Nptx2 Cas9-KO Strategy

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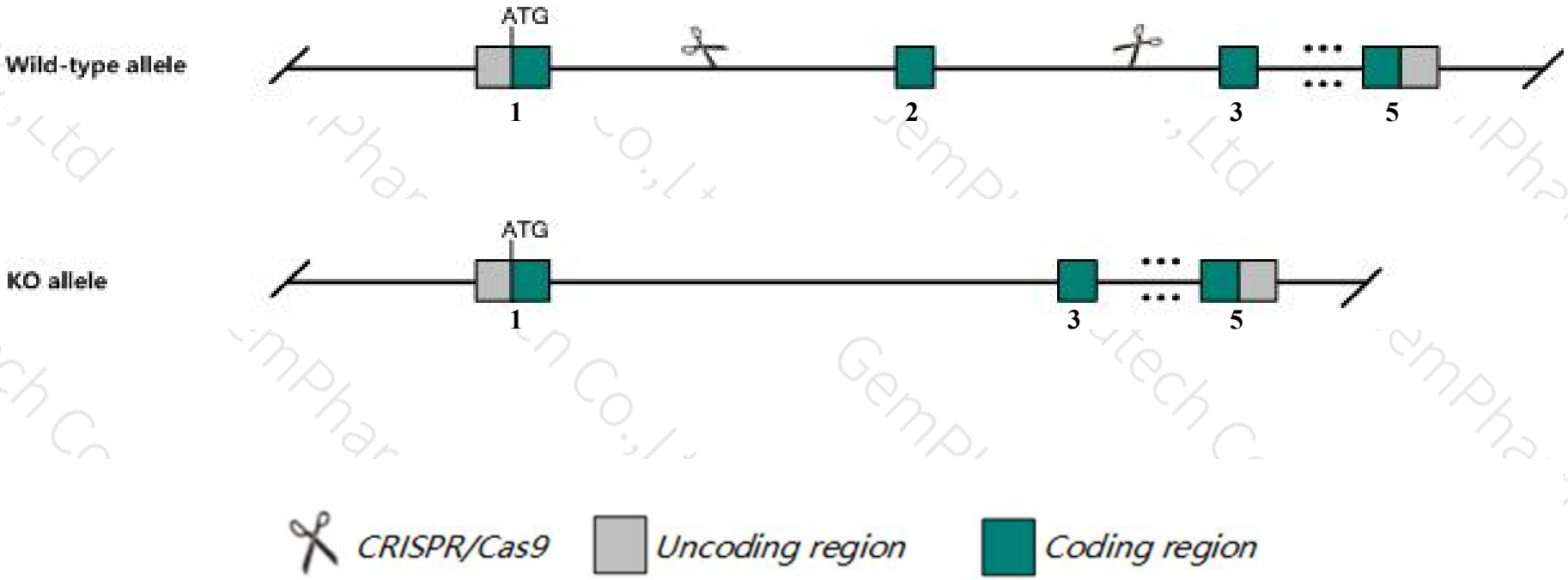
Design Date: 2019-12-12

Project Overview

Project Name	***Nptx2***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Nptx2* gene. The schematic diagram is as follows:



Technical routes

➢ The *Nptx2* gene has 1 transcript. According to the structure of *Nptx2* gene, exon2 of *Nptx2-201* (ENSMUST00000071782.7) transcript is recommended as the knockout region.The region contains 217bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Nptx2* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

- According to the existing MGI data,Mice homozygous for a null mutation of this gene display a mild alteration in retinal ganglion cell innervation but are fertile with no obvious behavioral abnormalities.

- The *Nptx2* gene is located on the Chr5. 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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Nptx2 neuronal pentraxin 2 [*Mus musculus* (house mouse)]

Gene ID: 53324, updated on 10-Oct-2019

Summary

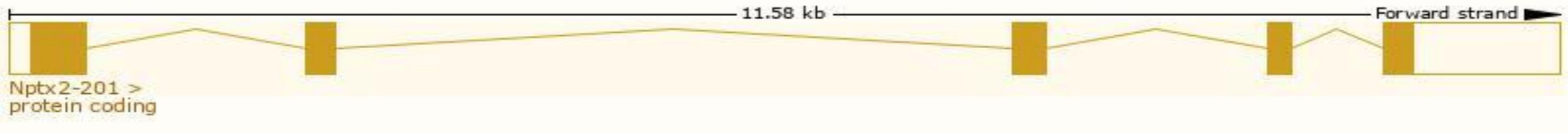
Official Symbol	Nptx2 provided by MGI
Official Full Name	neuronal pentraxin 2 provided by MGI
Primary source	MGI:MGI:1858209
See related	Ensembl:ENSMUSG00000059991
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	np2; Narp
Expression	Broad expression in cortex adult (RPKM 14.8), frontal lobe adult (RPKM 13.5) and 17 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

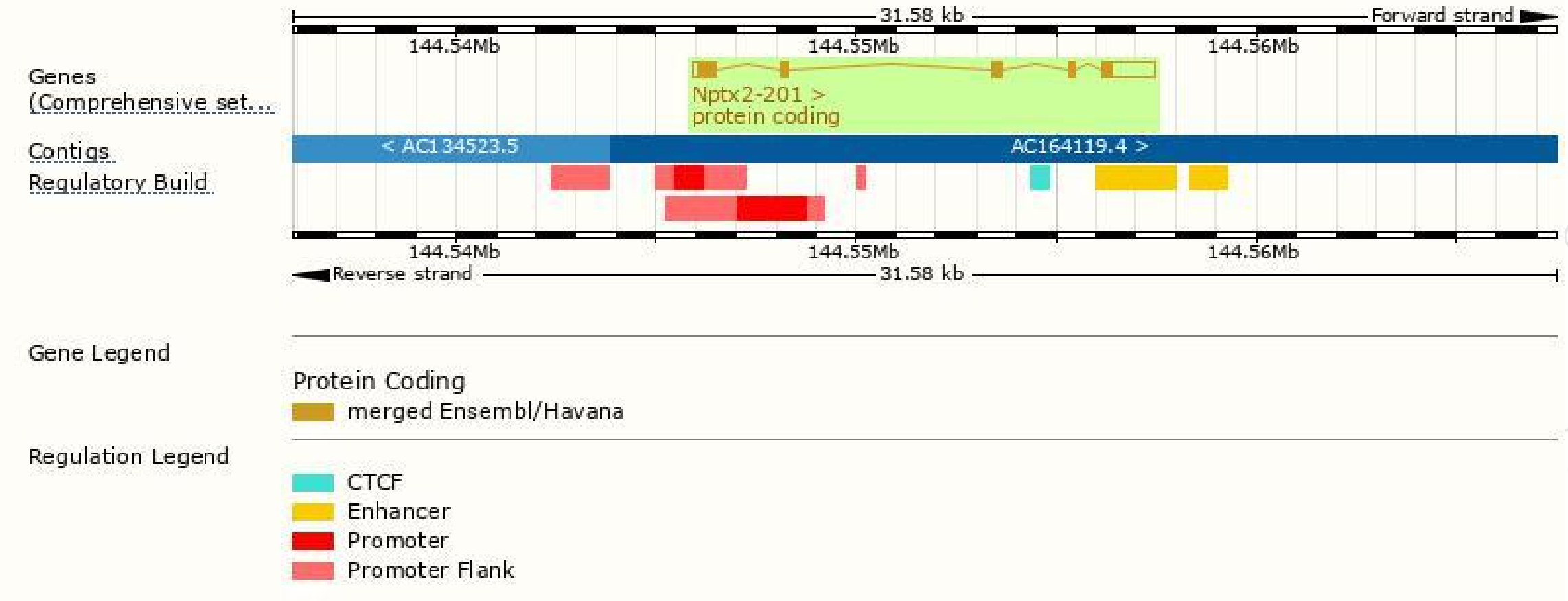
The gene has 1 transcript,and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Nptx2-201	ENSMUST00000071782.7	2536	429aa	Protein coding	CCDS19849	O70340	TSL:1 GENCODE basic APPRIS P1

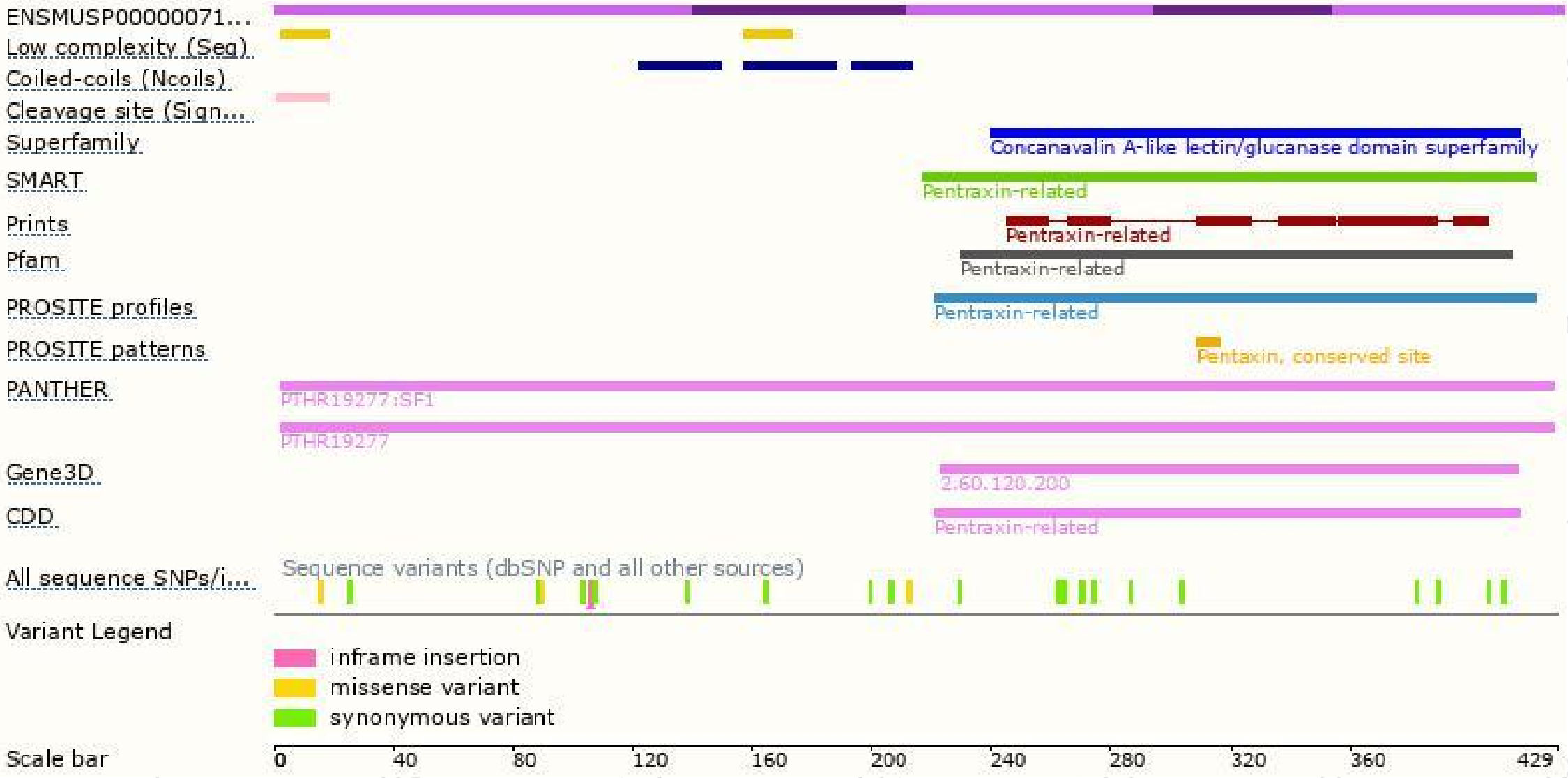
The strategy is based on the design of *Nptx2-201* transcript,The transcription is shown below



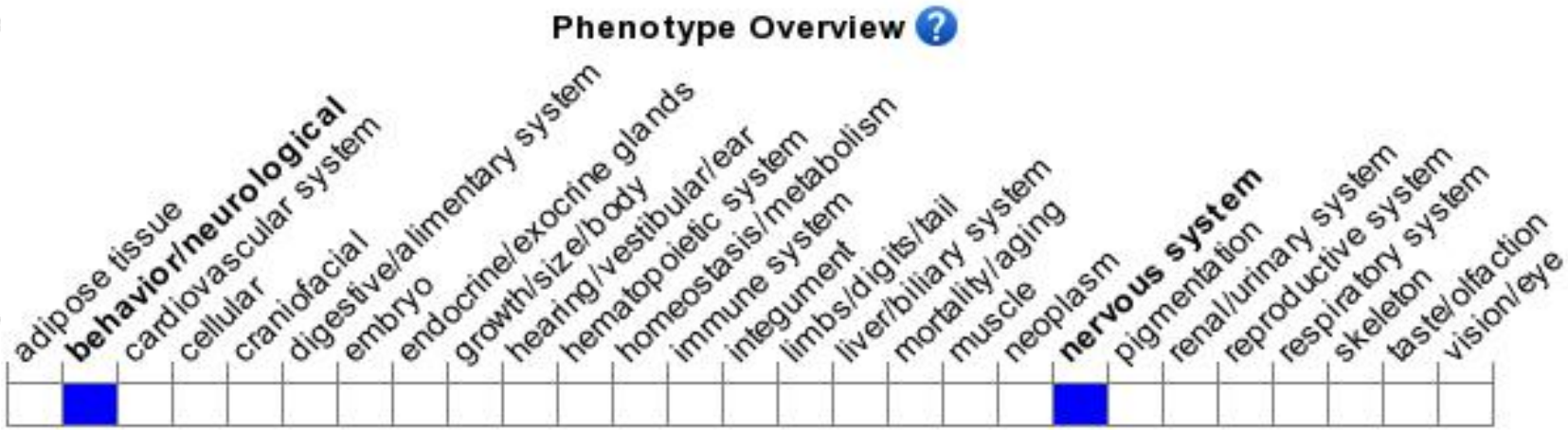
Genomic location distribution



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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