

Slc9a3 Cas9-KO Strategy

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Project Overview

Project Name

Slc9a3

Project type

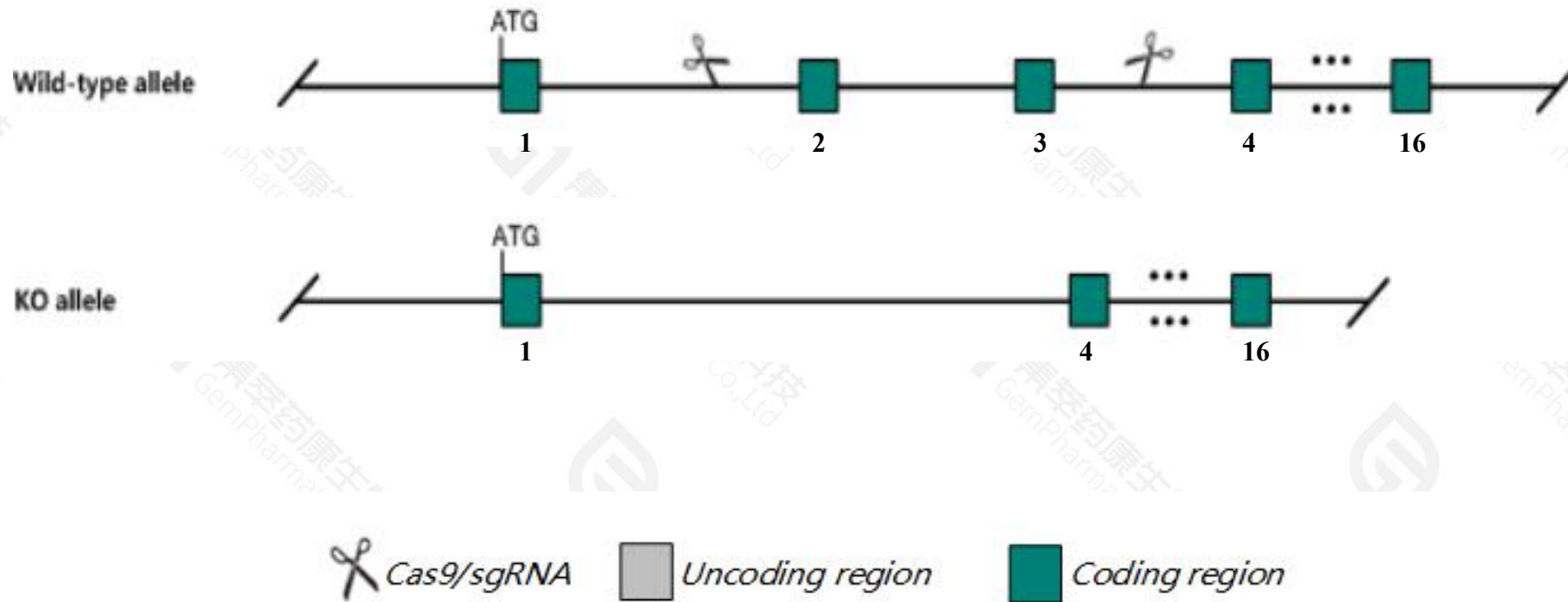
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc9a3* gene. The schematic diagram is as follows:



- The *Slc9a3* gene has 4 transcripts. According to the structure of *Slc9a3* gene, exon2-exon3 of *Slc9a3-201*(ENSMUST00000036208.7) transcript is recommended as the knockout region. The region contains 464bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Slc9a3* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA 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.

- According to the existing MGI data, homozygous mutant mice have diarrhea associated with defects of renal and intestinal absorption. Males are infertile.
- The *Slc9a3* gene is located on the Chr13. 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.

Slc9a3 solute carrier family 9 (sodium/hydrogen exchanger), member 3 [Mus musculus (house mouse)]

Gene ID: 105243, updated on 2-Mar-2021

Summary



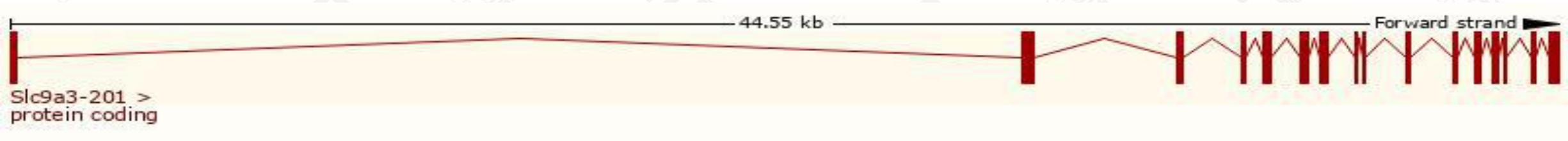
Official Symbol	Slc9a3 provided by MGI
Official Full Name	solute carrier family 9 (sodium/hydrogen exchanger), member 3 provided by MGI
Primary source	MGI:MGI:105064
See related	Ensembl:ENSMUSG00000036123
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9030624O13Rik, AI930210, NHE, NHE-, NHE-3, NHE3
Expression	Biased expression in colon adult (RPKM 52.1), small intestine adult (RPKM 51.8) and 4 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

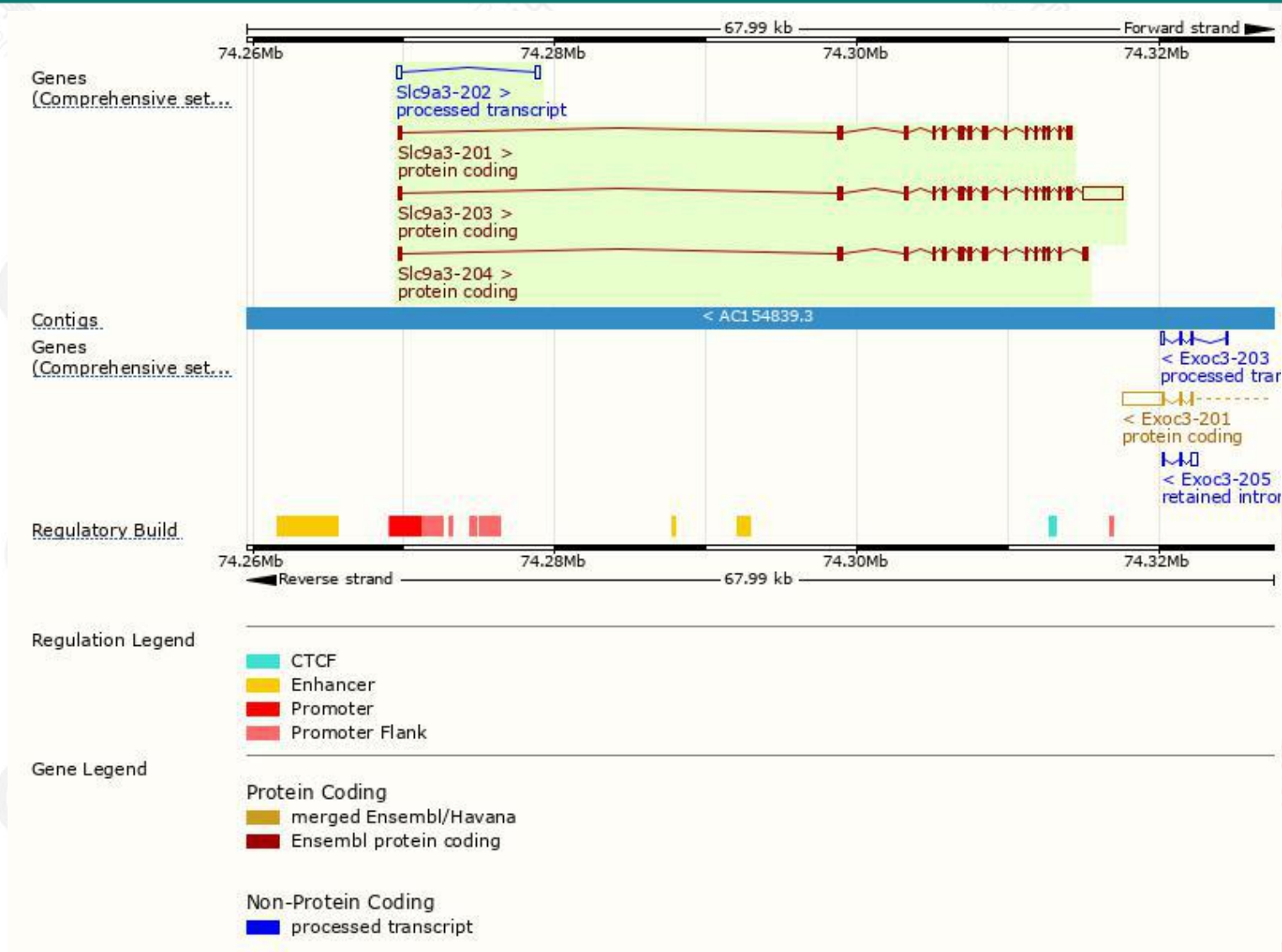
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc9a3-201	ENSMUST00000036208.7	2490	829aa	Protein coding	CCDS36731		TSL:2 , GENCODE basic , APPRIS P2 ,
Slc9a3-203	ENSMUST00000221703.2	5118	829aa	Protein coding	-		TSL:5 , GENCODE basic , APPRIS ALT2 ,
Slc9a3-204	ENSMUST00000225423.2	2589	862aa	Protein coding	-		GENCODE basic , APPRIS ALT2 ,
Slc9a3-202	ENSMUST00000221410.2	578	No protein	Processed transcript	-		TSL:3 ,

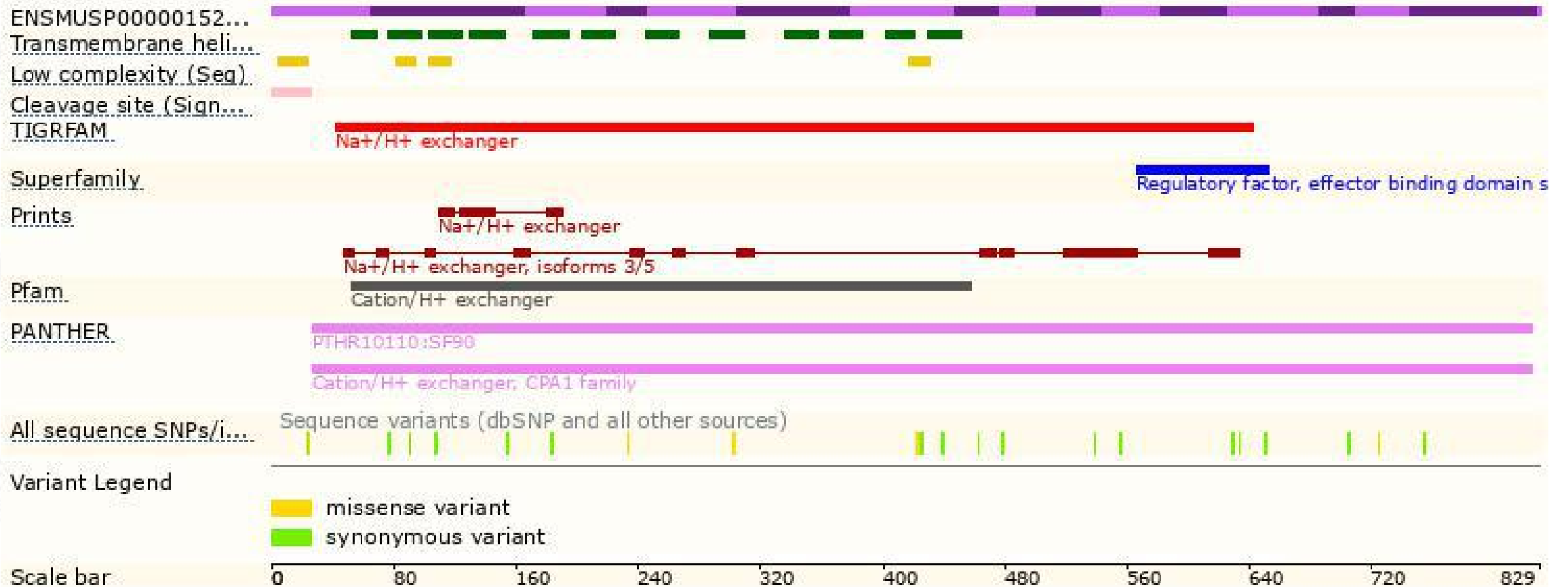
The strategy is based on the design of *Slc9a3-201* transcript,the transcription is shown below:



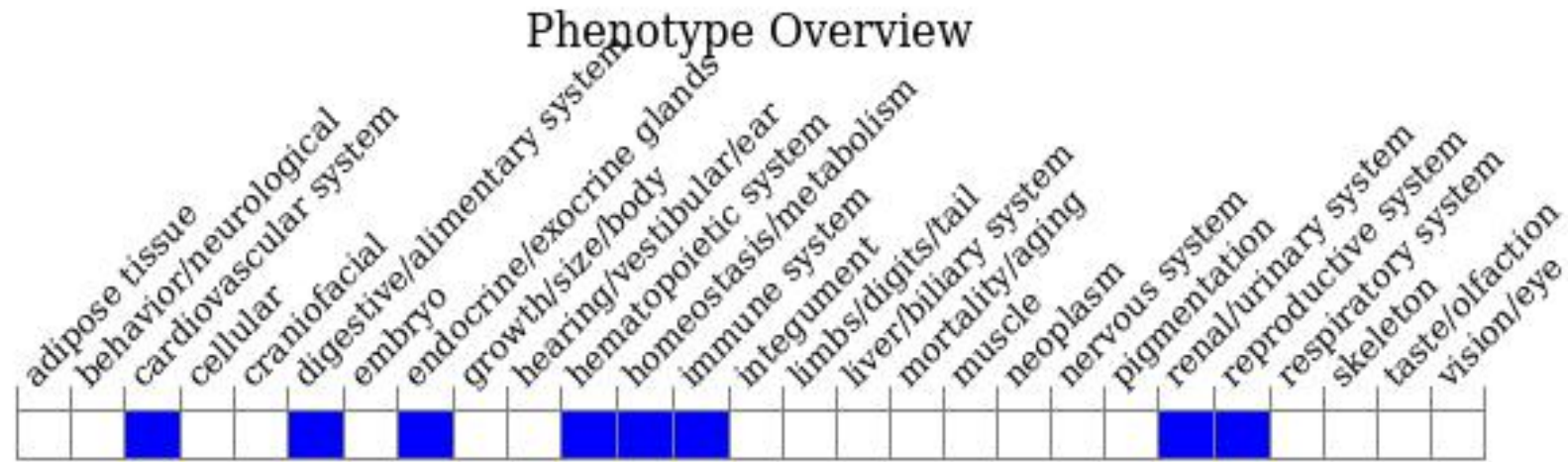
Genomic location distribution



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 mice have diarrhea associated with defects of renal and intestinal absorption. Males are infertile.

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

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