Slc9a6 Cas9-KO Strategy

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Reviewer: Xiaojing Li

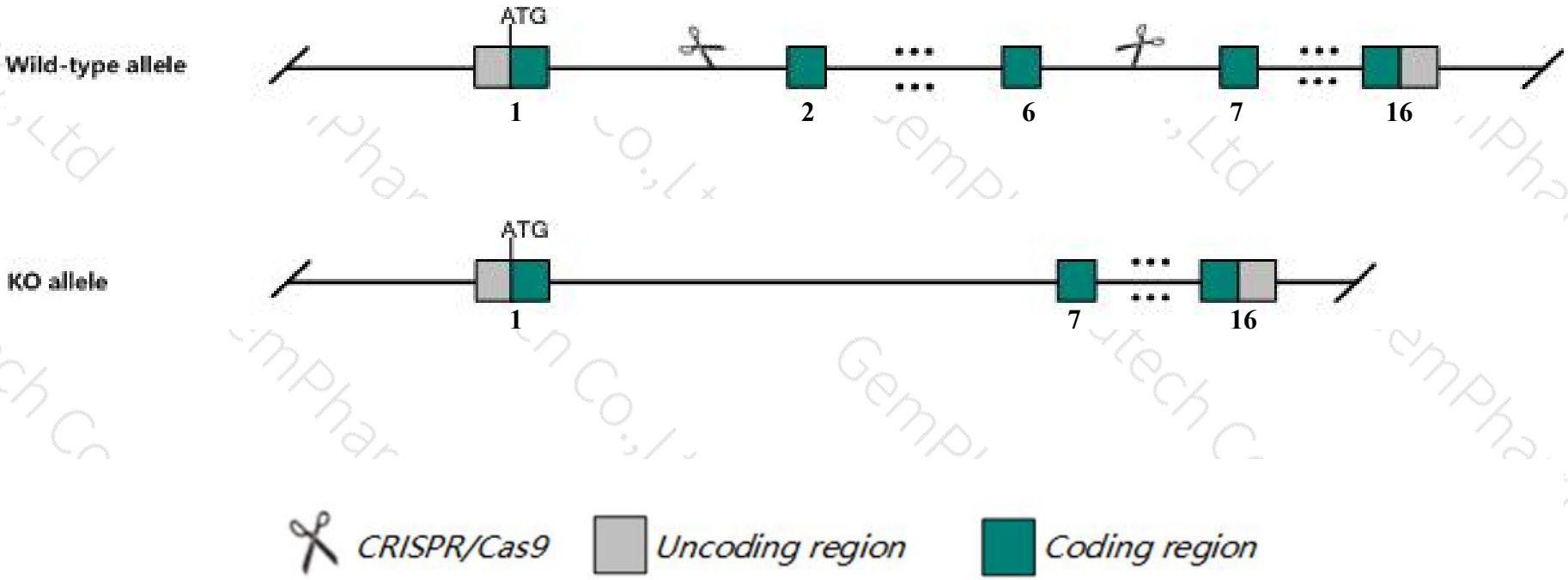
Design Date: 2020-2-13

Project Overview

Project Name	***Slc9a6***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc9a6* gene. The schematic diagram is as follows:



Technical routes

➢ The *Slc9a6* gene has 5 transcripts. According to the structure of *Slc9a6* gene, exon2-exon6 of *Slc9a6-201* (ENSMUST00000077741.11) transcript is recommended as the knockout region.The region contains 574bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Slc9a6* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

➢ According to the existing MGI data,Male mice hemizygous for a targeted mutation display hyperactivity and susceptibility to pharmacologically induced seizures.

➢Transcript 205 CDS 5' and 3' incomplete the influences is unknown.

➢ The *Slc9a6* gene is located on the ChrX. 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）

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Slc9a6 solute carrier family 9 (sodium/hydrogen exchanger), member 6 [Mus musculus (house mouse)]

Gene ID: 236794, updated on 5-Mar-2019

Summary

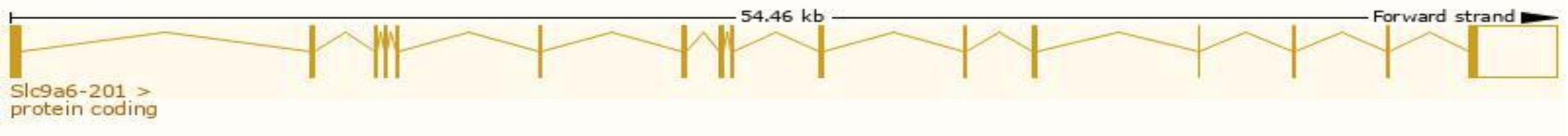
Official Symbol	Slc9a6 provided by MGI
Official Full Name	solute carrier family 9 (sodium/hydrogen exchanger), member 6 provided by MGI
Primary source	MGI:MGI:2443511
See related	Ensembl:ENSMUSG00000060681
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	3732426M05, 6430520C02Rik, NHE6, mKIAA0267
Expression	Broad expression in CNS E18 (RPKM 21.8), placenta adult (RPKM 16.0) and 26 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

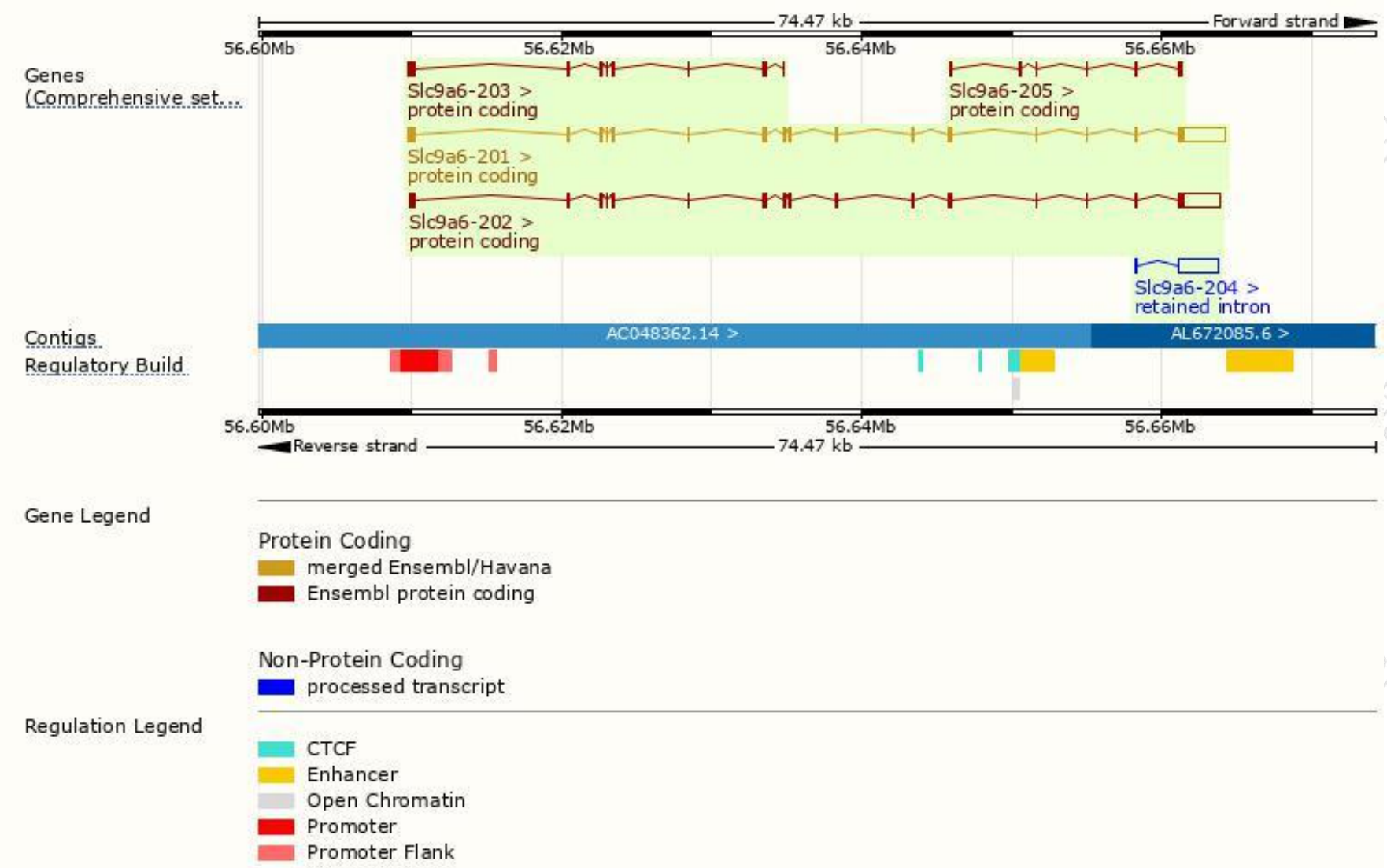
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc9a6-201	ENSMUST00000077741.11	4976	702aa	Protein coding	CCDS40979	A1L3P4	TSL:1 GENCODE basic APPRIS P1
Slc9a6-202	ENSMUST00000114784.3	4449	670aa	Protein coding	-	B0QZV3	TSL:5 GENCODE basic
Slc9a6-203	ENSMUST00000144068.7	1061	313aa	Protein coding	-	D3Z0Q9	CDS 3' incomplete TSL:5
Slc9a6-205	ENSMUST00000207892.1	619	206aa	Protein coding	-	A0A140LJ55	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:5
Slc9a6-204	ENSMUST00000202670.1	2774	No protein	Retained intron	-	-	TSL:1

The strategy is based on the design of *Slc9a6-201* transcript,The transcription is shown below

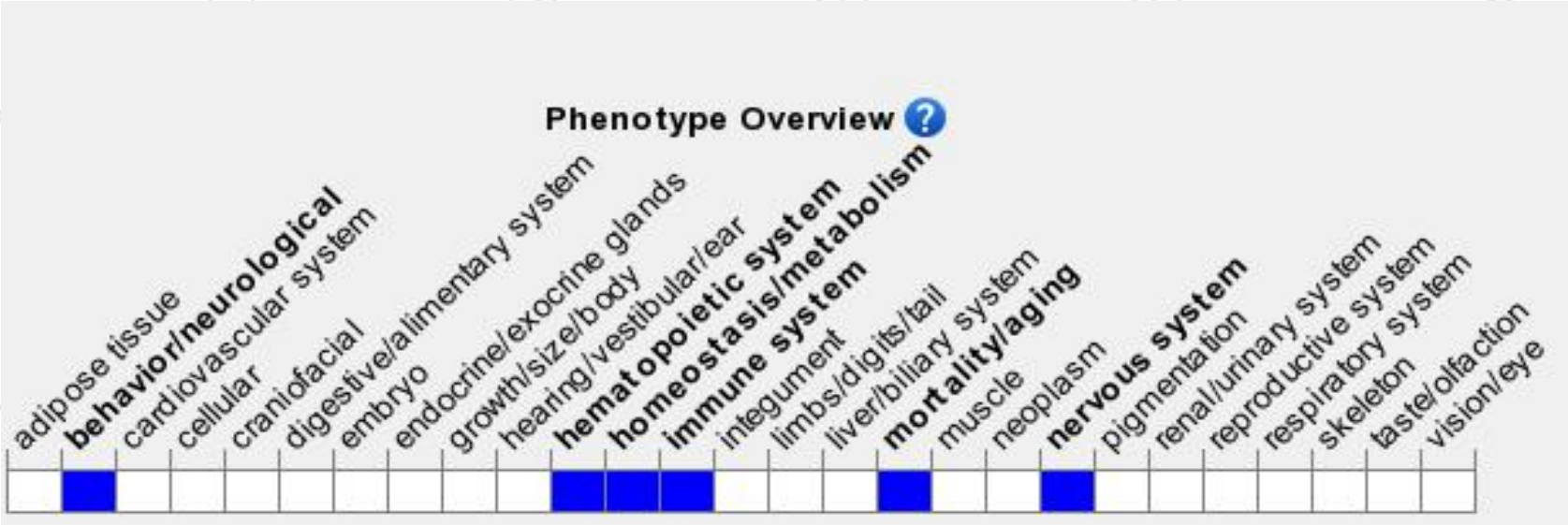


Genomic location distribution



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/).

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

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