Trim67 Cas9-CKO Strategy

Designer: Xueting Zhang
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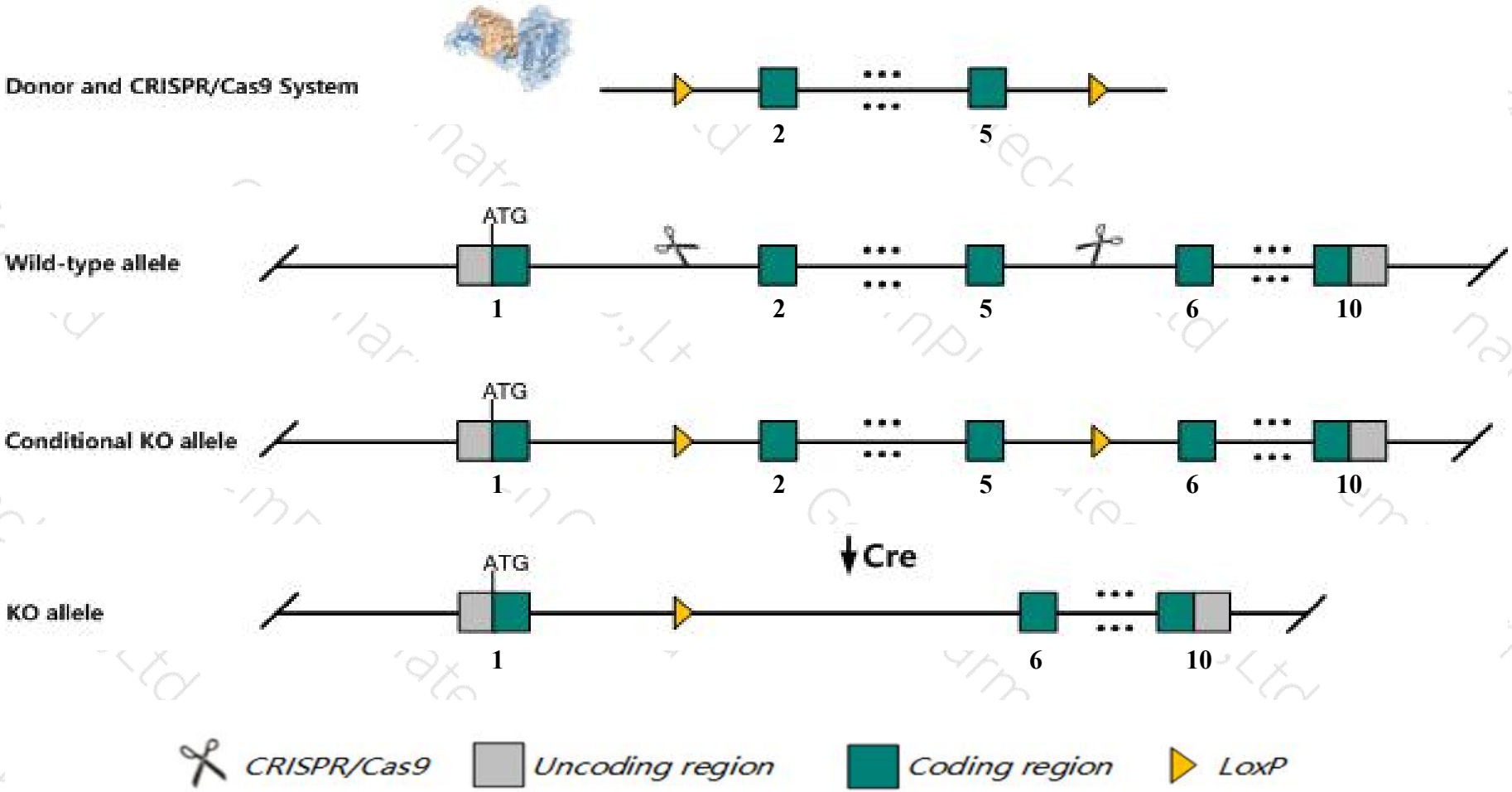
Project Overview

Project Name	***Trim67***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Trim67* gene. The schematic diagram is as follows:



Technical routes

- The *Trim67* gene has 3 transcripts. According to the structure of *Trim67* gene, exon2-exon5 of *Trim67-202* (ENSMUST00000167588.8) transcript is recommended as the knockout region.The region contains 484bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Trim67* 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 allele display decreased brain size with forebrain abnormalities, impaired spatial learning, decreased response to social novelty, impaired coordiation and reduced grip strength.

➢ The *Trim67* 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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Trim67 tripartite motif-containing 67 [Mus musculus (house mouse)]

Gene ID: 330863, updated on 3-Mar-2019

Summary

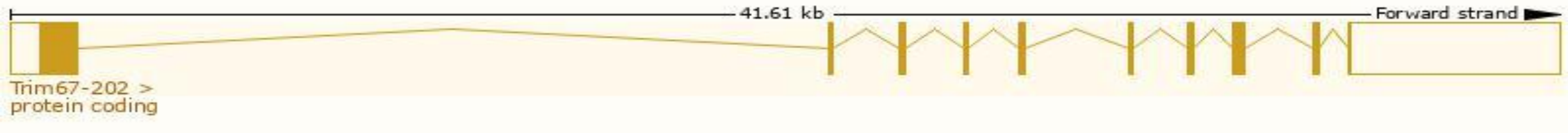
Official Symbol	Trim67 provided by MGI
Official Full Name	tripartite motif-containing 67 provided byMGI
Primary source	MGI:MGI:3045323
See related	Ensembl:ENSMUSG00000036913
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	D130049O21Rik, TNL
Expression	Biased expression in CNS E18 (RPKM 21.5), whole brain E14.5 (RPKM 15.3) and 5 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

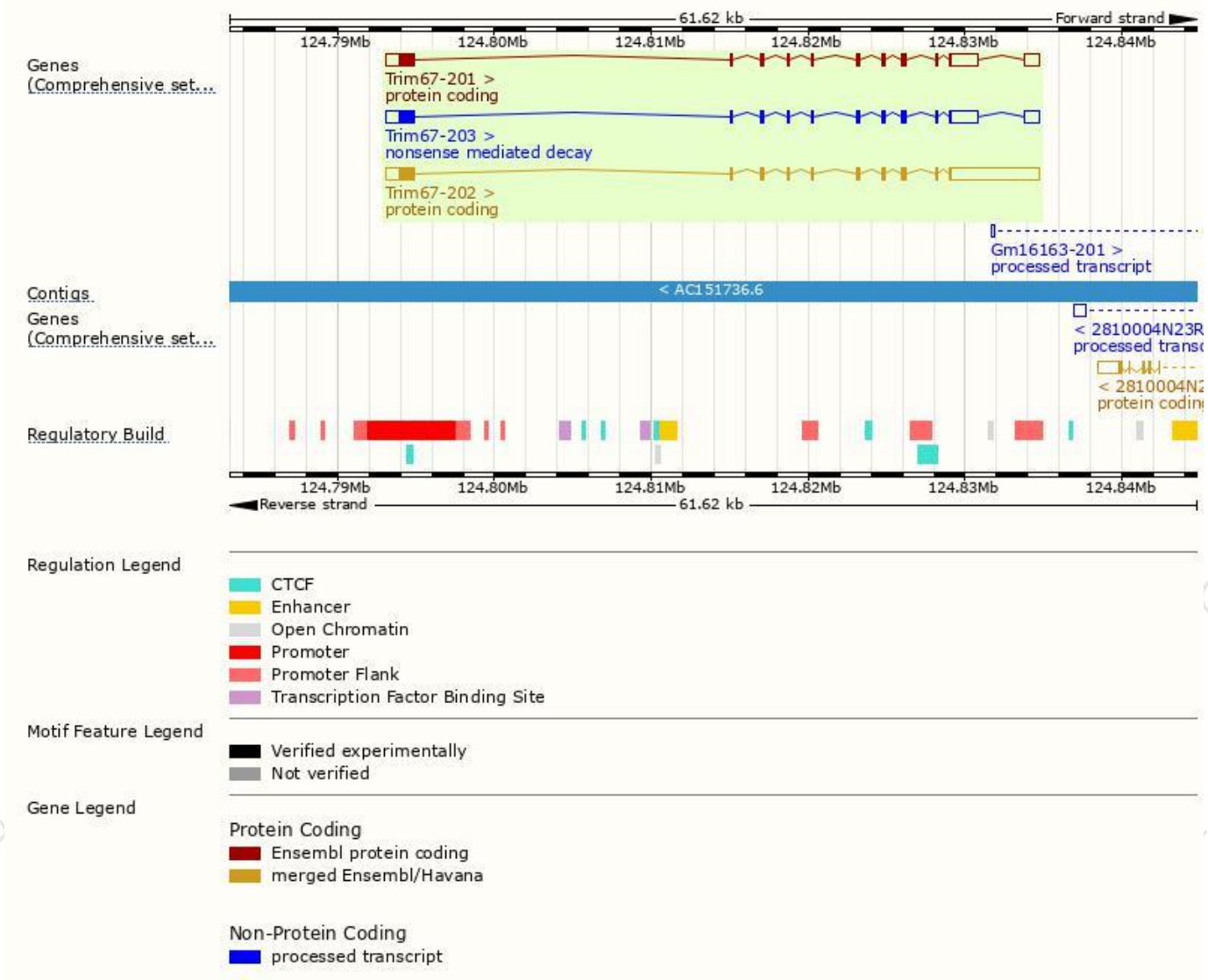
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Trim67-202	ENSMUST00000167588.8	8735	768aa	Protein coding	CCDS52704	Q505D9	TSL:5 GENCODE basic APPRIS P1
Trim67-201	ENSMUST00000041106.8	5694	768aa	Protein coding	CCDS52704	Q505D9	TSL:1 GENCODE basic APPRIS P1
Trim67-203	ENSMUST00000211867.1	5705	768aa	Nonsense mediated decay	-	Q505D9	TSL:1

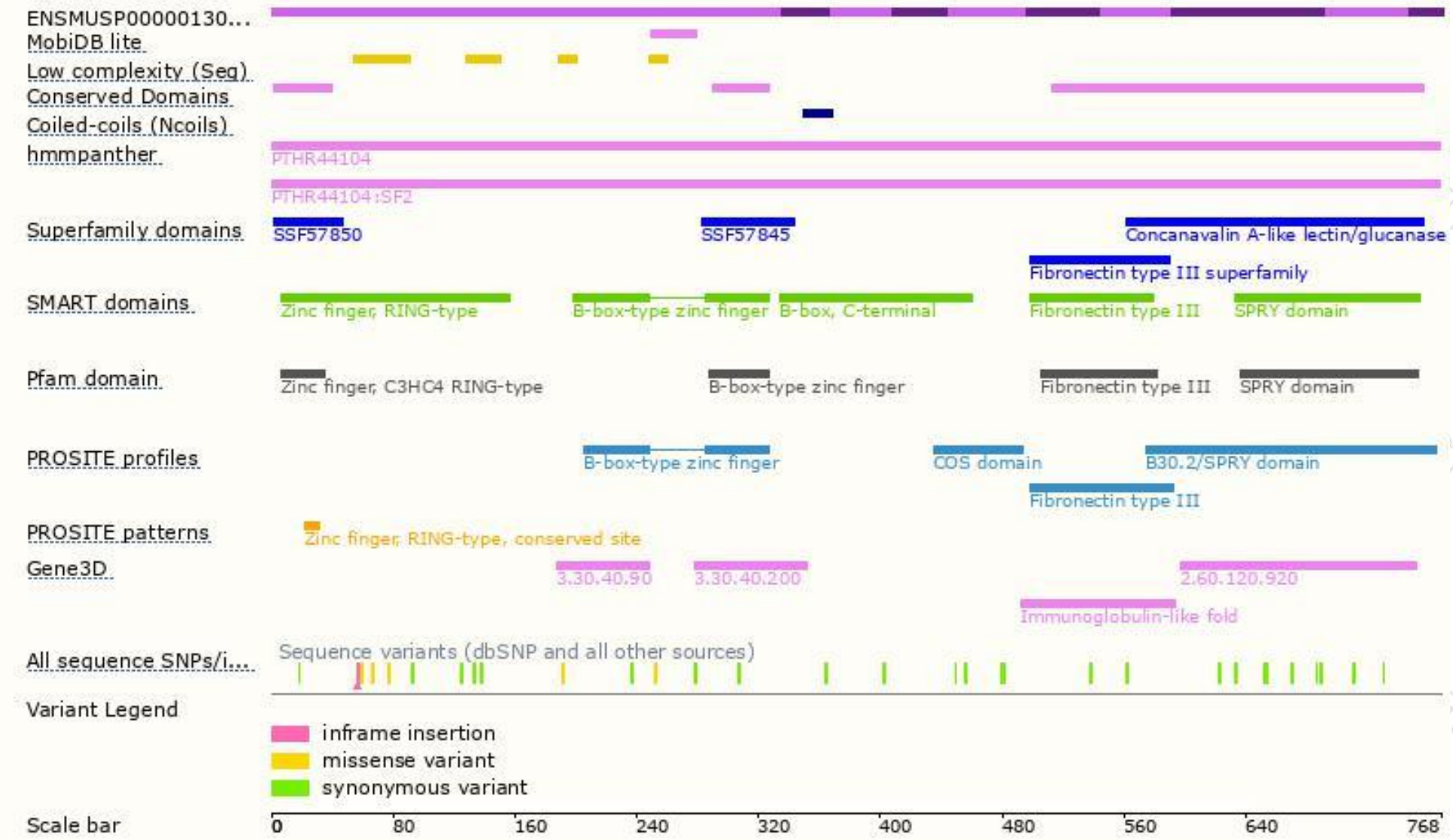
The strategy is based on the design of *Trim67-202* transcript,The transcription is shown below



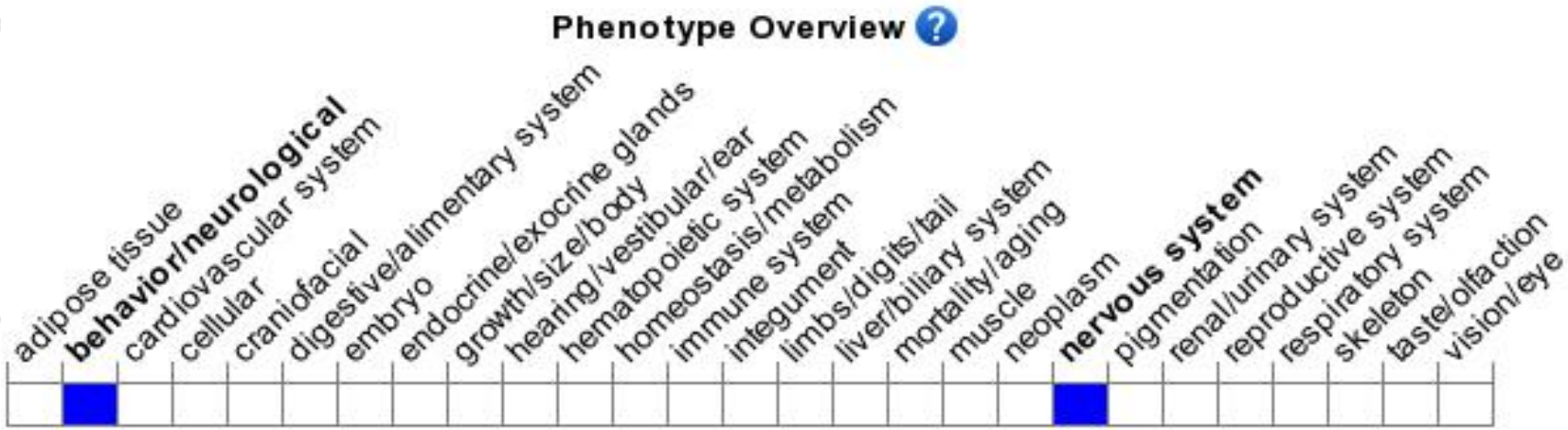
Genomic location distribution



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,Mice homozygous for a null allele display decreased brain size with forebrain abnormalities, impaired spatial learning, decreased response to social novelty, impaired coordiation and reduced grip strength.

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GemPharmatech

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

Tel: 400-9660890

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GemPharmatech Co.,Ltd