Tph2 Cas9-KO Strategy

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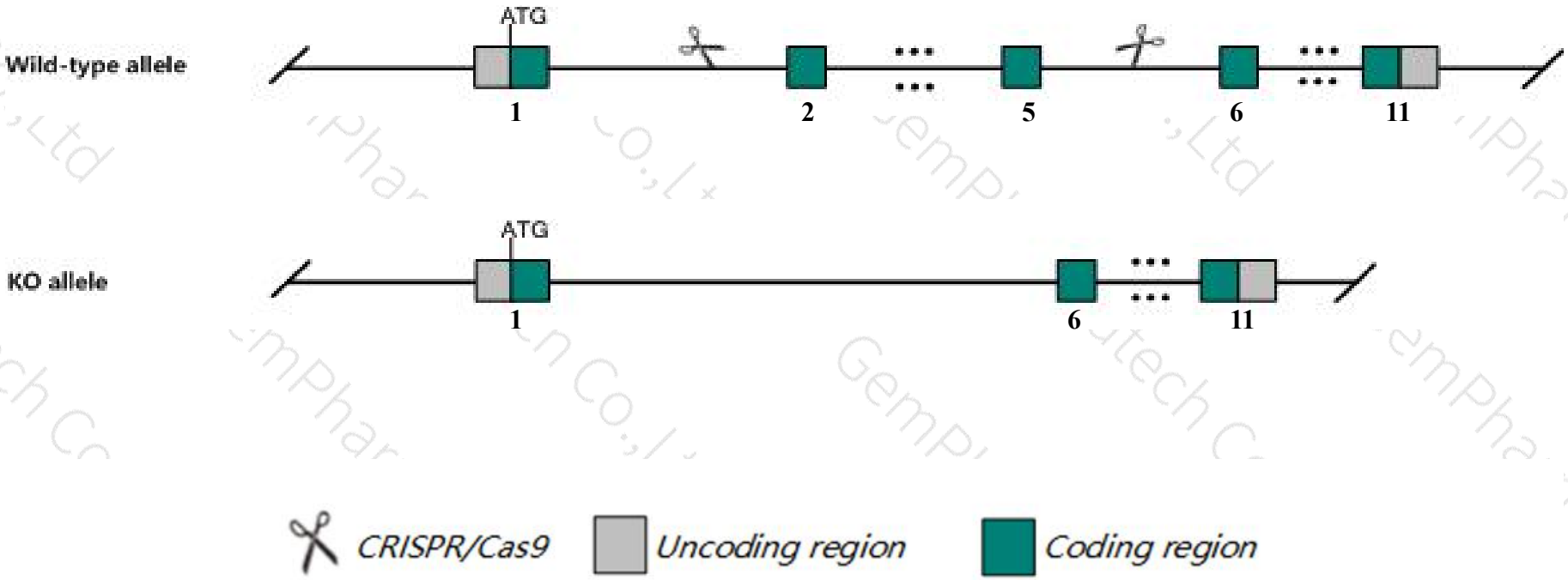
Design Date: 2019-12-18

Project Overview

Project Name	***Tph2***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tph2* gene. The schematic diagram is as follows:



Technical routes

➢ The *Tph2* gene has 2 transcripts. According to the structure of *Tph2* gene, exon2-exon5 of *Tph2-201* (ENSMUST00000006949.8) transcript is recommended as the knockout region.The region contains 497bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Tph2* gene. The brief process is as follows: CRISPR/Cas9 system v

Notice

- According to the existing MGI data,Mutations in this locus result in abnormal serotonin levels in the brain. Whether an increase or decrease in serotonin levels is seen depends on the specific nucleotide substitution/point mutation.

- The *Tph2* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information（NCBI）

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Tph2 tryptophan hydroxylase 2 [Mus musculus (house mouse)]

Gene ID: 216343, updated on 19-Mar-2019

Summary

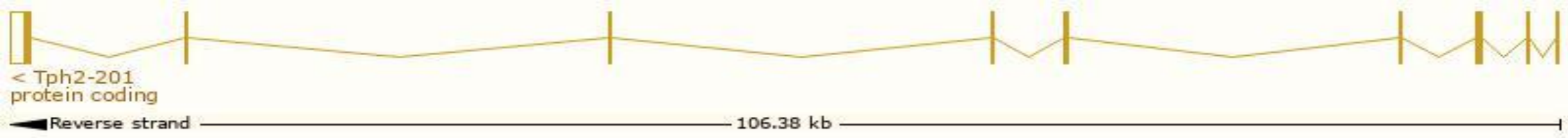
Official Symbol	Tph2 provided by MGI
Official Full Name	tryptophan hydroxylase 2 provided by MGI
Primary source	MGI:MGI:2651811
See related	Ensembl:ENSMUSG00000006764
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AU043594, Ntph
Expression	Biased expression in cerebellum adult (RPKM 1.7), CNS E18 (RPKM 1.0) and 8 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

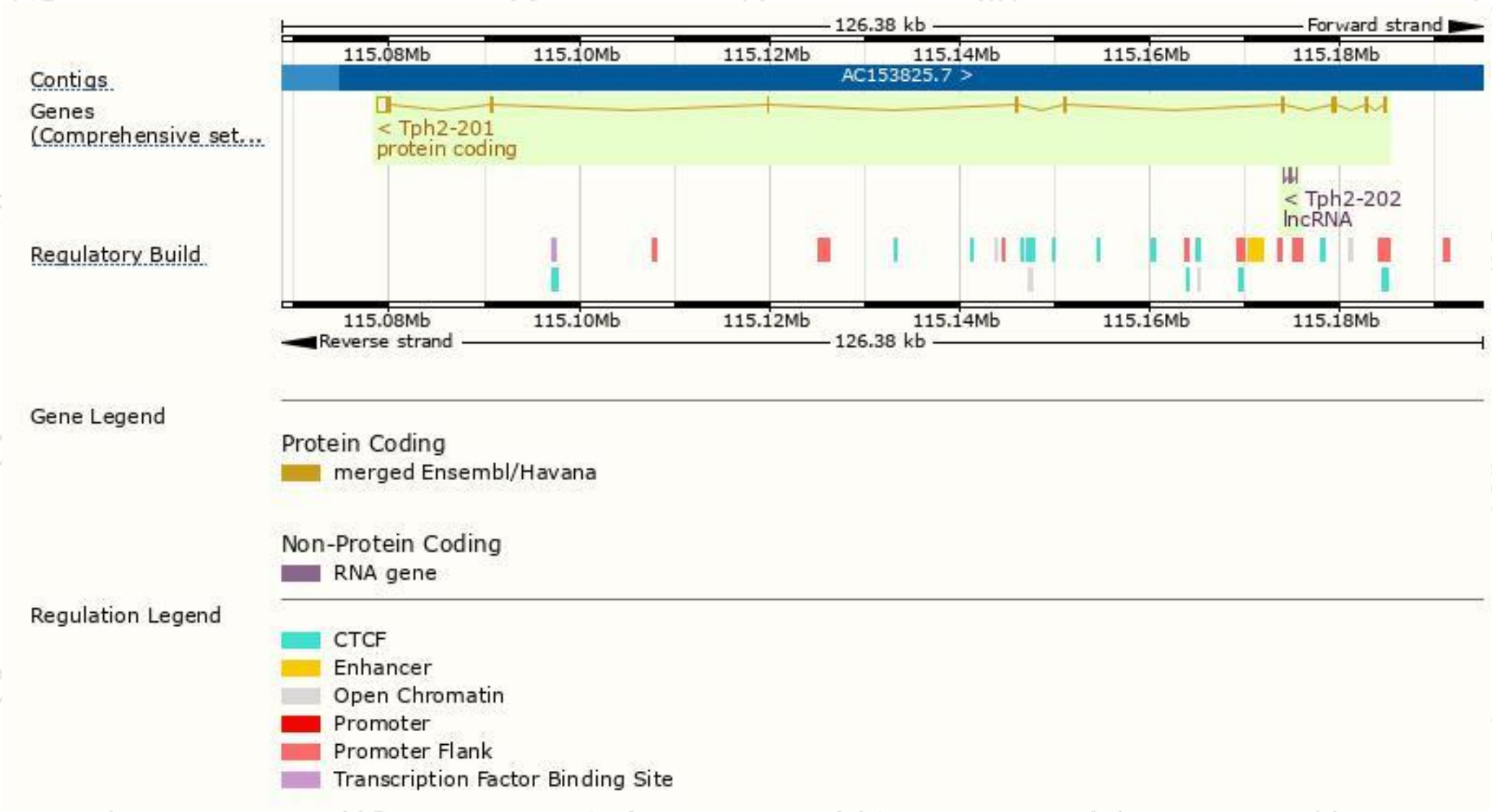
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tph2-201	ENSMUST00000006949.8	2626	488aa	Protein coding	CCDS36061	Q8CGV2	TSL:1 GENCODE basic APPRIS P1
Tph2-202	ENSMUST00000155794.1	293	No protein	lncRNA	-	-	TSL:3

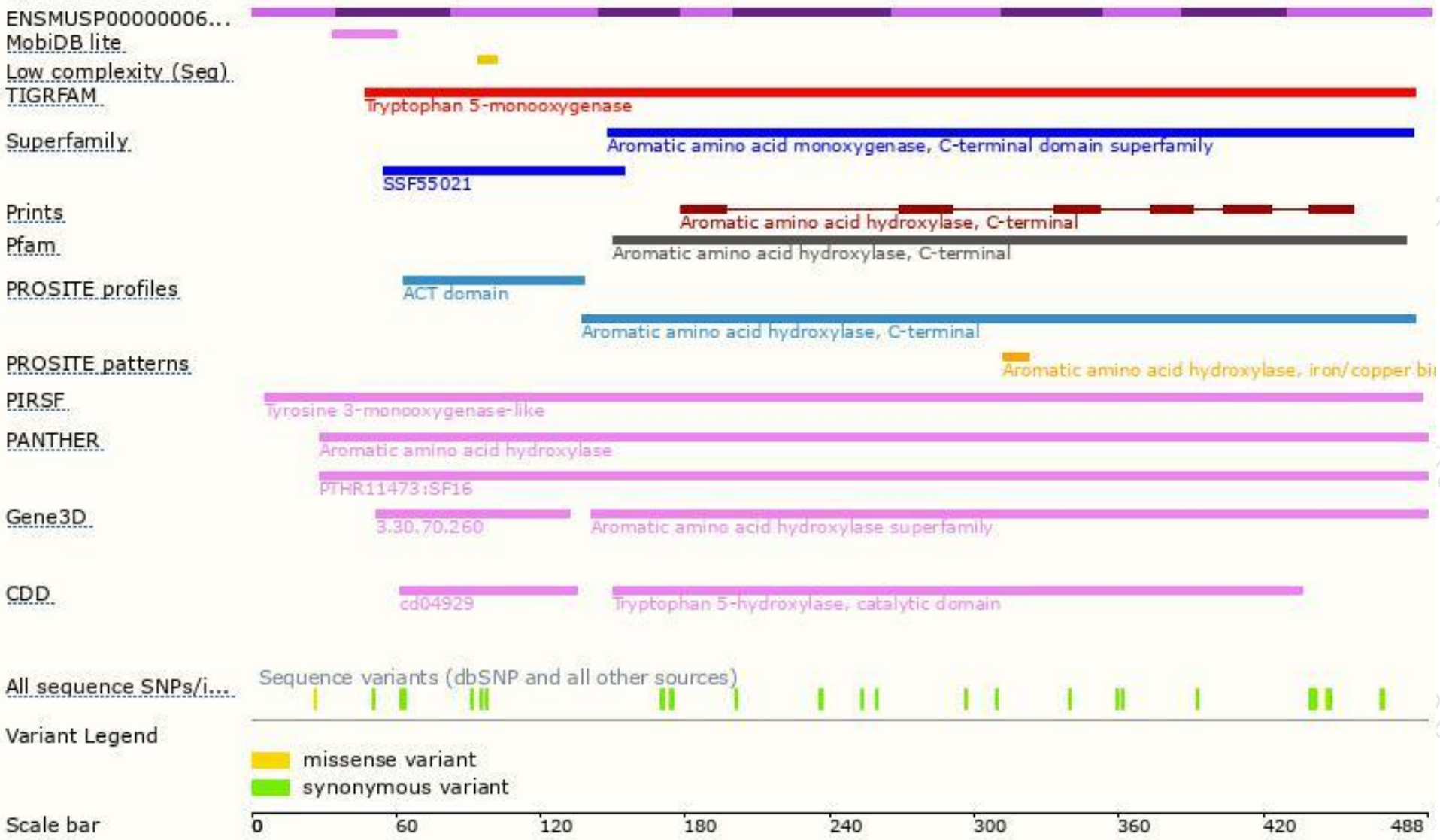
The strategy is based on the design of *Tph2-201* transcript,The transcription is shown below



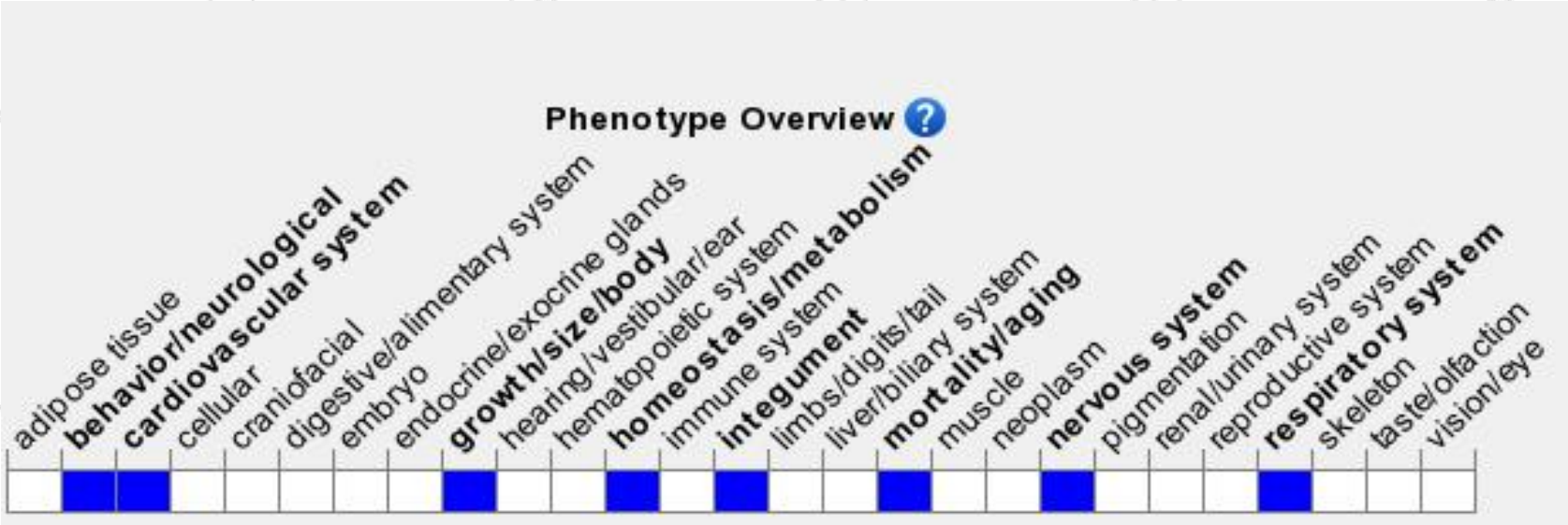
Genomic location distribution



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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