

Mapkapk2 Cas9-KO Strategy

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Project Overview

Project Name

Mapkapk2

Project type

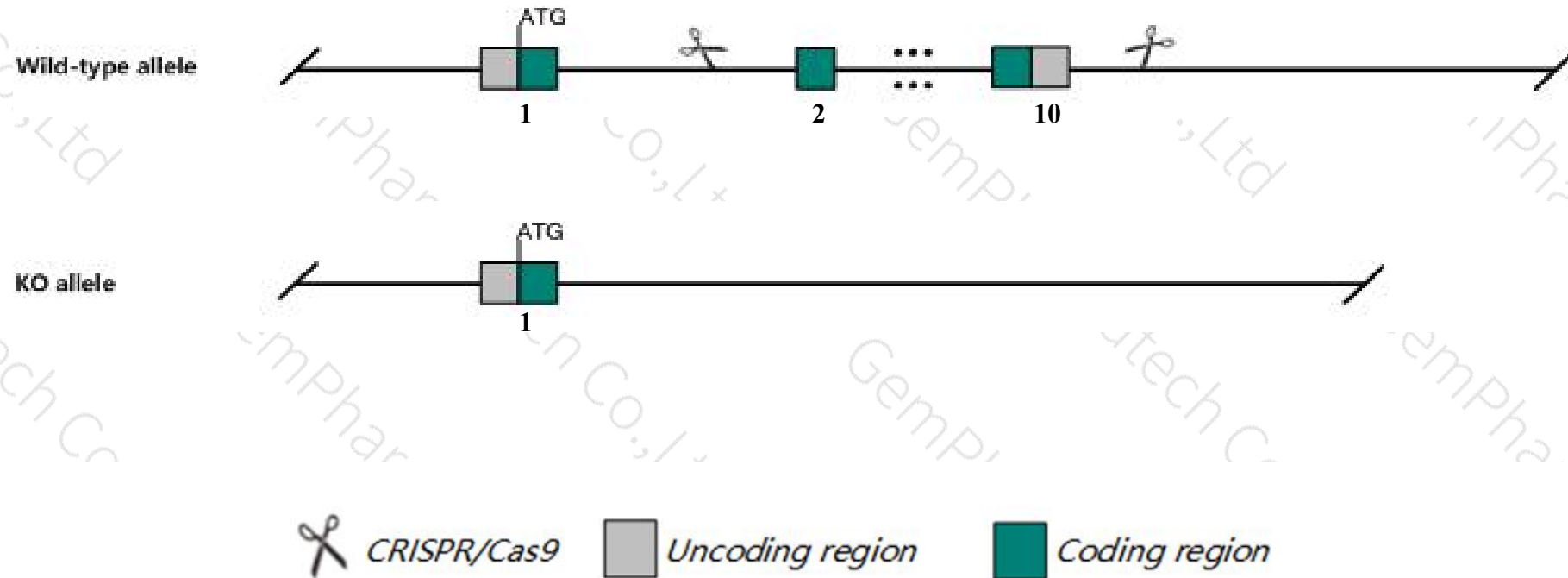
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mapkapk2* gene. The schematic diagram is as follows:



- The *Mapkapk2* gene has 2 transcripts. According to the structure of *Mapkapk2* gene, exon2-exon10 of *Mapkapk2-201* (ENSMUST00000016672.10) transcript is recommended as the knockout region. The region contains most 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 *Mapkapk2* gene. The brief process is as follows: CRISPR/Cas9 sys

- According to the existing MGI data, Inactivation of this locus affects the inflammatory response. Homozygous null mice show an increased susceptibility to bacterial infection.
- The *Mapkapk2* gene is located on the Chr1. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Mapkapk2 MAP kinase-activated protein kinase 2 [Mus musculus (house mouse)]

Gene ID: 17164, updated on 2-Apr-2019

Summary



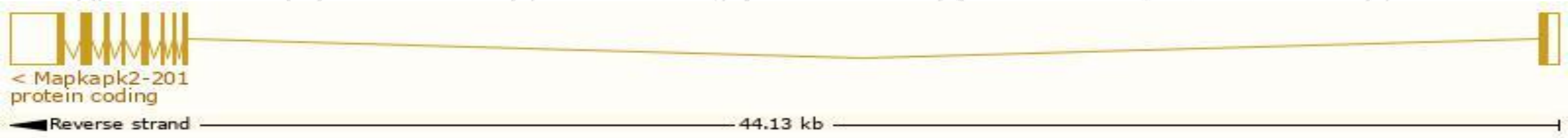
Official Symbol	Mapkapk2 provided by MGI
Official Full Name	MAP kinase-activated protein kinase 2 provided by MGI
Primary source	MGI:MGI:109298
See related	Ensembl:ENSMUSG00000016528
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AA960234, MAPKAP-K2, MK-2, MK2, Rps6kc1
Expression	Ubiquitous expression in heart adult (RPKM 82.3), adrenal adult (RPKM 65.0) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

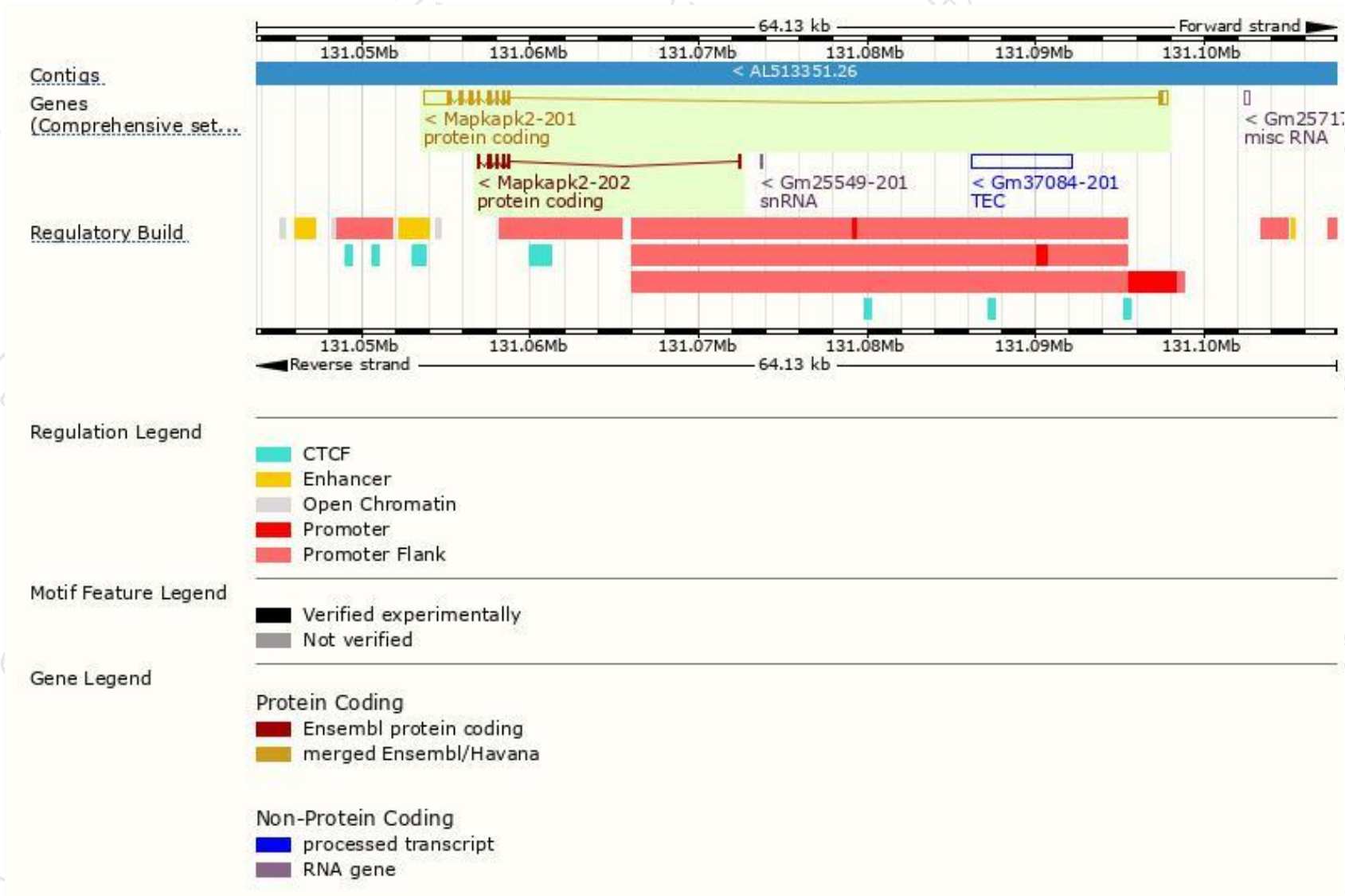
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mapkapk2-201	ENSMUST00000016672.10	2854	386aa	Protein coding	CCDS15266	P49138 Q3U2P8	TSL:1 GENCODE basic APPRIS P1
Mapkapk2-202	ENSMUST00000188459.3	675	162aa	Protein coding	-	A0A087WSN7	CDS 3' incomplete TSL:3

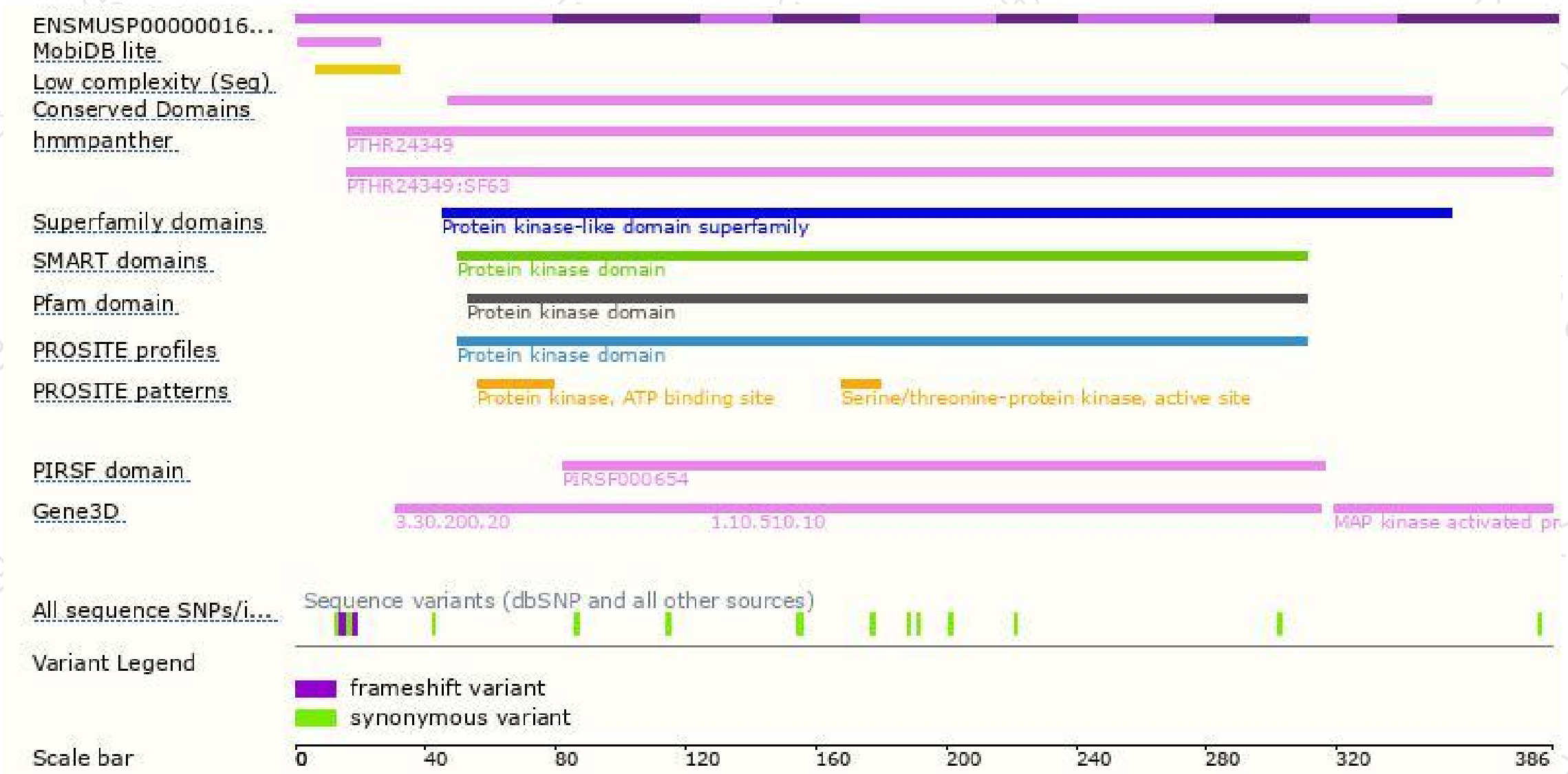
The strategy is based on the design of *Mapkapk2-201* transcript,The transcription is shown below



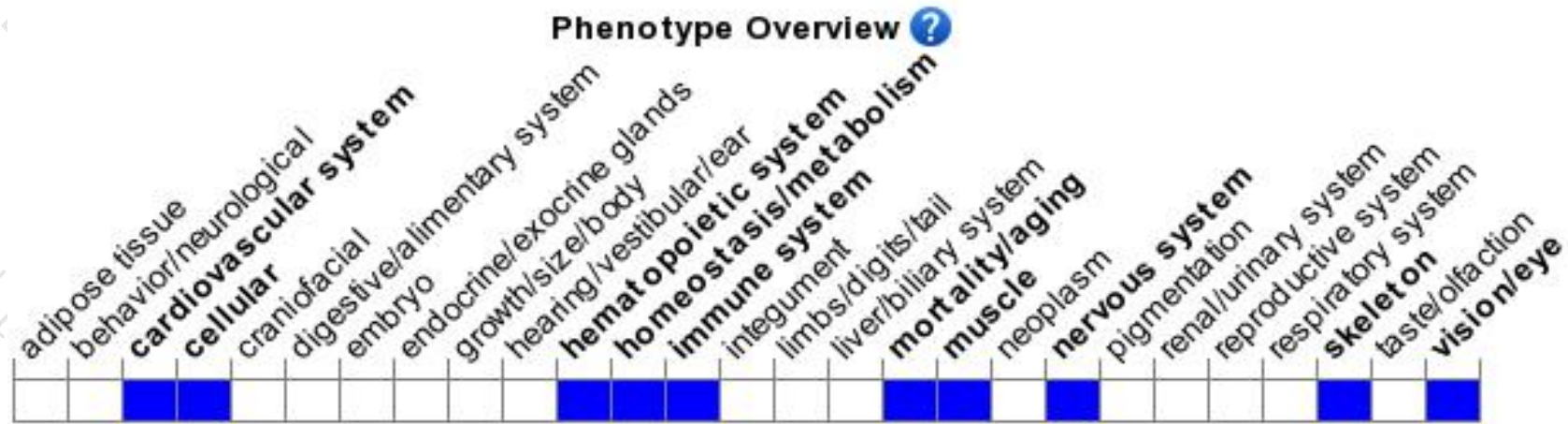
Genomic location distribution



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, Inactivation of this locus affects the inflammatory response. Homozygous null mice show an increased susceptibility to bacterial infection.

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

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