

Lrpprc Cas9-CKO Strategy

Designer: Xueting Zhang

Project Overview

Project Name

Lrpprc

Project type

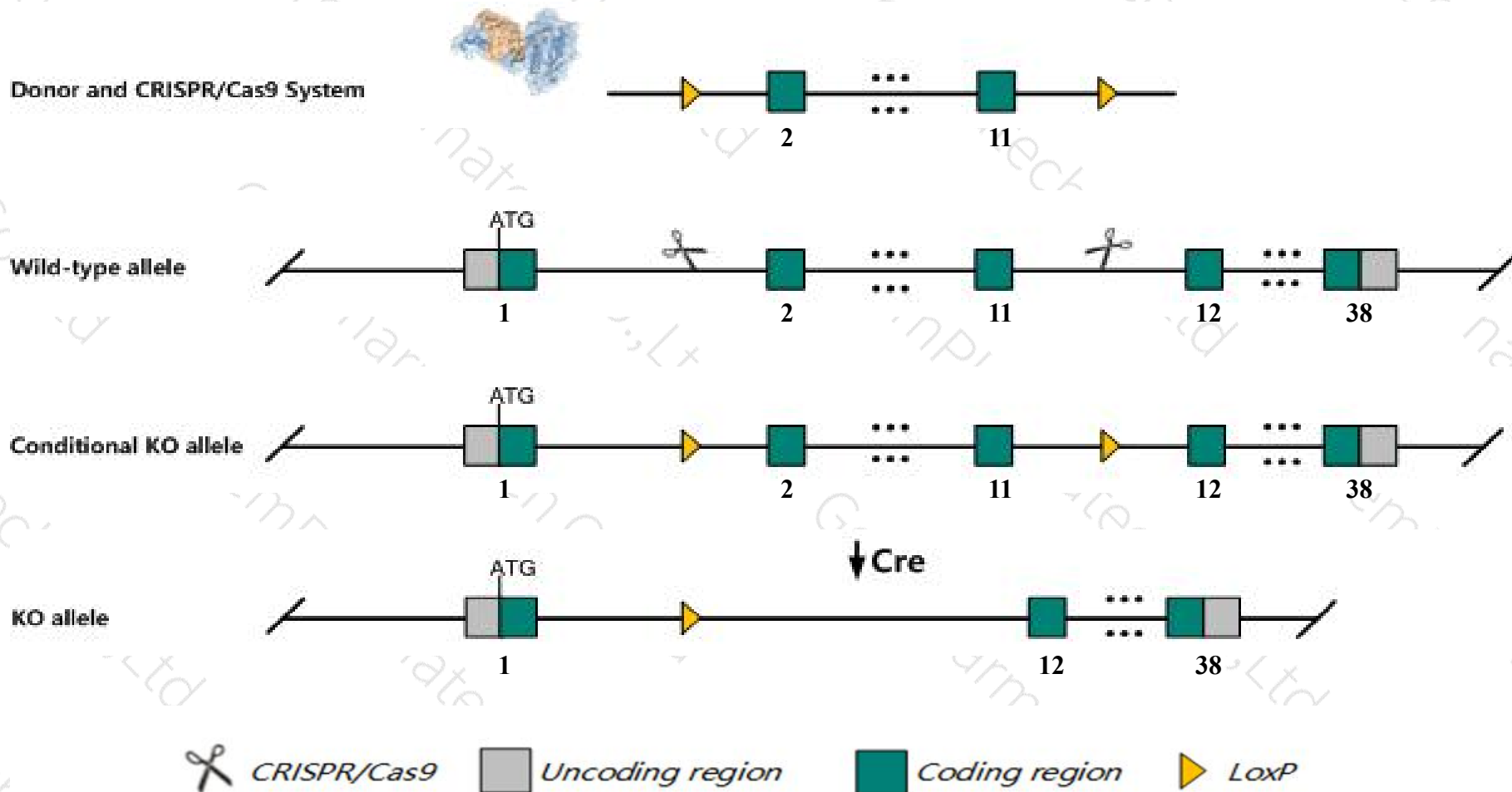
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



- The *Lrpprc* gene has 7 transcripts. According to the structure of *Lrpprc* gene, exon2-exon11 of *Lrpprc-201* (ENSMUST00000112308.8) transcript is recommended as the knockout region. The region contains 1217bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Lrpprc* 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, Mice homozygous for a gene trap allele exhibit embryonic lethality during organogenesis associated with growth retardation. Mice homozygous for a knock-out allele exhibit embryonic lethality between somite formation and embryo turning.
- Transcript *Lrpprc*-203&204&207 may not be affected.
- The *Lrpprc* gene is located on the Chr17. 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)

Lrpprc leucine-rich PPR-motif containing [Mus musculus (house mouse)]

Gene ID: 72416, updated on 31-Jan-2019

Summary



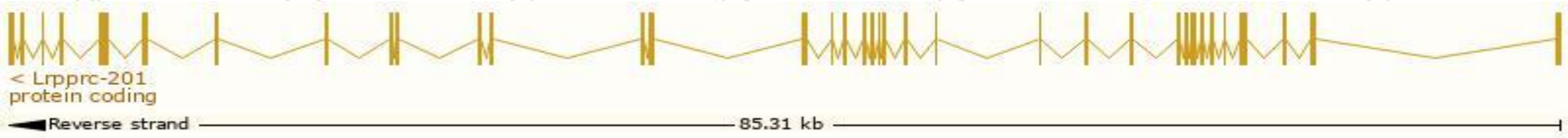
Official Symbol	Lrpprc provided by MGI
Official Full Name	leucine-rich PPR-motif containing provided by MGI
Primary source	MGI:MGI:1919666
See related	Ensembl:ENSMUSG00000024120
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	3110001K13Rik, C76645, Gp130, Lrp130, Lsfc
Expression	Ubiquitous expression in placenta adult (RPKM 18.8), liver E18 (RPKM 15.7) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

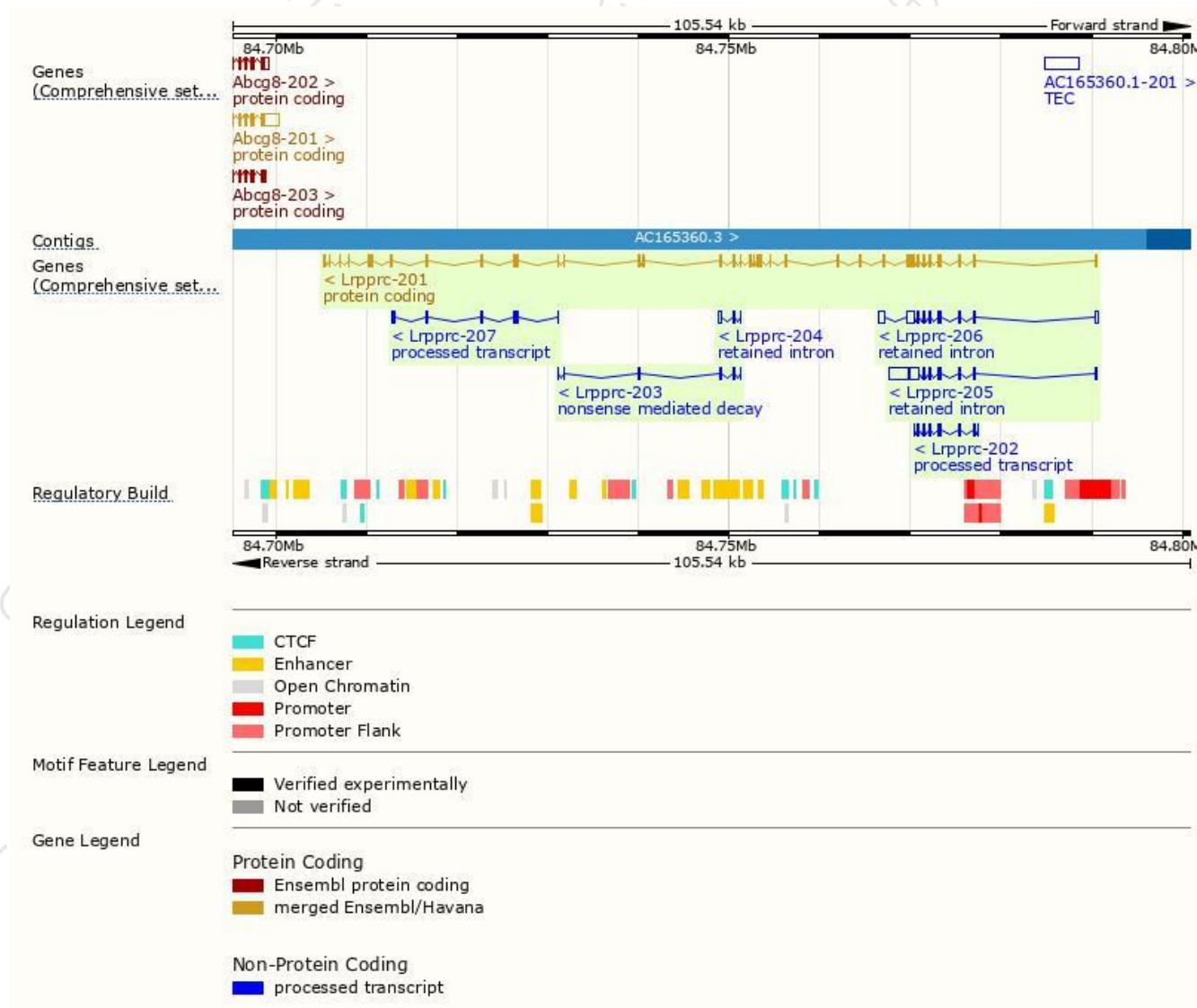
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Lrpprc-201	ENSMUST00000112308.8	4393	1392aa	Protein coding	CCDS29003	Q6PB66	TSL:1 GENCODE basic APPRIS P1
Lrpprc-203	ENSMUST00000160011.1	565	142aa	Nonsense mediated decay	-	F6V2A3	CDS 5' incomplete TSL:3
Lrpprc-202	ENSMUST00000159222.1	967	No protein	Processed transcript	-	-	TSL:5
Lrpprc-207	ENSMUST00000162799.1	809	No protein	Processed transcript	-	-	TSL:3
Lrpprc-205	ENSMUST00000161299.7	4012	No protein	Retained intron	-	-	TSL:2
Lrpprc-206	ENSMUST00000161928.7	2875	No protein	Retained intron	-	-	TSL:2
Lrpprc-204	ENSMUST00000160414.1	513	No protein	Retained intron	-	-	TSL:2

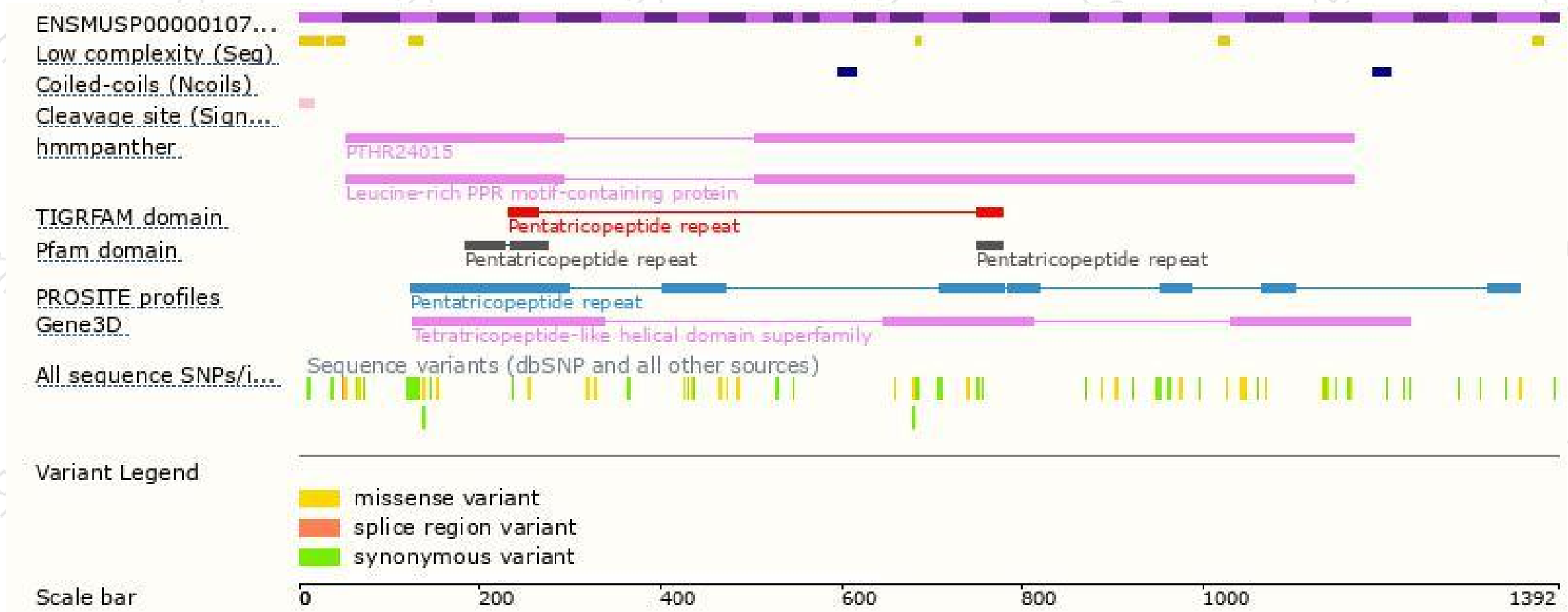
The strategy is based on the design of *Lrpprc-201* transcript,The transcription is shown below



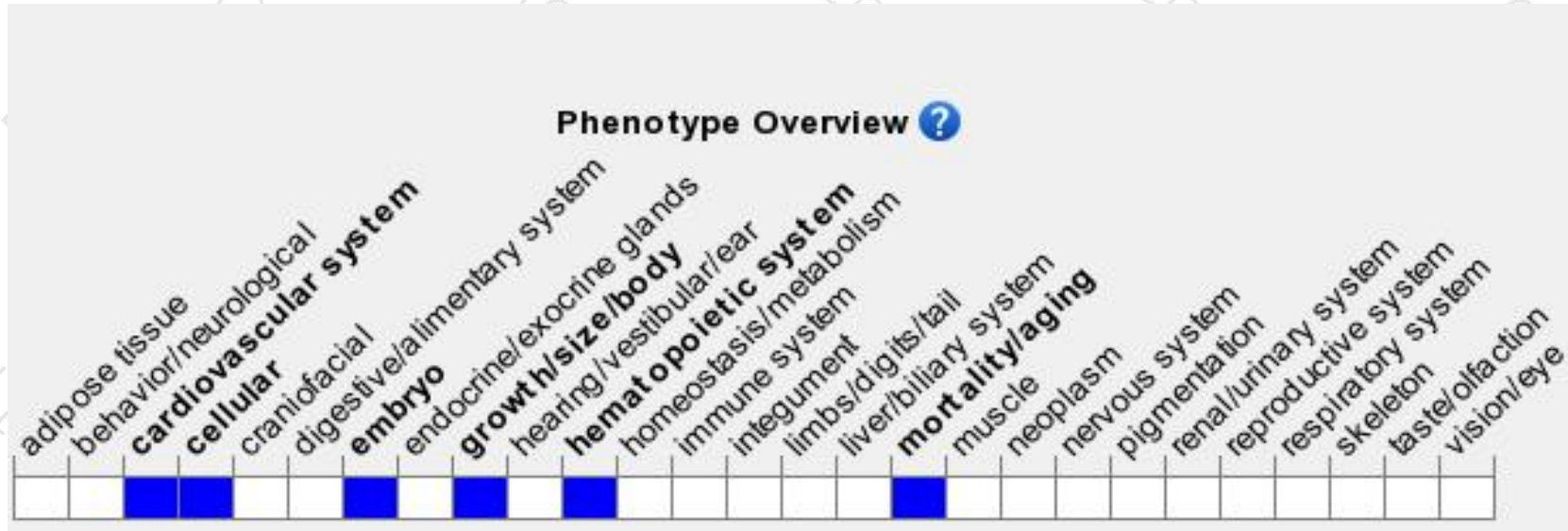
Genomic location distribution



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, Mice homozygous for a gene trap allele exhibit embryonic lethality during organogenesis associated with growth retardation. Mice homozygous for a knock-out allele exhibit embryonic lethality between somite formation and embryo turning.

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

Tel: 400-9660890

