

Mtpn Cas9-KO Strategy

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Project Overview

Project Name

Mtpn

Project type

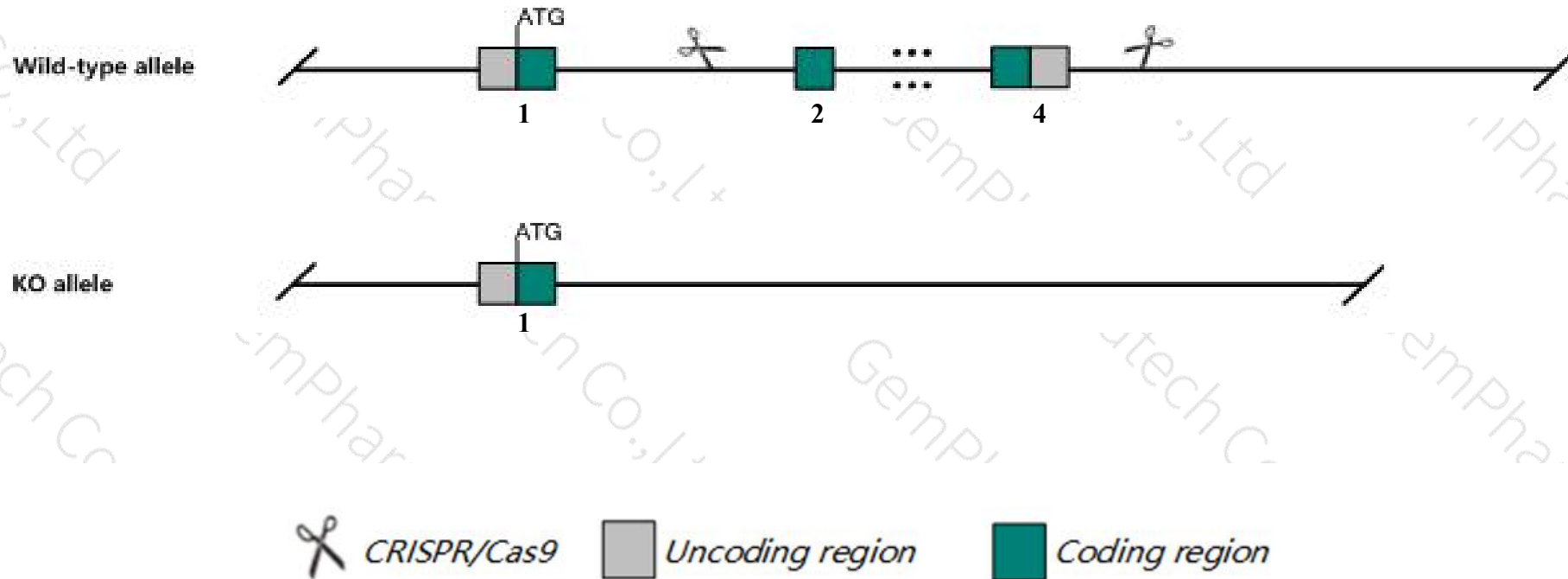
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Mtpn* gene has 2 transcripts. According to the structure of *Mtpn* gene, exon2-exon4 of *Mtpn-201* (ENSMUST00000031866.8) transcript is recommended as the knockout region. The region contains most 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 *Mtpn* gene. The brief process is as follows: CRISPR/Cas9 system v

- The knockout region is near to the C-terminal of *Gm23053* gene, this strategy may influence the regulatory function of the C-terminal of *Gm23053* gene.
- The *Mtpn* 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 gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Mtpn myotrophin [*Mus musculus* (house mouse)]

Gene ID: 14489, updated on 15-Aug-2019

Summary

Official Symbol	Mtpn provided by MGI
Official Full Name	myotrophin provided by MGI
Primary source	MGI:MGI:99445
See related	Ensembl:ENSMUSG00000029840
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	V1; Gcdp; 5033418D15Rik
Expression	Ubiquitous expression in CNS E18 (RPKM 40.2), cortex adult (RPKM 36.8) and 28 other tissues See more
Orthologs	human all

Genomic context

Location: 6; 6 B1

See Mtpn in [Genome Data Viewer](#)

Exon count: 4

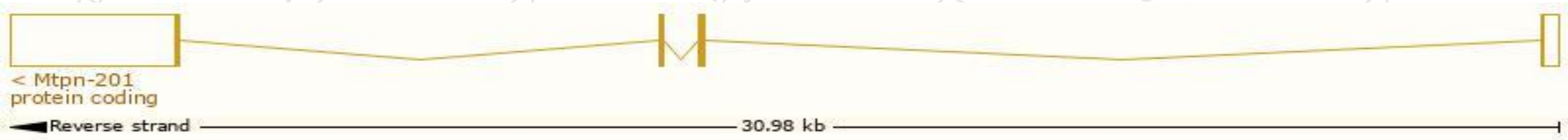
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	6	NC_000072.6 (35508824..35539888, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	6	NC_000072.5 (35458824..35489888, complement)

Transcript information (Ensembl)

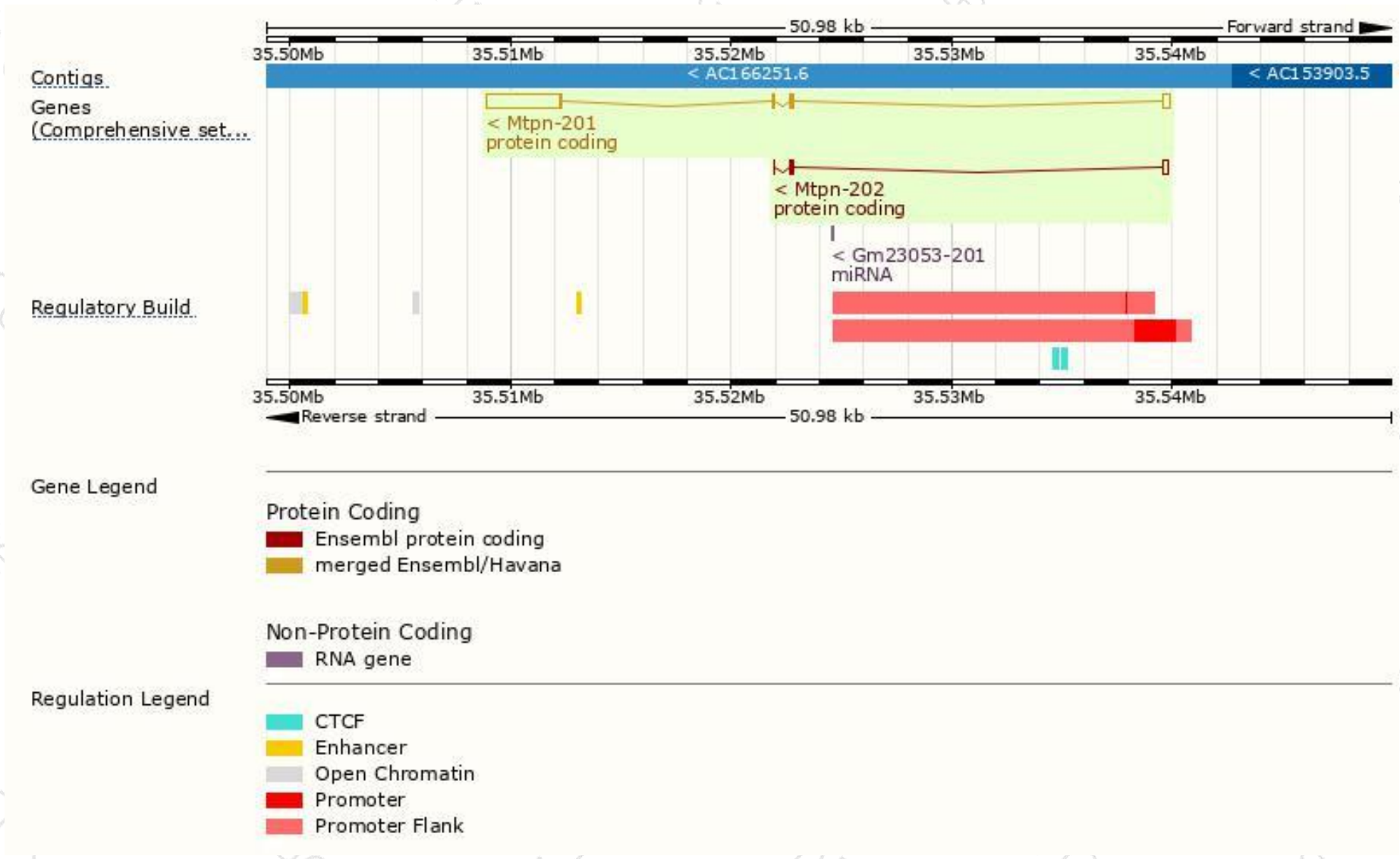
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mtpn-201	ENSMUST00000031866.8	3960	118aa	Protein coding	CCDS20002	P62774	TSL:1 GENCODE basic APPRIS P1
Mtpn-202	ENSMUST00000201026.1	409	73aa	Protein coding	-	A0A0J9YV46	CDS 3' incomplete TSL:3

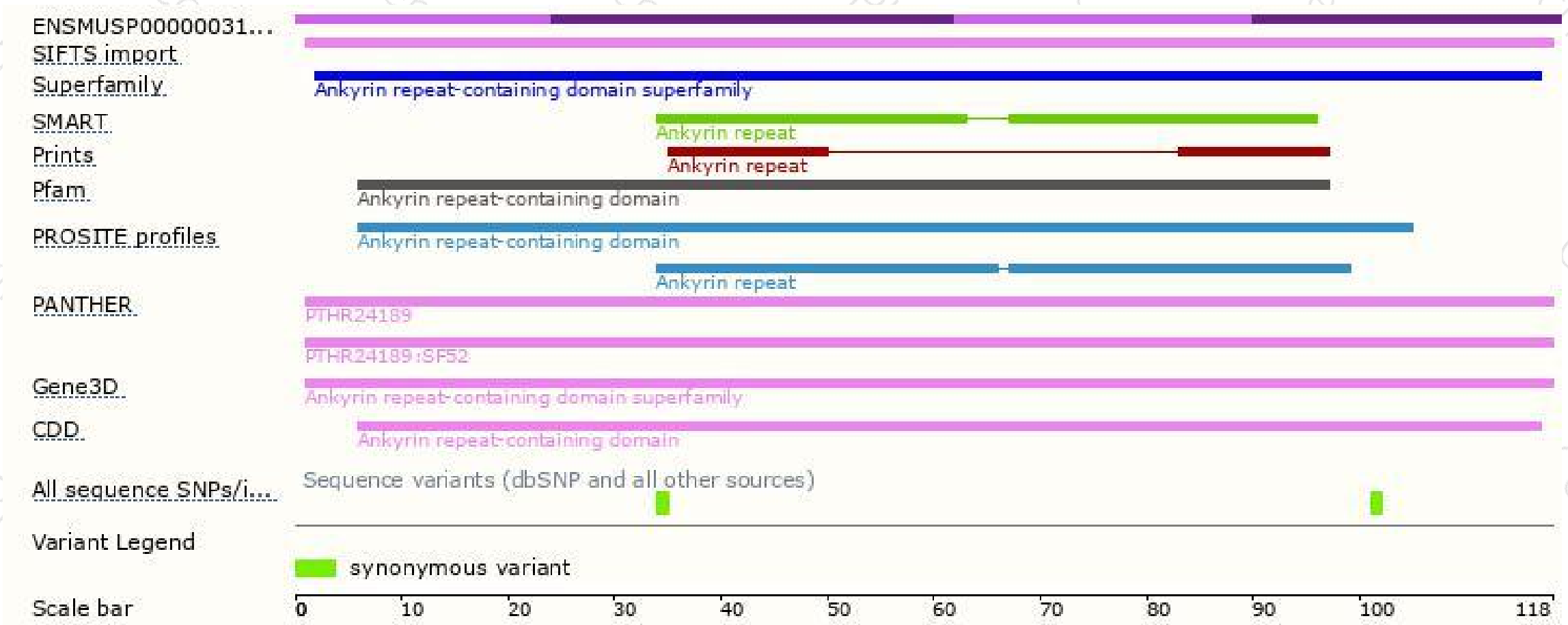
The strategy is based on the design of *Mtpn-201* transcript,The transcription is shown below



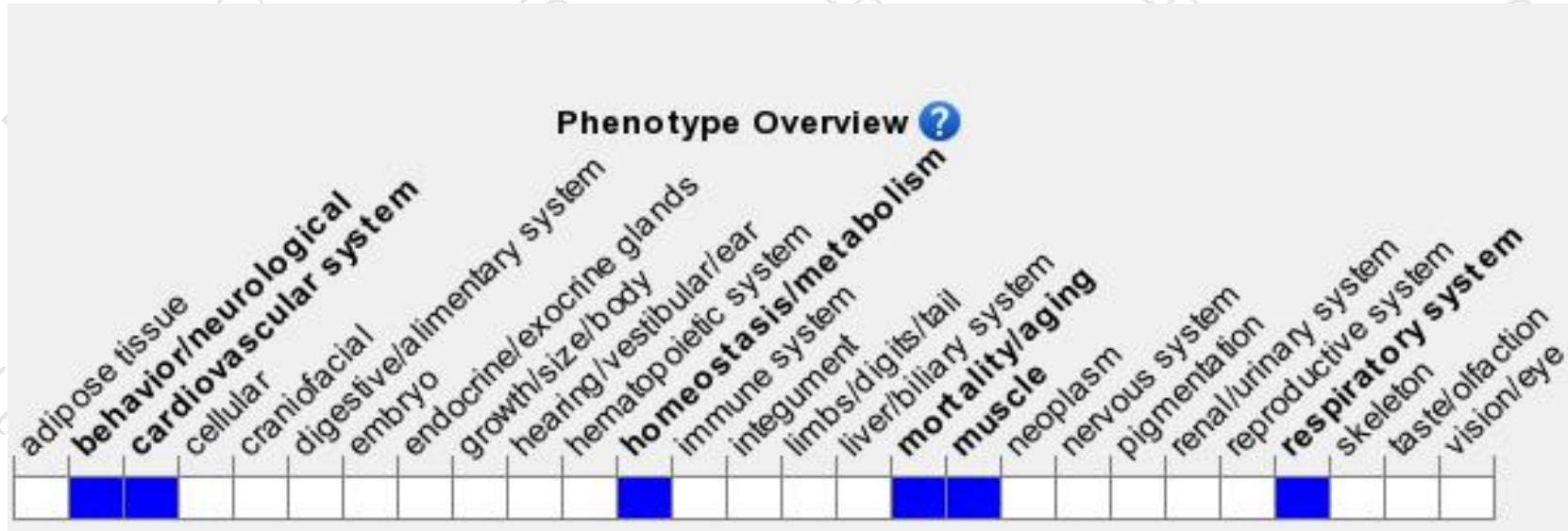
Genomic location distribution



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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