

***Mapk11* Cas9-CKO Strategy**

Designer: JiaYu

Project Overview

Project Name

Mapk11

Project type

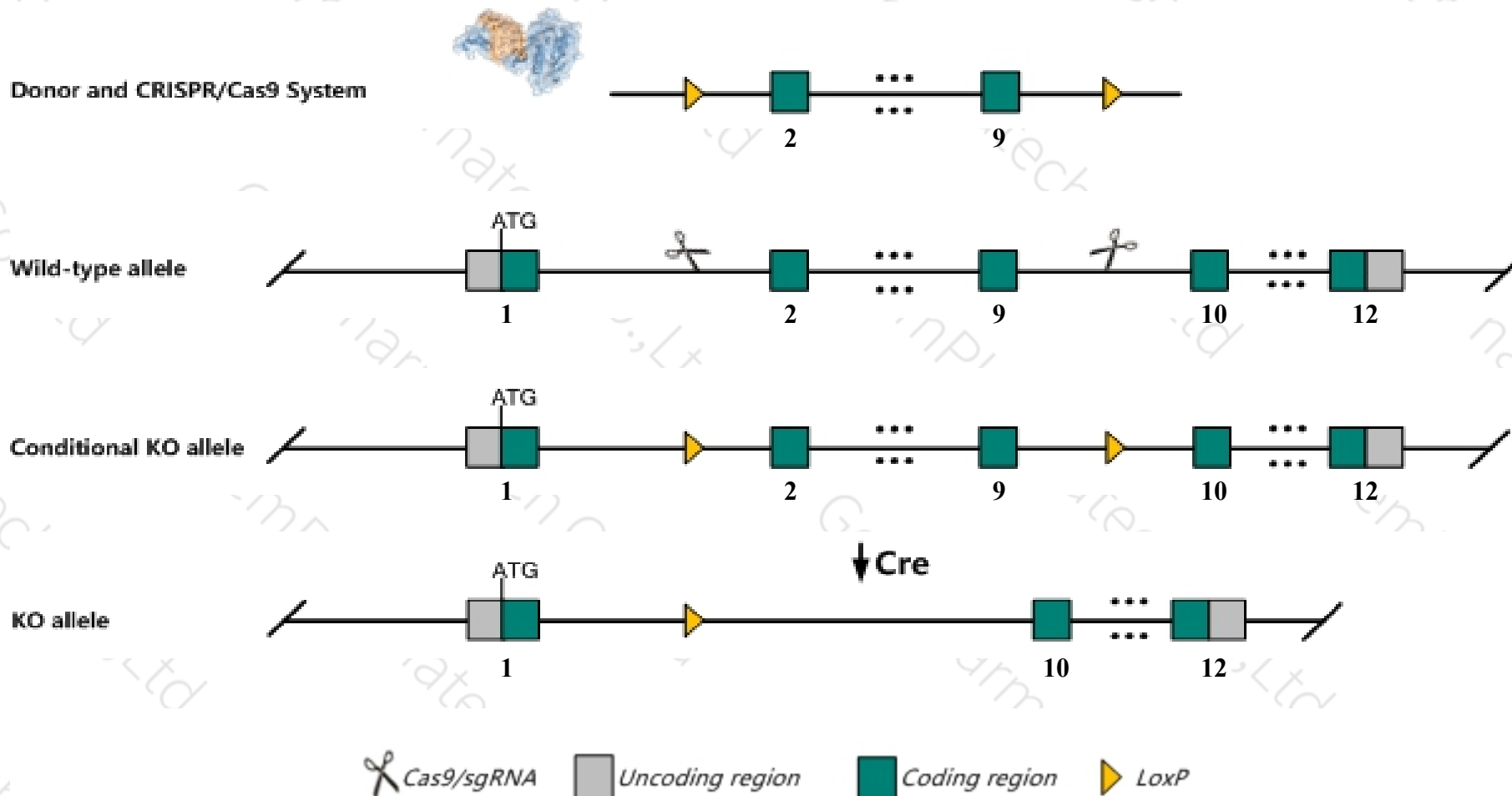
Cas9-CKO

Strain background

C57BL/6J

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mapk11* gene. The schematic diagram is as follows:



- The *Mapk11* gene has 4 transcripts. According to the structure of *Mapk11* gene, exon2-exon9 of *Mapk11-201* (ENSMUST00000088823.4) transcript is recommended as the knockout region. The region contains 646bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Mapk11* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA and Donor were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.
- The flox mice was 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 knock-out allele exhibit a normal phenotype.
- The *Mapk11* gene is located on the Chr15. 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)

Mapk11 mitogen-activated protein kinase 11 [Mus musculus (house mouse)]

Gene ID: 19094, updated on 3-Feb-2019

Summary



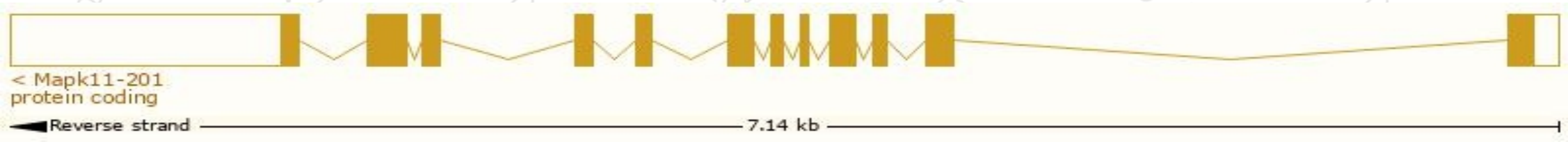
Official Symbol	Mapk11 provided by MGI
Official Full Name	mitogen-activated protein kinase 11 provided by MGI
Primary source	MGI:MGI:1338024
See related	Ensembl:ENSMUSG00000053137
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	P38b, Prkm11, Sapk2, Sapk2b, p38-2, p38beta, p38beta2
Expression	Broad expression in cortex adult (RPKM 22.5), CNS E14 (RPKM 20.2) and 20 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

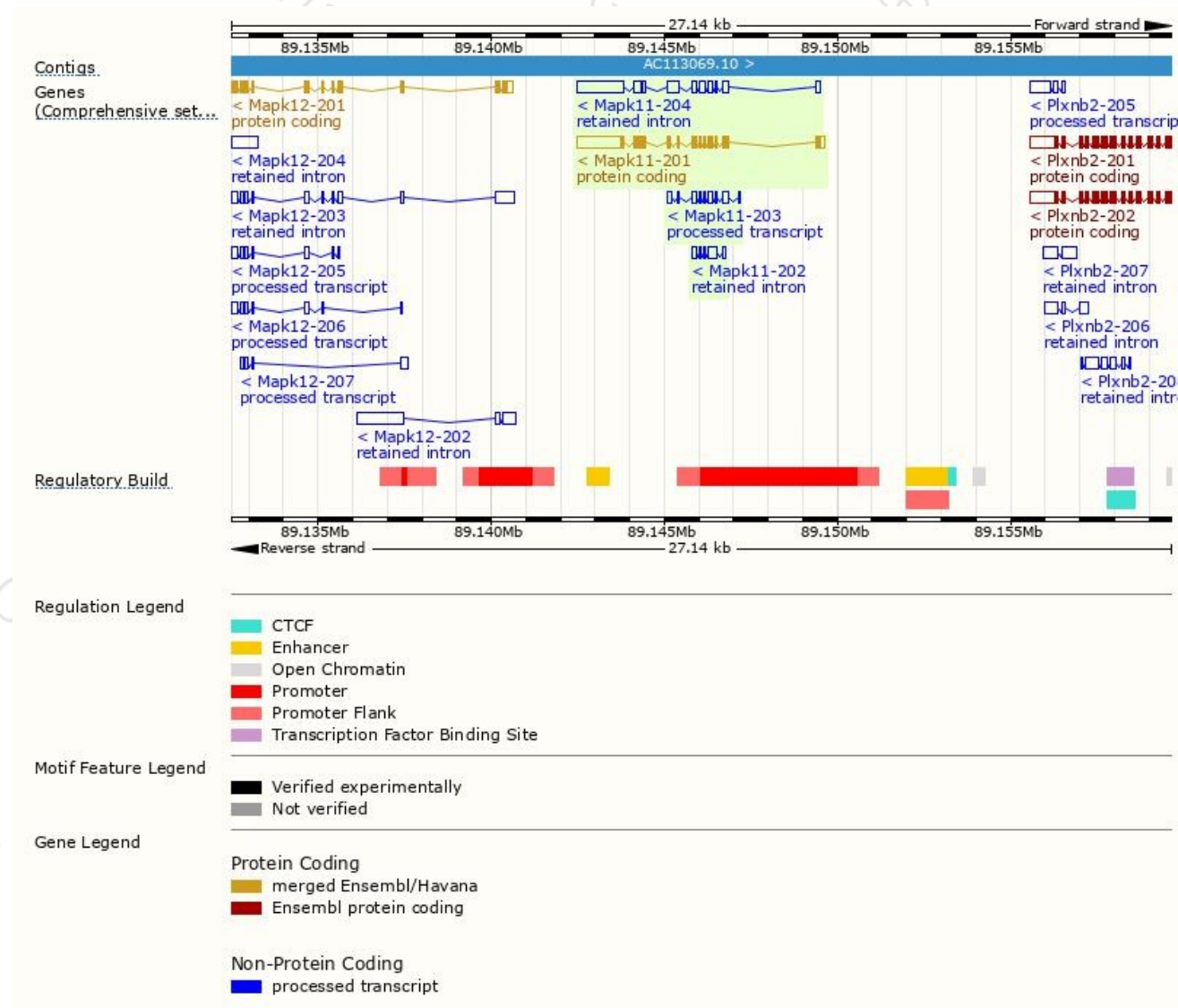
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mapk11-201	ENSMUST00000088823.4	2461	364aa	Protein coding	CCDS27741	Q9WUI1	TSL:1 GENCODE basic APPRIS P1
Mapk11-203	ENSMUST00000230634.1	749	No protein	Processed transcript	-	-	
Mapk11-204	ENSMUST00000230734.1	2615	No protein	Retained intron	-	-	
Mapk11-202	ENSMUST00000228967.1	534	No protein	Retained intron	-	-	

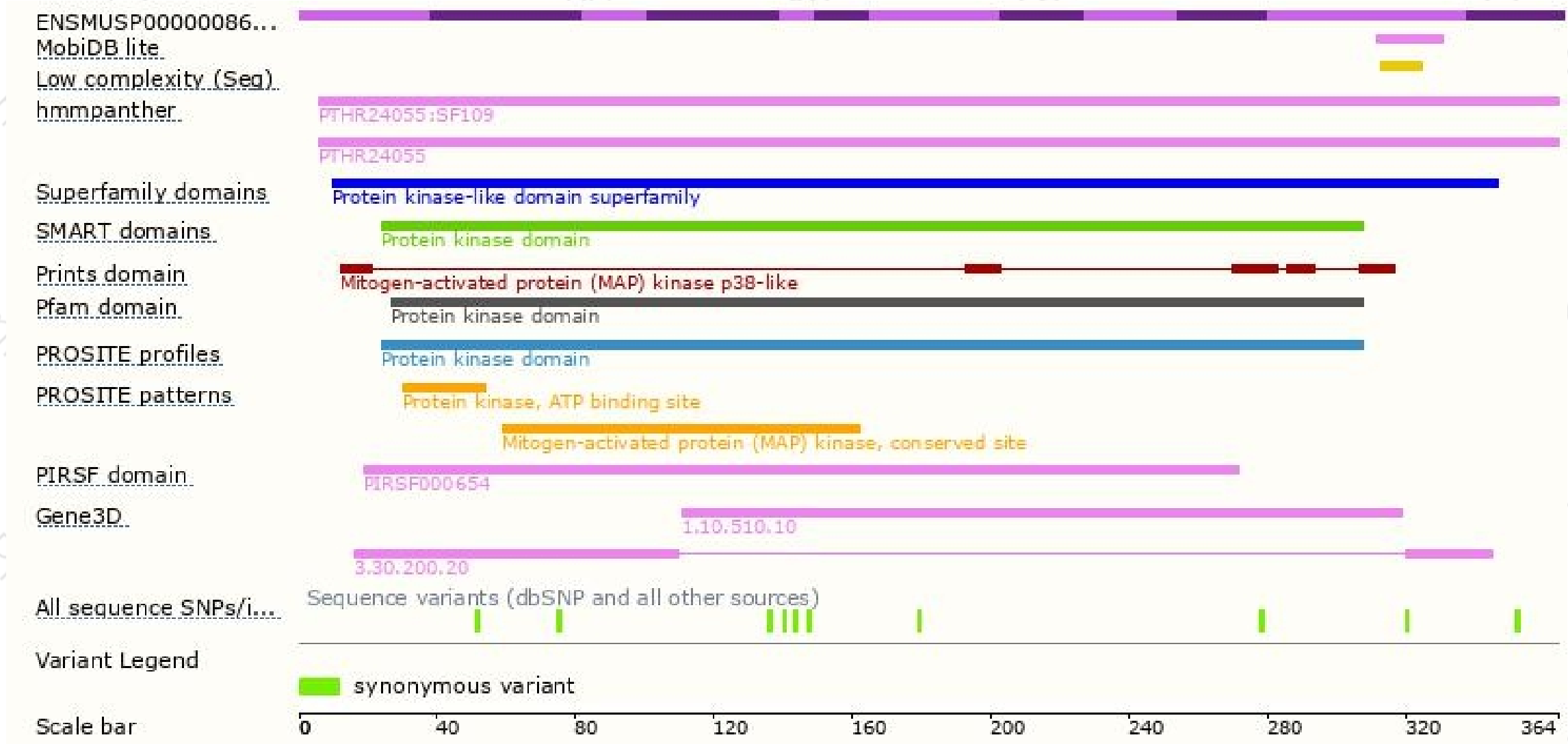
The strategy is based on the design of *Mapk11-201* transcript,The transcription is shown below



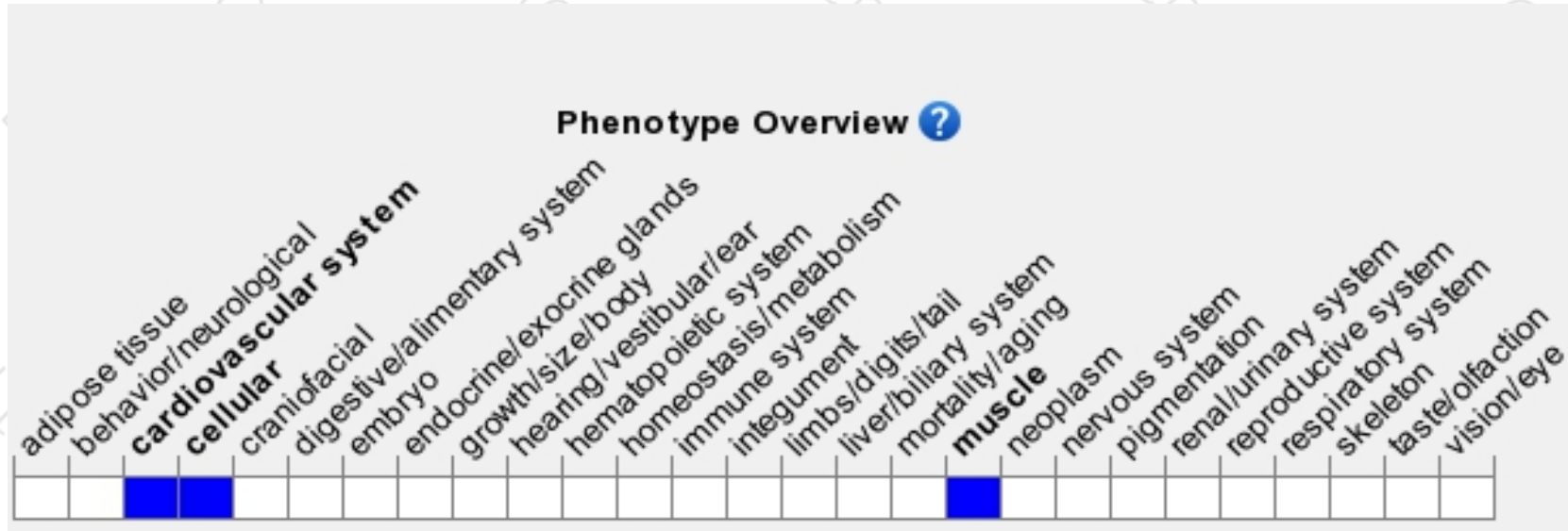
Genomic location distribution



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 knock-out allele exhibit a normal phenotype.

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

Tel: 025-5864 1534

