Usp24 Cas9-KO Strategy

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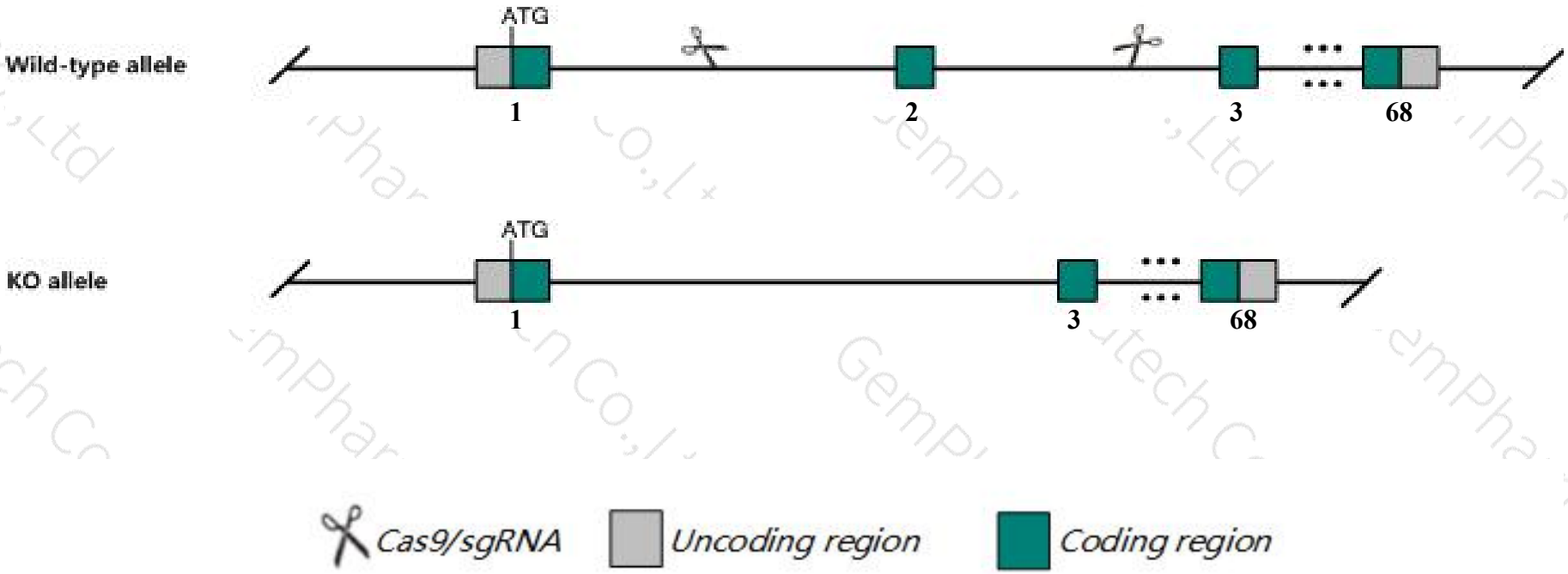
Project Overview

Project Name	***Usp24***
Project type	**Cas9-KO**
Strain background	**C57BL/6J**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Usp24* gene. The schematic diagram is as follows:



Technical routes

- The *Usp24* gene has 4 transcripts. According to the structure of *Usp24* gene, exon2 of *Usp24-201* (ENSMUST00000094933.4) transcript is recommended as the knockout region.The region contains 166bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Usp24* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

Notice

- The *Usp24* gene is located on the Chr4. 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）

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Usp24 ubiquitin specific peptidase 24 [Mus musculus (house mouse)]

Gene ID: 329908, updated on 31-Jan-2019

Summary

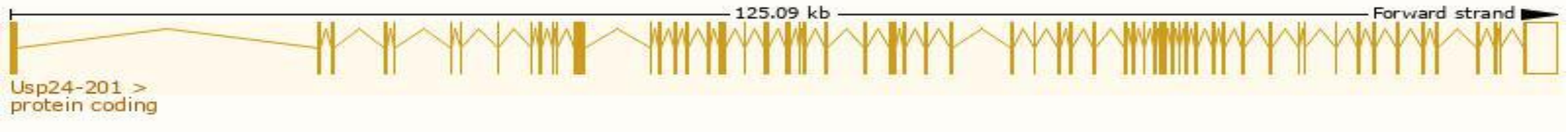
Official Symbol	Usp24 provided by MGI
Official Full Name	ubiquitin specific peptidase 24 provided by MGI
Primary source	MGI:MGI:1919936
See related	Ensembl:ENSMUSG00000028514
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2700066K03Rik, 2810030C21Rik, AI414051, B130021E18, C79851
Expression	Ubiquitous expression in kidney adult (RPKM 8.3), thymus adult (RPKM 7.3) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

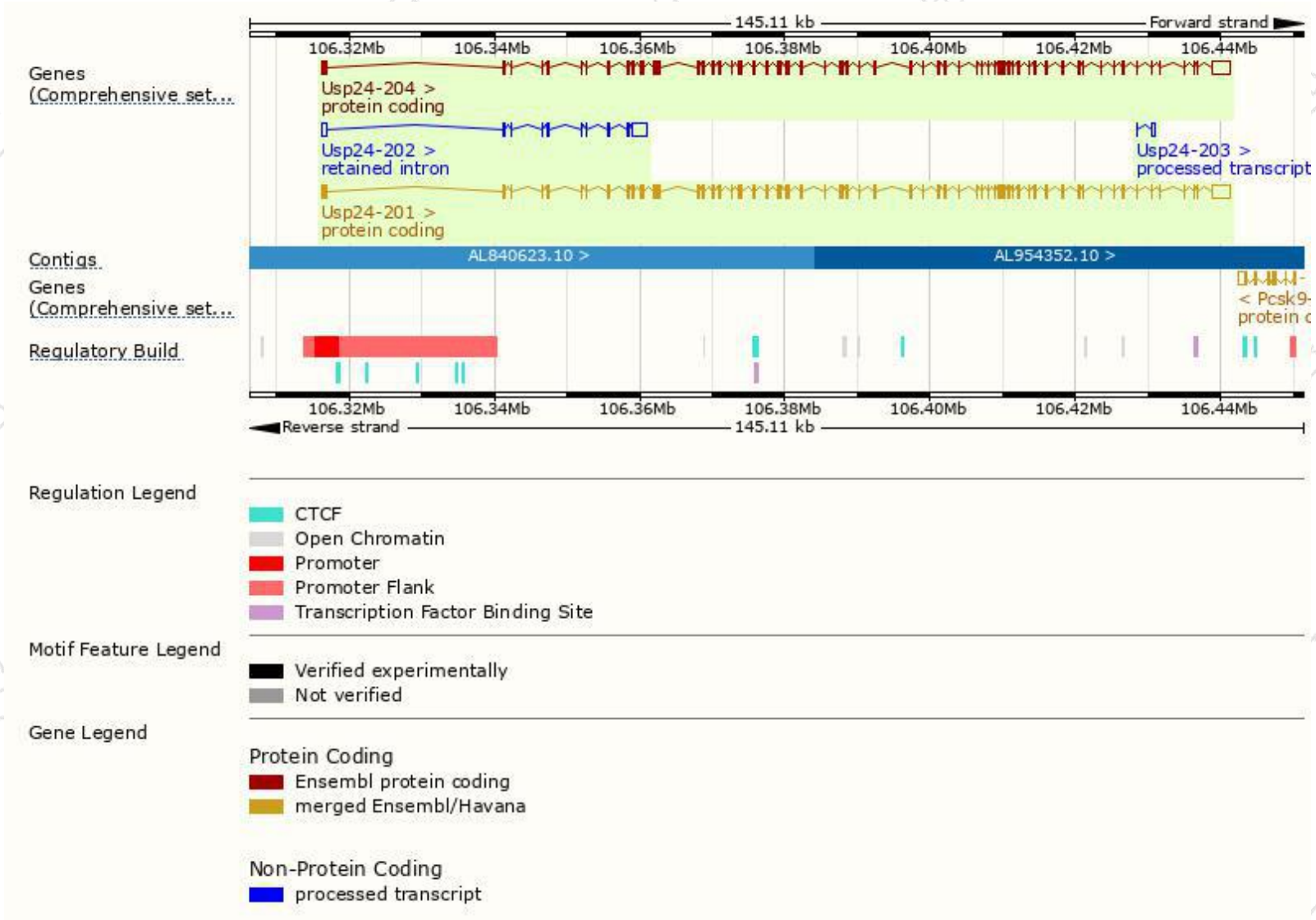
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Usp24-201	ENSMUST00000094933.4	10575	2617aa	Protein coding	CCDS51251	B1AY13	TSL:5 GENCODE basic APPRIS P2
Usp24-204	ENSMUST00000165709.7	10594	2618aa	Protein coding	-	E9PV45	TSL:5 GENCODE basic APPRIS ALT2
Usp24-203	ENSMUST00000150521.1	389	No protein	Processed transcript	-	-	TSL:3
Usp24-202	ENSMUST00000106798.6	3179	No protein	Retained intron	-	-	TSL:1

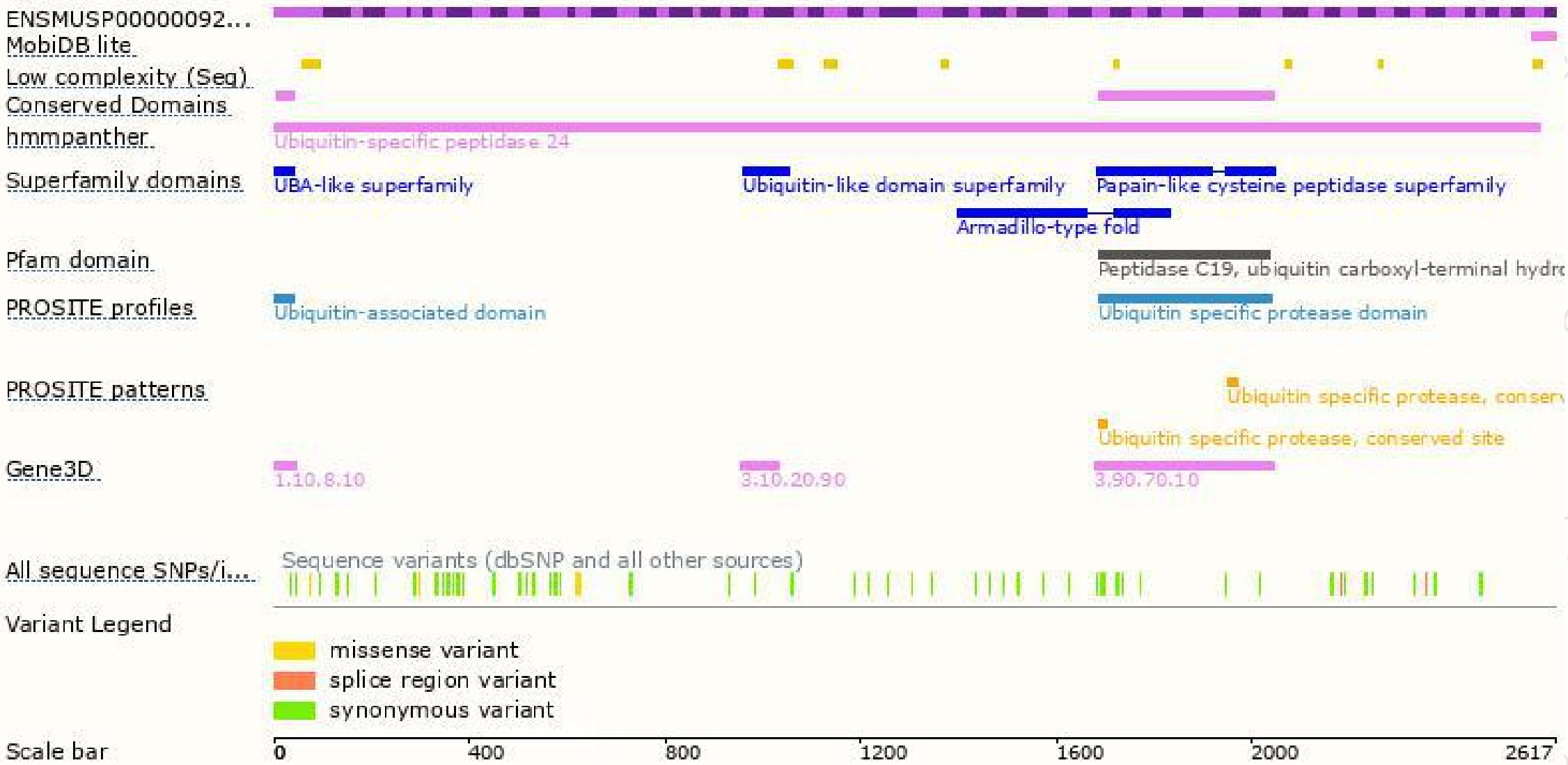
The strategy is based on the design of *Usp24-201* transcript,The transcription is shown below



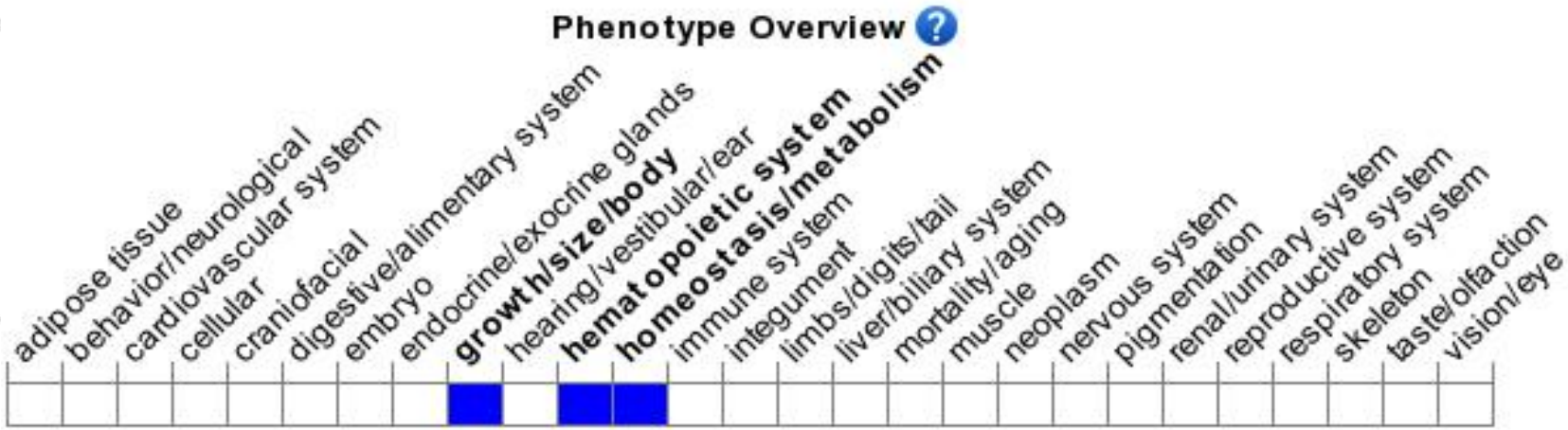
Genomic location distribution



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/).

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

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