

Nebl Cas9-CKO Strategy

Designer: JiaYu

Reviewer: Xiaojing Li

Design Date: 2020-8-6

Project Overview

Project Name

Nebl

Project type

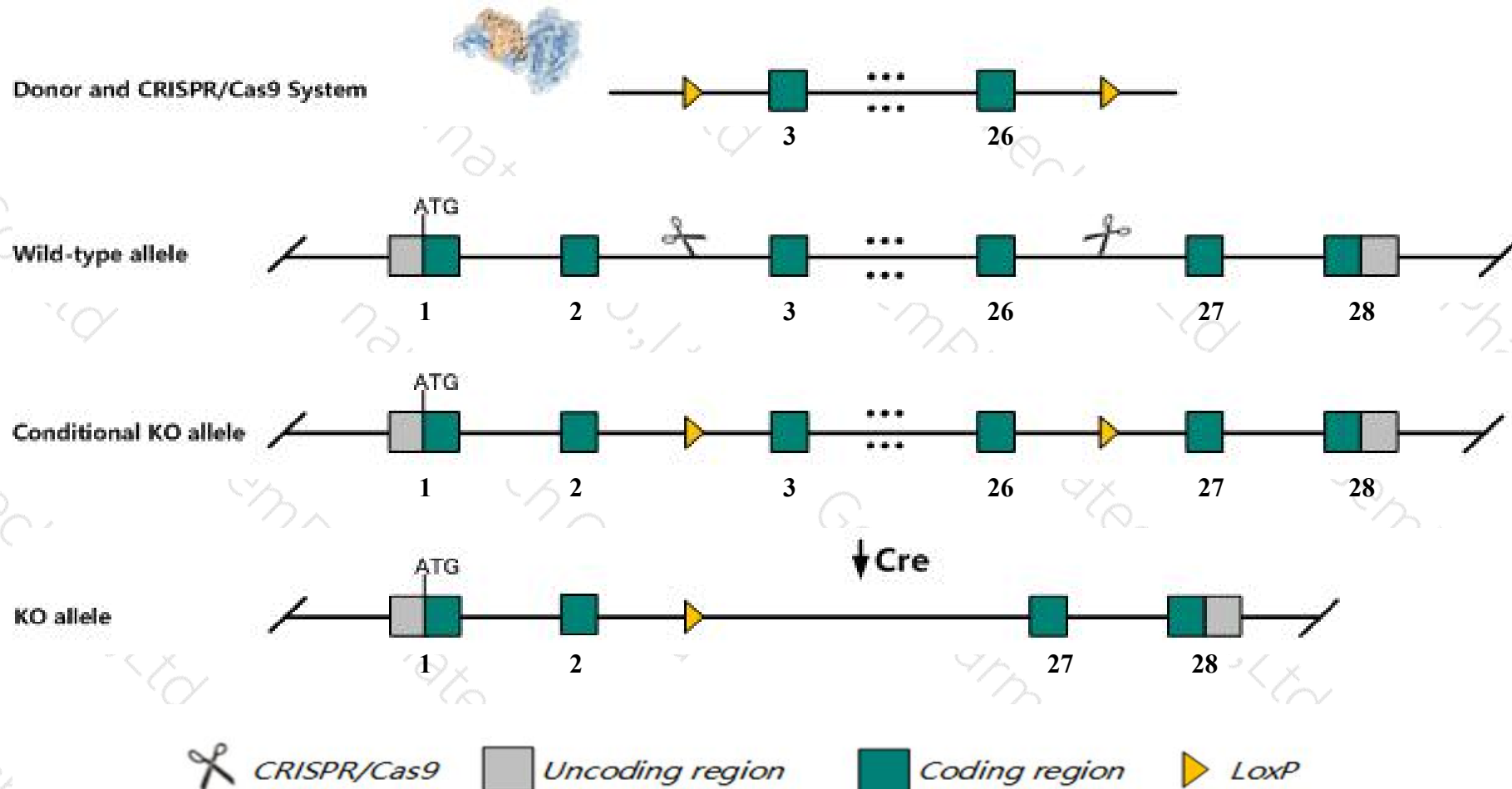
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



Technical routes

- The *Nebl* gene has 13 transcripts. According to the structure of *Nebl* gene, exon3-exon26 of *Nebl*-202(ENSMUST00000124270.7) transcript is recommended as the knockout region. The region contains 2608bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Nebl* 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.

- The *Nebl* gene is located on the Chr2. 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)

Neb1 nebulette [Mus musculus (house mouse)]

Gene ID: 74103, updated on 13-Mar-2020

Summary



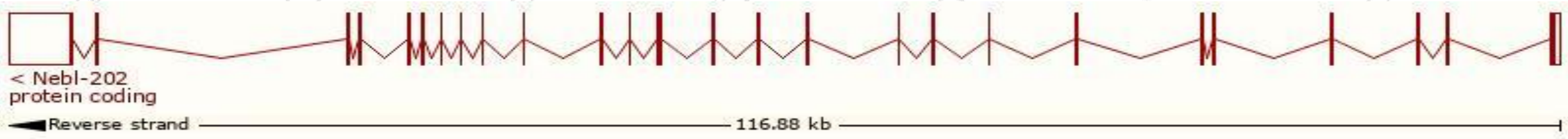
Official Symbol	Neb1 provided by MGI
Official Full Name	nebulette provided by MGI
Primary source	MGI:MGI:1921353
See related	Ensembl:ENSMUSG00000053702
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1200007O21Rik, A630080F05Rik, BB140644, D830029A09Rik, Lneb1
Expression	Biased expression in heart adult (RPKM 16.6), lung adult (RPKM 9.4) and 6 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

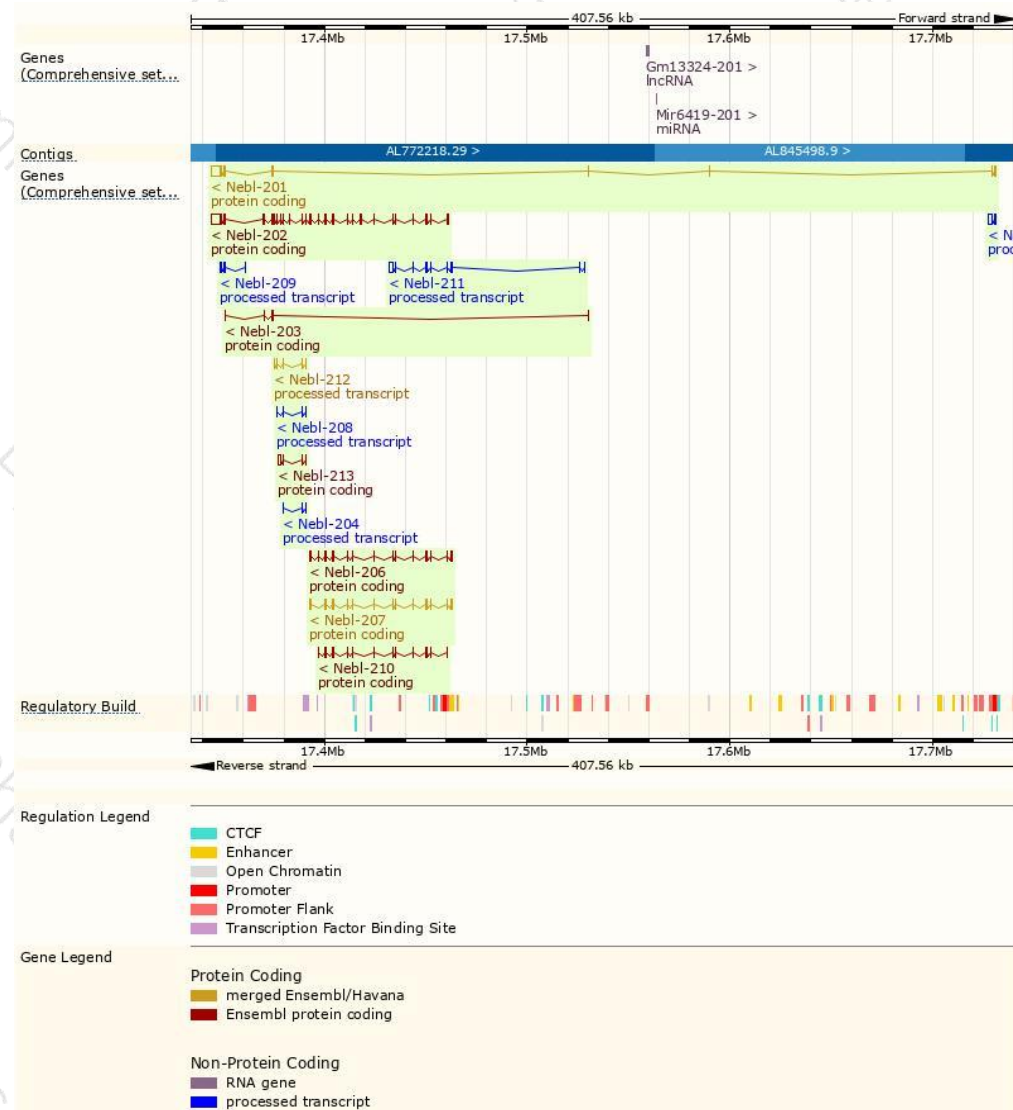
The gene has 13 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Nebi-201	ENSMUST00000028080.11	5780	270aa	Protein coding	CCDS15706	Q9DC07	TSL:1 GENCODE basic APPRIS P1
Nebi-202	ENSMUST00000124270.7	8079	1014aa	Protein coding	-	B7ZCI2	TSL:5 GENCODE basic
Nebi-207	ENSMUST00000132418.7	1734	452aa	Protein coding	-	Q0II04	TSL:1 GENCODE basic
Nebi-206	ENSMUST00000131957.7	1709	526aa	Protein coding	-	B7ZCI3	TSL:1 GENCODE basic
Nebi-213	ENSMUST00000177966.1	1690	120aa	Protein coding	-	Q3TR73	TSL:1 GENCODE basic
Nebi-210	ENSMUST00000145492.1	1426	447aa	Protein coding	-	A0A1B0GXL1	CDS 3' incomplete TSL:1
Nebi-203	ENSMUST00000124611.1	393	131aa	Protein coding	-	F6RM14	CDS 5' and 3' incomplete TSL:3
Nebi-211	ENSMUST00000145545.1	2917	No protein	Processed transcript	-	-	TSL:5
Nebi-205	ENSMUST00000130725.1	2750	No protein	Processed transcript	-	-	TSL:1
Nebi-212	ENSMUST00000150194.7	709	No protein	Processed transcript	-	-	TSL:1
Nebi-204	ENSMUST00000127912.1	480	No protein	Processed transcript	-	-	TSL:1
Nebi-208	ENSMUST00000137253.7	436	No protein	Processed transcript	-	-	TSL:3
Nebi-209	ENSMUST00000138241.1	335	No protein	Processed transcript	-	-	TSL:1

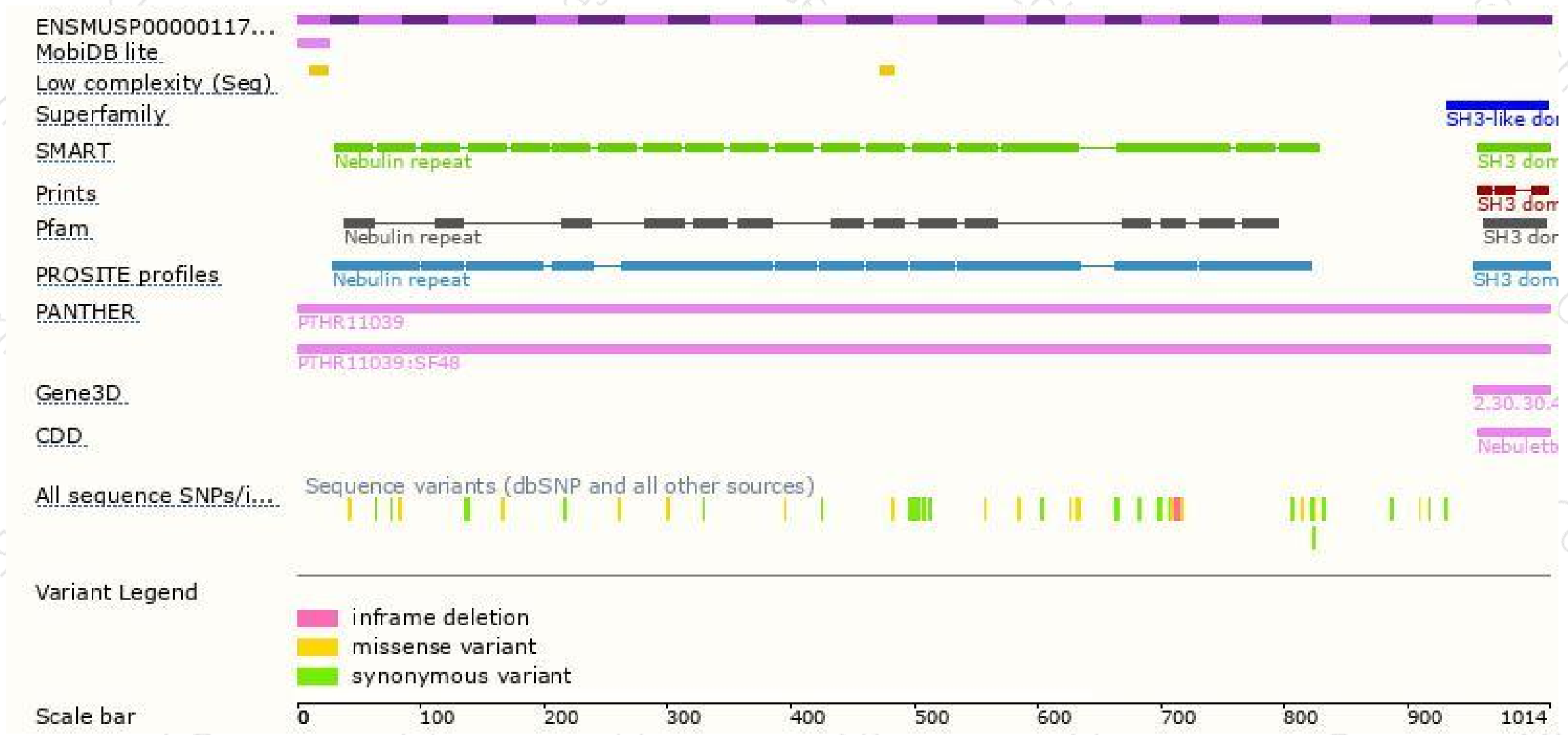
The strategy is based on the design of *Nebi-202* transcript,the transcription is shown below:



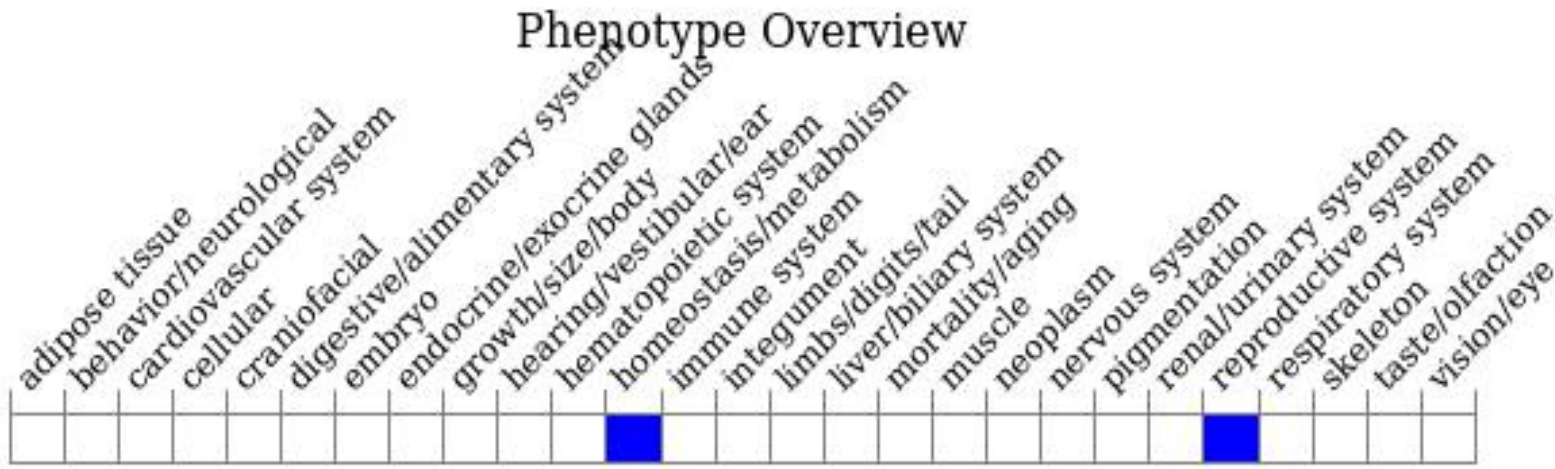
Genomic location distribution



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/>).

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

Tel: 400-9660890

