

Slc8a2 Cas9-KO Strategy

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Reviewer:

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Project Overview

Project Name

Slc8a2

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc8a2* gene. The schematic diagram is as follows:



- The *Slc8a2* gene has 2 transcripts. According to the structure of *Slc8a2* gene, exon3-exon4 of *Slc8a2-202* (ENSMUST00000211649.1) transcript is recommended as the knockout region. The region contains 1088bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Slc8a2* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, The clearance of elevated calcium following depolarization is delayed in homozygous mutant mice, which exhibit enhanced learning and memory.
- The *Slc8a2* gene is located on the Chr7. 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)

Slc8a2 solute carrier family 8 (sodium/calcium exchanger), member 2 [Mus musculus (house mouse)]

Gene ID: 110891, updated on 7-Apr-2019

Summary



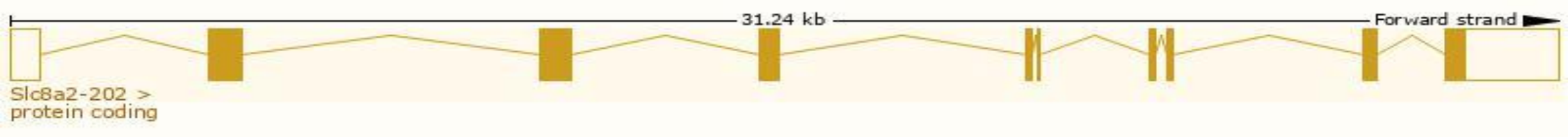
Official Symbol	Slc8a2 provided by MGI
Official Full Name	solute carrier family 8 (sodium/calcium exchanger), member 2 provided by MGI
Primary source	MGI:MGI:107996
See related	Ensembl:ENSMUSG00000030376
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Ncx2
Expression	Biased expression in cortex adult (RPKM 30.5), frontal lobe adult (RPKM 22.5) and 8 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

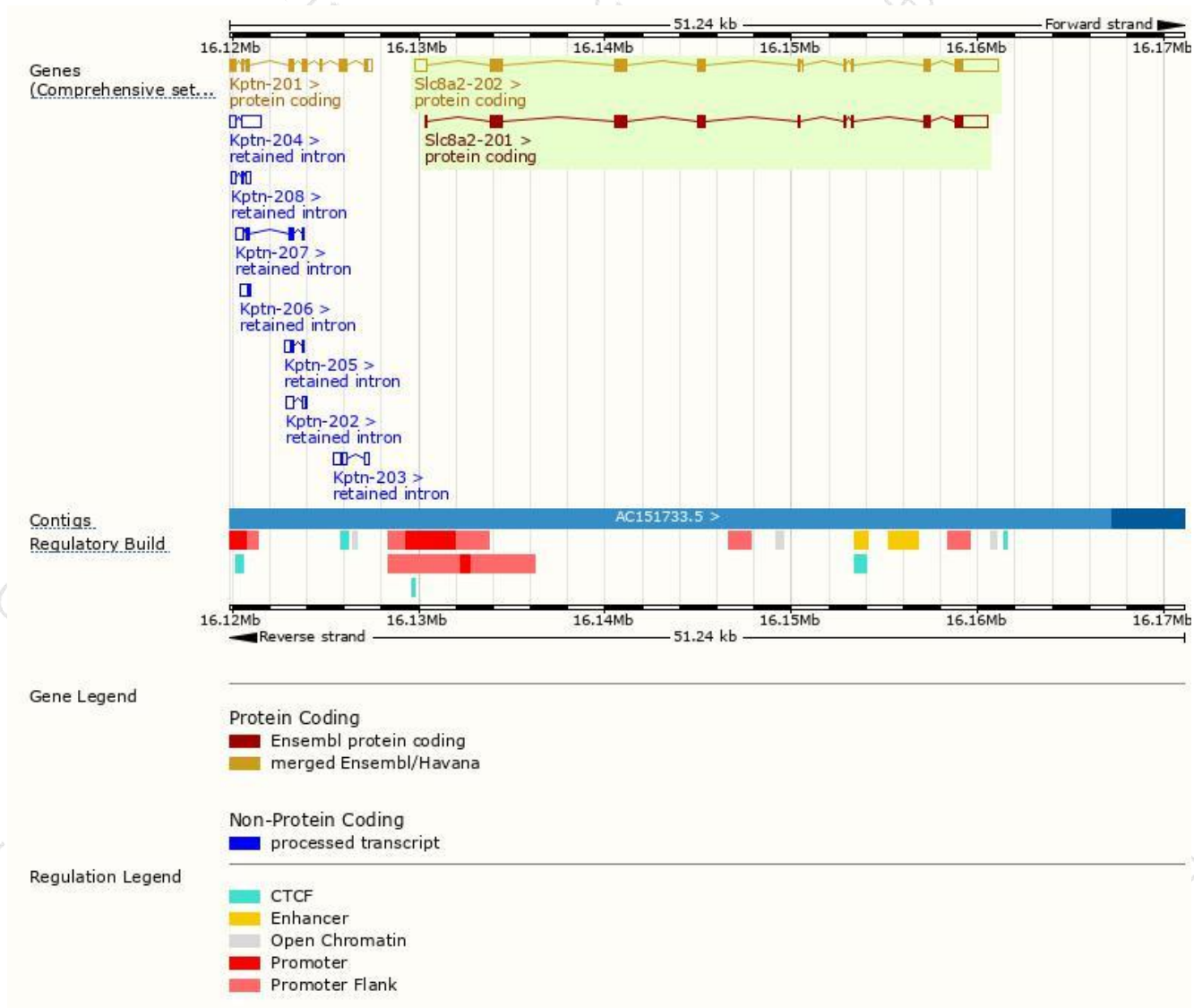
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc8a2-202	ENSMUST00000211649.1	5261	921aa	Protein coding	CCDS20845	Q8K596	TSL:1 GENCODE basic APPRIS P3
Slc8a2-201	ENSMUST00000168693.2	4171	915aa	Protein coding	CCDS85220	Q8K596	TSL:1 GENCODE basic APPRIS ALT2

The strategy is based on the design of *Slc8a2-202* transcript,The transcription is shown below



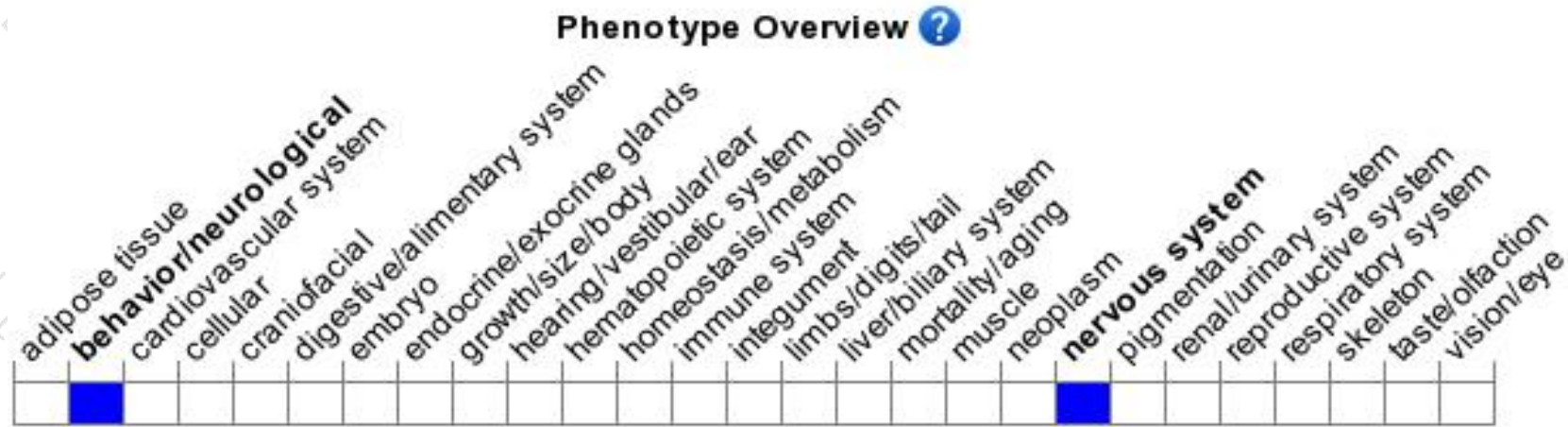
Genomic location distribution



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, The clearance of elevated calcium following depolarization is delayed in homozygous mutant mice, which exhibit enhanced learning and memory.

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

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