Slc19a3 Cas9-KO Strategy

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Project Overview

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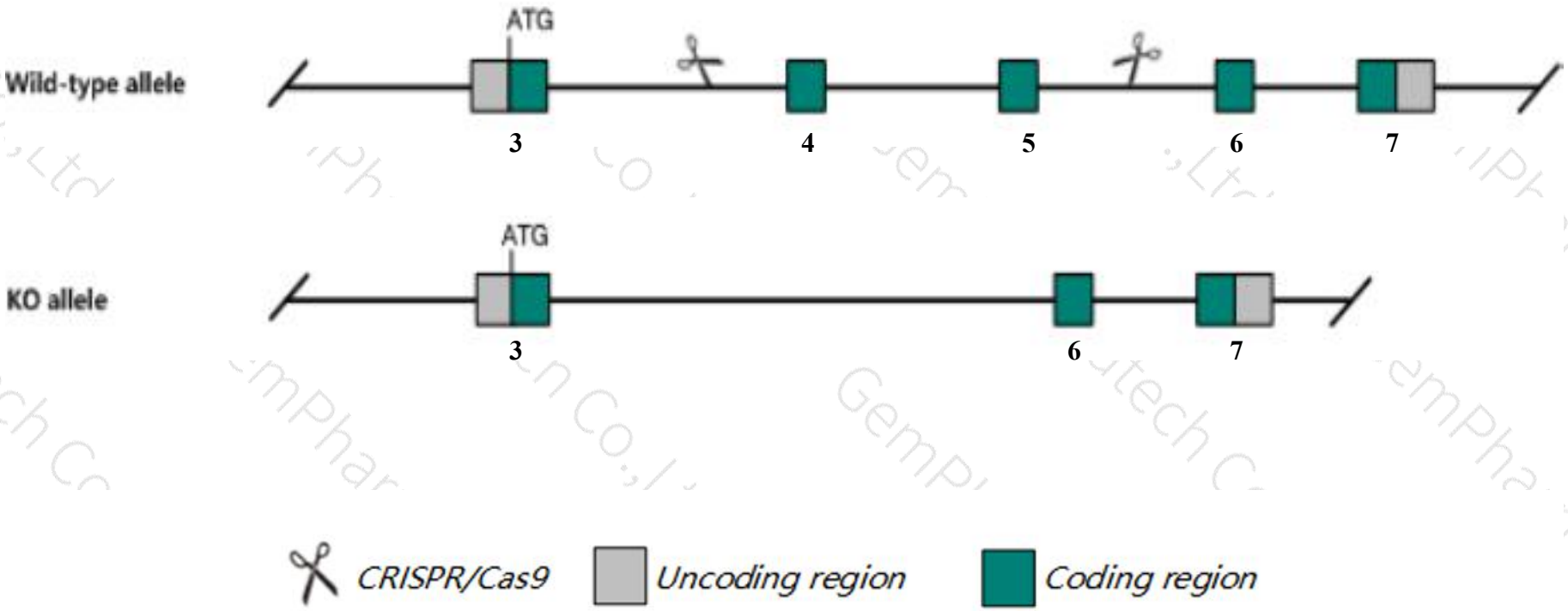
Project Name	***Slc19a3***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc19a3* gene. The schematic diagram is as follows:



Technical routes

➢ The *Slc19a3* gene has 3 transcripts. According to the structure of *Slc19a3* gene, exon4-exon5 of *Slc19a3-201* (ENSMUST00000045560.14) transcript is recommended as the knockout region.The region contains 1001bp coding sequenc Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Slc19a3* gene. The brief process is as follows: CRISPR/Cas9 syste

Notice

- According to the existing MGI data,mice homozygous for a knock-out allele exhibit premature death within a year of age, impaired thiamin uptake, lethargy, cachexia, injured liver parenchyma, hepatic necrosis, liver and kidney inflammmation, and nephrosclerosis.
- The *Slc19a3* gene is located on the Chr1. 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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Slc19a3 solute carrier family 19, member 3 [Mus musculus (house mouse)]

Gene ID: 80721, updated on 13-Mar-2020

Summary

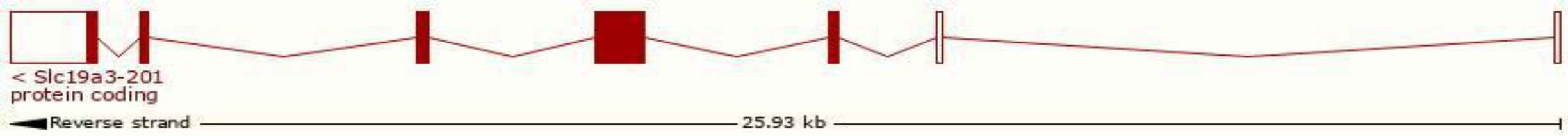
Official Symbol	Slc19a3 provided by MGI
Official Full Name	solute carrier family 19, member 3 provided by MGI
Primary source	MGI:MGI:1931307
See related	Ensembl:ENSMUSG00000038496
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	A230084E24Rik, AI788884, ThTr2
Expression	Biased expression in kidney adult (RPKM 6.0), duodenum adult (RPKM 1.7) and 10 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

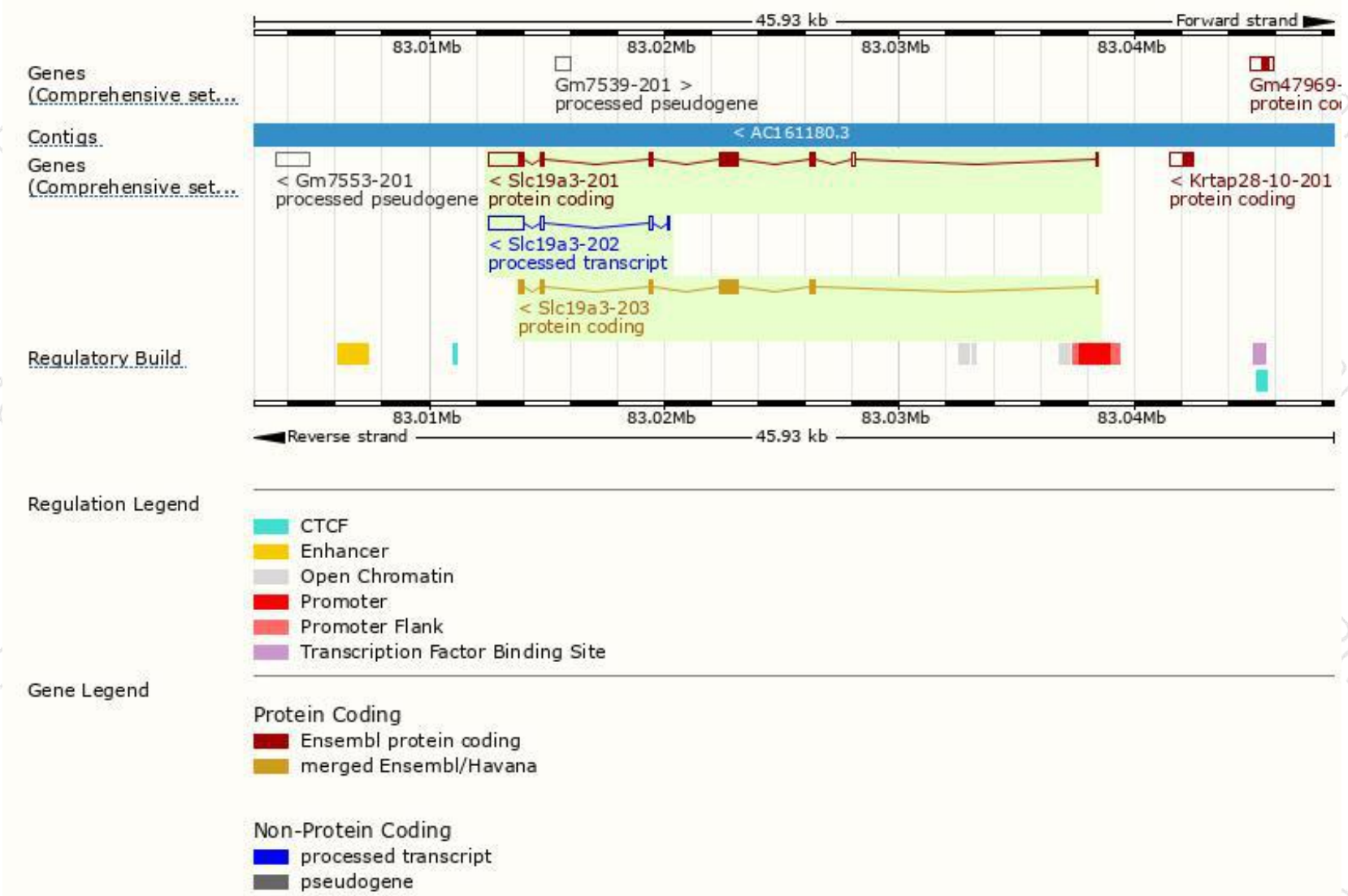
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc19a3-201	ENSMUST00000045560.14	2974	488aa	Protein coding	CCDS15101	Q99PL8	TSL:1 GENCODE basic APPRIS P1
Slc19a3-203	ENSMUST00000164473.1	1550	488aa	Protein coding	CCDS15101	Q99PL8	TSL:1 GENCODE basic APPRIS P1
Slc19a3-202	ENSMUST00000142805.1	1892	No protein	Processed transcript	-	-	TSL:1

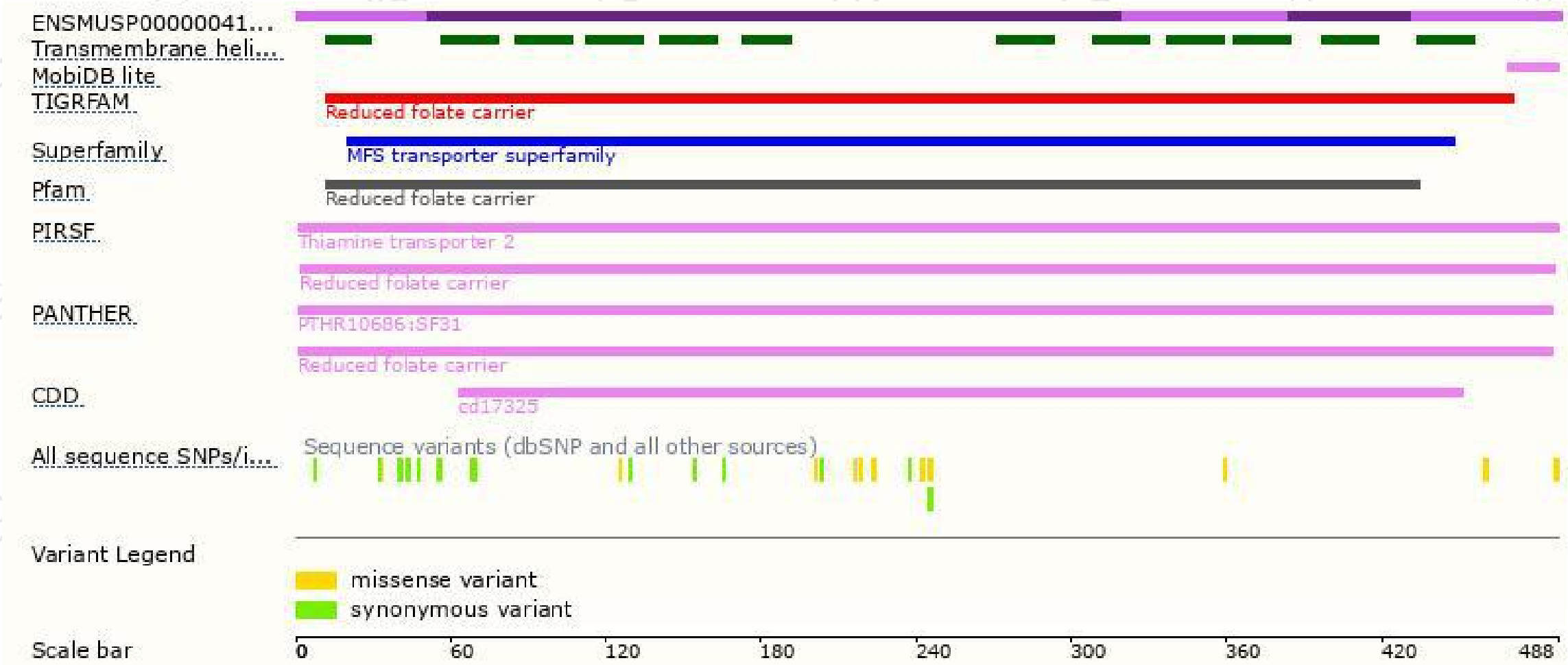
The strategy is based on the design of *Slc19a3-201* transcript,the transcription is shown below:



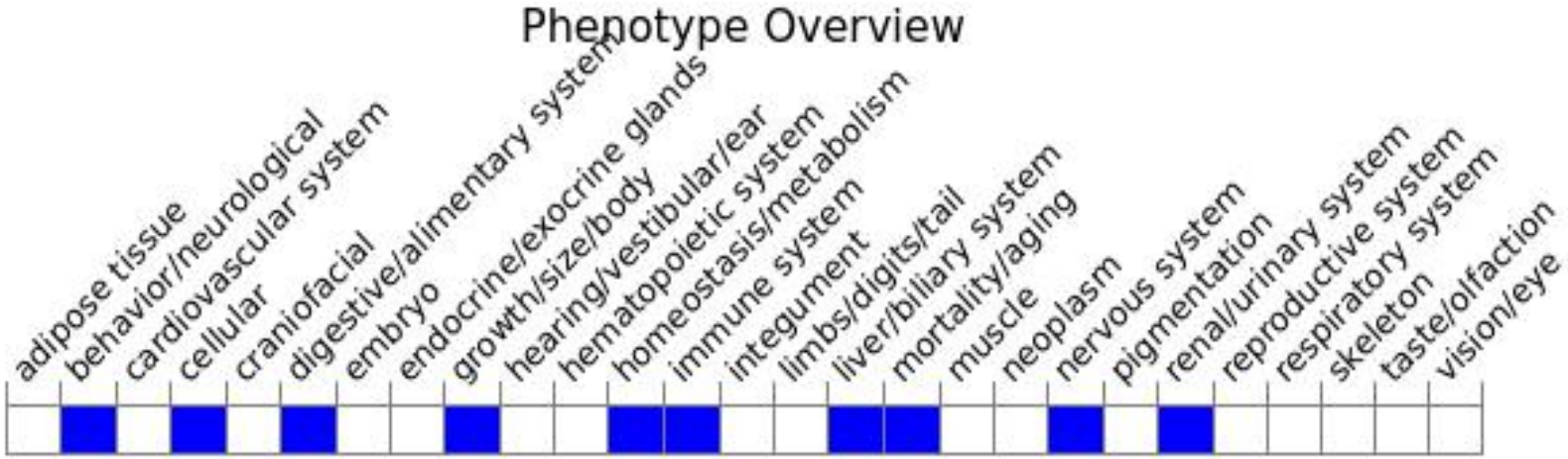
Genomic location distribution



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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