

Pias1 Cas9-CKO Strategy

Designer: Longyun Hu

Reviewer: Rui Xiong

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Project Overview

Project Name

Pias1

Project type

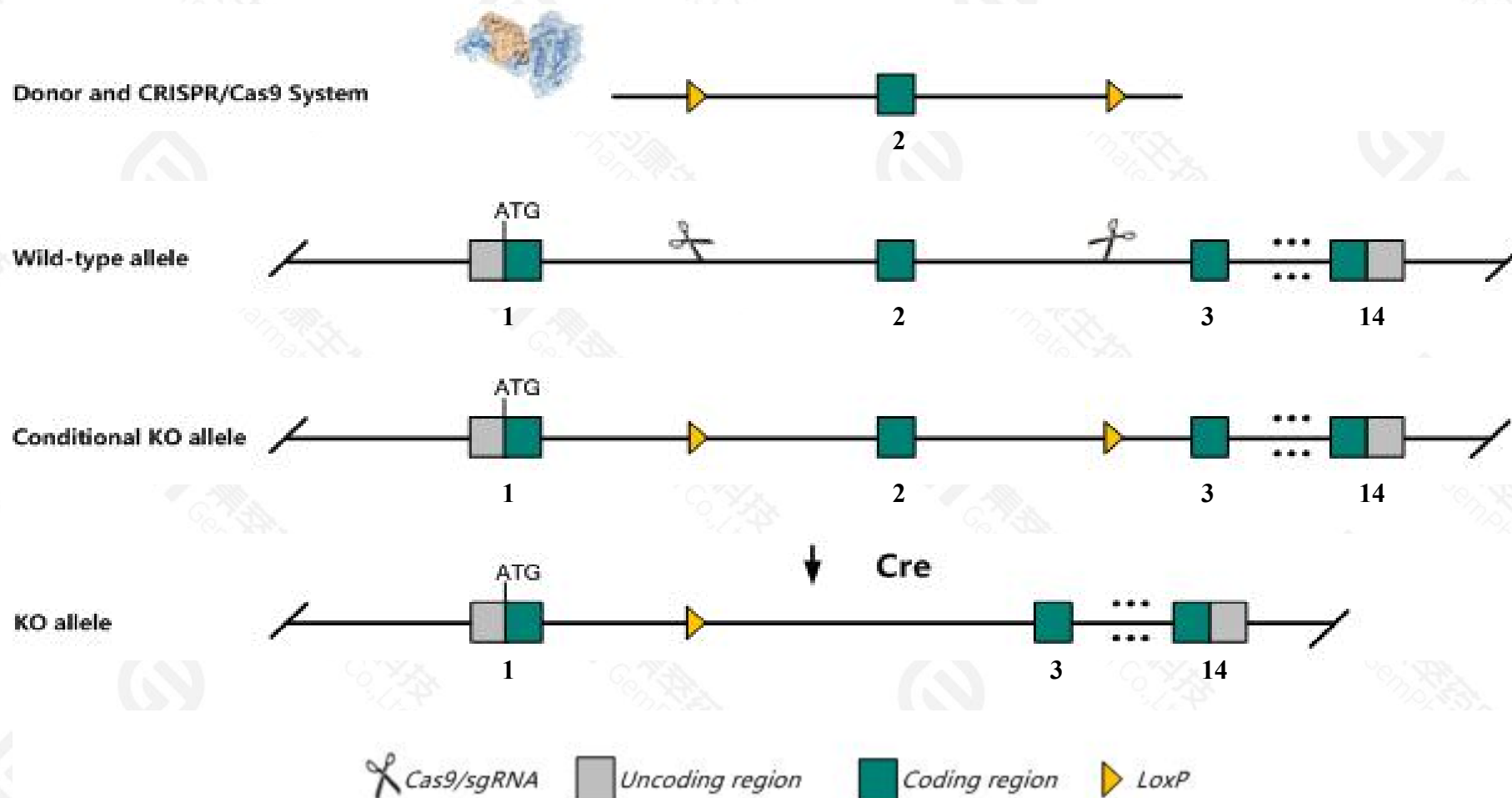
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pias1* gene. The schematic diagram is as follows:



Technical routes

- The *Pias1* gene has 5 transcripts. According to the structure of *Pias1* gene, exon2 of *Pias1-201*(ENSMUST00000098651.6) transcript is recommended as the knockout region. The region contains 445bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pias1* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor was constructed. Cas9, sgRNA 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 was 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 null mice display partial perinatal lethality, reduced body size, decreased susceptibility to viral infection, and increased susceptibility to bacterial infection and LPS-induced endotoxin shock.
- The *Pias1* gene is located on the Chr9. 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)

Pias1 protein inhibitor of activated STAT 1 [Mus musculus (house mouse)]

Gene ID: 56469, updated on 17-Dec-2020

Summary



Official Symbol Pias1 provided by [MGI](#)

Official Full Name protein inhibitor of activated STAT 1 provided by [MGI](#)

Primary source [MGI:MGI:1913125](#)

See related [Ensembl:ENSMUSG00000032405](#)

Gene type protein coding

RefSeq status PROVISIONAL

Organism [Mus musculus](#)

Lineage Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus

Also known as 2900068C24Rik, Ddxbp, Ddxbp1, GB, GBP

Expression Ubiquitous expression in testis adult (RPKM 32.8), lung adult (RPKM 10.1) and 28 other tissues [See more](#)

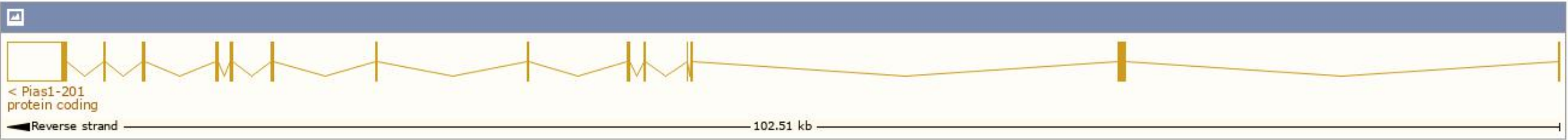
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

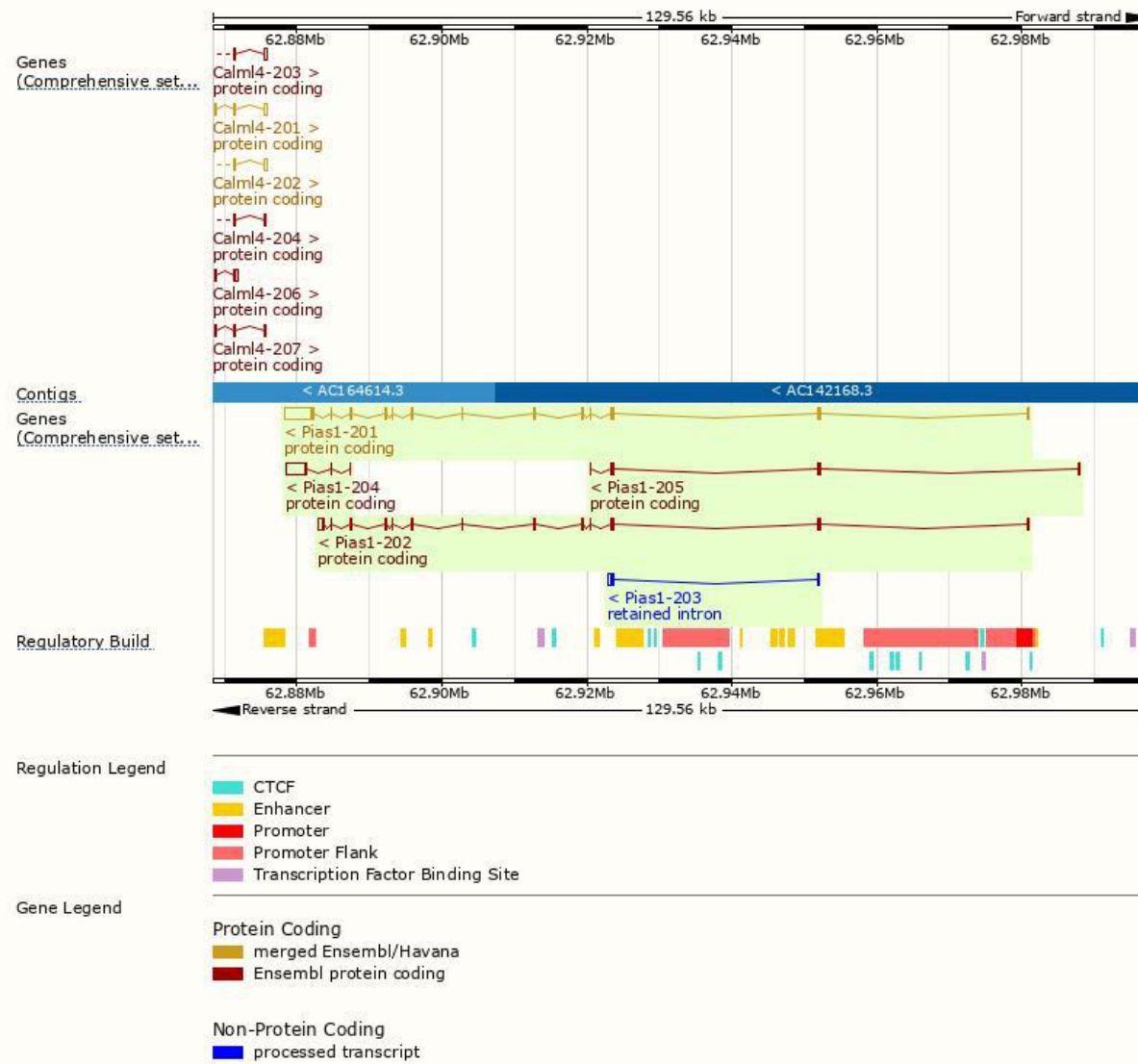
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pias1-201	ENSMUST00000098651.6	5564	651aa	Protein coding	CCDS40665		TSL:1 , GENCODE basic , APPRIS P1 ,
Pias1-204	ENSMUST00000215501.2	2895	85aa	Protein coding	-		CDS 5' incomplete , TSL:1 ,
Pias1-202	ENSMUST00000214830.2	2492	577aa	Protein coding	-		TSL:1 , GENCODE basic ,
Pias1-205	ENSMUST00000216209.2	739	222aa	Protein coding	-		CDS 3' incomplete , TSL:3 ,
Pias1-203	ENSMUST00000215455.2	748	No protein	Retained intron	-		TSL:2 ,

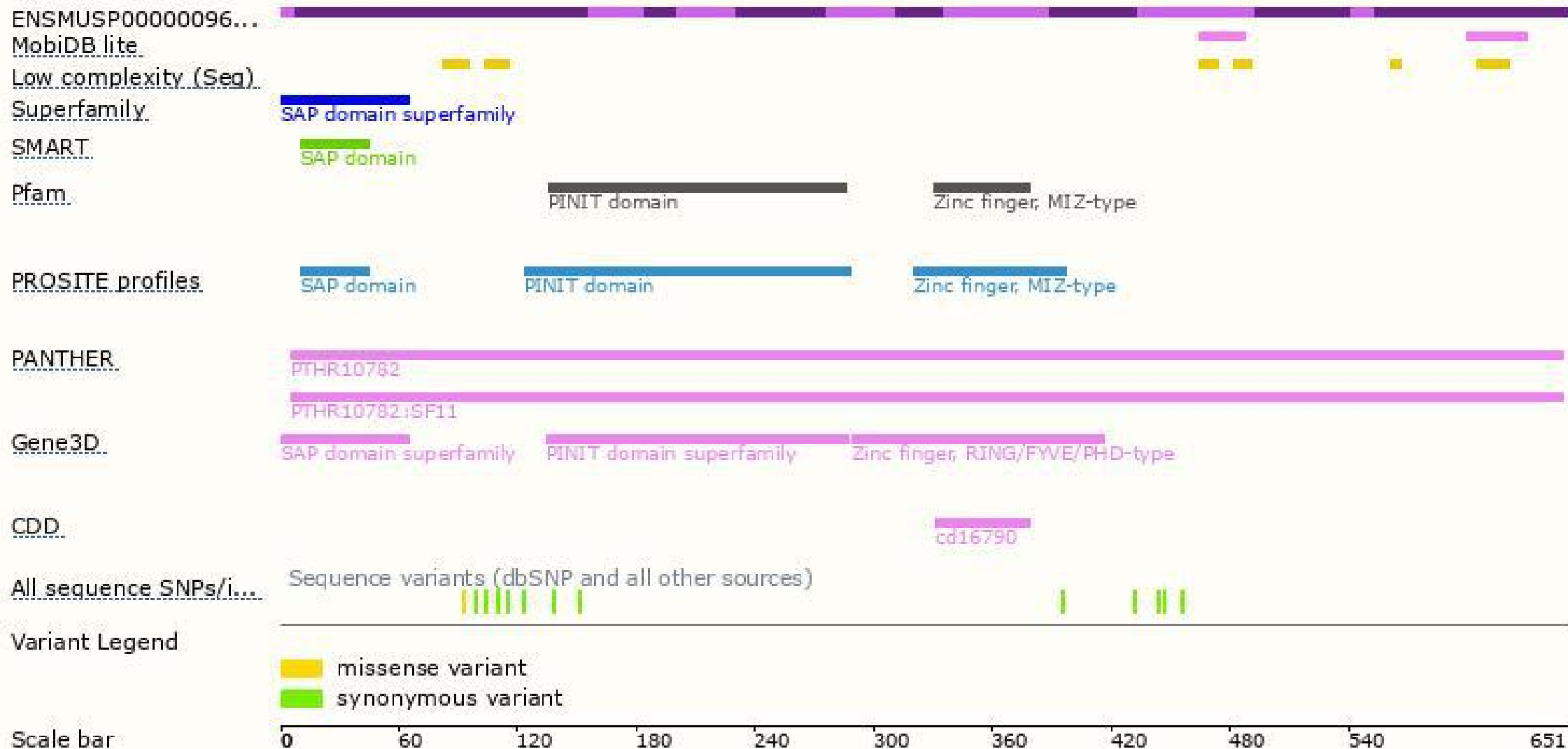
The strategy is based on the design of *Pias1-201* transcript,the transcription is shown below:



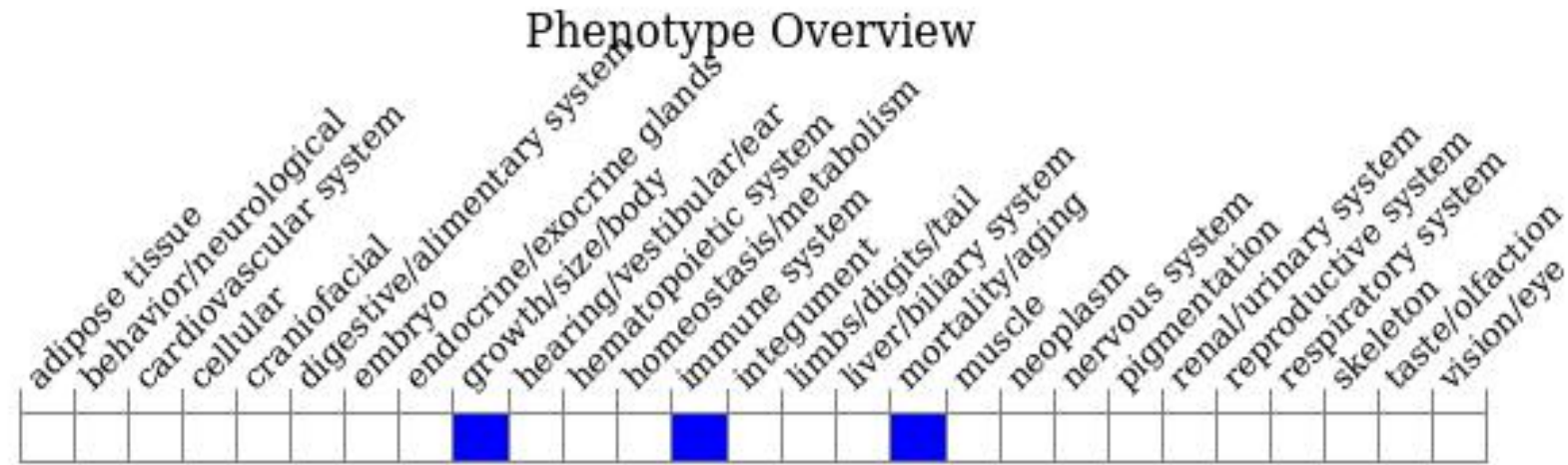
Genomic location distribution



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/>).

According to the existing MGI data, homozygous null mice display partial perinatal lethality, reduced body size, decreased susceptibility to viral infection, and increased susceptibility to bacterial infection and LPS-induced endotoxin shock.

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

Tel: 025-5864 1534

