

***Rab5c* Cas9-CKO Strategy**

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Project Overview

Project Name

Rab5c

Project type

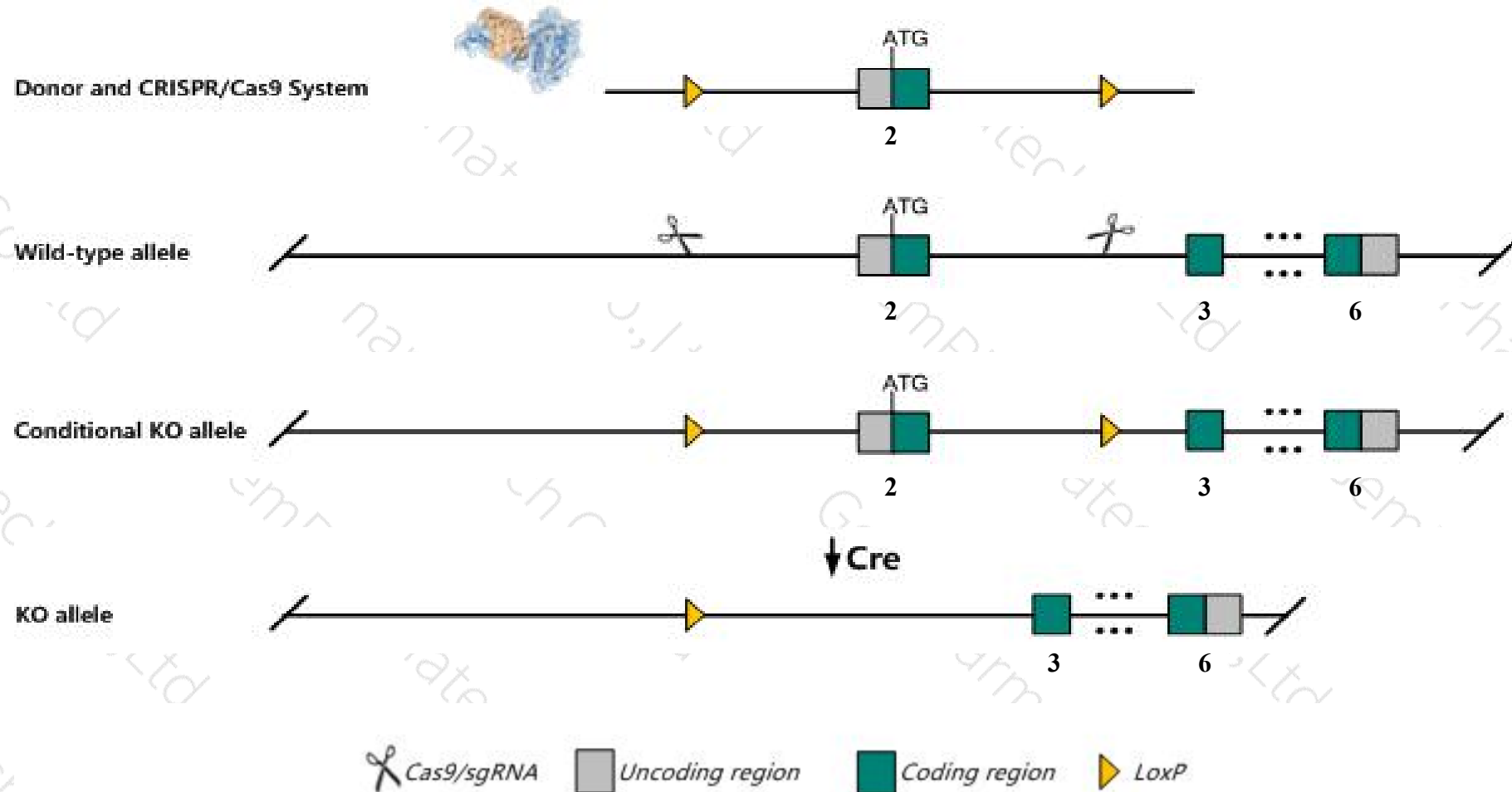
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rab5c* gene. The schematic diagram is as follows:



Technical routes

- The *Rab5c* gene has 4 transcripts. According to the structure of *Rab5c* gene, exon2 of *Rab5c*-201(ENSMUST00000019317.11) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Rab5c* 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.

- The *Rab5c* gene is located on the Chr11. 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)

Rab5c RAB5C, member RAS oncogene family [Mus musculus (house mouse)]

Gene ID: 19345, updated on 13-Mar-2020

Summary



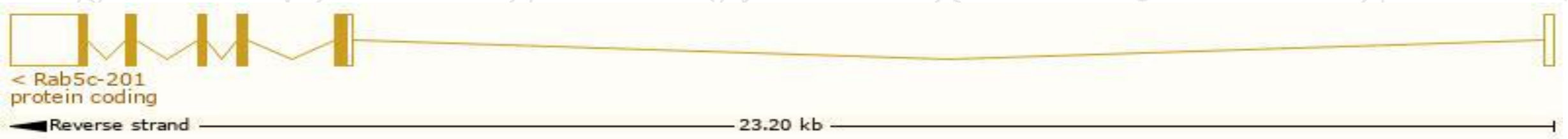
Official Symbol	Rab5c provided by MGI
Official Full Name	RAB5C, member RAS oncogene family provided by MGI
Primary source	MGI:MGI:105306
See related	Ensembl:ENSMUSG00000019173
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI326010, Rabl
Expression	Ubiquitous expression in kidney adult (RPKM 167.3), duodenum adult (RPKM 128.1) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

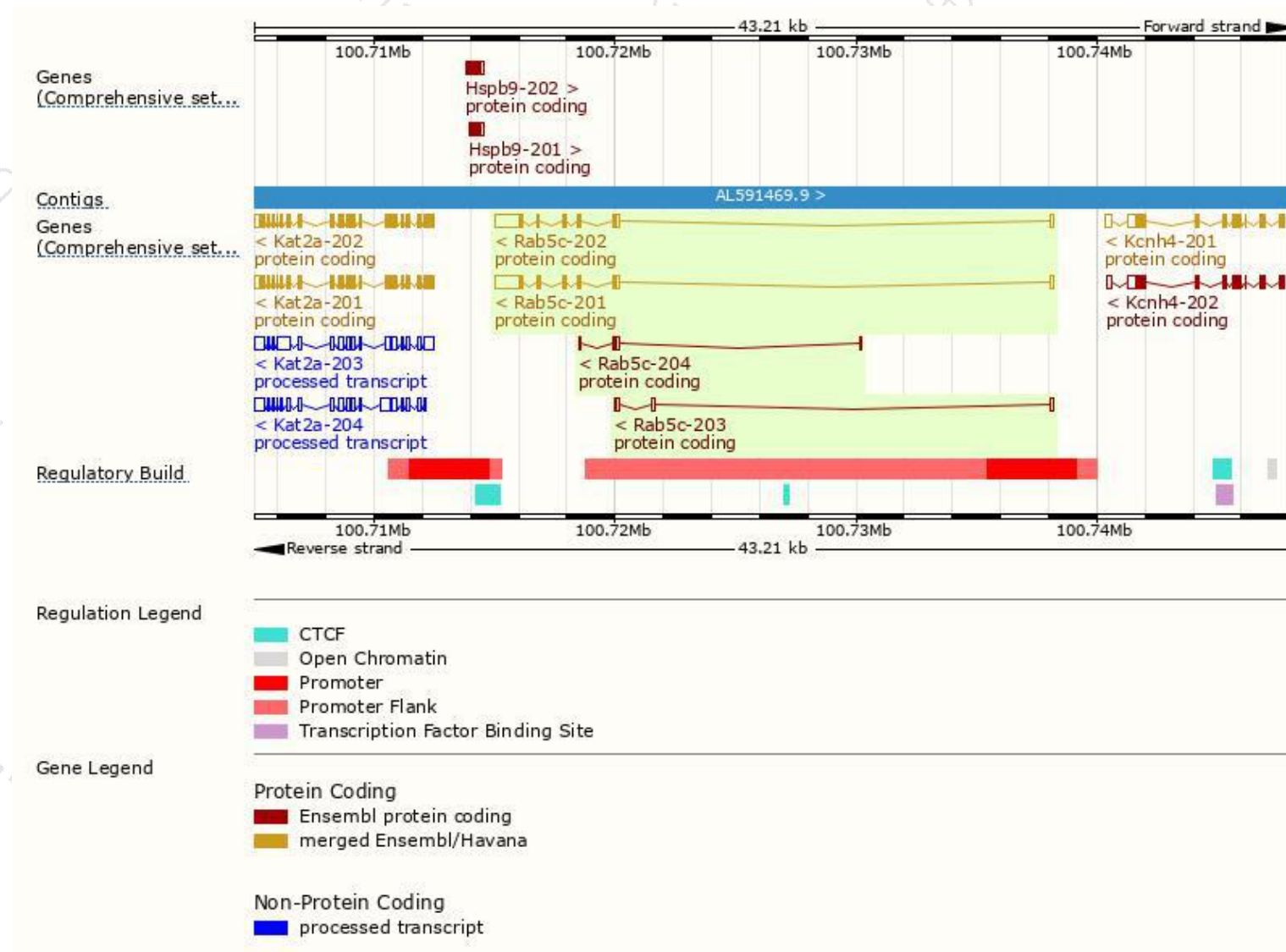
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rab5c-201	ENSMUST00000019317.11	1967	234aa	Protein coding	CCDS79048	Q8C266	TSL:1 GENCODE basic
Rab5c-202	ENSMUST00000107364.7	1915	216aa	Protein coding	CCDS36333	P35278 Q3TJ39	TSL:1 GENCODE basic APPRIS P1
Rab5c-203	ENSMUST00000155500.1	441	34aa	Protein coding	-	A2A5F6	CDS 3' incomplete TSL:3
Rab5c-204	ENSMUST00000155843.1	412	83aa	Protein coding	-	A2A5F5	CDS 3' incomplete TSL:3

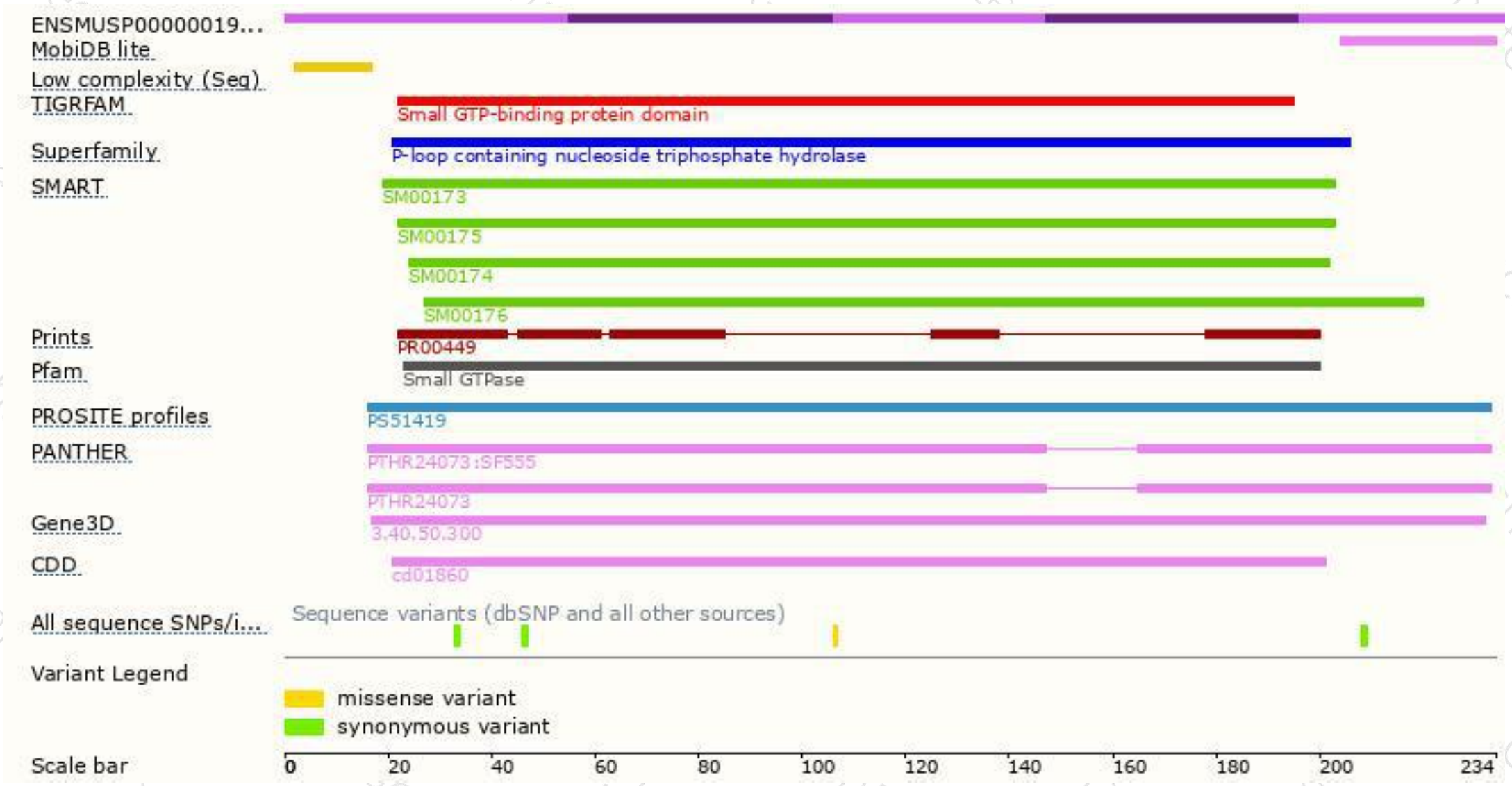
The strategy is based on the design of *Rab5c-201* transcript,the transcription is shown below:



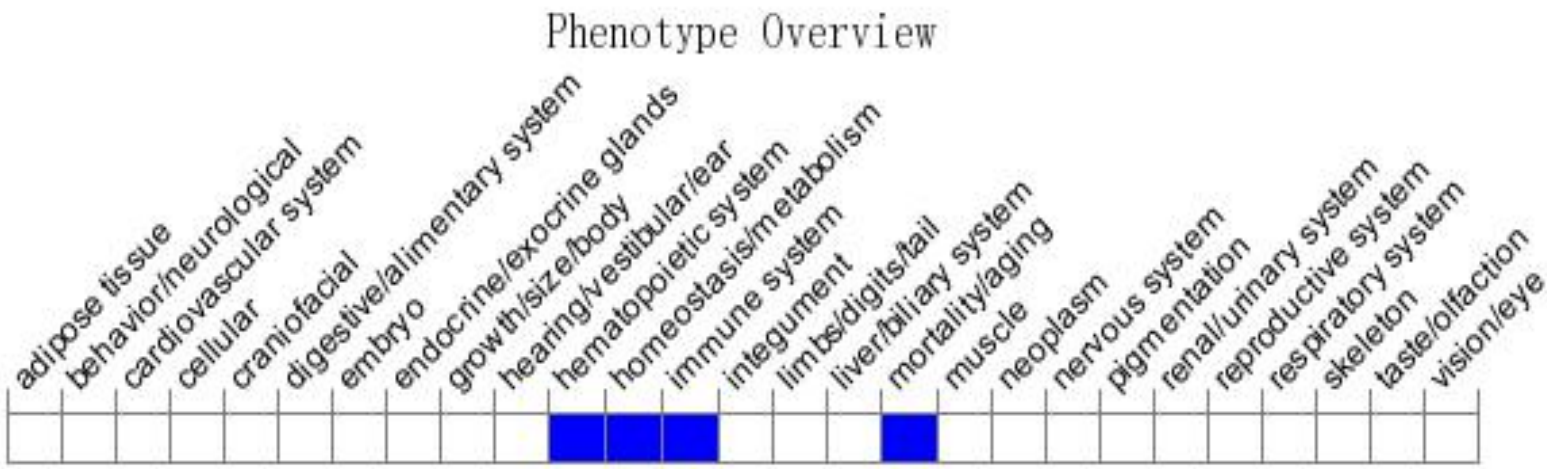
Genomic location distribution



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/>).

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

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