Slc2a2 Cas9-KO Strategy

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Project Overview

Project Name	***Slc2a2***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc2a2* gene. The schematic diagram is as follows:

Technical routes

➢ The *Slc2a2* gene has 3 transcripts. According to the structure of *Slc2a2* gene, exon3 of *Slc2a2-201* (ENSMUST00000029240.13) transcript is recommended as the knockout region.The region contains 260bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Slc2a2* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

- According to the existing MGI data,Homozygous null mice are hyperglycemic with hypoinsulinemia and die within 2-3 weeks of life displaying increased plasma levels of glucagon, free fatty acids and beta-hydroxybutyrate, abnormal glucose tolerance, and altered postnatal development of pancreatic islets.

- The *Slc2a2* gene is located on the Chr3. 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）

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Slc2a2 solute carrier family 2 (facilitated glucose transporter), member 2 [Mus musculus (house mouse)]

Gene ID: 20526, updated on 31-Jan-2019

Summary

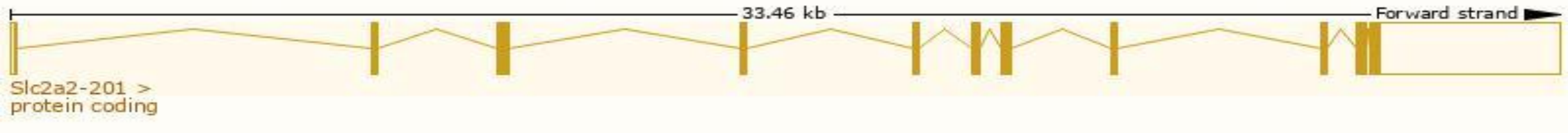
Official Symbol	Slc2a2 provided by MGI
Official Full Name	solute carrier family 2 (facilitated glucose transporter), member 2 provided by MGI
Primary source	MGI:MGI:1095438
See related	Ensembl:ENSMUSG00000027690
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI266973, Glut-2, Glut2
Expression	Biased expression in liver adult (RPKM 50.7), liver E18 (RPKM 37.6) and 7 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

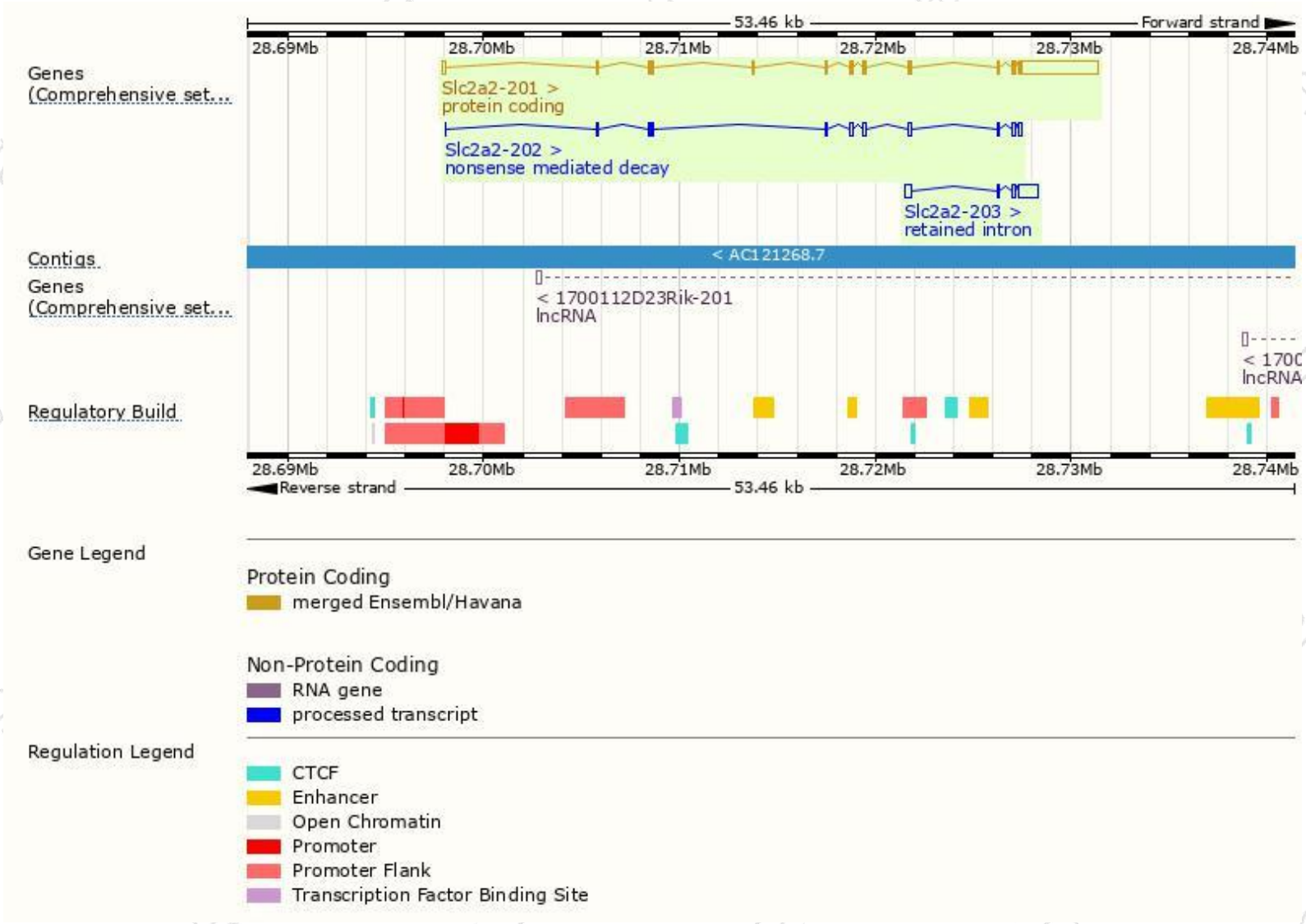
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc2a2-201	ENSMUST00000029240.13	5569	523aa	Protein coding	CCDS50880	P14246	TSL:1 GENCODE basic APPRIS P1
Slc2a2-202	ENSMUST00000163536.7	1447	159aa	Nonsense mediated decay	-	E9PXR7	TSL:5
Slc2a2-203	ENSMUST00000169047.1	1649	No protein	Retained intron	-	-	TSL:1

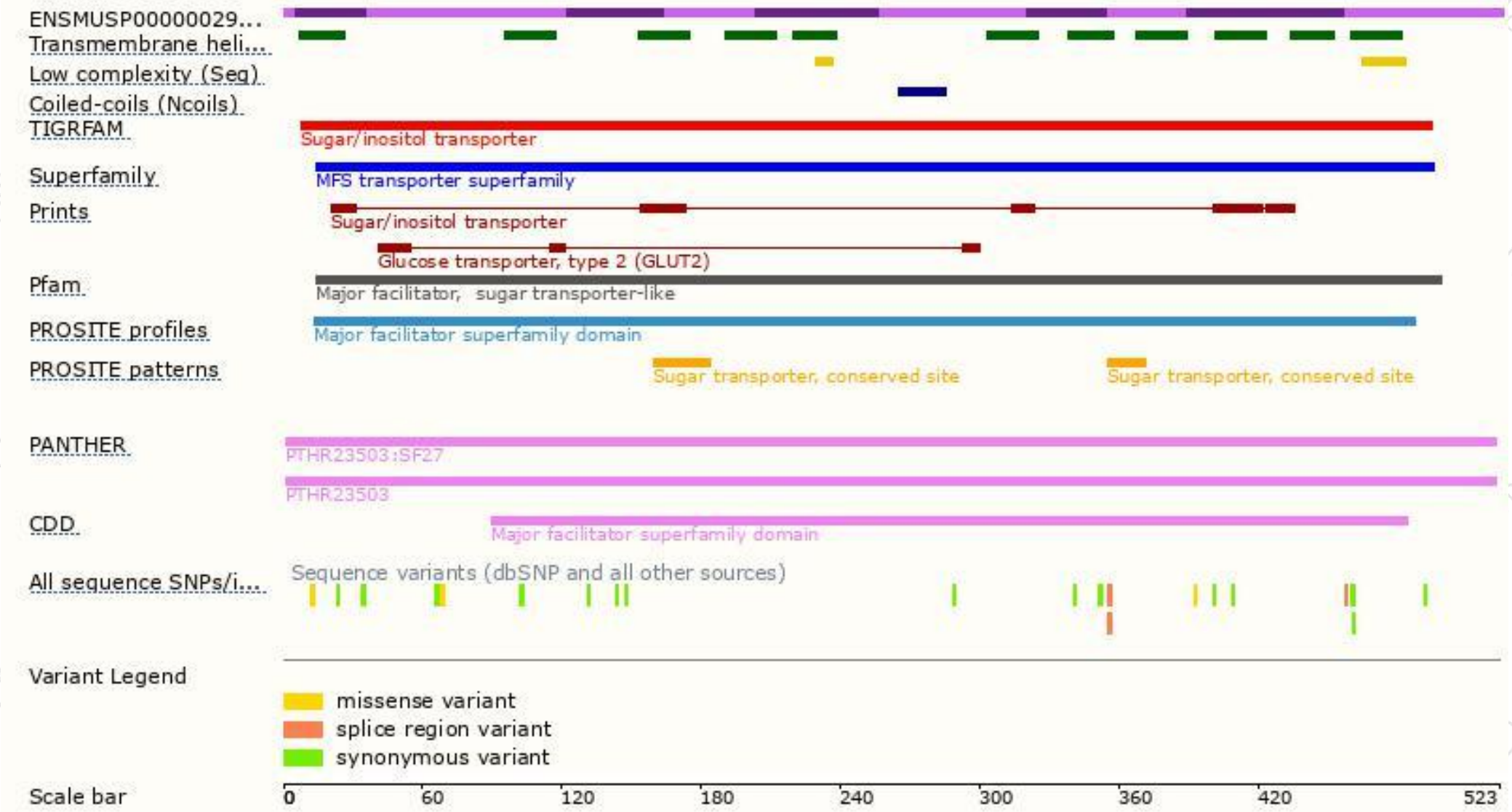
The strategy is based on the design of *Slc2a2-201* transcript,The transcription is shown below



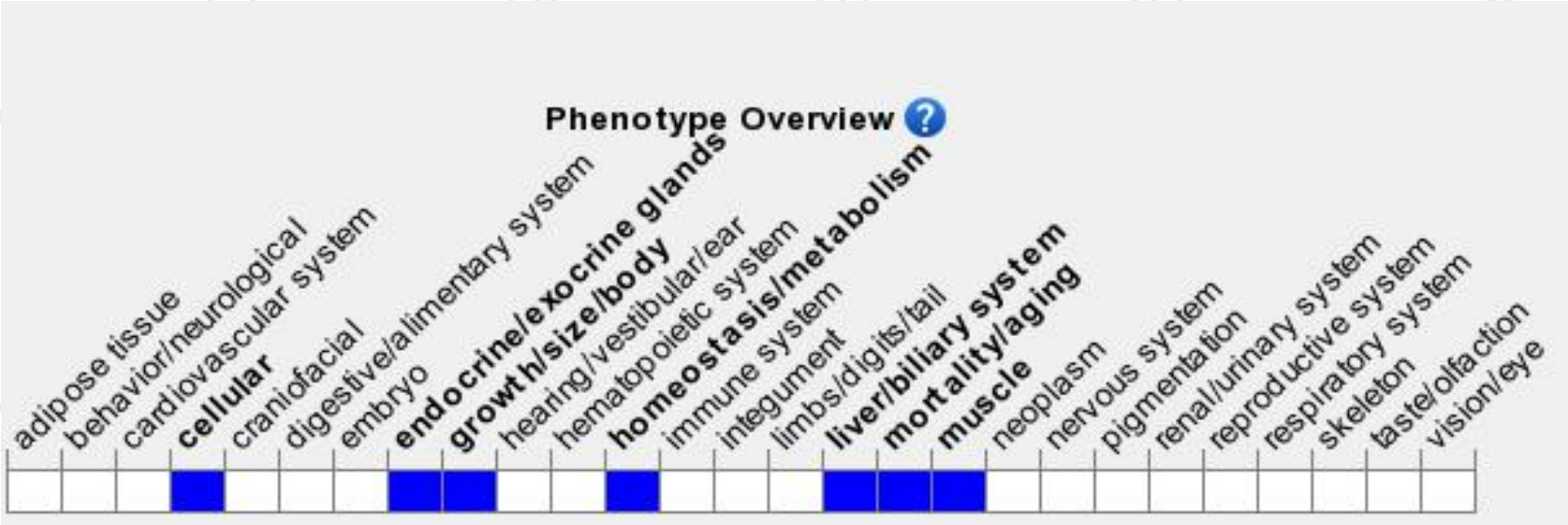
Genomic location distribution



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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