

Ubox5 Cas9-KO Strategy

Designer: Xiaojing Li

Reviewer: JiaYu

Design Date: 2020-8-24

Project Overview

Project Name

Ubox5

Project type

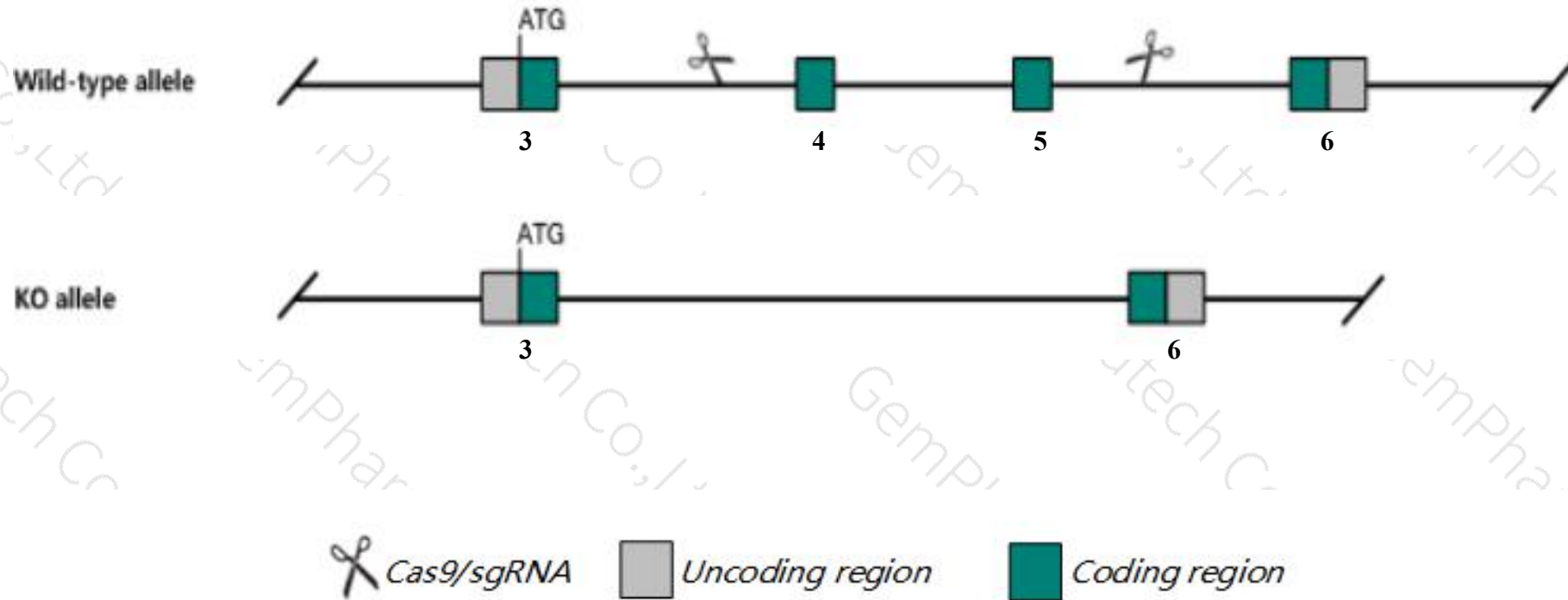
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ubox5* gene. The schematic diagram is as follows:



- The *Ubox5* gene has 2 transcripts. According to the structure of *Ubox5* gene, exon4-exon5 of *Ubox5-201*(ENSMUST00000028761.4) transcript is recommended as the knockout region. The region contains 1357bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ubox5* 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.

- The *Ubox5* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Ubox5 U box domain containing 5 [Mus musculus (house mouse)]

Gene ID: 140629, updated on 13-Mar-2020

Summary



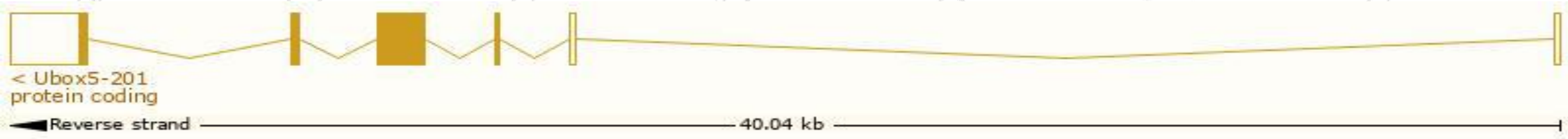
Official Symbol	Ubox5 provided by MGI
Official Full Name	U box domain containing 5 provided by MGI
Primary source	MGI:MGI:2154658
See related	Ensembl:ENSMUSG00000027300
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1500010O06Rik, C330018L13Rik, Rnf37, UIP5, Ubce7ip5, Ube7ip5
Expression	Ubiquitous expression in limb E14.5 (RPKM 3.3), CNS E11.5 (RPKM 2.9) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

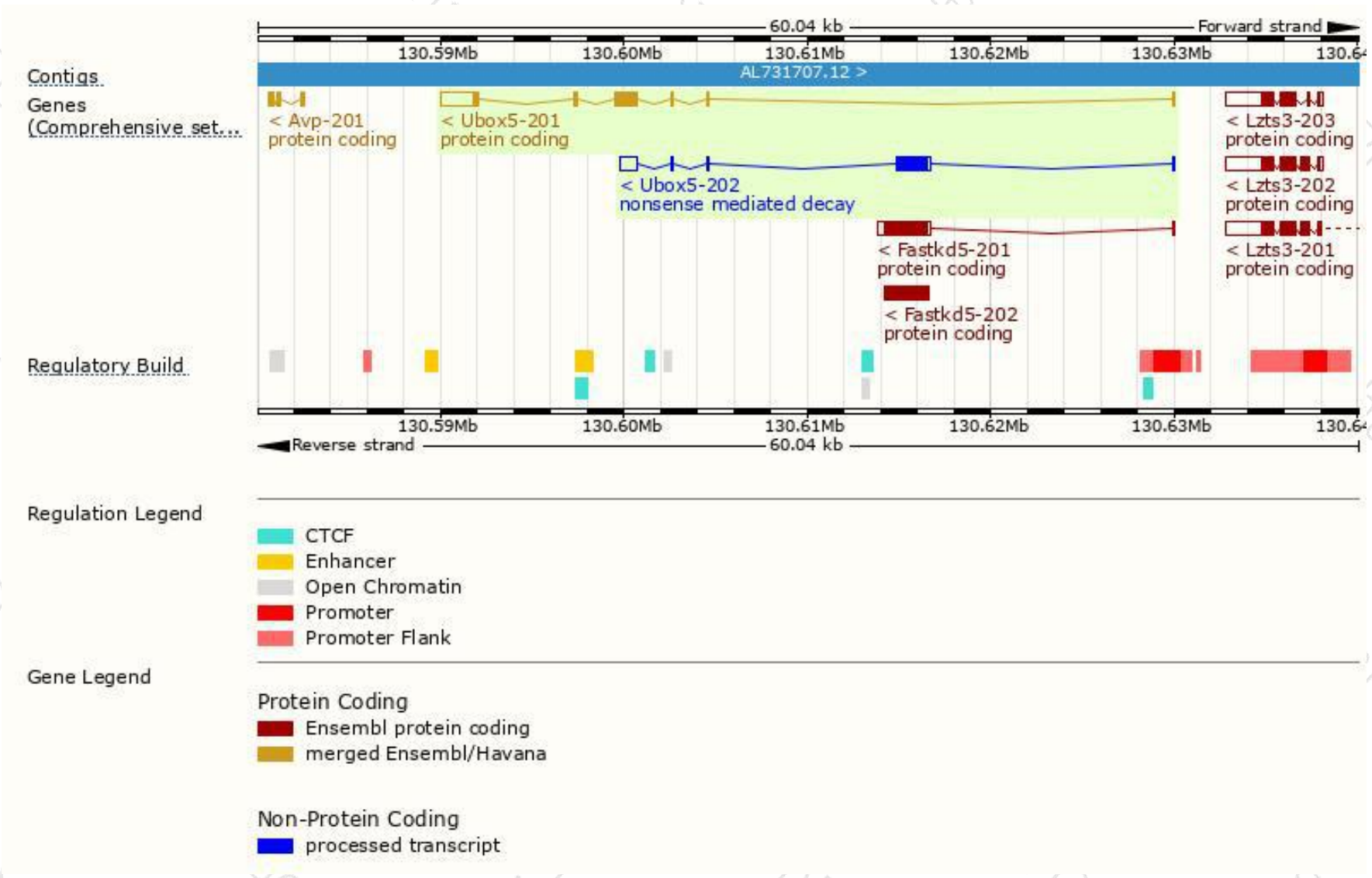
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ubox5-201	ENSMUST00000028761.4	3731	539aa	Protein coding	CCDS16747	Q543N0 Q925F4	TSL:1 GENCODE basic APPRIS P1
Ubox5-202	ENSMUST00000140581.2	3131	553aa	Nonsense mediated decay	-	F2Z402	TSL:1

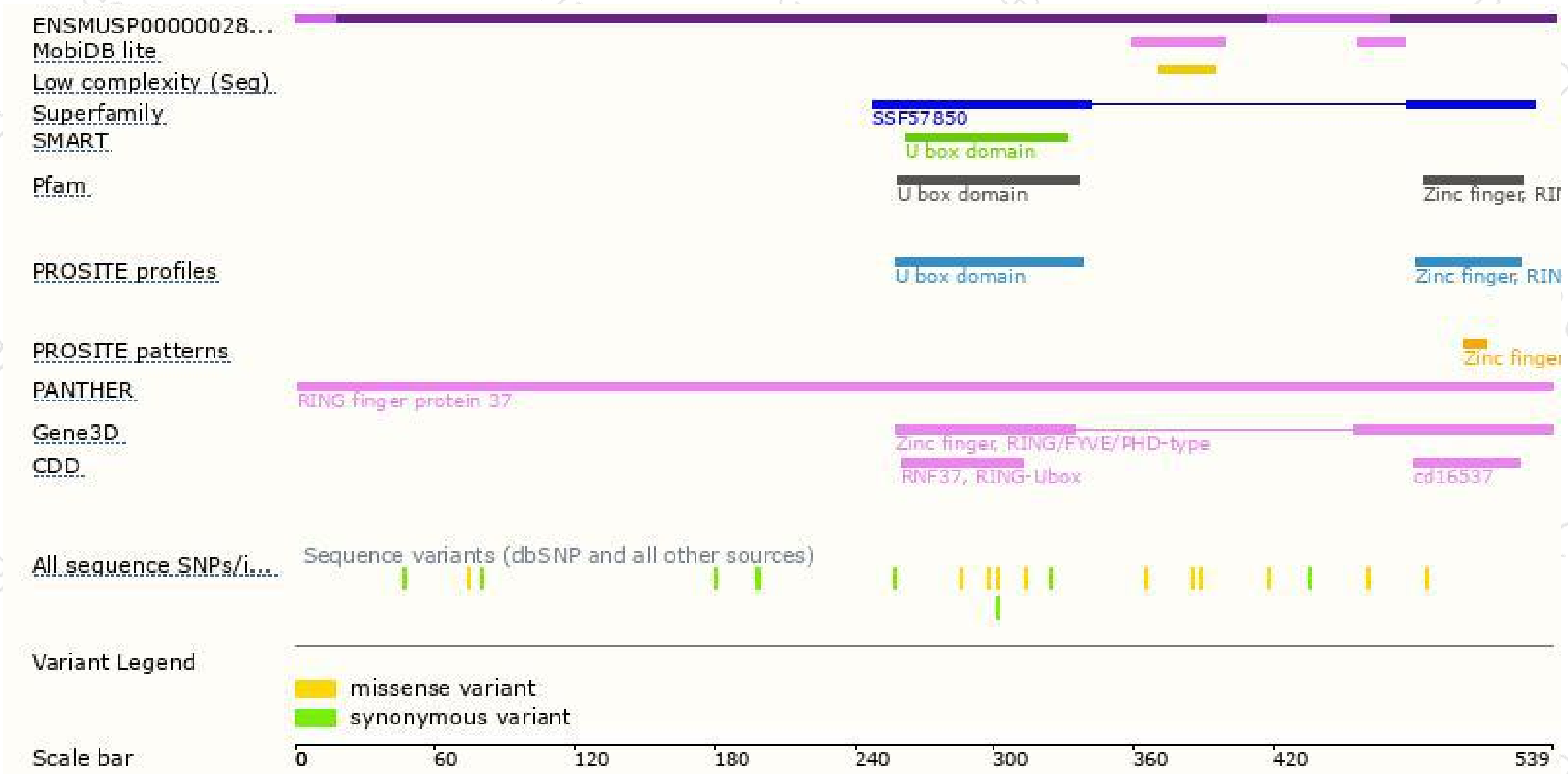
The strategy is based on the design of *Ubox5-201* transcript,the transcription is shown below:



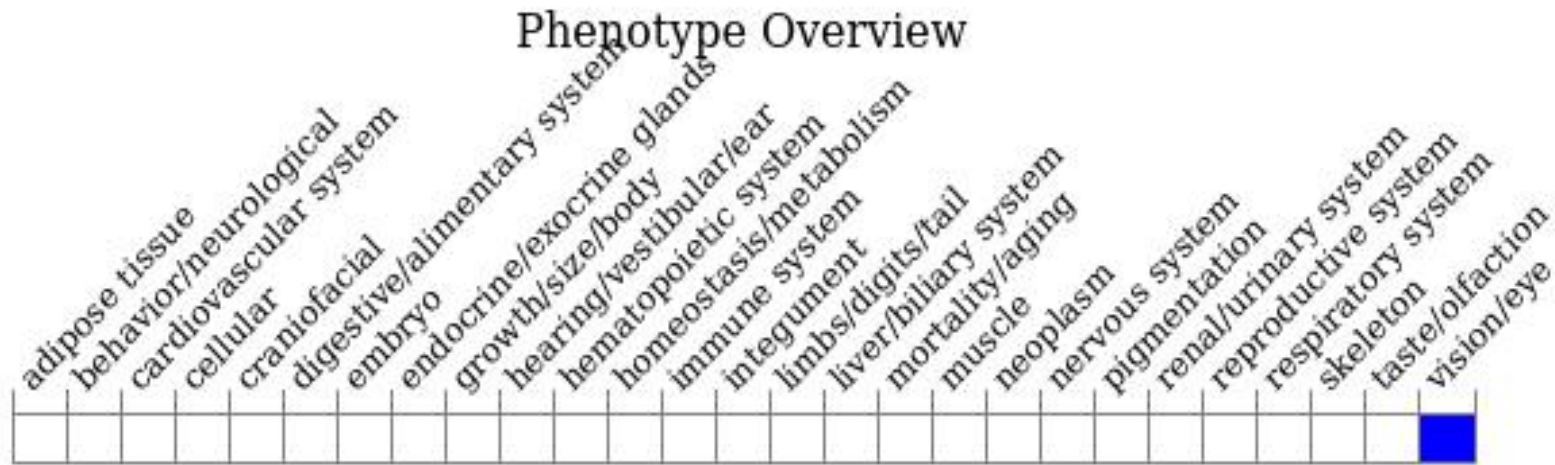
Genomic location distribution



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.

Tel: 025-5864 1534

