

Mrps5 Cas9-CKO Strategy

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Project Overview

Project Name

Mrps5

Project type

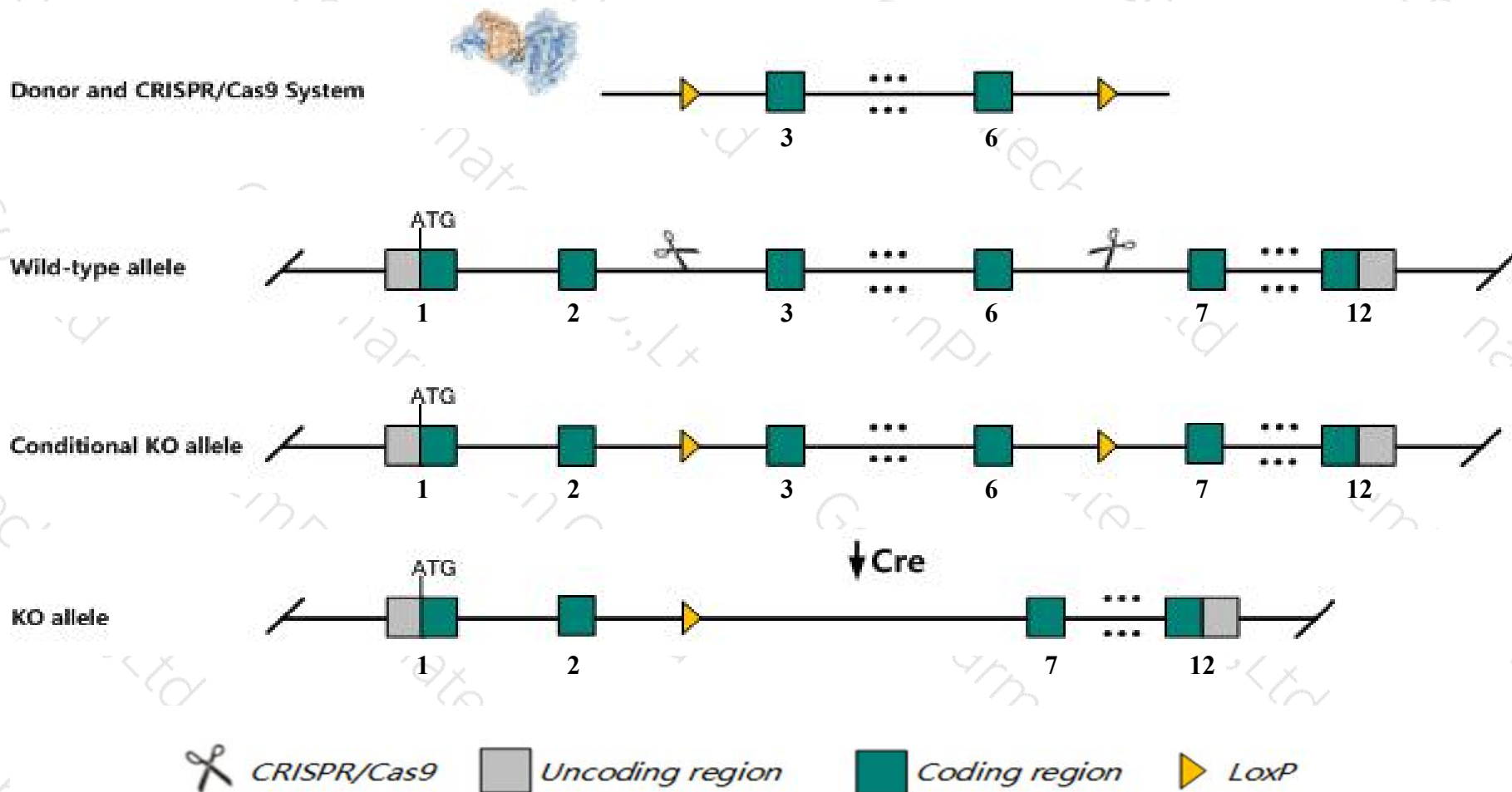
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mrps5* gene. The schematic diagram is as follows:



- The *Mrps5* gene has 7 transcripts. According to the structure of *Mrps5* gene, exon3-exon6 of *Mrps5-201* (ENSMUST00000028852.12) transcript is recommended as the knockout region. The region contains 533bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Mrps5* 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.

- Non-coding transcripts 203, 204, 206 affect the unknown.
- The *Mrps5* gene is located on the Chr2. 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)

Mrps5 mitochondrial ribosomal protein S5 [Mus musculus (house mouse)]

Gene ID: 77721, updated on 31-Jan-2019

Summary



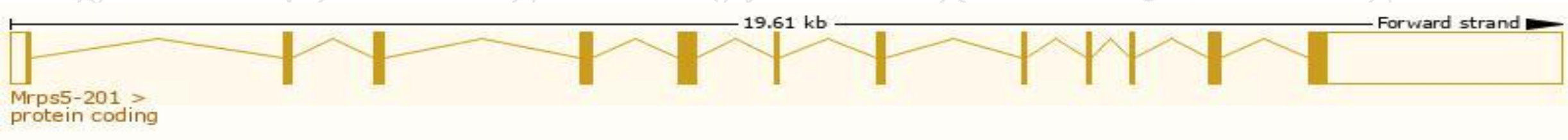
Official Symbol	Mrps5 provided by MGI
Official Full Name	mitochondrial ribosomal protein S5 provided by MGI
Primary source	MGI:MGI:1924971
See related	Ensembl:ENSMUSG000000027374
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1620401I16Rik, AI850294
Expression	Ubiquitous expression in CNS E11.5 (RPKM 26.9), CNS E18 (RPKM 25.3) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

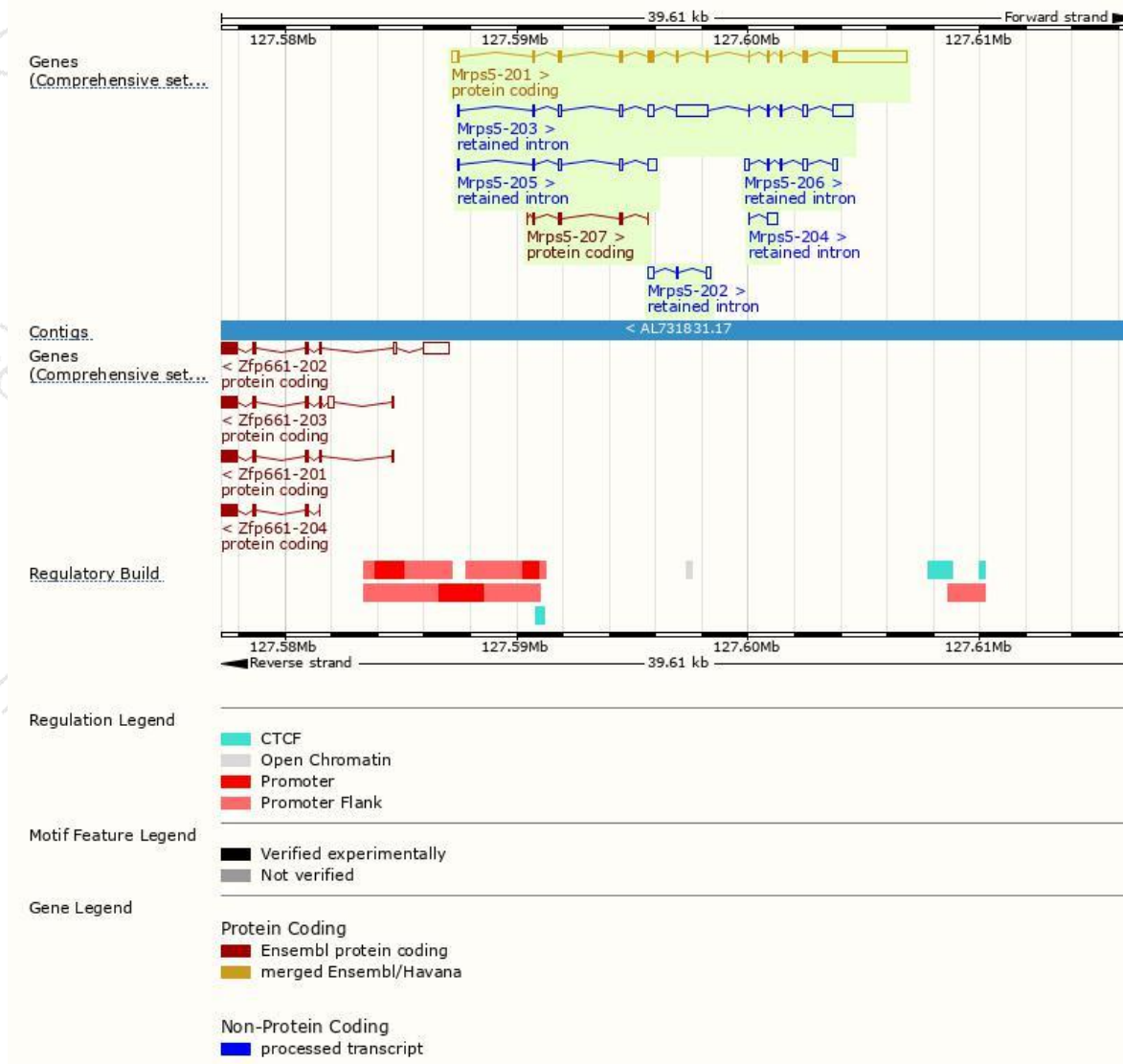
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mrps5-201	ENSMUST00000028852.12	4481	432aa	Protein coding	CCDS16706	Q99N87	TSL:1 GENCODE basic APPRIS P1
Mrps5-207	ENSMUST00000146131.1	424	139aa	Protein coding	-	B2FDG7	CDS 3' incomplete TSL:3
Mrps5-203	ENSMUST00000128535.7	3228	No protein	Retained intron	-	-	TSL:2
Mrps5-205	ENSMUST00000134101.7	812	No protein	Retained intron	-	-	TSL:1
Mrps5-206	ENSMUST00000145271.1	718	No protein	Retained intron	-	-	TSL:2
Mrps5-202	ENSMUST00000126491.1	451	No protein	Retained intron	-	-	TSL:3
Mrps5-204	ENSMUST00000129066.1	443	No protein	Retained intron	-	-	TSL:5

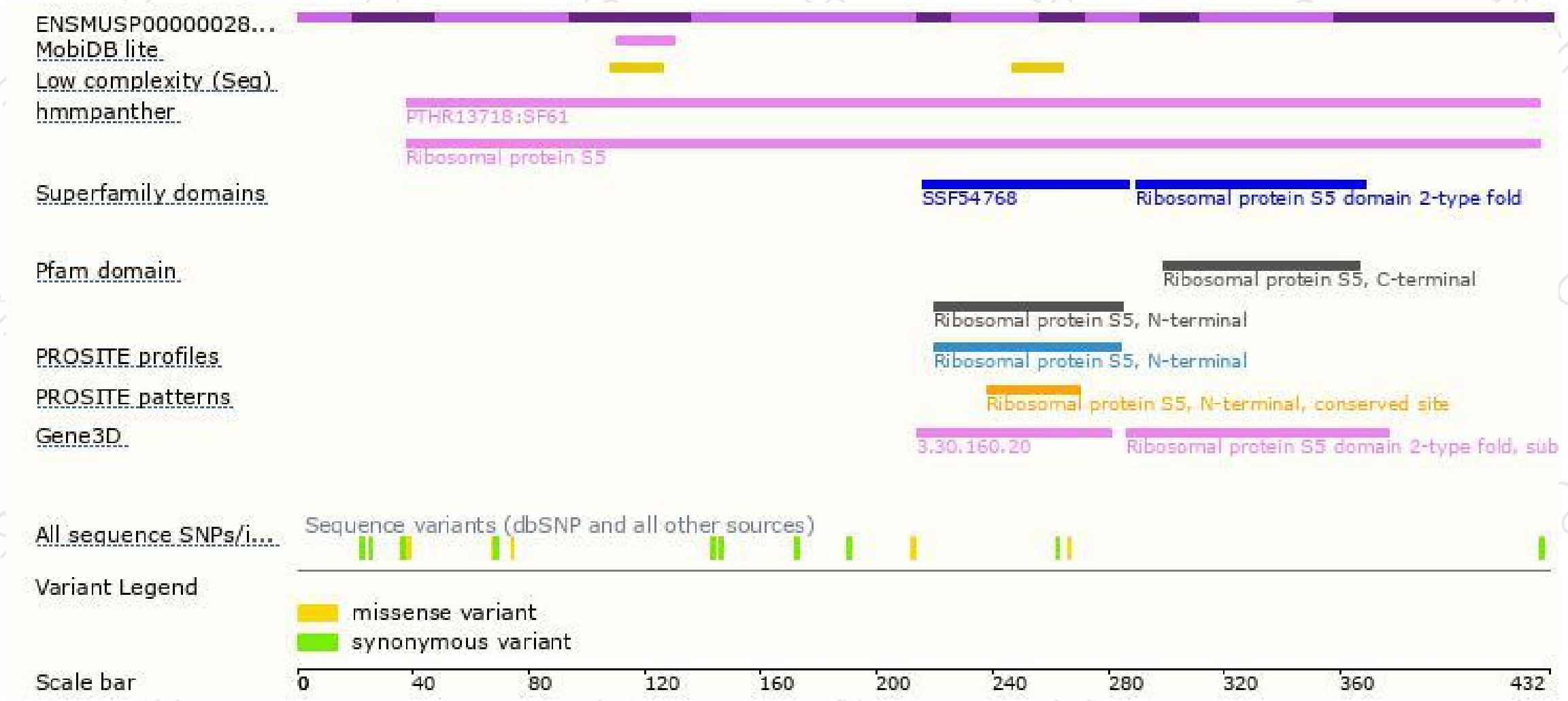
The strategy is based on the design of *Mrps5-201* transcript,The transcription is shown below



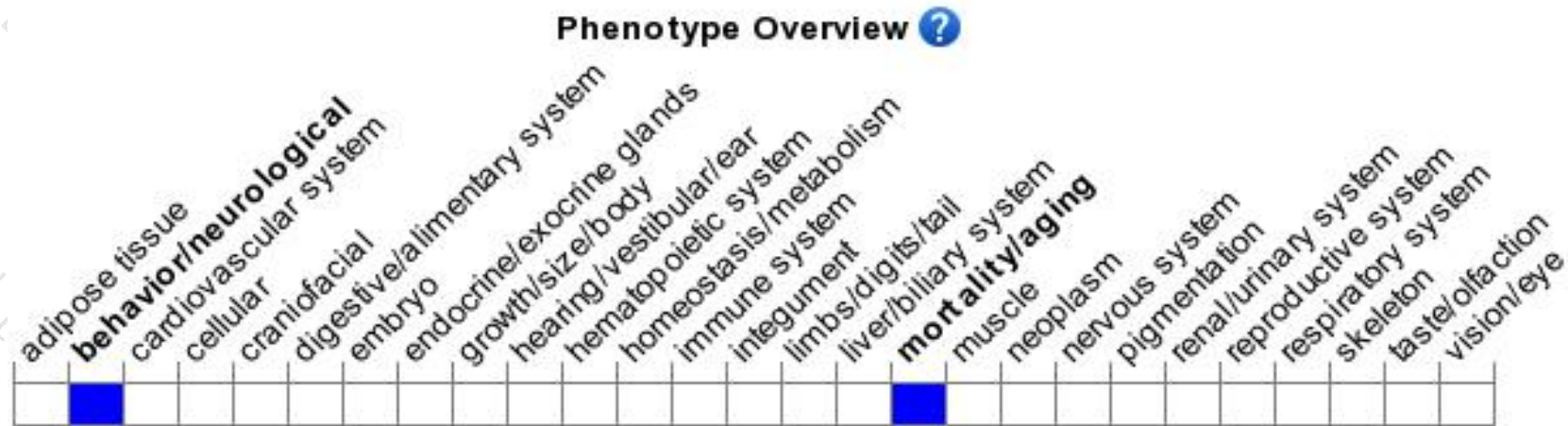
Genomic location distribution



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.

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