Lbx1 Cas9-KO Strategy

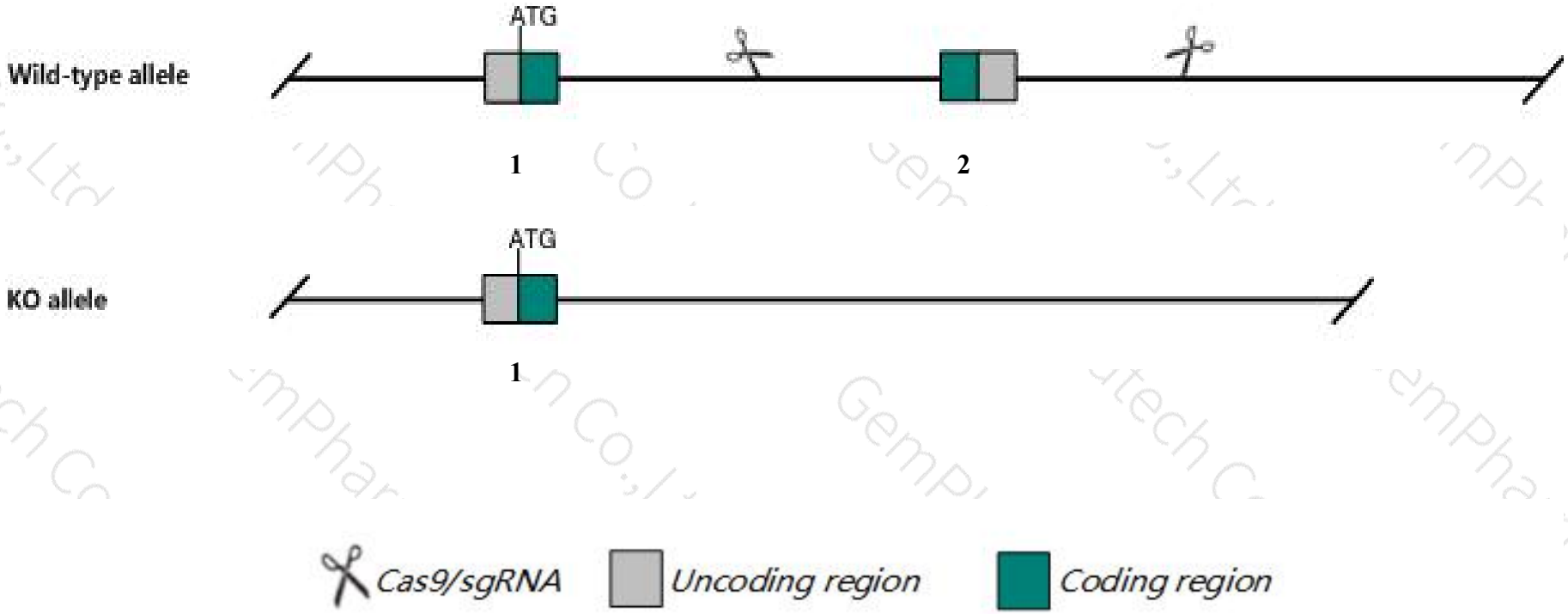
Designer: Xiaojing Li

Project Overview

Project Name	***Lbx1***
Project type	**Cas9-KO**
Strain background	**C57BL/6J**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Lbx1* gene. The schematic diagram is as follows:



Technical routes

- The *Lbx1* gene has 1 transcript. According to the structure of *Lbx1* gene, exon2 of *Lbx1-201* (ENSMUST00000099401.5) transcript is recommended as the knockout region.The region contains 524bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Lbx1* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA 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.

Notice

- According to the existing MGI data,Homozygous null mice display impaired limb muscle development resulting from progenitor cell migration defects. Defects in heart development and nervous system morphology are also reported.

- The *Lbx1* gene is located on the Chr19. 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 gene transcription and translation processes, all risks cannot be predicted under existing information.

Gene information（NCBI）

集萃药康 GemPharmatech

Lbx1 ladybird homeobox 1 [Mus musculus (house mouse)]

Gene ID: 16814, updated on 24-Feb-2019

Summary

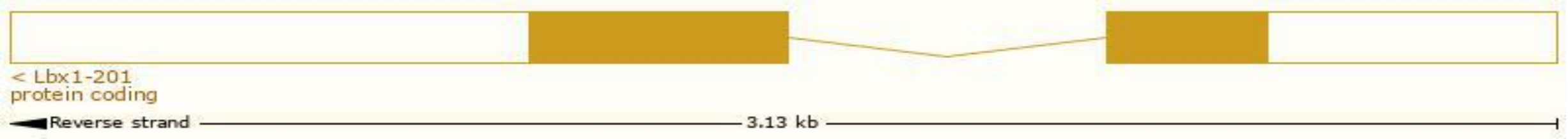
Official Symbol	Lbx1 provided by MGI
Official Full Name	ladybird homeobox 1 provided byMGI
Primary source	MGI:MGI:104867
See related	Ensembl:ENSMUSG00000025216
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Lbx1h
Expression	Biased expression in CNS E14 (RPKM 1.3), cerebellum adult (RPKM 1.2) and 6 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

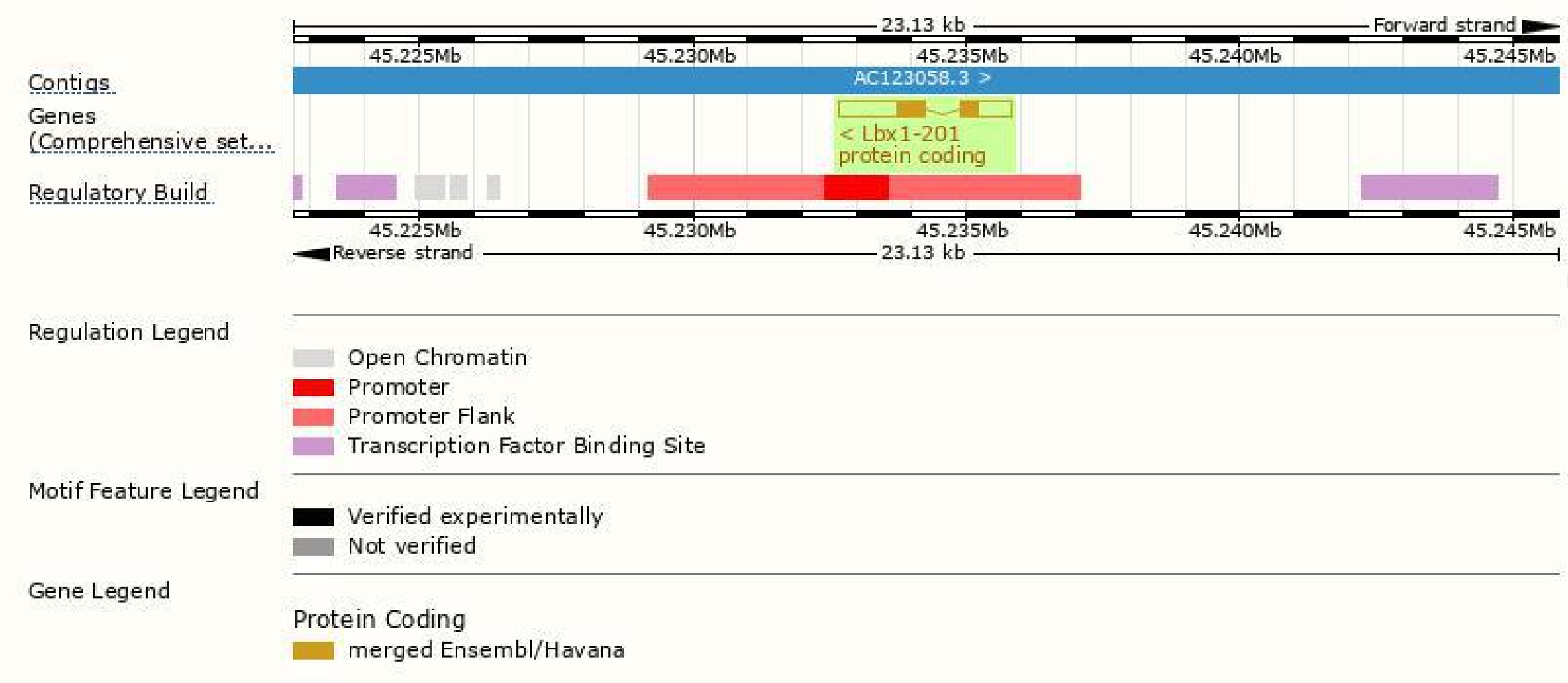
The gene has 1 transcript,and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Lbx1-201	ENSMUST00000099401.5	2484	282aa	Protein coding	CCDS29859	P52955	TSL:1 GENCODE basic APPRIS P1

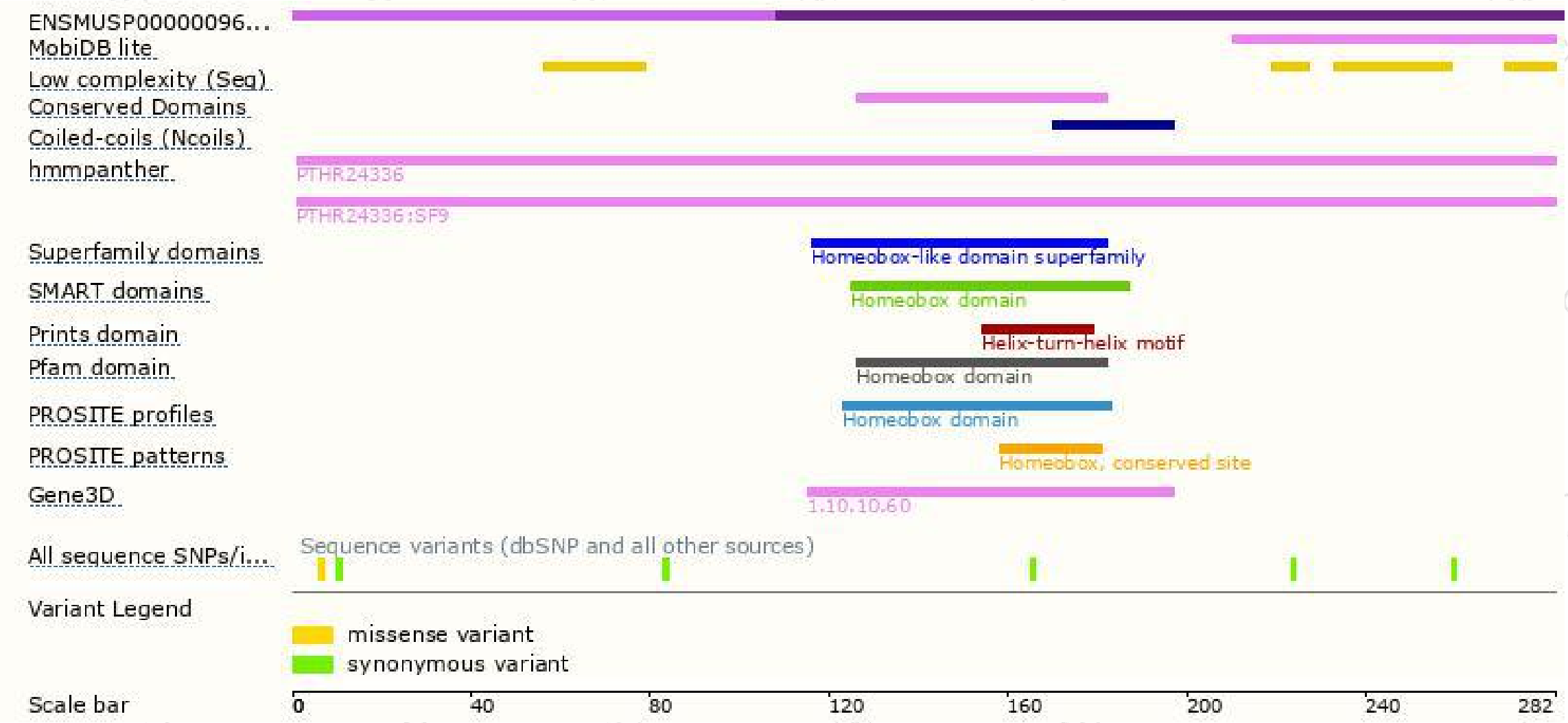
The strategy is based on the design of *Lbx1-201* transcript,The transcription is shown below



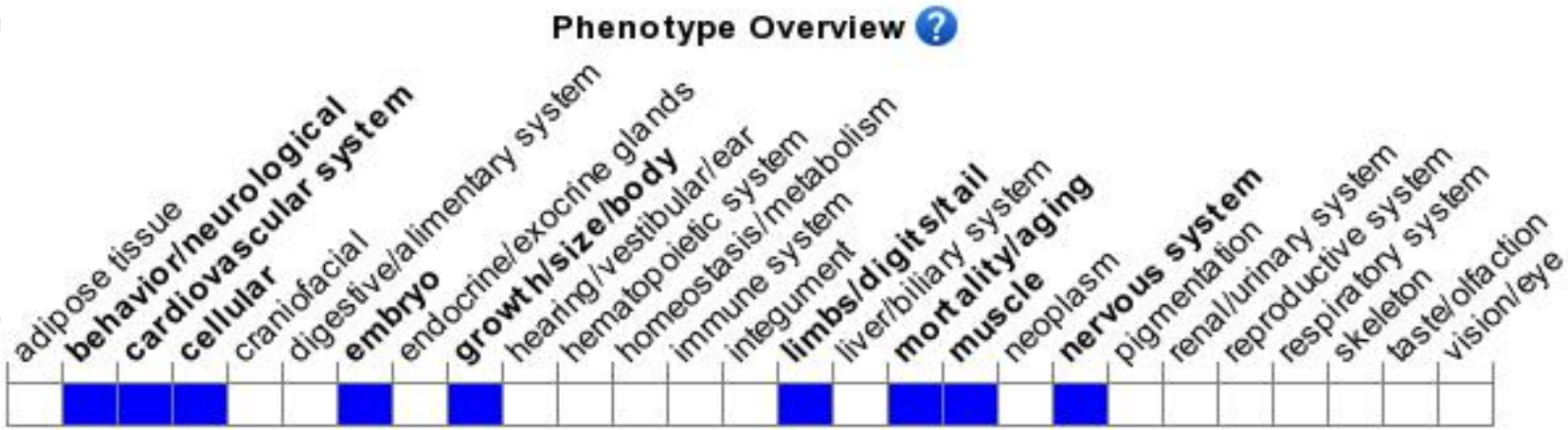
Genomic location distribution



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,Homozygous null mice display impaired limb muscle development resulting from progenitor cell migration defects. Defects in heart development and nervous system morphology are also reported.

集萃药康
GemPharmatech

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

Tel: 025-5864 1534

集萃药康生物科技
GemPharmatech Co.,Ltd