

Ppp2r2a Cas9-CKO Strategy

Designer: Ruirui Zhang

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Project Overview

Project Name

Ppp2r2a

Project type

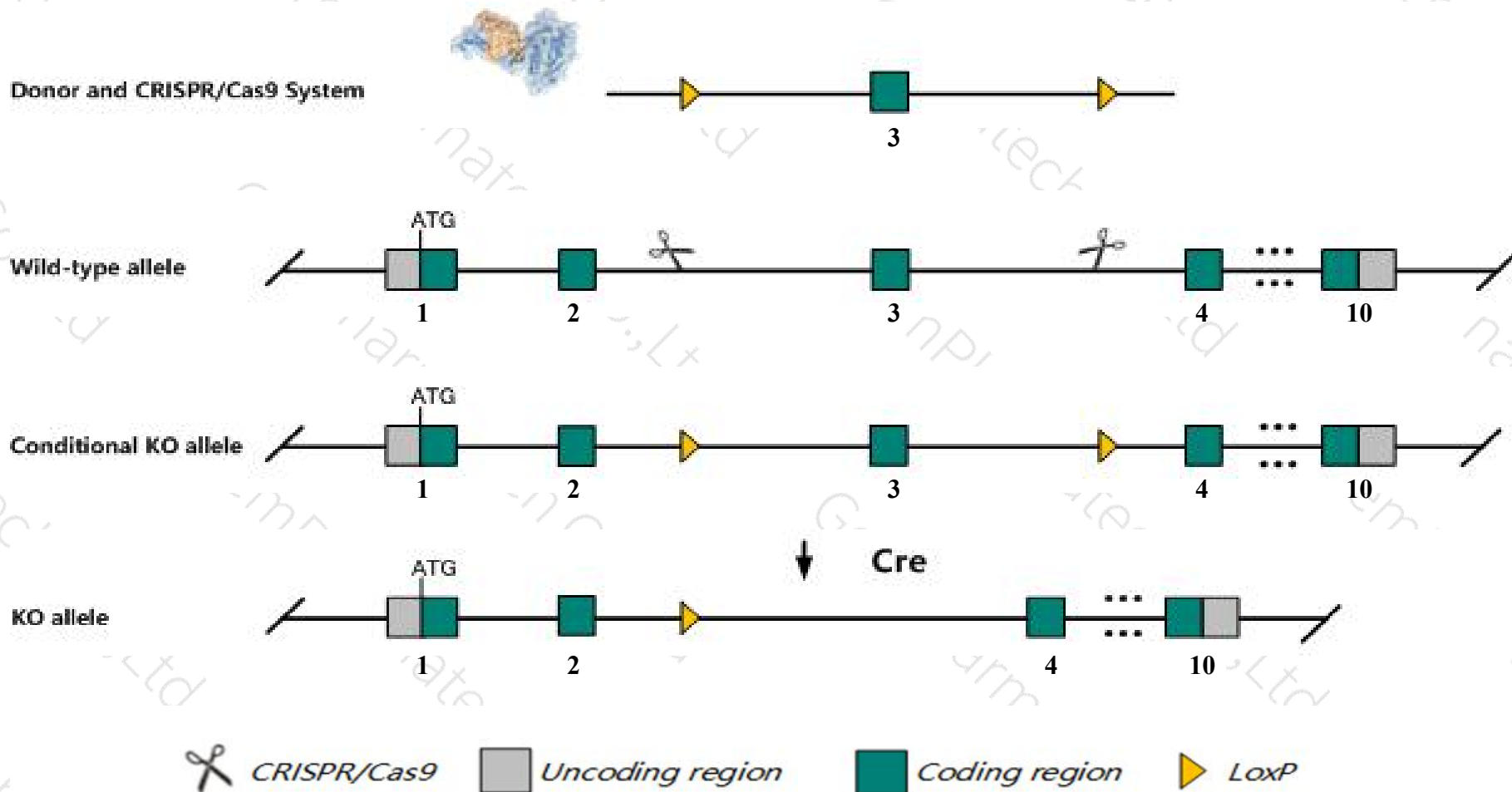
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ppp2r2a* gene. The schematic diagram is as follows:



Technical routes

- The *Ppp2r2a* gene has 5 transcripts. According to the structure of *Ppp2r2a* gene, exon3 of *Ppp2r2a-201* (ENSMUST00000089230.6) transcript is recommended as the knockout region. The region contains 98bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ppp2r2a* 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

- The *Ppp2r2a* 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)

Ppp2r2a protein phosphatase 2, regulatory subunit B, alpha [Mus musculus (house mouse)]

Gene ID: 71978, updated on 7-Apr-2019

Summary



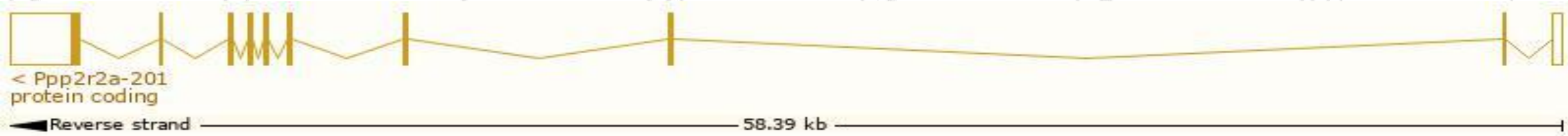
Official Symbol	Ppp2r2a provided by MGI
Official Full Name	protein phosphatase 2, regulatory subunit B, alpha provided by MGI
Primary source	MGI:MGI:1919228
See related	Ensembl:ENSMUSG00000022052
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2410004D02Rik, mKIAA1541
Expression	Ubiquitous expression in adrenal adult (RPKM 26.6), CNS E11.5 (RPKM 11.2) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

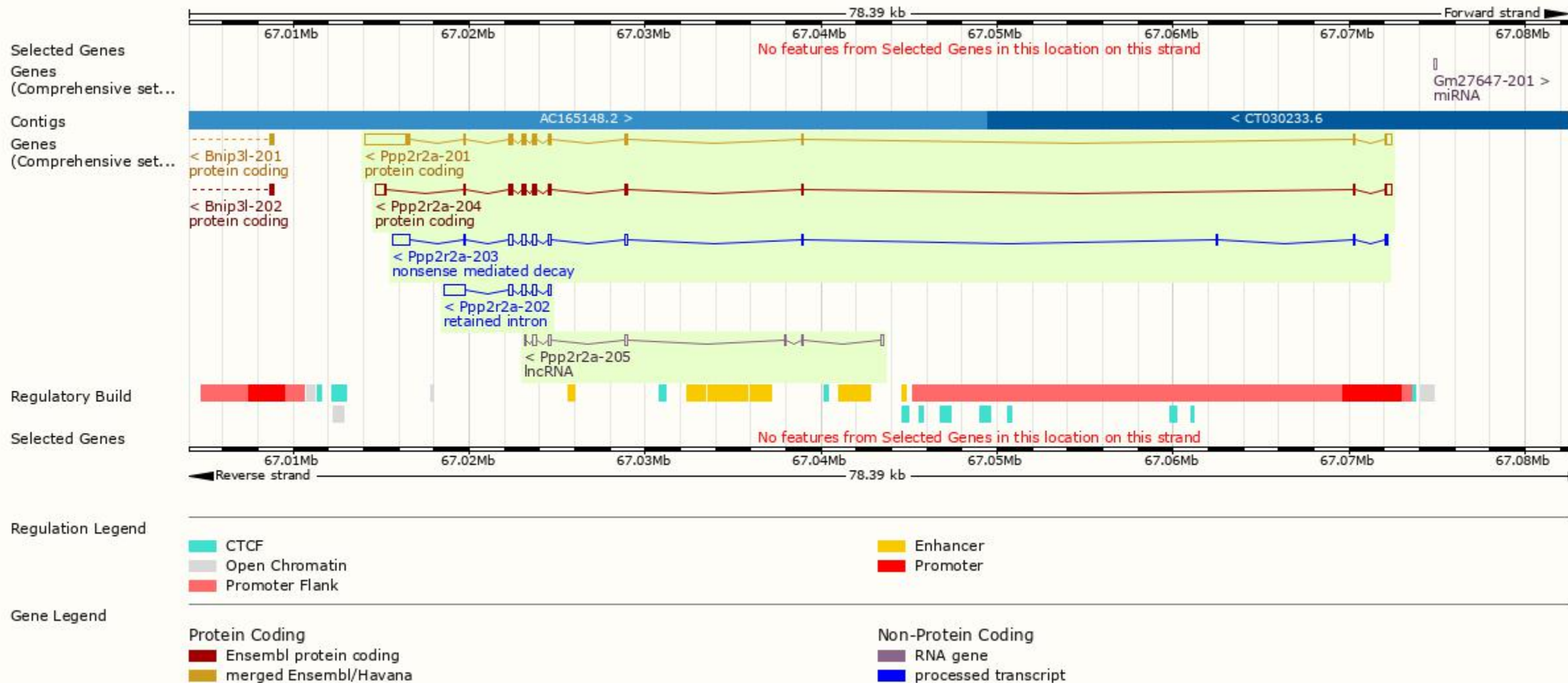
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ppp2r2a-201	ENSMUST00000089230.6	4010	447aa	Protein coding	CCDS56967	Q3TT94 Q6P1F6	TSL:1 GENCODE basic APPRIS P1
Ppp2r2a-204	ENSMUST00000225380.1	1988	367aa	Protein coding	-	Q9CWU3	GENCODE basic
Ppp2r2a-203	ENSMUST00000225251.1	2192	50aa	Nonsense mediated decay	-	A0A286YDJ9	
Ppp2r2a-205	ENSMUST00000225469.1	770	No protein	Processed transcript	-	-	
Ppp2r2a-202	ENSMUST00000223630.1	1845	No protein	Retained intron	-	-	

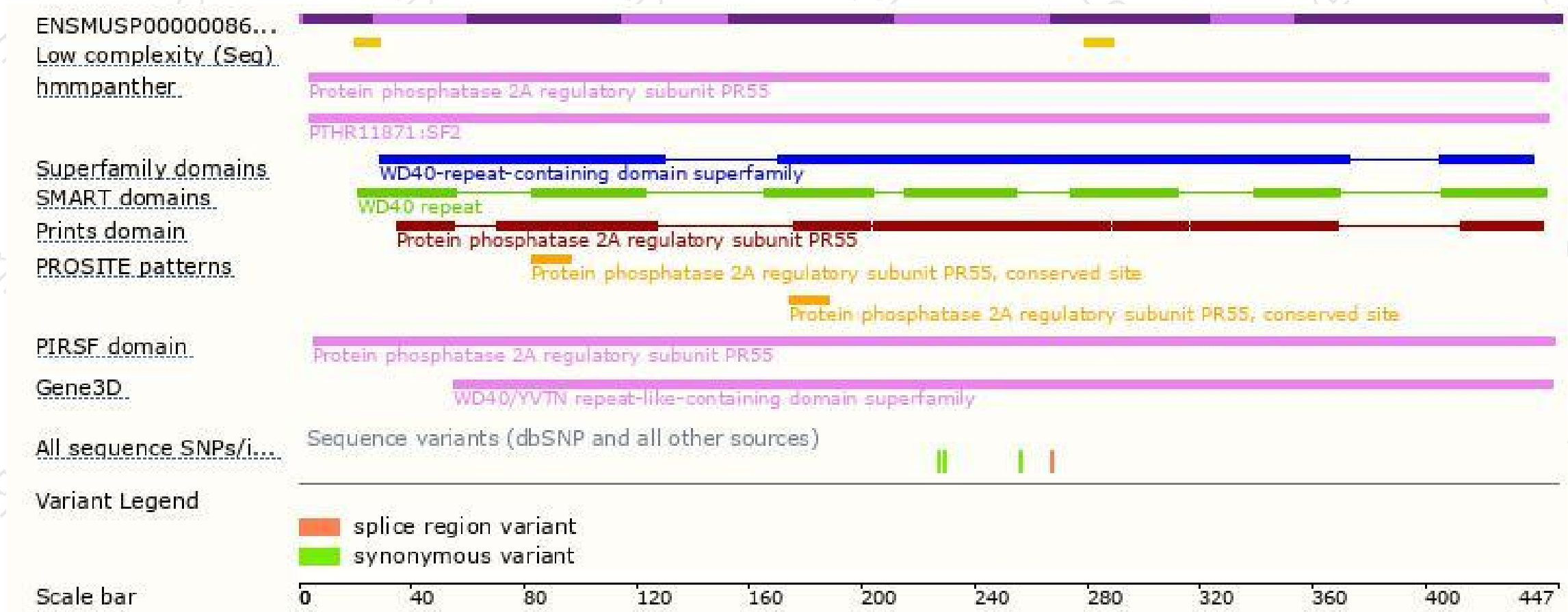
The strategy is based on the design of *Ppp2r2a-201* transcript,The transcription is shown below



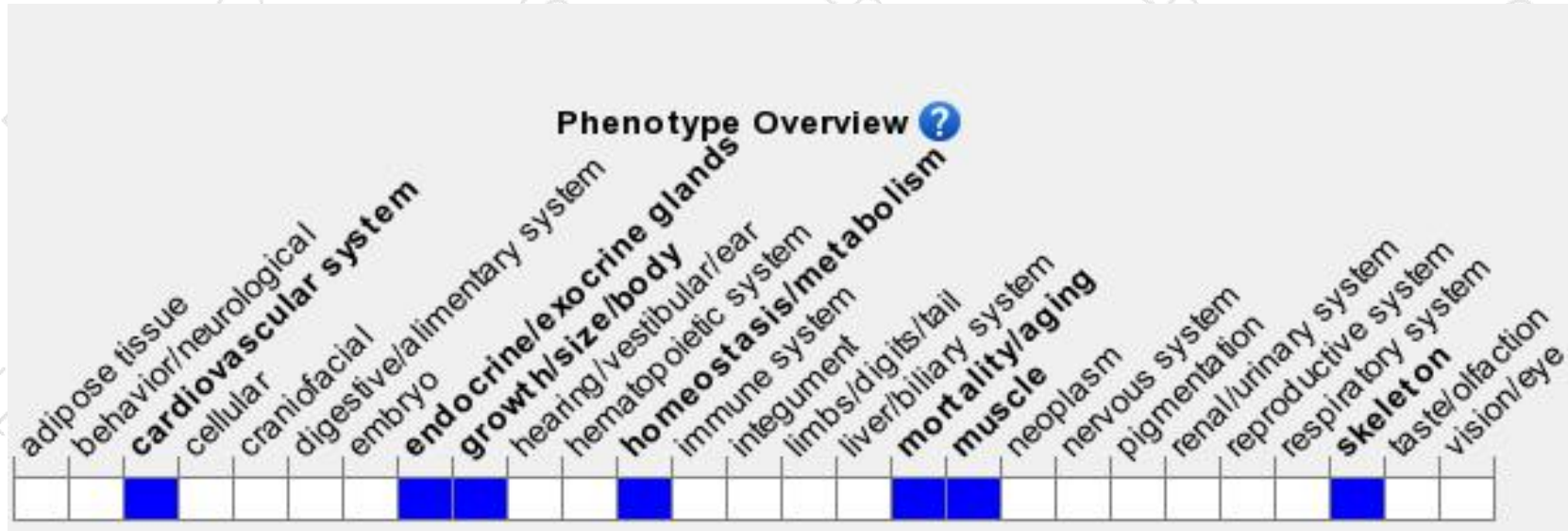
Genomic location distribution



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/>).

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

Tel: 400-9660890

