Tenm3 Cas9-CKO Strategy

Designer: Daohua Xu
Reviewer: Huimin Su

Design Date: 2020-2-17

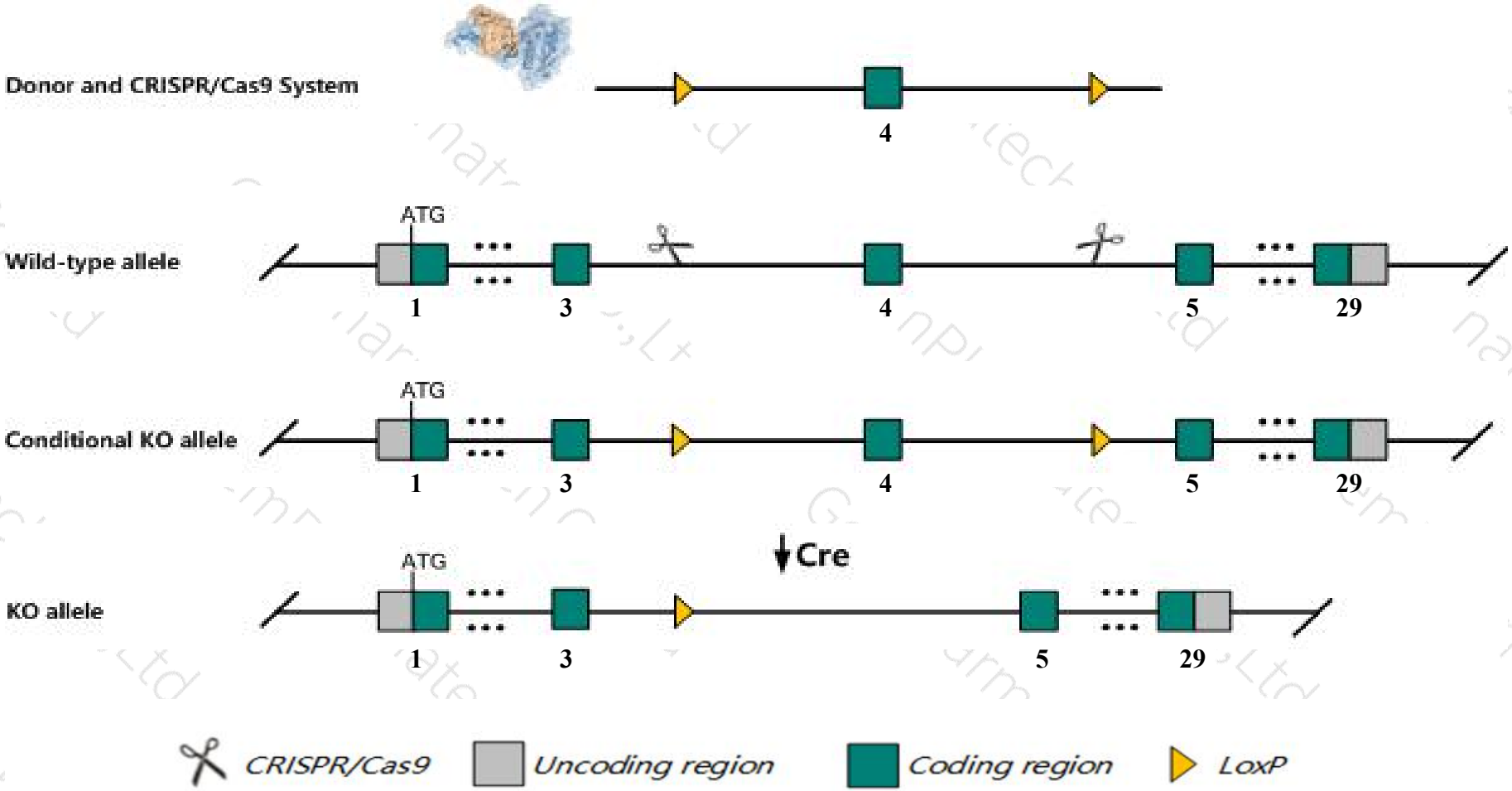
GemPharmatech Co.,Ltd

Project Overview

Project Name	***Tenm3***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tenm3* gene. The schematic diagram is as follows:



Technical routes

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- The *Tenm3* gene has 8 transcripts. According to the structure of *Tenm3* gene, exon4 of *Tenm3-201* (ENSMUST00000033965.13) transcript is recommended as the knockout region.The region contains 239bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Tenm3* 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 null mutation display abnormal ipsilateral retinal ganglion cell projections and impaired performance in visually mediated behavioral tasks.
- Transcript *Tenm3-207* may not be affected.
- The *Tenm3* gene is located on the Chr8. 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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Tenm3 teneurin transmembrane protein 3 [Mus musculus (house mouse)]

Gene ID: 23965, updated on 31-Jan-2019

Summary

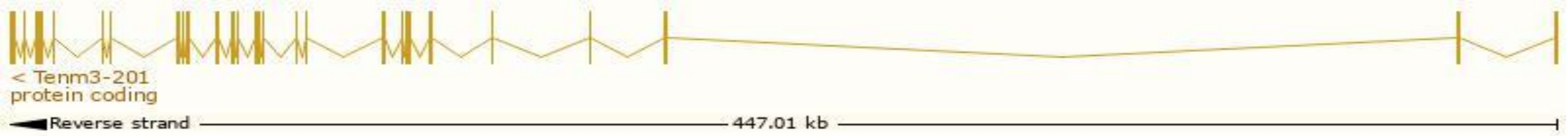
Official Symbol	Tenm3 provided by MGI
Official Full Name	teneurin transmembrane protein 3 provided by MGI
Primary source	MGI:MGI:1345183
See related	Ensembl:ENSMUSG00000031561
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2610100B16Rik, Odz1, Odz3, Ten-m3, mKIAA1455
Expression	Broad expression in limb E14.5 (RPKM 6.8), CNS E11.5 (RPKM 6.4) and 20 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

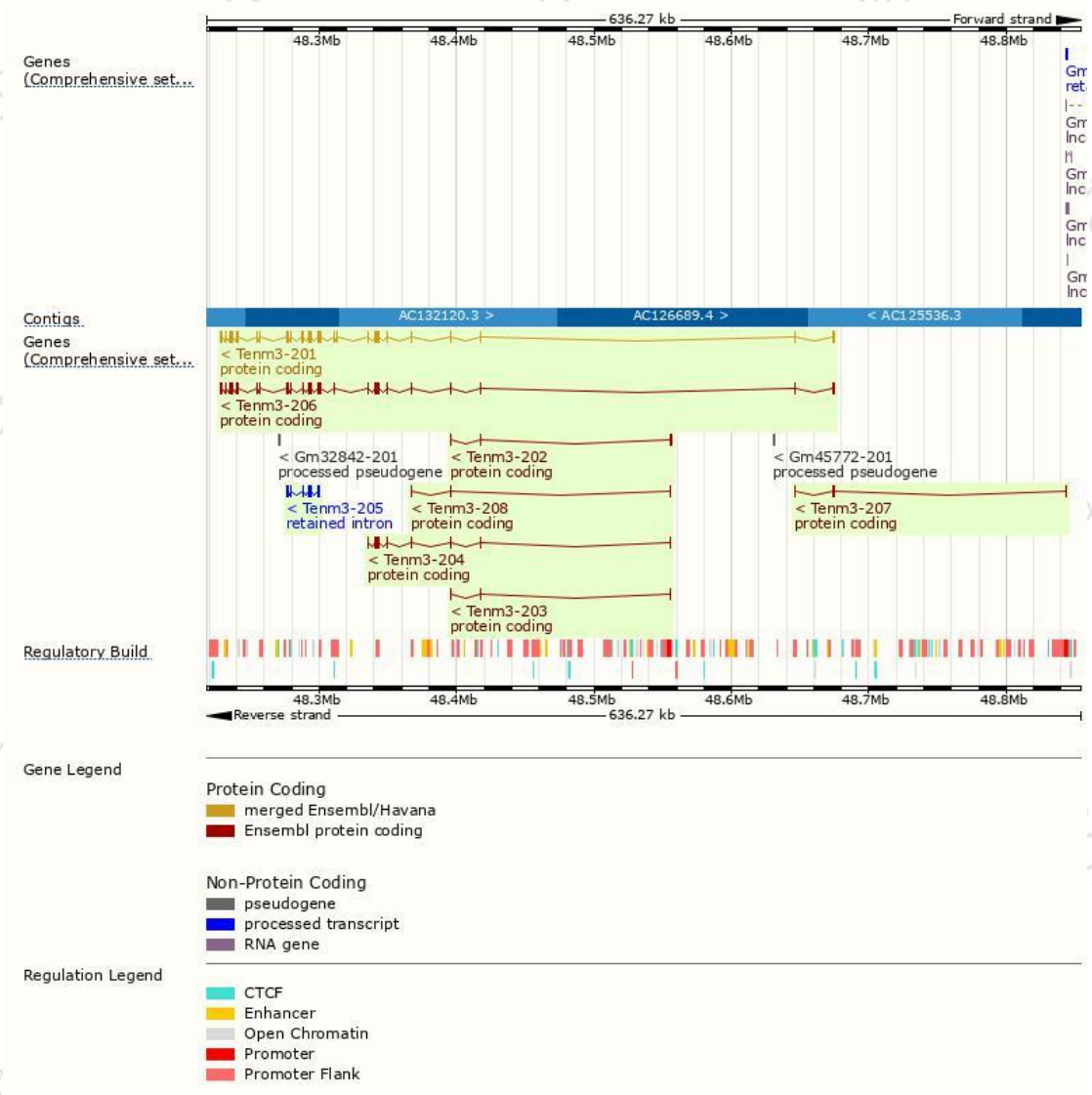
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tenm3-201	ENSMUST00000033965.13	8961	2715aa	Protein coding	CCDS22303	G3X907	TSL:1 GENCODE basic APPRIS P3
Tenm3-206	ENSMUST00000190840.7	8663	2699aa	Protein coding	CCDS85538	B7ZNJ5	TSL:1 GENCODE basic APPRIS ALT1
Tenm3-204	ENSMUST00000110346.8	2267	495aa	Protein coding	-	D3YW49	TSL:1 GENCODE basic
Tenm3-207	ENSMUST00000211812.1	763	169aa	Protein coding	-	A0A1D5RM80	CDS 3' incomplete TSL:5
Tenm3-202	ENSMUST00000110343.2	639	57aa	Protein coding	-	D3YW50	CDS 3' incomplete TSL:2
Tenm3-203	ENSMUST00000110345.7	609	57aa	Protein coding	-	D3YW50	CDS 3' incomplete TSL:2
Tenm3-208	ENSMUST00000211976.1	512	159aa	Protein coding	-	A0A1D5RM36	CDS 3' incomplete TSL:3
Tenm3-205	ENSMUST00000145344.1	2526	No protein	Retained intron	-	-	TSL:1

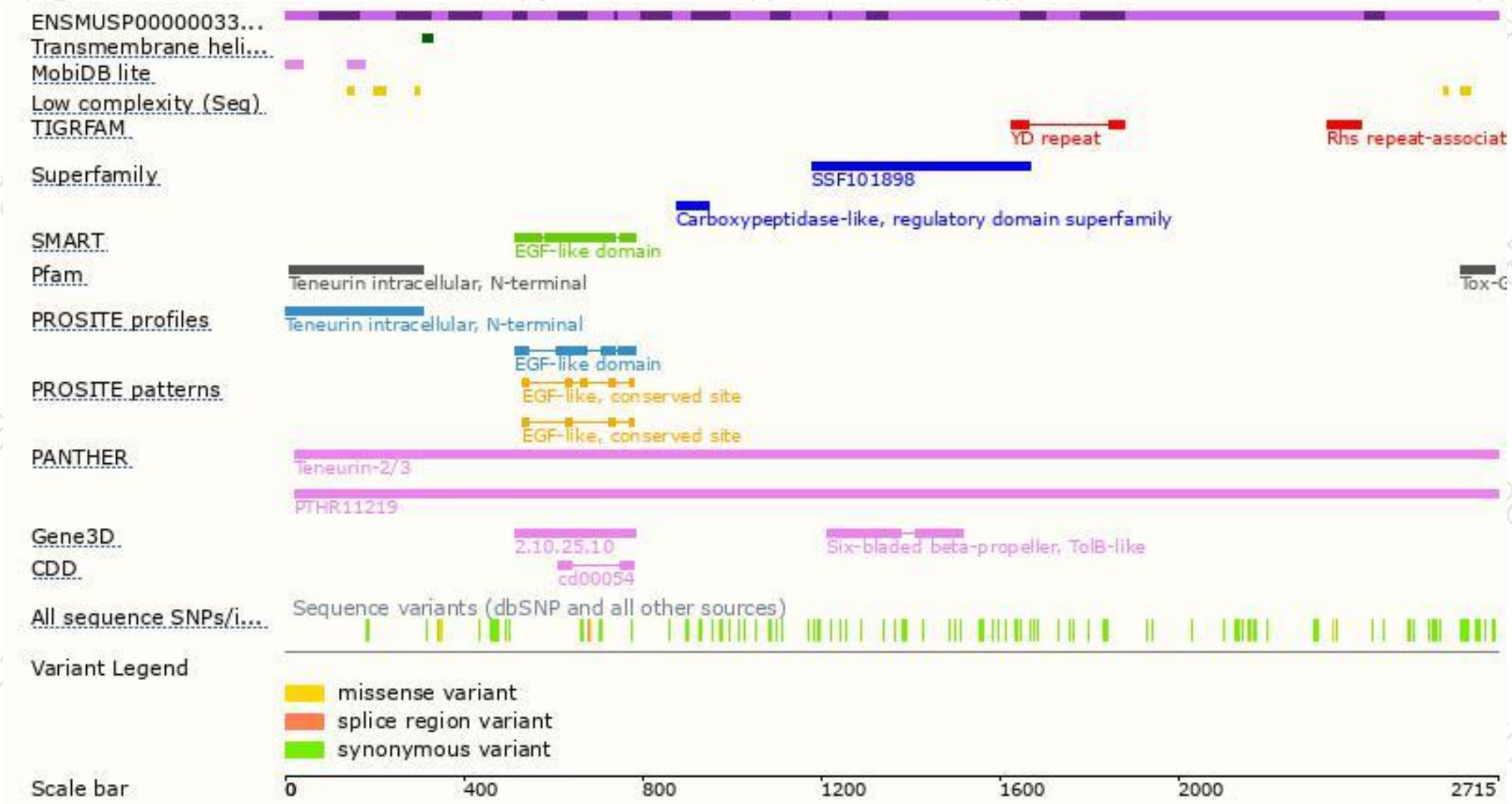
The strategy is based on the design of *Tenm3-201* transcript,The transcription is shown below



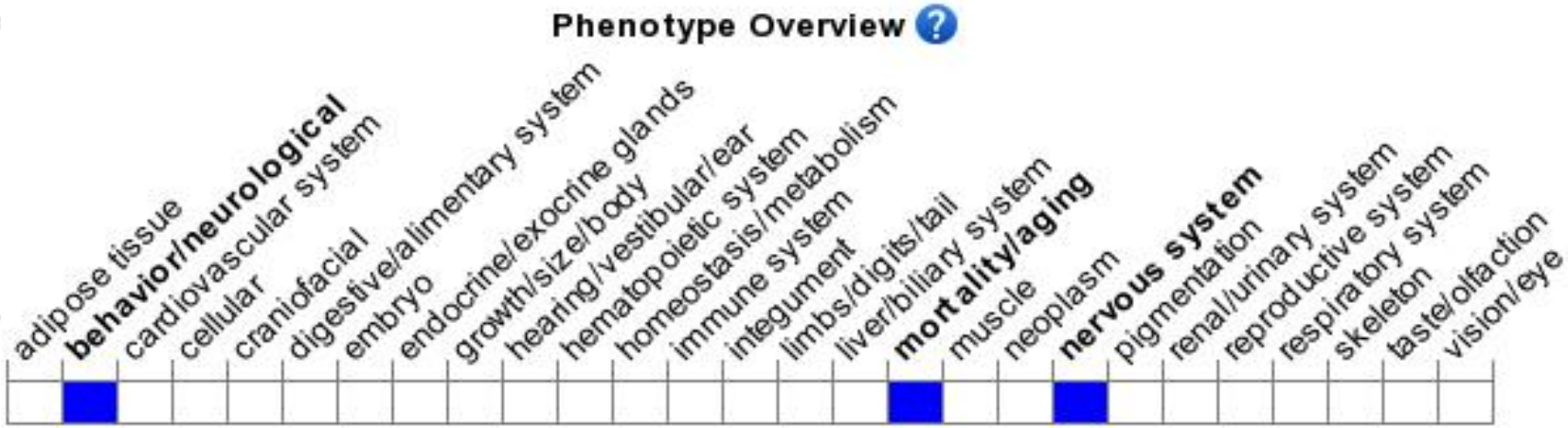
Genomic location distribution



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 null mutation display abnormal ipsilateral retinal ganglion cell projections and impaired performance in visually mediated behavioral tasks.

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

Tel: 400-9660890

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