Avpr1a Cas9-KO Strategy

Designer: Huan Fan

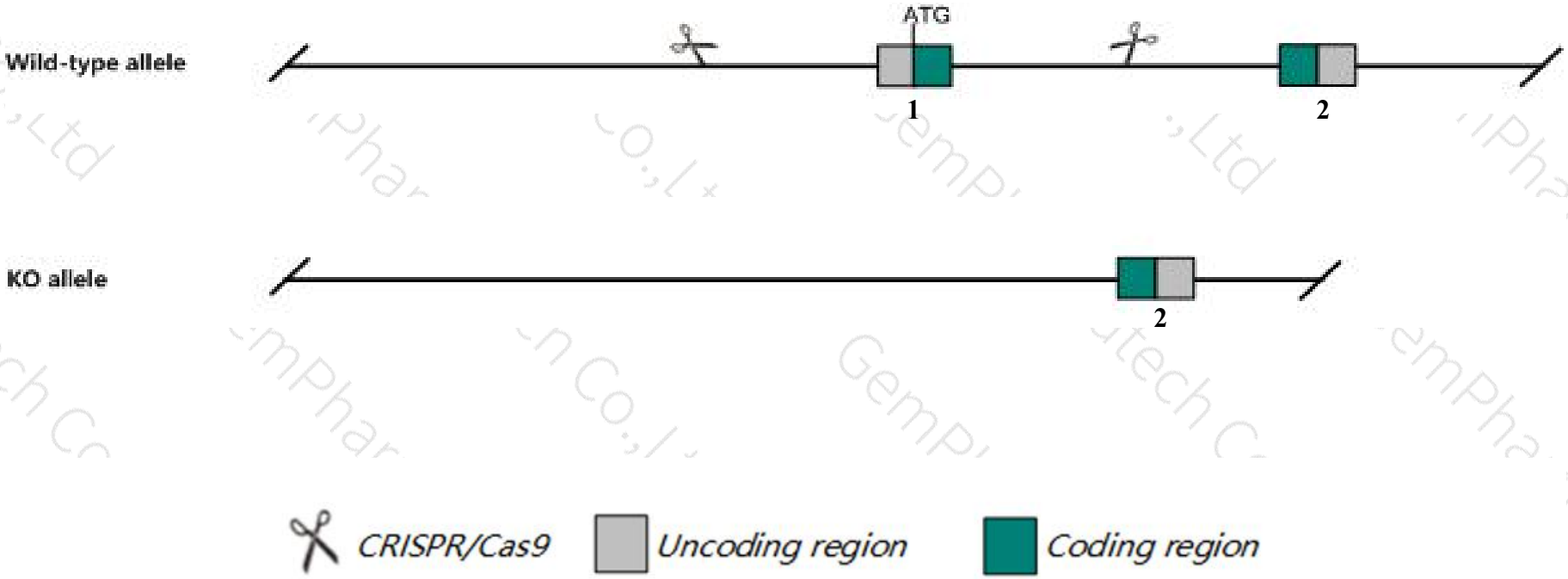
Design Date: 2019-8-23

Project Overview

Project Name	***Avpr1a***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Avpr1a* gene. The schematic diagram is as follows:



Technical routes

➢ The *Avpr1a* gene has 1 transcript. According to the structure of *Avpr1a* gene, exon1 of *Avpr1a-201* (ENSMUST00000020323.6) transcript is recommended as the knockout region.The region contains start codon ATG. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Avpr1a* gene. The brief process is as follows: CRISPR/Cas9 systen

Notice

- According to the existing MGI data,Mice homozygous for disruptions in this gene display a stimulus processing deficit similar to that seen in schizophrenia. Anxiety-like behaviors are reduced in males but not females. B cell development is also affected.

- The *Avpr1a* gene is located on the Chr10. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information（NCBI）

集萃药康 GemPharmatech

Avpr1a arginine vasopressin receptor 1A [Mus musculus (house mouse)]

Gene ID: 54140, updated on 25-Mar-2019

Summary

Official Symbol	Avpr1a provided by MGI
Official Full Name	arginine vasopressin receptor 1A provided by MGI
Primary source	MGI:MGI:1859216
See related	Ensembl:ENSMUSG00000020123
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AVPR, Avpr1, V1a, V1aR
Summary	This gene encodes a receptor for arginine vasopressin, a neurohypophyseal hormone involved in diuresis inhibition, smooth muscle contraction, liver glycogenolysis stimulation and regulation of adrenocorticotropic hormone release from the pituitary. This receptor represents one of three G protein-coupled arginine vasopressin receptors which functions through a phosphotidylinositol-calcium second messenger system in vascular and hepatic tissues [provided by RefSeq, Jul 2008]
Expression	Biased expression in liver adult (RPKM 15.9), bladder adult (RPKM 11.1) and 13 other tissuesSee more
Orthologs	human all

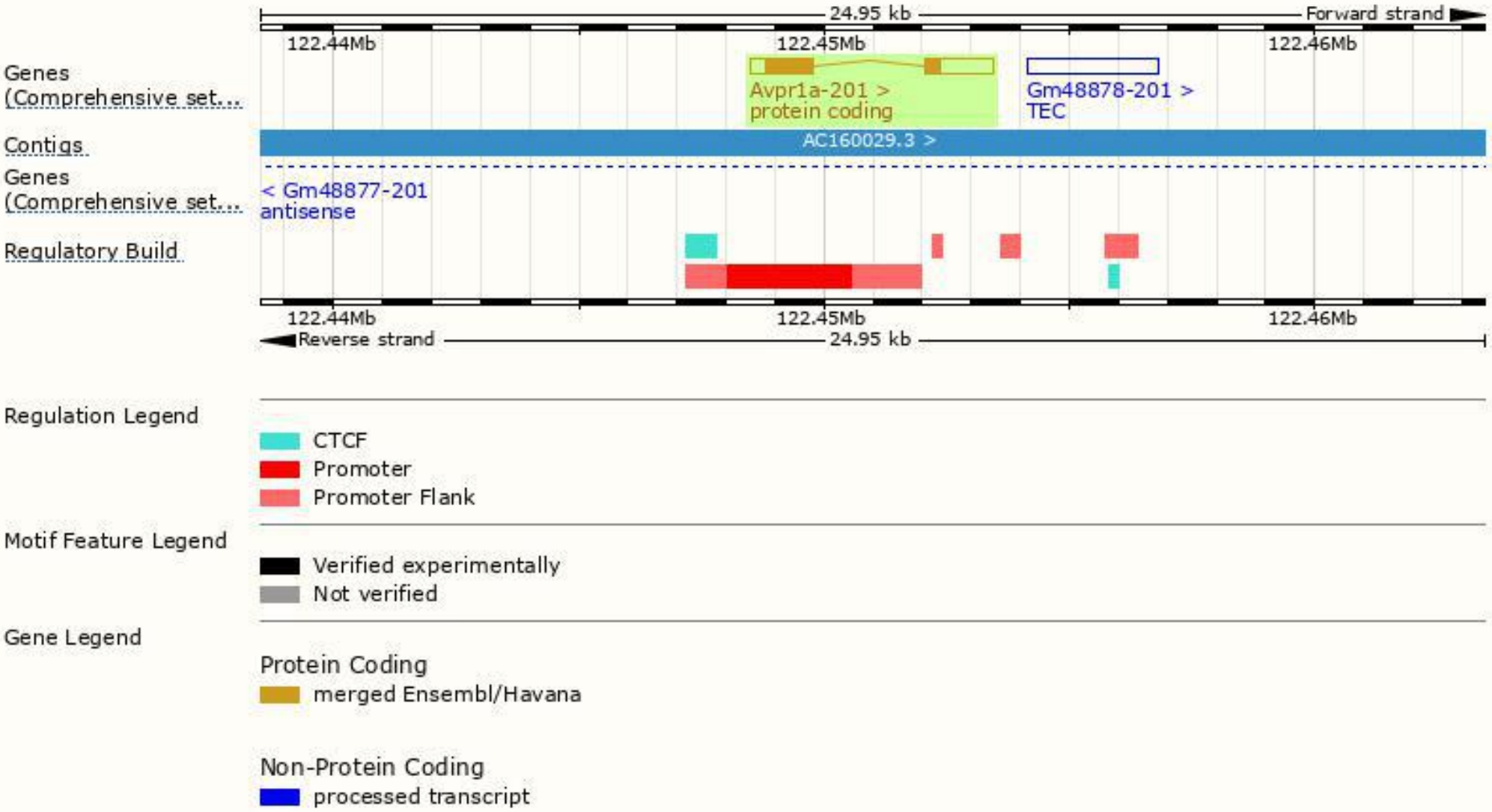
Transcript information（Ensembl）

The gene has 1 transcript,and the transcript is shown below:

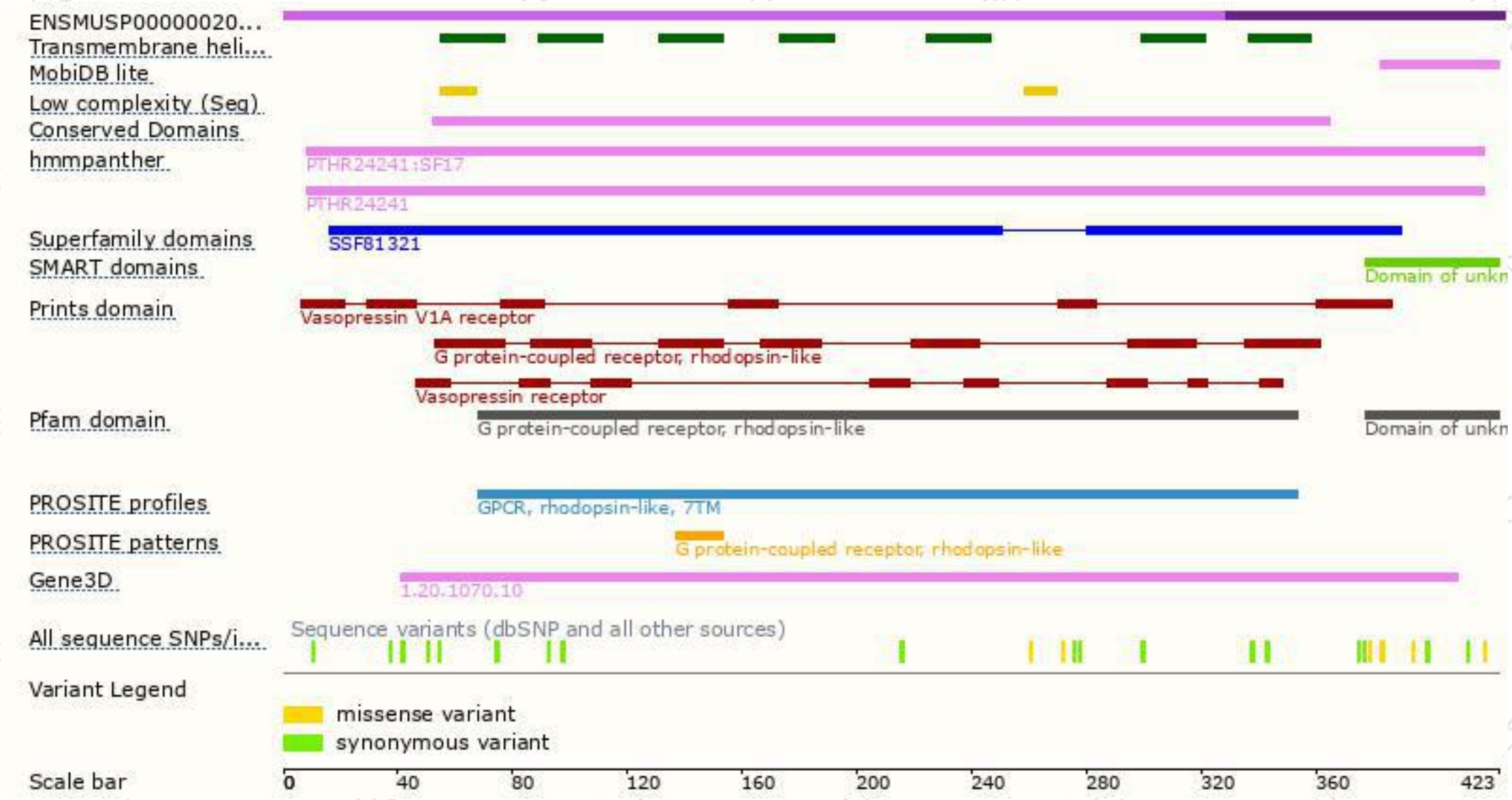
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Avpr1a-201	ENSMUST00000020323.6	2670	423aa	Protein coding	CCDS24215	Q3U1H9 Q62463	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Avpr1a-201* transcript,The transcription is shown below

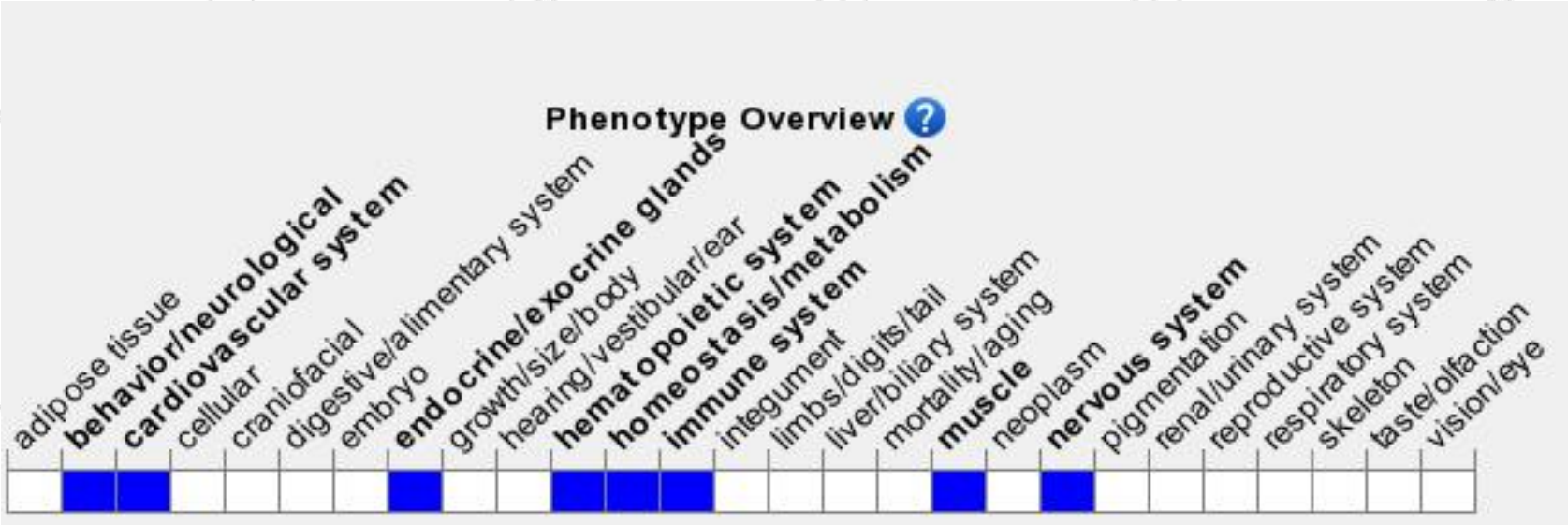
Genomic location distribution



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 disruptions in this gene display a stimulus processing deficit similar to that seen in schizophrenia. Anxiety-like behaviors are reduced in males but not females. B cell development is also affected.

集萃药康
GemPharmatech

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

Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd