Slc22a3 Cas9-CKO Strategy

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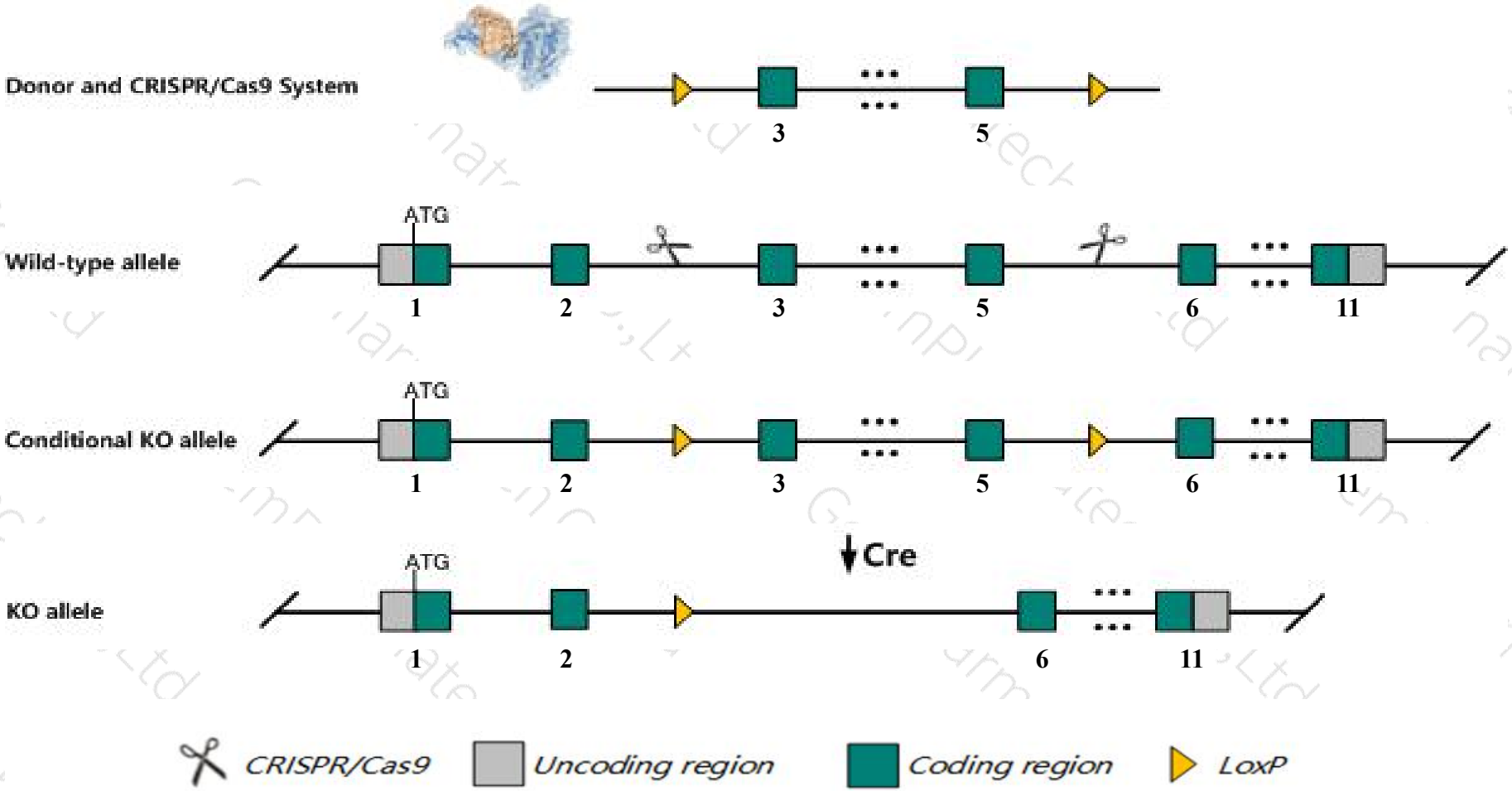
Project Overview

Project Name	***Slc22a3***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc22a3* gene. The schematic diagram is as follows:



Technical routes

- The *Slc22a3* gene has 2 transcripts. According to the structure of *Slc22a3* gene, exon3-exon5 of *Slc22a3-201* (ENSMUST00000024595.3) transcript is recommended as the knockout region.The region contains 442bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Slc22a3* 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,Mice homozygous for a knock-out allele exhibit increased susceptibility to paraquat-induced dopamine neuron neurotoxicity.

- The *Slc22a3* gene is located on the Chr17. 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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Slc22a3 solute carrier family 22 (organic cation transporter), member 3 [Mus musculus (house mouse)]

Gene ID: 20519, updated on 19-Feb-2019

Summary

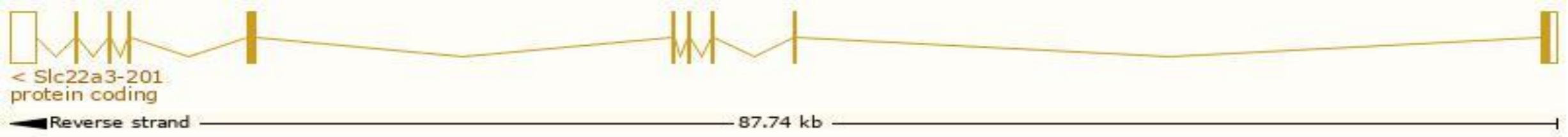
Official Symbol	Slc22a3 provided by MGI
Official Full Name	solute carrier family 22 (organic cation transporter), member 3 provided by MGI
Primary source	MGI:MGI:1333817
See related	Ensembl:ENSMUSG00000023828
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	EMT, Oct3, Orct3, Slca22a3
Expression	Biased expression in subcutaneous fat pad adult (RPKM 16.2), genital fat pad adult (RPKM 10.1) and 10 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

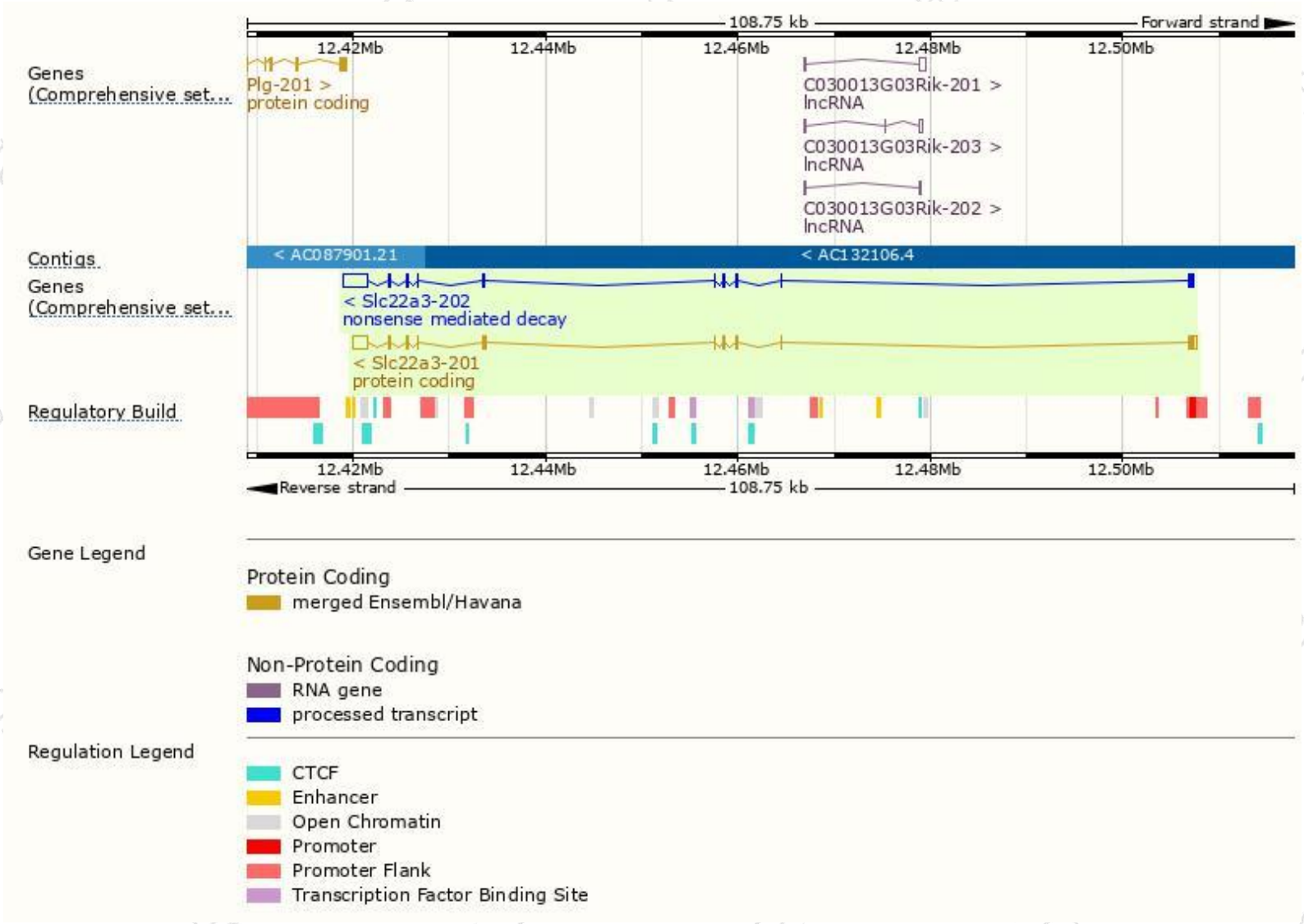
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc22a3-201	ENSMUST00000024595.3	3504	551aa	Protein coding	CCDS28391	Q547K2 Q9WTW5	TSL:1 GENCODE basic APPRIS P1
Slc22a3-202	ENSMUST00000233535.1	4127	363aa	Nonsense mediated decay	-	A0A3B2W7B3	

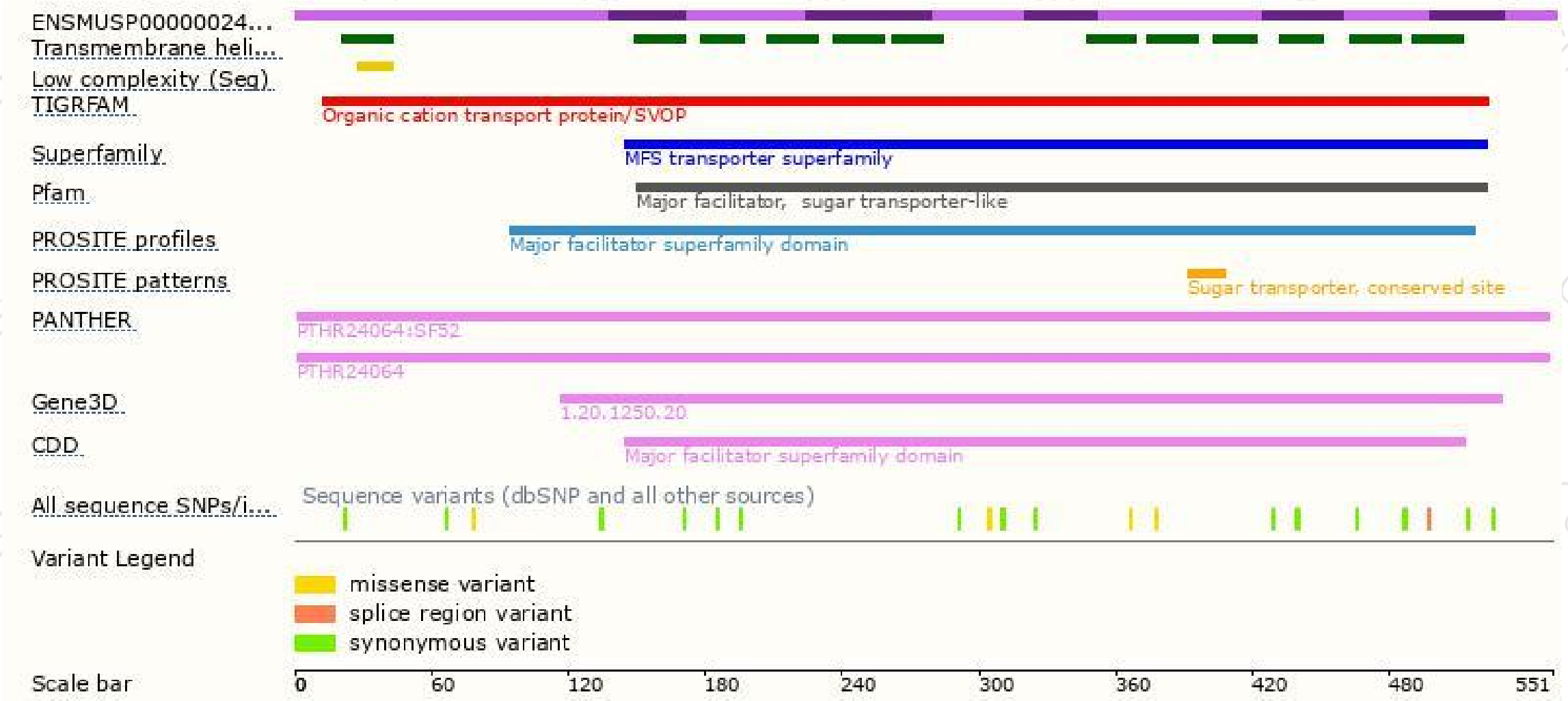
The strategy is based on the design of *Slc22a3-201* transcript,The transcription is shown below



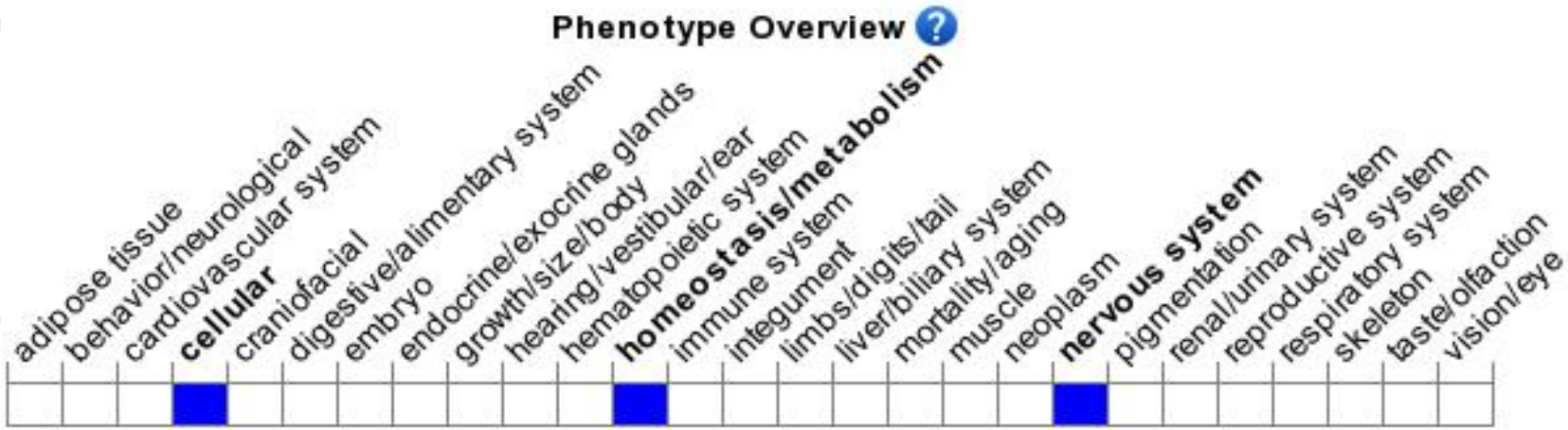
Genomic location distribution



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/).

According to the existing MGI data,Mice homozygous for a knock-out allele exhibit increased susceptibility to paraquat-induced dopamine neuron neurotoxicity.

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

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