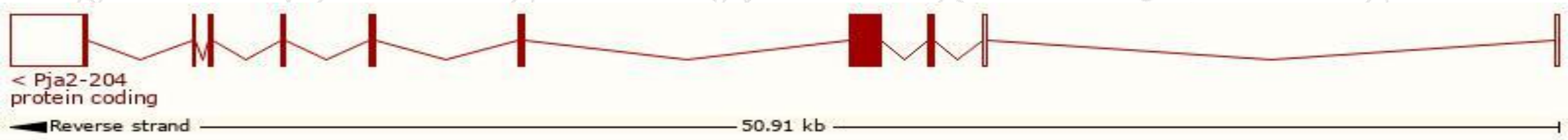
Official Symbol	Pja2 provided by MGI
Official Full Name	praja ring finger ubiquitin ligase 2 provided by MGI
Primary source	MGI:MGI:2159342
See related	Ensembl:ENSMUSG00000024083
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI447901, AL022700, Neurodap1, mKIAA0438
Expression	Broad expression in frontal lobe adult (RPKM 42.7), cortex adult (RPKM 39.3) and 25 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

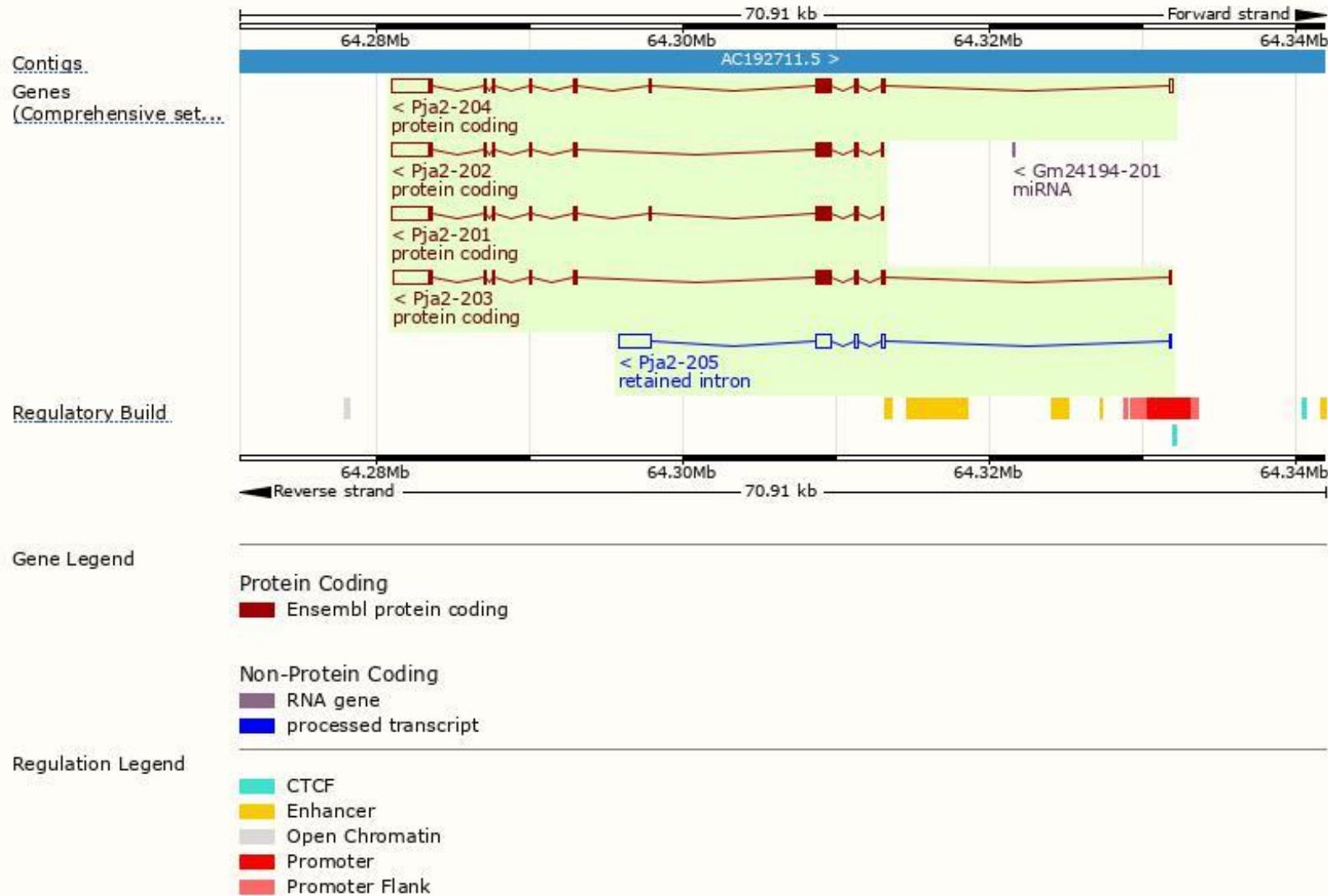
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pja2-204	ENSMUST00000172818.7	4740	707aa	Protein coding	CCDS37675	Q80U04	TSL:1 GENCODE basic APPRIS P4
Pja2-201	ENSMUST00000024888.14	4531	707aa	Protein coding	CCDS37675	Q80U04	TSL:5 GENCODE basic APPRIS P4
Pja2-203	ENSMUST00000172733.1	4488	645aa	Protein coding	CCDS37674	Q80U04	TSL:1 GENCODE basic APPRIS ALT2
Pja2-202	ENSMUST00000024889.13	4345	645aa	Protein coding	CCDS37674	Q80U04	TSL:1 GENCODE basic APPRIS ALT2
Pja2-205	ENSMUST00000232842.1	3559	No protein	Retained intron	-	-	

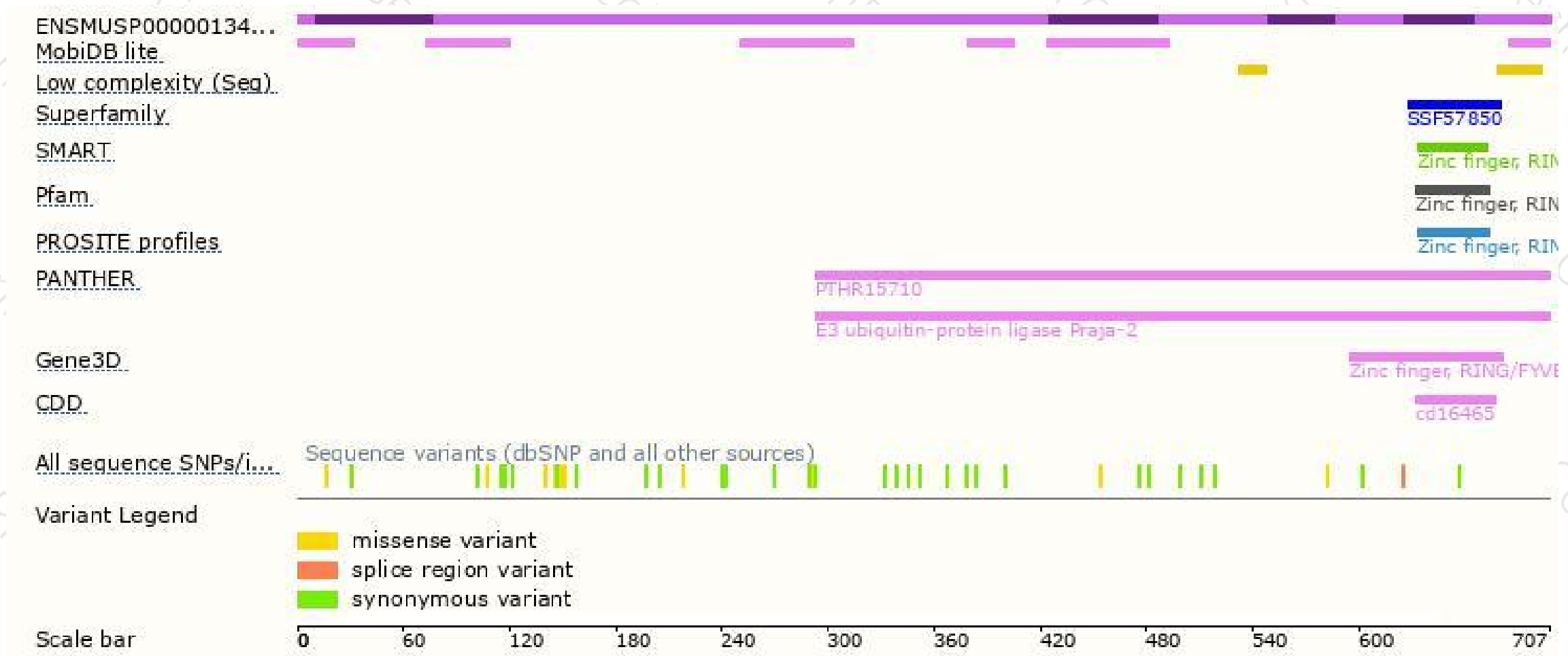
The strategy is based on the design of *Pja2-204* transcript,The transcription is shown below



Genomic location distribution

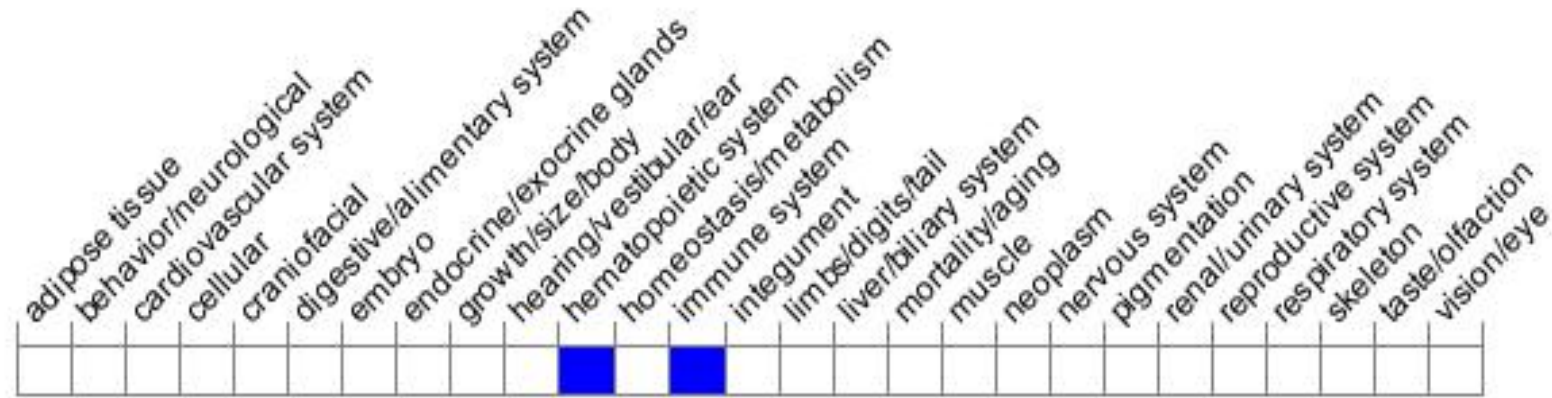


Protein domain



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/>).

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

Tel: 400-9660890

