Slc6a5 Cas9-KO Strategy

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Design Date: 2019-11-20
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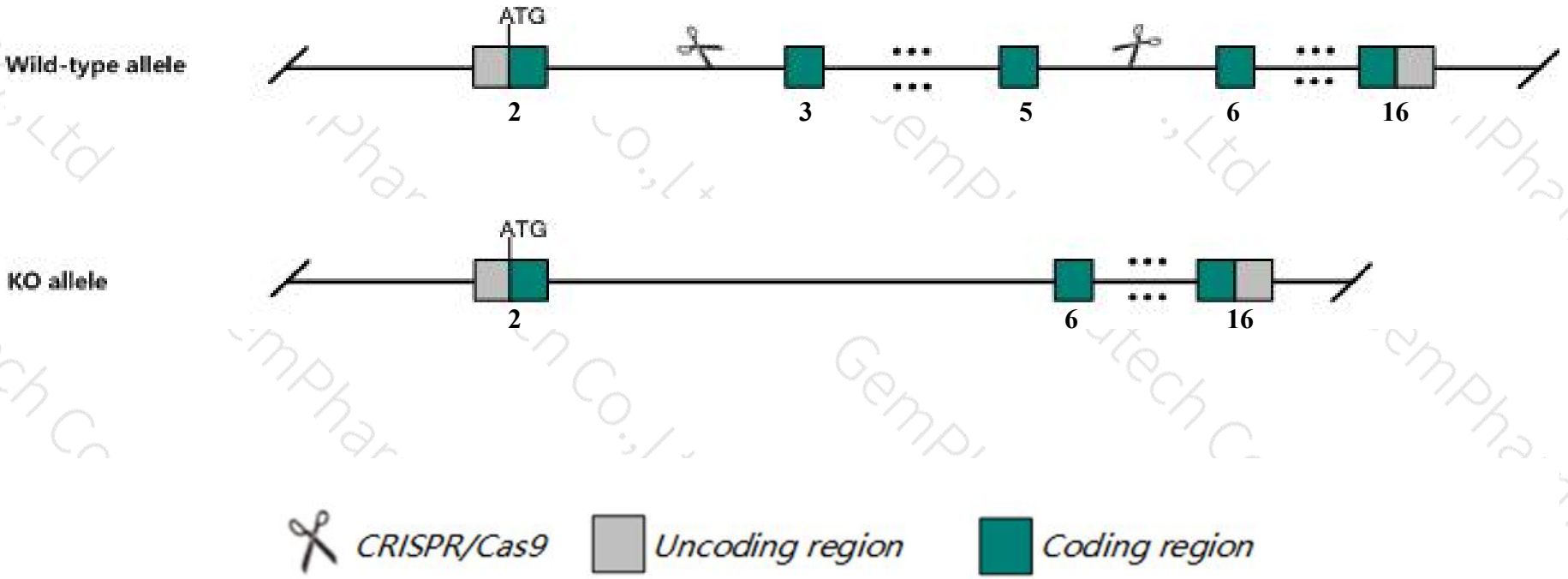
Project Overview

Project Name	***Slc6a5***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc6a5* gene. The schematic diagram is as follows:



Technical routes

➢ The *Slc6a5* gene has 4 transcripts. According to the structure of *Slc6a5* gene, exon3-exon5 of *Slc6a5-201* (ENSMUST00000056442.11) transcript is recommended as the knockout region.The region contains 445bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Slc6a5* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

- According to the existing MGI data,Homozygous mutant mice appear normal at birth but develop a complex neuromotor phenotype involving tremors, rigidity, and an impaired righting ability. Mutant mice die approximately 2 weeks after birth.

- The *Slc6a5* gene is located on the Chr7. 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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Slc6a5 solute carrier family 6 (neurotransmitter transporter, glycine), member 5 [*Mus musculus* (house mouse)]

Gene ID: 104245, updated on 12-Aug-2019

Summary

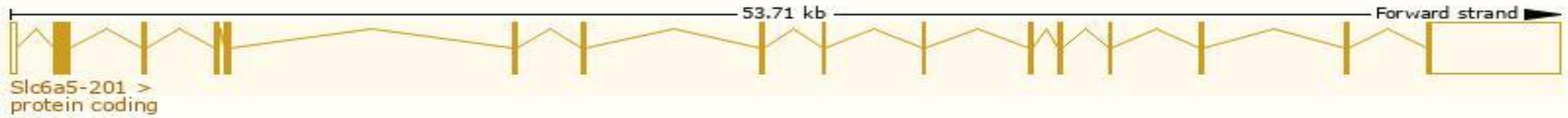
Official Symbol	Slc6a5 provided by MGI
Official Full Name	solute carrier family 6 (neurotransmitter transporter, glycine), member 5 provided by MGI
Primary source	MGI:MGI:105090
See related	Ensembl:ENSMUSG00000039728
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Glyt2; prestin
Expression	Biased expression in cerebellum adult (RPKM 13.1), CNS E14 (RPKM 1.8) and 2 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

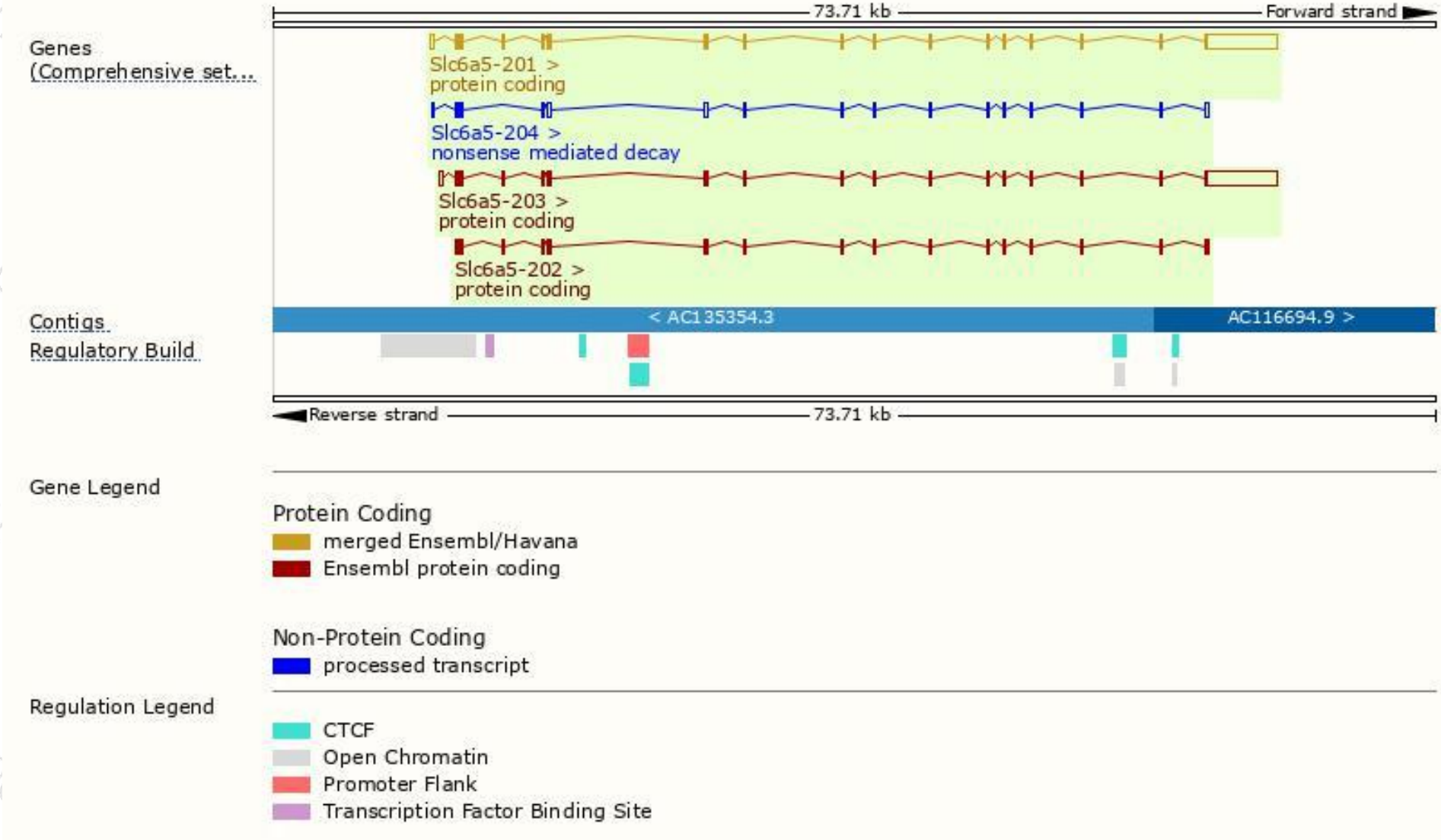
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc6a5-201	ENSMUST00000056442.11	7065	791aa	Protein coding	CCDS21308	B2RQX9	TSL:1 GENCODE basic APPRIS P1
Slc6a5-203	ENSMUST00000207753.1	6966	791aa	Protein coding	CCDS21308	B2RQX9	TSL:1 GENCODE basic APPRIS P1
Slc6a5-202	ENSMUST00000107605.2	2467	791aa	Protein coding	CCDS21308	B2RQX9	TSL:1 GENCODE basic APPRIS P1
Slc6a5-204	ENSMUST00000209172.1	2409	181aa	Nonsense mediated decay	-	A0A140LHI9	TSL:1

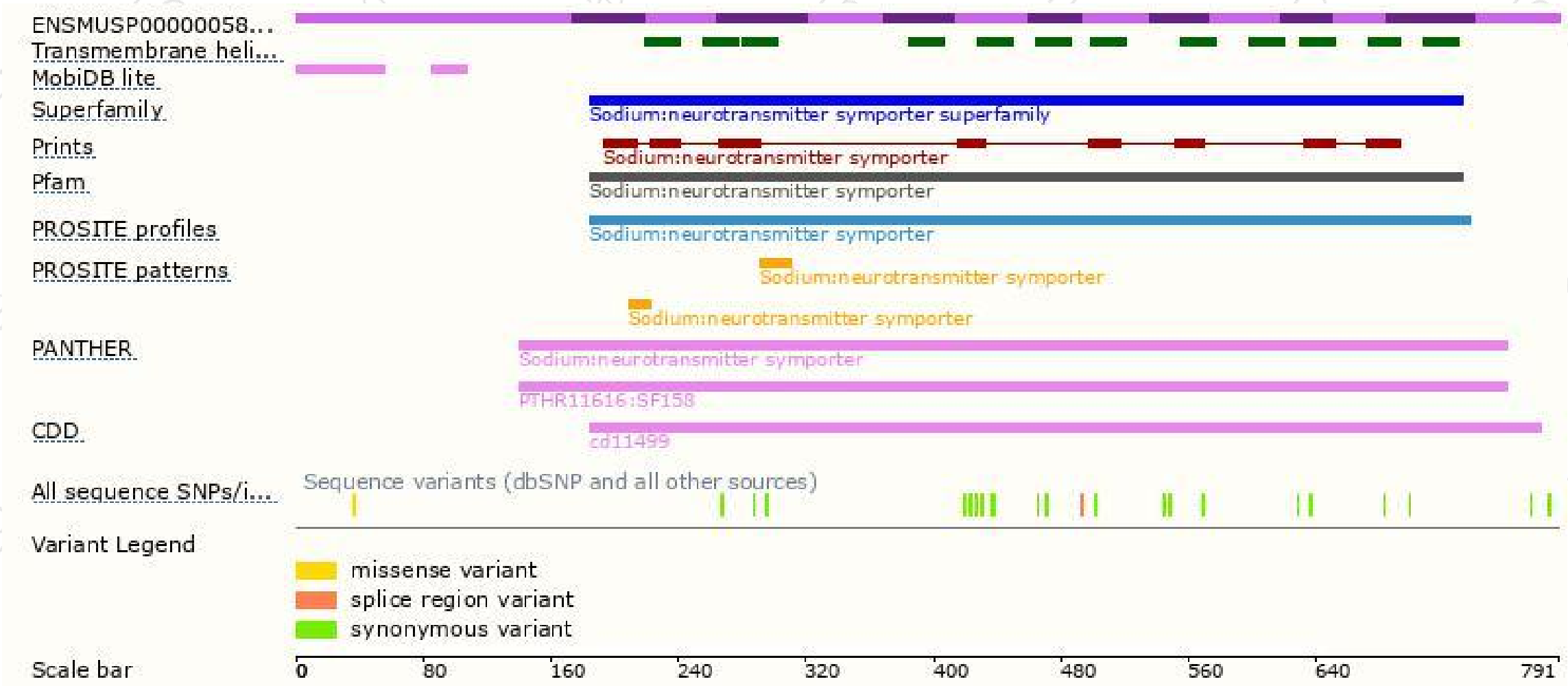
The strategy is based on the design of *Slc6a5-201* transcript,The transcription is shown below



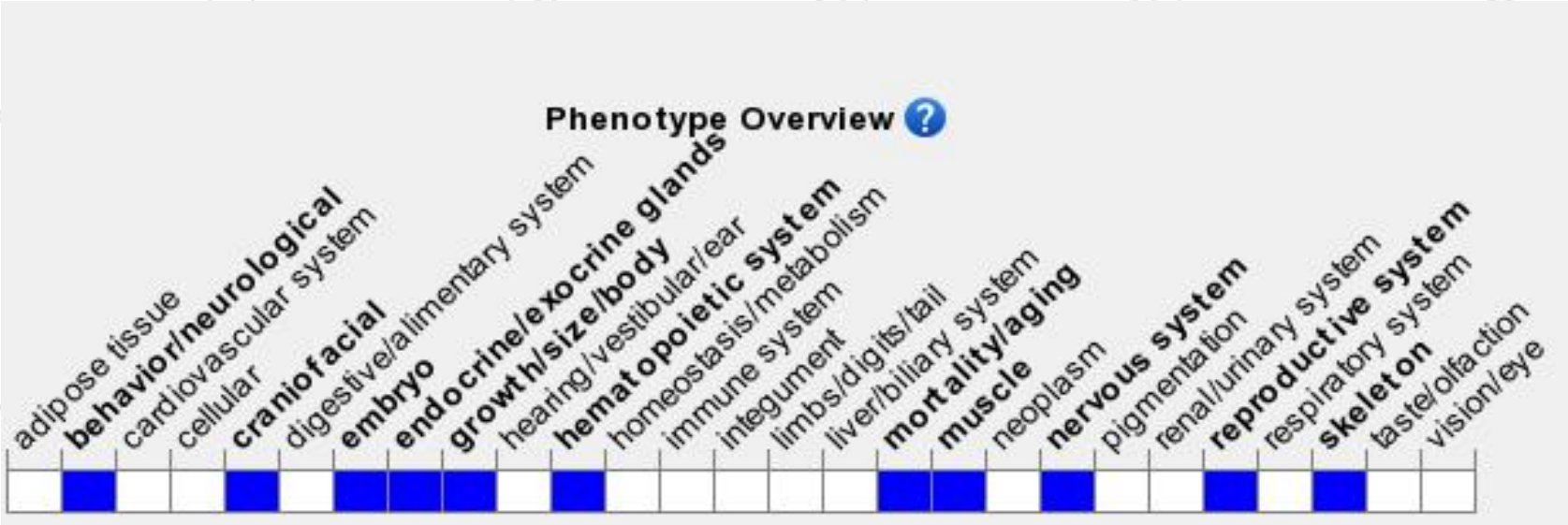
Genomic location distribution



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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