

Pglyrp2 Cas9-KO Strategy

Designer:

Project Overview

Project Name

Pglyrp2

Project type

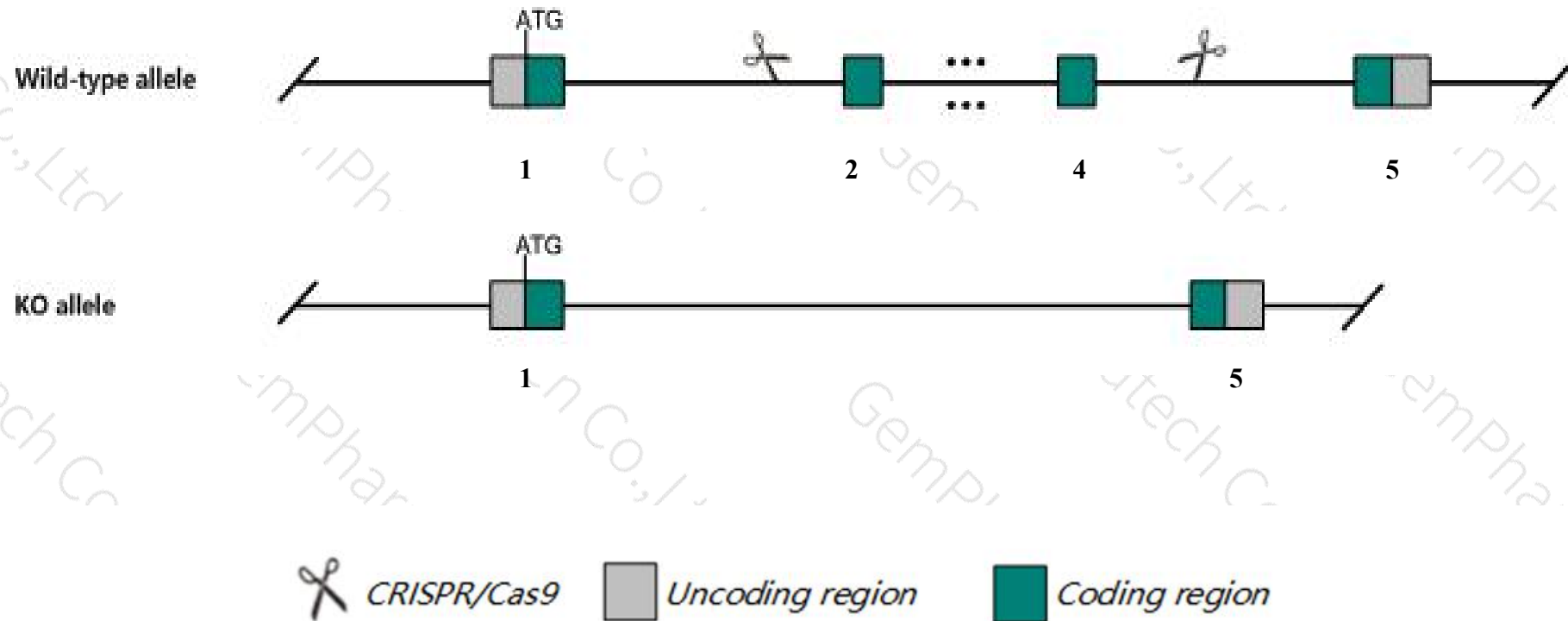
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pglyrp2* gene. The schematic diagram is as follows:



- The *Pglyrp2* gene has 8 transcripts. According to the structure of *Pglyrp2* gene, exon2-exon4 of *Pglyrp2-202* (ENSMUST00000170392.8) transcript is recommended as the knockout region. The region contains 1517bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pglyrp2* gene. The brief process is as follows: gRNA was transcribed in vitro. Cas9 and gRNA 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.

- According to the existing MGI data, Mice homozygous for disruption of this gene are viable and fertile with no gross developmental defects. Mice homozygous for a different knock-out allele are resistant to peptidoglycan- or muramyl dipeptide-induced arthritis and increased susceptibility to DSS-induced colitis.
- The KO region deletes most of the transcript 201 and 208 coding sequence, but does not result in frameshift.
- The *Pglyrp2* 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 gene transcription and translation processes, all risks cannot be predicted under existing information.

Gene information (NCBI)

Pglyrp2 peptidoglycan recognition protein 2 [Mus musculus (house mouse)]

Gene ID: 57757, updated on 3-Feb-2019

Summary



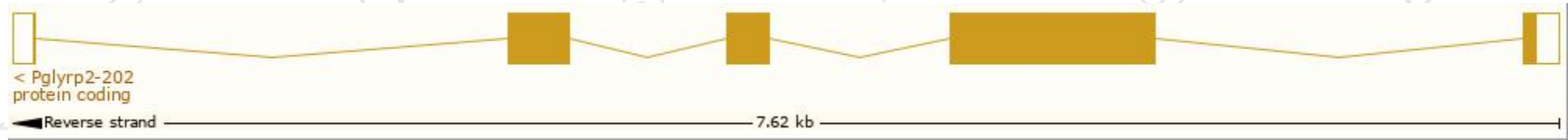
Official Symbol	Pglyrp2 provided by MGI
Official Full Name	peptidoglycan recognition protein 2 provided by MGI
Primary source	MGI:MGI:1928099
See related	Ensembl:ENSMUSG00000079563
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	C730002N09Rik, PGRP-L, Pglyrpl, tagL
Expression	Biased expression in liver adult (RPKM 42.8), thymus adult (RPKM 34.2) and 4 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

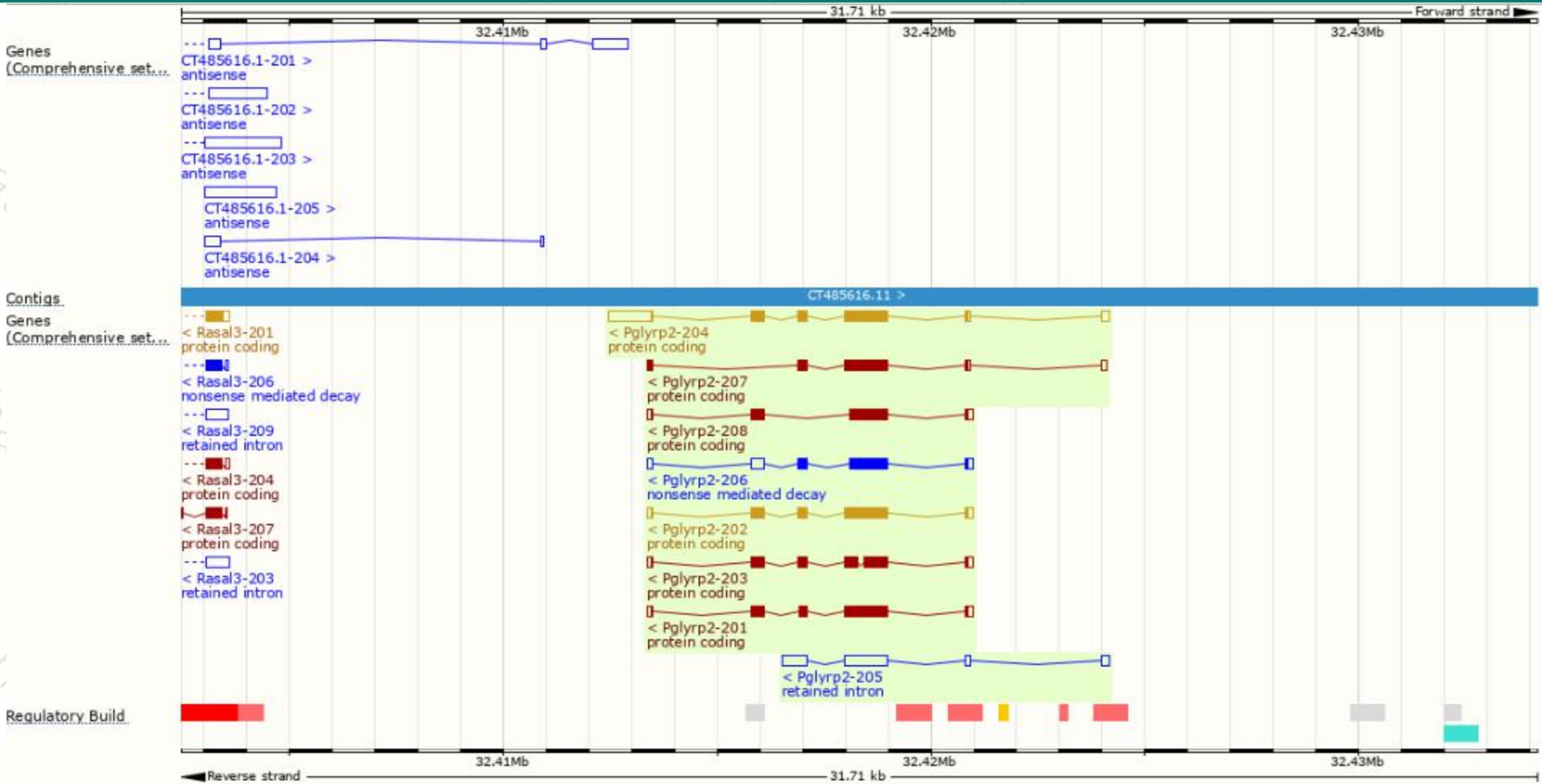
The gene has 8 transcript,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pglyrp2-204	ENSMUST00000236386.1	2817	530aa	Protein coding	CCDS37557	-	GENCODE basic APPRIS P2
Pglyrp2-202	ENSMUST00000170392.8	1807	530aa	Protein coding	CCDS37557	Q8VCS0	TSL:1 GENCODE basic APPRIS P2
Pglyrp2-201	ENSMUST00000114455.2	1765	518aa	Protein coding	-	Q8VCS0	TSL:1 GENCODE basic
Pglyrp2-203	ENSMUST00000235892.1	1653	480aa	Protein coding	-	-	GENCODE basic APPRIS ALT2
Pglyrp2-207	ENSMUST00000237130.1	1543	450aa	Protein coding	-	-	GENCODE basic
Pglyrp2-208	ENSMUST00000237165.1	1469	415aa	Protein coding	-	-	GENCODE basic
Pglyrp2-206	ENSMUST00000237082.1	1680	388aa	Nonsense mediated decay	-	Q71S44	
Pglyrp2-205	ENSMUST00000236703.1	1863	No protein	Retained intron	-	-	

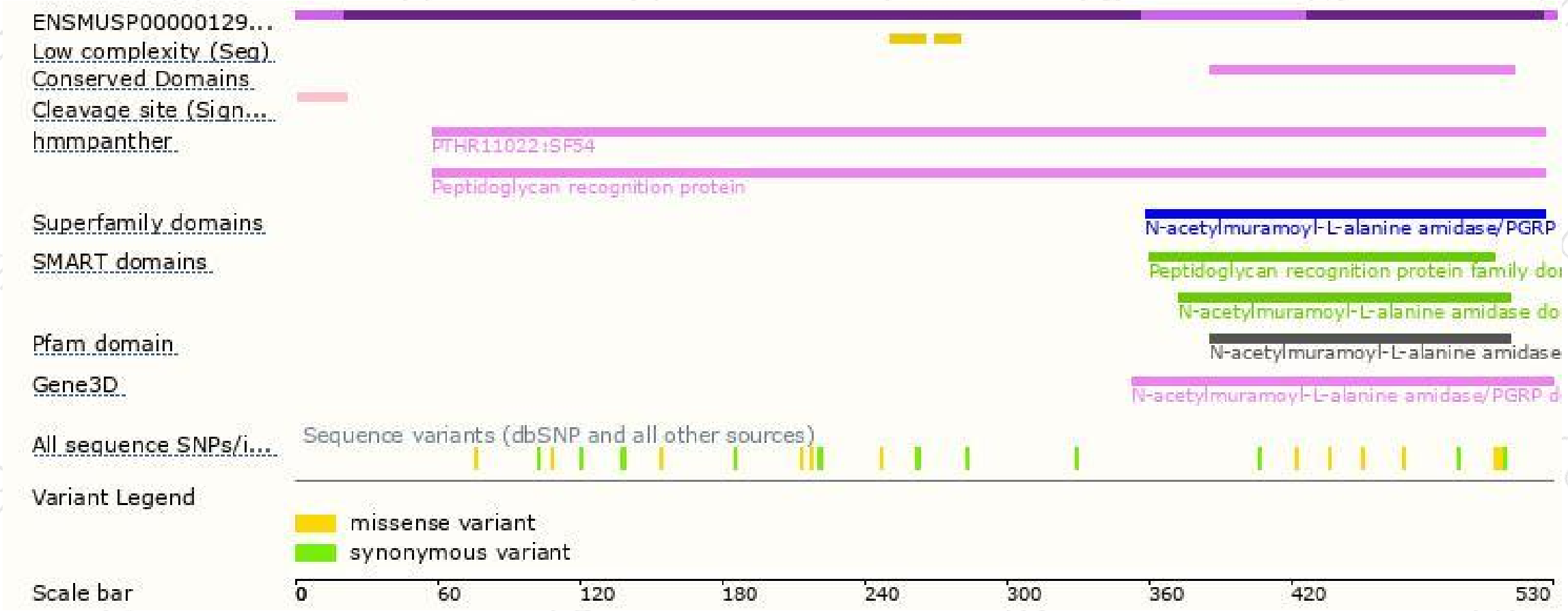
The strategy is based on the design of *Pglyrp2-202* transcript,The transcription is shown below



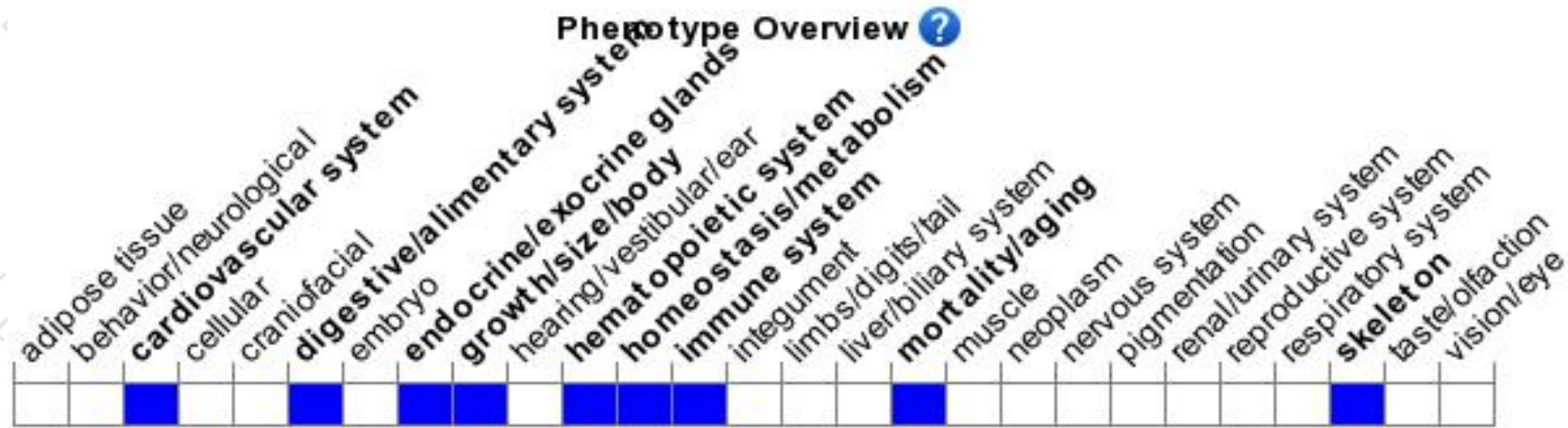
Genomic location distribution



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, Mice homozygous for disruption of this gene are viable and fertile with no gross developmental defects. Mice homozygous for a different knock-out allele are resistant to peptidoglycan- or muramyl dipeptide-induced arthritis and increased susceptibility to DSS-induced colitis.

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

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