

Ptcd3 Cas9-CKO Strategy

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Project Overview

Project Name

Ptcd3

Project type

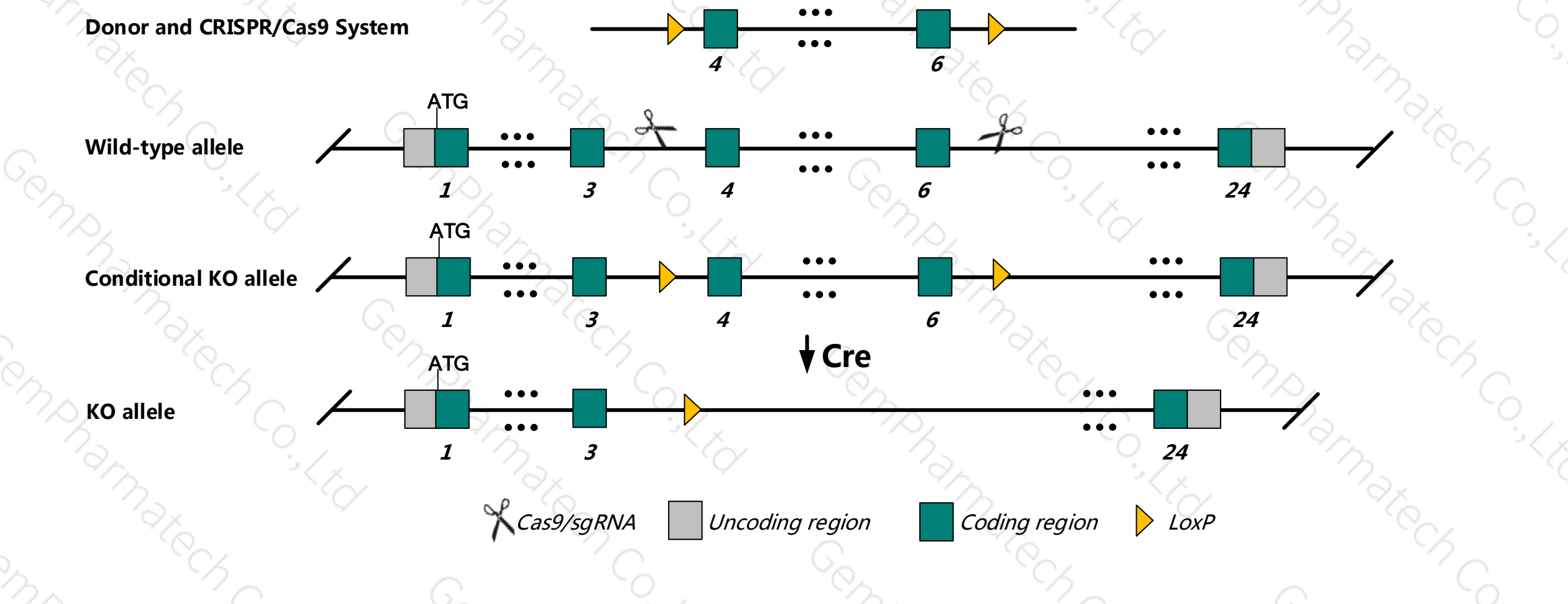
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ptcd3* gene. The schematic diagram is as follows:



- The *Ptcd3* gene has 11 transcript. According to the structure of *Ptcd3* gene, exon4-6 of *Ptcd3*-201 (ENSMUST00000082094.4) transcript is recommended as the knockout region. The region contains 220bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ptcd3* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues or cell types.

- The *Ptcd3* gene is located on the Chr6. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Ptcd3 pentatricopeptide repeat domain 3 [*Mus musculus* (house mouse)]

Gene ID: 69956, updated on 12-Aug-2019

Summary

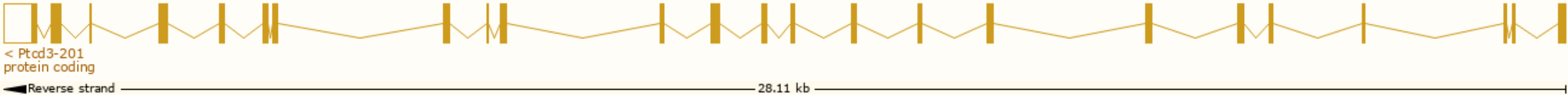
Official Symbol	Ptcd3 provided by MGI
Official Full Name	pentatricopeptide repeat domain 3 provided by MGI
Primary source	MGI:MGI:1917206
See related	Ensembl:ENSMUSG00000063884
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	MRP-S39; AA589622; AU045708; 2610034F17Rik; 2810422B04Rik
Expression	Ubiquitous expression in CNS E11.5 (RPKM 15.2), liver E14 (RPKM 12.3) and 24 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

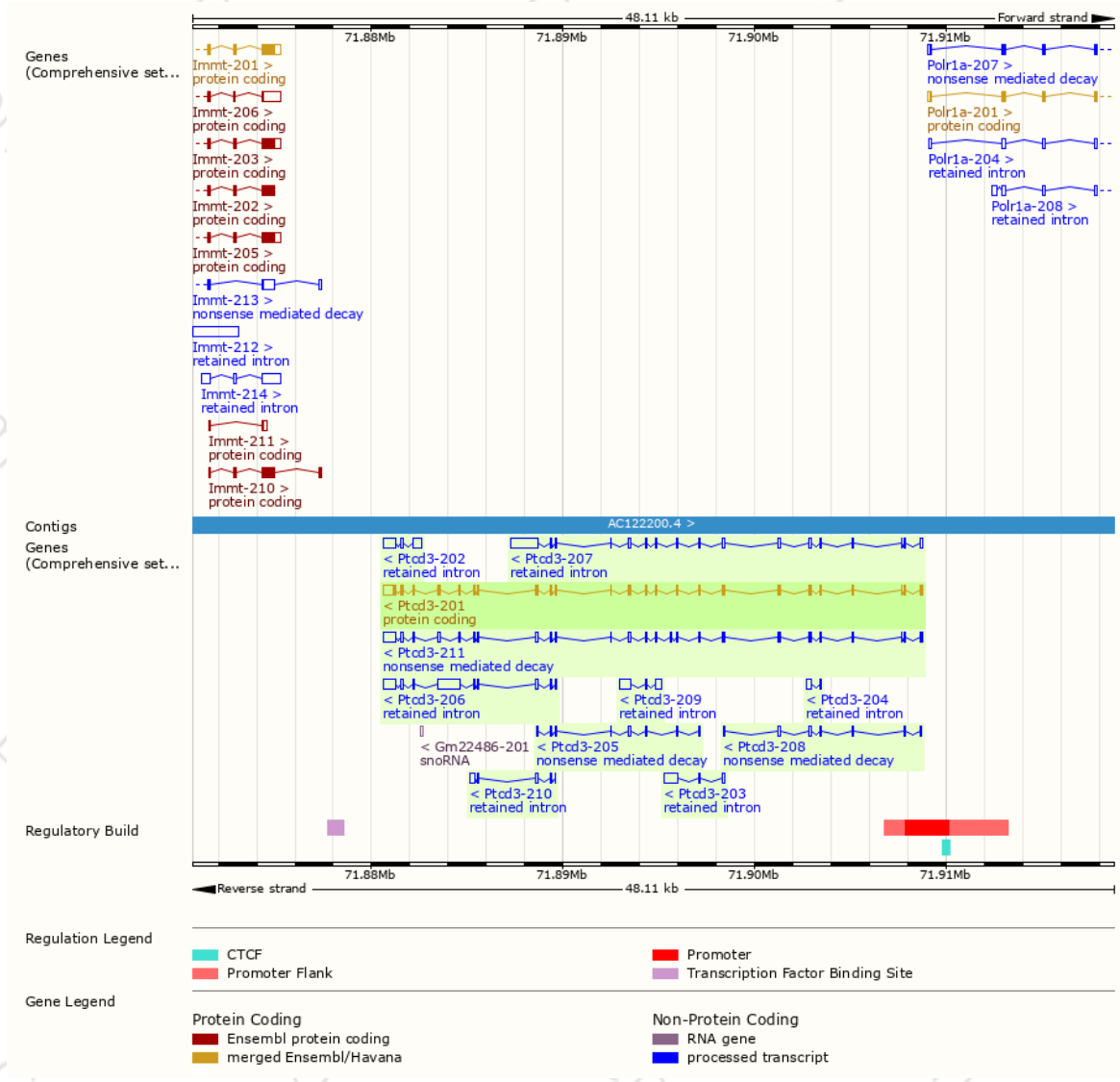
The gene has 11 transcripts, and all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ptcd3-201	ENSMUST00000082094.4	2581	685aa	Protein coding	CCDS20235	Q14C51	TSL:1 GENCODE basic APPRIS P1
Ptcd3-211	ENSMUST00000206879.1	2666	284aa	Nonsense mediated decay	-	A0A0U1RQ61	TSL:1
Ptcd3-205	ENSMUST00000205556.1	588	51aa	Nonsense mediated decay	-	A0A0U1RP36	CDS 5' incomplete TSL:5
Ptcd3-208	ENSMUST00000206284.1	545	59aa	Nonsense mediated decay	-	A0A0U1RNH5	CDS 5' incomplete TSL:3
Ptcd3-207	ENSMUST00000205761.1	2680	No protein	Retained intron	-	-	TSL:1
Ptcd3-206	ENSMUST00000205691.1	2364	No protein	Retained intron	-	-	TSL:2
Ptcd3-202	ENSMUST00000205269.1	1161	No protein	Retained intron	-	-	TSL:1
Ptcd3-209	ENSMUST00000206631.1	949	No protein	Retained intron	-	-	TSL:2
Ptcd3-203	ENSMUST00000205293.1	853	No protein	Retained intron	-	-	TSL:2
Ptcd3-210	ENSMUST00000206762.1	521	No protein	Retained intron	-	-	TSL:5
Ptcd3-204	ENSMUST00000205420.1	320	No protein	Retained intron	-	-	TSL:2

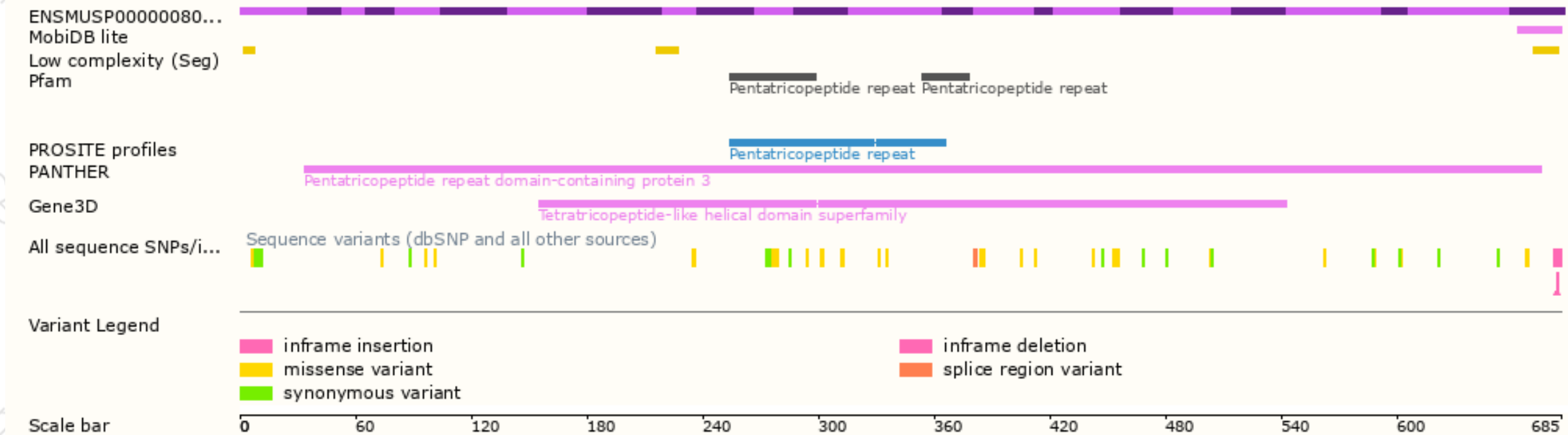
The strategy is based on the design of *Ptcd3*-201 transcript, The transcription is shown below:



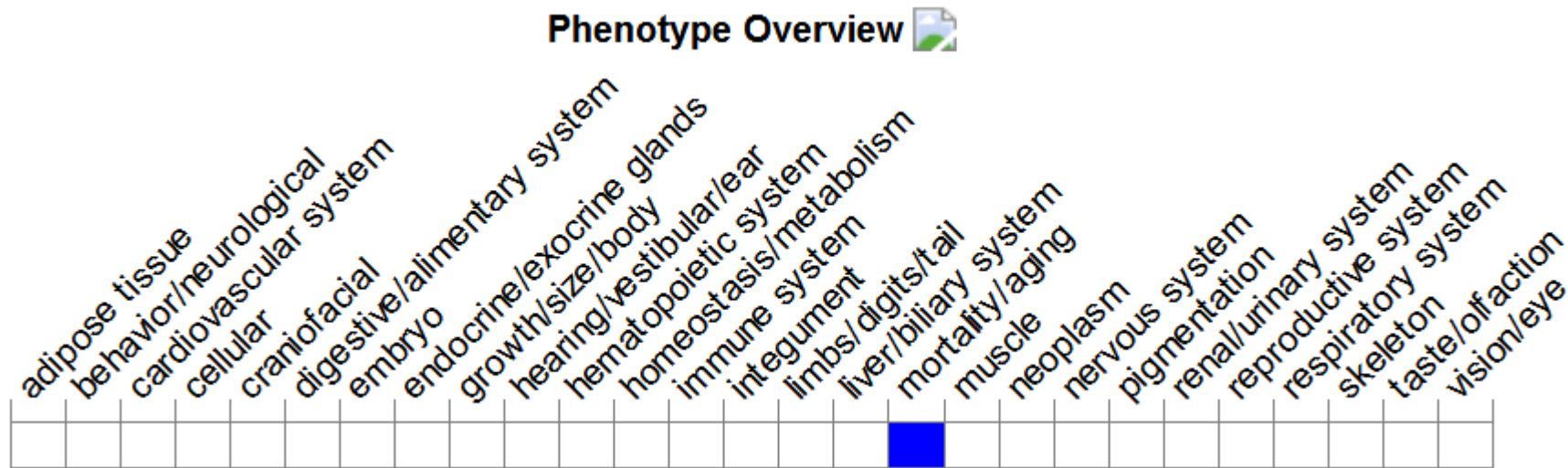
Genomic location distribution



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/>) .

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