

Slc30a4 Cas9-KO Strategy

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Project Overview

Project Name

Slc30a4

Project type

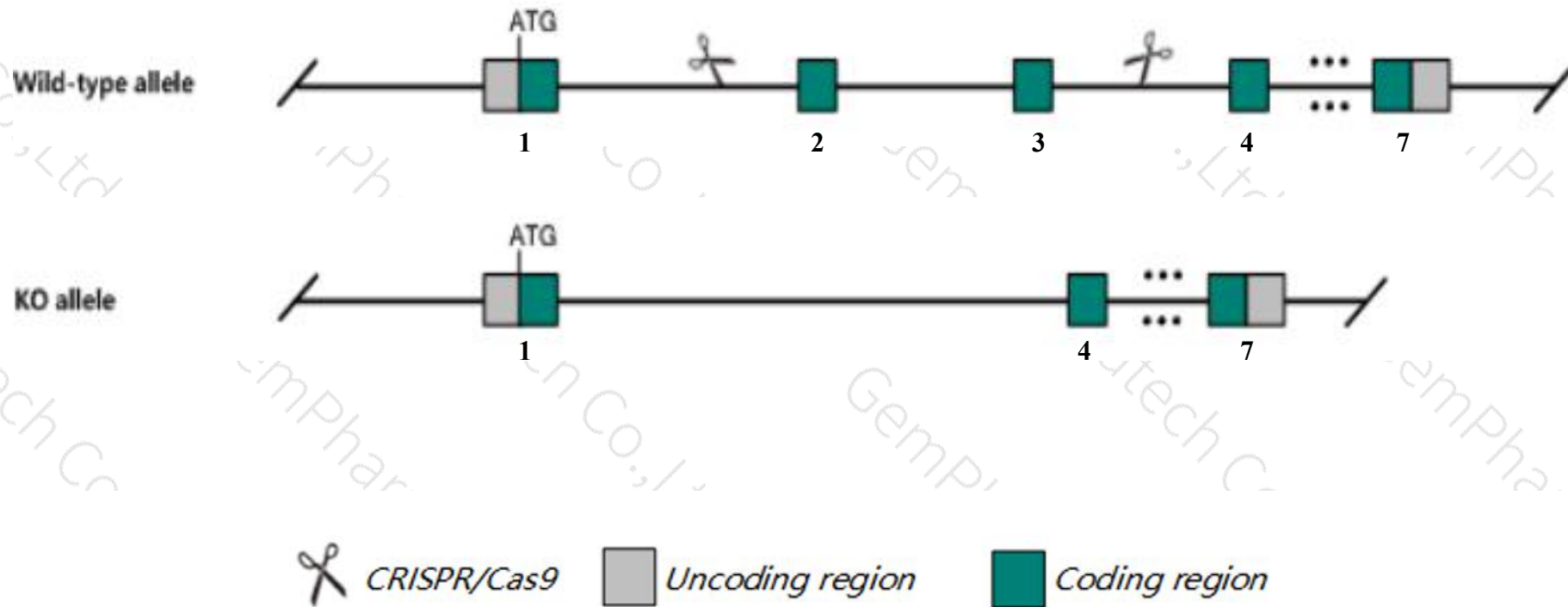
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc30a4* gene. The schematic diagram is as follows:



- The *Slc30a4* gene has 2 transcripts. According to the structure of *Slc30a4* gene, exon2-exon3 of *Slc30a4-201* (ENSMUST00000005952.10) transcript is recommended as the knockout region. The region contains 301bp coding sequence. Knock 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

- According to the existing MGI data, 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.
- The *Slc30a4* gene is located on the Chr2. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

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

Gene ID: 22785, updated on 13-Mar-2020

Summary



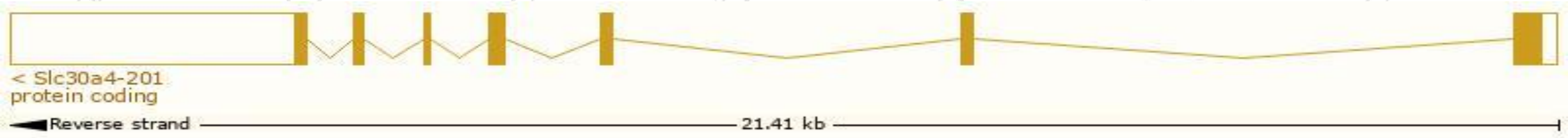
Official Symbol	Slc30a4 provided by MGI
Official Full Name	solute carrier family 30 (zinc transporter), member 4 provided by MGI
Primary source	MGI:MGI:1345282
See related	Ensembl:ENSMUSG000000005802
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Znt4, Im, znT-4
Expression	Ubiquitous expression in testis adult (RPKM 14.9), placenta adult (RPKM 9.8) and 26 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

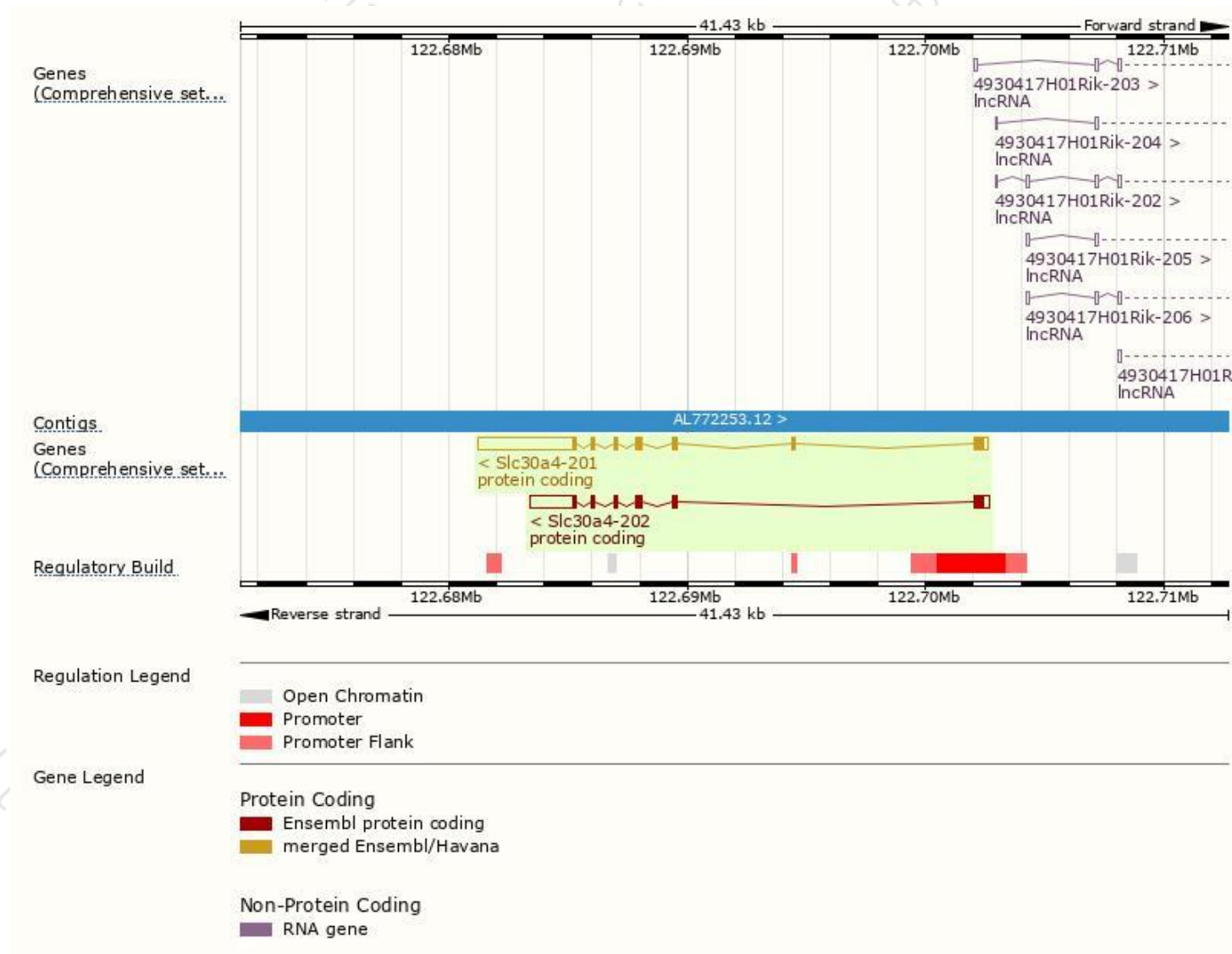
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc30a4-201	ENSMUST00000005952.10	5458	430aa	Protein coding	CCDS16667	Q35149	TSL:1 GENCODE basic APPRIS P1
Slc30a4-202	ENSMUST00000099457.3	3170	381aa	Protein coding	CCDS71131	A2AK40	TSL:1 GENCODE basic

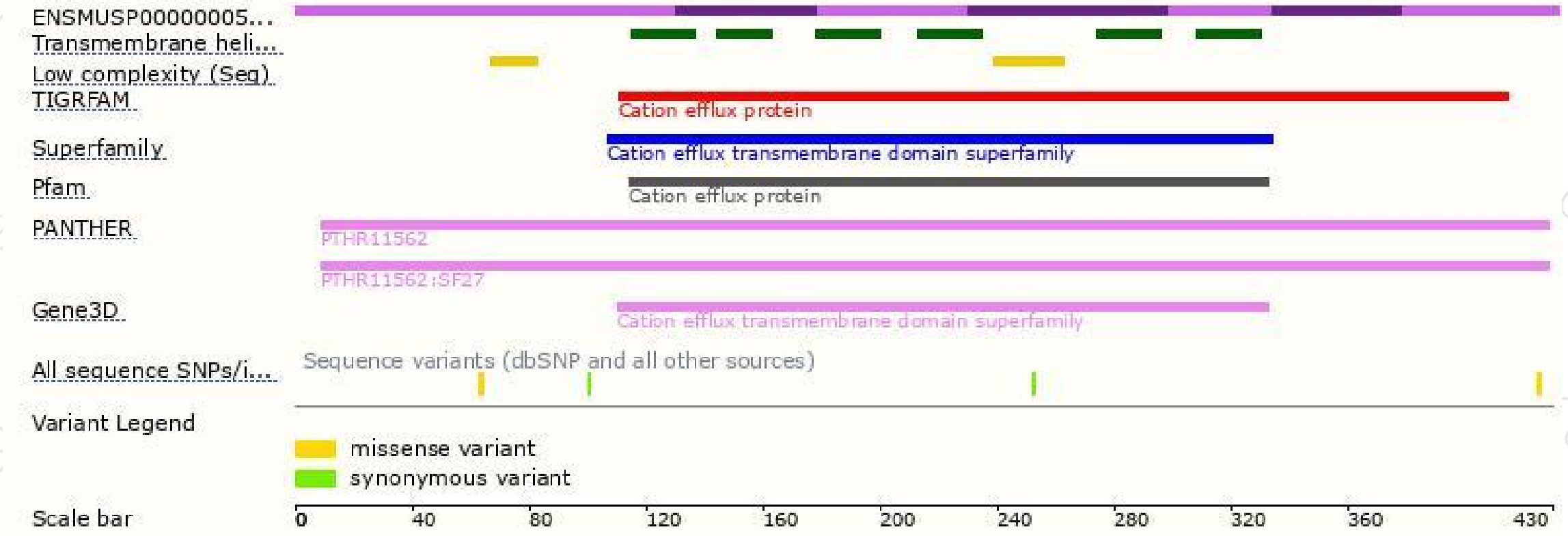
The strategy is based on the design of *Slc30a4-201* transcript,the transcription is shown below:



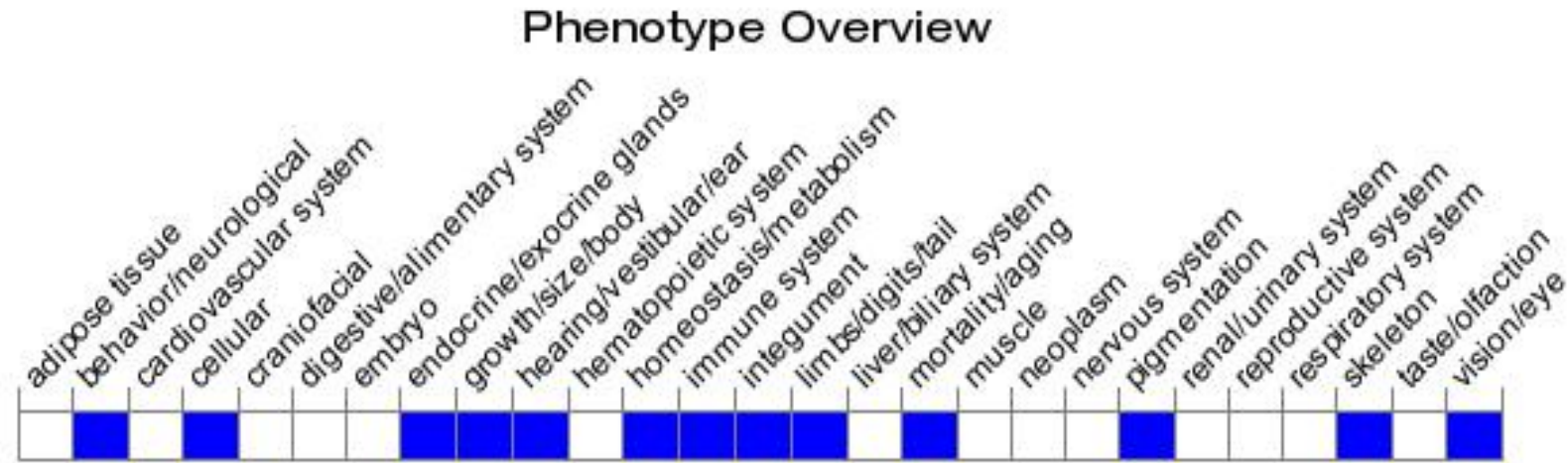
Genomic location distribution



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, 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.

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

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