Ptprk Cas9-CKO Strategy

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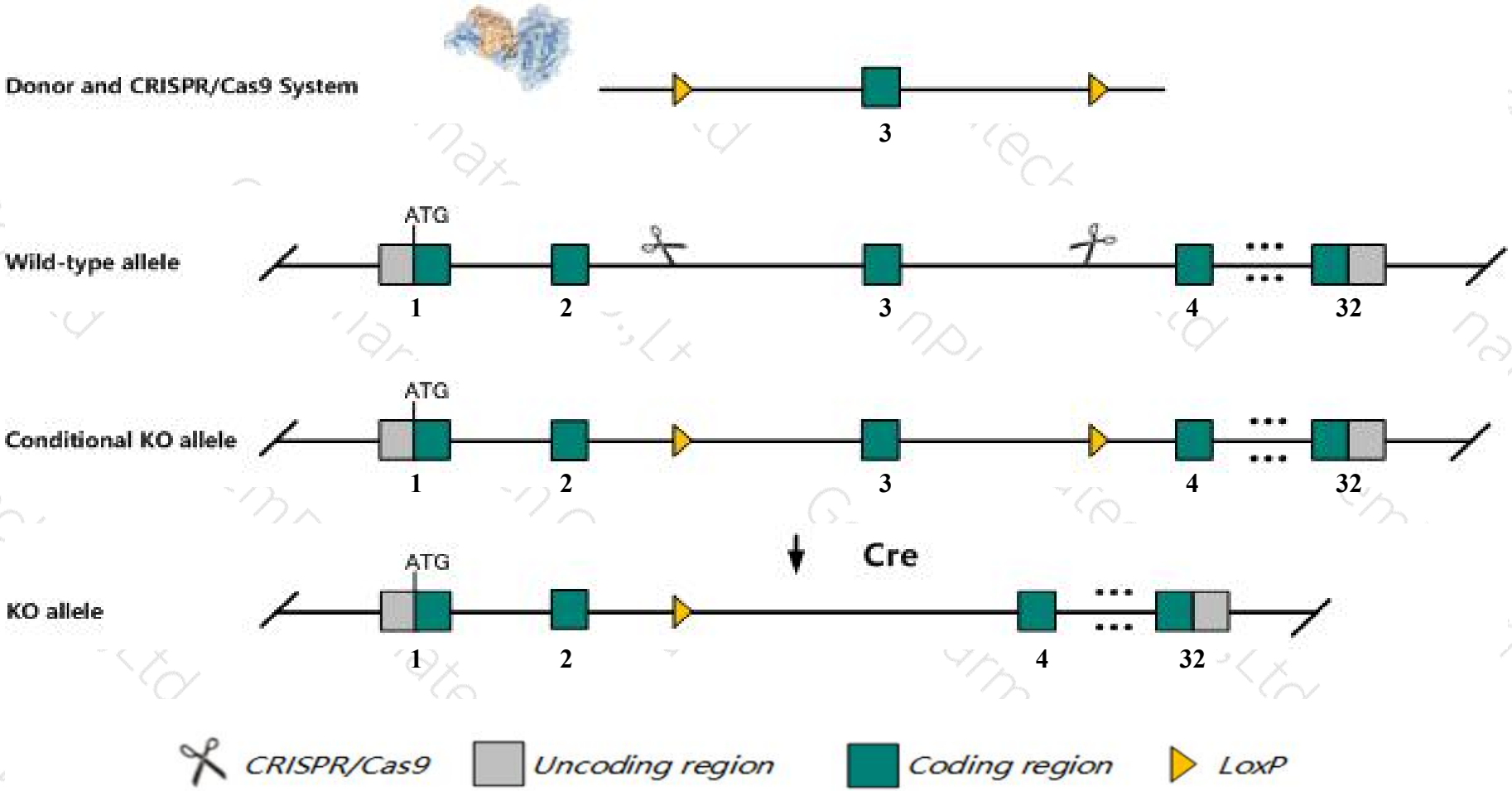
Project Overview

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

Conditional Knockout strategy

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



Technical routes

- The *Ptprk* gene has 11 transcripts. According to the structure of *Ptprk* gene, exon3 of *Ptprk-201* (ENSMUST00000166468.1) transcript is recommended as the knockout region.The region contains 272bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Ptprk* 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

➢ The *Ptprk* gene is located on the Chr10. 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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Ptprk protein tyrosine phosphatase, receptor type, K [Mus musculus (house mouse)]

Gene ID: 19272, updated on 31-Jan-2019

Summary

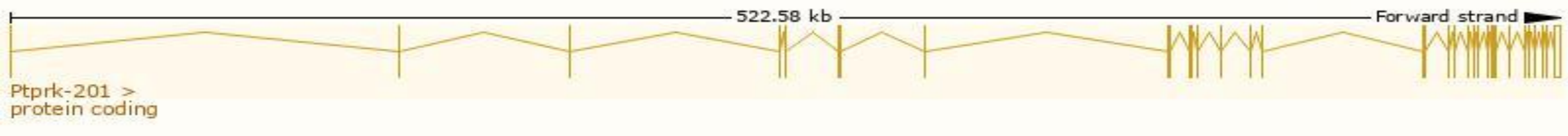
Official Symbol	Ptprk provided by MGI
Official Full Name	protein tyrosine phosphatase, receptor type, K provided by MGI
Primary source	MGI:MGI:103310
See related	Ensembl:ENSMUSG00000019889
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI853699, PTPk, RPTPkappa
Expression	Ubiquitous expression in kidney adult (RPKM 11.3), CNS E18 (RPKM 10.7) and 26 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

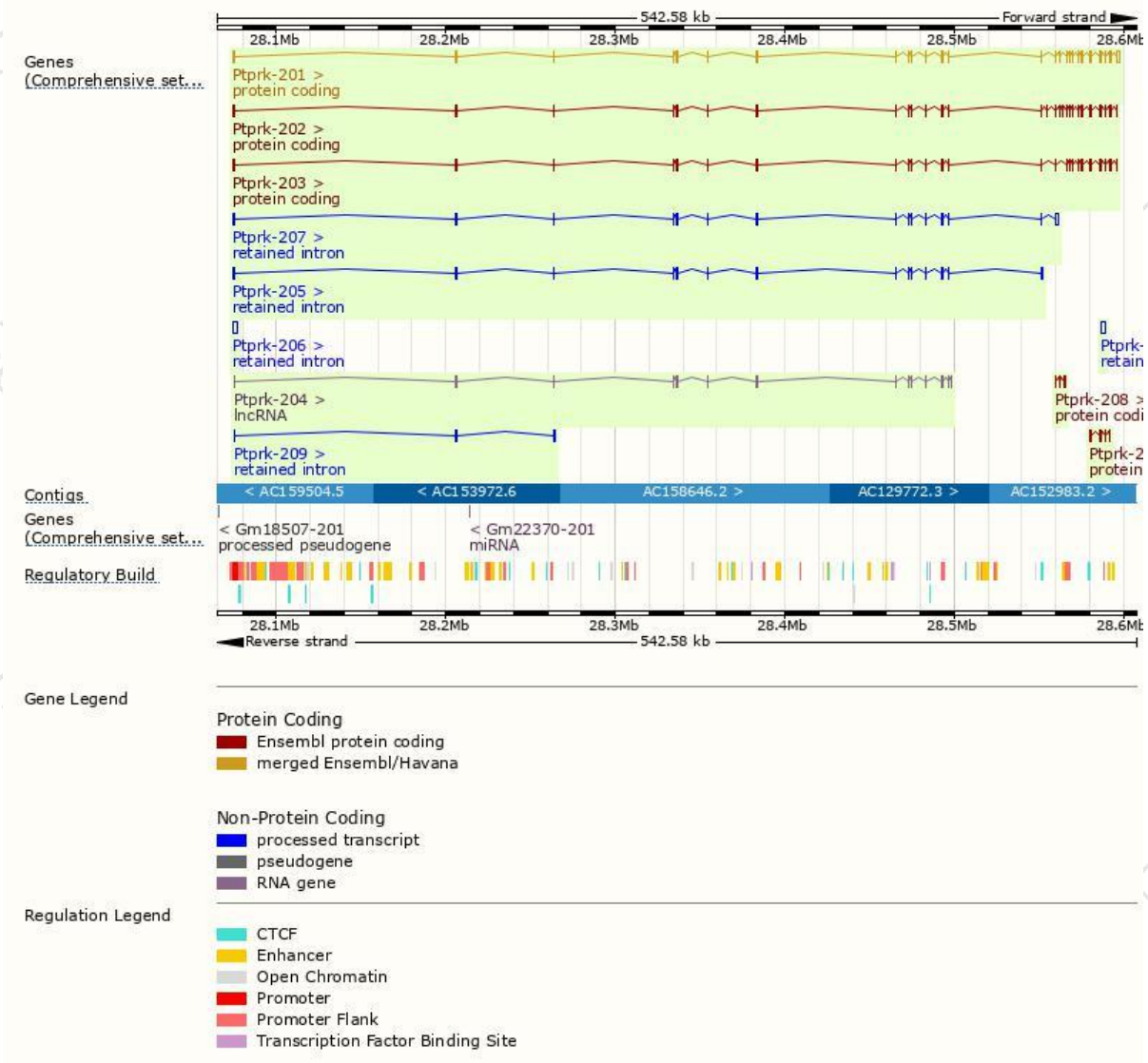
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ptprk-201	ENSMUST00000166468.1	6177	1457aa	Protein coding	CCDS35874	P35822	TSL:2 GENCODE basic APPRIS P2
Ptprk-202	ENSMUST00000218276.1	4754	1471aa	Protein coding	-	A0A1W2P7Y1	TSL:1 GENCODE basic APPRIS ALT2
Ptprk-203	ENSMUST00000218359.1	4669	1445aa	Protein coding	-	B2RRF0	TSL:1 GENCODE basic APPRIS ALT2
Ptprk-210	ENSMUST00000220357.1	846	282aa	Protein coding	-	A0A1W2P706	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:5
Ptprk-208	ENSMUST00000219621.1	392	36aa	Protein coding	-	A0A1W2P6K2	CDS 5' incomplete TSL:5
Ptprk-207	ENSMUST00000219478.1	3960	No protein	Retained intron	-	-	TSL:1
Ptprk-205	ENSMUST00000218633.1	2986	No protein	Retained intron	-	-	TSL:1
Ptprk-206	ENSMUST00000219107.1	2364	No protein	Retained intron	-	-	TSL:NA
Ptprk-211	ENSMUST00000220404.1	2172	No protein	Retained intron	-	-	TSL:NA
Ptprk-209	ENSMUST00000219761.1	1464	No protein	Retained intron	-	-	TSL:2
Ptprk-204	ENSMUST00000218584.1	2470	No protein	lncRNA	-	-	TSL:1

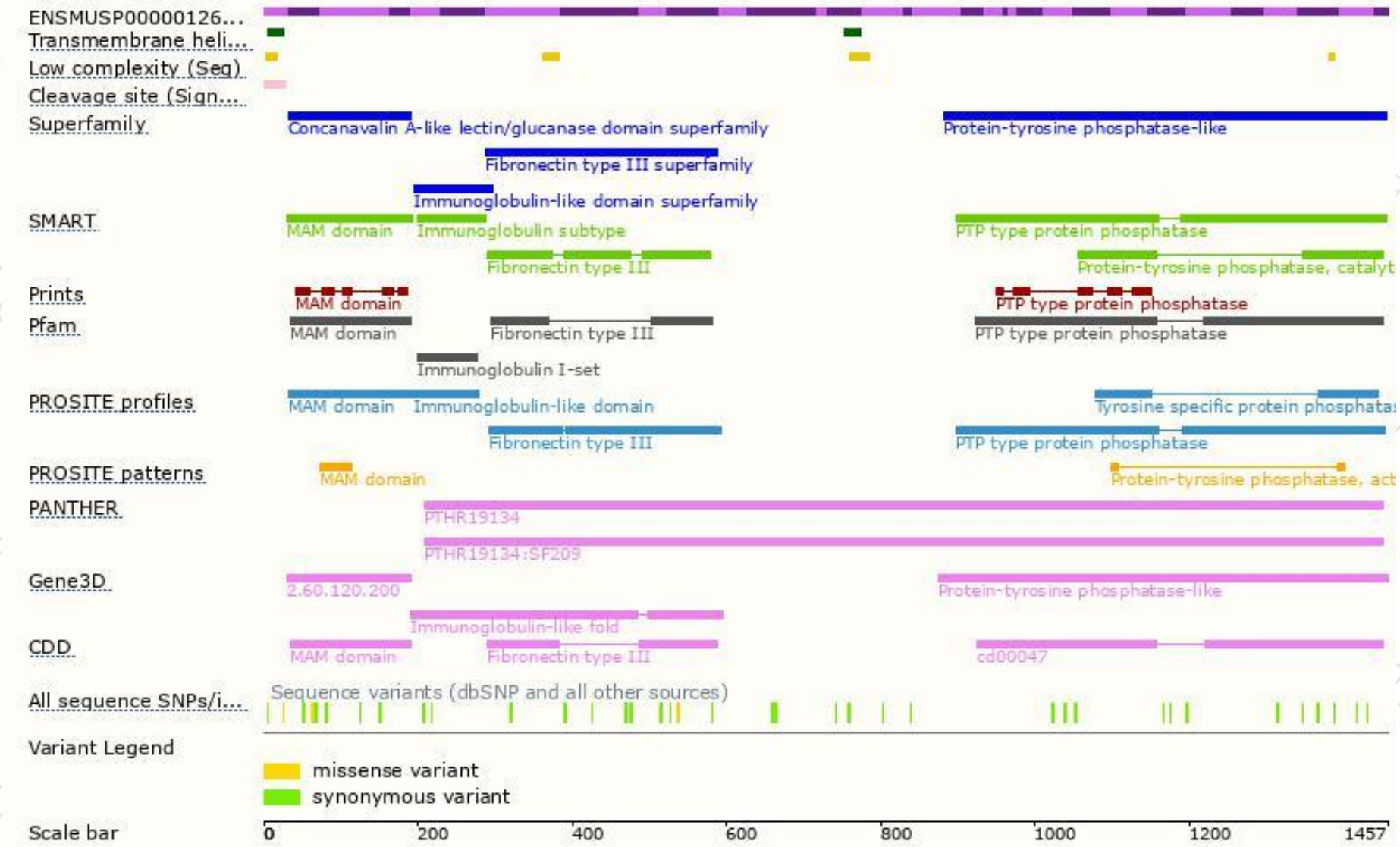
The strategy is based on the design of *Ptprk-201* transcript,The transcription is shown below



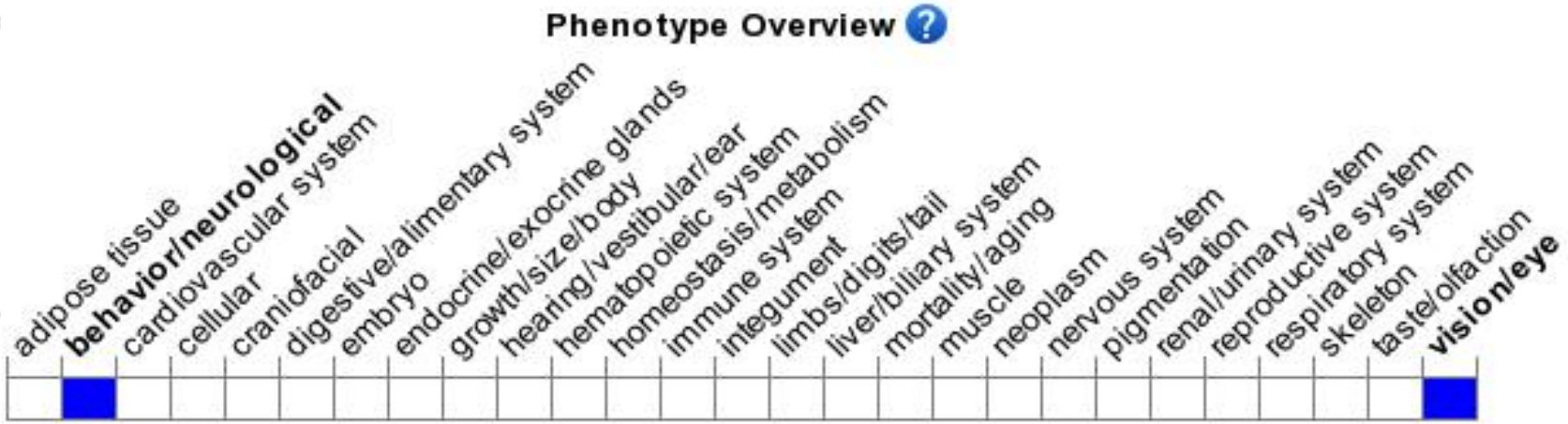
Genomic location distribution



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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