

Slc6a12 Cas9-CKO Strategy

Designer:

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Project Overview

Project Name

Slc6a12

Project type

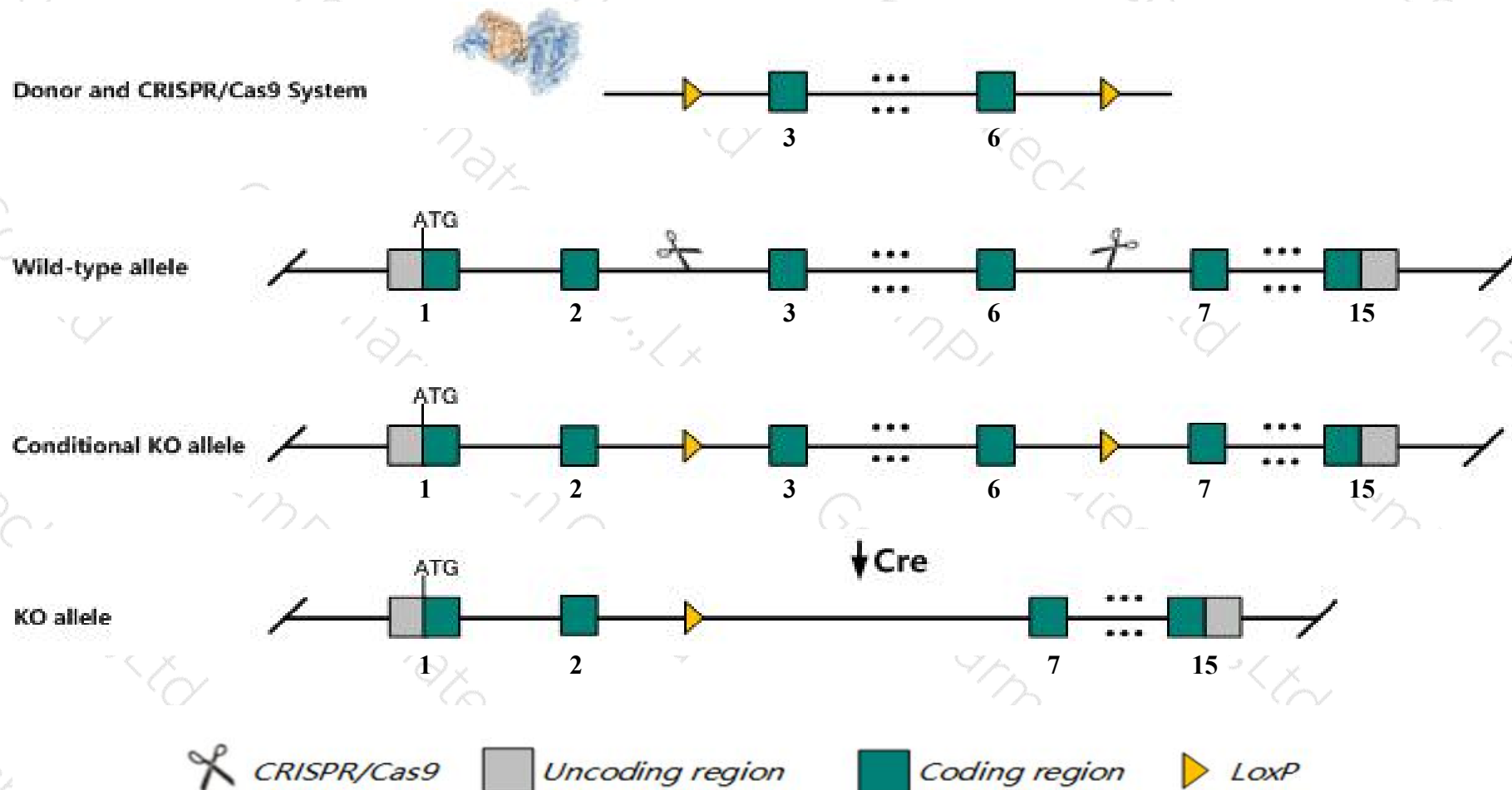
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc6a12* gene. The schematic diagram is as follows:



Technical routes

- The *Slc6a12* gene has 10 transcripts. According to the structure of *Slc6a12* gene, exon3-exon6 of *Slc6a12*-201 (ENSMUST00000032200.15) transcript is recommended as the knockout region. The region contains 497bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Slc6a12* 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.

- According to the existing MGI data, Mice homozygous for a targeted allele exhibit normal seizure threshold.
- The *Slc6a12* gene is located on the Chr6. 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)

Slc6a12 solute carrier family 6 (neurotransmitter transporter, betaine/GABA), member 12 [*Mus musculus* (house mouse)]

Gene ID: 14411, updated on 2-Jul-2019

Summary

Official Symbol	Slc6a12 provided by MGI
Official Full Name	solute carrier family 6 (neurotransmitter transporter, betaine/GABA), member 12 provided by MGI
Primary source	MGI:MGI:95628
See related	Ensembl:ENSMUSG00000030109
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	BGT1; GAT2; GAT-2; Gabt2
Expression	Biased expression in liver adult (RPKM 40.1), placenta adult (RPKM 10.5) and 1 other tissue See more
Orthologs	human all

Transcript information (Ensembl)

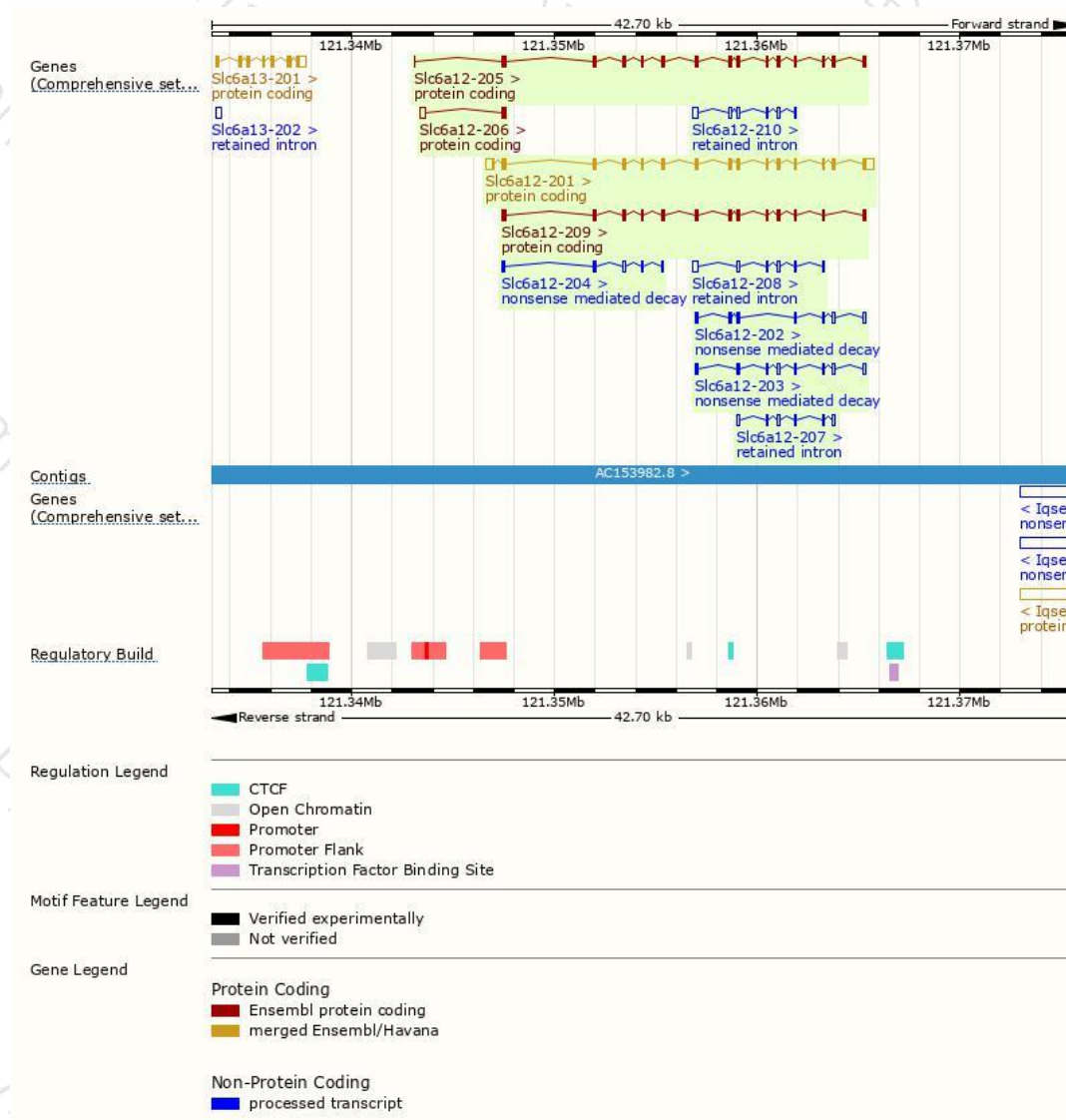
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc6a12-201	ENSMUST00000032200.15	2644	628aa	Protein coding	CCDS39616	Q8VCS9	TSL:1 GENCODE basic APPRIS P2
Slc6a12-205	ENSMUST00000166457.7	1891	614aa	Protein coding	-	G5E8Z4	TSL:1 GENCODE basic APPRIS ALT2
Slc6a12-209	ENSMUST00000171008.7	1674	557aa	Protein coding	-	E9PXG1	TSL:5 GENCODE basic APPRIS ALT2
Slc6a12-206	ENSMUST00000168295.1	428	63aa	Protein coding	-	E9PW98	CDS 3' incomplete TSL:5
Slc6a12-203	ENSMUST00000165456.7	1030	81aa	Nonsense mediated decay	-	F7AYZ6	CDS 5' incomplete TSL:5
Slc6a12-202	ENSMUST00000163771.7	883	130aa	Nonsense mediated decay	-	F6SJH4	CDS 5' incomplete TSL:5
Slc6a12-204	ENSMUST00000166390.1	500	65aa	Nonsense mediated decay	-	E9Q5U8	TSL:5
Slc6a12-207	ENSMUST00000170339.1	808	No protein	Retained intron	-	-	TSL:5
Slc6a12-208	ENSMUST00000170582.7	797	No protein	Retained intron	-	-	TSL:5
Slc6a12-210	ENSMUST00000171874.7	790	No protein	Retained intron	-	-	TSL:5

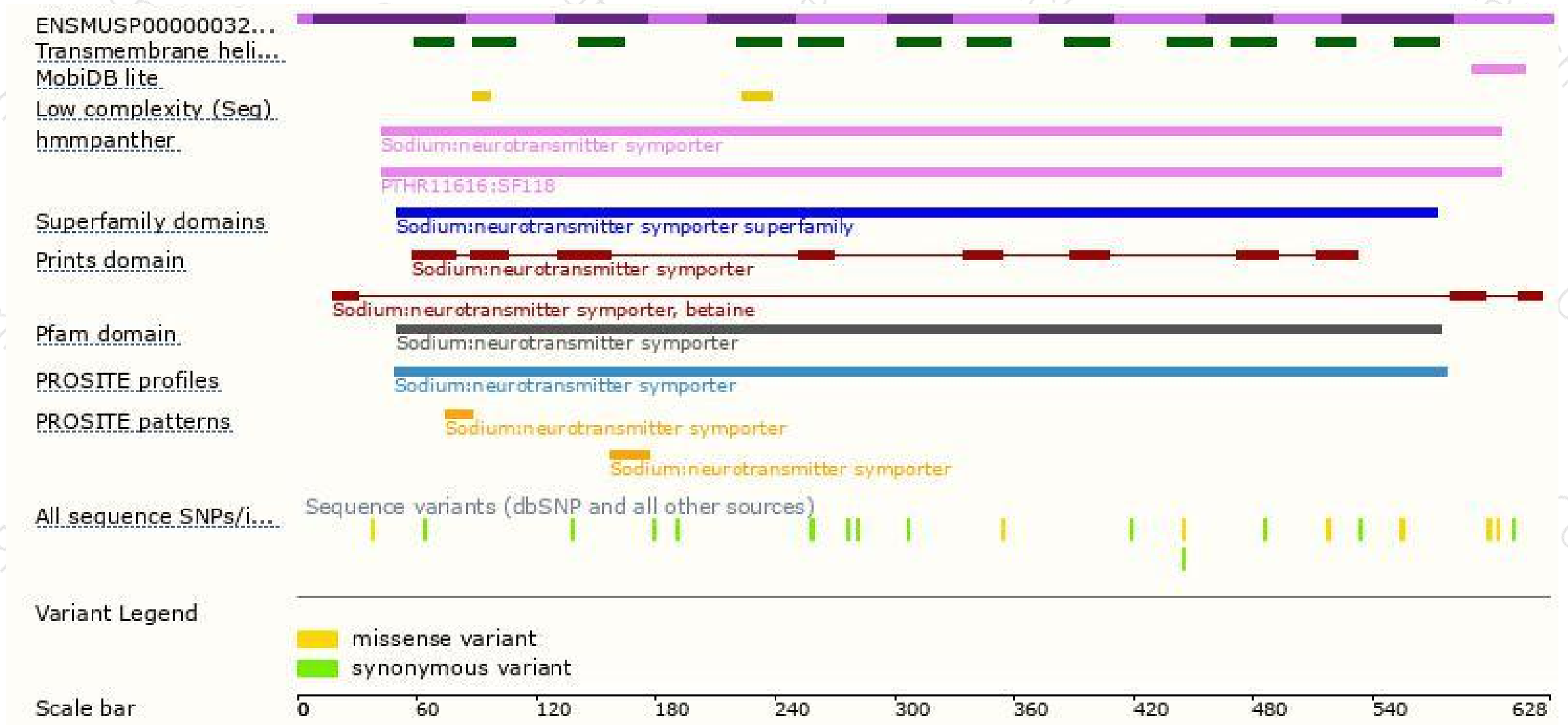
The strategy is based on the design of *Slc6a12-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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