

Igsf11 Cas9-CKO Strategy

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Project Overview

Project Name

Igsf11

Project type

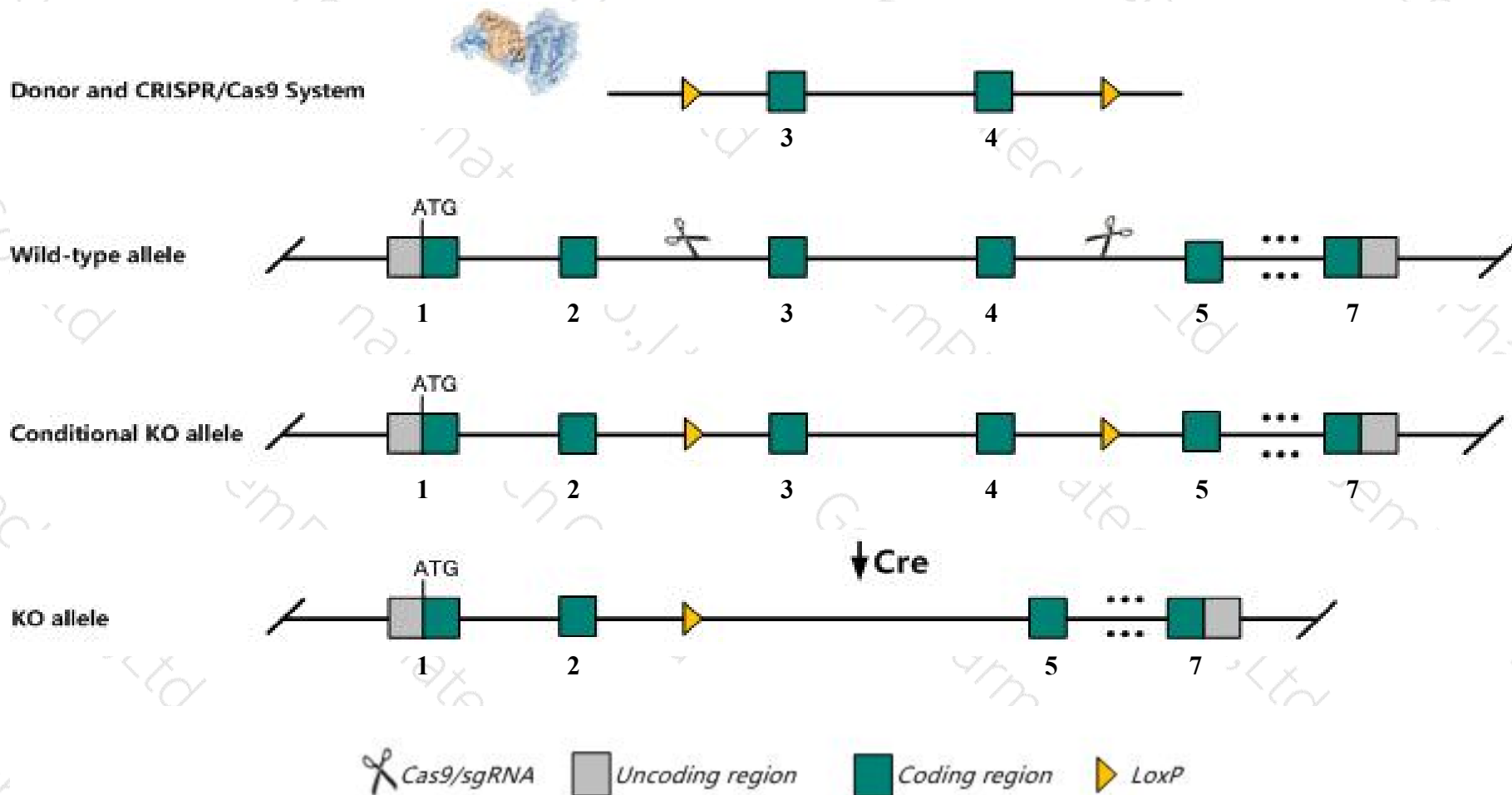
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Igsl1* gene. The schematic diagram is as follows:



Technical routes

- The *Igsf11* gene has 5 transcripts. According to the structure of *Igsf11* gene, exon3-exon4 of *Igsf11-201*(ENSMUST00000023478.7) transcript is recommended as the knockout region. The region contains 364bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Igsf11* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was 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.

- According to the existing MGI data, mice homozygous for a knock-out allele exhibit disrupted synaptic transmission and plasticity.
- Transcript *Igsf11*-203&204&205 may not be affected.
- The *Igsf11* gene is located on the Chr16. 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)

Igsf11 immunoglobulin superfamily, member 11 [Mus musculus (house mouse)]

Gene ID: 207683, updated on 13-Mar-2020

Summary



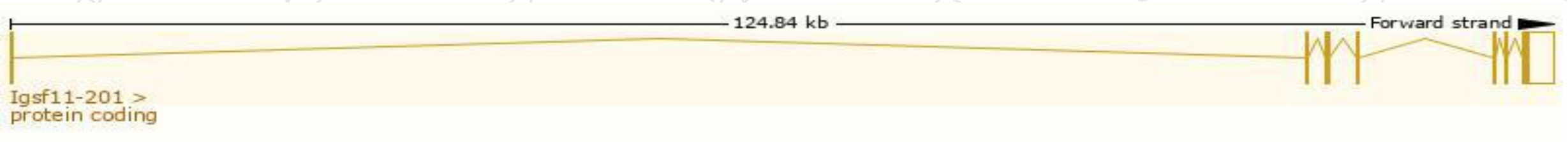
Official Symbol	Igsf11 provided by MGI
Official Full Name	immunoglobulin superfamily, member 11 provided by MGI
Primary source	MGI:MGI:2388477
See related	Ensembl:ENSMUSG00000022790
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1700025L02Rik, BT-IgSF, Igsf13
Expression	Biased expression in testis adult (RPKM 19.9), kidney adult (RPKM 17.5) and 11 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

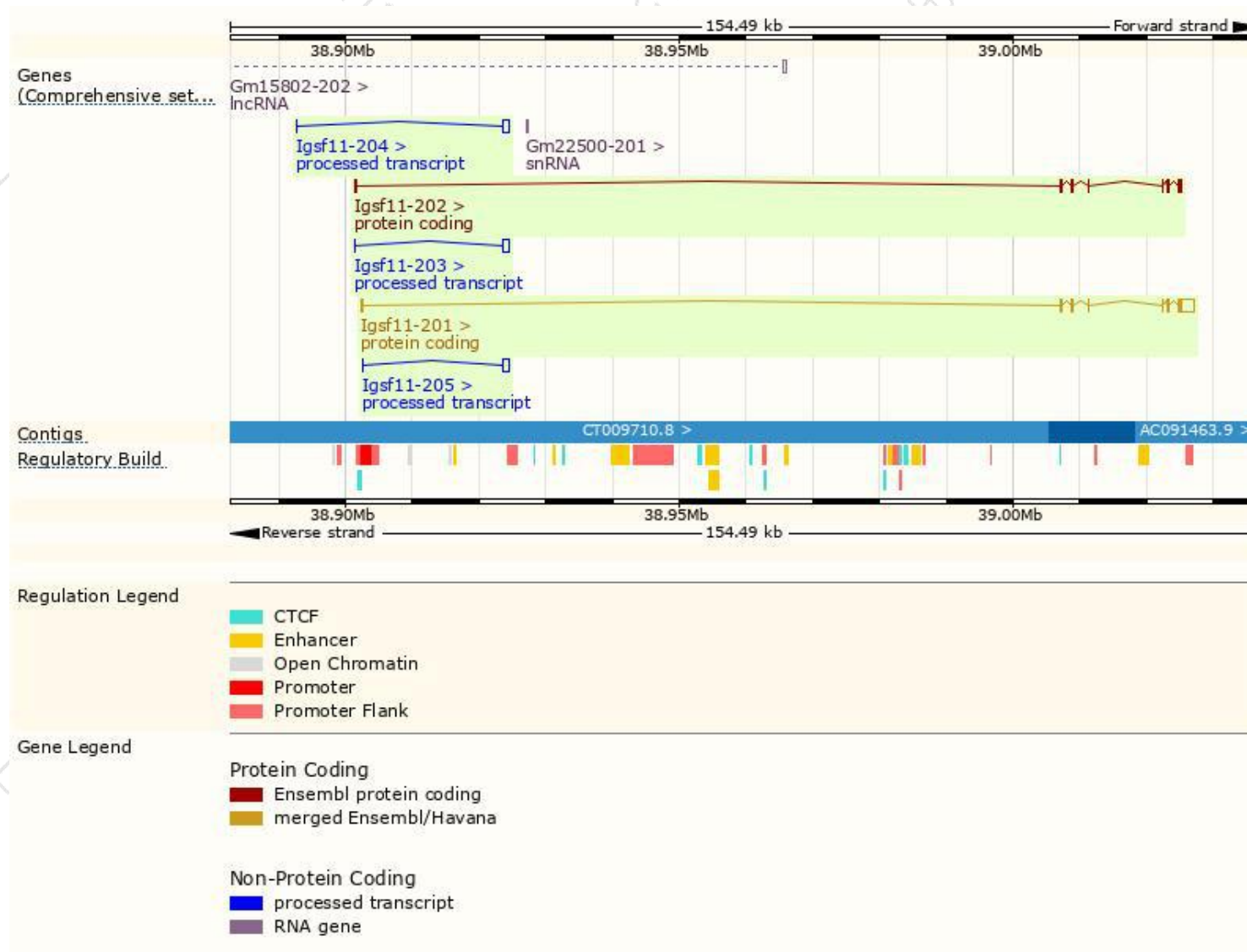
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Igsf11-201	ENSMUST00000023478.7	3443	428aa	Protein coding	CCDS28175	P0C673	TSL:1 GENCODE basic APPRIS P1
Igsf11-202	ENSMUST00000114706.7	1578	369aa	Protein coding	-	D3Z6S7	TSL:1 GENCODE basic
Igsf11-205	ENSMUST00000210471.1	921	No protein	Processed transcript	-	-	TSL:5
Igsf11-203	ENSMUST00000209958.1	873	No protein	Processed transcript	-	-	TSL:5
Igsf11-204	ENSMUST00000210186.1	873	No protein	Processed transcript	-	-	TSL:5

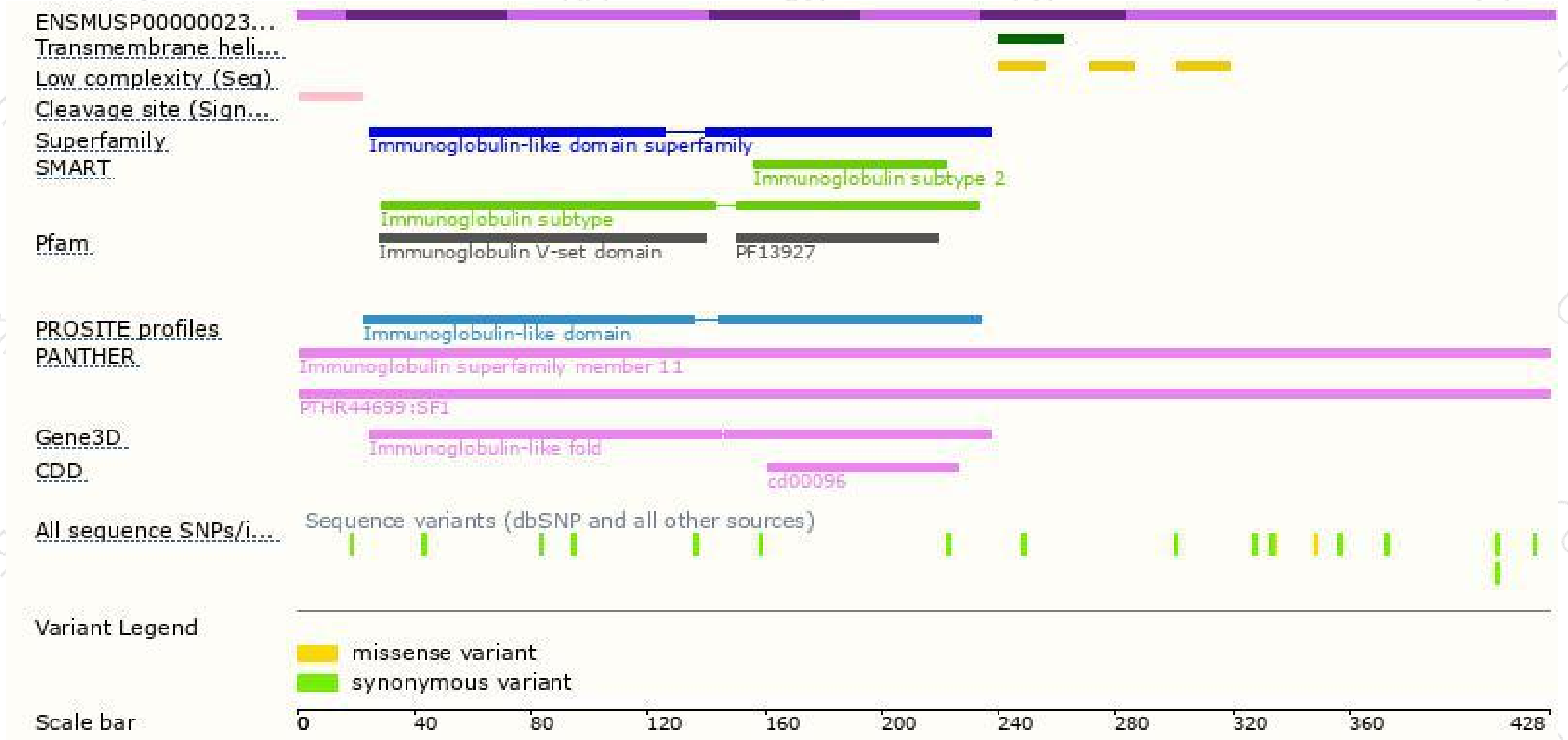
The strategy is based on the design of *Igsf11-201* transcript,the transcription is shown below:



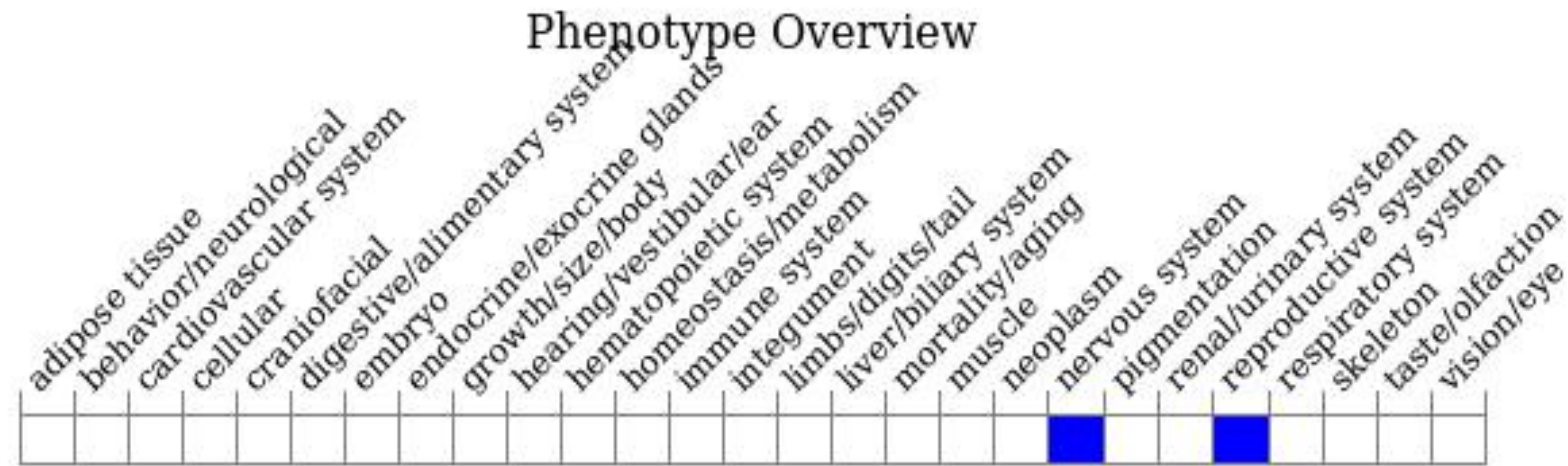
Genomic location distribution



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 disrupted synaptic transmission and plasticity.

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

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