Prpf8 Cas9-CKO Strategy

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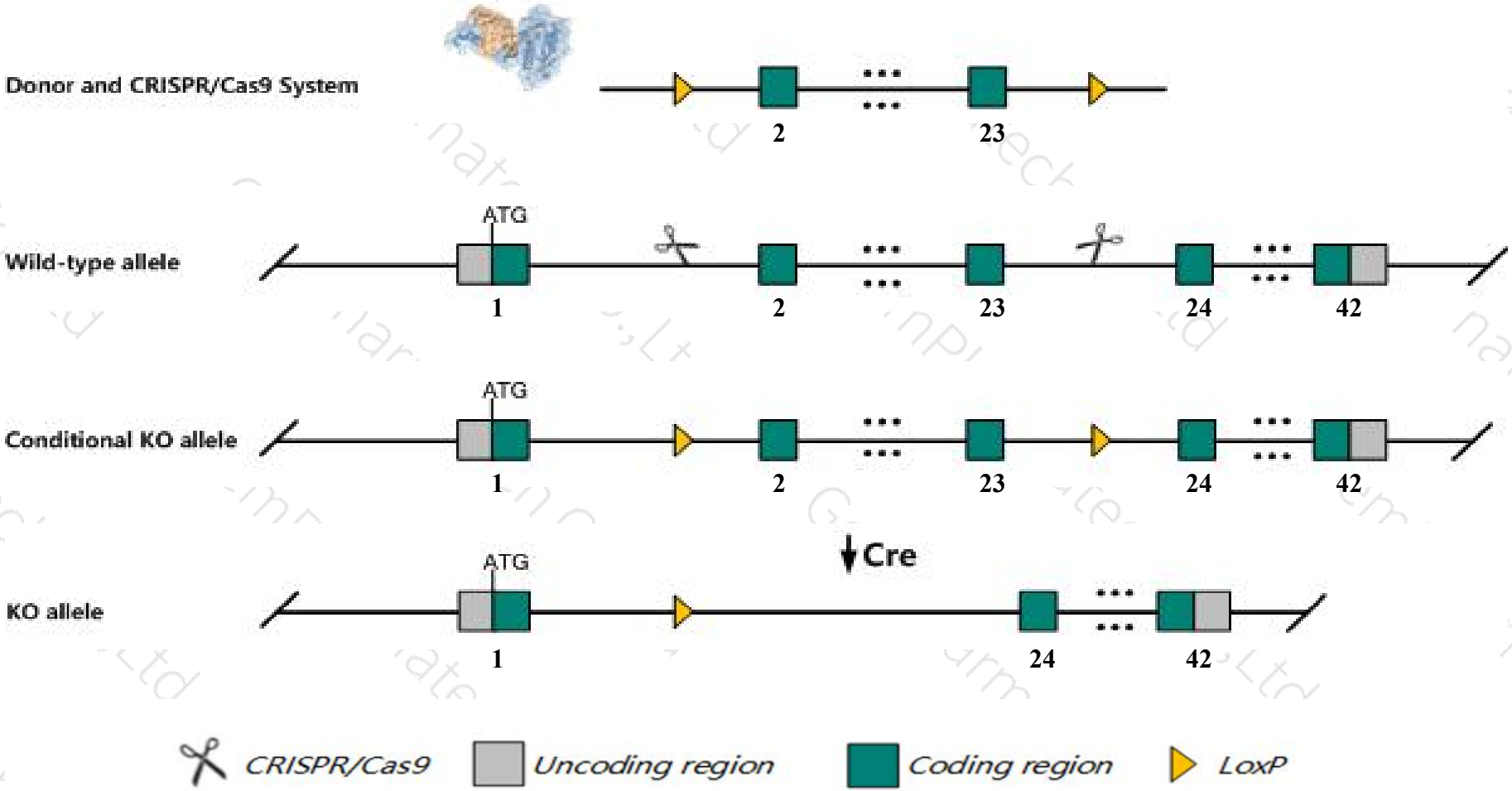
Project Overview

Project Name	***Prpf8***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Prpf8* gene. The schematic diagram is as follows:



Technical routes

- The *Prpf8* gene has 4 transcripts. According to the structure of *Prpf8* gene, exon2-exon23 of *Prpf8-201* (ENSMUST00000018449.10) transcript is recommended as the knockout region.The region contains 3674bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Prpf8* gene. The brief process is as follows:CRISPR/Cas9 system 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 will be 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.

Notice

- According to the existing MGI data,Mice that are either heterozygous or homozygous for a knock-in allele exhibit abnormal retinal pigment epithelium morphology and late-onset retinal degeneration. These changes are more severe in homozygous mutant mice.

- The *Prpf8* 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）

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Prpf8 pre-mRNA processing factor 8 [Mus musculus (house mouse)]

Gene ID: 192159, updated on 31-Jan-2019

Summary

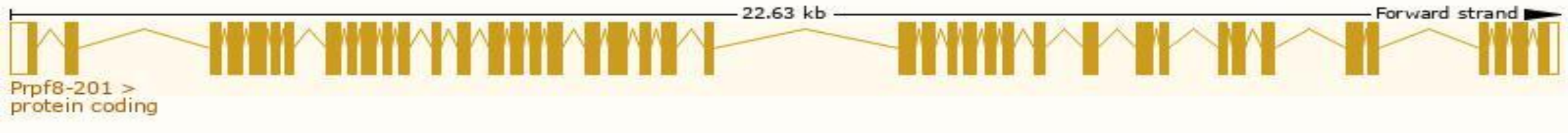
Official Symbol	Prpf8 provided by MGI
Official Full Name	pre-mRNA processing factor 8 provided by MGI
Primary source	MGI:MGI:2179381
See related	Ensembl:ENSMUSG00000020850
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AU019467, D11Bwg0410e, DBF3/PRP8, Prp8, Sfprp8l
Expression	Ubiquitous expression in thymus adult (RPKM 48.5), whole brain E14.5 (RPKM 44.4) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

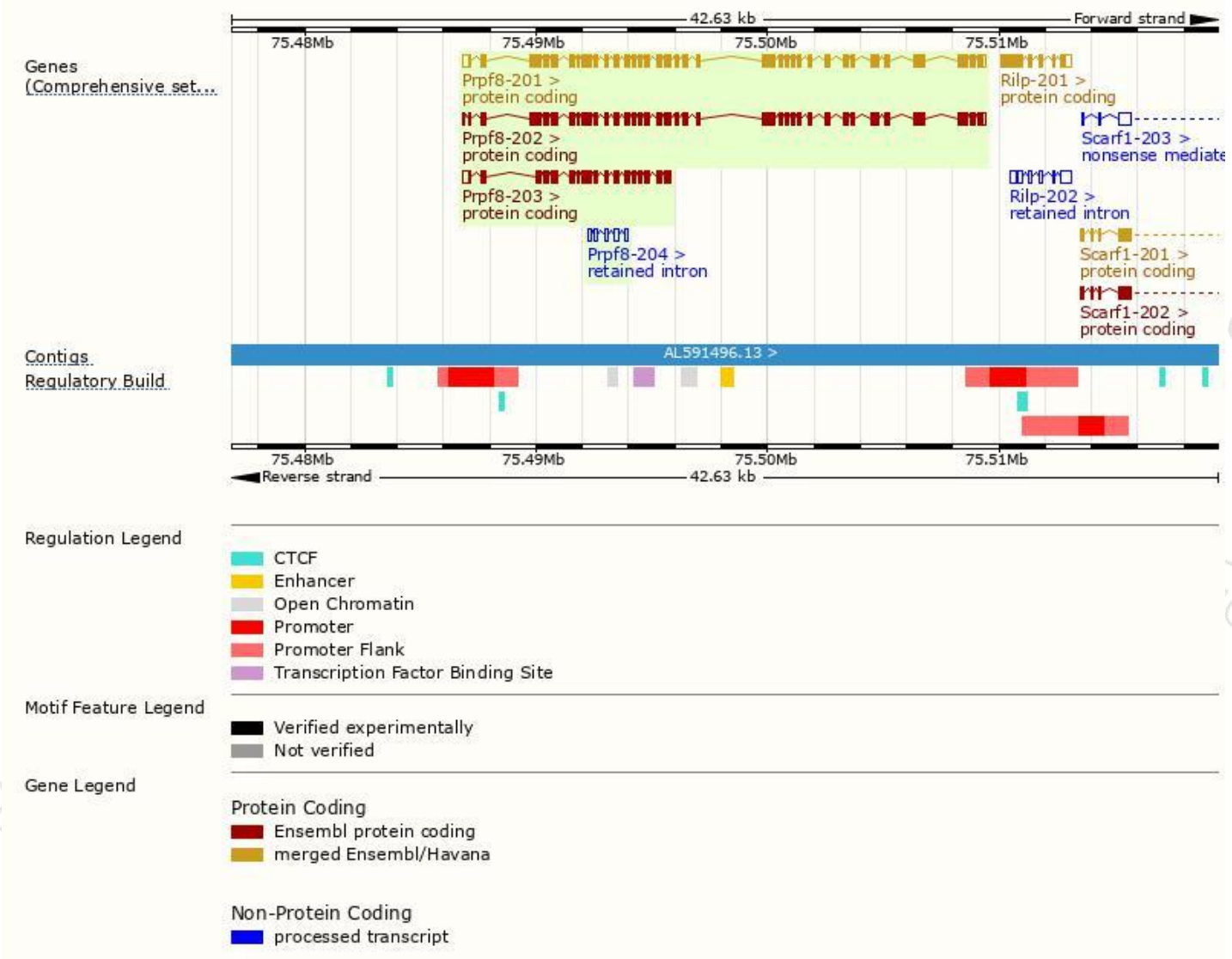
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Prpf8-201	ENSMUST00000018449.10	7442	2335aa	Protein coding	CCDS25048	Q99PV0	TSL:1 GENCODE basic APPRIS P1
Prpf8-202	ENSMUST00000102510.7	7249	2335aa	Protein coding	CCDS25048	Q99PV0	TSL:5 GENCODE basic APPRIS P1
Prpf8-203	ENSMUST00000131283.2	3371	1044aa	Protein coding	-	B7ZC27	CDS 3' incomplete TSL:1
Prpf8-204	ENSMUST00000133995.1	721	No protein	Retained intron	-	-	TSL:2

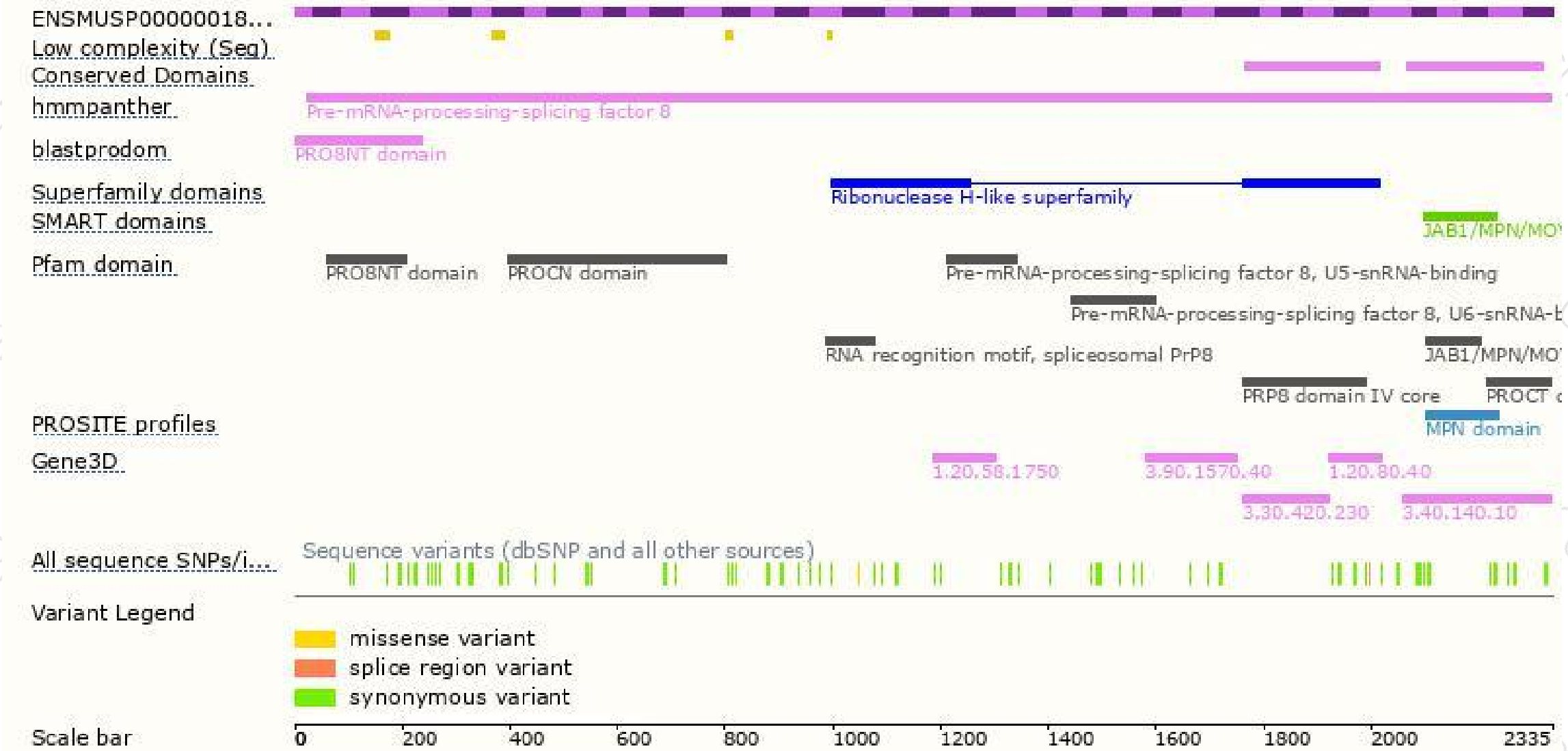
The strategy is based on the design of *Prpf8-201* transcript,The transcription is shown below



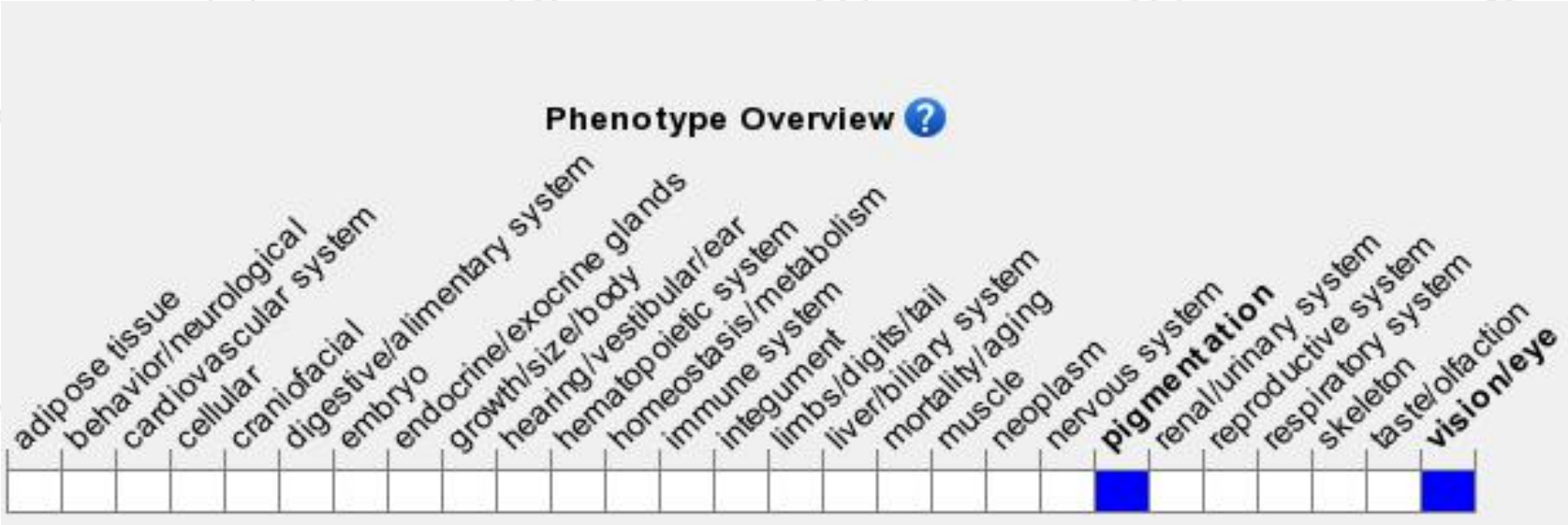
Genomic location distribution



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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