

Lcp2 Cas9-CKO Strategy

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Project Overview

Project Name

Lcp2

Project type

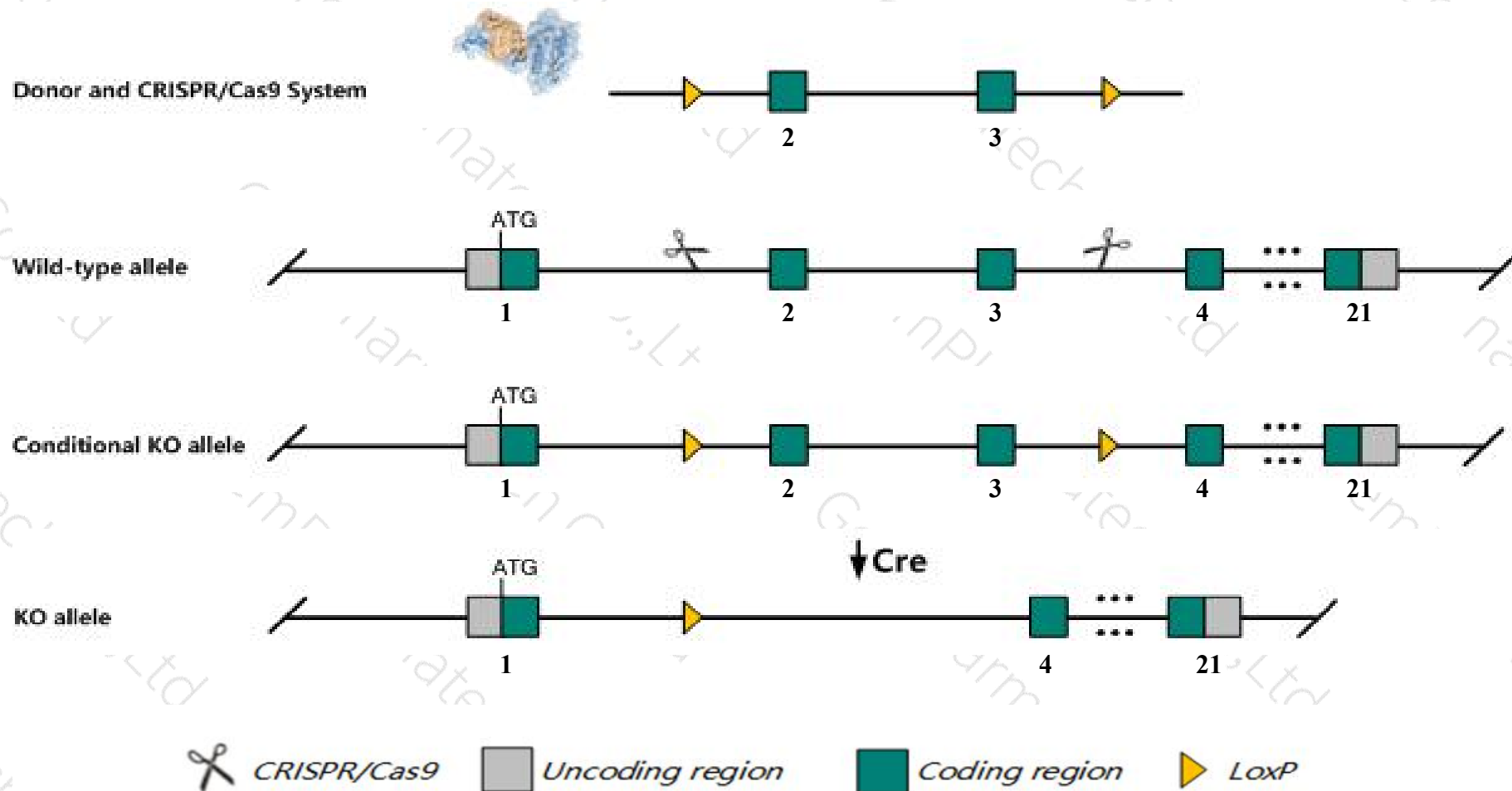
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Lcp2* gene. The schematic diagram is as follows:



- The *Lcp2* gene has 4 transcripts. According to the structure of *Lcp2* gene, exon2-exon3 of *Lcp2-201* (ENSMUST00000052413.11) transcript is recommended as the knockout region. The region contains 110bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Lcp2* 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, T cell development is blocked and T cell receptor signaling impaired in homozygous point mutants. Double positive thymocyte and single positive T cell numbers are much reduced. Both positive and negative thymocyte selection is abnormal. Mice have high IgG and IgE levels and exhibit autoimmunity.
- The *Lcp2* gene is located on the Chr11. 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)

Lcp2 lymphocyte cytosolic protein 2 [Mus musculus (house mouse)]

Gene ID: 16822, updated on 31-Jan-2019

Summary



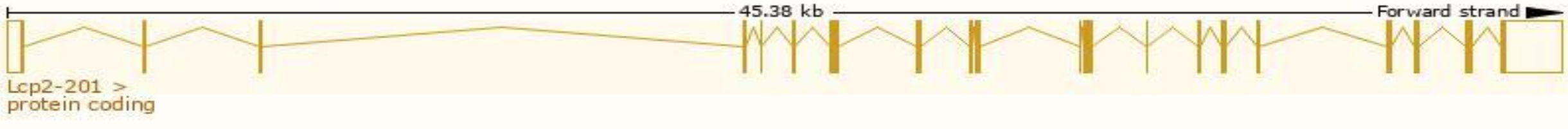
Official Symbol	Lcp2 provided by MGI
Official Full Name	lymphocyte cytosolic protein 2 provided by MGI
Primary source	MGI:MGI:1321402
See related	Ensembl:ENSMUSG00000002699
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI323664, BB161688, SLP-76, SLP76, m1Khoe, twm
Expression	Biased expression in thymus adult (RPKM 32.1), spleen adult (RPKM 12.0) and 7 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

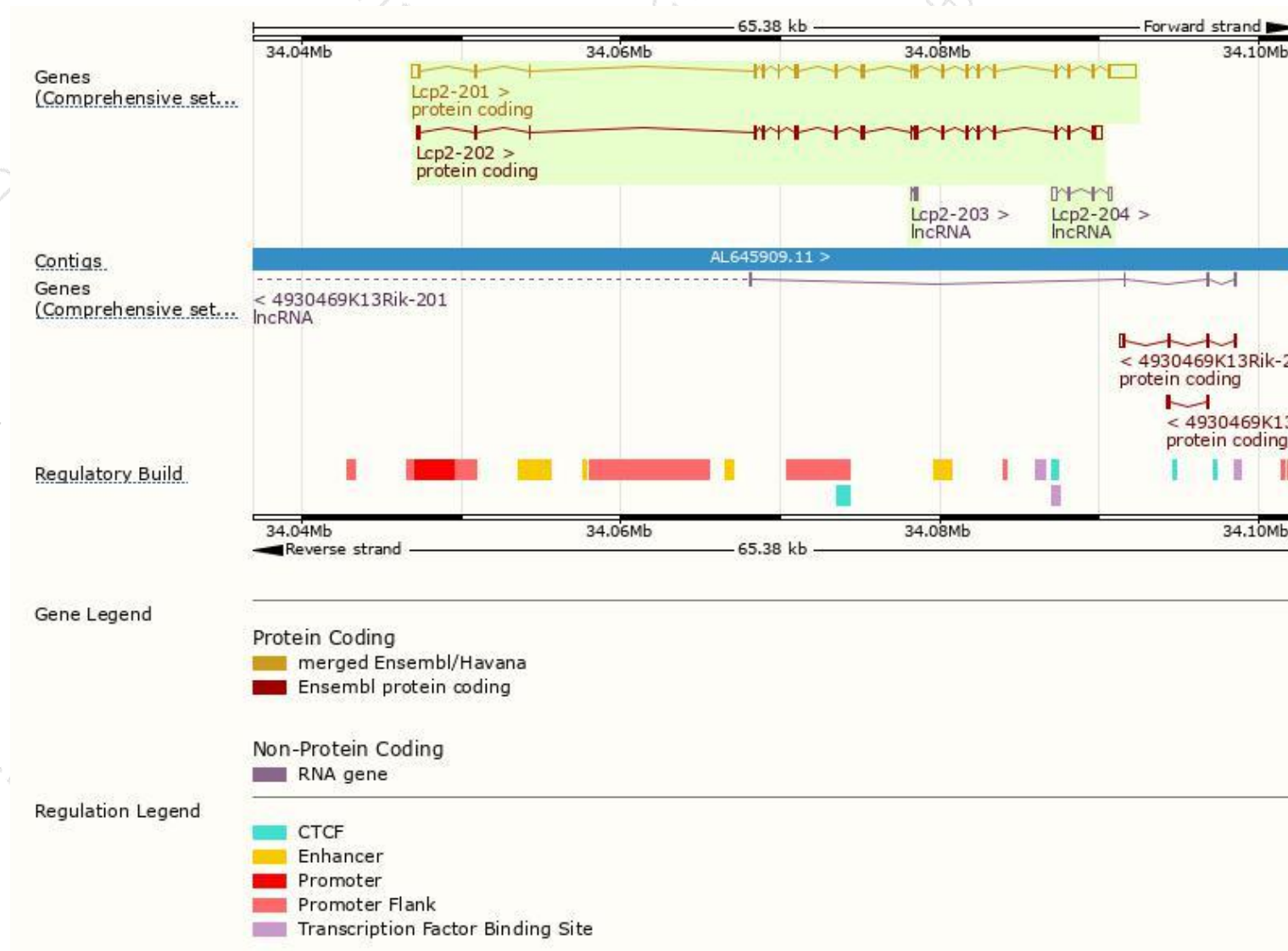
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Lcp2-201	ENSMUST00000052413.11	3644	533aa	Protein coding	CCDS48768	Q60787	TSL:1 GENCODE basic APPRIS P2
Lcp2-202	ENSMUST00000109329.8	2209	523aa	Protein coding	-	B1ATD1	TSL:1 GENCODE basic APPRIS ALT2
Lcp2-204	ENSMUST00000146318.1	722	No protein	lncRNA	-	-	TSL:2
Lcp2-203	ENSMUST00000133120.1	198	No protein	lncRNA	-	-	TSL:5

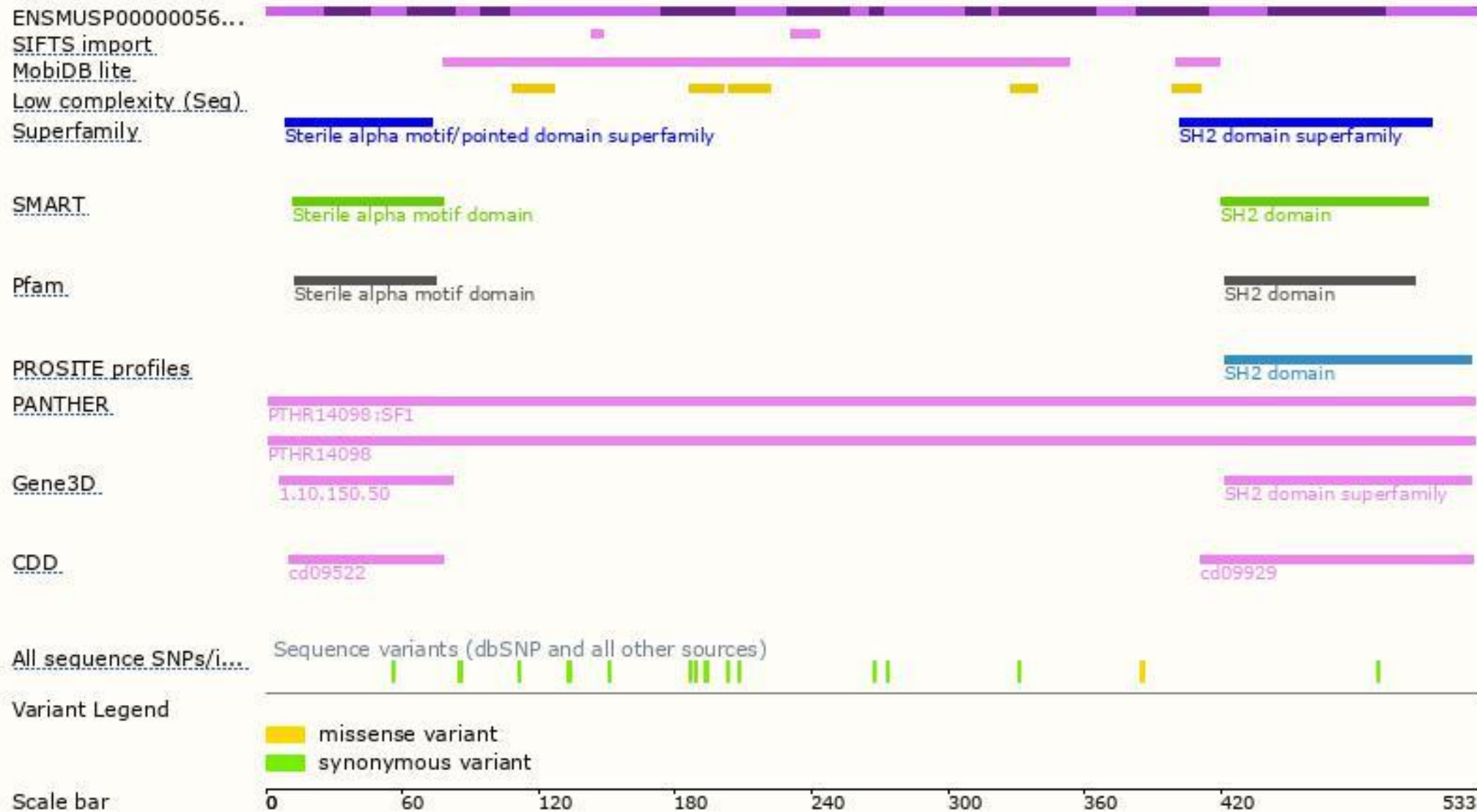
The strategy is based on the design of *Lcp2-201* transcript,The transcription is shown below



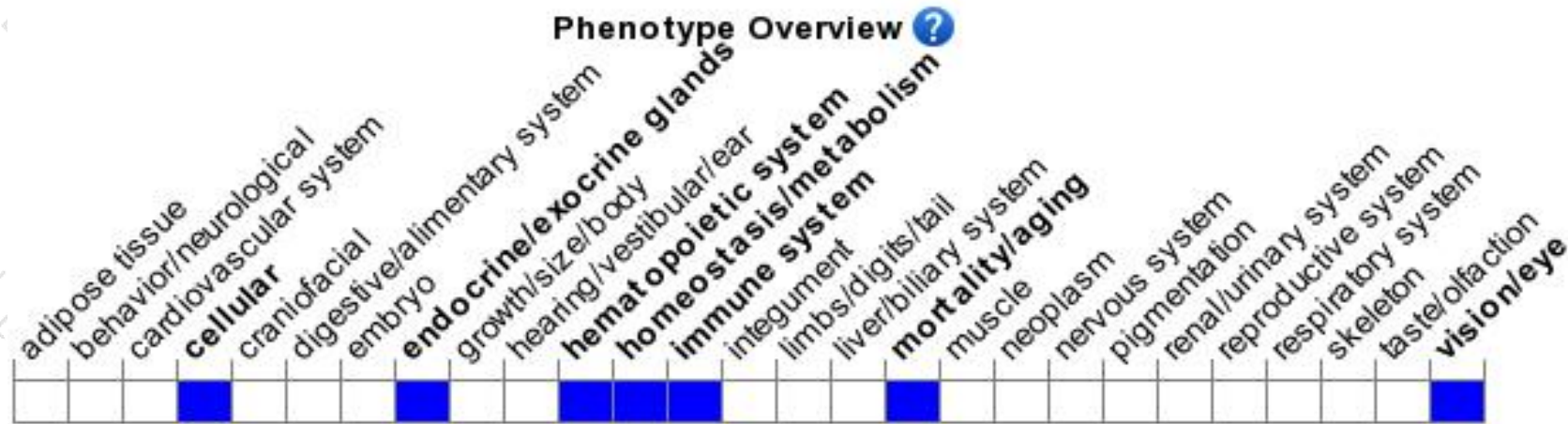
Genomic location distribution



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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