

***Rab6b* Cas9-KO Strategy**

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Project Overview

Project Name

Rab6b

Project type

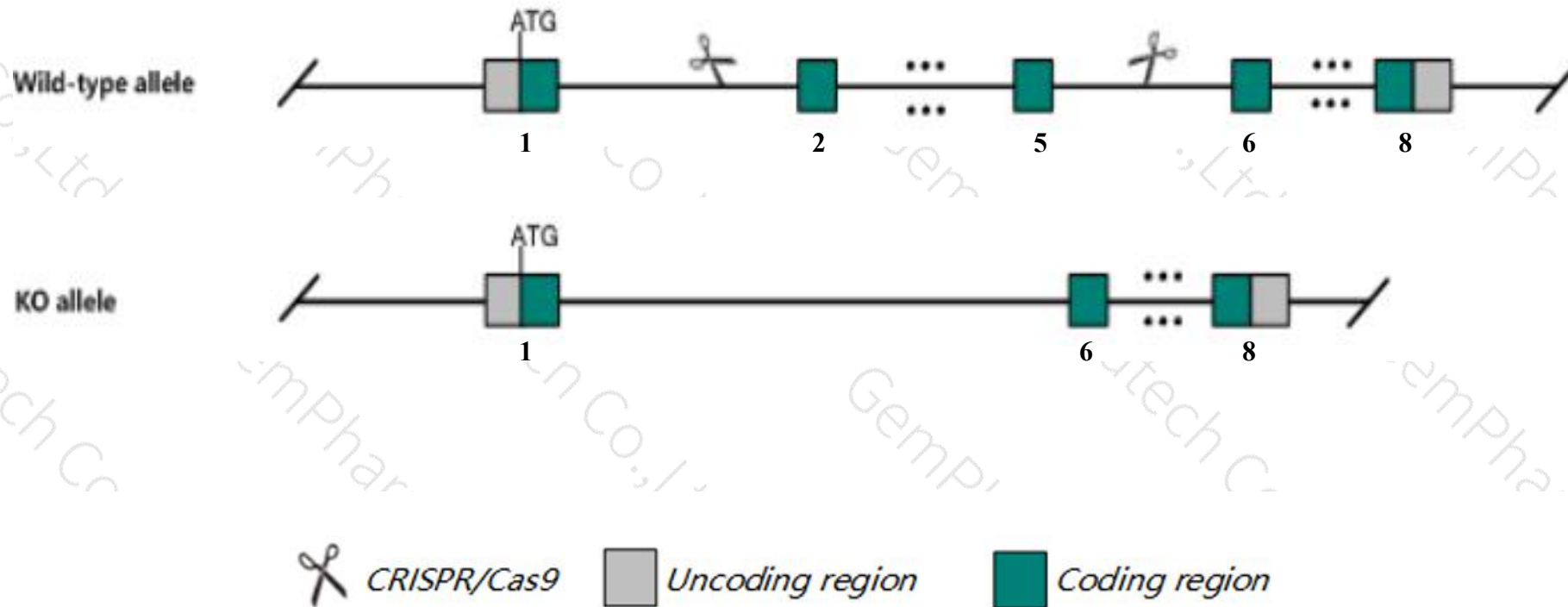
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rab6b* gene. The schematic diagram is as follows:



- The *Rab6b* gene has 2 transcripts. According to the structure of *Rab6b* gene, exon2-exon5 of *Rab6b*-201(ENSMUST00000035155.7) transcript is recommended as the knockout region. The region contains 331bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Rab6b* gene. The brief process is as follows: CRISPR/Cas9 system 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.

- According to the existing MGI data, homozygous mutation of this gene results in growth retardation and multiple behavioral and immunological abnormalities.
- The *Rab6b* gene is located on the Chr9. 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)

Rab6b RAB6B, member RAS oncogene family [Mus musculus (house mouse)]

Gene ID: 270192, updated on 13-Mar-2020

Summary



Official Symbol Rab6b provided by [MGI](#)

Official Full Name RAB6B, member RAS oncogene family provided by [MGI](#)

Primary source [MGI:MGI:107283](#)

See related [Ensembl:ENSMUSG00000032549](#)

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 9630015C03, AI844641, C330006L04Rik, D9Bwg0185e

Expression Biased expression in cortex adult (RPKM 50.6), frontal lobe adult (RPKM 45.7) and 5 other tissues [See more](#)

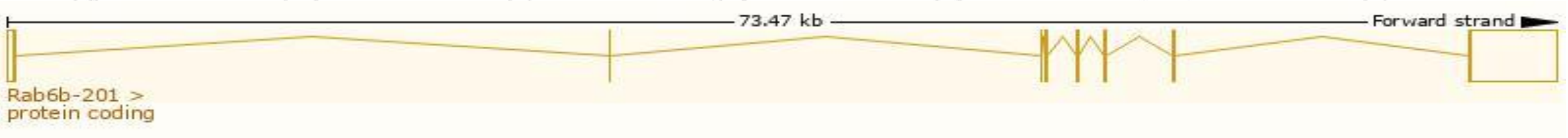
Orthologs [human all](#)

Transcript information (Ensembl)

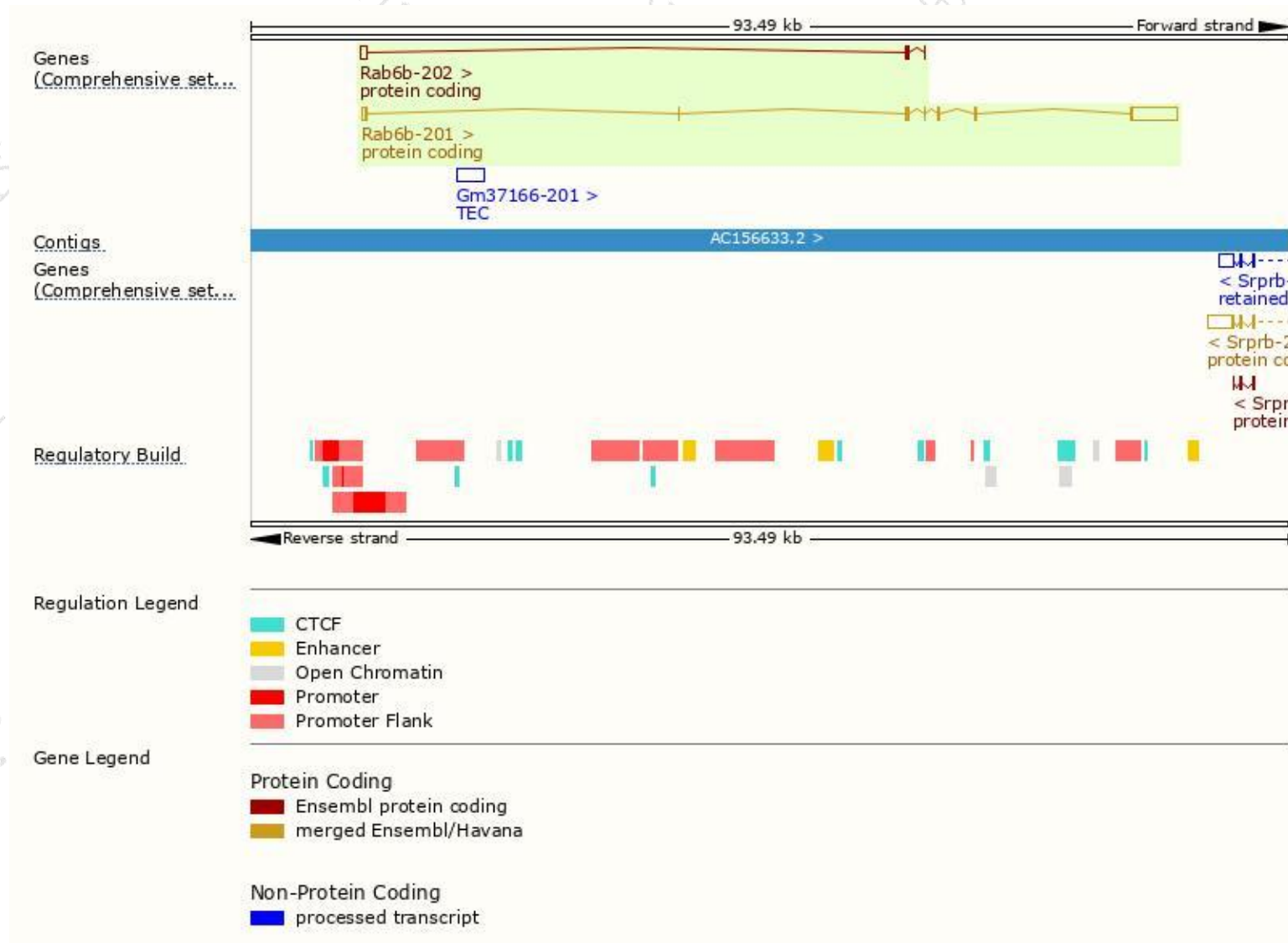
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rab6b-201	ENSMUST00000035155.7	5007	208aa	Protein coding	CCDS23449	P61294 Q0PD53	TSL:1 GENCODE basic APPRIS P1
Rab6b-202	ENSMUST00000189134.1	716	80aa	Protein coding	-	A0A1L1SR56	TSL:3 GENCODE basic

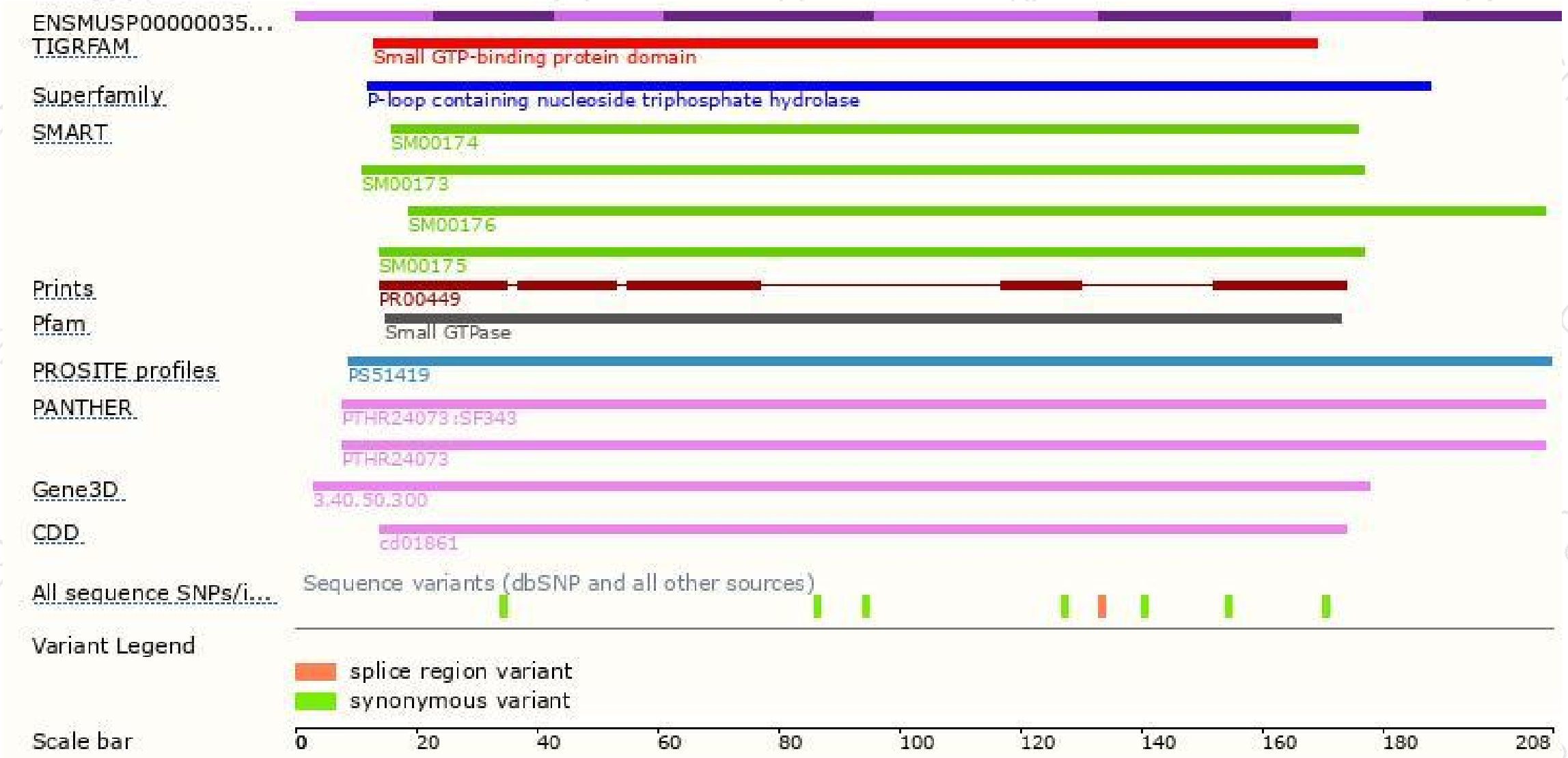
The strategy is based on the design of *Rab6b-201* transcript,the transcription is shown below:



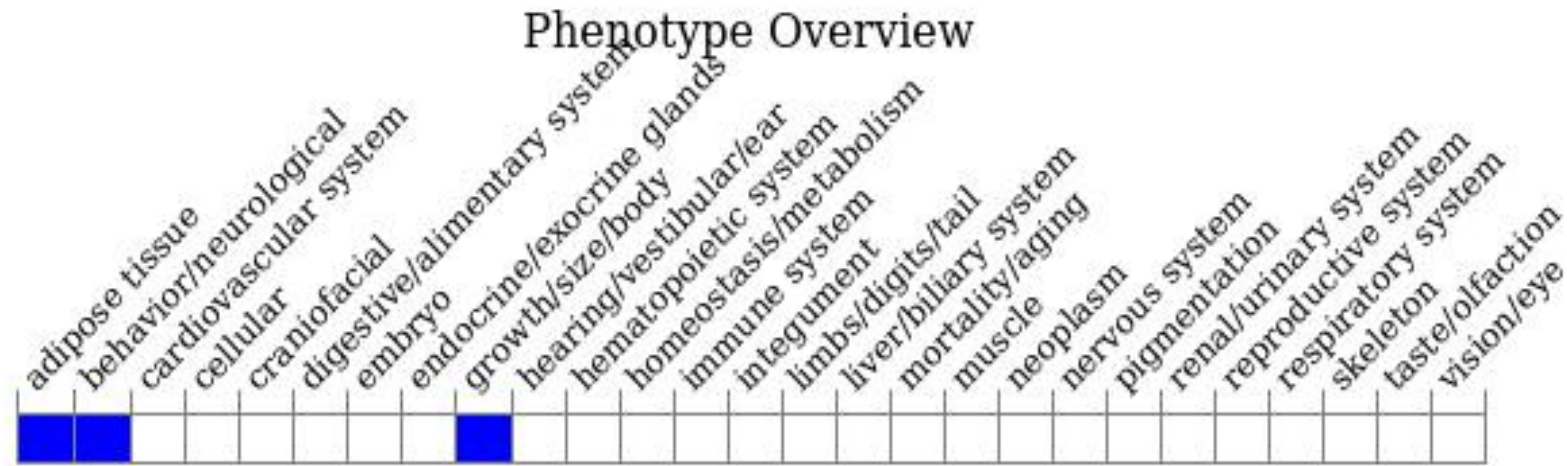
Genomic location distribution



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, homozygous mutation of this gene results in growth retardation and multiple behavioral and immunological abnormalities.

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

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