Clmp Cas9-CKO Strategy

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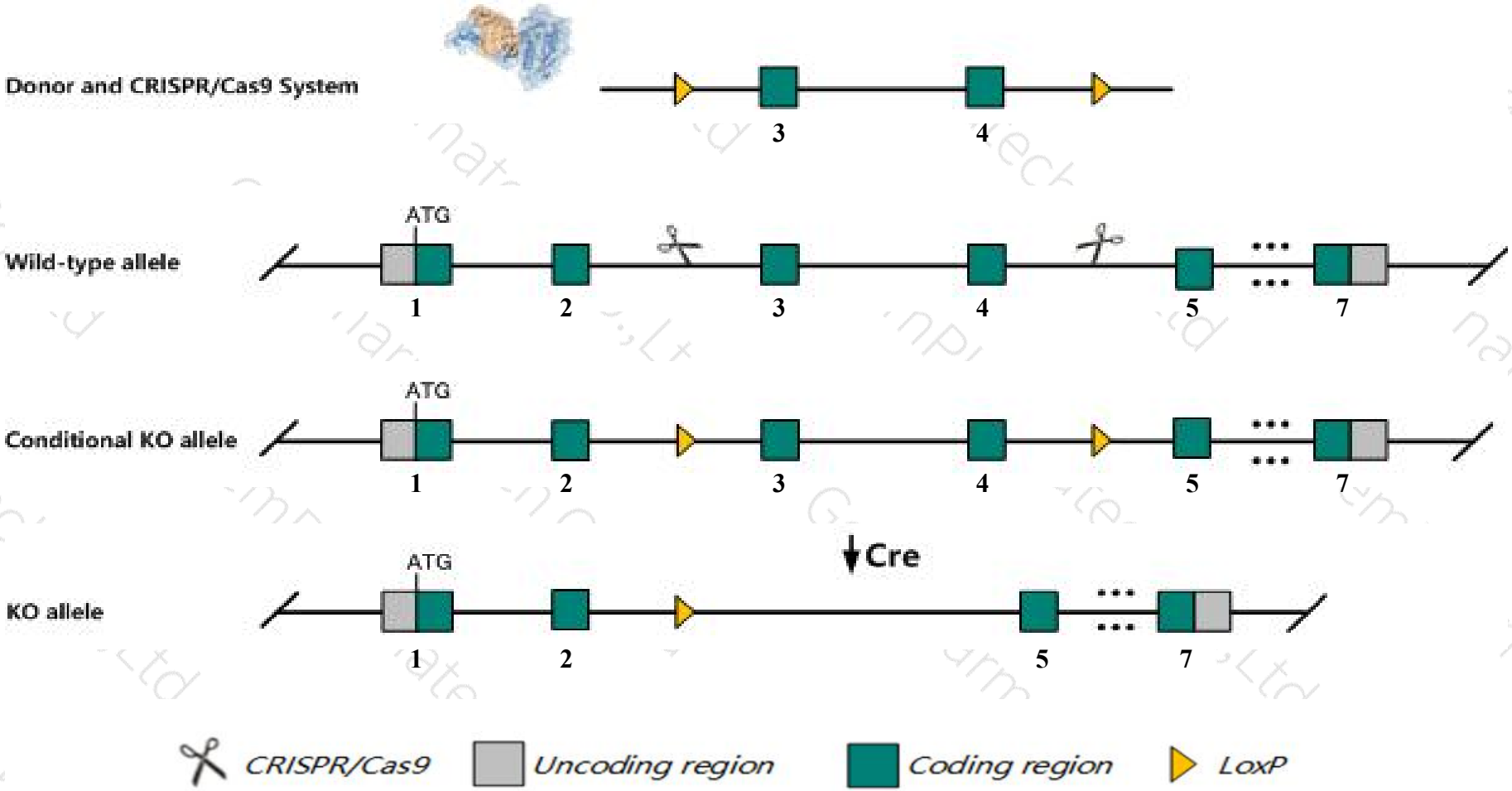
Project Overview

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

Conditional Knockout strategy

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



Technical routes

- The *Clmp* gene has 4 transcripts. According to the structure of *Clmp* gene, exon3-exon4 of *Clmp-201* (ENSMUST00000034522.7) transcript is recommended as the knockout region.The region contains 370bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Clmp* 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 targeted null allele exhibit reduced viability, bilateral hydronephrosis, increased mean systolic blood pressure, and exhibit several blood chemistry and neurological anomalies. Null mice are samller than controls.

➢ The *Clmp* gene is located on the Chr9. 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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Clmp CXADR-like membrane protein [*Mus musculus* (house mouse)]

Gene ID: 71566, updated on 12-Aug-2019

Summary

Official Symbol	Clmp provided by MGI
Official Full Name	CXADR-like membrane protein provided by MGI
Primary source	MGI:MGI:1918816
See related	Ensembl:ENSMUSG00000032024
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	ACAM; ASP5; AW557819; 9030425E11Rik
Expression	Broad expression in bladder adult (RPKM 13.4), CNS E18 (RPKM 13.4) and 21 other tissues See more
Orthologs	human all

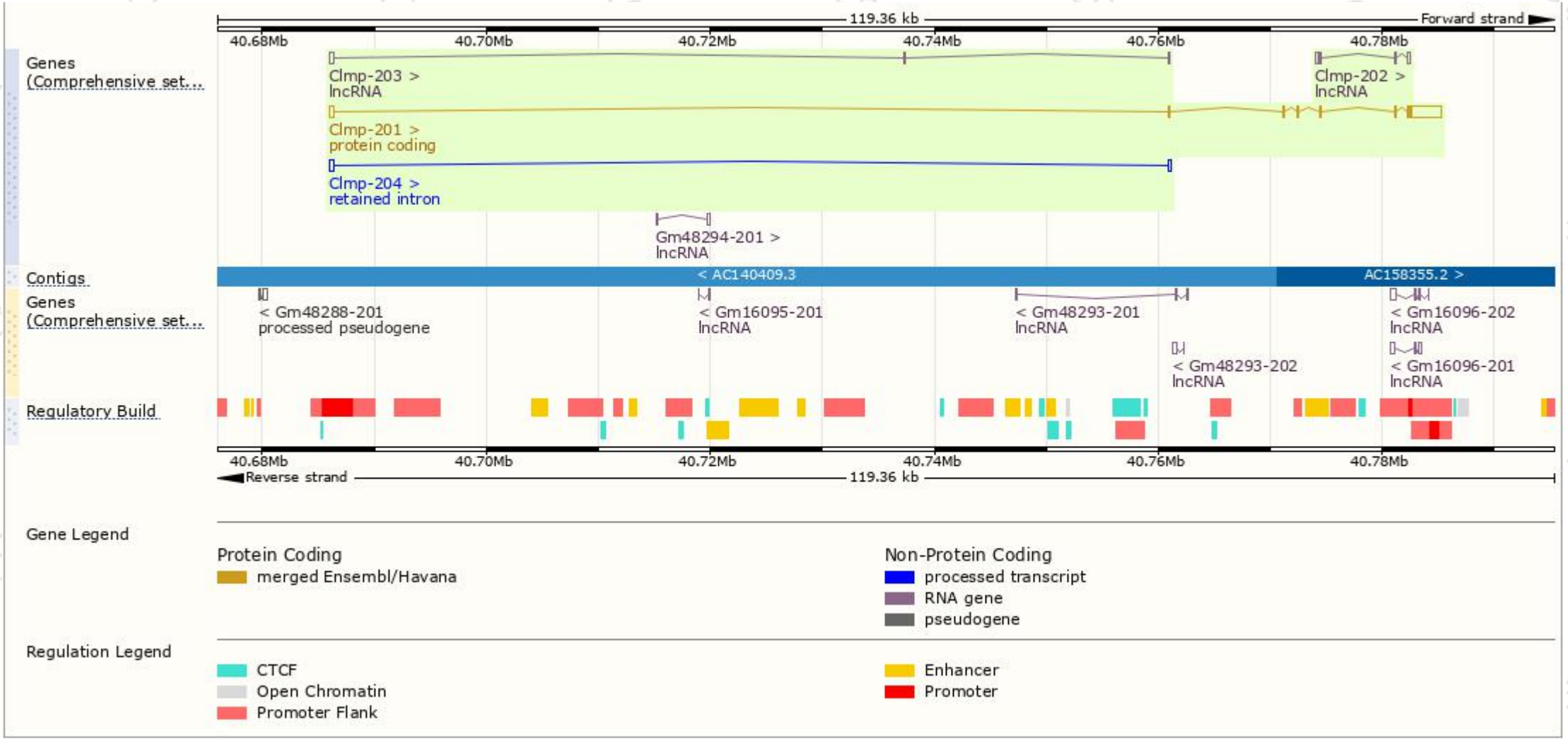
Transcript information（Ensembl）

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

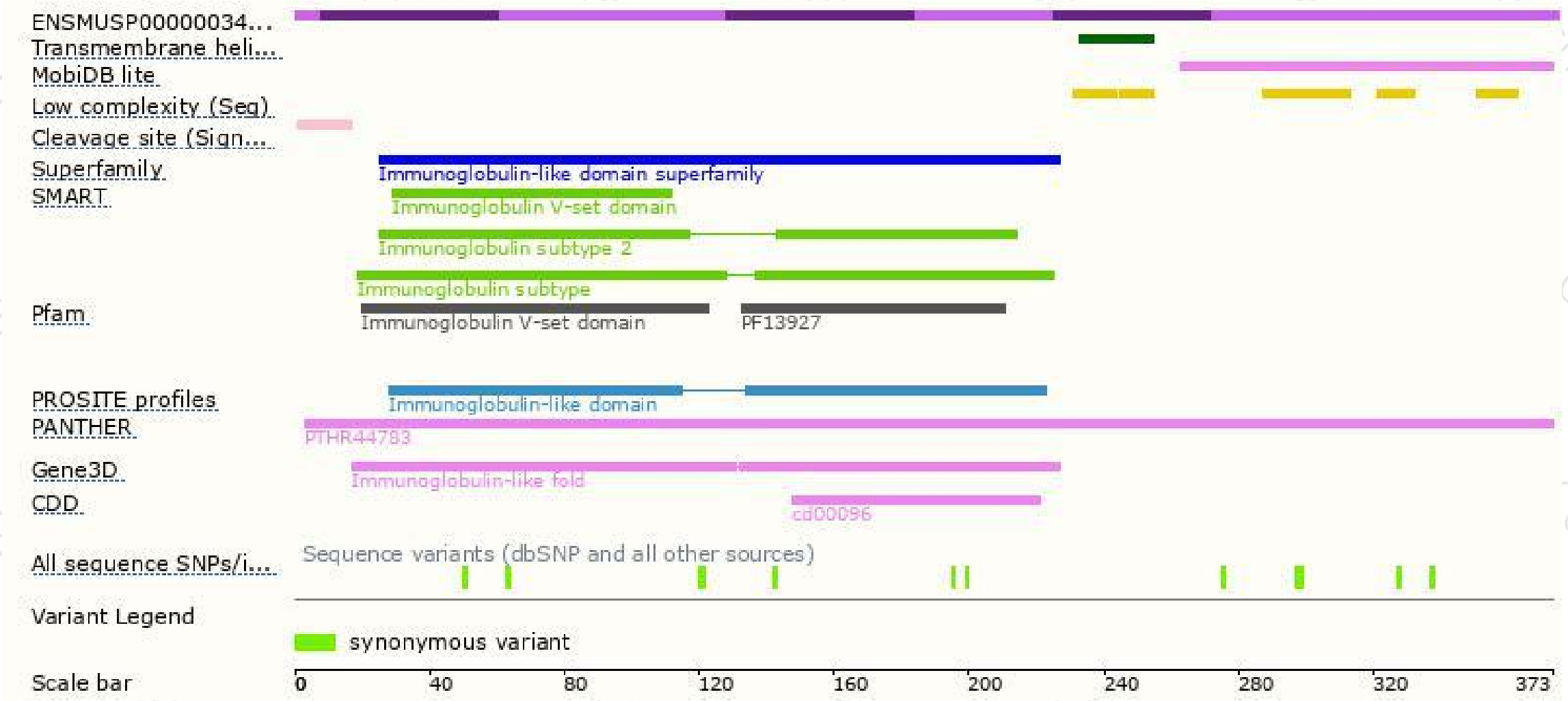
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Clmp-201	ENSMUST00000034522.7	4154	373aa	Protein coding	CCDS23082	Q8R373	TSL:1 GENCODE basic APPRIS P1
Clmp-204	ENSMUST00000141759.1	608	No protein	Retained intron	-	-	TSL:2
Clmp-203	ENSMUST00000139577.1	634	No protein	lncRNA	-	-	TSL:3
Clmp-202	ENSMUST00000134153.1	616	No protein	lncRNA	-	-	TSL:3

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

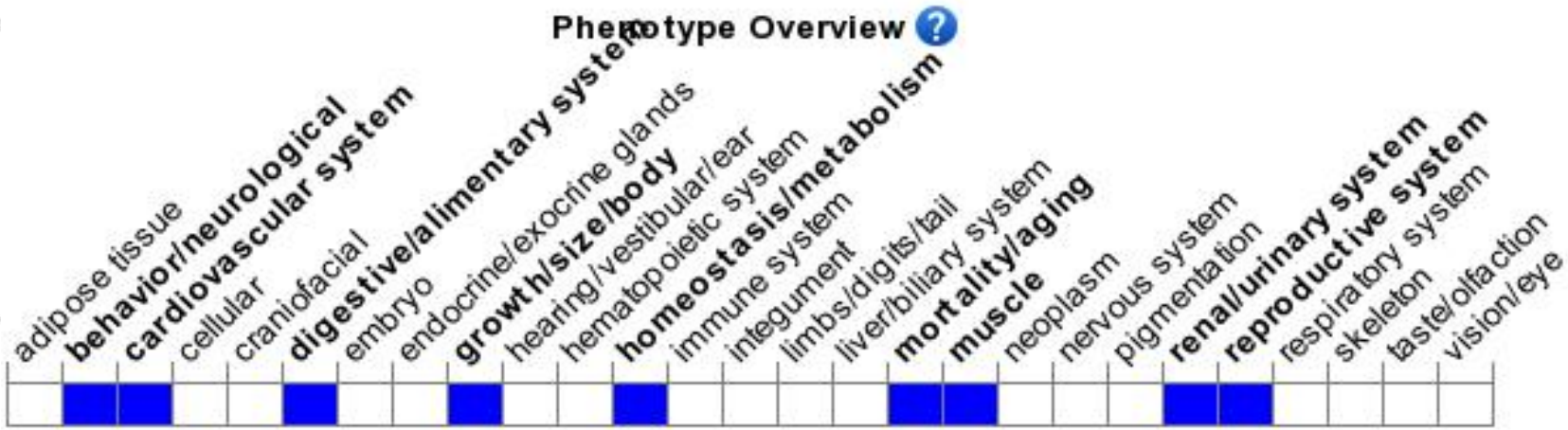
Genomic location distribution



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/).

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

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