Slc6a18 Cas9-CKO Strategy

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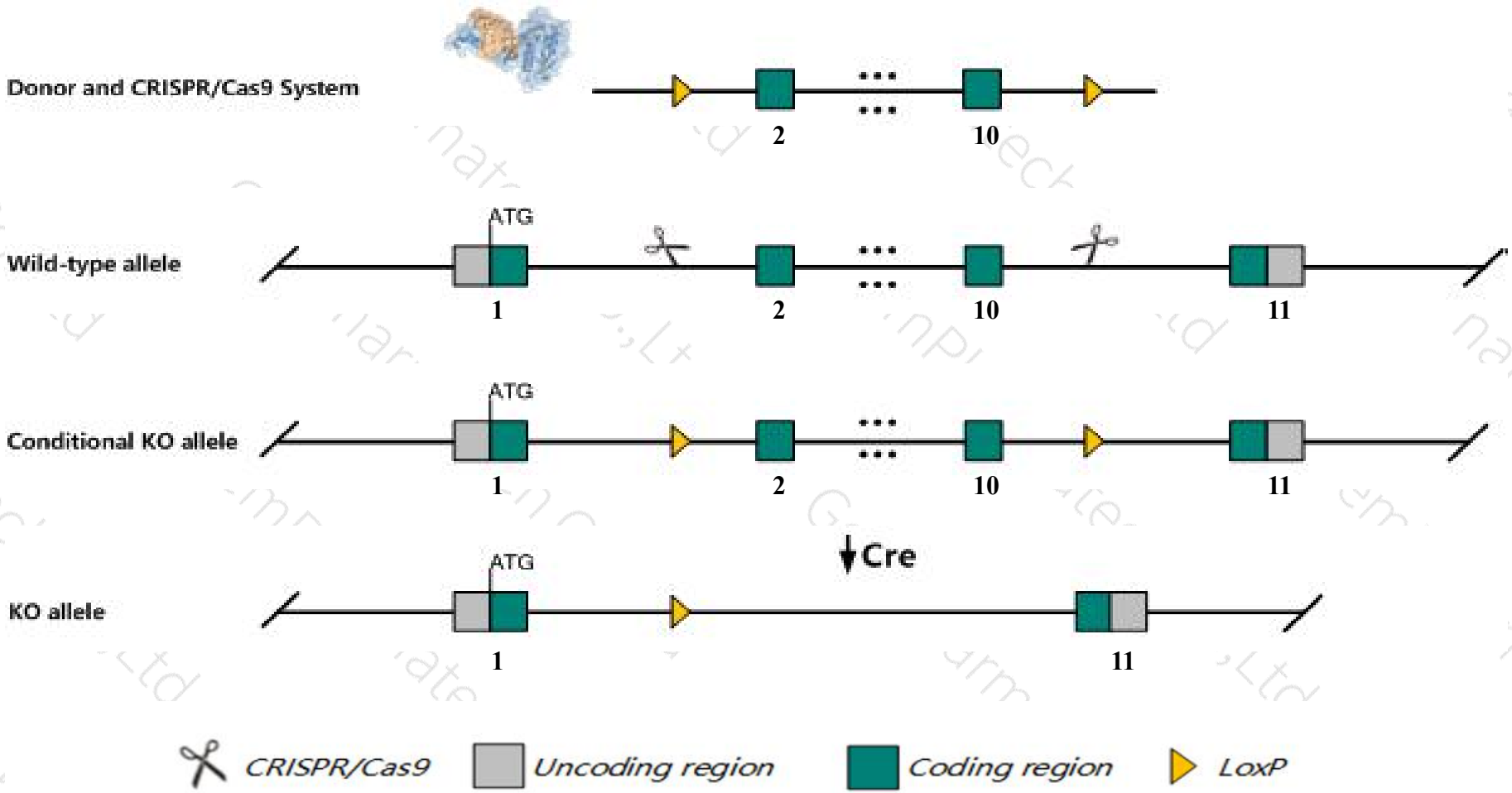
Project Overview

Project Name	***Slc6a18***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc6a18* gene. The schematic diagram is as follows:



Technical routes

- The *Slc6a18* gene has 10 transcripts. According to the structure of *Slc6a18* gene, exon2-exon10 of *Slc6a18-202* (ENSMUST00000109679.3) transcript is recommended as the knockout region.The region contains 1336bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Slc6a18* gene. The brief process is as follows:CRISPR/Cas9 system 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 will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

Notice

- According to the existing MGI data,Homozygous null mice are overtly normal but have increased blood pressure associated with impaired renal accumulation of glycine.

- The *Slc6a18* gene is located on the Chr13. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

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Slc6a18 solute carrier family 6 (neurotransmitter transporter), member 18 [*Mus musculus* (house mouse)]

Gene ID: 22598, updated on 24-Oct-2019

Summary

Official Symbol	Slc6a18 provided by MGI
Official Full Name	solute carrier family 6 (neurotransmitter transporter), member 18 provided by MGI
Primary source	MGI:MGI:1336892
See related	Ensembl:ENSMUSG00000021612
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	Xt2; B0AT3; Xtrp2; D630001K16Rik
Expression	Restricted expression toward kidney adult (RPKM 132.5) See more
Orthologs	human all

Genomic context

Location: 13 C1; 13 40.13 cM

See Slc6a18 in Genome Data Viewer

Exon count: 13

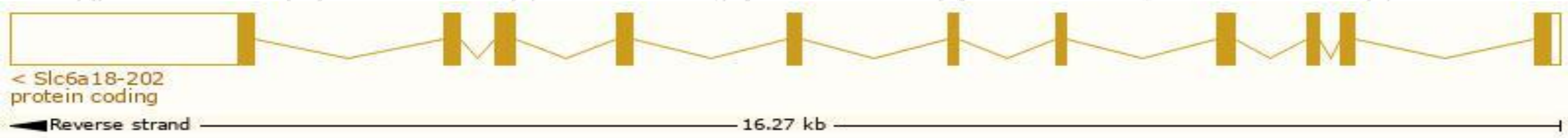
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	13	NC_000079.6 (73661750..73678023, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	13	NC_000079.5 (73799198..73815471, complement)

Transcript information（Ensembl）

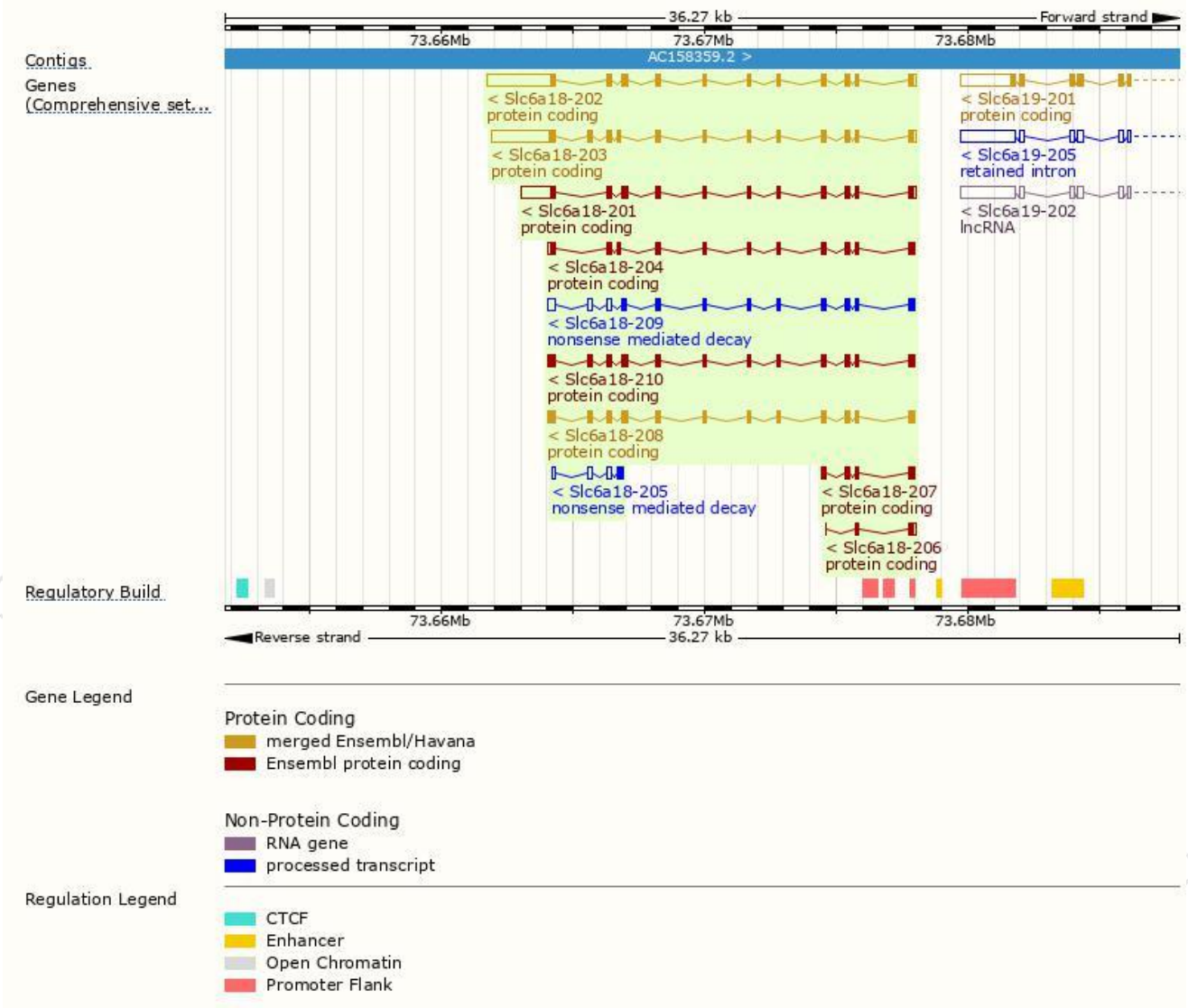
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc6a18-202	ENSMUST00000109679.3	4149	552aa	Protein coding	CCDS49312	O88576	TSL:1 GENCODE basic APPRIS ALT2
Slc6a18-203	ENSMUST00000109680.9	4052	577aa	Protein coding	CCDS49311	O88576	TSL:1 GENCODE basic
Slc6a18-208	ENSMUST00000222029.1	2005	615aa	Protein coding	CCDS36727	O88576	TSL:1 GENCODE basic APPRIS P3
Slc6a18-201	ENSMUST00000022105.14	2839	542aa	Protein coding	-	A0A217FL56	TSL:1 GENCODE basic
Slc6a18-210	ENSMUST00000223074.1	1975	605aa	Protein coding	-	O88576	TSL:1 GENCODE basic APPRIS ALT2
Slc6a18-204	ENSMUST00000220650.1	1728	514aa	Protein coding	-	O88576	TSL:1 GENCODE basic
Slc6a18-207	ENSMUST00000221987.1	705	211aa	Protein coding	-	A0A1Y7VJY3	CDS 3' incomplete TSL:3
Slc6a18-206	ENSMUST00000221026.1	420	109aa	Protein coding	-	A0A1Y7VJ53	CDS 3' incomplete TSL:3
Slc6a18-209	ENSMUST00000223026.1	1944	422aa	Nonsense mediated decay	-	O88576	TSL:1
Slc6a18-205	ENSMUST00000220703.1	522	26aa	Nonsense mediated decay	-	A0A1Y7VMA5	CDS 5' incomplete TSL:3

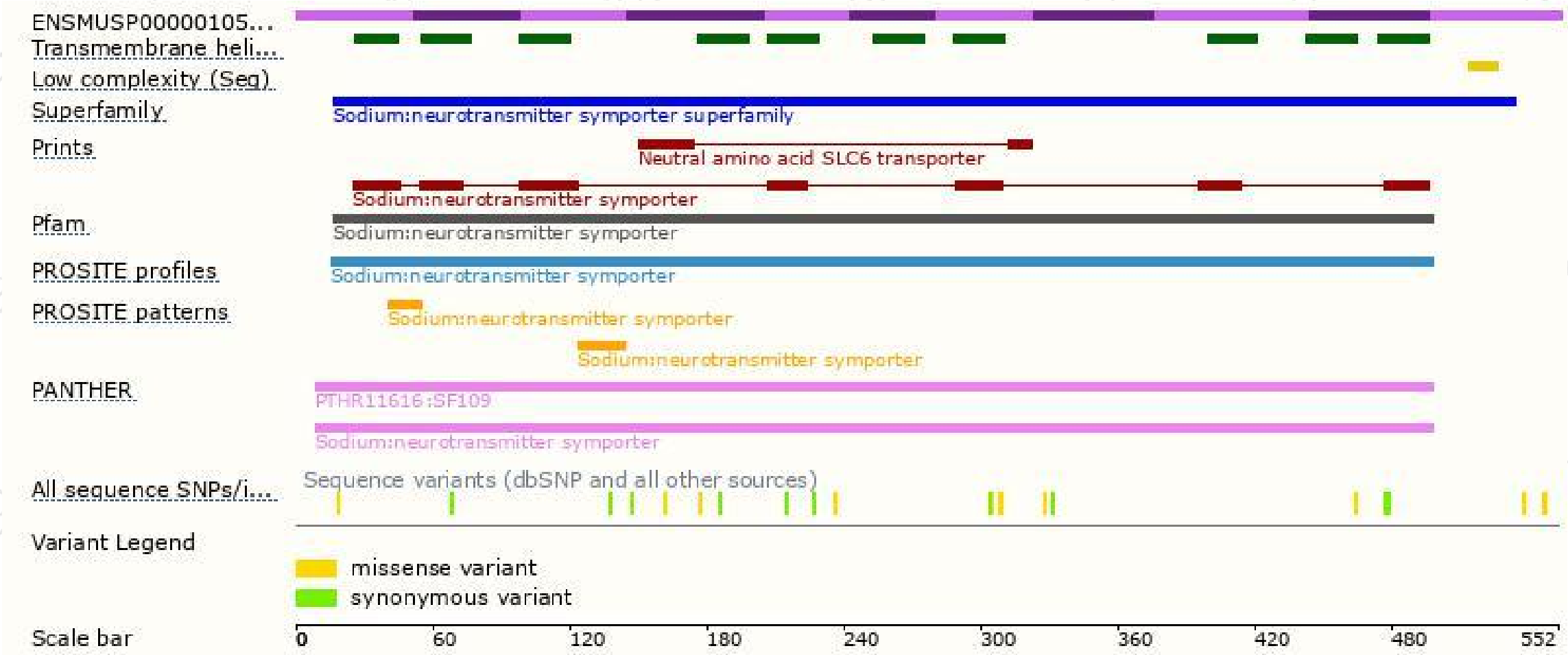
The strategy is based on the design of *Slc6a18-202* transcript,The transcription is shown below



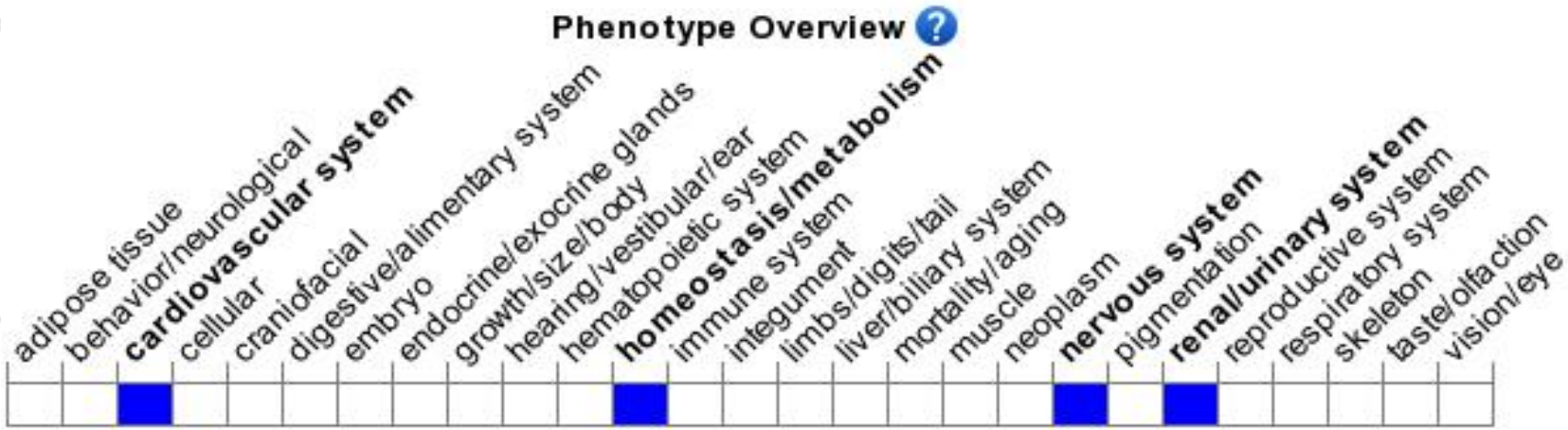
Genomic location distribution



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/).

According to the existing MGI data,Homozygous null mice are overtly normal but have increased blood pressure associated with impaired renal accumulation of glycine.

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

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