Slc6a19 Cas9-CKO Strategy

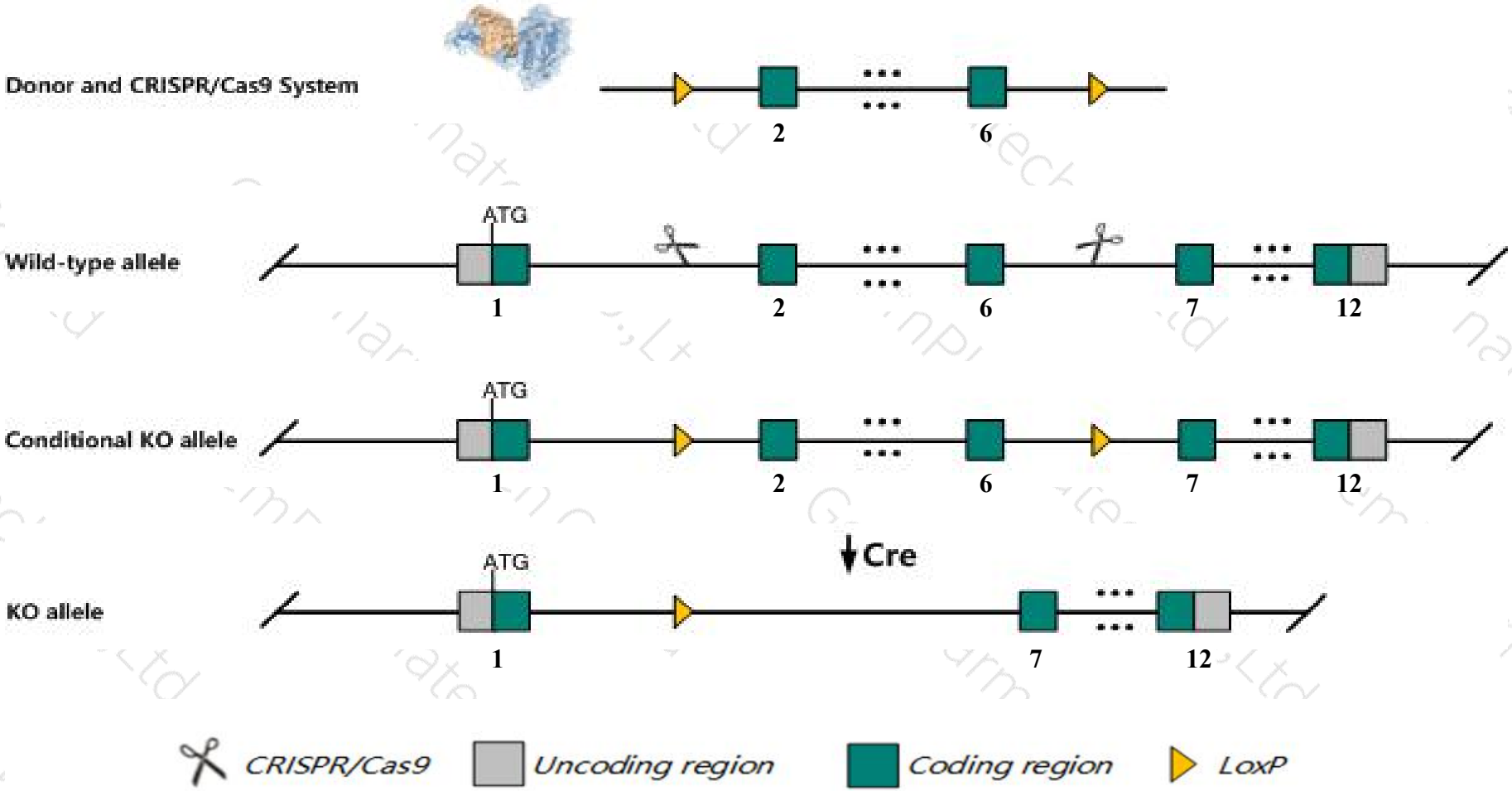
Designer:Xiaojing Li
Reviewer:JiaYu
Design Date:2020-2-11

Project Overview

Project Name	***Slc6a19***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc6a19* gene. The schematic diagram is as follows:



Technical routes

- The *Slc6a19* gene has 7 transcripts. According to the structure of *Slc6a19* gene, exon2-exon6 of *Slc6a19-201* (ENSMUST00000022048.5) transcript is recommended as the knockout region.The region contains 685bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Slc6a19* 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 knock-out allele exhibit decreased body weight and impaired amino acid absorption and excretion.

➢ The *Slc6a19* gene is located on the Chr13. 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

Slc6a19 solute carrier family 6 (neurotransmitter transporter), member 19 [*Mus musculus* (house mouse)]

Gene ID: 74338, updated on 10-Oct-2019

Summary

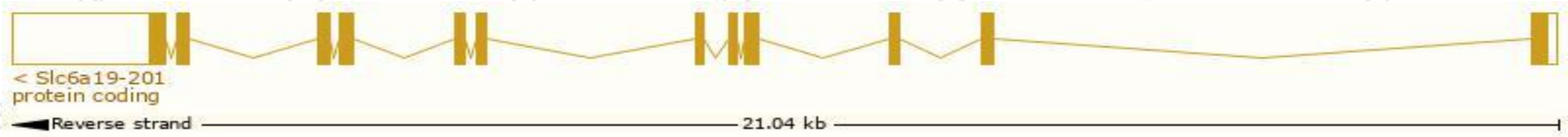
Official Symbol	Slc6a19 provided by MGI
Official Full Name	solute carrier family 6 (neurotransmitter transporter), member 19 provided by MGI
Primary source	MGI:MGI:1921588
See related	Ensembl:ENSMUSG00000021565
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	B<0>AT1; 4632401C08Rik
Expression	Biased expression in kidney adult (RPKM 169.0), large intestine adult (RPKM 126.9) and 2 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

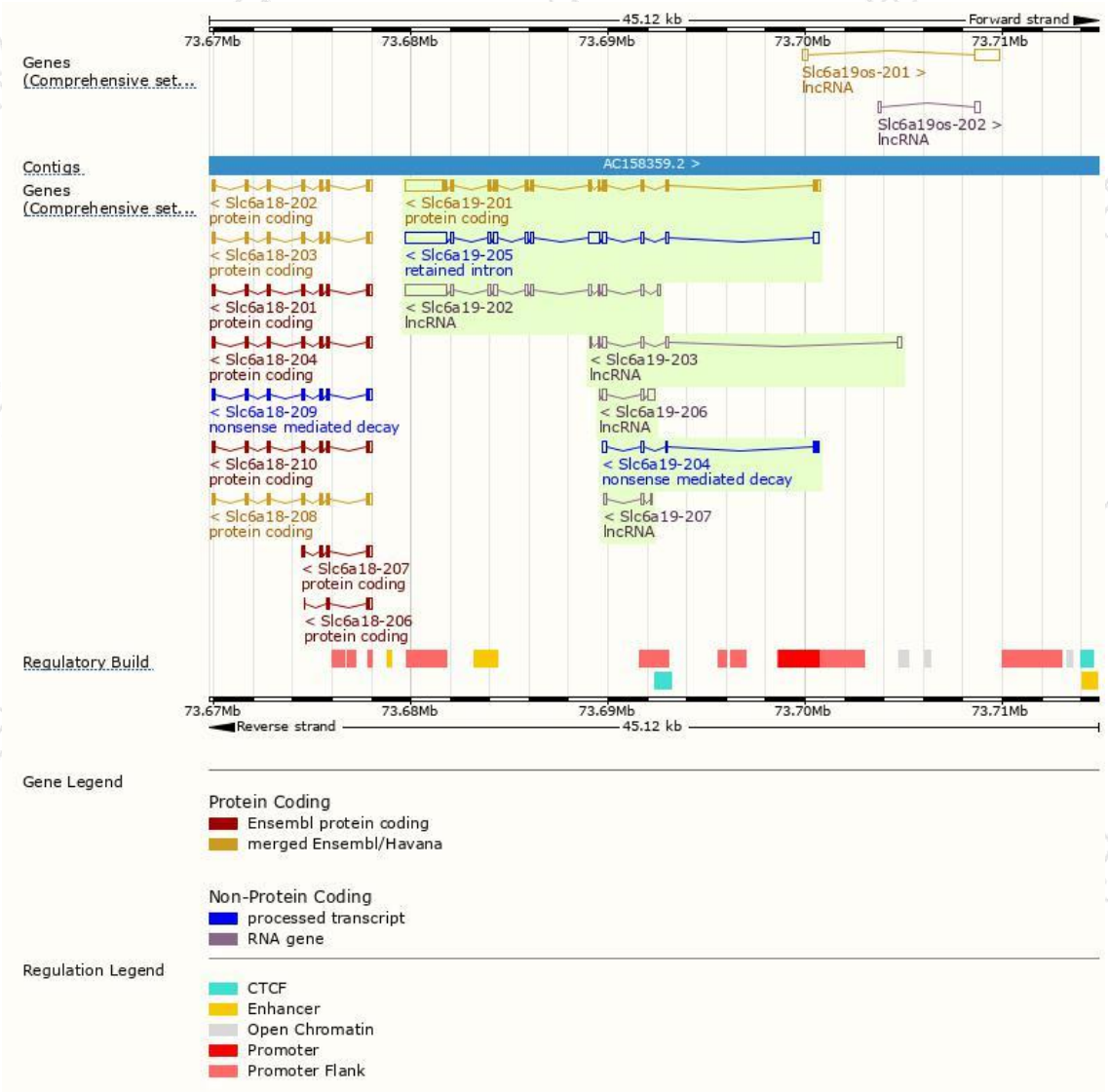
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc6a19-201	ENSMUST00000022048.5	3936	634aa	Protein coding	CCDS26634	Q3KN89 Q9D687	TSL:1 GENCODE basic APPRIS P1
Slc6a19-204	ENSMUST00000124406.7	607	83aa	Nonsense mediated decay	-	D6RJ80	TSL:3
Slc6a19-205	ENSMUST00000132085.7	4192	No protein	Retained intron	-	-	TSL:1
Slc6a19-202	ENSMUST00000120322.7	3592	No protein	lncRNA	-	-	TSL:1
Slc6a19-203	ENSMUST00000123997.7	839	No protein	lncRNA	-	-	TSL:5
Slc6a19-206	ENSMUST00000139087.7	745	No protein	lncRNA	-	-	TSL:3
Slc6a19-207	ENSMUST00000140878.1	360	No protein	lncRNA	-	-	TSL:3

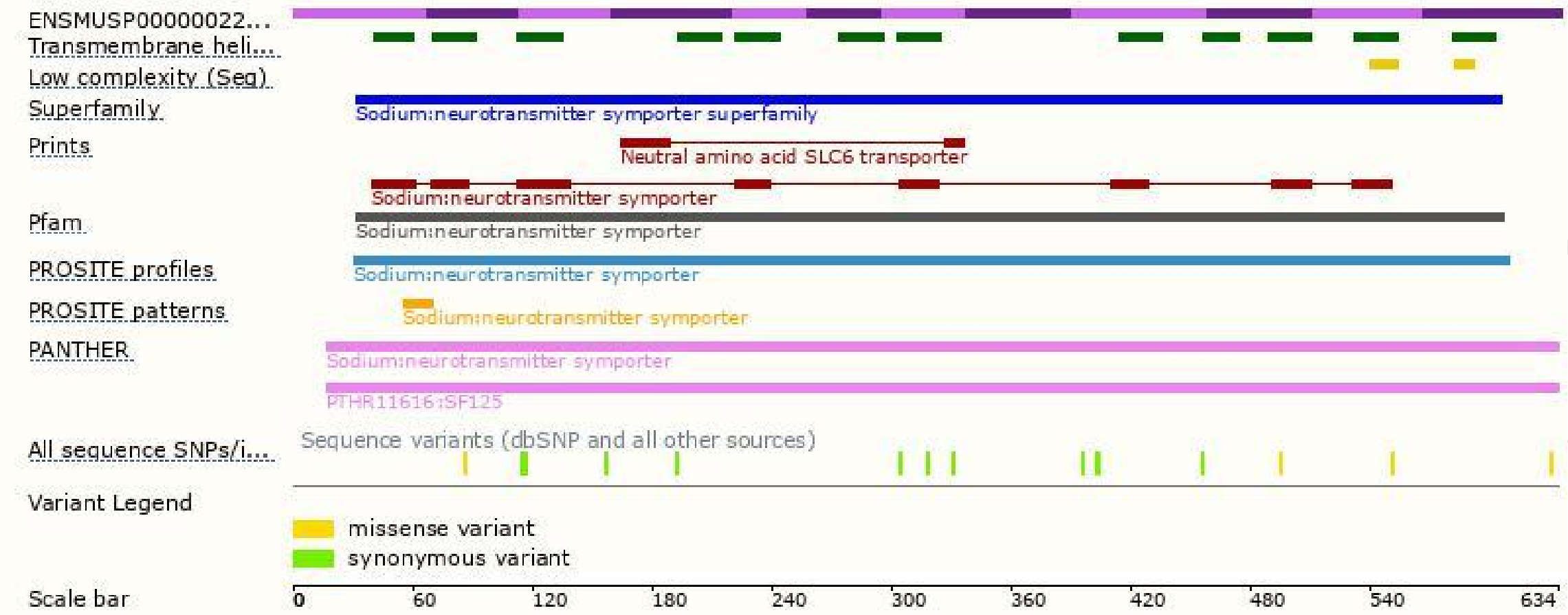
The strategy is based on the design of *Slc6a19-201* transcript,The transcription is shown below



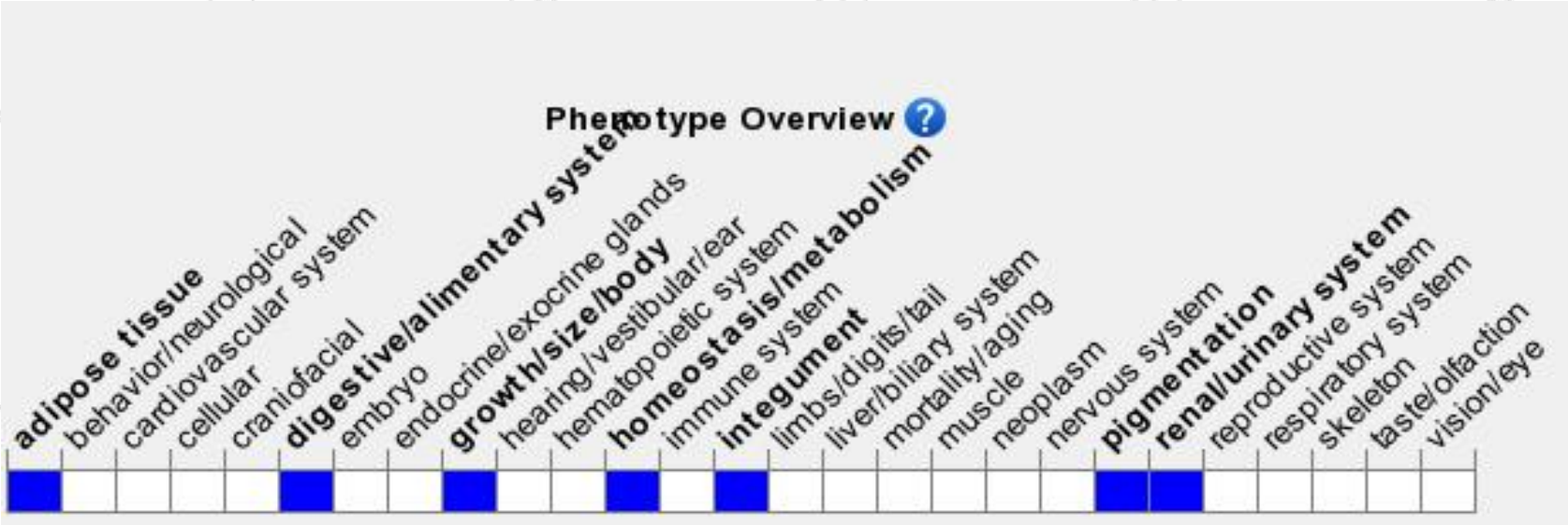
Genomic location distribution



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 a knock-out allele exhibit decreased body weight and impaired amino acid absorption and excretion.

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