Dnajc21 Cas9-CKO Strategy

Designer: Xueting Zhang

Reviewer: Daohua Xu

Design Date: 2020-9-16

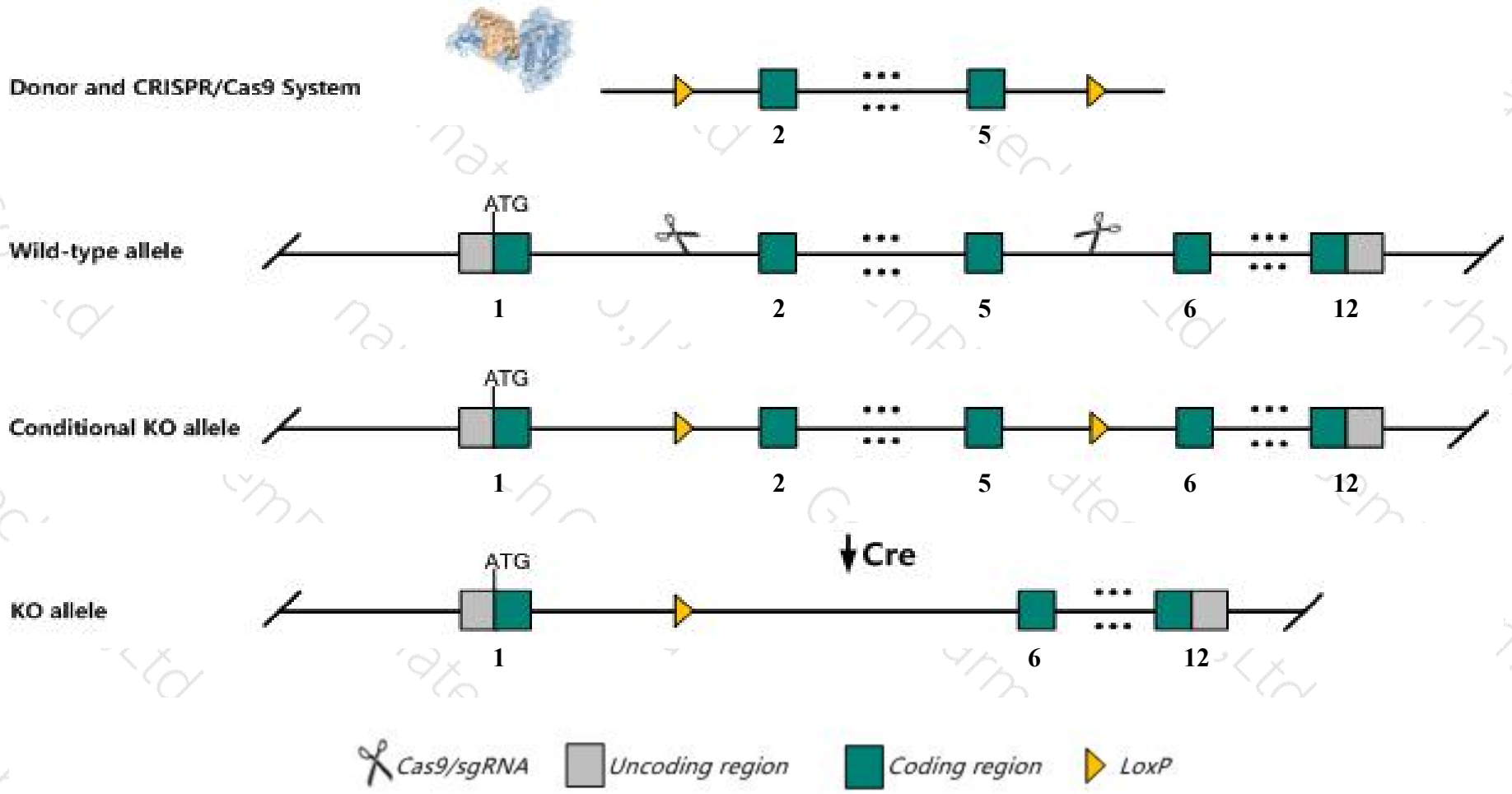
集萃药康 GemPharmatech

Project Overview

Project Name	***Dnajc21***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dnajc21* gene. The schematic diagram is as follows:



Technical routes

➢ The *Dnajc21* gene has 5 transcripts. According to the structure of *Dnajc21* gene, exon2-exon5 of *Dnajc21-201*(ENSMUST00000136591.7) 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 *Dnajc21* 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/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 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.

Notice

➢ The *Dnajc21* 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.

➢ Transcript *Dnajc21*-203&205 may not be affected.

➢ 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）

集萃药康 GemPharmatech

Dnajc21 DnaJ heat shock protein family (Hsp40) member C21 [Mus musculus (house mouse)]

Gene ID: 78244, updated on 13-Mar-2020

Summary

Official Symbol	Dnajc21 provided by MGI
Official Full Name	DnaJ heat shock protein family (Hsp40) member C21 provided byMGI
Primary source	MGI:MGI:1925371
See related	Ensembl:ENSMUSG00000044224
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	4930461P20Rik, 9930116P15Rik
Expression	Broad expression in CNS E11.5 (RPKM 8.2), cortex adult (RPKM 5.6) and 22 other tissuesSee more
Orthologs	human all

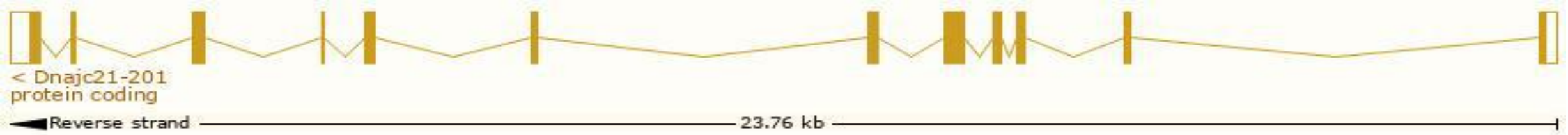
Transcript information（Ensembl）

集萃药康 GemPharmatech

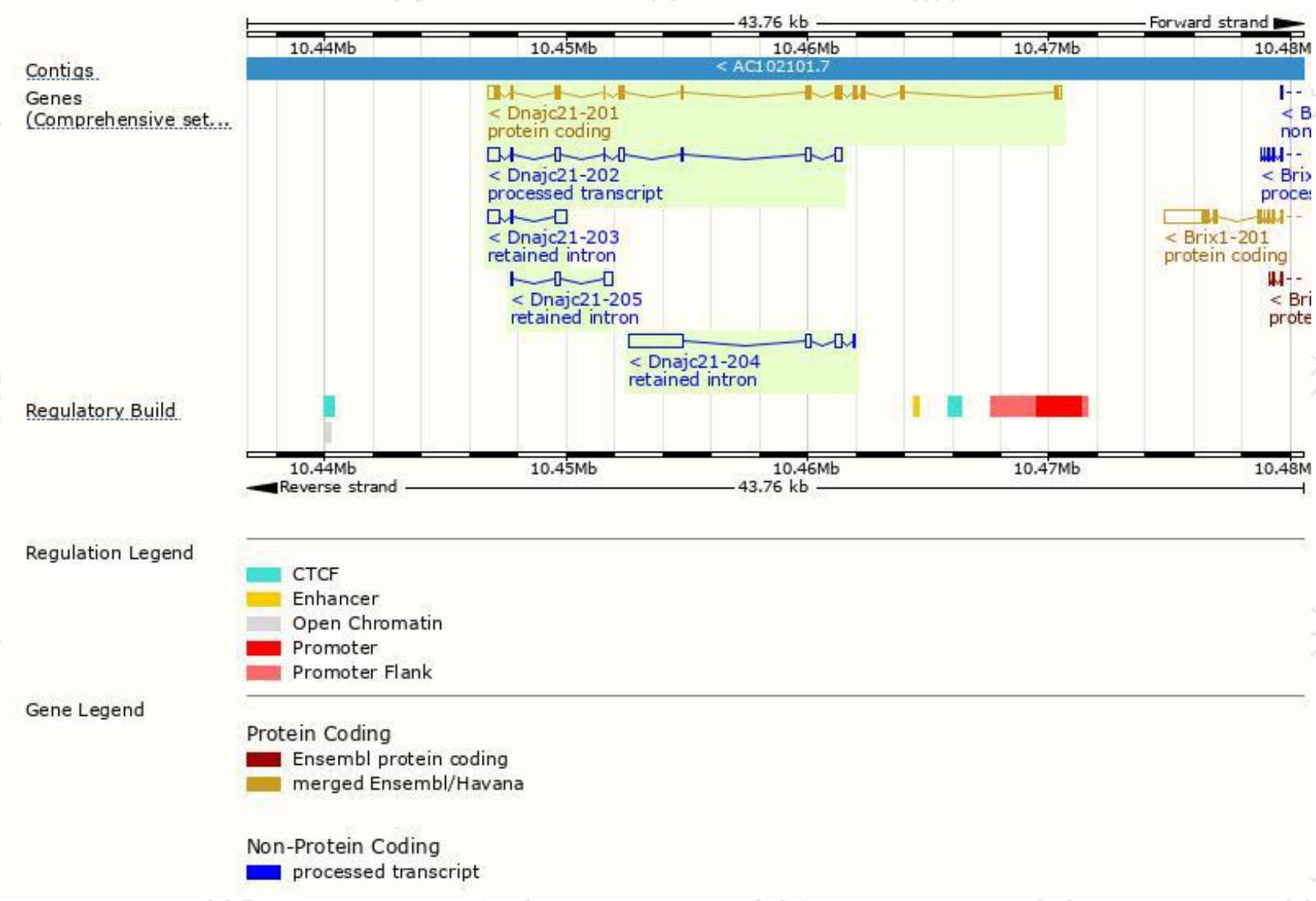
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dnajc21-201	ENSMUST00000136591.7	2060	531aa	Protein coding	CCDS49581	E9Q8D0	TSL:5 GENCODE basic APPRIS P1
Dnajc21-202	ENSMUST00000145719.1	1441	No protein	Processed transcript	-	-	TSL:5
Dnajc21-204	ENSMUST00000147224.1	2753	No protein	Retained intron	-	-	TSL:1
Dnajc21-203	ENSMUST00000146323.7	954	No protein	Retained intron	-	-	TSL:1
Dnajc21-205	ENSMUST00000150878.1	605	No protein	Retained intron	-	-	TSL:5

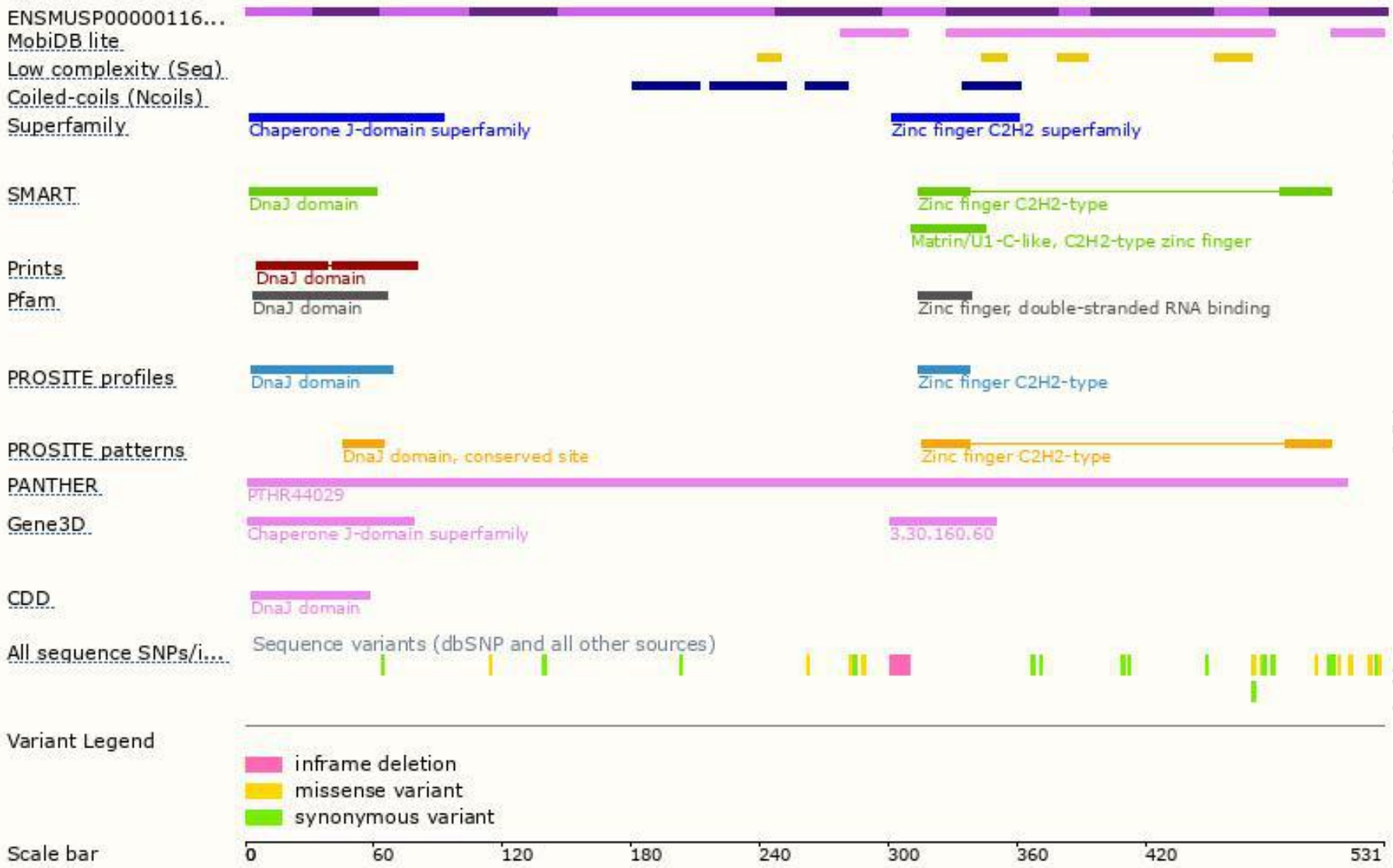
The strategy is based on the design of *Dnajc21-201* transcript,the transcription is shown below:



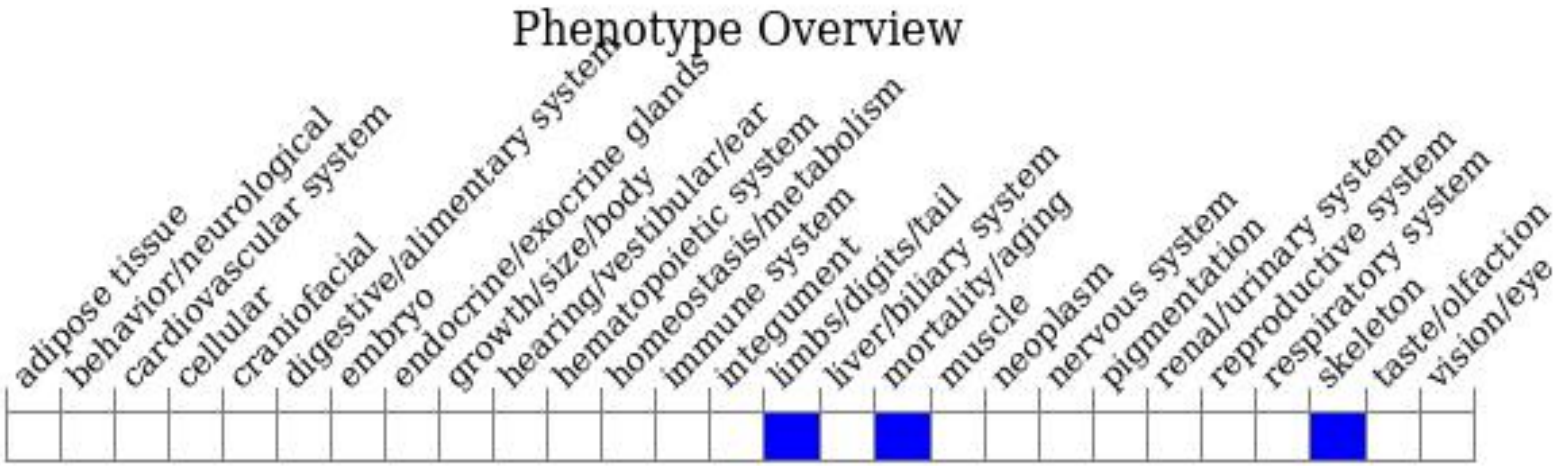
Genomic location distribution



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/).

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