Eloa Cas9-KO Strategy

Designer: JiaYu

Reviewer: Xiaojing Li

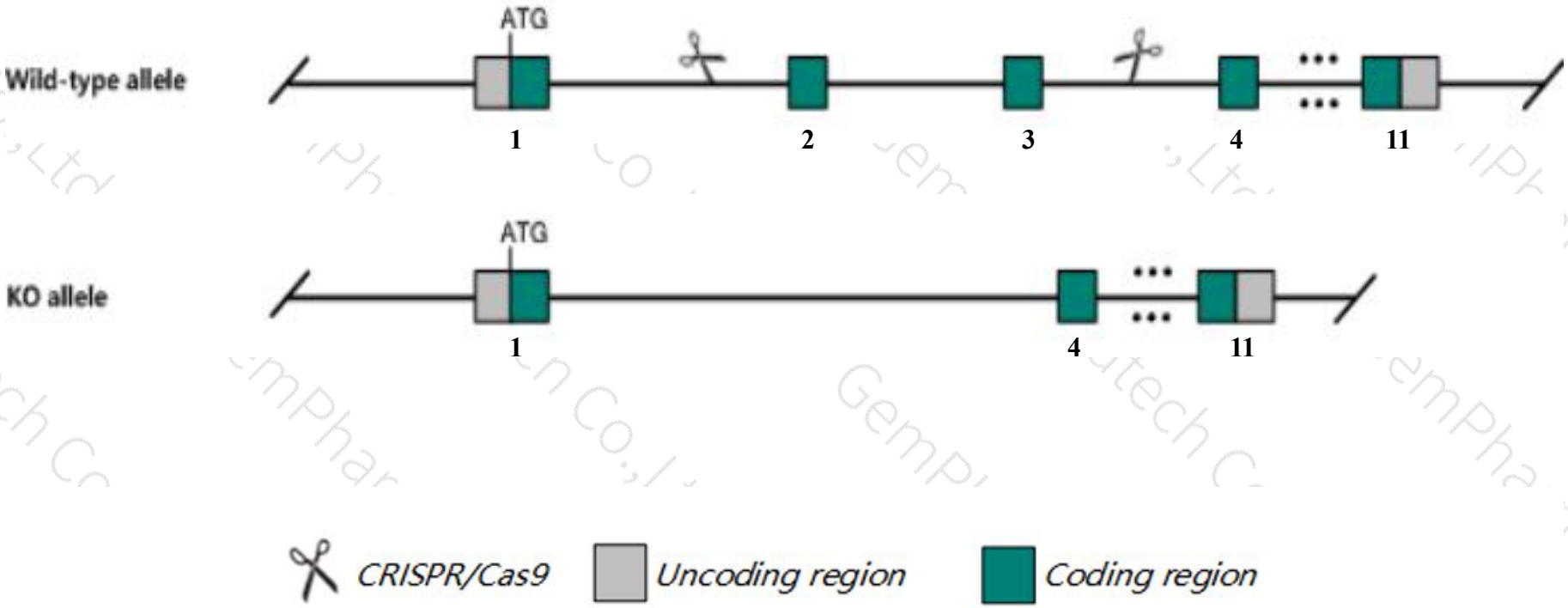
Design Date: 2020-7-22

Project Overview

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

Knockout strategy

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



Technical routes

➢ The *Eloa* gene has 1 transcript. According to the structure of *Eloa* gene, exon2-exon3 of *Eloa-201*(ENSMUST00000030427.5) transcript is recommended as the knockout region.The region contains 164bp coding sequence. Knock out the region will result in disruption of protein function.

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

Notice

➢ According to the existing MGI data,embryos homozygous for a knock-out allele are severely growth retarded, exhibit a wide range of developmental anomalies and die between E10.5 and E12.5, most likely due to massive apoptosis while mutant MEFs show increased apoptosis and senescence-like growth defects.

➢ The *Eloa* gene is located on the Chr4. 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）

Eloa elongin A [Mus musculus (house mouse)]

Gene ID: 27224, updated on 13-Mar-2020

Summary

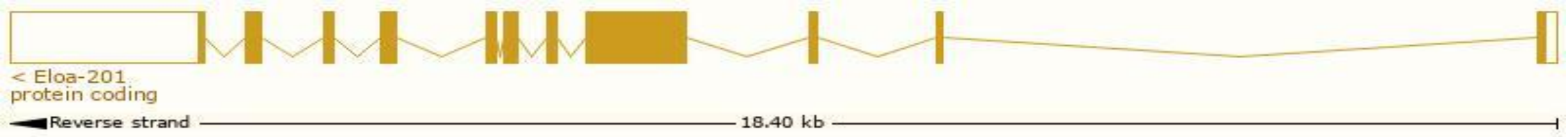
Official Symbol	Eloa provided by MGI
Official Full Name	elongin A provided byMGI
Primary source	MGI:MGI:1351315
See related	Ensembl:ENSMUSG00000028668
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	110kDa, AA408125, Tceb3, Tceb3a
Expression	Ubiquitous expression in placenta adult (RPKM 13.4), liver E14 (RPKM 12.2) and 28 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

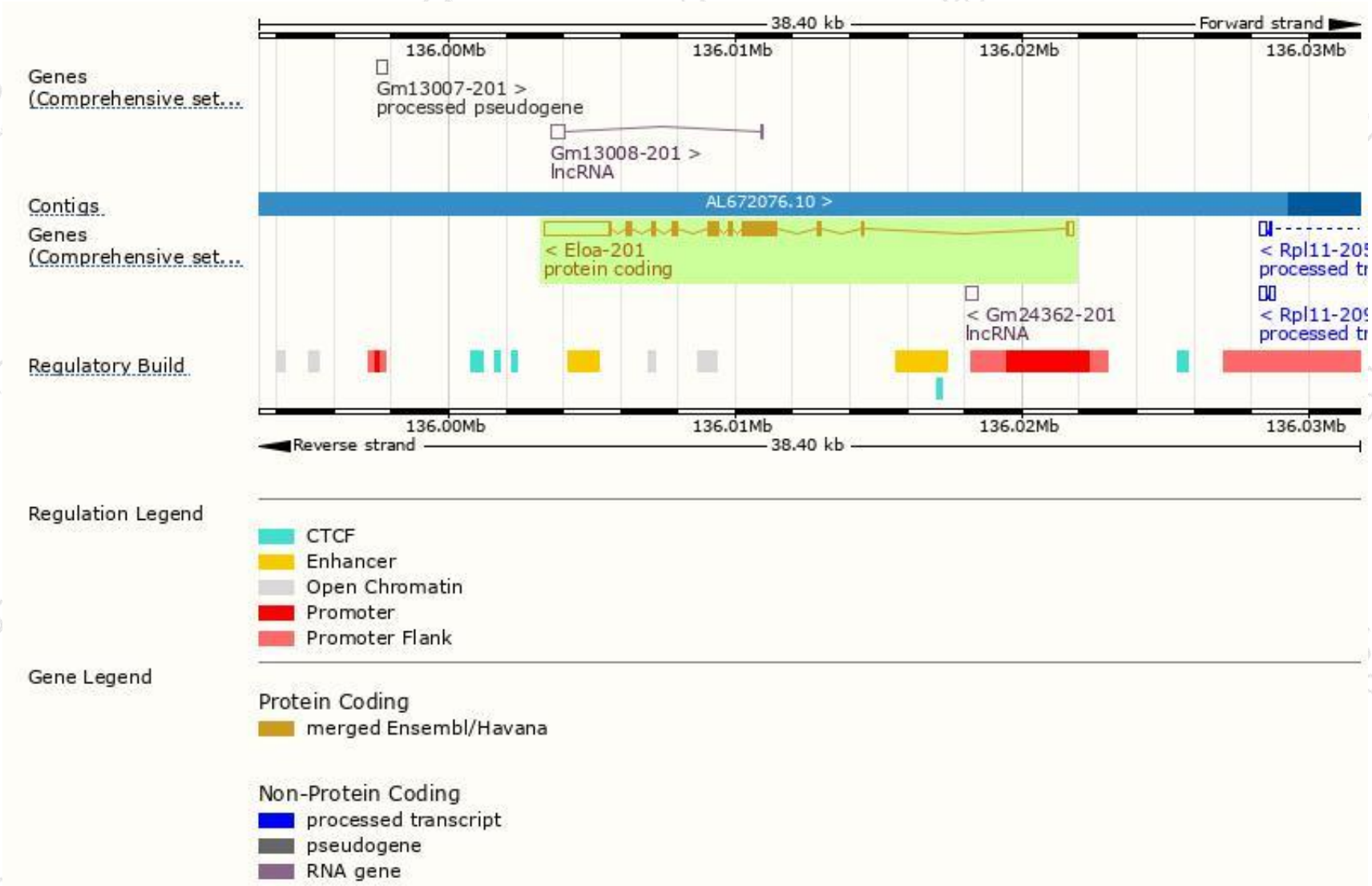
The gene has 1 transcript,and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Eloa-201	ENSMUST00000030427.5	4708	773aa	Protein coding	CCDS18798	Q8CB77	TSL:1 GENCODE basic APPRIS P1

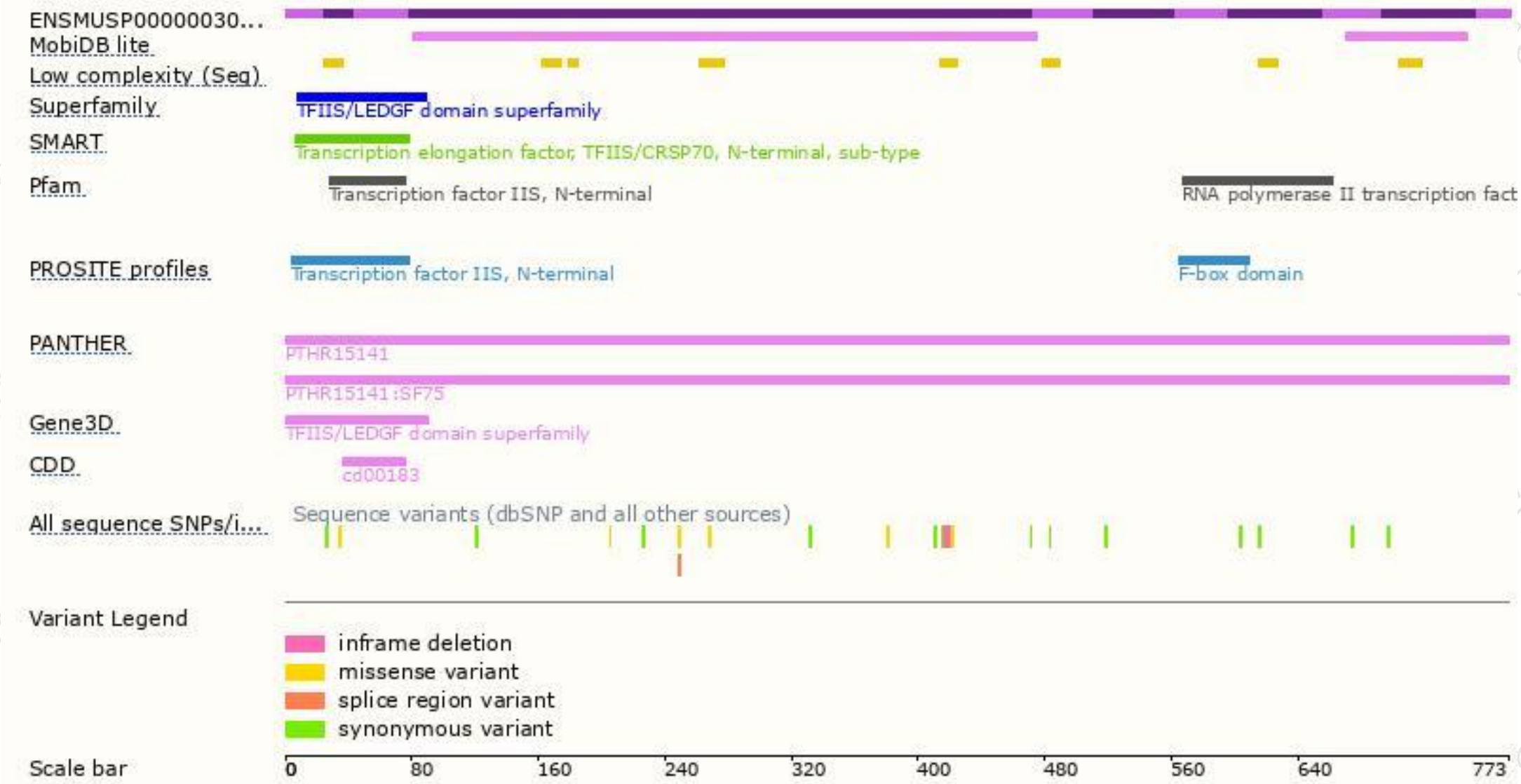
The strategy is based on the design of *Eloa-201* transcript,the transcription is shown below:



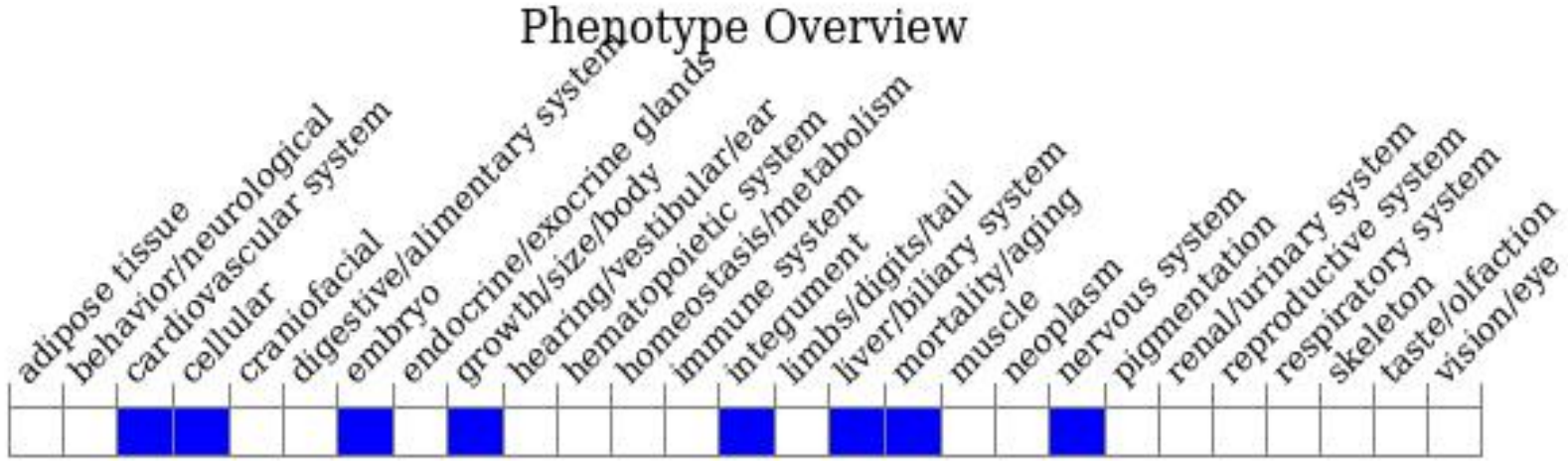
Genomic location distribution



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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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