Ldb1 Cas9-KO Strategy

Designer: Bingxuan Li

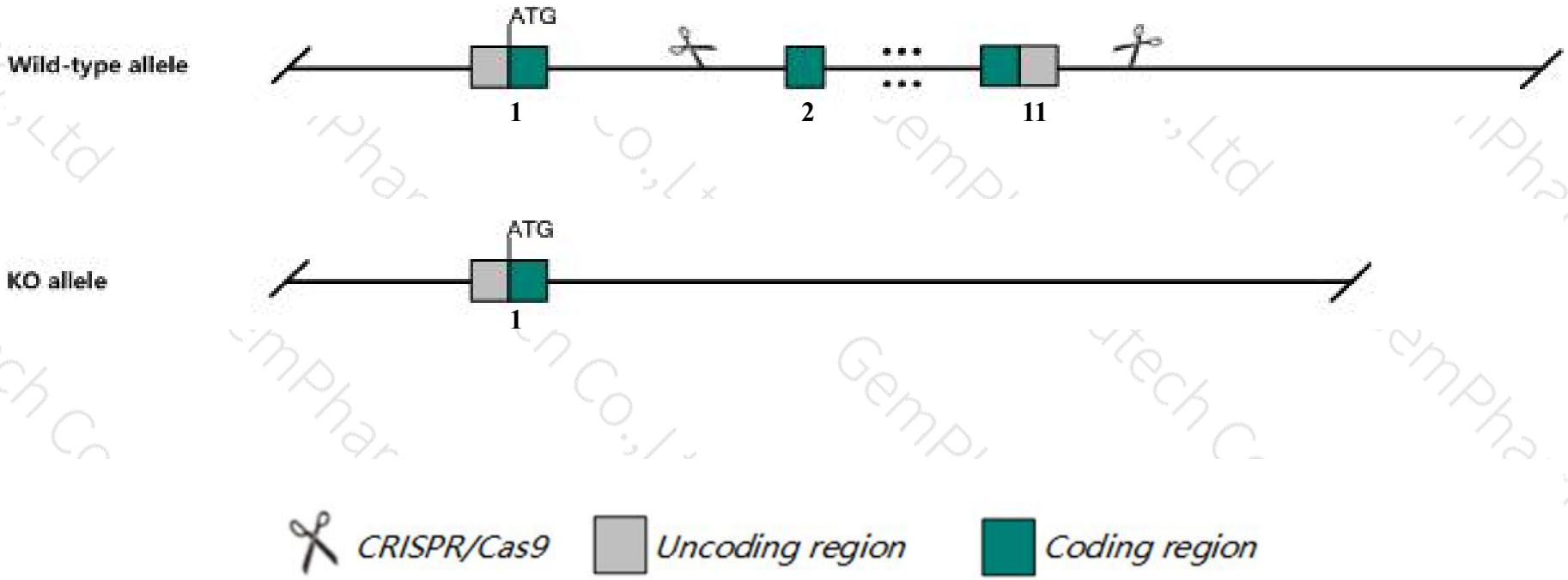
Design Date: 2019-10-23

Project Overview

Project Name	***Ldb1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ldb1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Ldb1* gene has 8 transcripts. According to the structure of *Ldb1* gene, exon2-exon11 of *Ldb1-207* (ENSMUST00000156585.8) transcript is recommended as the knockout region.The region contains 1211bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Ldb1* gene. The brief process is as follows: CRISPR/Cas9 system v

Notice

- According to the existing MGI data,Mice homozygous for disruptions in this gene die as embryos at E9.5-E10 with impaired primitive erythropoiesis and vascular development.

- The *Ldb1* 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 biological processes, all risk of the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information （NCBI）

集萃药康 GemPharmatech

Ldb1 LIM domain binding 1 [*Mus musculus* (house mouse)]

Gene ID: 16825, updated on 14-Oct-2019

Summary

Official Symbol	Ldb1 provided by MGI
Official Full Name	LIM domain binding 1 provided by MGI
Primary source	MGI:MGI:894762
See related	Ensembl:ENSMUSG00000025223
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	NLI; CLIM2
Expression	Ubiquitous expression in thymus adult (RPKM 131.0), CNS E14 (RPKM 82.2) and 27 other tissues See more
Orthologs	human all

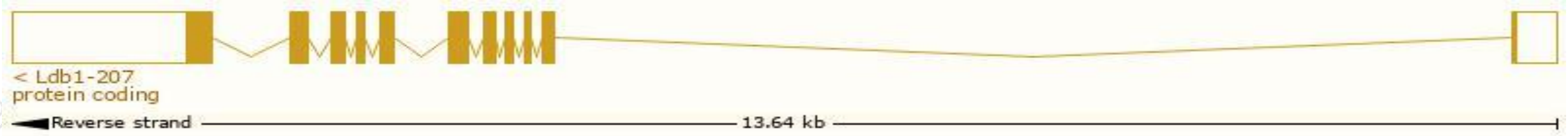
Transcript information（Ensembl）

The gene has 8 transcripts,all transcripts are shown below:

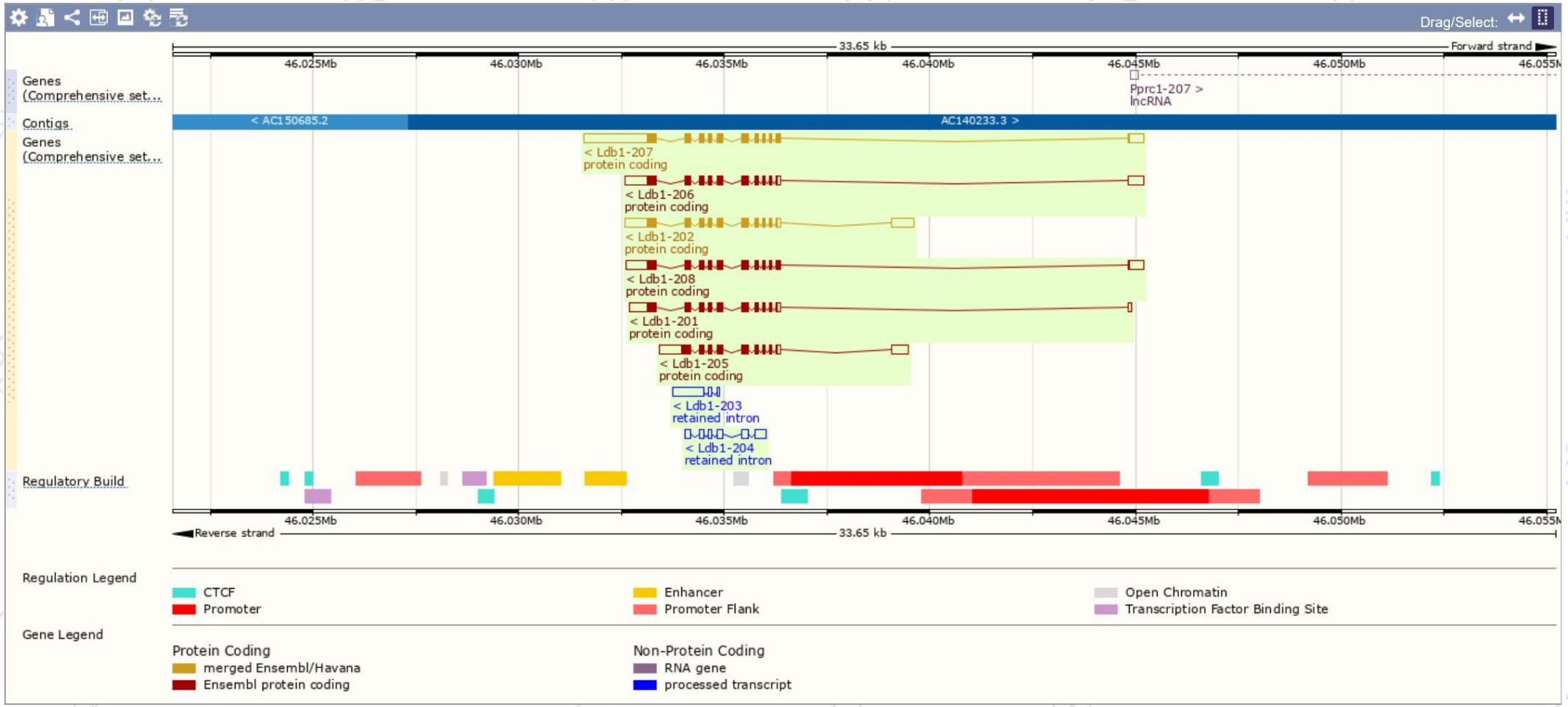
Show/hide columns (1 hidden) Filter

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ldb1-208	ENSMUST00000185355.6	2088	411aa	Protein coding	CCDS50455	P70662	TSL:1 GENCODE basic APPRIS ALT1
Ldb1-207	ENSMUST00000156585.8	3133	411aa	Protein coding	CCDS50455	P70662	TSL:1 GENCODE basic APPRIS ALT1
Ldb1-206	ENSMUST00000152946.7	2108	373aa	Protein coding	-	D3Z1C5	TSL:5 GENCODE basic APPRIS ALT1
Ldb1-205	ENSMUST00000137771.1	2014	319aa	Protein coding	-	P70662	TSL:5 GENCODE basic
Ldb1-204	ENSMUST00000136203.1	900	No protein	Retained intron	-	-	TSL:2
Ldb1-203	ENSMUST00000126320.7	907	No protein	Retained intron	-	-	TSL:2
Ldb1-202	ENSMUST00000056931.13	2295	375aa	Protein coding	CCDS29870	P70662	TSL:1 GENCODE basic APPRIS P3
Ldb1-201	ENSMUST00000026252.13	1718	375aa	Protein coding	CCDS29870	P70662	TSL:1 GENCODE basic APPRIS P3

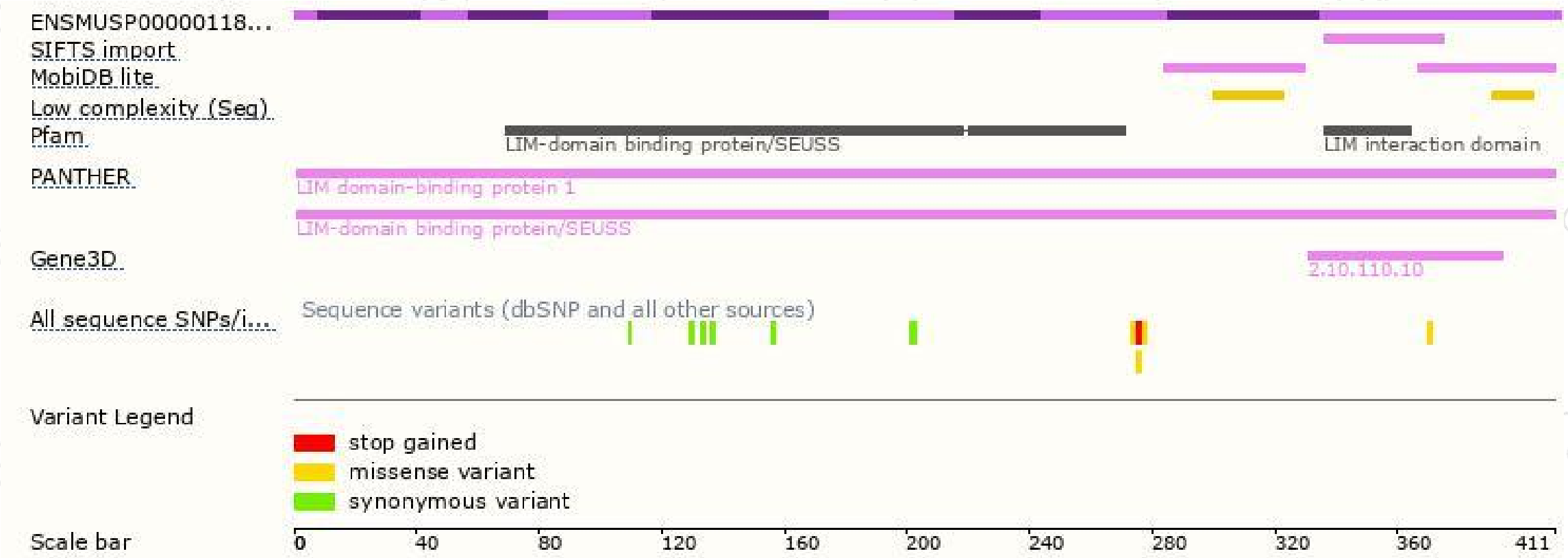
The strategy is based on the design of *Ldb1-207* transcript,The transcription is shown below



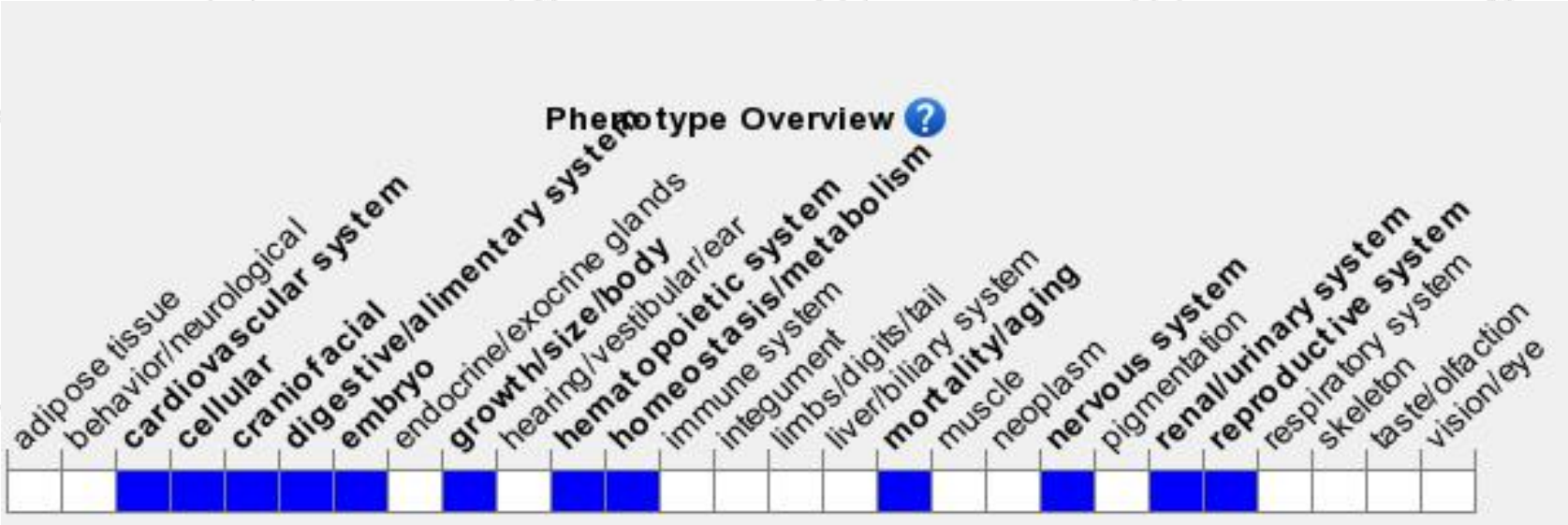
Genomic location distribution



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 disruptions in this gene die as embryos at E9.5-E10 with impaired primitive erythropoiesis and vascular development.

集萃药康
GemPharmatech

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

Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd