

Pglyrp1 Cas9-CKO Strategy

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Project Overview

Project Name

Pglyrp1

Project type

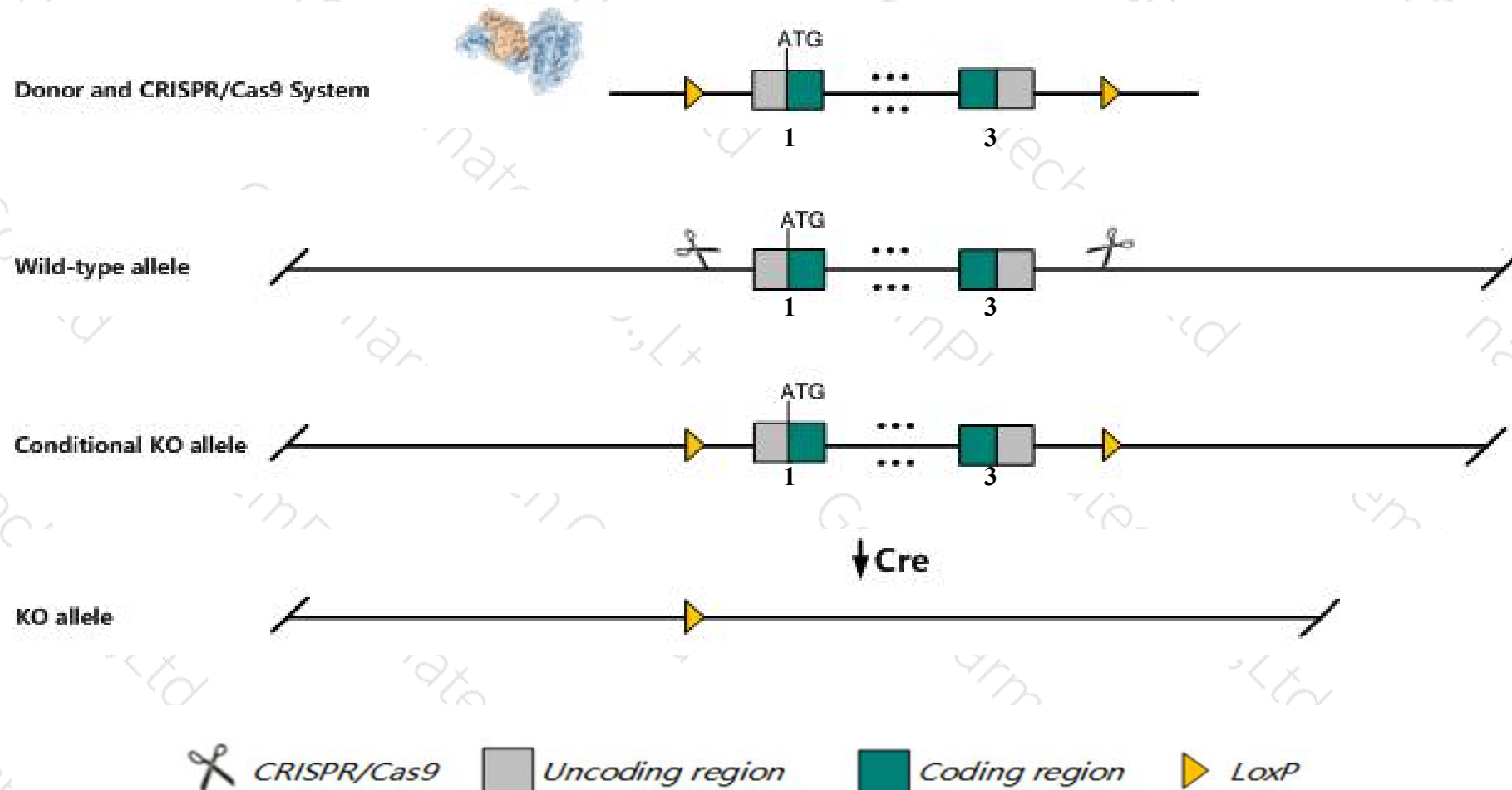
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



- The *Pglyrp1* gene has 4 transcripts. According to the structure of *Pglyrp1* gene, exon1-exon3 of *Pglyrp1*-201 (ENSMUST00000032573.7) transcript is recommended as the knockout region. The region contains all of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pglyrp1* 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 show a defect in neutrophil killing and increased susceptibility to infection with non-pathogenic gram-positive bacteria or DSS-induced colitis.
- The floxed region is near to the C-terminal of *Ccdc61* gene, this strategy may influence the regulatory function of the C-terminal of *Ccdc61* gene.
- The *Pglyrp1* gene is located on the Chr7. 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)



Pglyrp1 peptidoglycan recognition protein 1 [*Mus musculus* (house mouse)]

Gene ID: 21946, updated on 10-Oct-2019

Summary

Official Symbol	Pglyrp1 provided by MGI
Official Full Name	peptidoglycan recognition protein 1 provided by MGI
Primary source	MGI:MGI:1345092
See related	Ensembl:ENSMUSG00000030413
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	PGRP; Tag7; Tasg7; PGRP-S; Pglyrp; Tnfsf3l
Expression	Biased expression in colon adult (RPKM 543.4), duodenum adult (RPKM 351.9) and 6 other tissues See more
Orthologs	human all

Genomic context

Location: 7; 7 A3

See Pglyrp1 in [Genome Data Viewer](#)

Exon count: 3

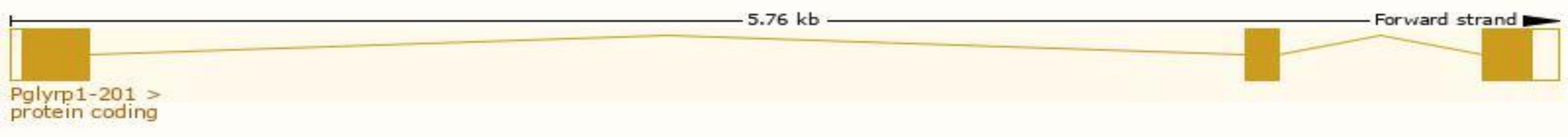
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	7	NC_000073.6 (18884690..18890438)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	7	NC_000073.5 (19470039..19475787)

Transcript information (Ensembl)

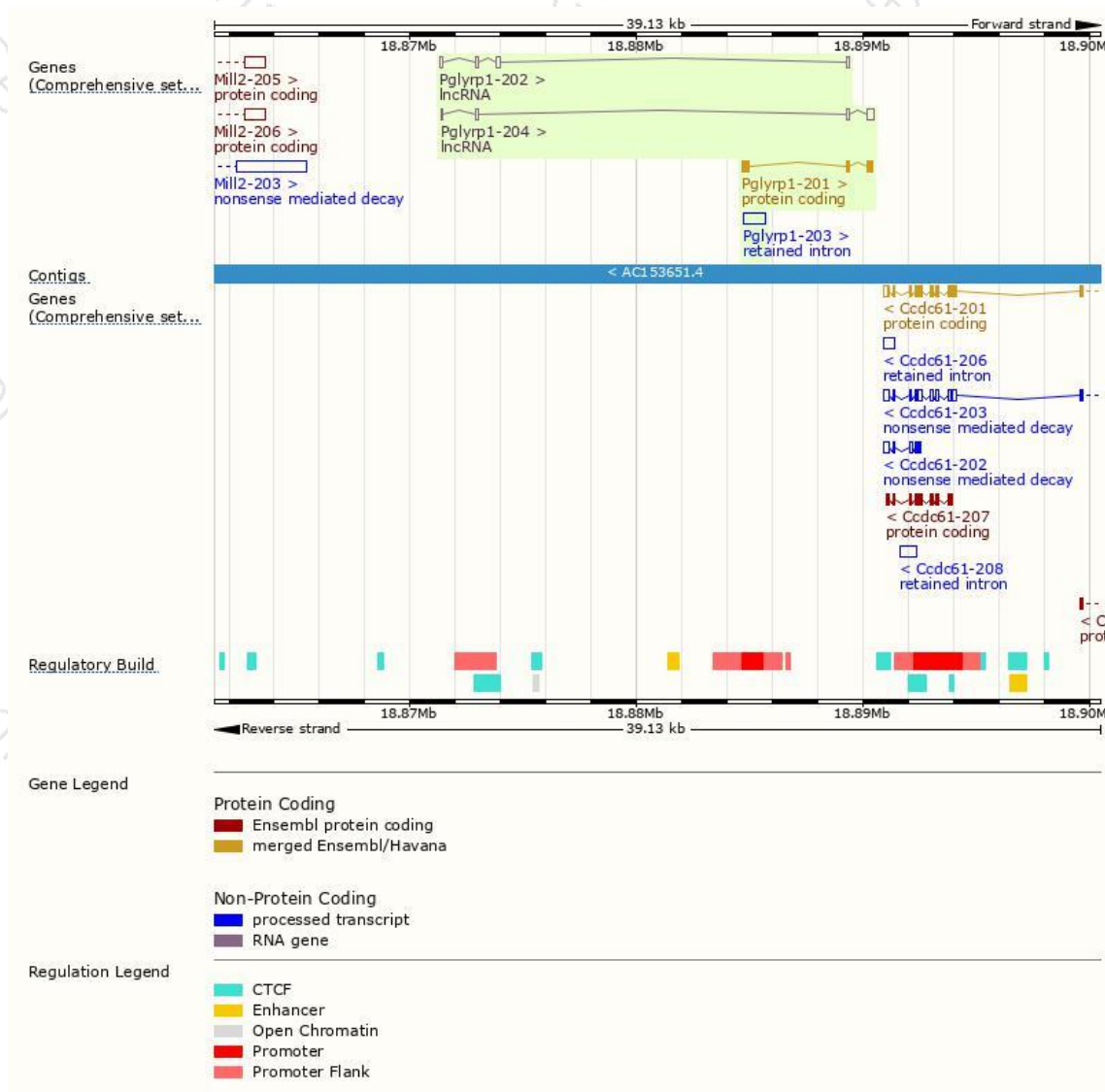
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pglyrp1-201	ENSMUST00000032573.7	694	182aa	Protein coding	CCDS20881	O88593 Q4FK86	TSL:1 GENCODE basic APPRIS P1
Pglyrp1-203	ENSMUST00000206481.1	1008	No protein	Retained intron	-	-	TSL:NA
Pglyrp1-204	ENSMUST00000206569.1	586	No protein	lncRNA	-	-	TSL:2
Pglyrp1-202	ENSMUST00000206206.1	520	No protein	lncRNA	-	-	TSL:3

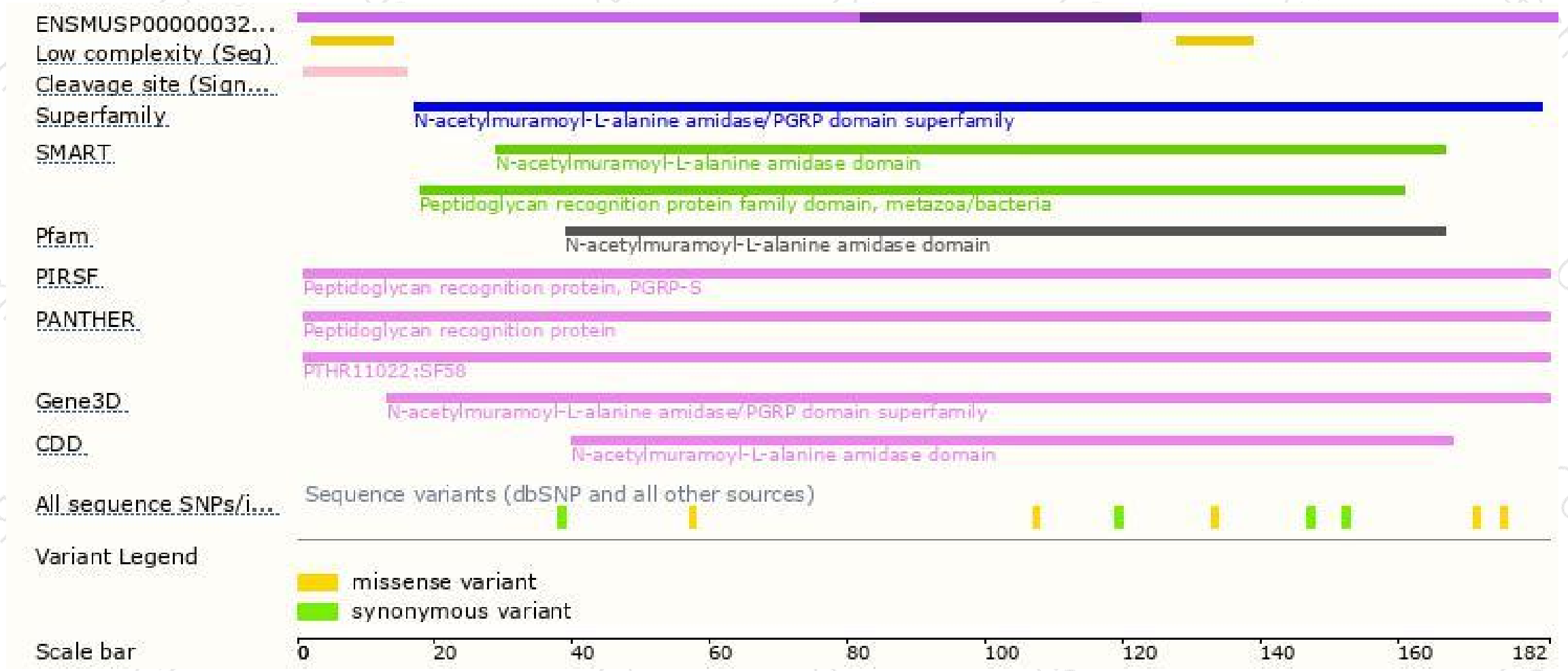
The strategy is based on the design of *Pglyrp1-201* transcript,The transcription is shown below



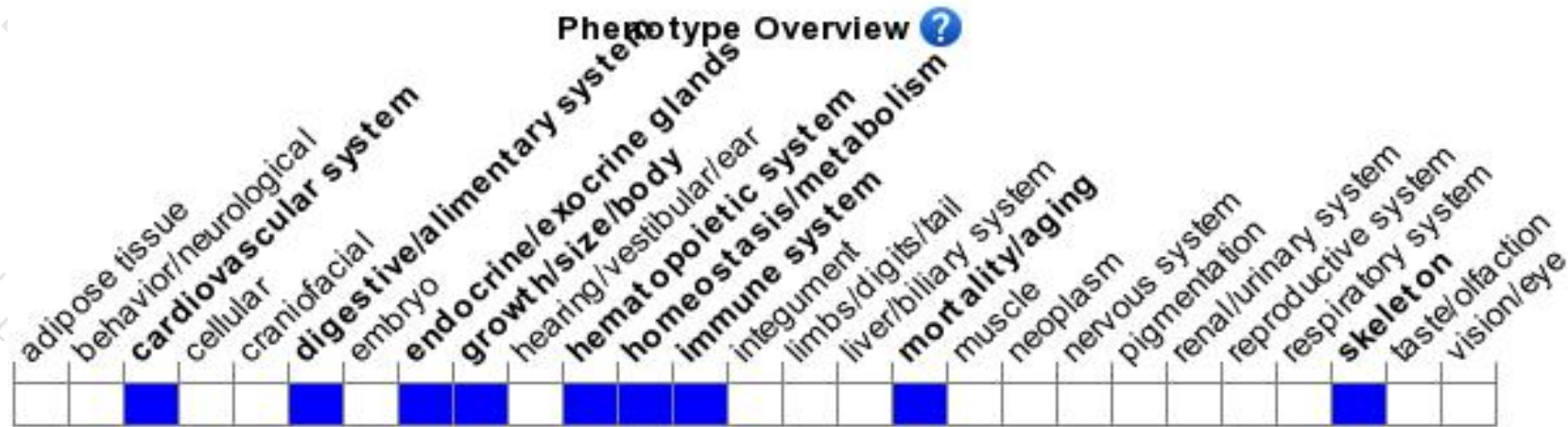
Genomic location distribution



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 mutant mice show a defect in neutrophil killing and increased susceptibility to infection with non-pathogenic gram-positive bacteria or DSS-induced colitis.

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

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