Jph1 Cas9-CKO Strategy

Designer: Yanhua Shen
Reviewer：Xueting Zhang
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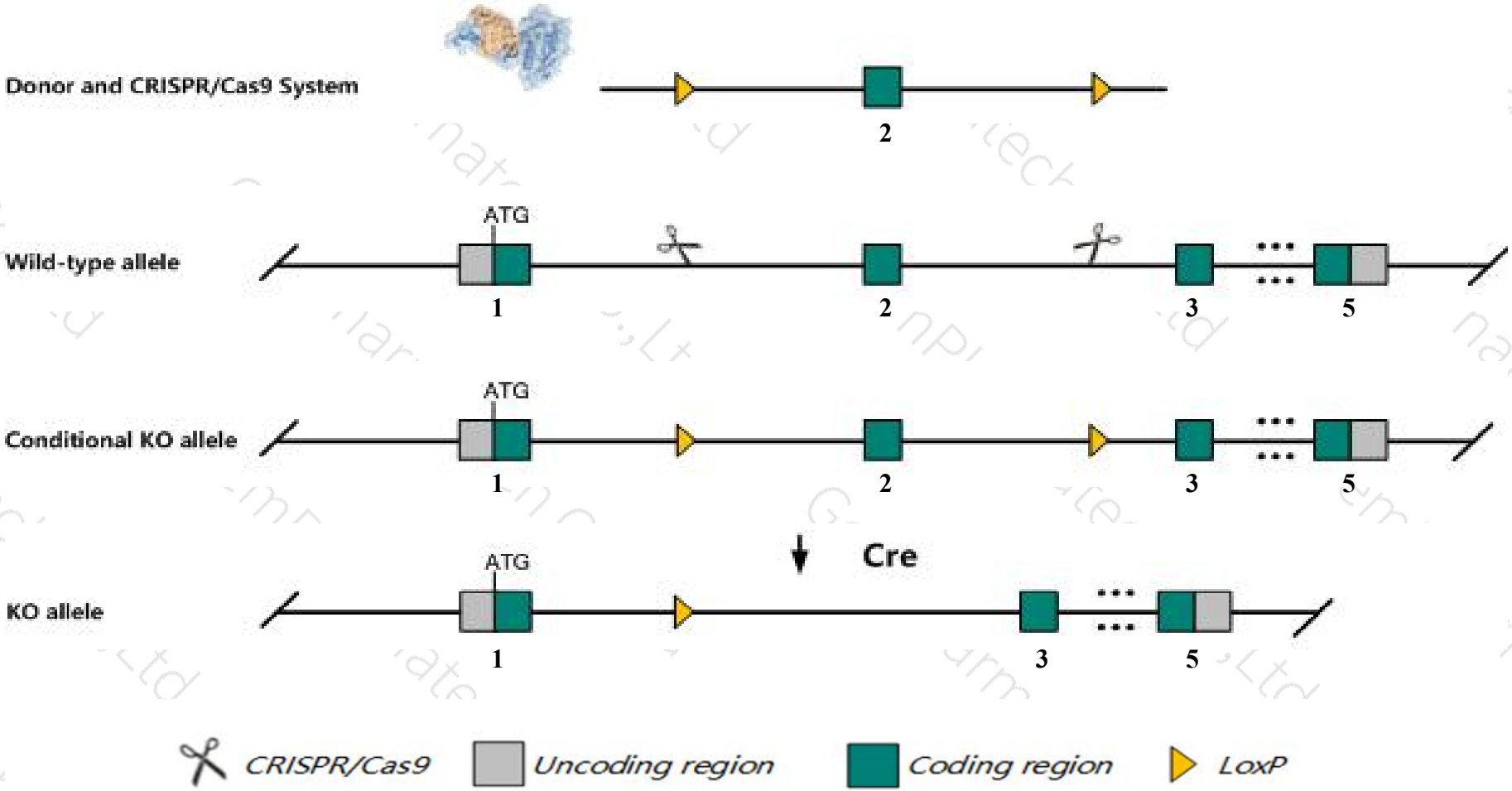
Project Overview

Project Name	***Jph1***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Jph1* gene. The schematic diagram is as follows:



Technical routes

- The *Jph1* gene has 2 transcripts. According to the structure of *Jph1* gene, exon2 of *Jph1-201* (ENSMUST00000038382.4) transcript is recommended as the knockout region.The region contains 760bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Jph1* 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

- According to the existing MGI data,Homozygotes for a targeted null mutation fail to suckle and die shortly after birth. Mutants exhibit deficiencies of triad junctions and contraction in skeletal muscle.
- Transcript 202 may not be affected.
- *Gm28376-201* gene may be destroyed.
- The *Jph1* gene is located on the Chr1. 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）

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Jph1 junctophilin 1 [*Mus musculus* (house mouse)]

Gene ID: 57339, updated on 10-Oct-2019

Summary

Official Symbol	Jph1 provided by MGI
Official Full Name	junctophilin 1 provided by MGI
Primary source	MGI:MGI:1891495
See related	Ensembl:ENSMUSG00000042686
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	Jp1; JP-1
Expression	Broad expression in bladder adult (RPKM 4.8), cerebellum adult (RPKM 3.9) and 18 other tissues See more
Orthologs	human all

Genomic context

Location: 1; 1 A3

See Jph1 in Genome Data Viewer

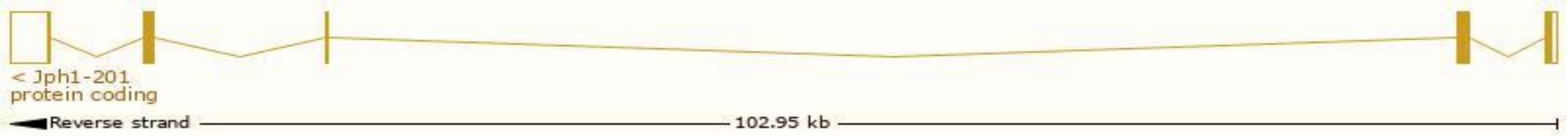
Exon count: 9

Transcript information（Ensembl）

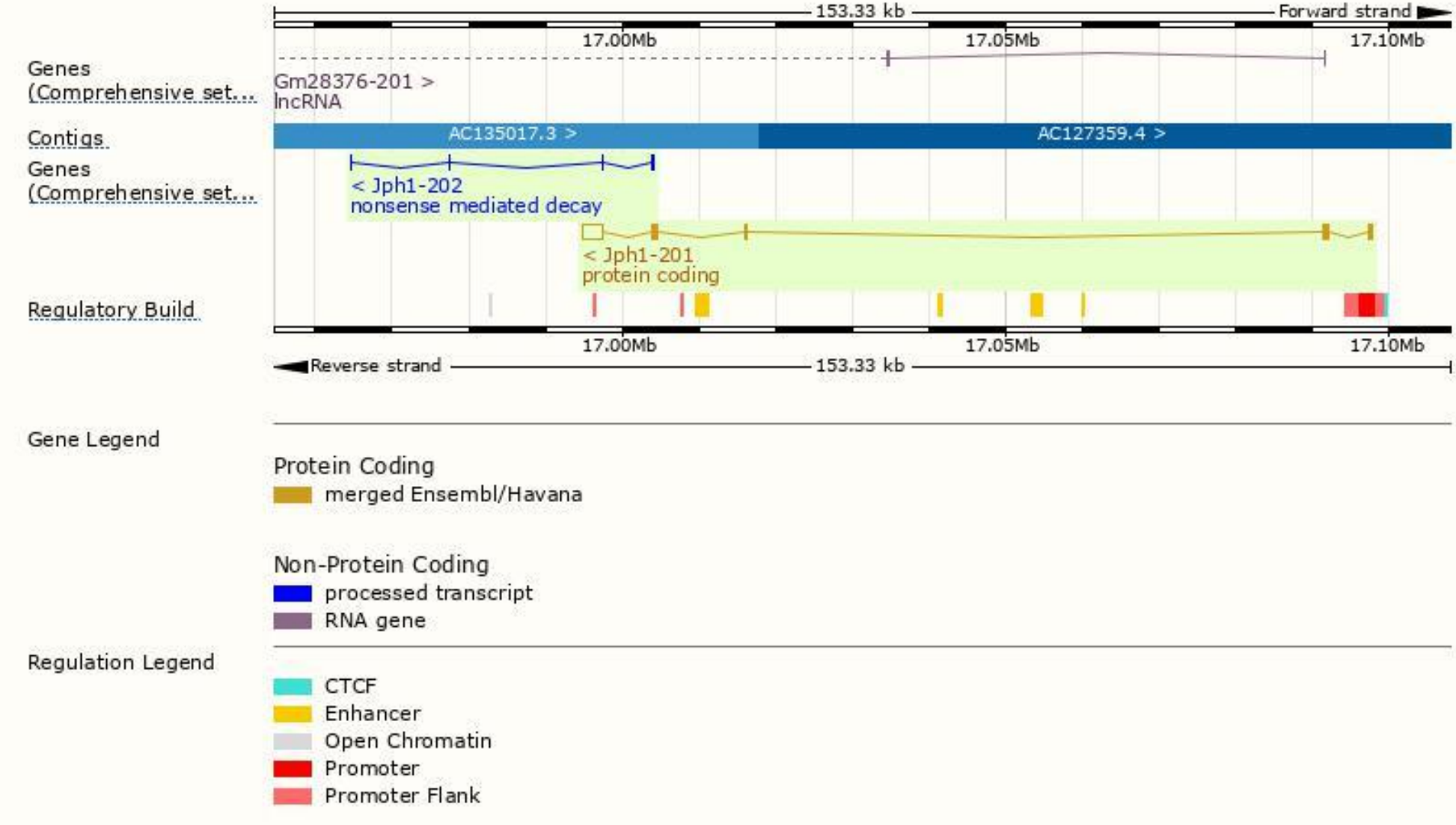
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Jph1-201	ENSMUST00000038382.4	4809	660aa	Protein coding	CCDS14833	Q9ET80	TSL:1 GENCODE basic APPRIS P1
Jph1-202	ENSMUST00000186024.1	614	136aa	Nonsense mediated decay	-	A0A087WRN3	CDS 5' incomplete TSL:5

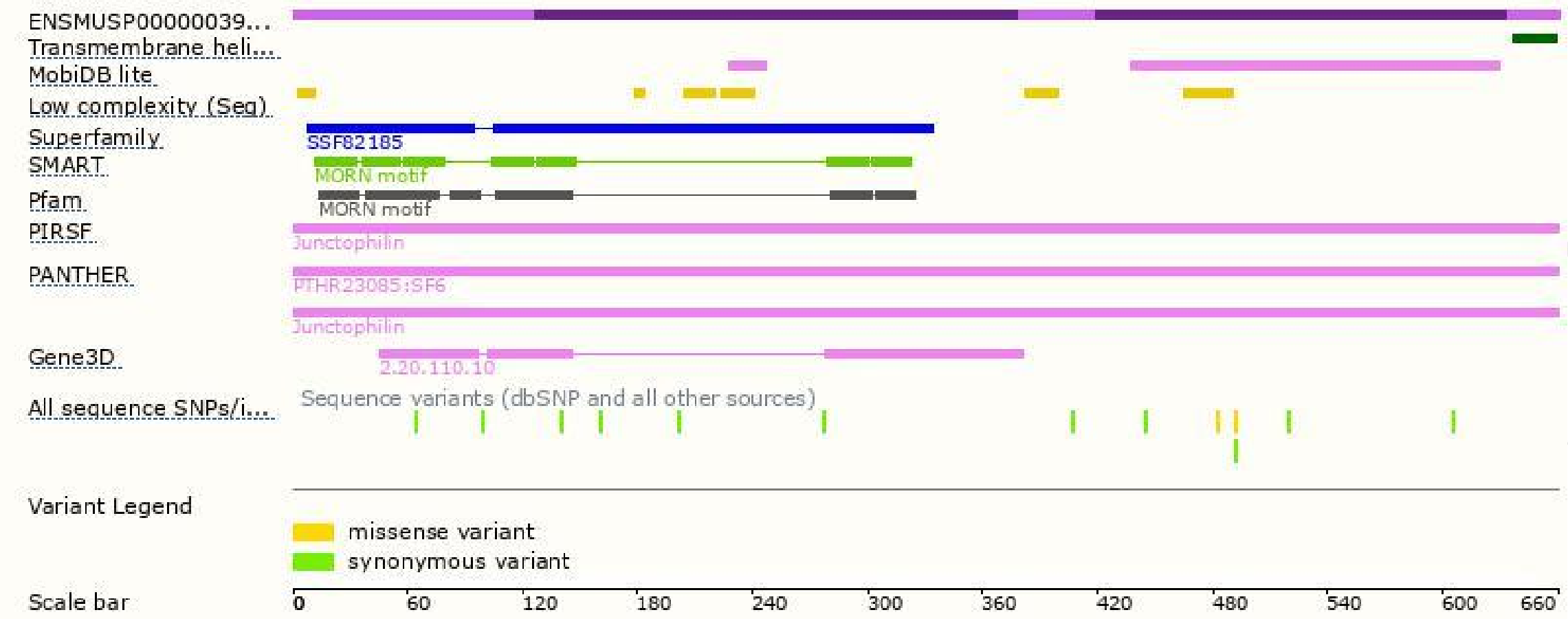
The strategy is based on the design of *Jph1-201* transcript,The transcription is shown below



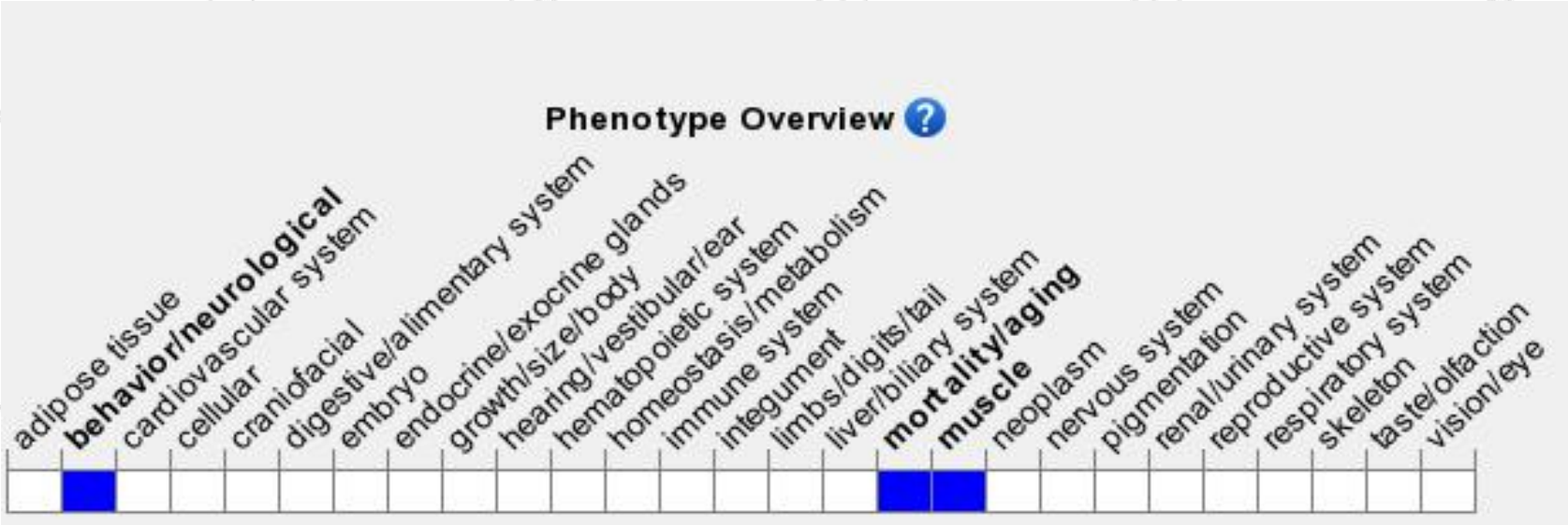
Genomic location distribution



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.

Tel: 400-9660890

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GemPharmatech Co.,Ltd