

Slc1a5 Cas9-CKO Strategy

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Project Overview

Project Name

Slc1a5

Project type

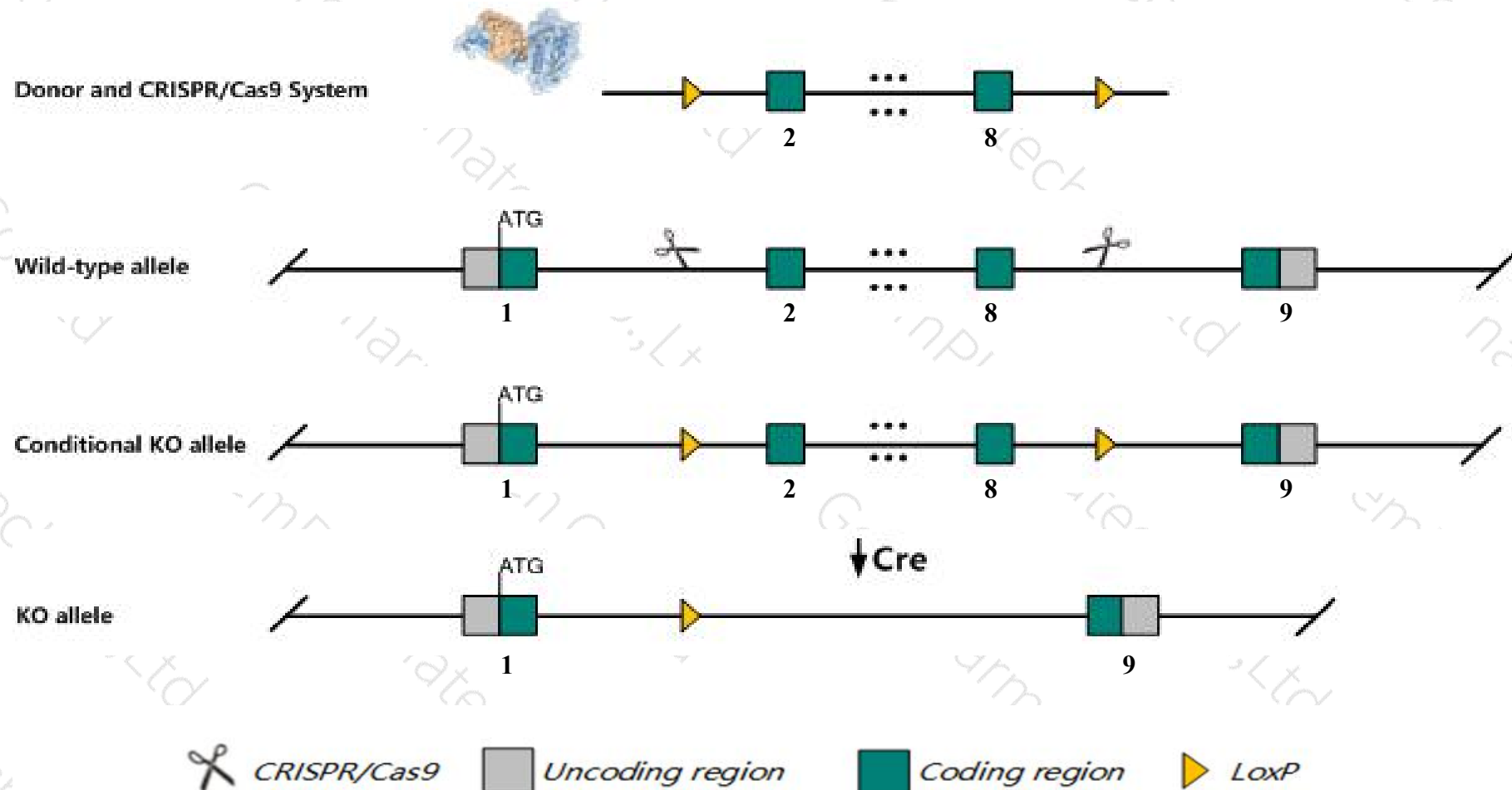
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc1a5* gene. The schematic diagram is as follows:



- The *Slc1a5* gene has 8 transcripts. According to the structure of *Slc1a5* gene, exon2-exon8 of *Slc1a5-201* (ENSMUST00000108496.8) transcript is recommended as the knockout region. The region contains 855bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Slc1a5* 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.

- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit reduced B cells, CD4+ memory T cells in older mice, Th1 and Th17 T cells, susceptibility to EAE and T cell uptake of glutamine and leucine.
- The *Slc1a5* gene is located on the Chr7. 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)

Slc1a5 solute carrier family 1 (neutral amino acid transporter), member 5 [Mus musculus (house mouse)]

Gene ID: 20514, updated on 31-Jan-2019

Summary



Official Symbol Slc1a5 provided by [MGI](#)

Official Full Name solute carrier family 1 (neutral amino acid transporter), member 5 provided by [MGI](#)

Primary source [MGI:MGI:105305](#)

See related [Ensembl:ENSMUSG000000001918](#)

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 AAAT, ASCT2, ATBO, M7V1, M7VS1, R16, RDRC, Slc1a7

Expression Broad expression in subcutaneous fat pad adult (RPKM 377.3), mammary gland adult (RPKM 328.6) and 17 other tissues [See more](#)

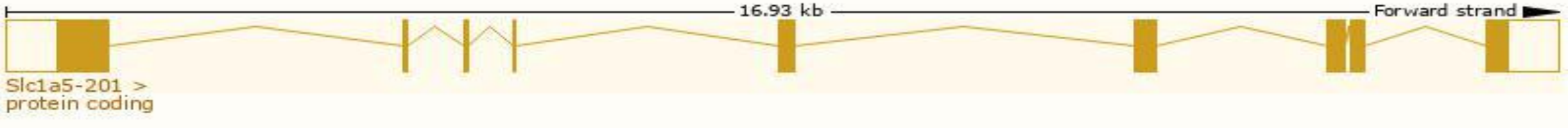
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

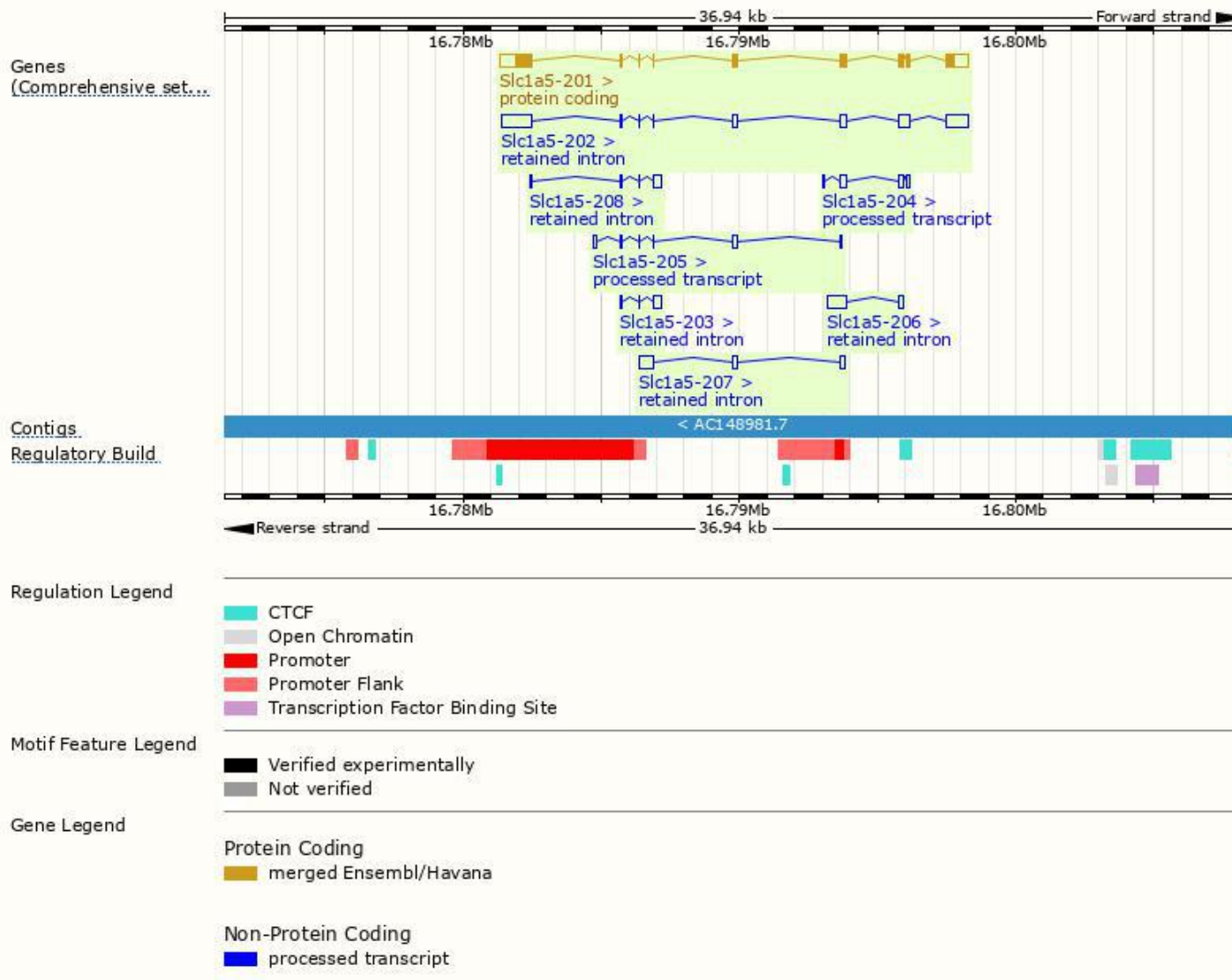
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc1a5-201	ENSMUST00000108496.8	2764	555aa	Protein coding	CCDS39785	Q9ESU7	TSL:1 GENCODE basic APPRIS P1
Slc1a5-204	ENSMUST00000134407.1	613	No protein	Processed transcript	-	-	TSL:5
Slc1a5-205	ENSMUST00000135817.2	416	No protein	Processed transcript	-	-	TSL:2
Slc1a5-202	ENSMUST00000127401.7	2807	No protein	Retained intron	-	-	TSL:1
Slc1a5-206	ENSMUST00000141349.1	890	No protein	Retained intron	-	-	TSL:2
Slc1a5-207	ENSMUST00000147814.1	853	No protein	Retained intron	-	-	TSL:3
Slc1a5-208	ENSMUST00000206444.1	475	No protein	Retained intron	-	-	TSL:2
Slc1a5-203	ENSMUST00000131664.1	396	No protein	Retained intron	-	-	TSL:3

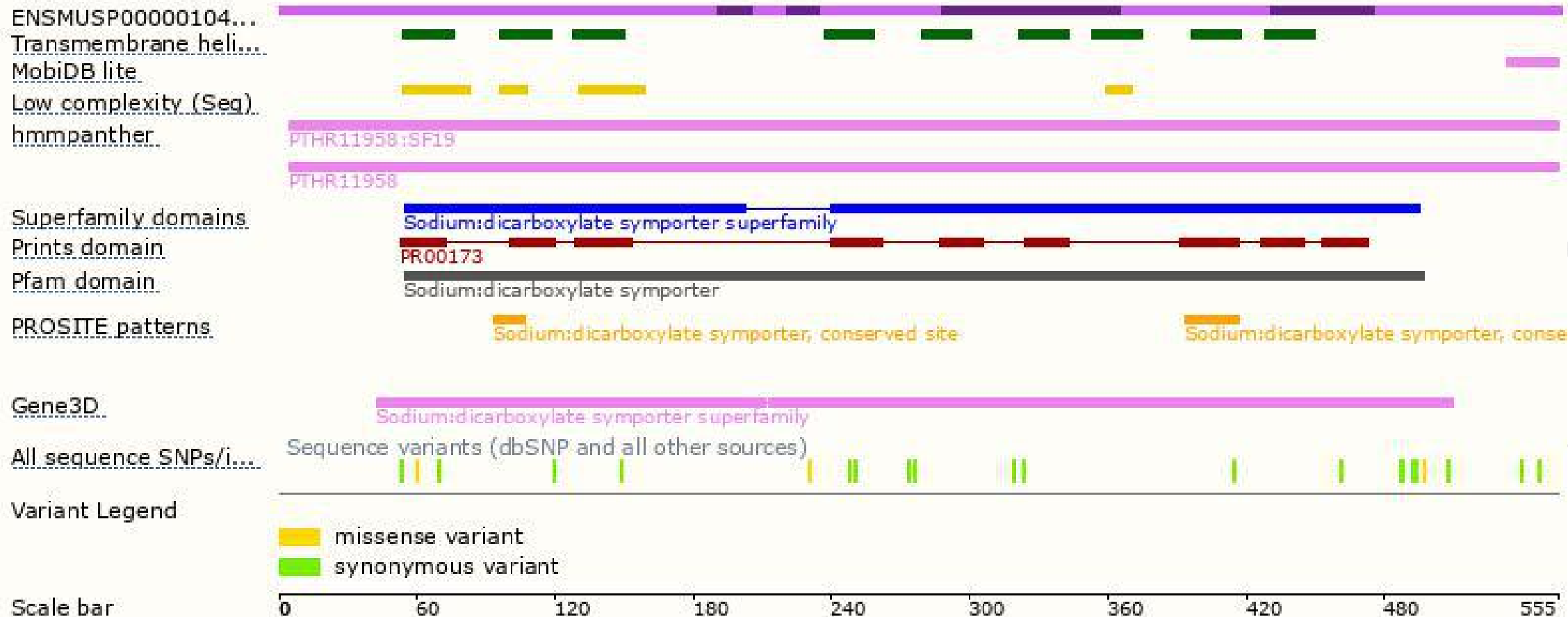
The strategy is based on the design of *Slc1a5-201* transcript,The transcription is shown below



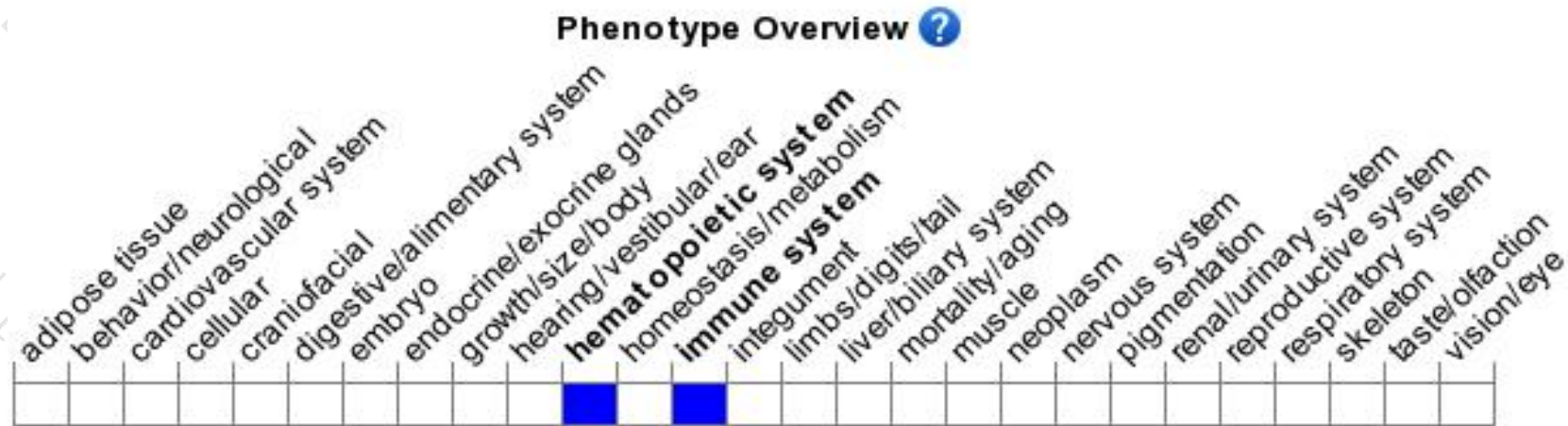
Genomic location distribution



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 reduced B cells, CD4+ memory T cells in older mice, Th1 and Th17 T cells, susceptibility to EAE and T cell uptake of glutamine and leucine.

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

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