Lcp1 Cas9-CKO Strategy

Designer: Xiaojing Li
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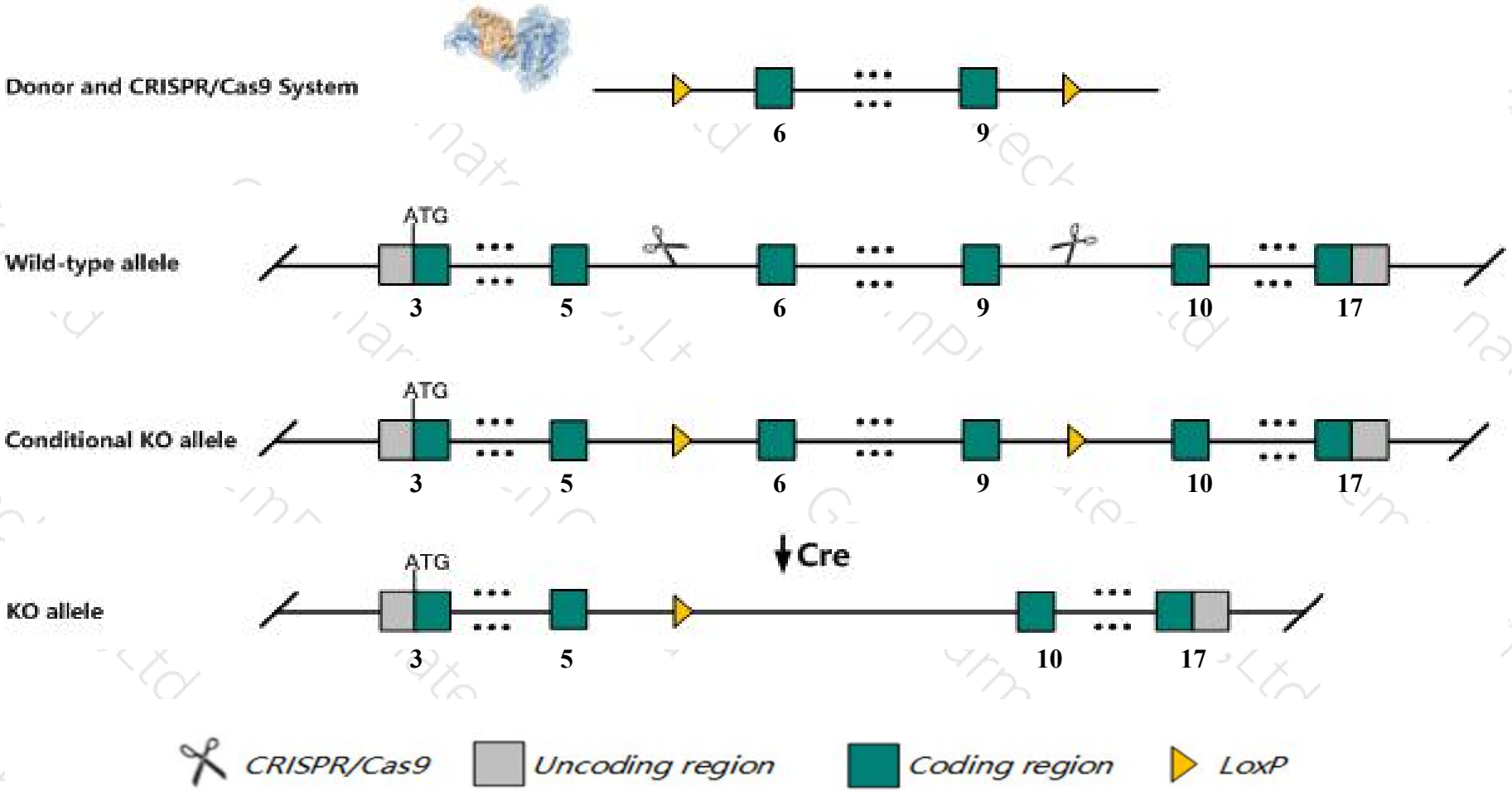
Reviewer: JiaYu

Project Overview

Project Name	***Lcp1***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Lcp1* gene. The schematic diagram is as follows:



Technical routes

- The *Lcp1* gene has 11 transcripts. According to the structure of *Lcp1* gene, exon6-exon9 of *Lcp1-209* (ENSMUST00000145303.7) transcript is recommended as the knockout region.The region contains 524bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Lcp1* 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.

Notice

- According to the existing MGI data,Mice homozygous for a knock-out allele exhibit increased susceptibility to S. aureus infection, defective neutrophil killing of S. aureus, and impaired adhesion-dependent respiratory bursts in neutrophils.

- The *Lcp1* gene is located on the Chr14. 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）

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Lcp1 lymphocyte cytosolic protein 1 [Mus musculus (house mouse)]

Gene ID: 18826, updated on 31-Jan-2019

Summary

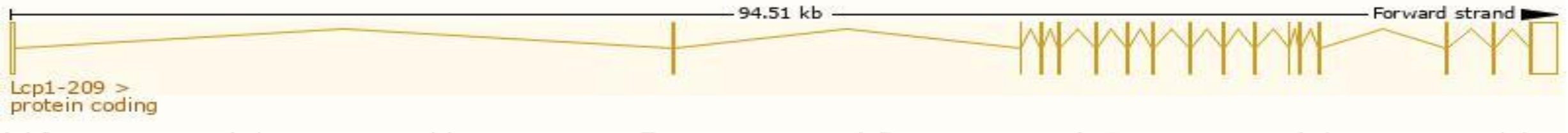
Official Symbol	Lcp1 provided by MGI
Official Full Name	lymphocyte cytosolic protein 1 provided by MGI
Primary source	MGI:MGI:104808
See related	Ensembl:ENSMUSG00000021998
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AW536232, D14Ertd310e, LCP-1, Pls2, pp65
Expression	Broad expression in placenta adult (RPKM 28.5), spleen adult (RPKM 23.6) and 17 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

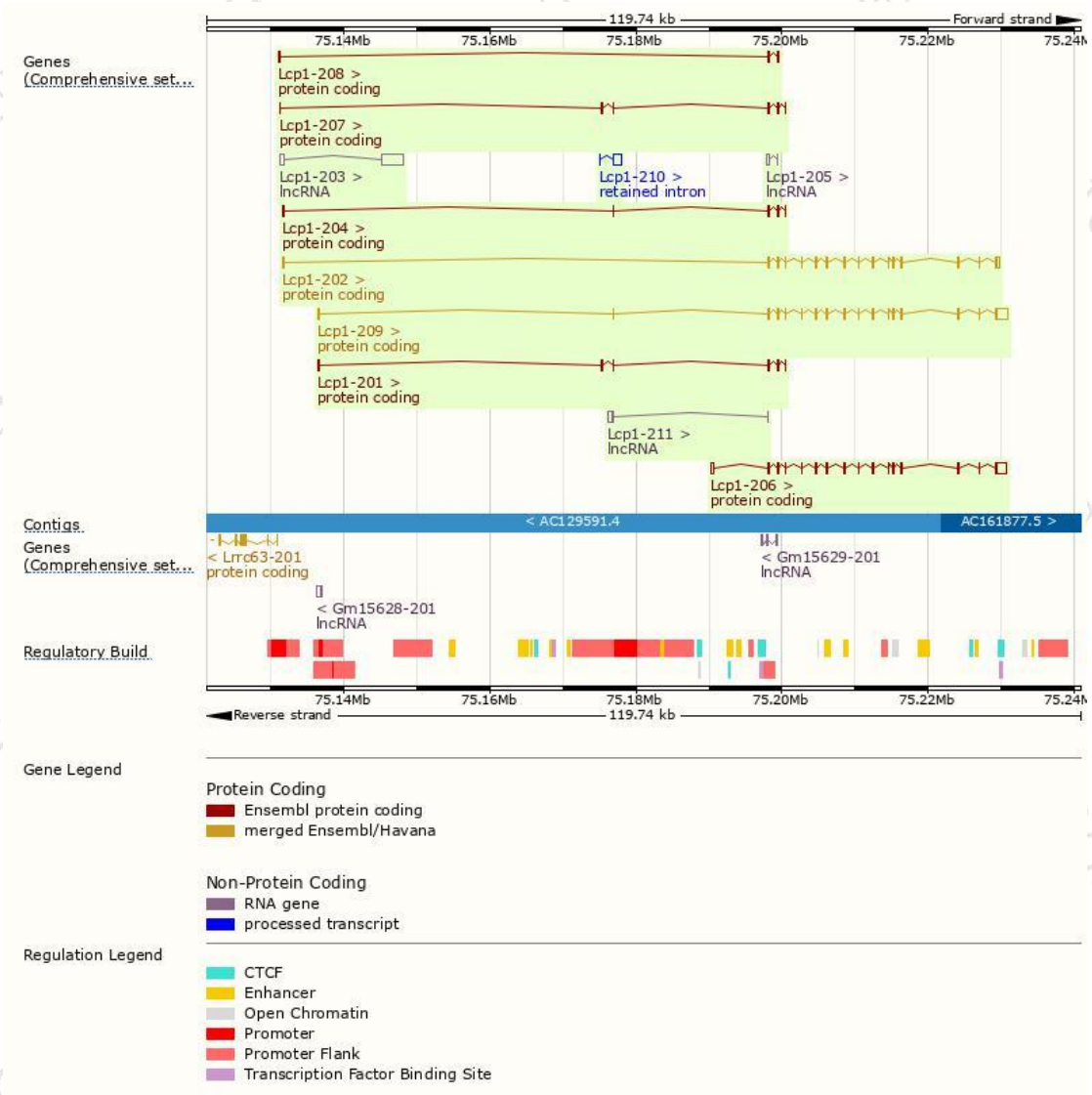
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Lcp1-209	ENSMUST00000145303.7	3841	627aa	Protein coding	CCDS27276	Q61233	TSL:1 GENCODE basic APPRIS P1
Lcp1-206	ENSMUST00000131802.1	3594	627aa	Protein coding	CCDS27276	Q61233	TSL:1 GENCODE basic APPRIS P1
Lcp1-202	ENSMUST00000124499.7	2523	627aa	Protein coding	CCDS27276	Q61233	TSL:1 GENCODE basic APPRIS P1
Lcp1-201	ENSMUST00000122840.7	678	101aa	Protein coding	-	D3YVW8	CDS 3' incomplete TSL:5
Lcp1-204	ENSMUST00000125833.7	667	104aa	Protein coding	-	D3Z7D9	CDS 3' incomplete TSL:3
Lcp1-207	ENSMUST00000134114.7	628	121aa	Protein coding	-	D3Z311	CDS 3' incomplete TSL:3
Lcp1-208	ENSMUST00000143539.7	356	76aa	Protein coding	-	D3YZ25	CDS 3' incomplete TSL:2
Lcp1-210	ENSMUST00000148609.1	1301	No protein	Retained intron	-	-	TSL:1
Lcp1-203	ENSMUST00000124608.1	3459	No protein	lncRNA	-	-	TSL:1
Lcp1-211	ENSMUST00000149883.1	692	No protein	lncRNA	-	-	TSL:3
Lcp1-205	ENSMUST00000130510.1	351	No protein	lncRNA	-	-	TSL:2

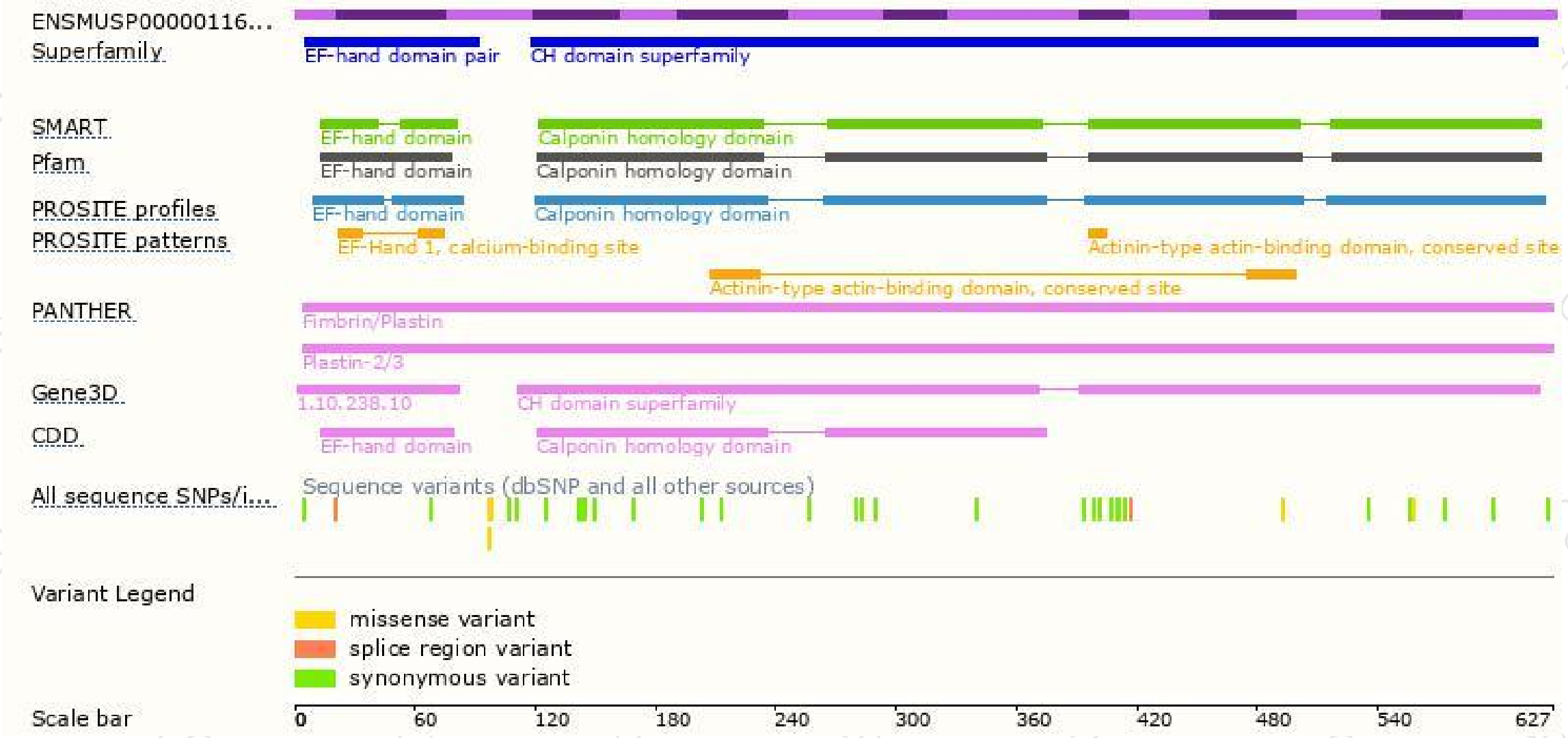
The strategy is based on the design of *Lcp1-209* transcript,The transcription is shown below



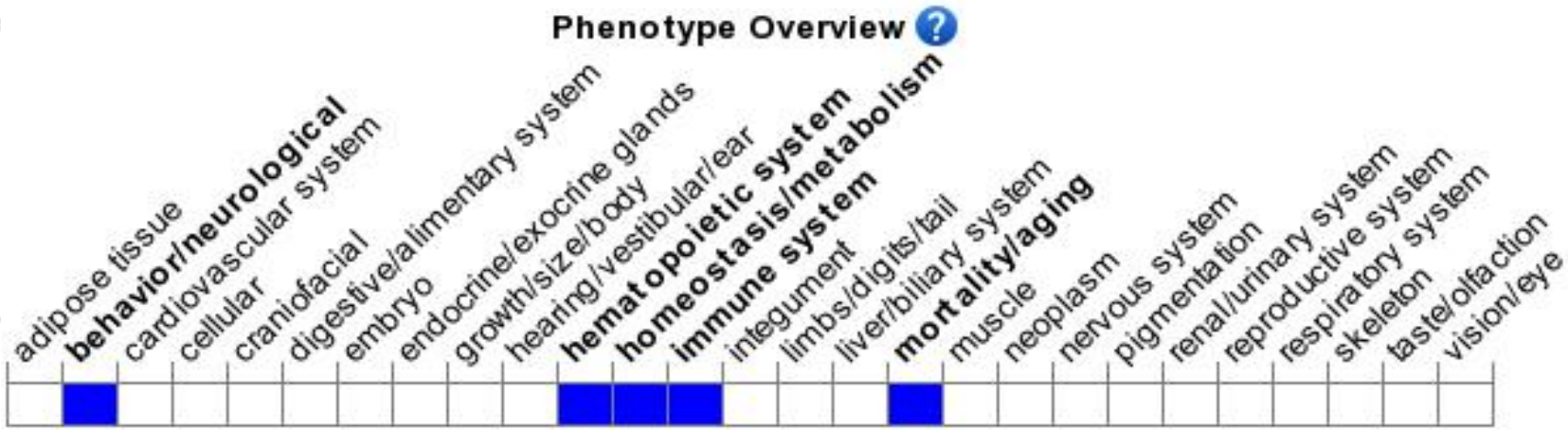
Genomic location distribution



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/).

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集萃药康
GemPharmatech

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

Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd