Slc7a8 Cas9-CKO Strategy

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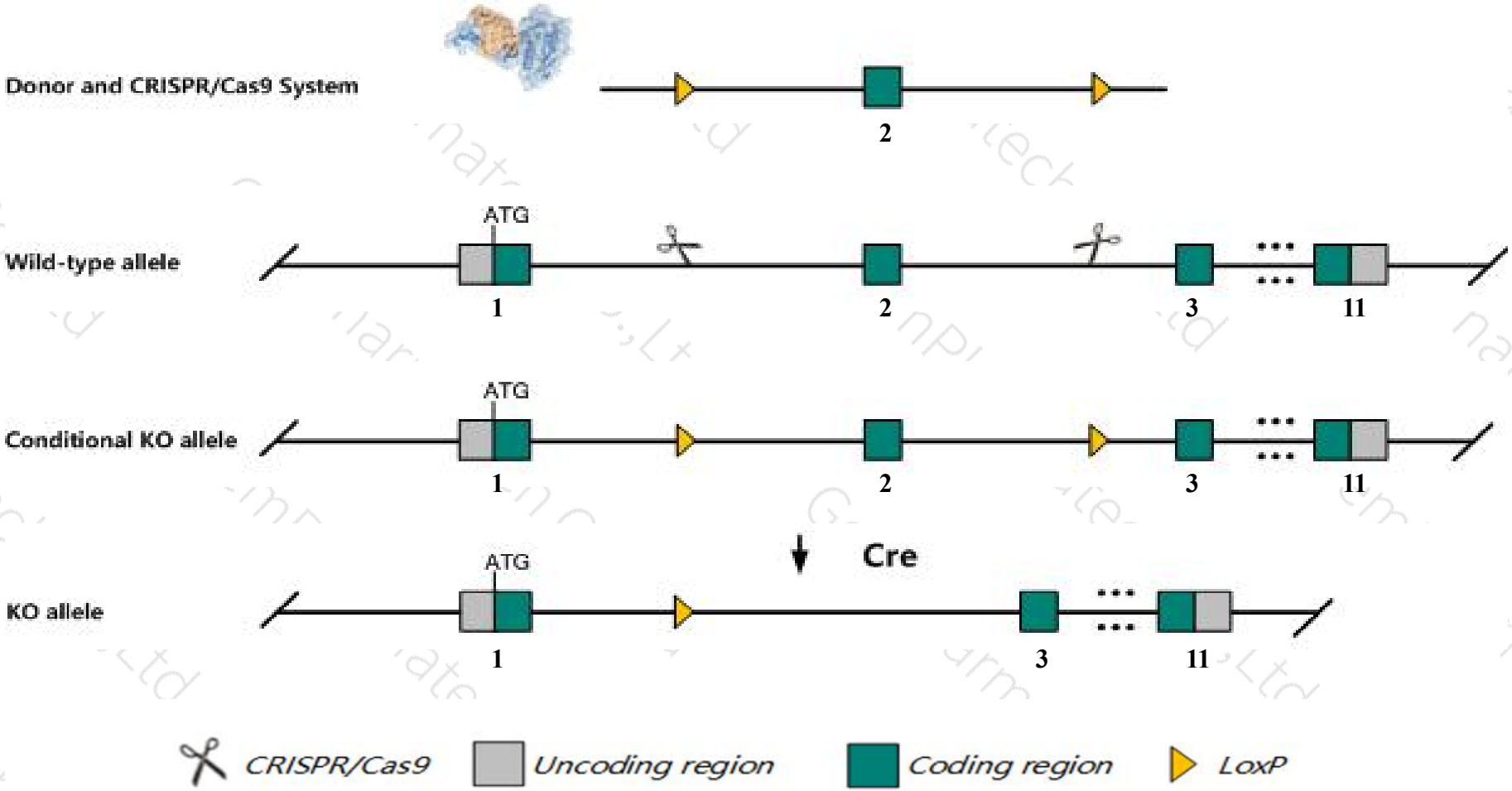
Design Date: 2019-9-17

Project Overview

Project Name	***Slc7a8***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc7a8* gene. The schematic diagram is as follows:



Technical routes

- The *Slc7a8* gene has 2 transcripts. According to the structure of *Slc7a8* gene, exon2 of *Slc7a8-201* (ENSMUST00000022787.7) transcript is recommended as the knockout region.The region contains 205bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Slc7a8* gene. The brief process is as follows:CRISPR/Cas9 system and Donor were microinjected into the fertilized eggs of C57BL/6JGpt mice.Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.

- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

Notice

- According to the existing MGI data,Mice homozygous for a targeted mutation display hypoactivity, decreased motor performance, and resistance to pharmacologically induced seizures.

- The *Slc7a8* gene is located on the Chr14. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

集萃药康 GemPharmatech

Slc7a8 solute carrier family 7 (cationic amino acid transporter, y+ system), member 8 [*Mus musculus* (house mouse)]

Gene ID: 50934, updated on 12-Aug-2019

Summary

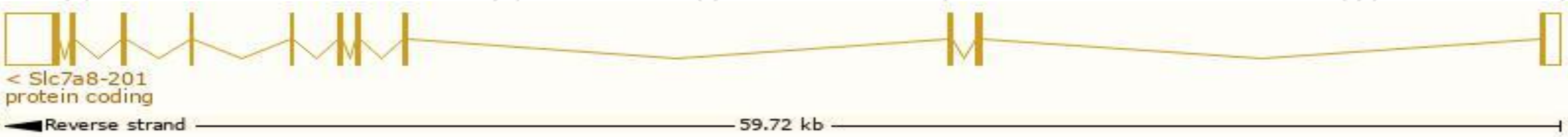
Official Symbol	Slc7a8 provided by MGI
Official Full Name	solute carrier family 7 (cationic amino acid transporter, y+ system), member 8 provided by MGI
Primary source	MGI:MGI:1355323
See related	Ensembl:ENSMUSG00000022180
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	LAT2; AA408822
Expression	Biased expression in kidney adult (RPKM 137.5), duodenum adult (RPKM 56.6) and 13 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

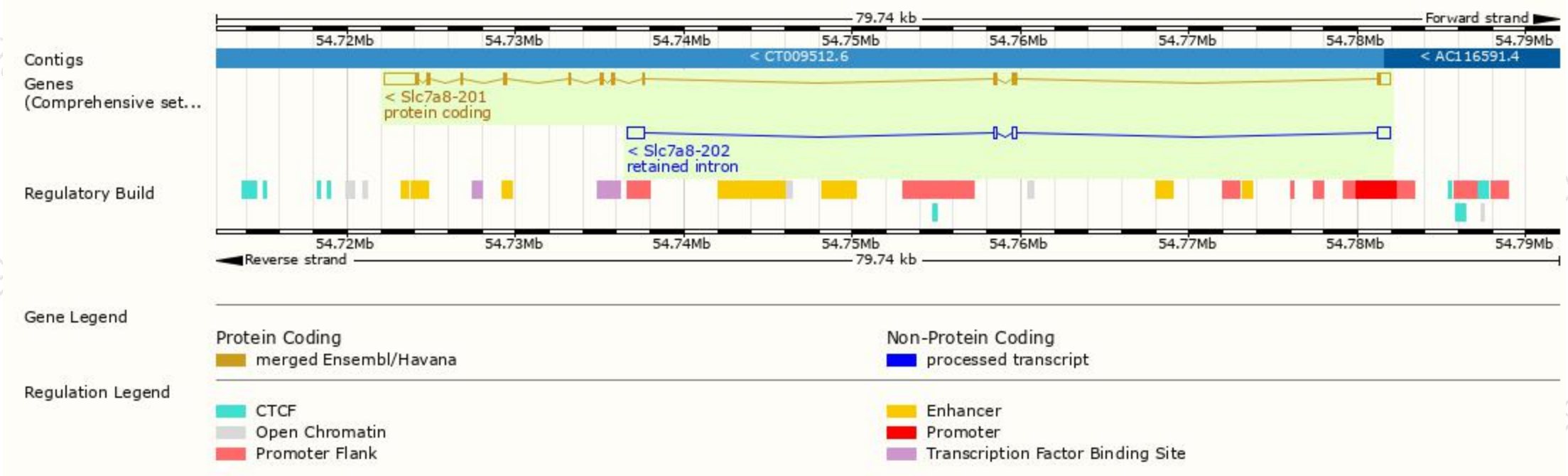
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc7a8-201	ENSMUST00000022787.7	4084	531aa	Protein coding	CCDS27101	Q9QXW9	TSL:1 GENCODE basic APPRIS P1
Slc7a8-202	ENSMUST00000226646.1	2155	No protein	Retained intron	-	-	-

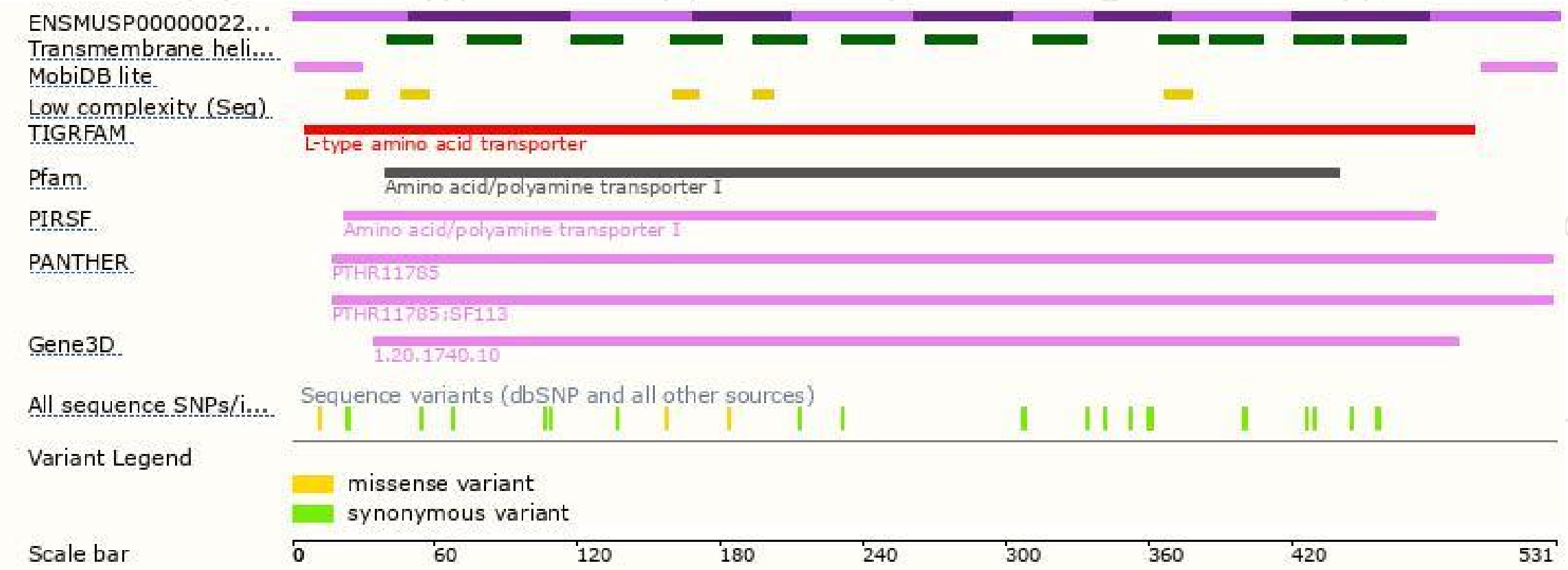
The strategy is based on the design of *Slc7a8-201* transcript,The transcription is shown below



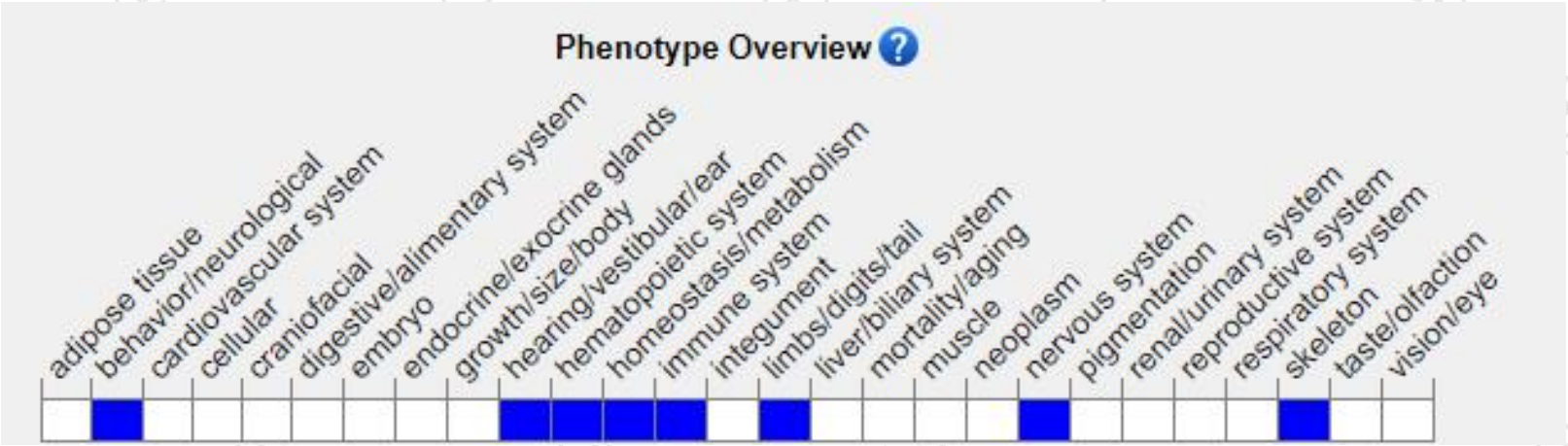
Genomic location distribution



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,Mice homozygous for a targeted mutation display hypoactivity, decreased motor performance, and resistance to pharmacologically induced seizures.

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

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