

Slc6a6 Cas9-KO Strategy

Designer:	Yang Zeng
Reviewer:	
Design Date:	2019-11-19

Project Overview

Project Name

Slc6a6

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc6a6* gene. The schematic diagram is as follows:



- The *Slc6a6* gene has 11 transcripts. According to the structure of *Slc6a6* gene, exon4-exon5 of *Slc6a6-201* (ENSMUST00000032185.8) transcript is recommended as the knockout region. The region contains 370bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Slc6a6* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous mutant mice have impaired vision associated with retinal degeneration. In addition to the visual defects, mutant mice exhibit reduced female fertility and decreased levels of taurine in a variety of tissues.
- The *Slc6a6* gene is located on the Chr6. 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.

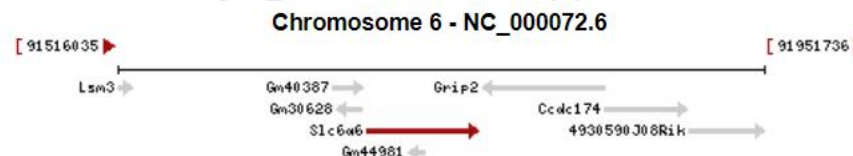
Gene information (NCBI)

Slc6a6 solute carrier family 6 (neurotransmitter transporter, taurine), member 6 [*Mus musculus* (house mouse)]

Gene ID: 21366, updated on 10-Oct-2019

Summary

Official Symbol	Slc6a6 provided by MGI
Official Full Name	solute carrier family 6 (neurotransmitter transporter, taurine), member 6 provided by MGI
Primary source	MGI:MGI:98488
See related	Ensembl:ENSMUSG00000030096
Gene type	protein coding
RefSeq status	VALIDATED
Organism	<i>Mus musculus</i>
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Taut; C80501; AA589629
Expression	Ubiquitous expression in adrenal adult (RPKM 68.2), kidney adult (RPKM 51.4) and 28 other tissues See more
Orthologs	human all

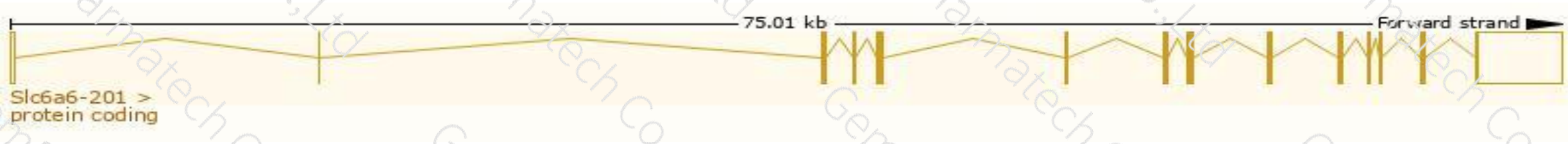


Transcript information (Ensembl)

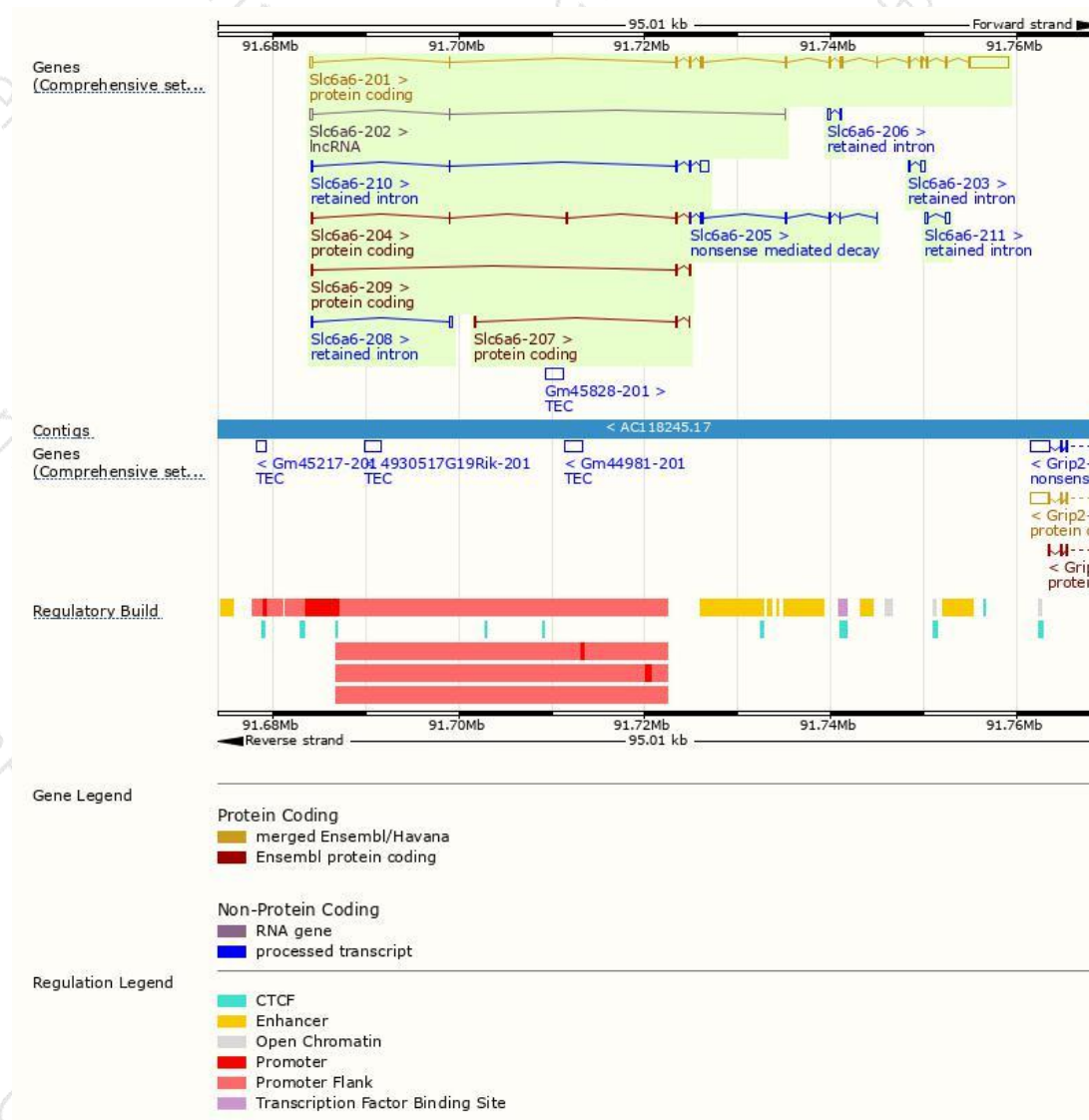
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Slc6a6-201	ENSMUST00000032185.8	6186	621aa	ENSMUSP00000032185.7	Protein coding	CCDS39570	Q35316 Q3UPI8	TSL:1 GENCODE basic APPRIS P1
Slc6a6-204	ENSMUST000000205480.1	691	110aa	ENSMUSP000000145794.1	Protein coding	-	A0A0U1RP20	CDS 3' incomplete TSL:5
Slc6a6-209	ENSMUST000000206545.1	557	121aa	ENSMUSP000000146306.1	Protein coding	-	A0A0U1RQA0	CDS 3' incomplete TSL:3
Slc6a6-207	ENSMUST000000205828.1	431	83aa	ENSMUSP000000146312.1	Protein coding	-	A0A0U1RQA5	CDS 3' incomplete TSL:5
Slc6a6-205	ENSMUST000000205663.1	738	49aa	ENSMUSP000000145986.1	Nonsense mediated decay	-	A0A0U1RPH7	CDS 5' incomplete TSL:5
Slc6a6-210	ENSMUST000000206835.1	1553	No protein	-	Retained intron	-	-	TSL:1
Slc6a6-211	ENSMUST000000206988.1	682	No protein	-	Retained intron	-	-	TSL:3
Slc6a6-203	ENSMUST000000205477.1	559	No protein	-	Retained intron	-	-	TSL:3
Slc6a6-206	ENSMUST000000205764.1	510	No protein	-	Retained intron	-	-	TSL:2
Slc6a6-208	ENSMUST000000206451.1	481	No protein	-	Retained intron	-	-	TSL:3
Slc6a6-202	ENSMUST000000205443.1	374	No protein	-	lncRNA	-	-	TSL:3

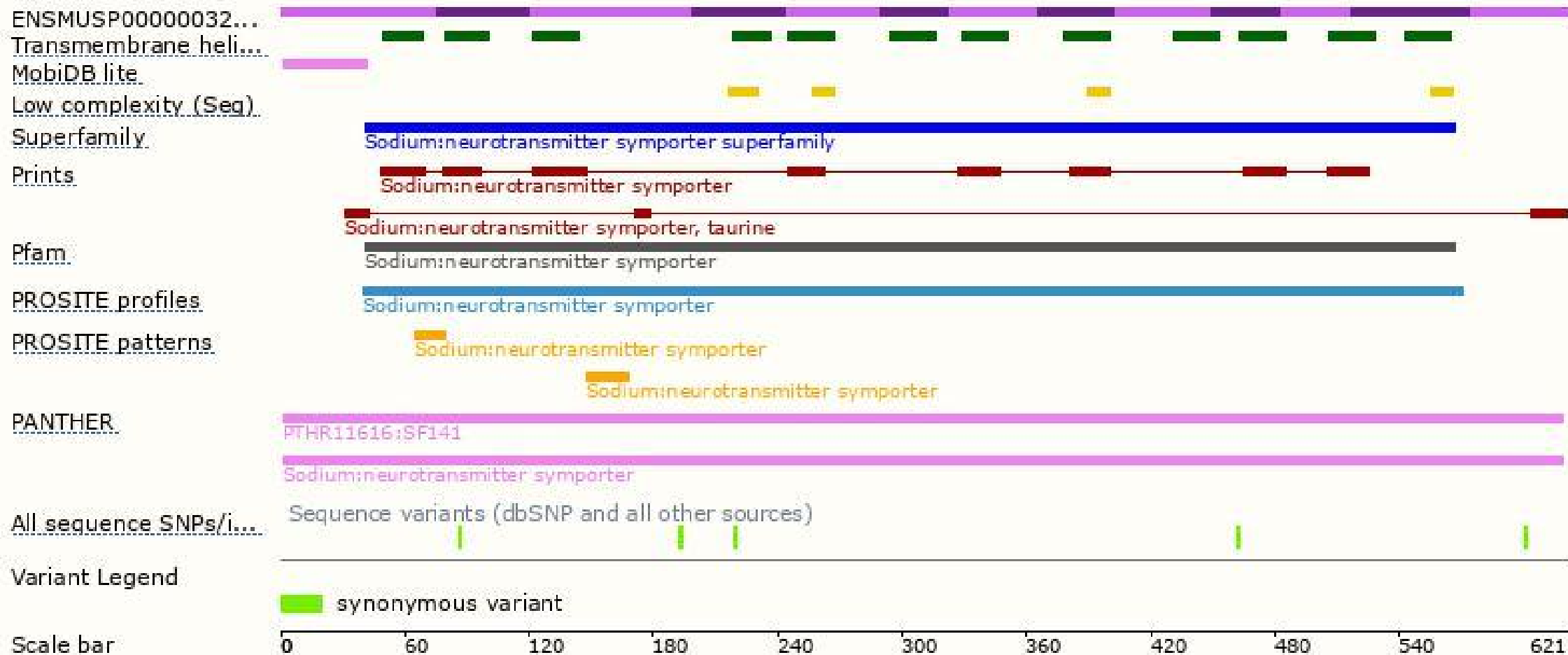
The strategy is based on the design of *Slc6a6-201* transcript,The transcription is shown below



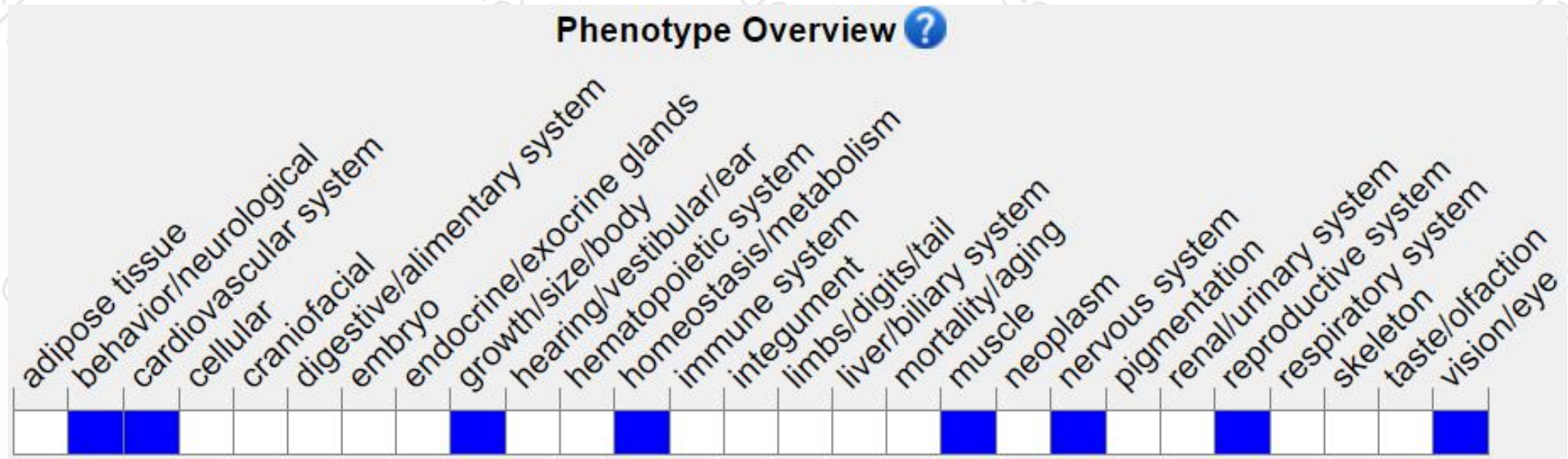
Genomic location distribution



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 mutant mice have impaired vision associated with retinal degeneration. In addition to the visual defects, mutant mice exhibit reduced female fertility and decreased levels of taurine in a variety of tissues.

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

Tel: 400-9660890

