

Slc4a9 Cas9-CKO Strategy

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Project Overview

Project Name

Slc4a9

Project type

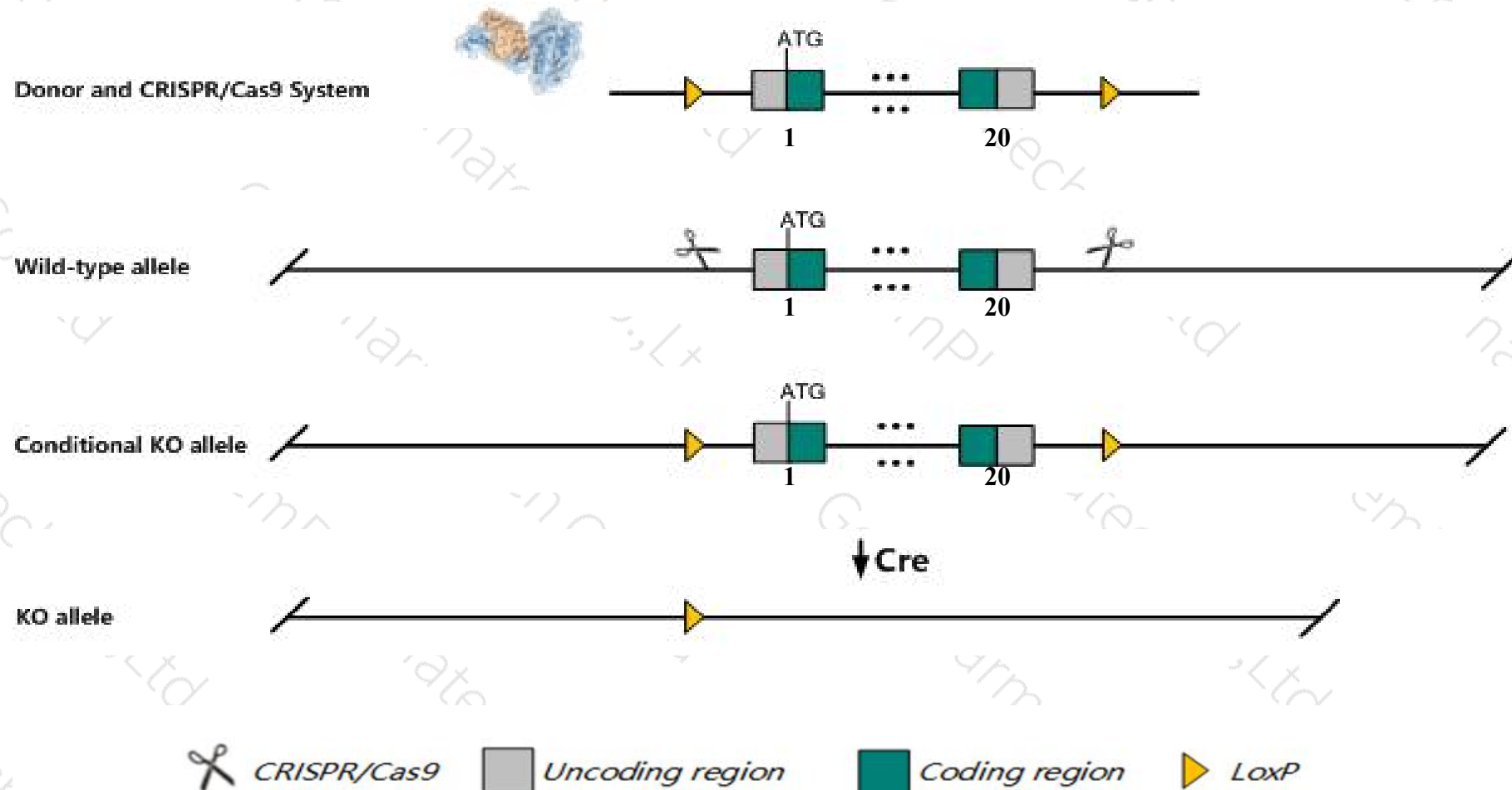
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc4a9* gene. The schematic diagram is as follows:



- The *Slc4a9* gene has 12 transcripts. According to the structure of *Slc4a9* gene, exon1-exon20 of *Slc4a9-202* (ENSMUST00000115694.2) transcript is recommended as the knockout region. The region contains all of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Slc4a9* 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 knock-out allele exhibit altered ion exchange in intestinal epithelia and kidney.
- The *Slc4a9* gene is located on the Chr18. 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)

Slc4a9 solute carrier family 4, sodium bicarbonate cotransporter, member 9 [*Mus musculus* (house mouse)]

Gene ID: 240215, updated on 24-Oct-2019

Summary

- Official Symbol** Slc4a9 provided by [MGI](#)
- Official Full Name** solute carrier family 4, sodium bicarbonate cotransporter, member 9 provided by [MGI](#)
- Primary source** [MGI:MGI:2443384](#)
- See related** [Ensembl:ENSMUSG00000024485](#)
- 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** AE4; D630003B07; D630024F24Rik
- Expression** Restricted expression toward kidney adult (RPKM 38.1) [See more](#)
- Orthologs** [human](#) [all](#)

Genomic context

Location: 18; 18 B2

See Slc4a9 in [Genome Data Viewer](#)

Exon count: 23

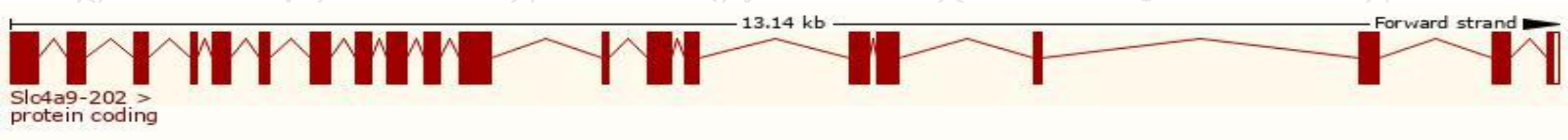
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	18	NC_000084.6 (36528066..36556272)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	18	NC_000084.5 (36687806..36704262)

Transcript information (Ensembl)

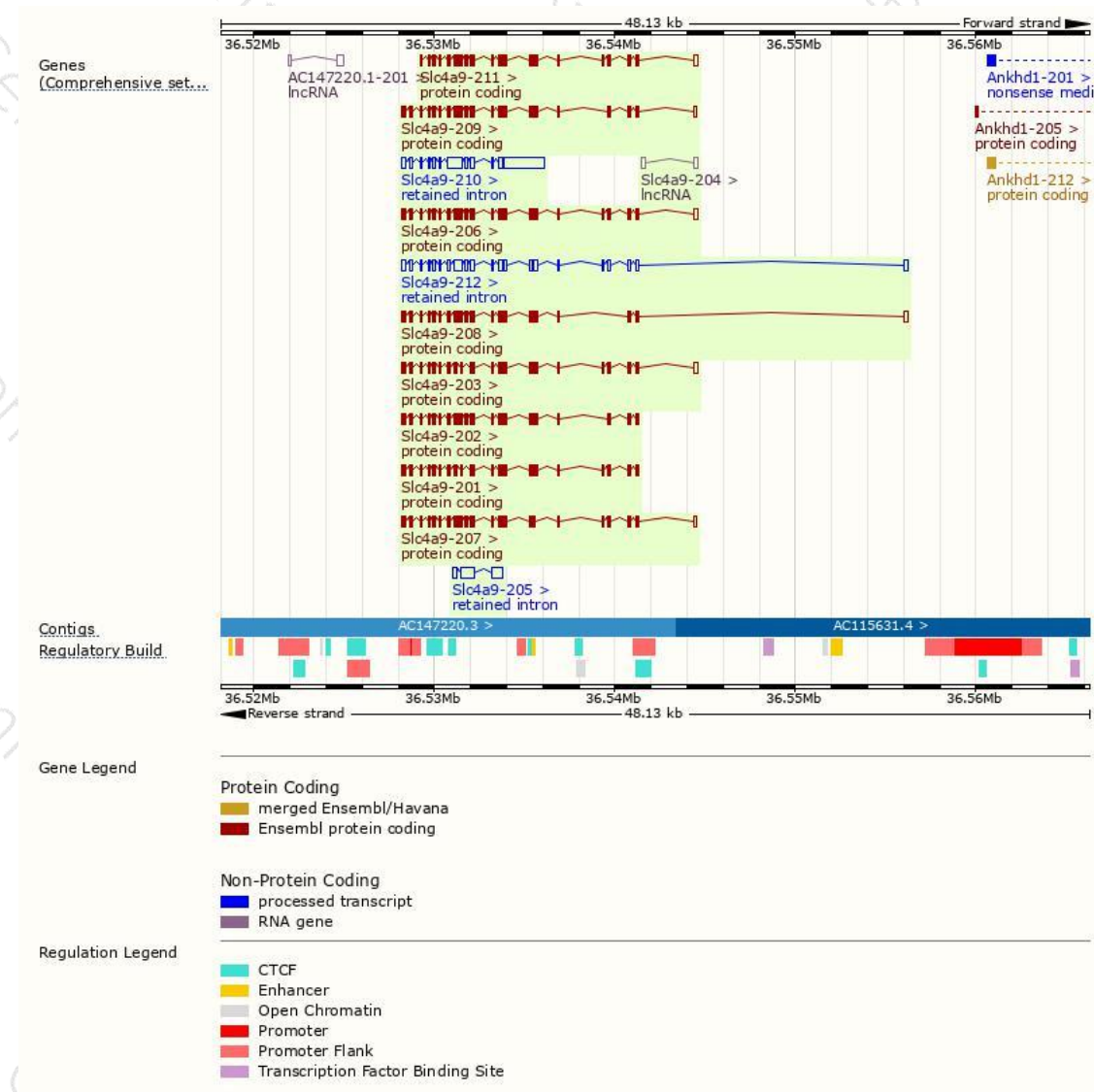
The gene has 12 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc4a9-209	ENSMUST00000237174.1	3008	929aa	Protein coding	CCDS70884	-	GENCODE basic
Slc4a9-203	ENSMUST00000235181.1	2945	880aa	Protein coding	CCDS29154	-	GENCODE basic
Slc4a9-202	ENSMUST00000115694.2	2861	929aa	Protein coding	CCDS70884	E9PUP3	TSL:5 GENCODE basic
Slc4a9-201	ENSMUST00000074298.12	2714	880aa	Protein coding	CCDS29154	Q8BUG8	TSL:5 GENCODE basic
Slc4a9-206	ENSMUST00000236124.1	3152	952aa	Protein coding	-	-	GENCODE basic APPRIS P5
Slc4a9-208	ENSMUST00000236779.1	2966	871aa	Protein coding	-	-	GENCODE basic
Slc4a9-207	ENSMUST00000236126.1	2965	918aa	Protein coding	-	-	GENCODE basic APPRIS ALT2
Slc4a9-211	ENSMUST00000237595.1	2733	821aa	Protein coding	-	-	CDS 5' incomplete
Slc4a9-210	ENSMUST00000237243.1	4516	No protein	Retained intron	-	-	
Slc4a9-212	ENSMUST00000238191.1	3348	No protein	Retained intron	-	-	
Slc4a9-205	ENSMUST00000235848.1	1550	No protein	Retained intron	-	-	
Slc4a9-204	ENSMUST00000235382.1	402	No protein	lncRNA	-	-	

The strategy is based on the design of *Slc4a9-202* transcript,The transcription is shown below



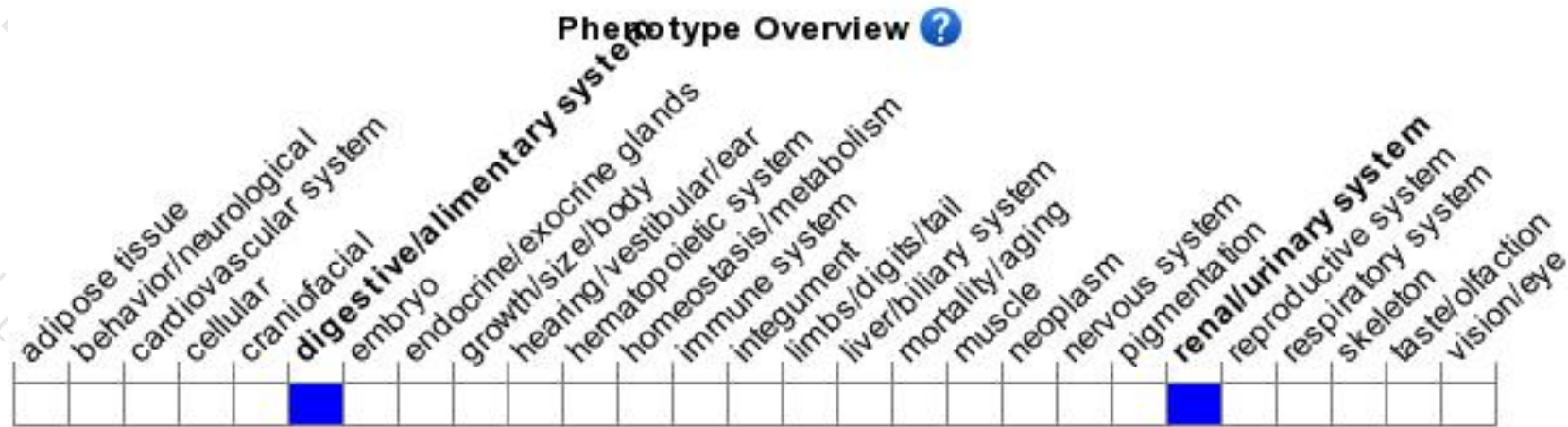
Genomic location distribution



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, Mice homozygous for a knock-out allele exhibit altered ion exchange in intestinal epithelia and kidney.

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

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