

Usp39 Cas9-KO Strategy

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Project Overview

Project Name

Usp39

Project type

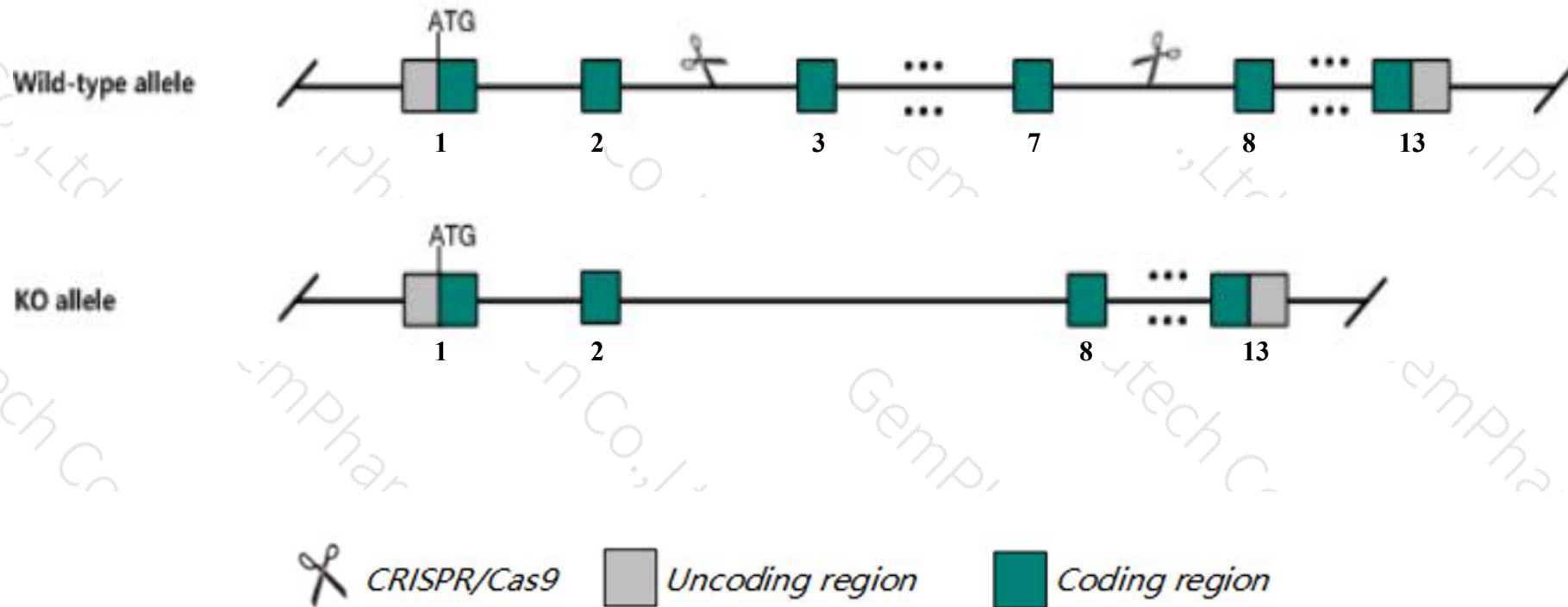
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Usp39* gene. The schematic diagram is as follows:



- The *Usp39* gene has 3 transcripts. According to the structure of *Usp39* gene, exon3-exon7 of *Usp39-201*(ENSMUST00000070345.4) transcript is recommended as the knockout region. The region contains 689bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Usp39* 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.

- The *Usp39* 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.

Gene information (NCBI)

Usp39 ubiquitin specific peptidase 39 [Mus musculus (house mouse)]

Gene ID: 28035, updated on 13-Mar-2020

Summary



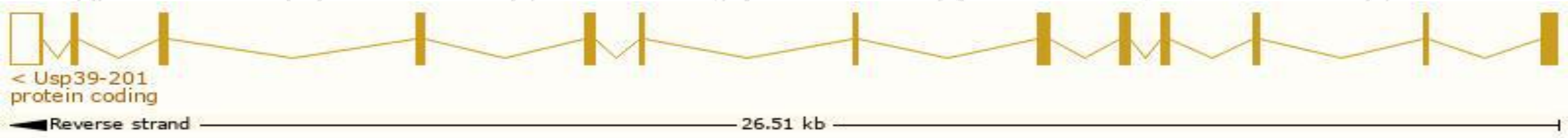
Official Symbol	Usp39 provided by MGI
Official Full Name	ubiquitin specific peptidase 39 provided by MGI
Primary source	MGI:MGI:107622
See related	Ensembl:ENSMUSG00000056305
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AA408960, AI894154, CGI-21, D6Wsu157e, SAD1
Expression	Ubiquitous expression in placenta adult (RPKM 20.2), liver E14 (RPKM 19.8) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

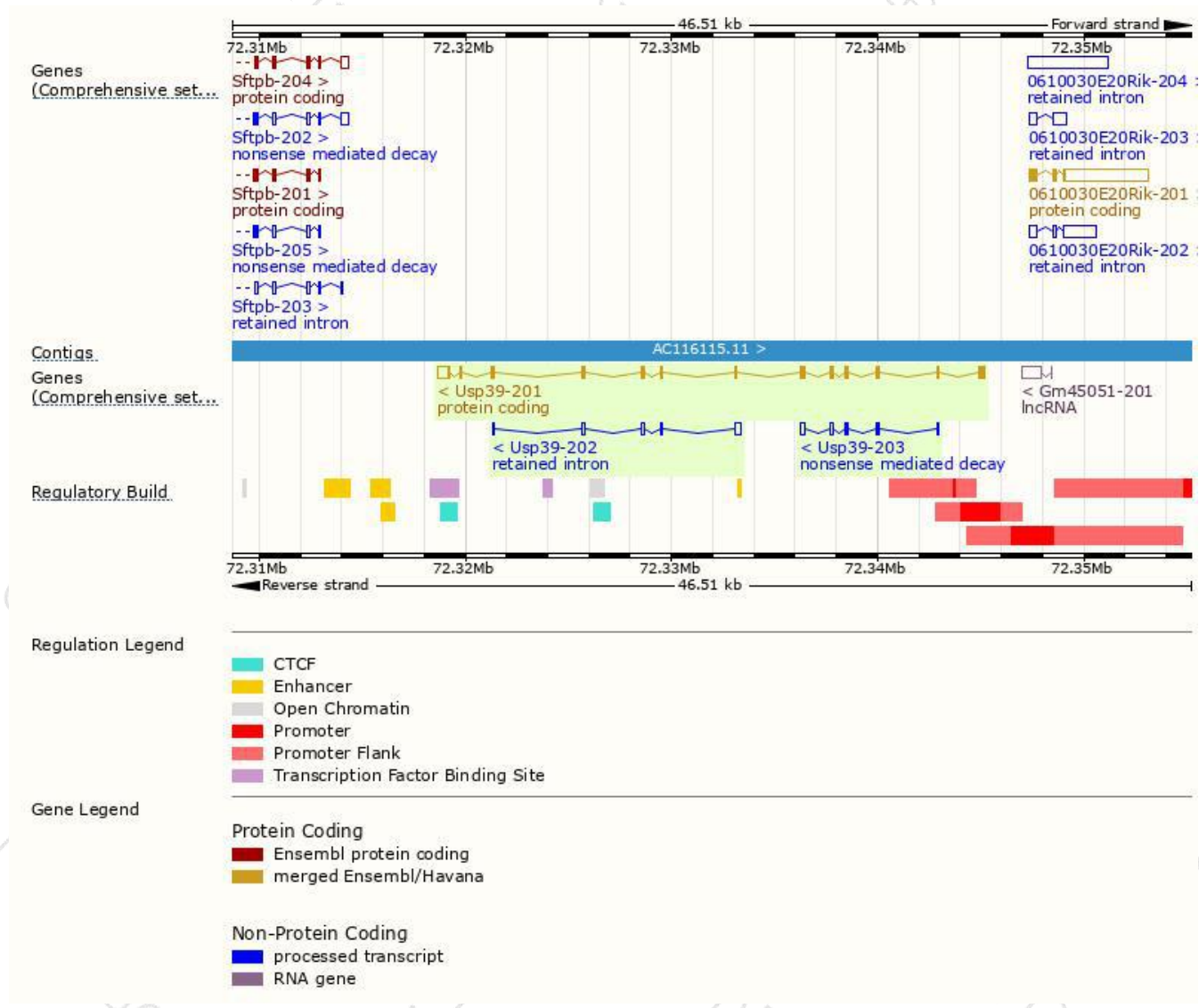
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Usp39-201	ENSMUST00000070345.4	2244	564aa	Protein coding	CCDS20238	Q3TIX9	TSL:1 GENCODE basic APPRIS P1
Usp39-203	ENSMUST00000206262.1	701	65aa	Nonsense mediated decay	-	A0A0U1RP18	CDS 5' incomplete TSL:5
Usp39-202	ENSMUST00000154799.1	751	No protein	Retained intron	-	-	TSL:3

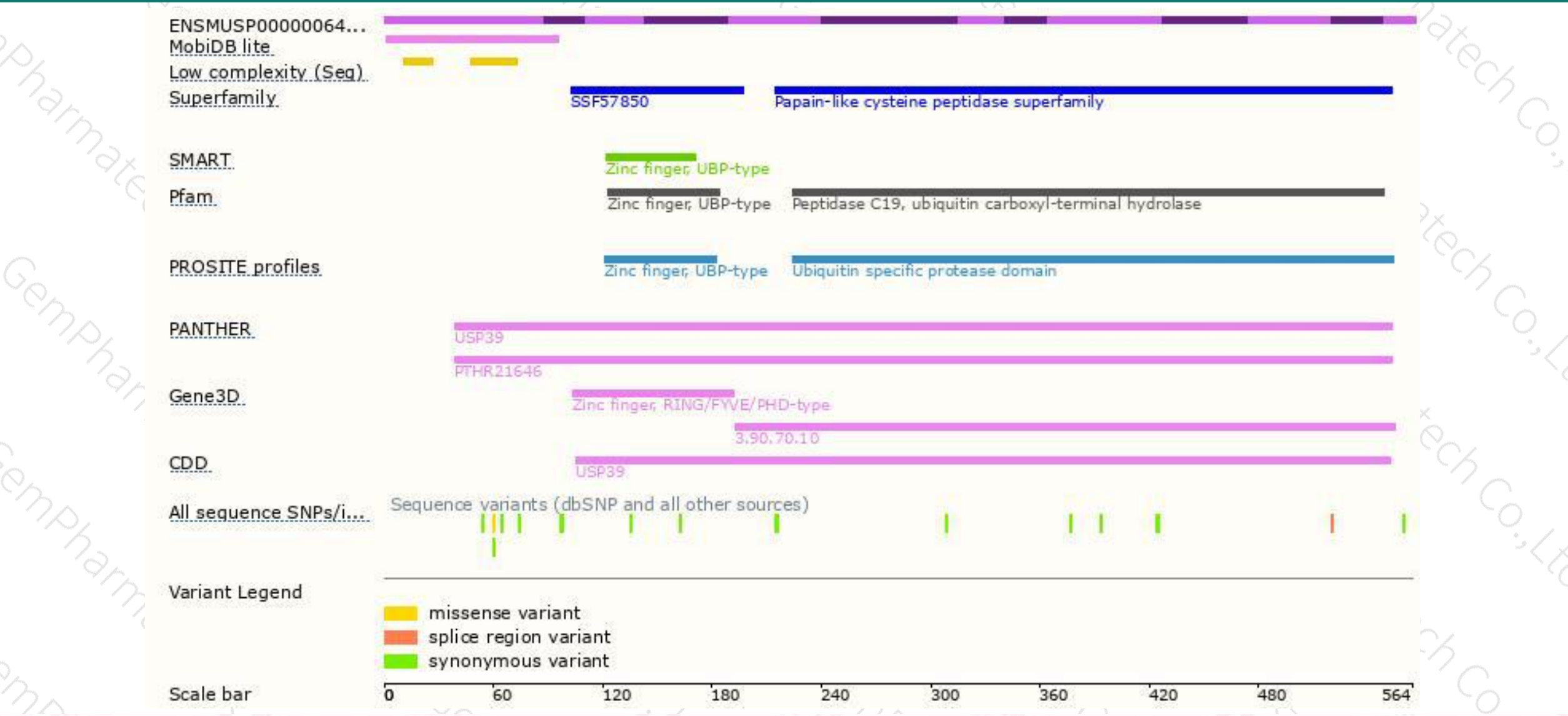
The strategy is based on the design of *Usp39-201* transcript,the transcription is shown below:



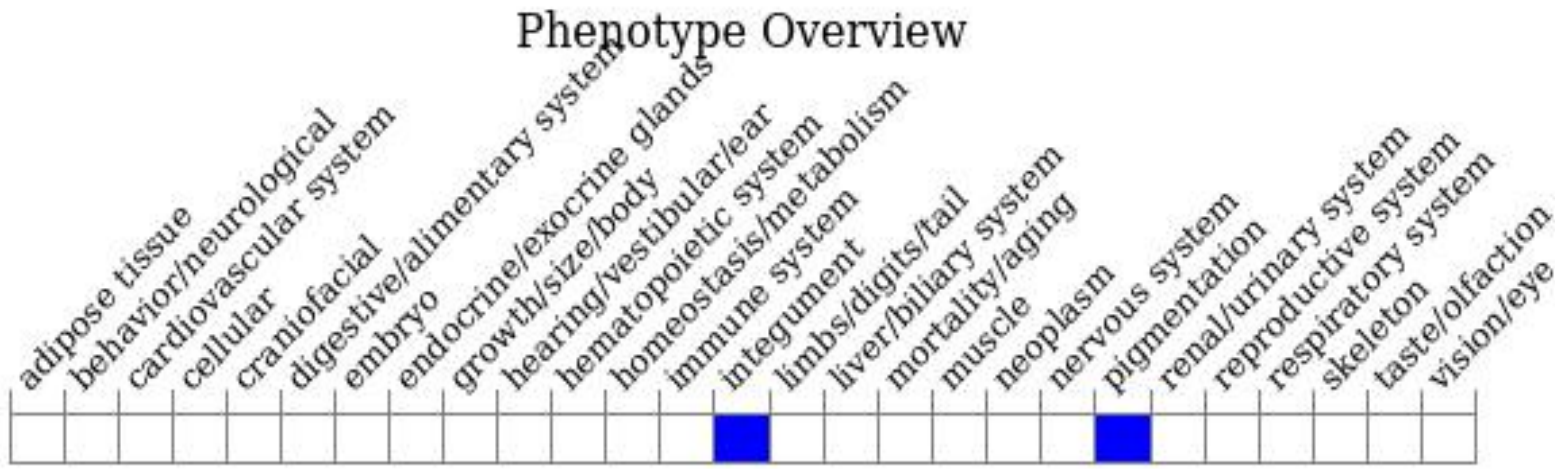
Genomic location distribution



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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