Frmd6 Cas9-KO Strategy

Designer: Richeng Wang

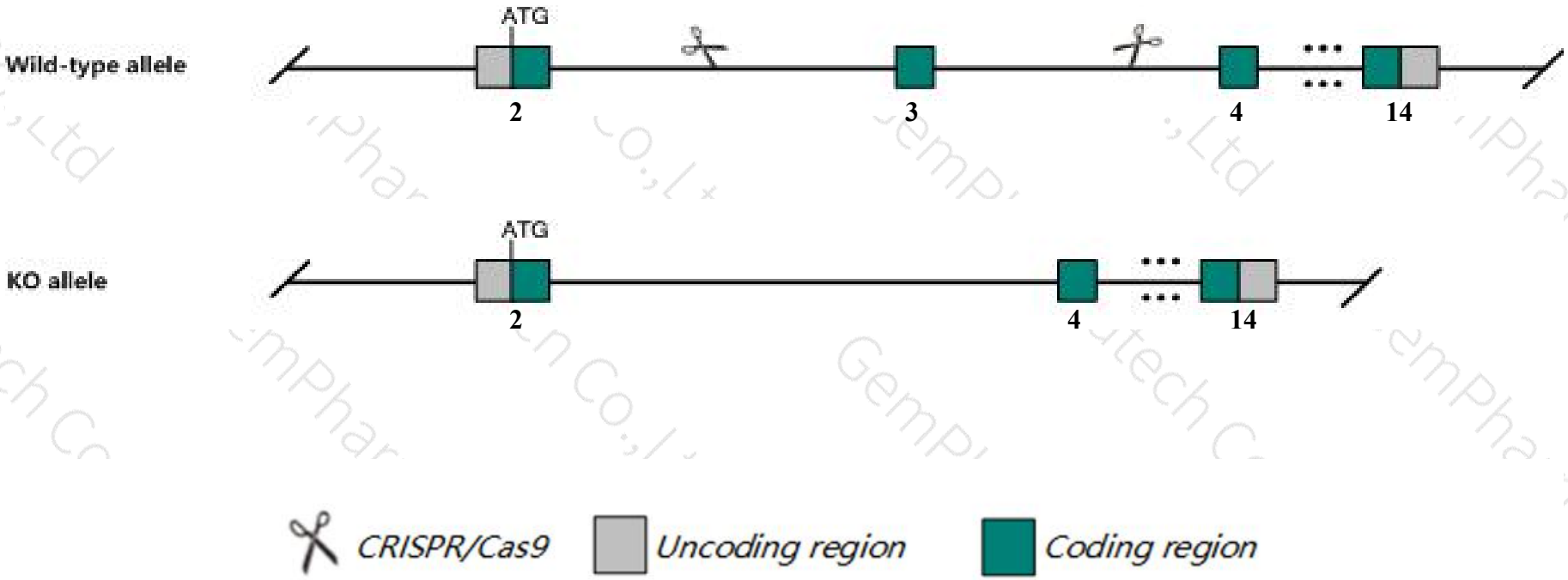
Design Date: 2019-8-2

Project Overview

Project Name	***Frmd6***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Frmd6* gene. The schematic diagram is as follows:



Technical routes

➢ The *Frmd6* gene has 4 transcripts. According to the structure of *Frmd6* gene, exon3 of *Frmd6-201* (ENSMUST00000057859.8) transcript is recommended as the knockout region.The region contains 91bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Frmd6* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

➢ The *Frmd6* gene is located on the Chr12. 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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Frmd6 FERM domain containing 6 [Mus musculus (house mouse)]

Gene ID: 319710, updated on 31-Jan-2019

Summary

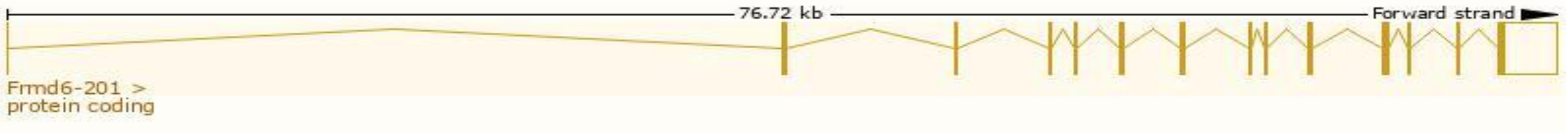
Official Symbol	Frmd6 provided by MGI
Official Full Name	FERM domain containing 6 provided by MGI
Primary source	MGI:MGI:2442579
See related	Ensembl:ENSMUSG00000048285
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2610019M19Rik, 4930488L10Rik, AW212977, Willin
Expression	Ubiquitous expression in bladder adult (RPKM 12.7), limb E14.5 (RPKM 11.0) and 27 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

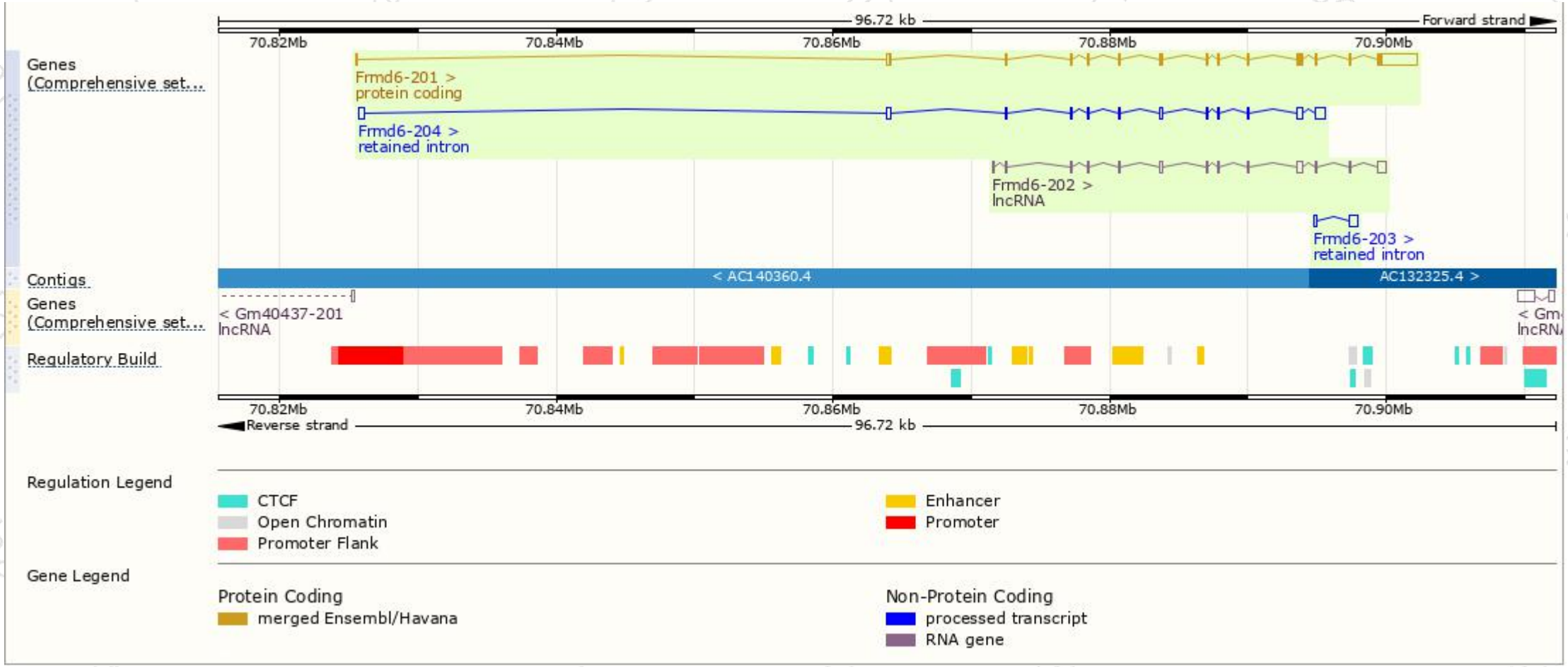
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Frmd6-201	ENSMUST00000057859.8	4662	622aa	Protein coding	CCDS25959	Q8C0V9	TSL:1 GENCODE basic APPRIS P1
Frmd6-204	ENSMUST00000222802.1	2721	No protein	Retained intron	-	-	TSL:1
Frmd6-203	ENSMUST00000222045.1	761	No protein	Retained intron	-	-	TSL:5
Frmd6-202	ENSMUST00000220515.1	2191	No protein	lncRNA	-	-	TSL:1

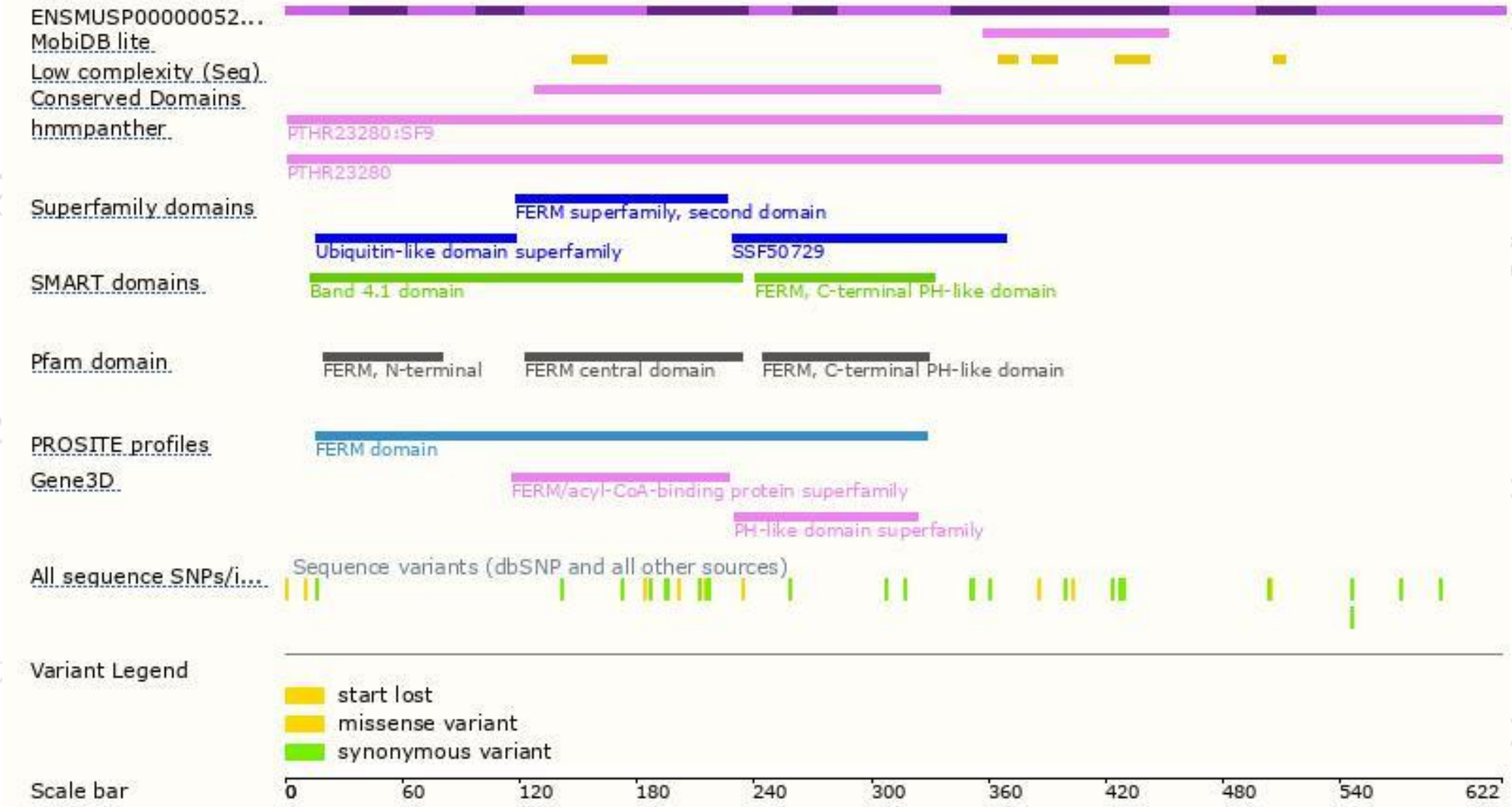
The strategy is based on the design of *Frmd6-201* transcript,The transcription is shown below



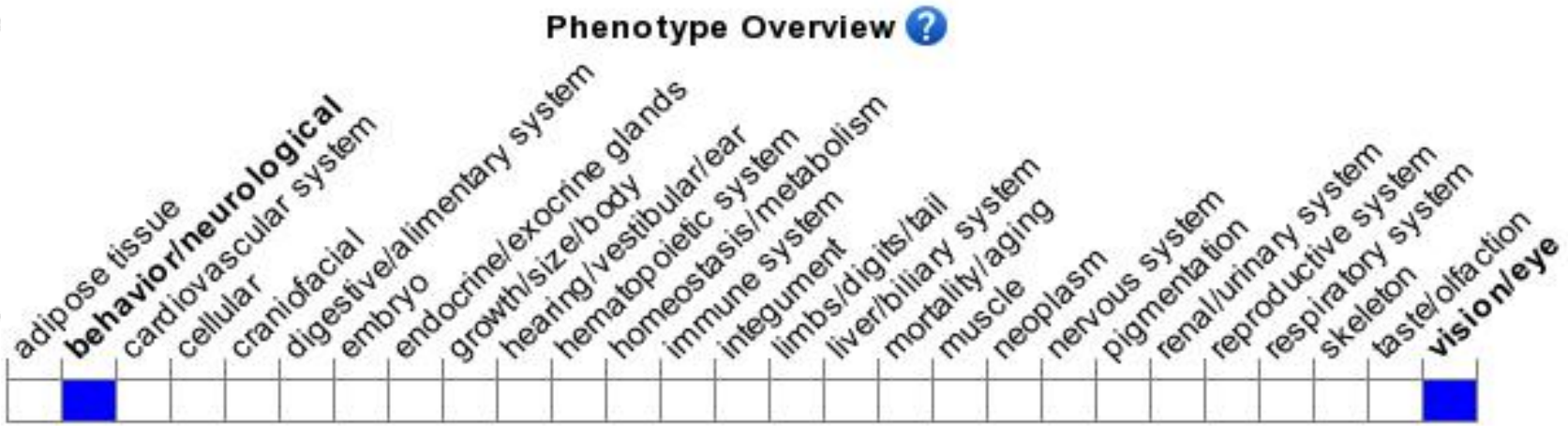
Genomic location distribution



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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