

Igf2bp1 Cas9-KO Strategy

Designer: Qiong Zhou

Project Overview

Project Name

Igf2bp1

Project type

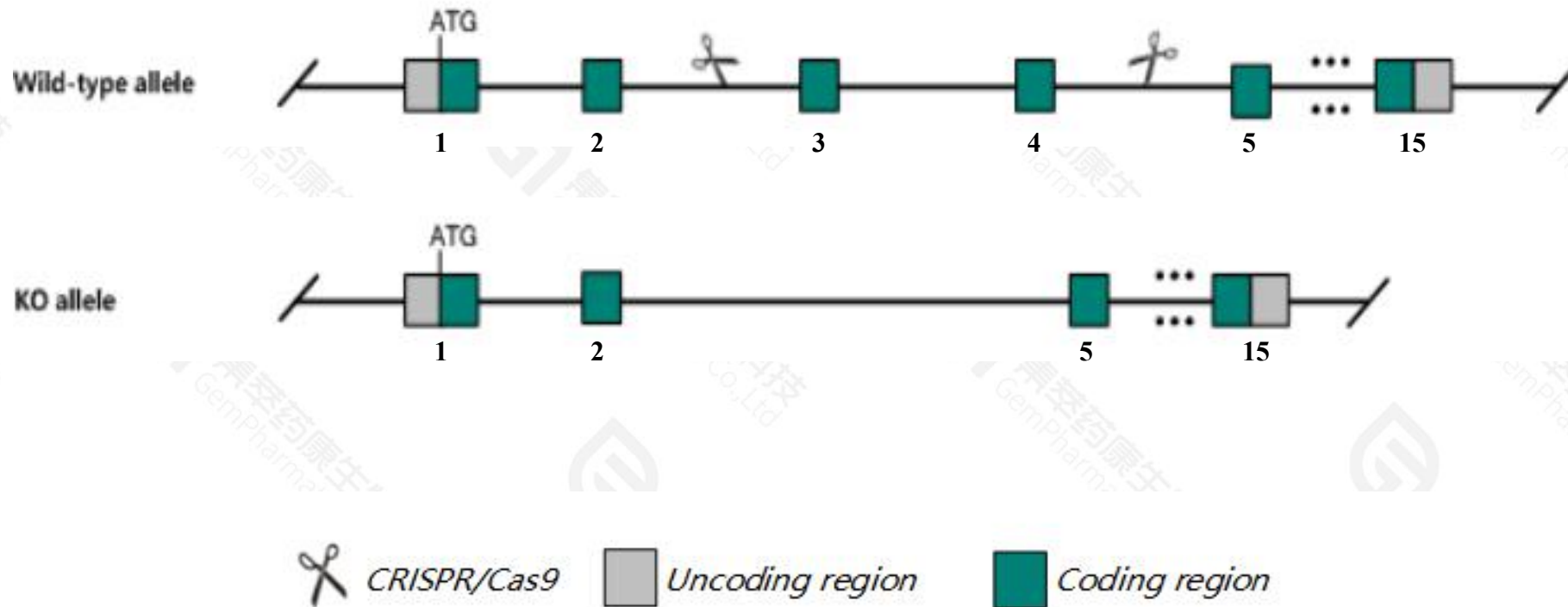
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Igf2bp1* gene. The schematic diagram is as follows:



- The *Igf2bp1* gene has 5 transcripts. According to the structure of *Igf2bp1* gene, exon3-exon4 of *Igf2bp1*-201(ENSMUST00000013559.3) transcript is recommended as the knockout region. The region contains 101bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Igf2bp1* 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 locus results in increased neonatal lethality, growth retardation, and impaired intestinal development. Males exhibit increased anxiety-like response and decreased exploratory behavior.
- Transcript *Igf2bp1-202* may not be affected.
- The *Igf2bp1* gene is located on the Chr11. 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.

Igf2bp1 insulin-like growth factor 2 mRNA binding protein 1 [Mus musculus (house mouse)]

Gene ID: 140486, updated on 4-Feb-2021

Summary



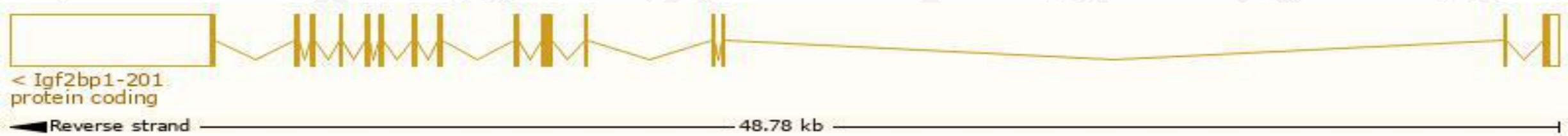
Official Symbol	Igf2bp1 provided by MGI
Official Full Name	insulin-like growth factor 2 mRNA binding protein 1 provided by MGI
Primary source	MGI:MGI:1890357
See related	Ensembl:ENSMUSG00000013415
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AL024068, AW549074, CRD-, CRD-BP, Crd, Crdbp, D030026A21Rik, D11Moh4, D11Moh40, D11Moh40e, D11Moh45, IM, IMP, IMP-1, IMP1, Neilsen, ZBP-1, Zbp, Zbp1, mir-3063
Expression	Biased expression in CNS E11.5 (RPKM 17.9), placenta adult (RPKM 10.3) and 7 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

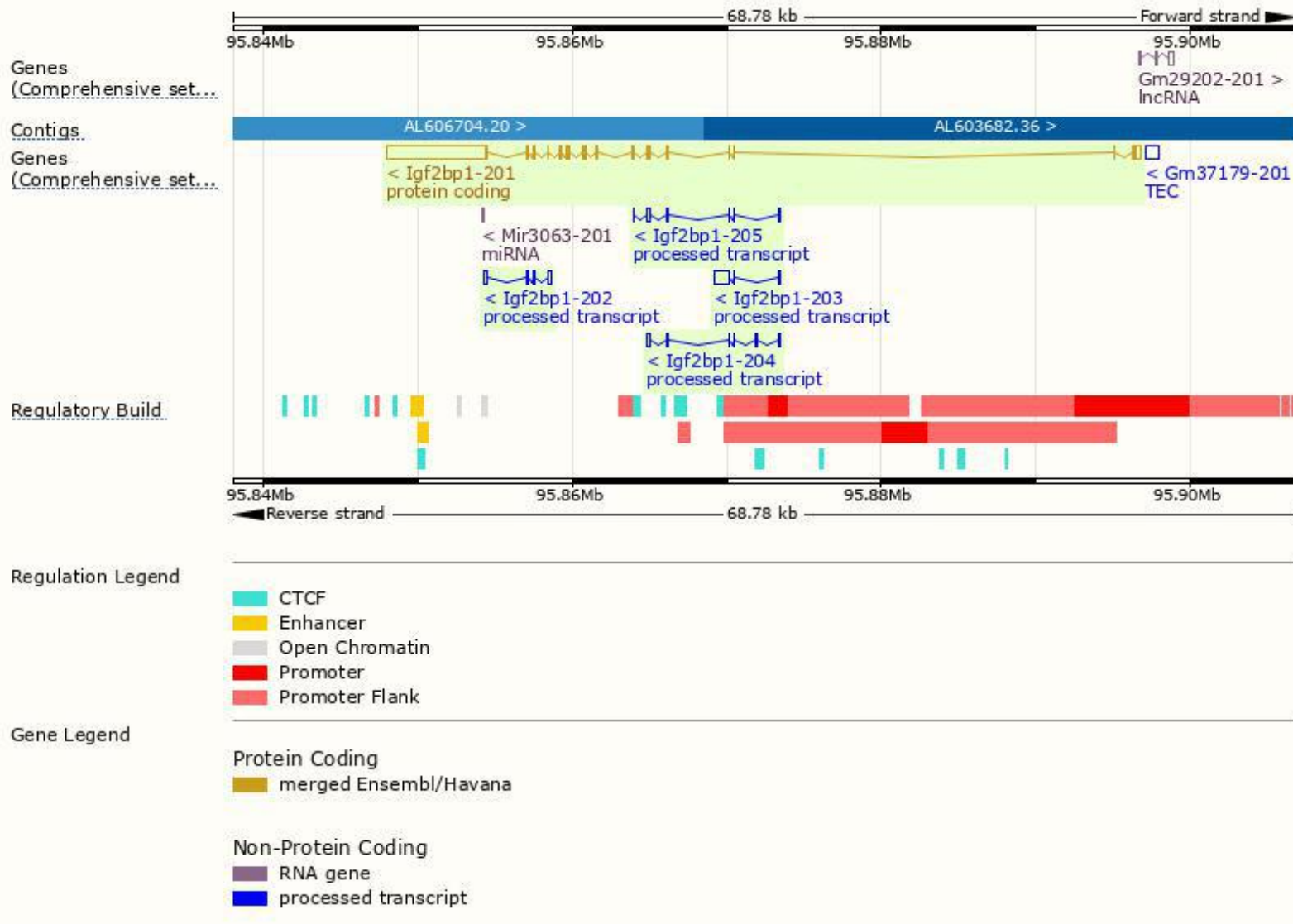
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Igf2bp1-201	ENSMUST00000013559.3	8378	577aa	Protein coding	CCDS25286		TSL:1 , GENCODE basic , APPRIS P1 ,
Igf2bp1-203	ENSMUST00000141515.2	1108	No protein	Processed transcript	-		TSL:1 ,
Igf2bp1-202	ENSMUST00000138513.2	690	No protein	Processed transcript	-		TSL:3 ,
Igf2bp1-204	ENSMUST00000146586.8	599	No protein	Processed transcript	-		TSL:2 ,
Igf2bp1-205	ENSMUST00000152896.8	576	No protein	Processed transcript	-		TSL:2 ,

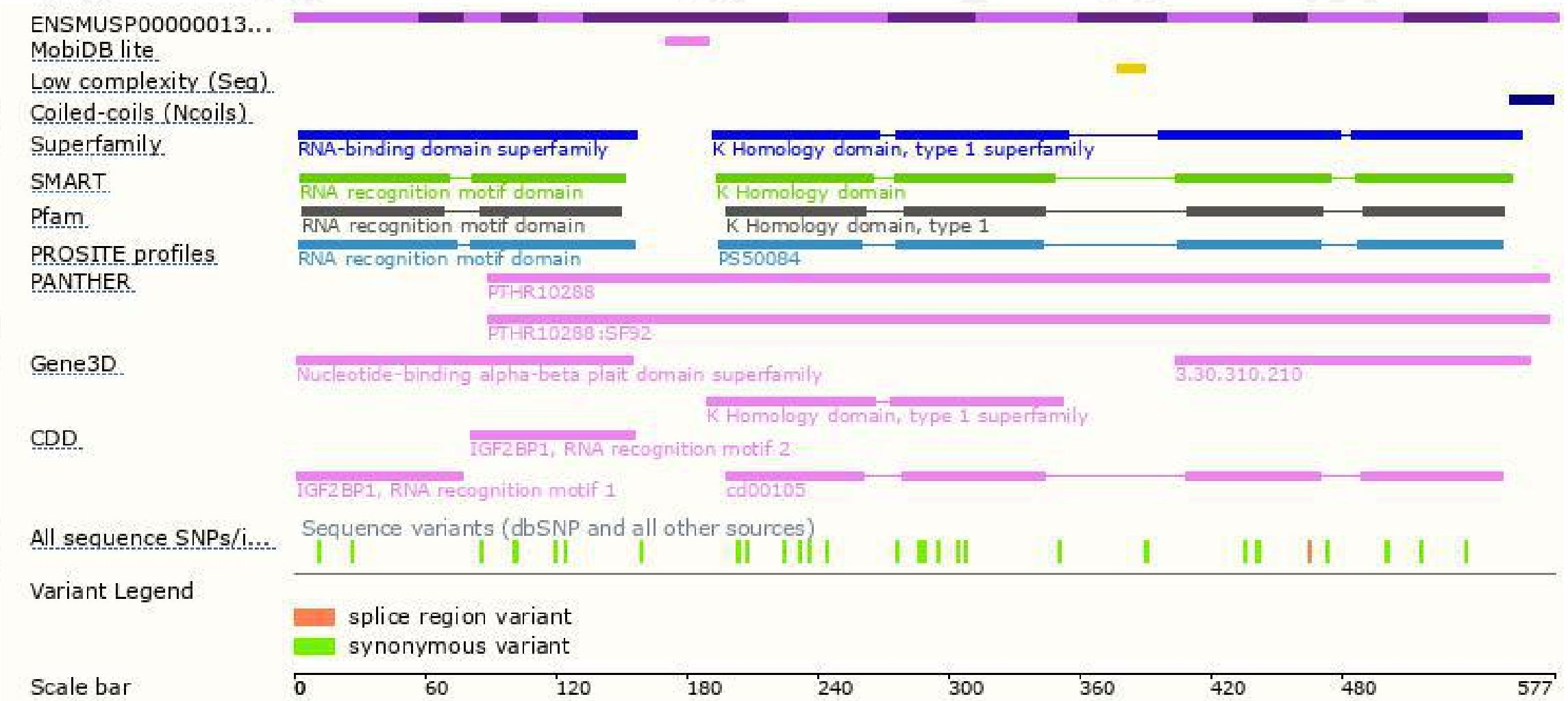
The strategy is based on the design of *Igf2bp1-201* transcript,the transcription is shown below:



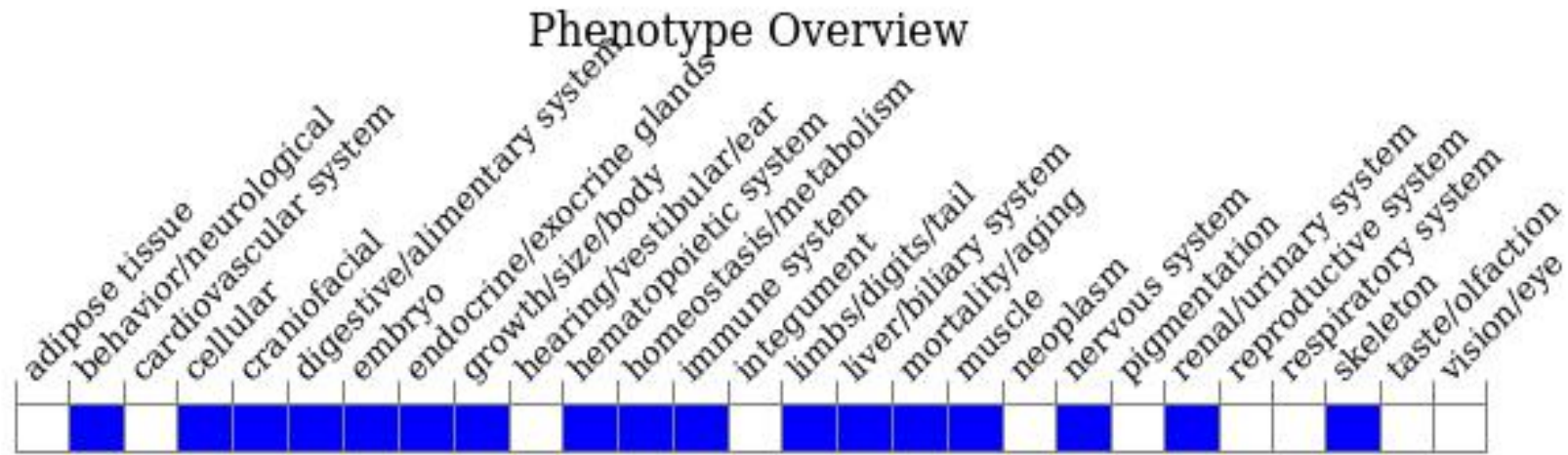
Genomic location distribution



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 locus results in increased neonatal lethality, growth retardation, and impaired intestinal development. Males exhibit increased anxiety-like response and decreased exploratory behavior.

If you have any questions, you are welcome to inquire.
Tel: 400-9660890

