Gpr161 Cas9-CKO Strategy

Designer: Lingyan Wu
Reviewer: Jiayuan Yao

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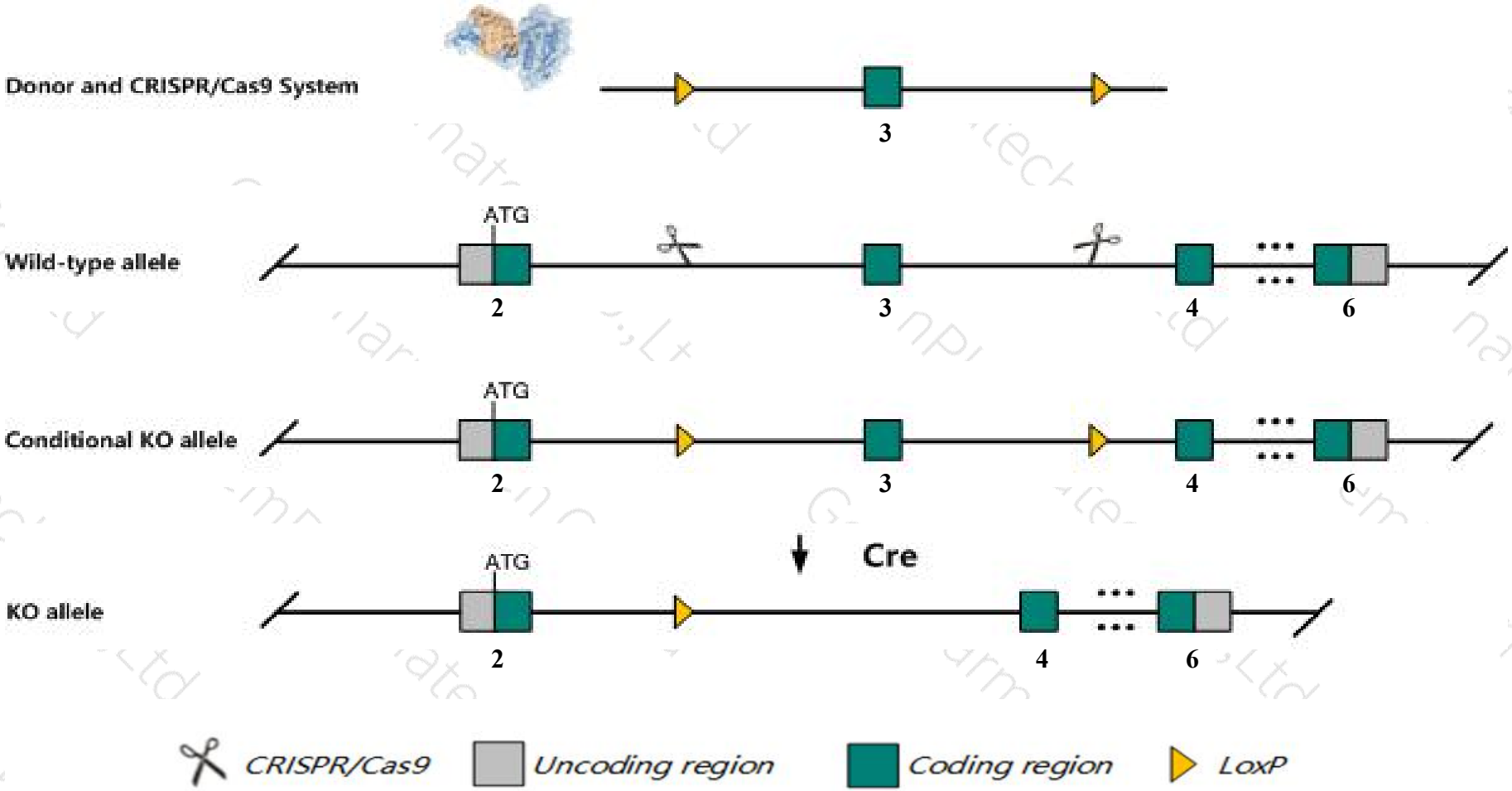
Project Overview

Project Name	***Gpr161***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gpr161* gene. The schematic diagram is as follows:



Technical routes

- The *Gpr161* gene has 2 transcripts. According to the structure of *Gpr161* gene, exon3 of *Gpr161-201* (ENSMUST00000111450.2) transcript is recommended as the knockout region.The region contains 725bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Gpr161* 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 complete embryonic lethality during organogenesis, extensive craniofacial abnormalities, ventralization of the neural tube with expansion of the floor plate, absence of limb development, and caudal spina bifida.

➢ The *Gpr161* gene is located on the Chr1. 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）

集萃药康 GemPharmatech

Gpr161 G protein-coupled receptor 161 [Mus musculus (house mouse)]

Gene ID: 240888, updated on 19-Mar-2019

Summary

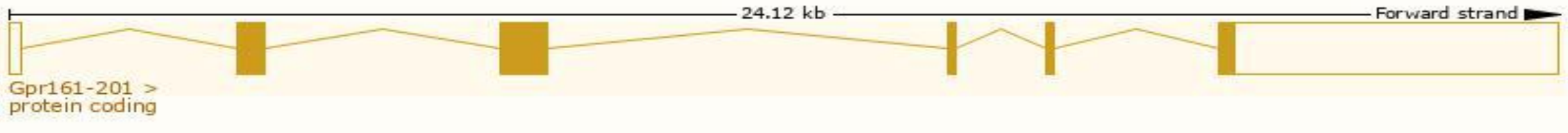
Official Symbol	Gpr161 provided by MGI
Official Full Name	G protein-coupled receptor 161 provided by MGI
Primary source	MGI:MGI:2685054
See related	Ensembl:ENSMUSG00000040836
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Gm208, Gm208Gpr, vl
Expression	Biased expression in whole brain E14.5 (RPKM 9.4), CNS E18 (RPKM 9.0) and 14 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

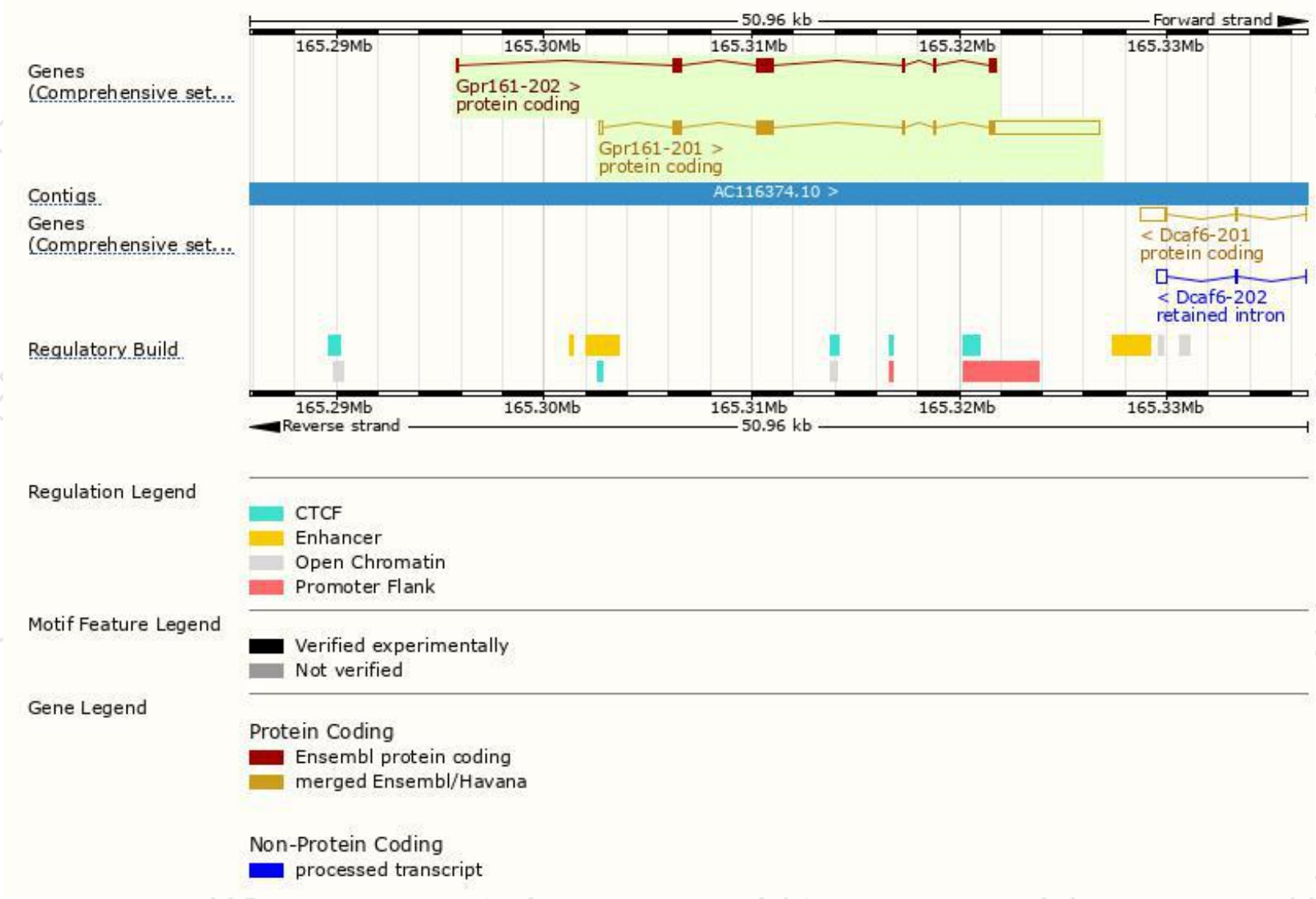
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gpr161-201	ENSMUST00000111450.2	6862	528aa	Protein coding	CCDS78732	A0A140T8Q9	TSL:1 GENCODE basic APPRIS P1
Gpr161-202	ENSMUST00000178700.7	1827	545aa	Protein coding	CCDS83621	B2RPY5	TSL:1 GENCODE basic

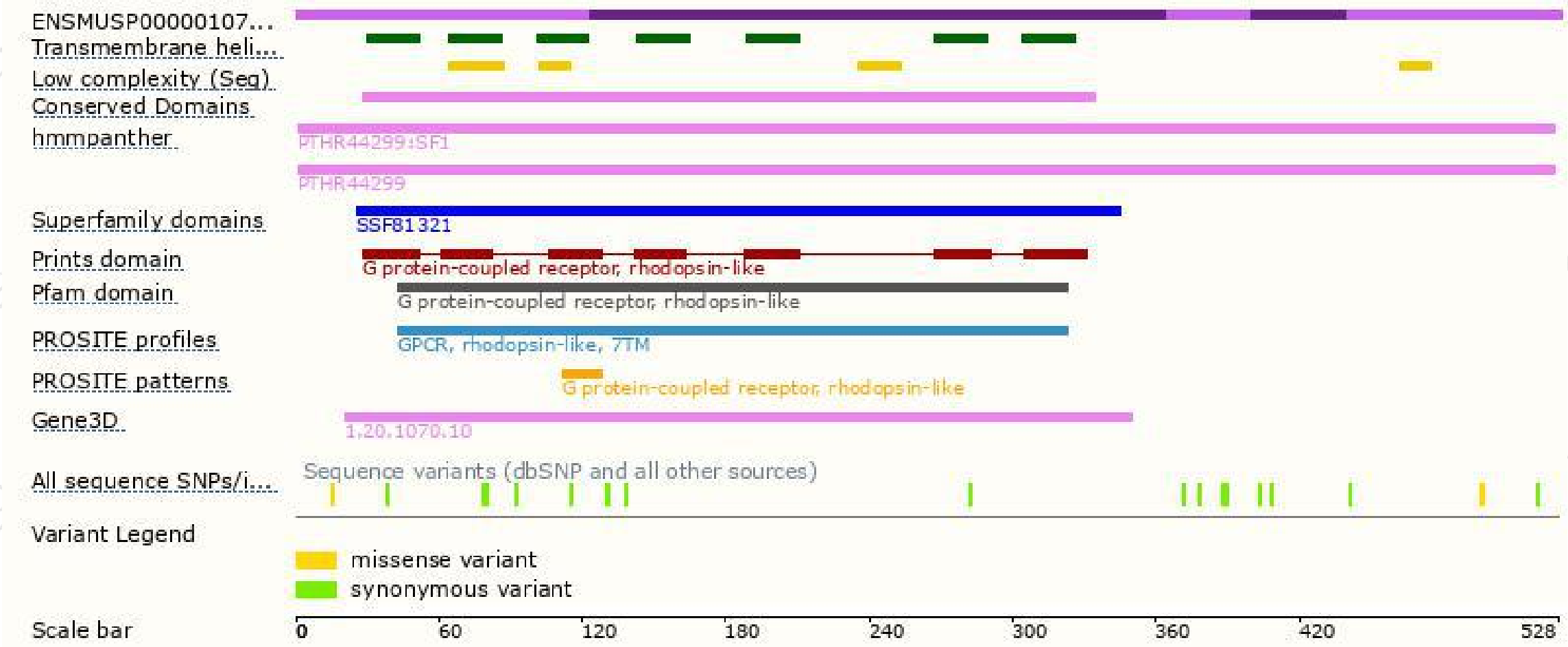
The strategy is based on the design of *Gpr161-201* transcript,The transcription is shown below



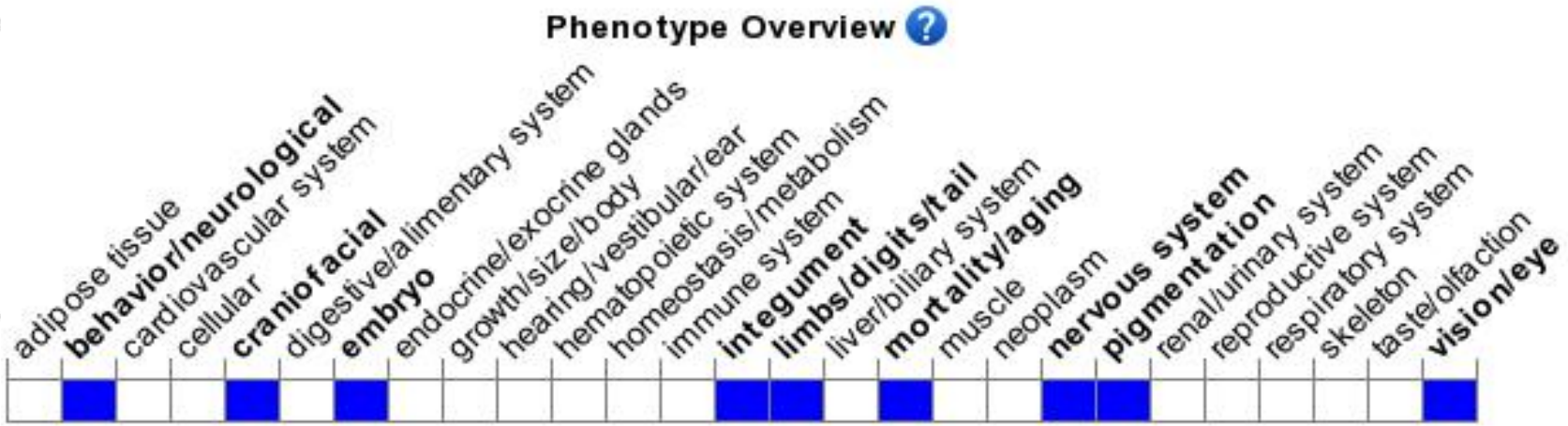
Genomic location distribution



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/).

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

Tel: 400-9660890

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GemPharmatech Co.,Ltd