

Slc2a1 Cas9-KO Strategy

Designer:

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Project Overview

Project Name

Slc2a1

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc2a1* gene. The schematic diagram is as follows:



- The *Slc2a1* gene has 5 transcripts. According to the structure of *Slc2a1* gene, exon1 of *Slc2a1-201* (ENSMUST00000030398.9) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Slc2a1* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous null embryos are small, lack visibly detectable eyes, show a diminutive rostral embryonic pole and an overall developmental delay, and die at E10-E14. Heterozygotes show spontaneous seizures, impaired motor performance, hypoglycorrachia, microencephaly, and reduced brain glucose uptake.
- The *Slc2a1* gene is located on the Chr4. 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)

Slc2a1 solute carrier family 2 (facilitated glucose transporter), member 1 [Mus musculus (house mouse)]

Gene ID: 20525, updated on 2-Apr-2019

Summary



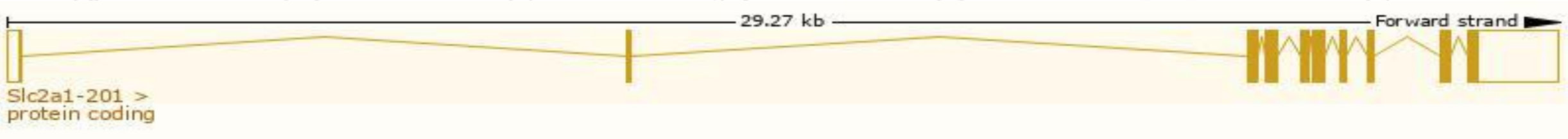
Official Symbol	Slc2a1 provided by MGI
Official Full Name	solute carrier family 2 (facilitated glucose transporter), member 1 provided by MGI
Primary source	MGI:MGI:95755
See related	Ensembl:ENSMUSG00000028645
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Glut-1, Glut1
Expression	Broad expression in liver E14.5 (RPKM 161.1), placenta adult (RPKM 140.1) and 25 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

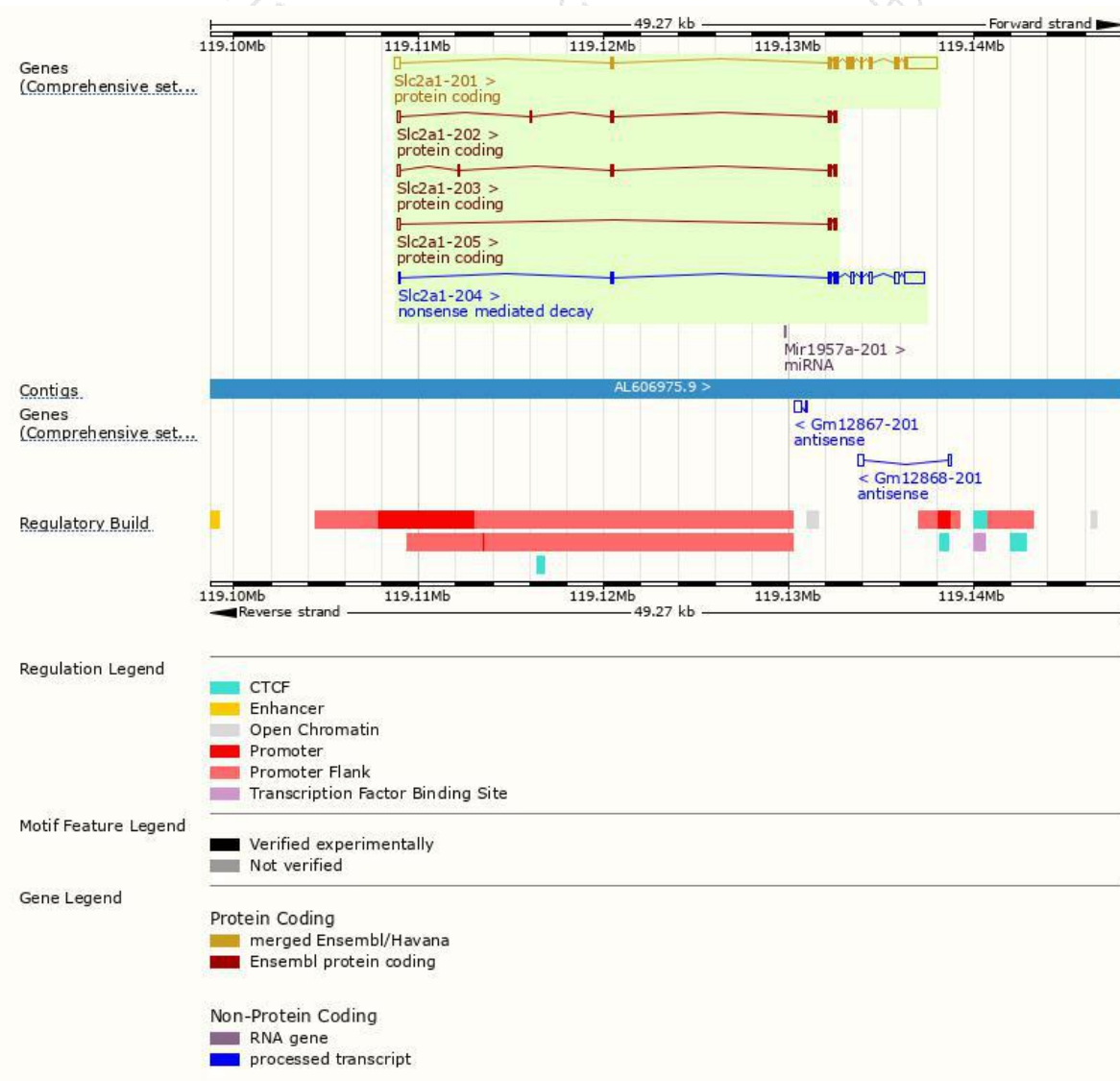
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc2a1-201	ENSMUST00000030398.9	3260	492aa	Protein coding	CCDS18569	P17809	TSL:1 GENCODE basic APPRIS P1
Slc2a1-202	ENSMUST00000134105.7	698	140aa	Protein coding	-	A2A7P3	CDS 3' incomplete TSL:2
Slc2a1-203	ENSMUST00000144329.7	633	123aa	Protein coding	-	G3UYL0	CDS 3' incomplete TSL:3
Slc2a1-205	ENSMUST00000208090.1	434	116aa	Protein coding	-	A0A140LIU2	CDS 3' incomplete TSL:5
Slc2a1-204	ENSMUST00000174372.2	2241	173aa	Nonsense mediated decay	-	G3V010	TSL:5

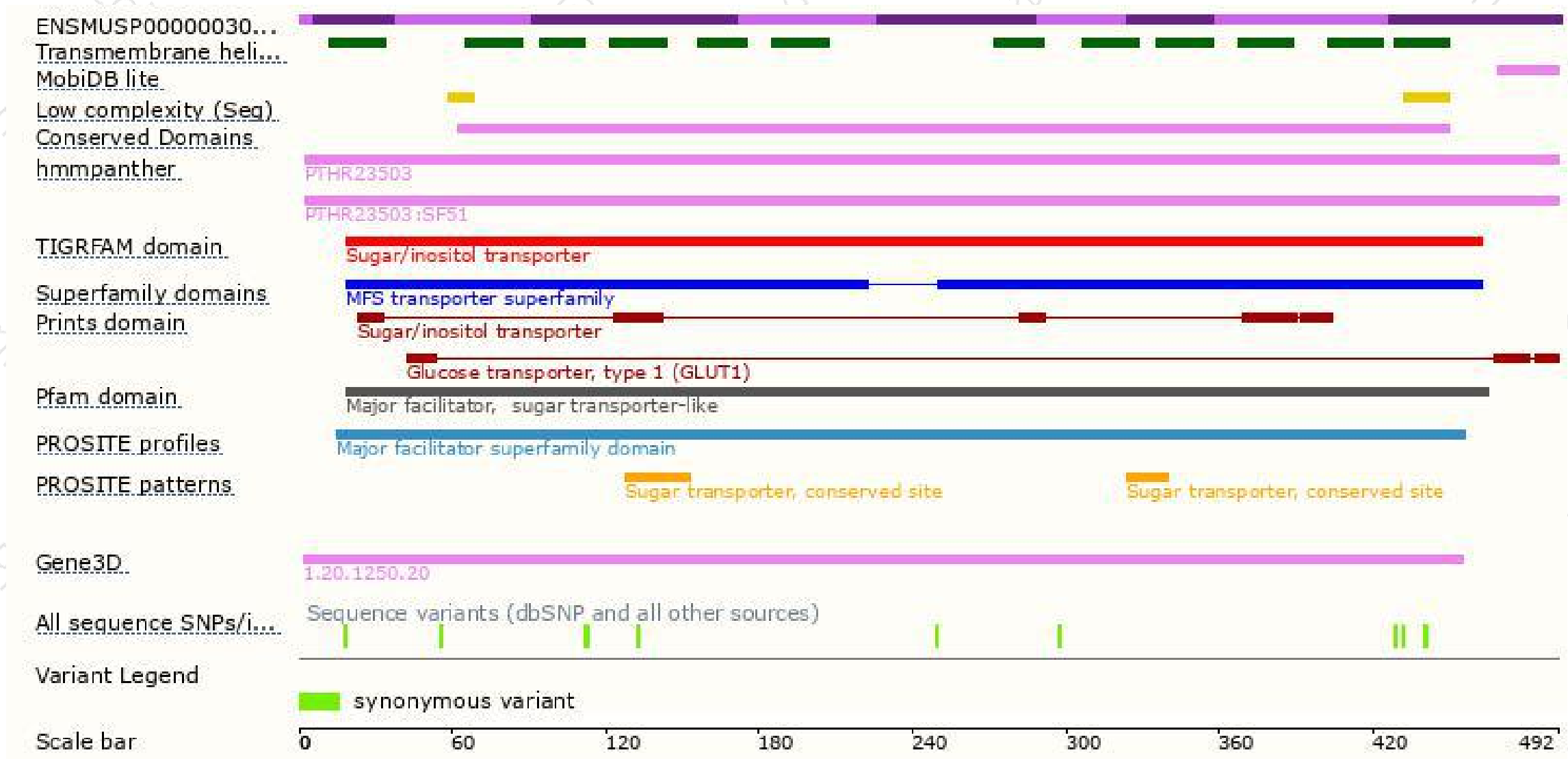
The strategy is based on the design of *Slc2a1-201* transcript,The transcription is shown below



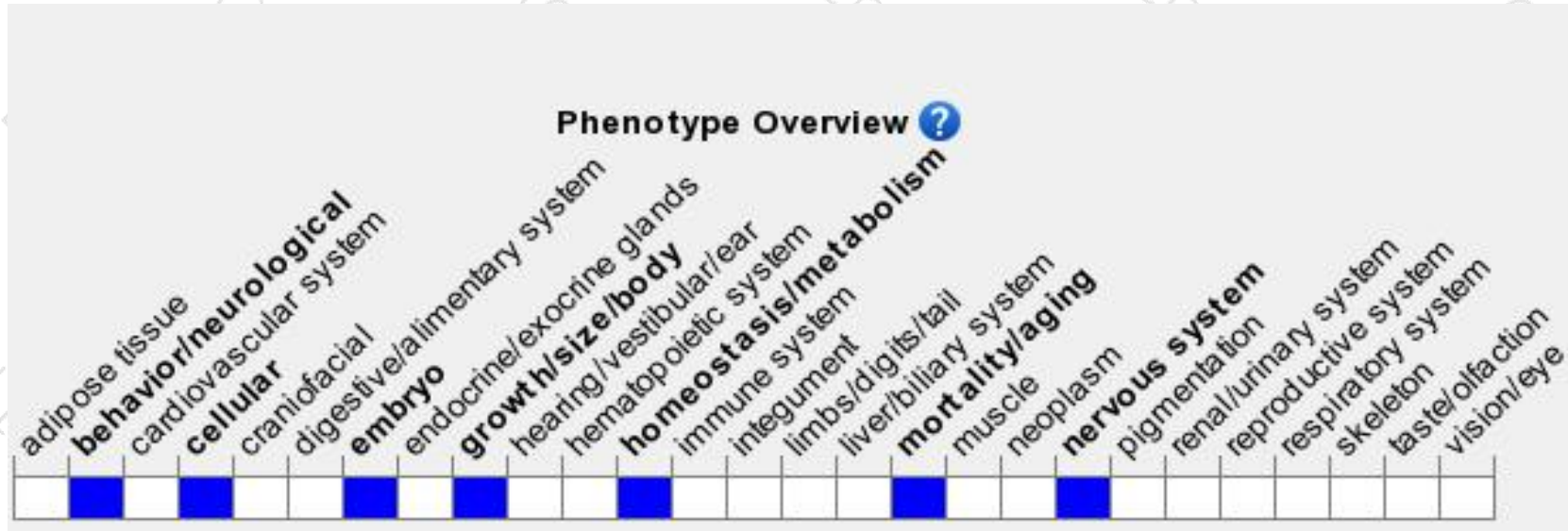
Genomic location distribution



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/>).

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

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