

Slc13a3 Cas9-CKO Strategy

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Overview

Target Gene Name

- Slc13a3

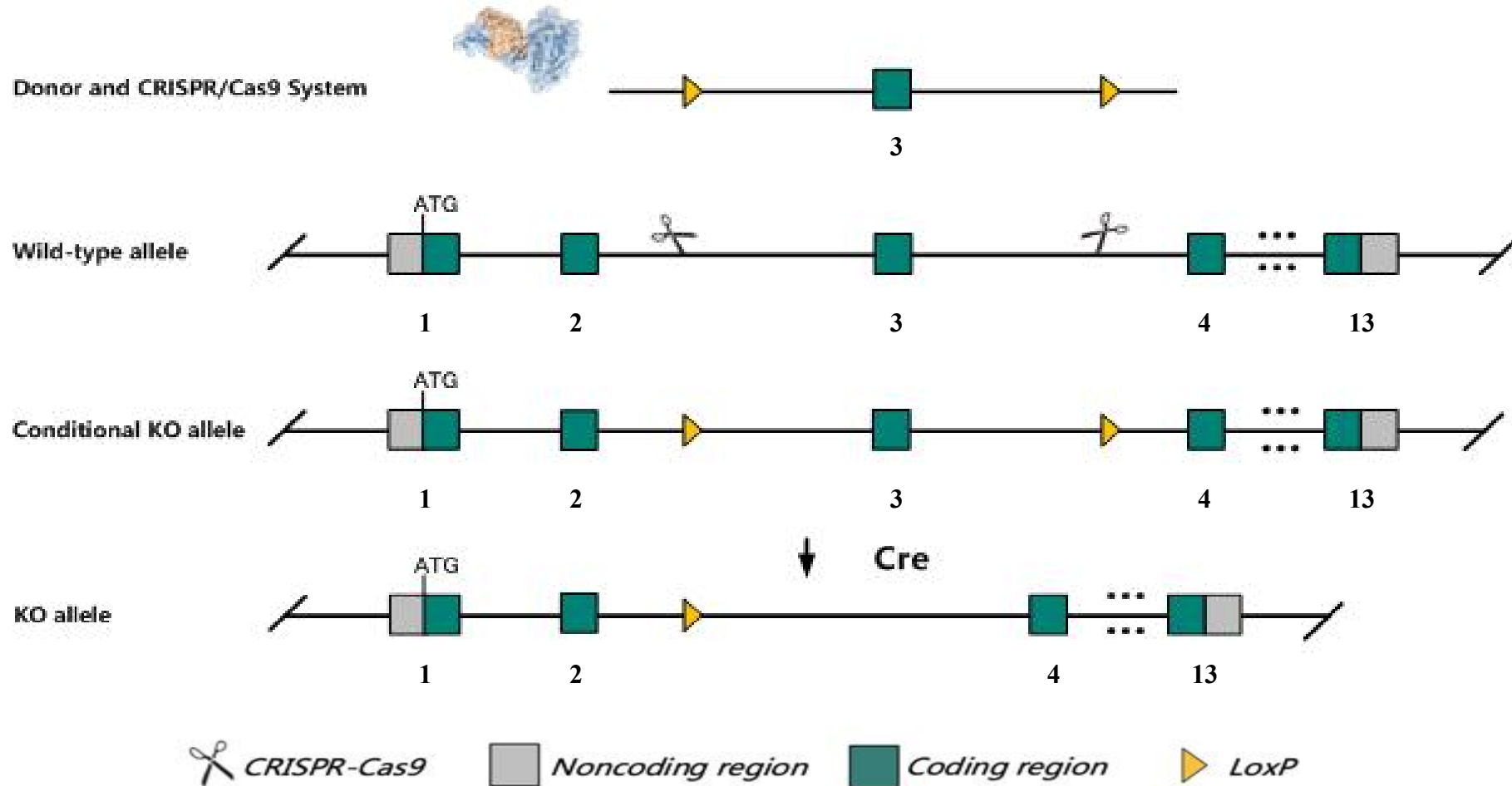
Project Type

- Cas9-CKO

Genetic Background

- C57BL/6JGpt

Strain Strategy



Schematic representation of CRISPR-Cas9 engineering used to edit the *Slc13a3* gene.

Technical Information

- The *Slc13a3* gene has 5 transcripts. According to the structure of *Slc13a3* gene, exon3 of *Slc13a3*-201 (ENSMUST00000029208.15) transcript is recommended as the knockout region. The region contains 164bp coding sequence. Knocking out the region will result in disruption of protein function.
- In this project we use CRISPR-Cas9 technology to modify *Slc13a3* 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 on-target amplicon sequencing. A stable F1-generation mouse strain was obtained by mating positive F0-generation mice with C57BL/6JGpt mice and confirmation of the desired mutant allele was carried out by PCR and on-target amplicon sequencing.
- 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.

Gene Information

Slc13a3 solute carrier family 13 (sodium-dependent dicarboxylate transporter), member 3 [Mus musculus (house mouse)]

Gene ID: 114644, updated on 31-Jan-2019

Summary

Official Symbol	Slc13a3 provided by MGI
Official Full Name	solute carrier family 13 (sodium-dependent dicarboxylate transporter), member 3 provided by MGI
Primary source	MGI:MGI:2149635
See related	Ensembl:ENSMUSG00000018459
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	NaDC-3, NaDC3, SDCT2
Expression	Biased expression in kidney adult (RPKM 238.1), liver E18 (RPKM 17.7) and 1 other tissue See more
Orthologs	human all

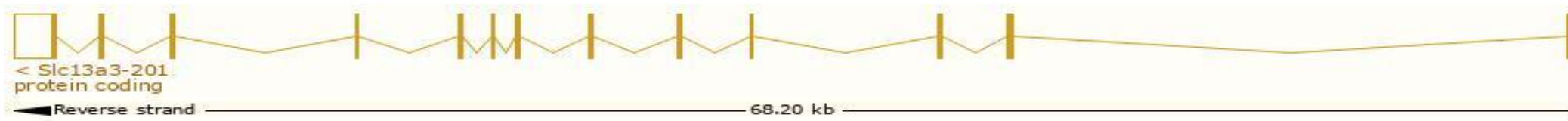
Source: <https://www.ncbi.nlm.nih.gov/>

Transcript Information

The gene has 5 transcripts, all transcripts are shown below:

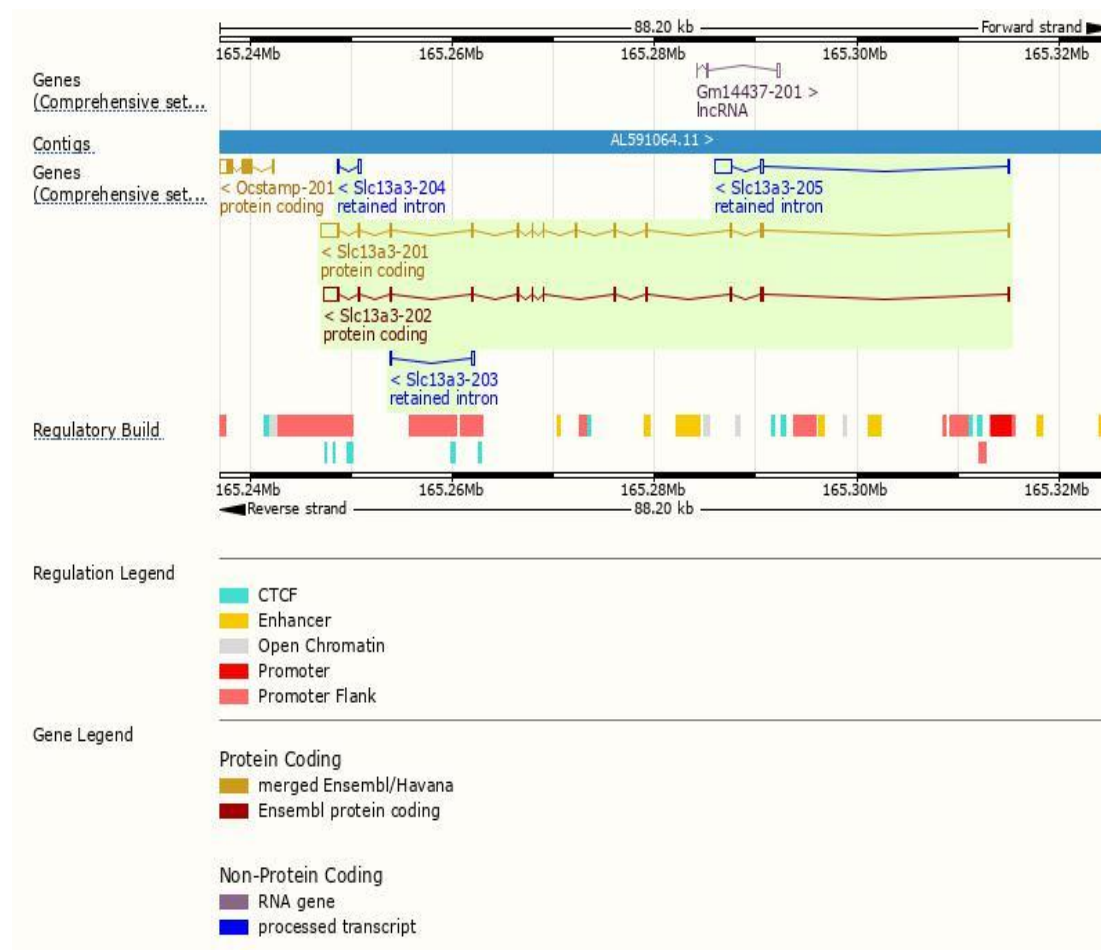
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc13a3-201	ENSMUST00000029208.14	3524	600aa	Protein coding	CCDS17081	Q3UUJ6 Q91Y63	TSL:1 GENCODE basic APPRIS P2
Slc13a3-202	ENSMUST00000109279.2	3131	558aa	Protein coding	-	A2A4U9	TSL:1 GENCODE basic APPRIS ALT2
Slc13a3-205	ENSMUST00000147107.1	1968	No protein	Retained intron	-	-	TSL:1
Slc13a3-203	ENSMUST00000143136.1	456	No protein	Retained intron	-	-	TSL:2
Slc13a3-204	ENSMUST00000145513.1	397	No protein	Retained intron	-	-	TSL:2

The strategy is based on the design of *Slc13a3*-201 transcript, the transcription is shown below:



Source: <https://www.ensembl.org>

Genomic Information



Protein Information

ENSMUSP00000029...

Transmembrane heli...

Low complexity (Seq)

Pfam

Solute carrier family 13

PANTHER

PTHR10283

PTHR10283;SF62

CDD

cd01115

All sequence SNPs/i...

Sequence variants (dbSNP and all other sources)

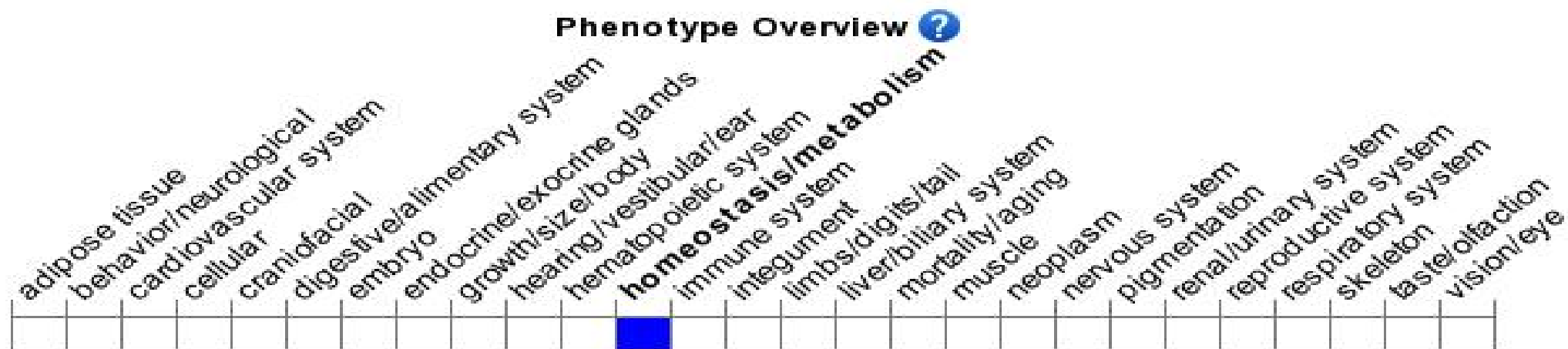
Variant Legend

- missense variant
- splice region variant
- synonymous variant

Scale bar

0 60 120 180 240 300 360 420 480 540 600

Mouse Phenotype Information (MGI)



- Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

Important Information

- The flox region contains functional region of the *Gm14437-201* gene. Knockout the region may affect the function of *Gm14437-201* gene.
- *Slc13a3* is located on Chr2. If the knockout mice are crossed with other mouse strains to obtain double homozygous mutant offspring, please avoid the situation that the second gene is 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 the existing technology level.