

Slc30a4 Cas9-CKO Strategy

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Overview

Target Gene Name

- Slc30a4

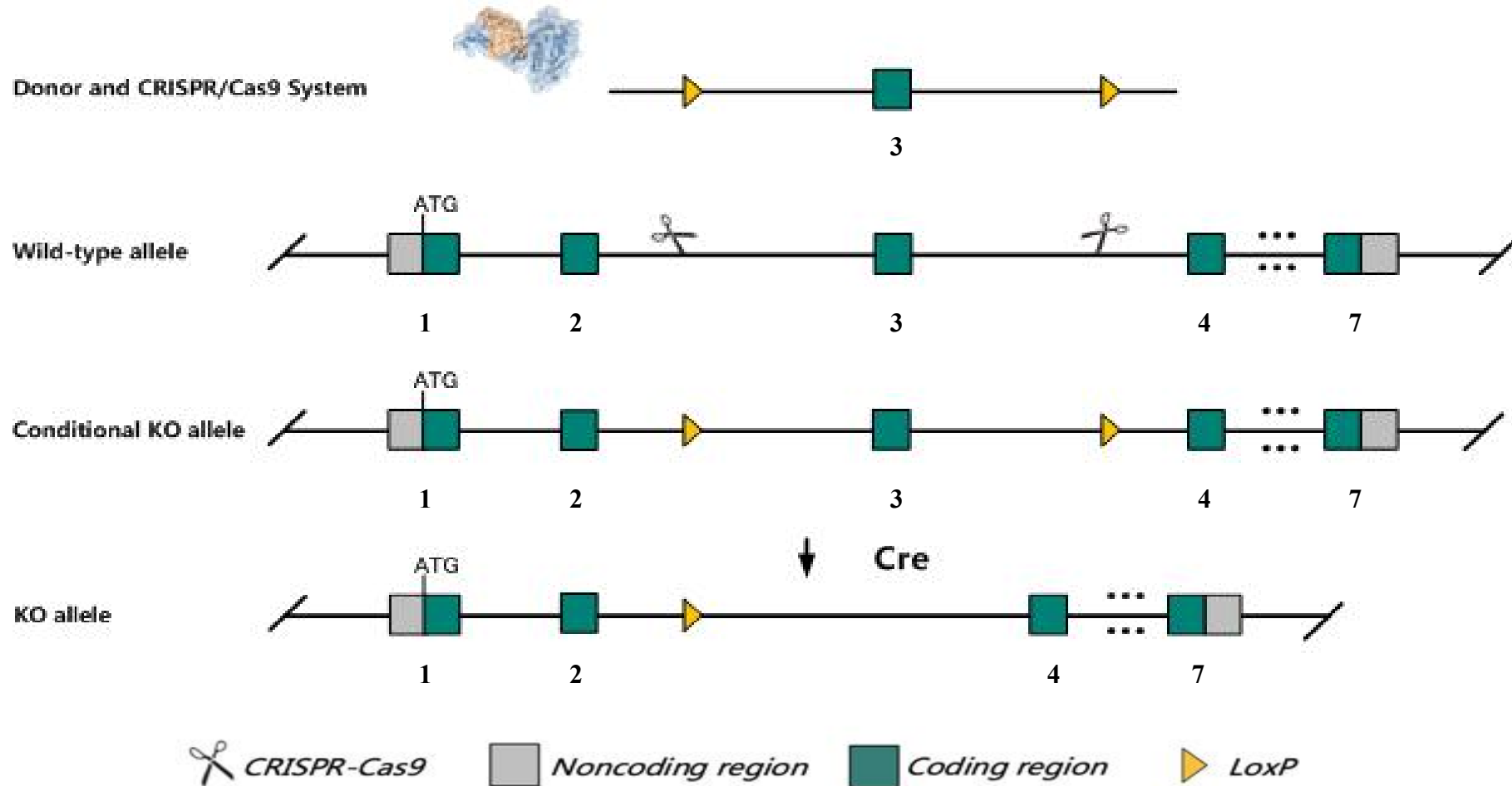
Project Type

- Cas9-CKO

Genetic Background

- C57BL/6JGpt

Strain Strategy



Schematic representation of CRISPR-Cas9 engineering used to edit the *Slc30a4* gene.

Technical Information

- The *Slc30a4* gene has 2 transcripts. According to the structure of *Slc30a4* gene, exon3 of *Slc30a4*-201 (ENSMUST00000005952.11) transcript is recommended as the knockout region. The region contains 154bp coding sequence. Knocking out the region will result in disruption of protein function.
- In this project we use CRISPR-Cas9 technology to modify *Slc30a4* 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

Slc30a4 solute carrier family 30 (zinc transporter), member 4 [*Mus musculus* (house mouse)]

Gene ID: 22785, updated on 15-Oct-2023

[Download Datasets](#)

Summary

Official Symbol	Slc30a4 provided by MGJ
Official Full Name	solute carrier family 30 (zinc transporter), member 4 provided by MGJ
Primary source	MGJ:MGJ:1345282
See related	Ensembl:ENSMUSG00000005802 AllianceGenome:MGJ:1345282
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	Im; Znt4; znT-4
Summary	Predicted to enable zinc ion transmembrane transporter activity. Acts upstream of or within zinc ion homeostasis. Predicted to be located in late endosome. Predicted to be active in plasma membrane. Is expressed in medulla oblongata basal plate mantle layer and placenta. Orthologous to human SLC30A4 (solute carrier family 30 member 4). [provided by Alliance of Genome Resources, Apr 2022]
Expression	Ubiquitous expression in testis adult (RPKM 14.9), placenta adult (RPKM 9.8) and 26 other tissues See more
Orthologs	human all
<div><div>NEW</div></div>	Try the new Gene table Try the new Transcript table

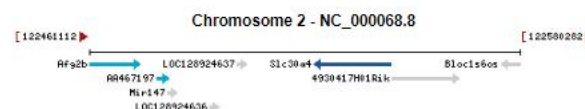
Genomic context

Location: 2 E5; 2 60.65 cM

See [Slc30a4](#) in [Genome Data Viewer](#)

Exon count: 7

Annotation release	Status	Assembly	Chr	Location
RS_2023_04	current	GRCh39 (GCF_000001635.27)	2	NC_000068.8 (122523153..122544583, complement)
108.20200622	previous assembly	GRCh38.p6 (GCF_000001635.26)	2	NC_000068.7 (122681233..122702663, complement)



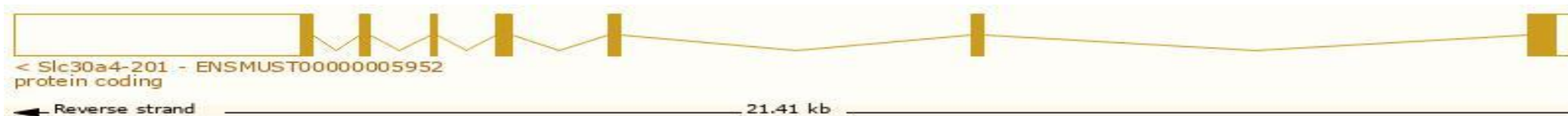
Source: <https://www.ncbi.nlm.nih.gov/>

Transcript Information

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

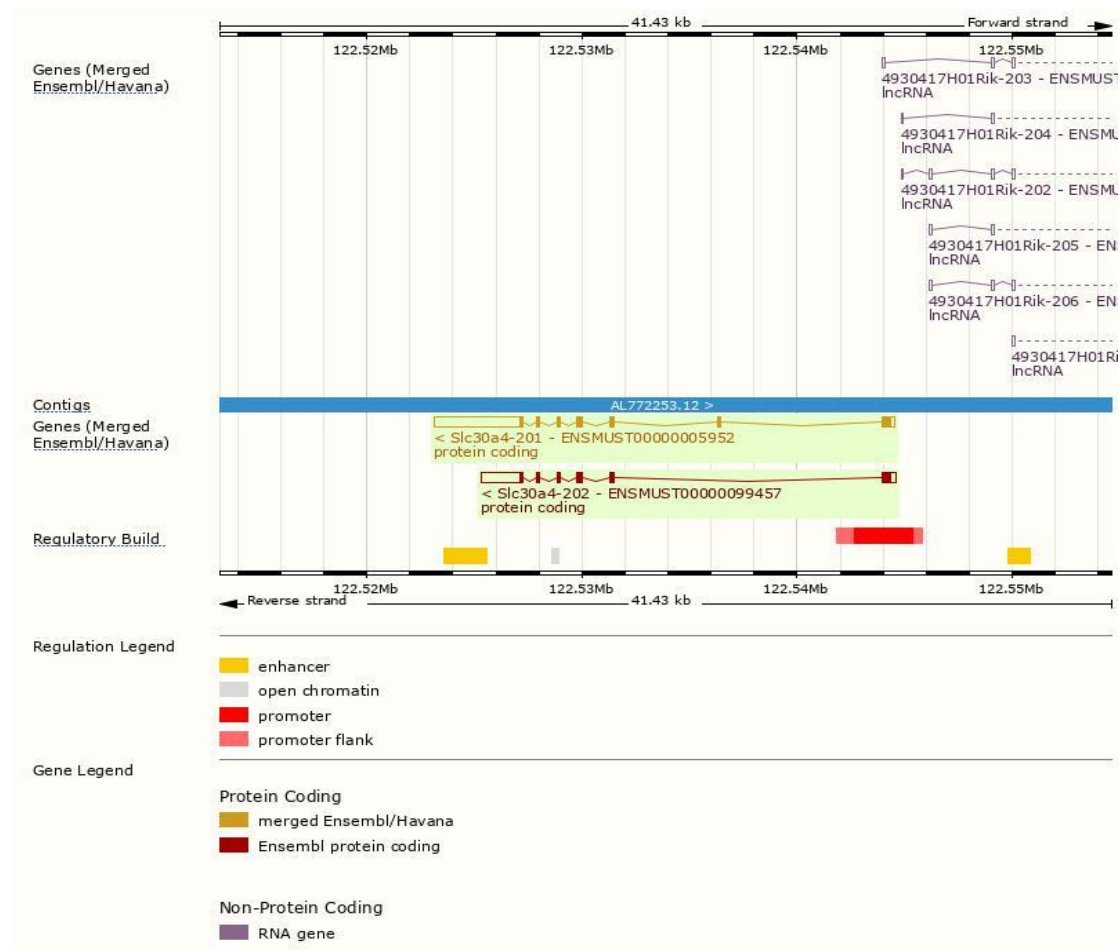
Transcript ID	Name	bp	Protein	Biotype	CCDS	UniProt Match	Flags
ENSMUST00000005952.11	Slc30a4-201	5458	430aa	Protein coding	CCDS16667	Q35149	Ensembl Canonical Gencode basic APPRIS P1 TSL:1
ENSMUST00000099457.4	Slc30a4-202	3170	381aa	Protein coding	CCDS71131	A2AK40	Gencode basic TSL:1

The strategy is based on the design of *Slc30a4*-201 transcript, the transcription is shown below:

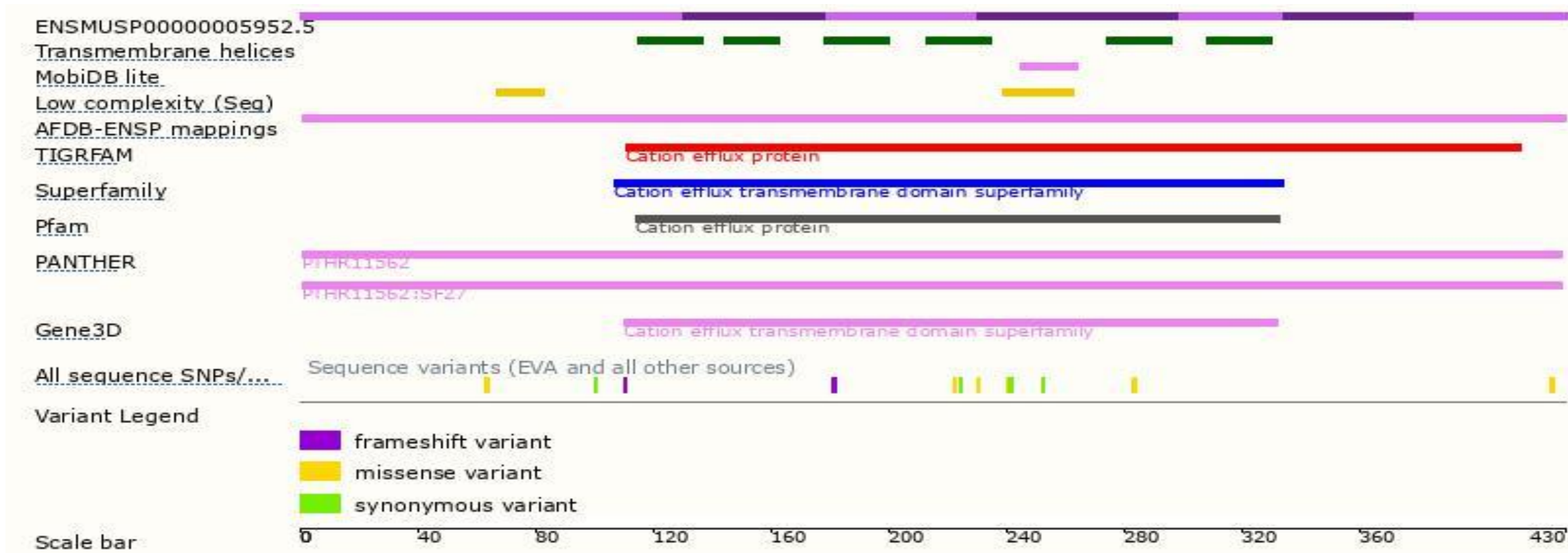


Source: <https://www.ensembl.org>

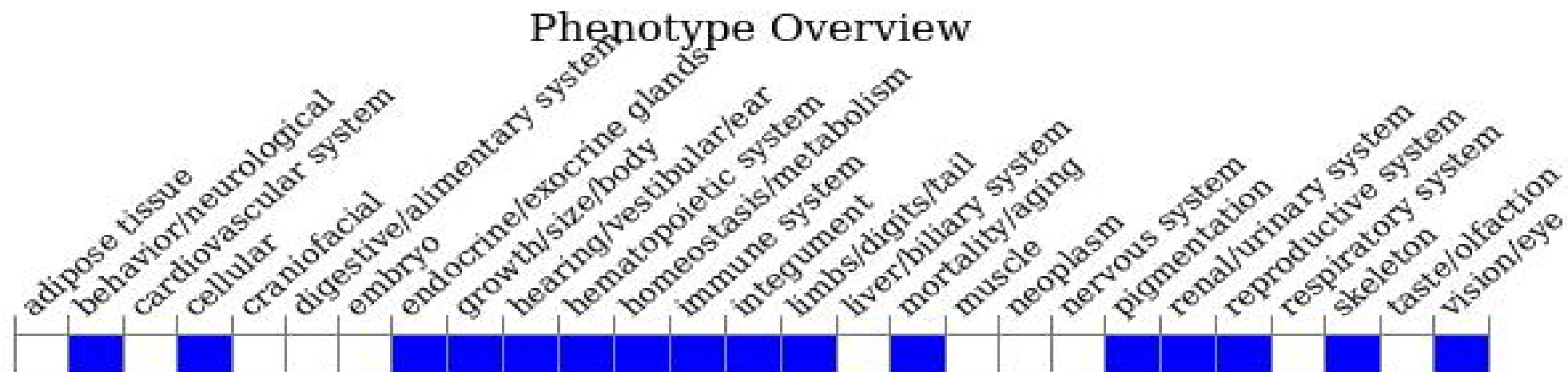
Genomic Information



Protein Information



Mouse Phenotype Information (MGI)



- Homozygous mutant dams produce zinc-deficient milk that is lethal to all nursing pups. Pleiotropic defects observed in mutant males and females include otolith degeneration, impaired motor coordination, alopecia, and dermatitis.

Important Information

- According to MGI information, homozygous mutant dams produce zinc-deficient milk that is lethal to all nursing pups. Pleiotropic defects observed in mutant males and females include otolith degeneration, impaired motor coordination, alopecia, and dermatitis.
- *Slc30a4* 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.