

Slc22a2 Cas9-CKO Strategy

Designer:

Daohua Xu

Reviewer:

Huimin Su

Design Date:

2019-10-23

Project Overview

Project Name

Slc22a2

Project type

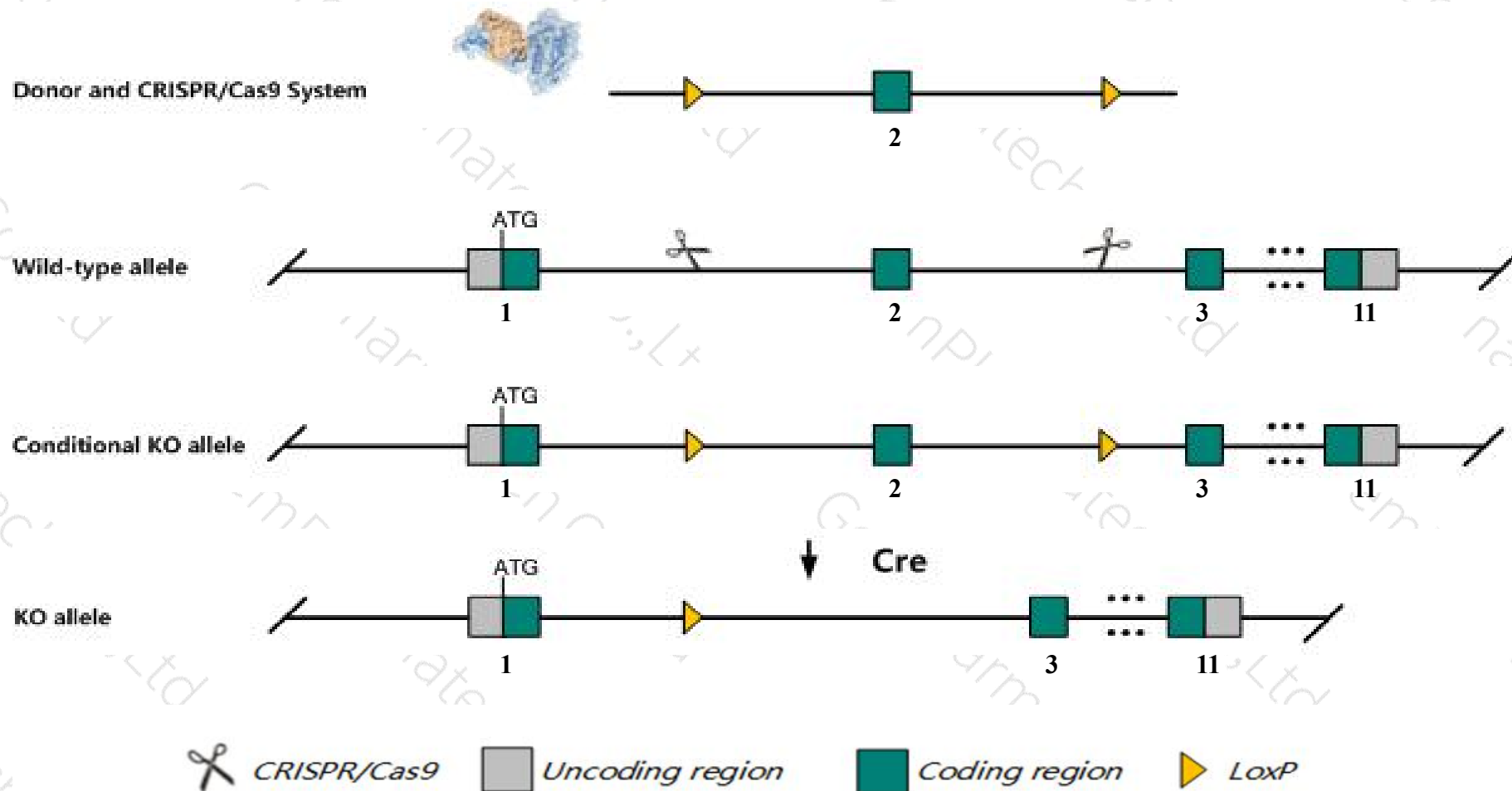
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc22a2* gene. The schematic diagram is as follows:



- The *Slc22a2* gene has 2 transcripts. According to the structure of *Slc22a2* gene, exon2 of *Slc22a2-201* (ENSMUST00000046959.8) transcript is recommended as the knockout region. The region contains 104bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Slc22a2* 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 knockout allele are viable and fertile and display no obvious phenotypic abnormalities. No significant defects in the renal secretion of a model organic cation are observed.
- The *Slc22a2* gene is located on the Chr17. 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)

Slc22a2 solute carrier family 22 (organic cation transporter), member 2 [Mus musculus (house mouse)]

Gene ID: 20518, updated on 31-Jan-2019

Summary



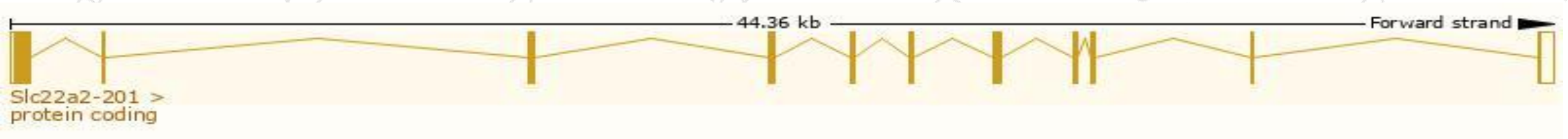
Official Symbol	Slc22a2 provided by MGI
Official Full Name	solute carrier family 22 (organic cation transporter), member 2 provided by MGI
Primary source	MGI:MGI:1335072
See related	Ensembl:ENSMUSG00000040966
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Oct2, Orc2
Expression	Biased expression in kidney adult (RPKM 64.5), liver adult (RPKM 7.4) and 1 other tissue See more
Orthologs	human all

Transcript information (Ensembl)

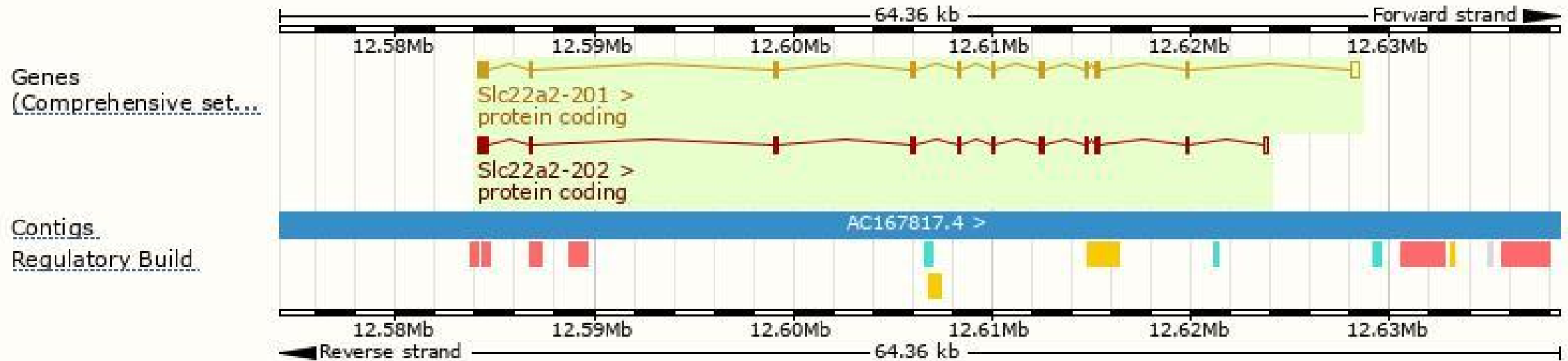
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc22a2-201	ENSMUST00000046959.8	2195	553aa	Protein coding	CCDS28392	O70577	TSL:1 GENCODE basic APPRIS P1
Slc22a2-202	ENSMUST00000233066.1	1977	544aa	Protein coding	-	O70577	GENCODE basic

The strategy is based on the design of *Slc22a2-201* transcript,The transcription is shown below



Genomic location distribution



Gene Legend

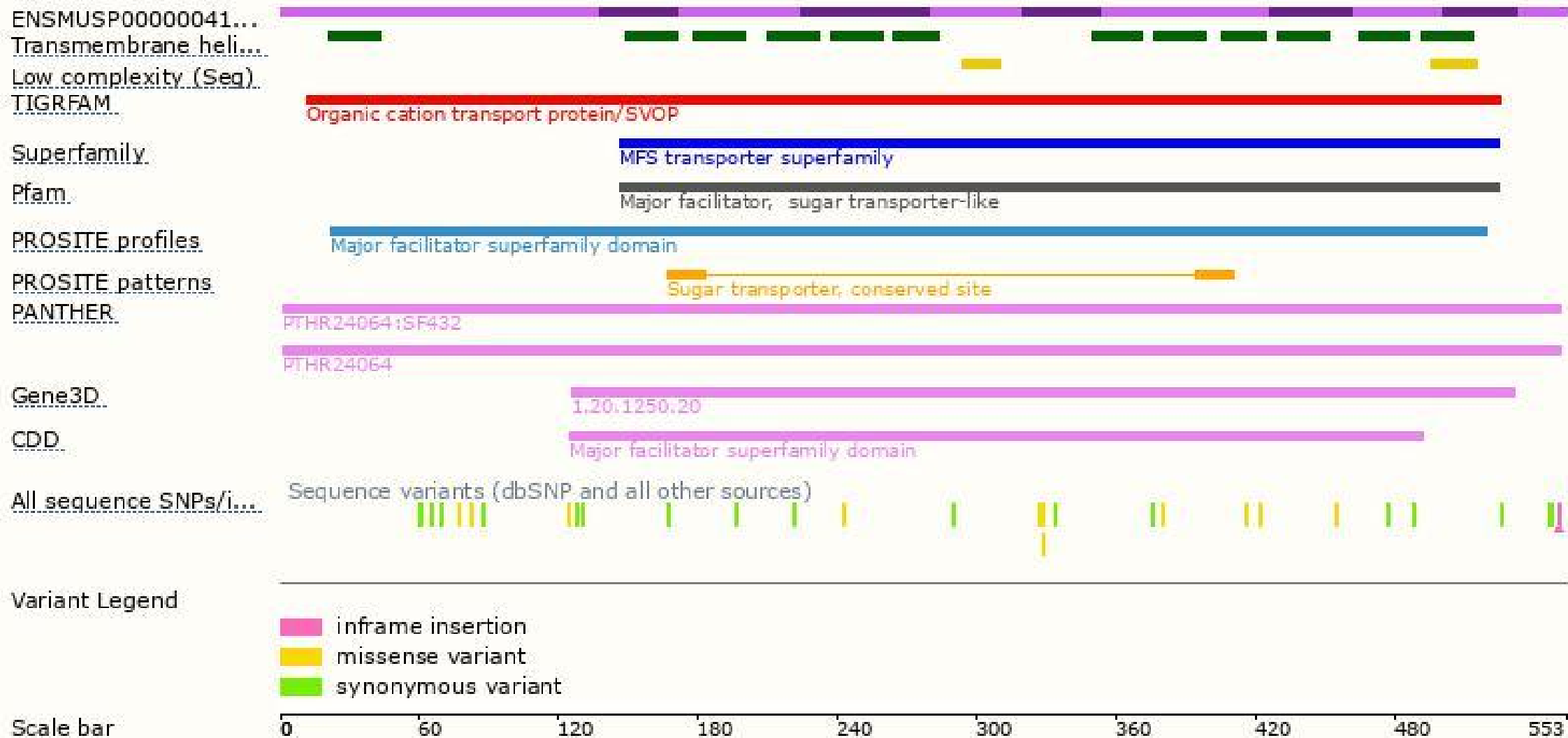
Protein Coding

- merged Ensembl/Havana
- Ensembl protein coding

Regulation Legend

- CTCF
- Enhancer
- Open Chromatin
- Promoter Flank

Protein domain



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

Tel: 400-9660890

