

Slc1a4 Cas9-KO Strategy

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Reviewer:

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Design Date:

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Project Overview

Project Name

Slc1a4

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc1a4* gene. The schematic diagram is as follows:



- The *Slc1a4* gene has 2 transcripts. According to the structure of *Slc1a4* gene, exon2-exon3 of *Slc1a4-202* (ENSMUST00000109594.7) transcript is recommended as the knockout region. The region contains 106bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Slc1a4* gene. The brief process is as follows: CRISPR/Cas9 system

- The *Slc1a4* 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.

Gene information (NCBI)

Slc1a4 solute carrier family 1 (glutamate/neutral amino acid transporter), member 4 [*Mus musculus* (house mouse)]

Gene ID: 55963, updated on 7-Jan-2020

Summary

Official Symbol Slc1a4 provided by [MGI](#)
Official Full Name solute carrier family 1 (glutamate/neutral amino acid transporter), member 4 provided by [MGI](#)
Primary source [MGI:MGI:2135601](#)
See related [Ensembl:ENSMUSG00000020142](#)
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 SATT; ASCT1; ASCT-1; AW045657
Expression Ubiquitous expression in CNS E18 (RPKM 12.1), whole brain E14.5 (RPKM 9.3) and 25 other tissues [See more](#)
Orthologs [human](#) [all](#)

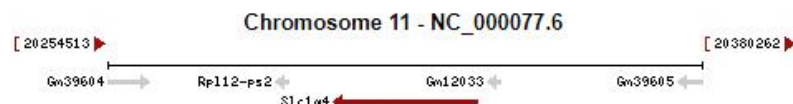
Genomic context

Location: 11 A3.1; 11 12.97 cM

See Slc1a4 in [Genome Data Viewer](#)

Exon count: 8

Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	11	NC_000077.6 (20302180..20332713, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	11	NC_000077.5 (20202183..20232716, complement)

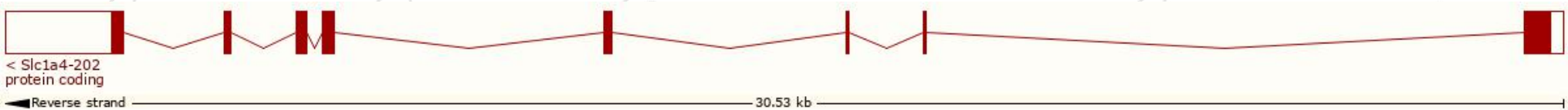


Transcript information (Ensembl)

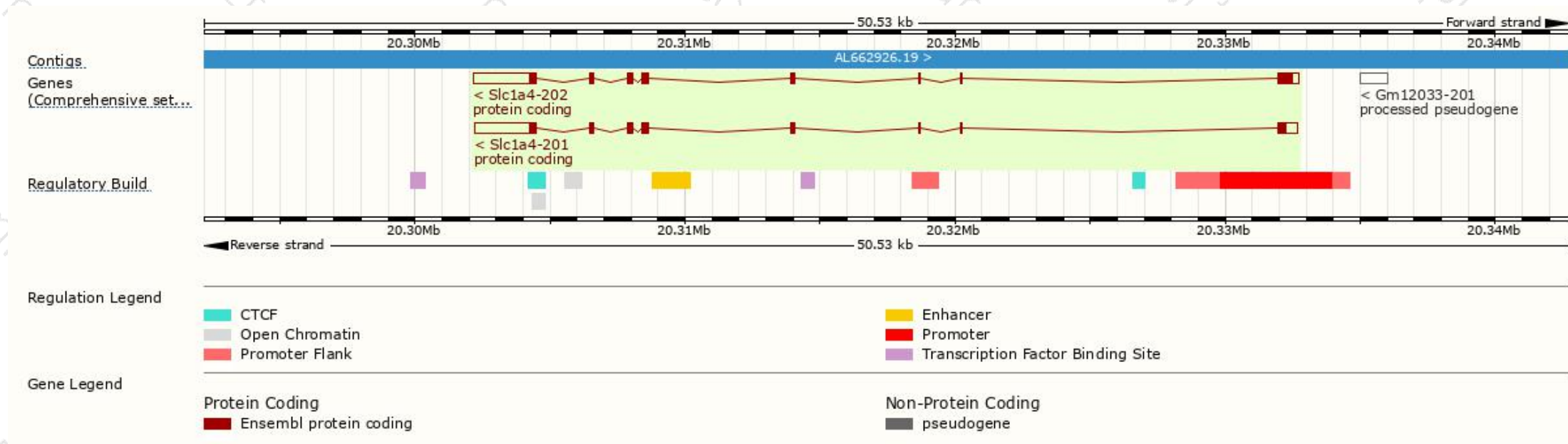
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc1a4-202	ENSMUST00000109594.7	3926	532aa	Protein coding	CCDS24457	Q35874 Q3UTP8	TSL:1 GENCODE basic APPRIS P2
Slc1a4-201	ENSMUST00000004634.6	3872	452aa	Protein coding	-	Q5SSP3	TSL:1 GENCODE basic APPRIS ALT2

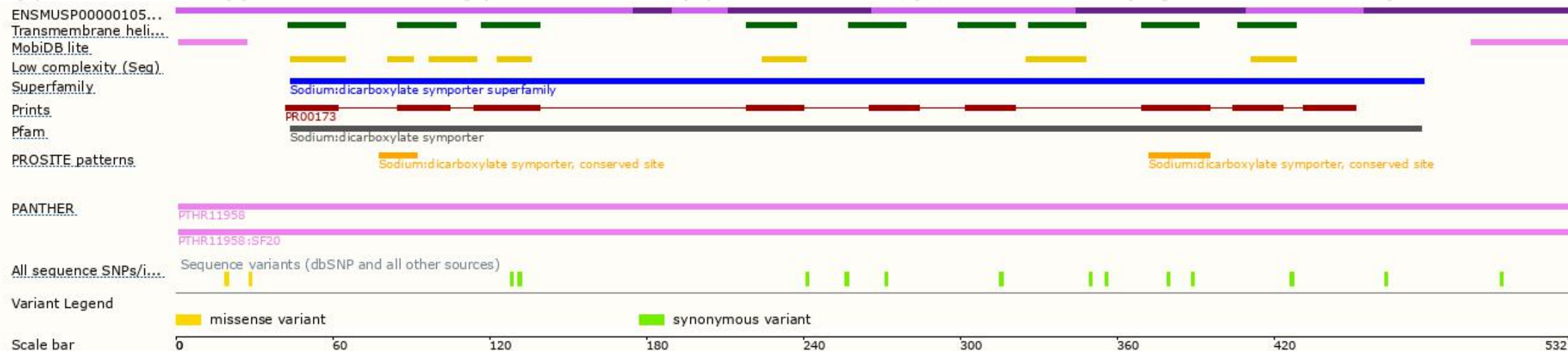
The strategy is based on the design of *Slc1a4-202* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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