

Arl8b Cas9-KO Strategy

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Project Overview

Project Name

Arl8b

Project type

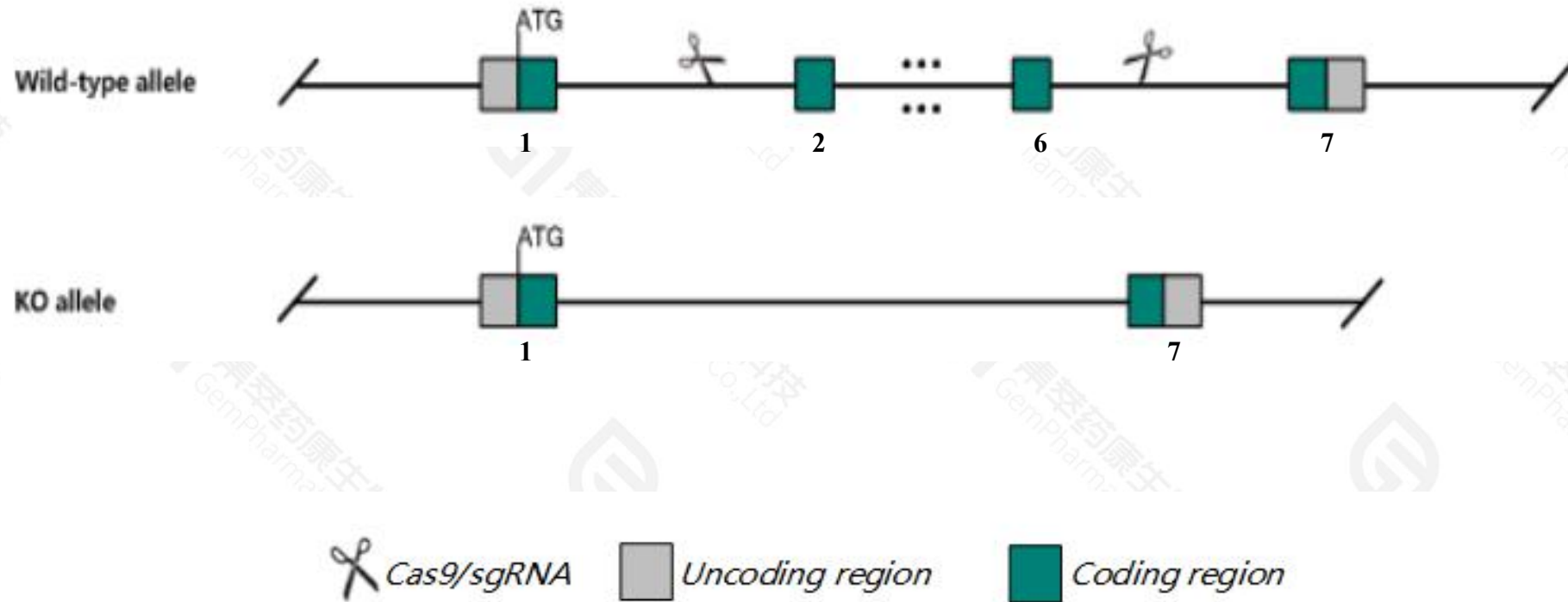
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Arl8b* gene. The schematic diagram is as follows:



- The *Arl8b* gene has 2 transcripts. According to the structure of *Arl8b* gene, exon2-exon6 of *Arl8b-201*(ENSMUST00000032196.9) transcript is recommended as the knockout region. The region contains 388bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Arl8b* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA 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.

- According to the existing MGI data, mice homozygous for a null mutation display perinatal lethality with impaired visceral yolk sac function and reduced embryo size.
- The *Arl8b* gene is located on the Chr6. 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.

Arl8b ADP-ribosylation factor-like 8B [Mus musculus (house mouse)]

Gene ID: 67166, updated on 25-Sep-2020

Summary



Official Symbol Arl8b provided by [MGI](#)

Official Full Name ADP-ribosylation factor-like 8B provided by [MGI](#)

Primary source [MGI:MGI:1914416](#)

See related [Ensembl:ENSMUSG00000030105](#)

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 2610313E07Rik, 3100002J04Rik, Arl, Arl10c, gie1

Expression Ubiquitous expression in frontal lobe adult (RPKM 29.8), cortex adult (RPKM 29.5) and 28 other tissues [See more](#)

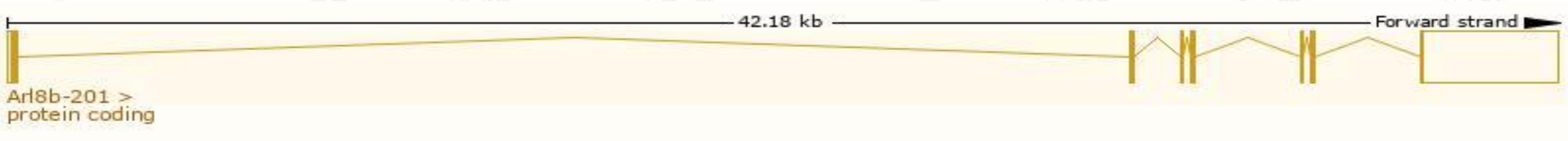
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

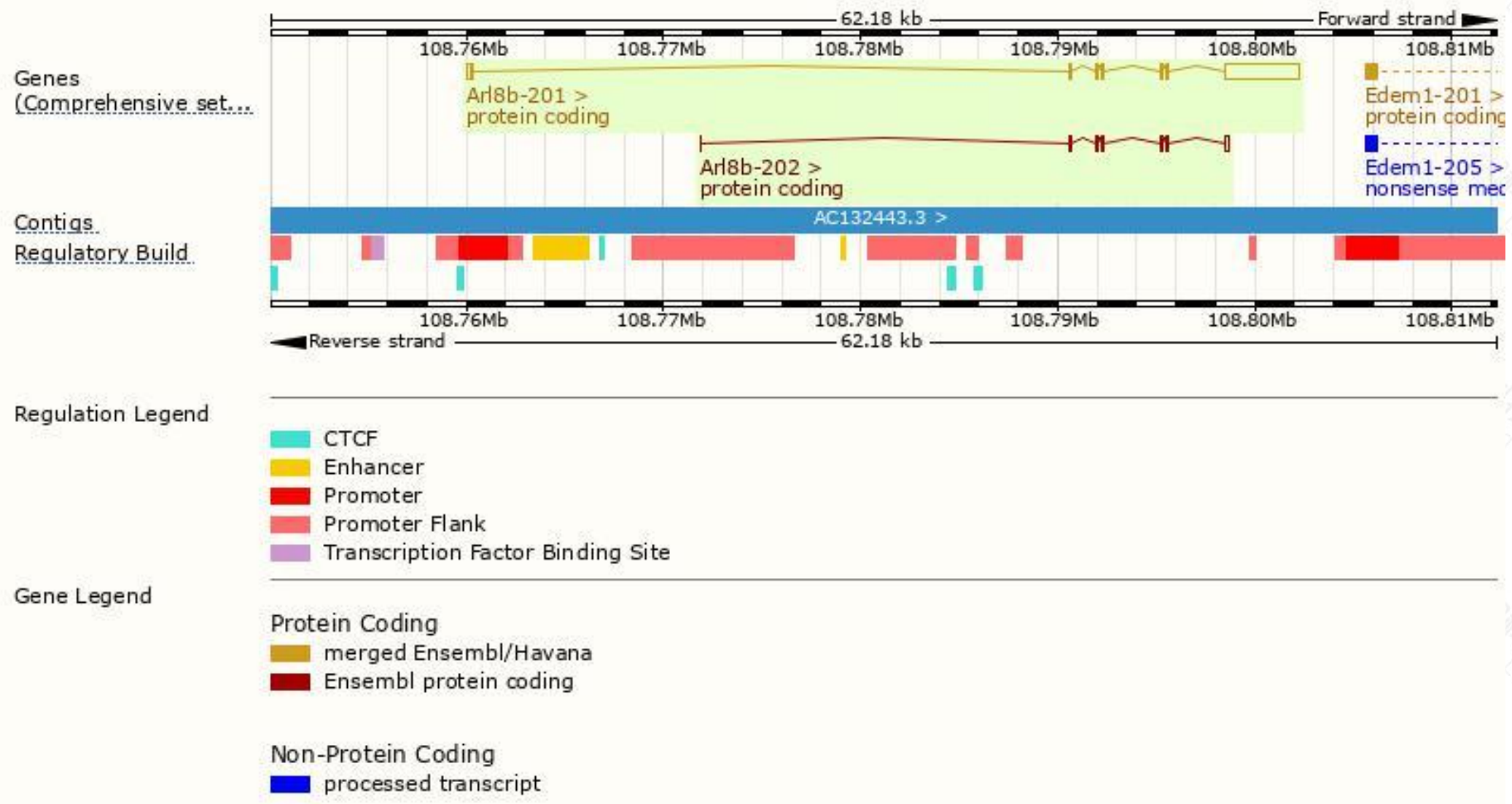
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Arl8b-201	ENSMUST00000032196.9	4443	186aa	Protein coding	CCDS39586		TSL:1 , GENCODE basic , APPRIS P1 ,
Arl8b-202	ENSMUST00000204483.2	695	138aa	Protein coding	-		TSL:3 , GENCODE basic ,

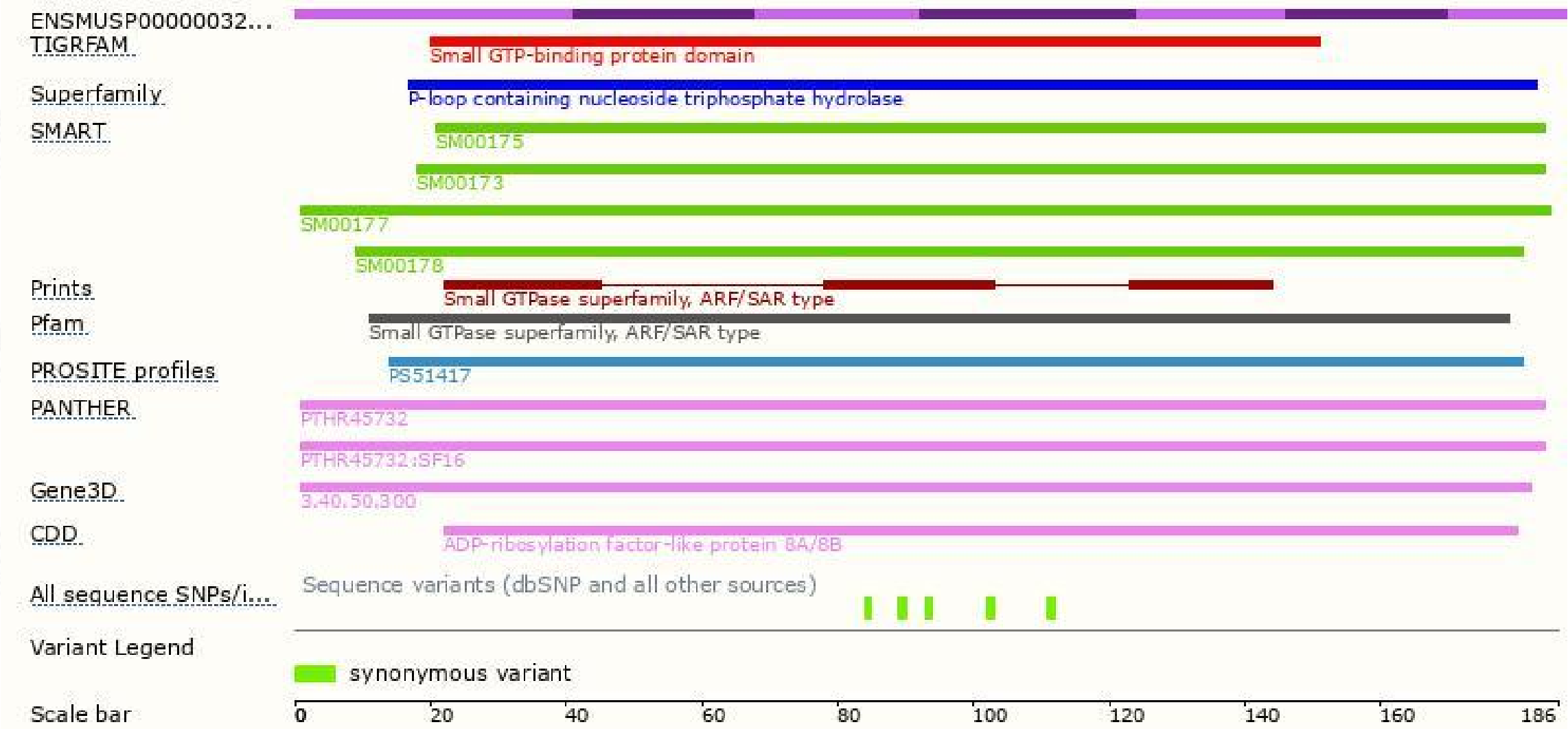
The strategy is based on the design of *Arl8b-201* transcript,the transcription is shown below:



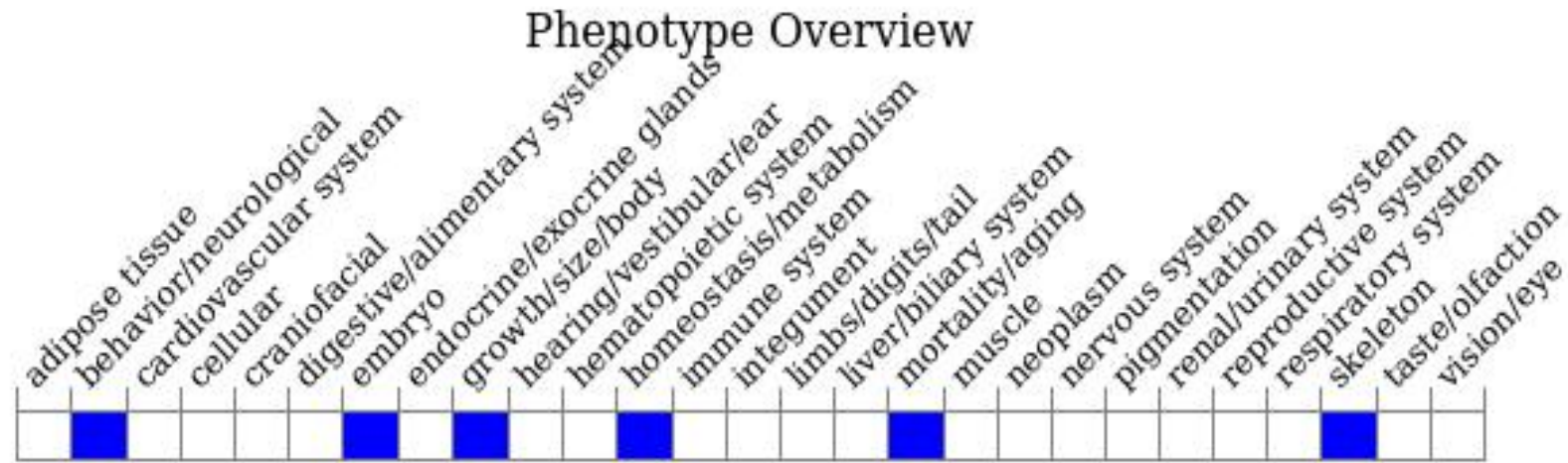
Genomic location distribution



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, mice homozygous for a null mutation display perinatal lethality with impaired visceral yolk sac function and reduced embryo size.

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

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