

Irf5 Cas9-CKO Strategy

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Project Overview

Project Name

Irf5

Project type

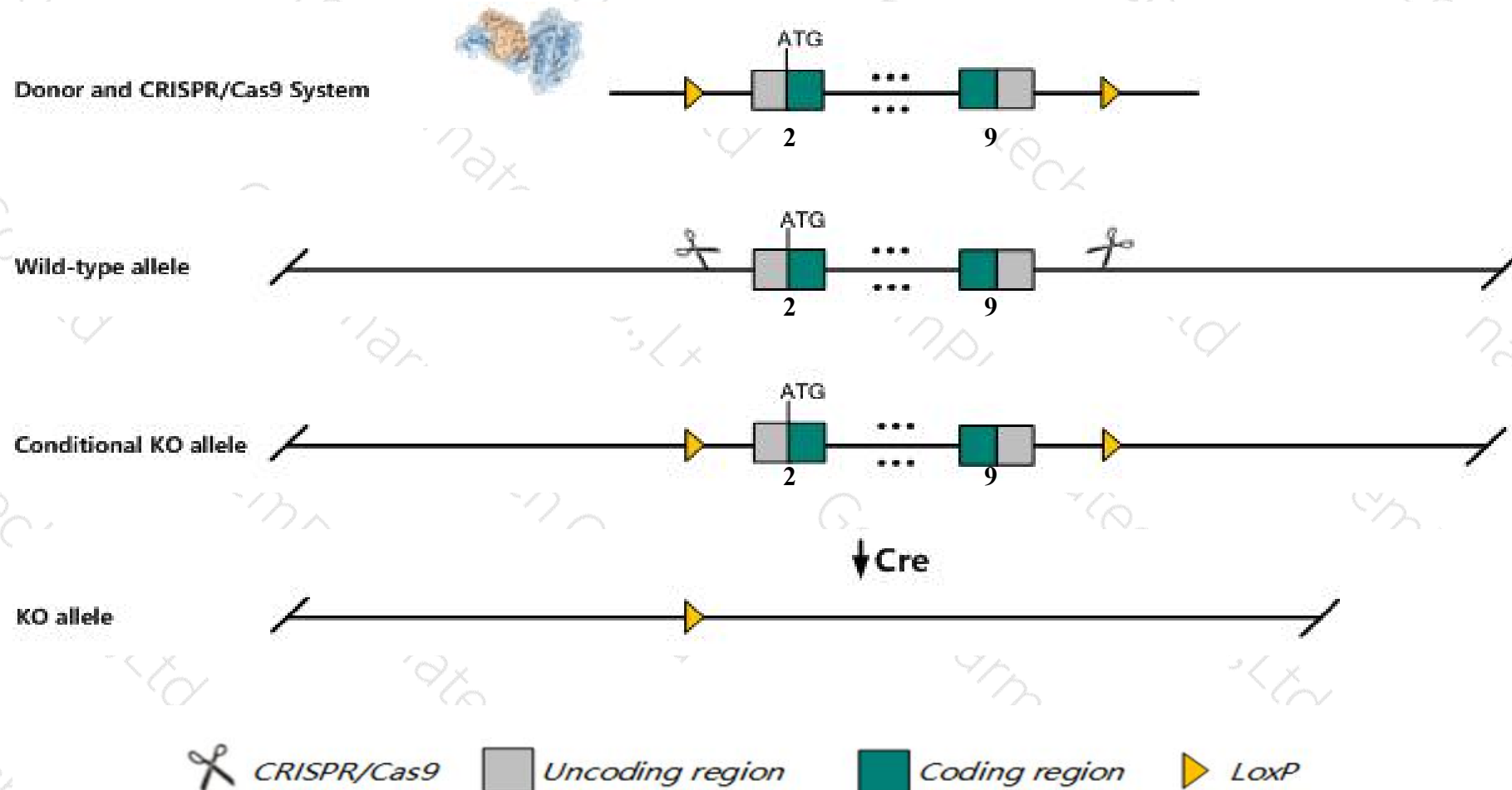
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Irf5* gene. The schematic diagram is as follows:



- The *Irf5* gene has 6 transcripts. According to the structure of *Irf5* gene, exon2-exon9 of *Irf5*-202 (ENSMUST00000163511.6) 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 *Irf5* 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 null mice exhibit resistance to lethal shock with a marked decrease in the serum levels of proinflammatory cytokines, but normal B cell development. Mice homozygous for another allele are viable and fertile.
- The *Irf5* gene is located on the Chr6. 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)

Irf5 interferon regulatory factor 5 [Mus musculus (house mouse)]

Gene ID: 27056, updated on 9-Apr-2019

Summary



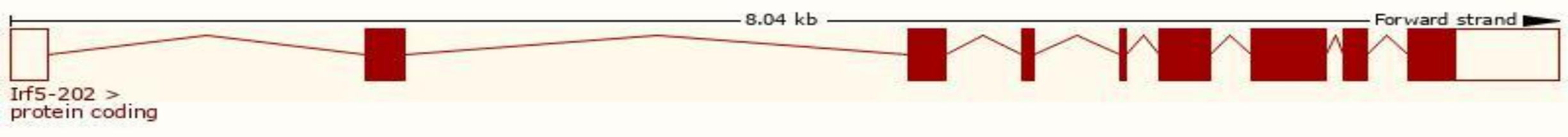
Official Symbol	Irf5 provided by MGI
Official Full Name	interferon regulatory factor 5 provided by MGI
Primary source	MGI:MGI:1350924
See related	Ensembl:ENSMUSG00000029771
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AW491843, mirf5
Expression	Broad expression in spleen adult (RPKM 49.4), mammary gland adult (RPKM 16.1) and 18 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

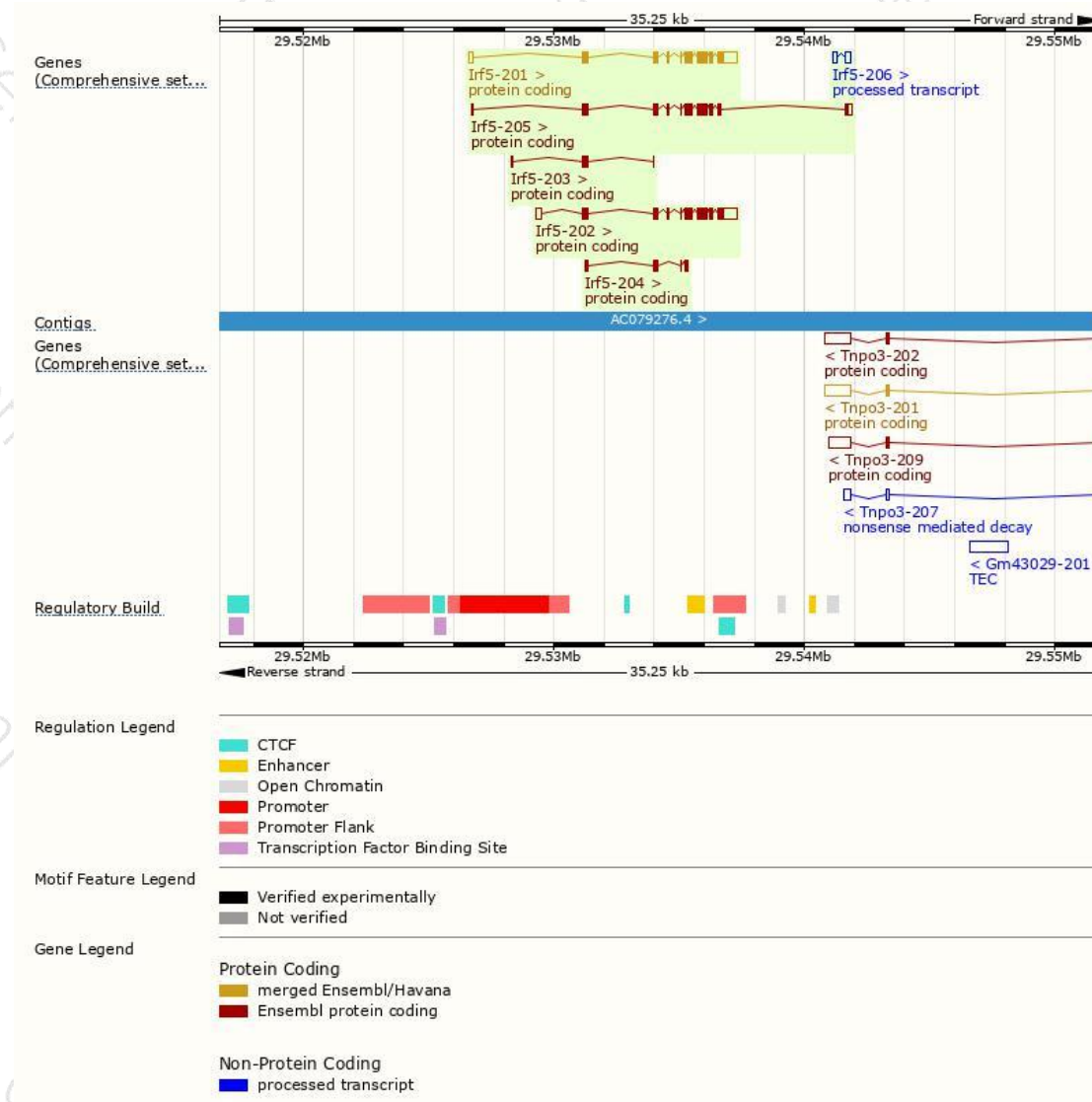
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Irf5-202	ENSMUST00000163511.6	2241	497aa	Protein coding	CCDS19962	P56477 Q3U169	TSL:1 GENCODE basic APPRIS P3
Irf5-201	ENSMUST00000004392.11	2189	497aa	Protein coding	CCDS19962	P56477 Q3U169	TSL:1 GENCODE basic APPRIS P3
Irf5-205	ENSMUST00000167252.4	1693	494aa	Protein coding	CCDS80504	F6Z6C6	TSL:1 GENCODE basic APPRIS ALT2
Irf5-204	ENSMUST00000164922.2	402	134aa	Protein coding	-	A0A0N4SVY5	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:5
Irf5-203	ENSMUST00000164626.7	350	80aa	Protein coding	-	E9Q5T2	CDS 3' incomplete TSL:3
Irf5-206	ENSMUST00000171527.1	403	No protein	Processed transcript	-	-	TSL:2

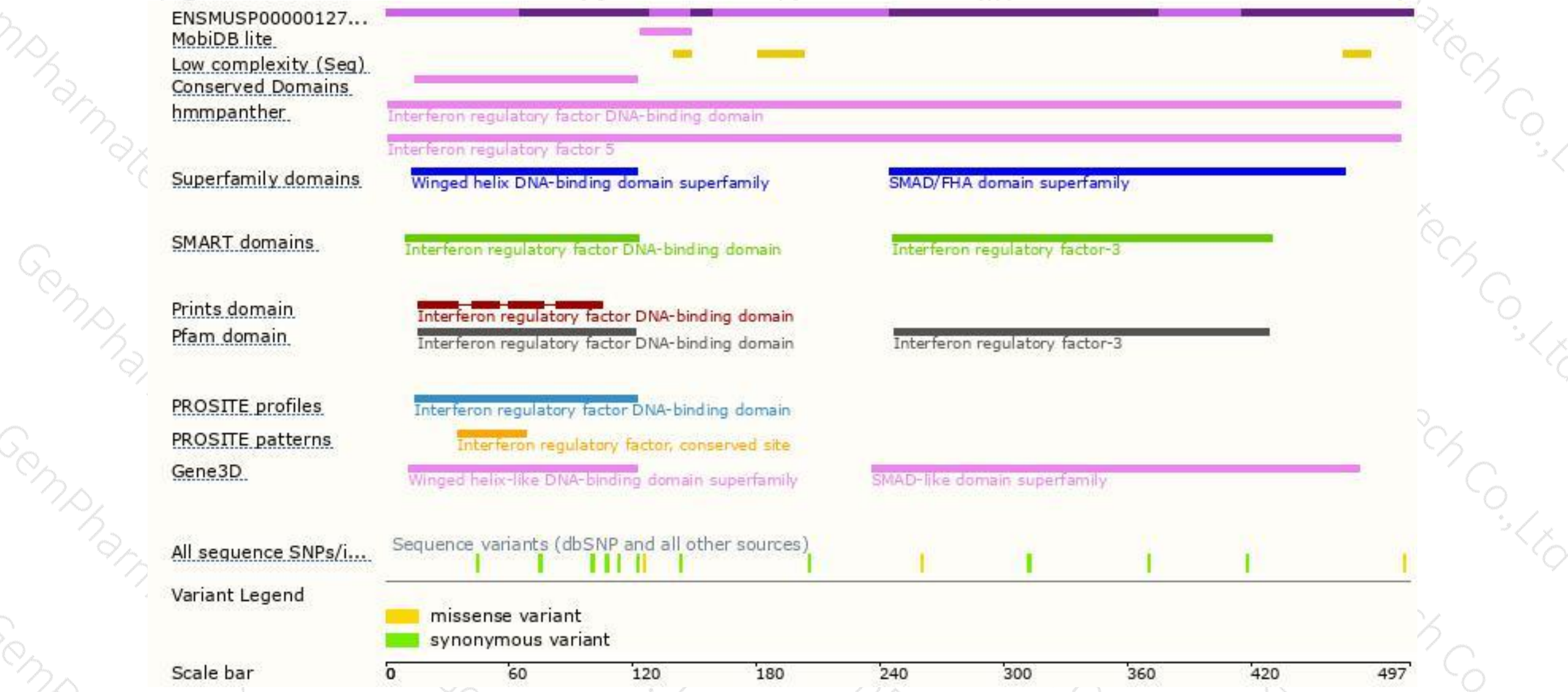
The strategy is based on the design of *Irf5-202* transcript,The transcription is shown below



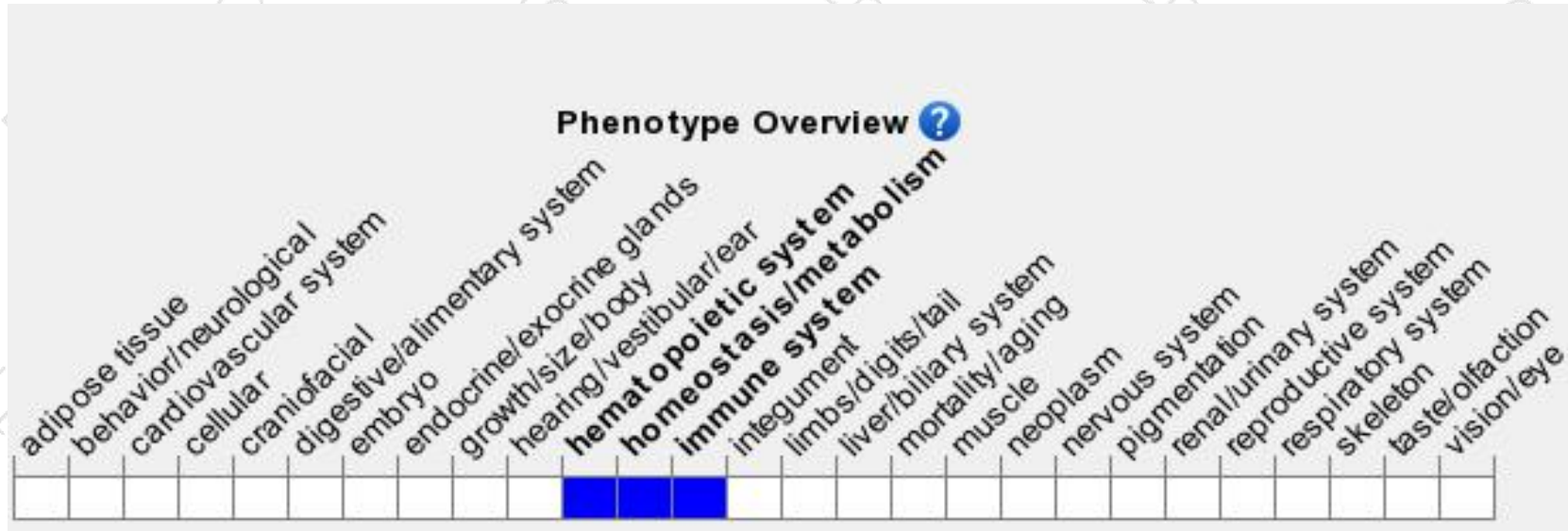
Genomic location distribution



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, Homozygous null mice exhibit resistance to lethal shock with a marked decrease in the serum levels of proinflammatory cytokines, but normal B cell development. Mice homozygous for another allele are viable and fertile.

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

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