Pja1 Cas9-CKO Strategy

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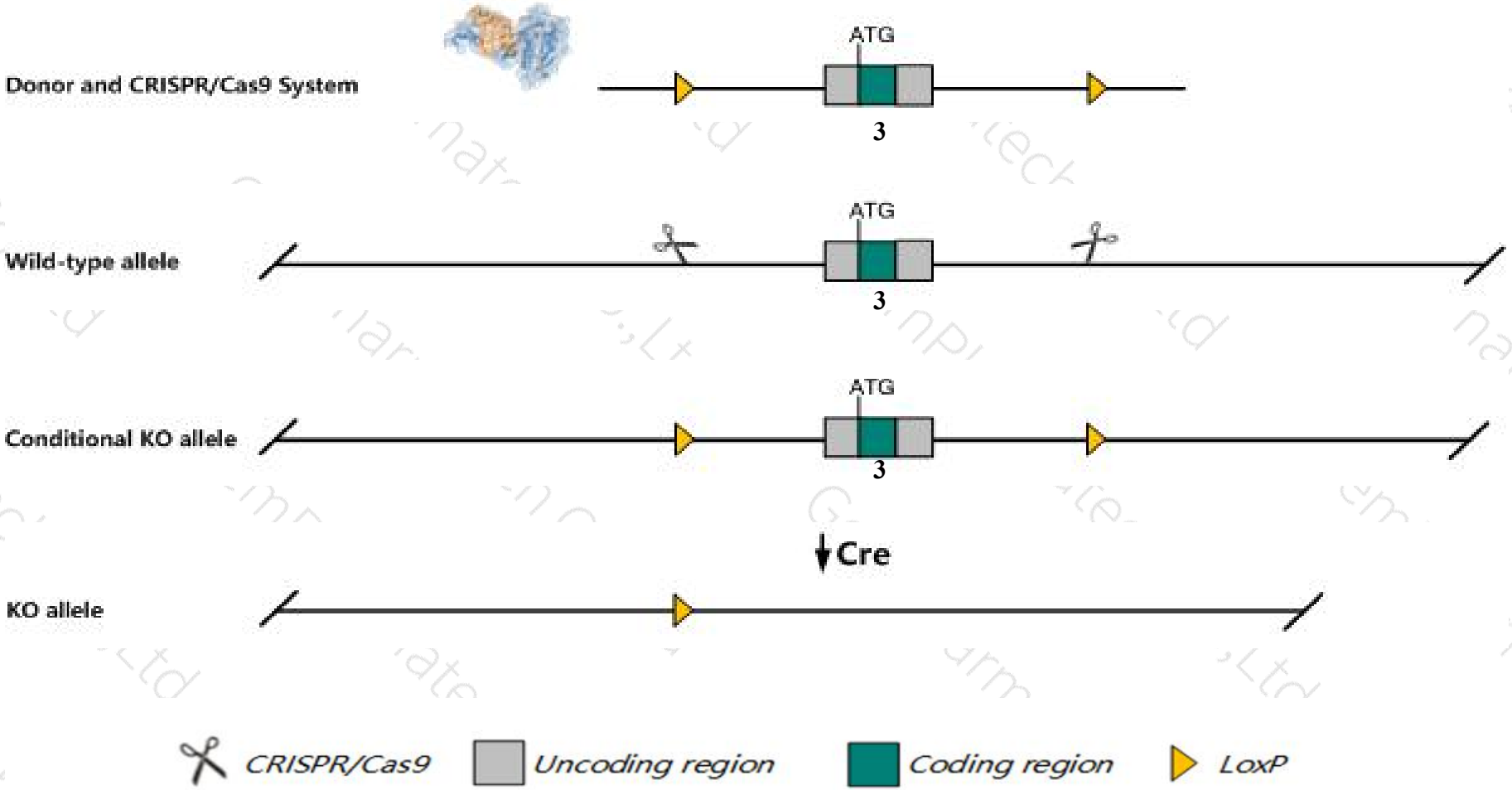
Project Overview

Project Name	***Pja1***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pja1* gene. The schematic diagram is as follows:



Technical routes

- The *Pja1* gene has 5 transcripts. According to the structure of *Pja1* gene, exon3 of *Pja1-203* (ENSMUST00000113792.1) transcript is recommended as the knockout region.The region contains all of the coding sequence.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Pja1* 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 harboring an ENU-induced mutation show no detectable phenotypic abnormalities.

- The *Pja1* gene is located on the ChrX. 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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Pja1 praja ring finger ubiquitin ligase 1 [Mus musculus (house mouse)]

Gene ID: 18744, updated on 19-Mar-2019

Summary

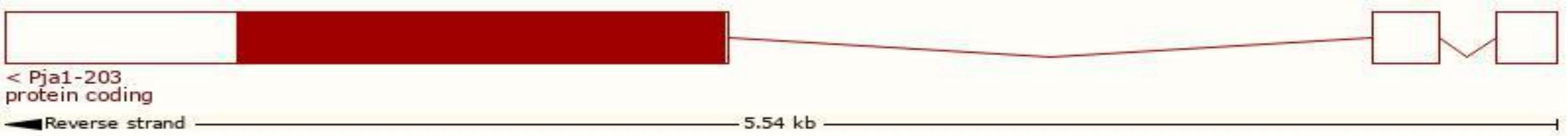
Official Symbol	Pja1 provided by MGI
Official Full Name	praja ring finger ubiquitin ligase 1 provided by MGI
Primary source	MGI:MGI:1101765
See related	Ensembl:ENSMUSG00000034403
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	praja-1
Expression	Ubiquitous expression in CNS E18 (RPKM 68.1), CNS E14 (RPKM 57.5) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

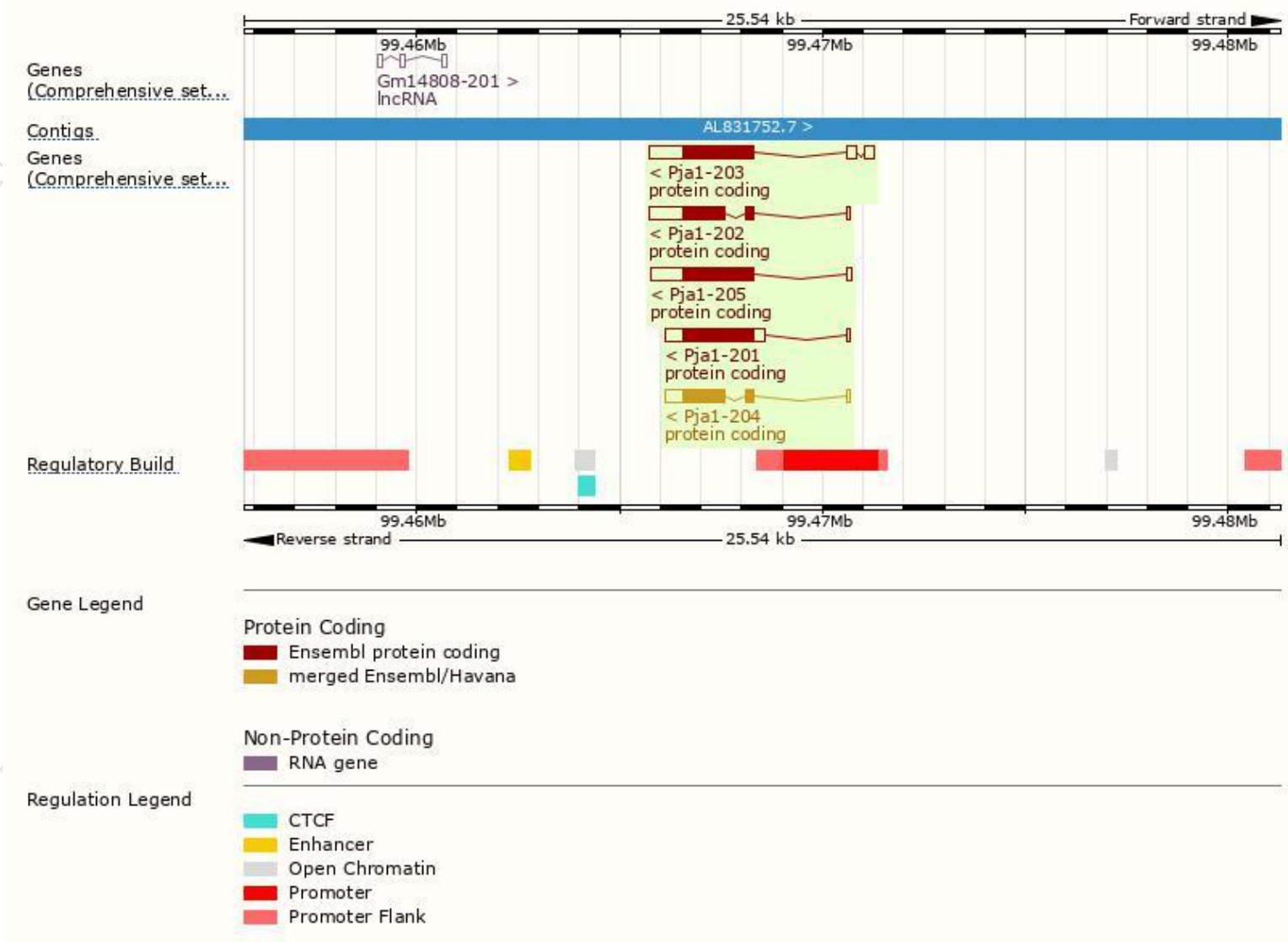
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pja1-203	ENSMUST00000113792.1	3038	578aa	Protein coding	CCDS41070	O55176 Q05CG5	TSL:5 GENCODE basic APPRIS P4
Pja1-205	ENSMUST00000167246.1	2666	578aa	Protein coding	CCDS41070	O55176 Q05CG5	TSL:1 GENCODE basic APPRIS P4
Pja1-201	ENSMUST00000036354.6	2563	578aa	Protein coding	CCDS41070	O55176 Q05CG5	TSL:1 GENCODE basic APPRIS P4
Pja1-202	ENSMUST00000113790.7	2108	398aa	Protein coding	CCDS81157	B1AXU4	TSL:2 GENCODE basic APPRIS ALT2
Pja1-204	ENSMUST00000113797.3	1676	395aa	Protein coding	CCDS41071	B1AXU3	TSL:2 GENCODE basic APPRIS ALT2

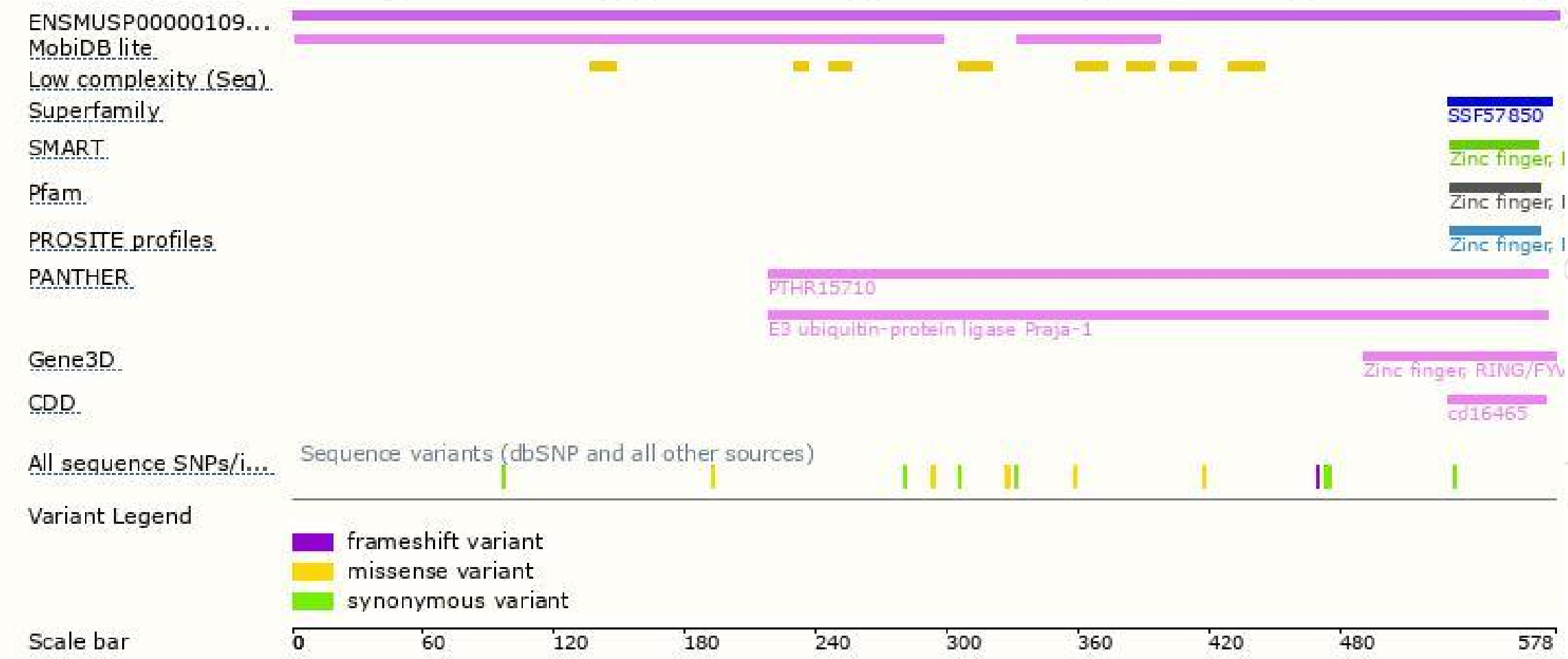
The strategy is based on the design of *Pja1-203* transcript,The transcription is shown below



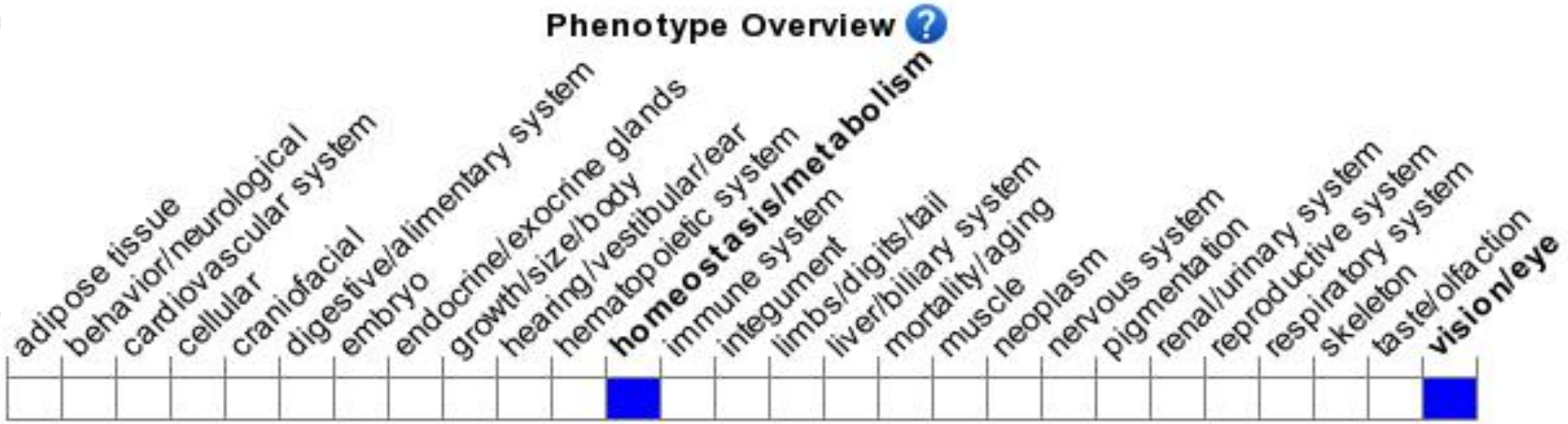
Genomic location distribution



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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