Slc39a6 Cas9-KO Strategy

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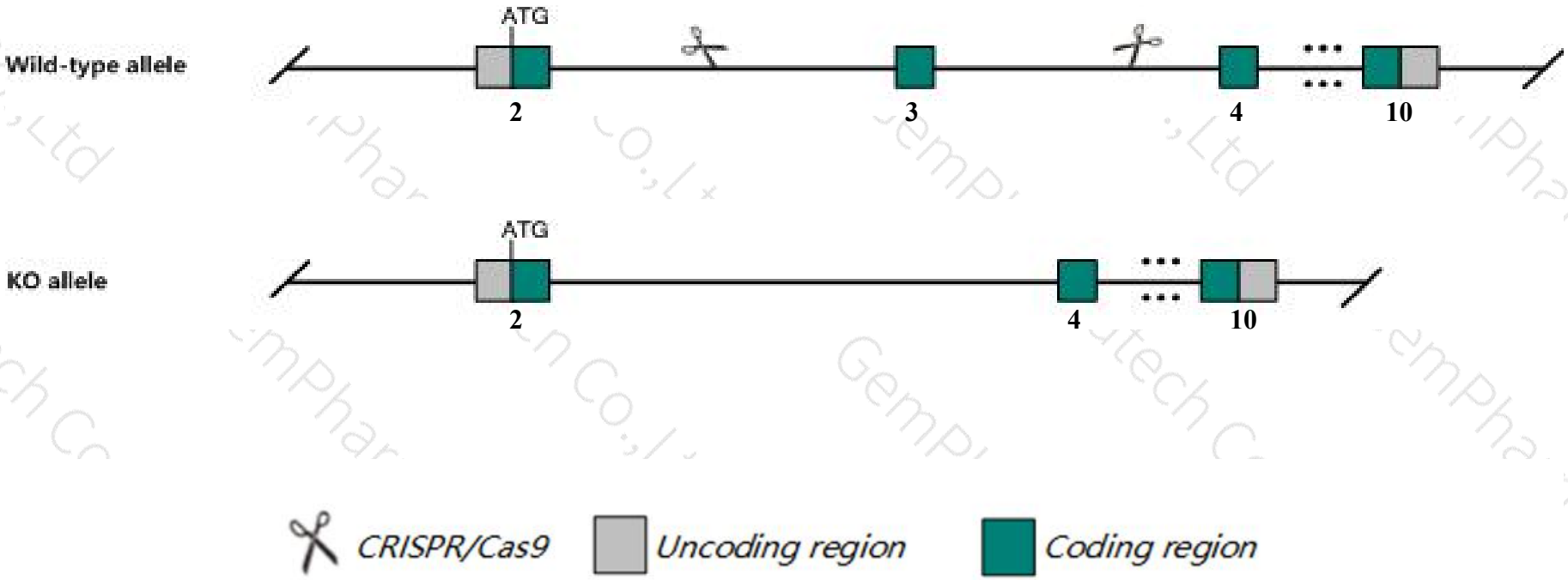
Project Overview

Project Name	***Slc39a6***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc39a6* gene. The schematic diagram is as follows:



Technical routes

➢ The *Slc39a6* gene has 4 transcripts. According to the structure of *Slc39a6* gene, exon3 of *Slc39a6-201* (ENSMUST00000070726.9) transcript is recommended as the knockout region.The region contains 184bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Slc39a6* gene. The brief process is as follows: CRISPR/Cas9 syste

Notice

- According to the existing MGI data,Mice homozygous for a null allele do not display any gross skin abnormalities.
- The knockout region is near to the N-terminal of *Elp2* gene,this strategy may influence the regulatory function of the N-terminal of *Elp2* gene.
- The effect on transcript *Slc39a6*-203 is unknown.
- The N-terminal of *Slc39a6* gene will remain several amino acids ,it may remain the partial function of *Slc39a6* gene.
- The *Slc39a6* 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 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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Slc39a6 solute carrier family 39 (metal ion transporter), member 6 [*Mus musculus* (house mouse)]

Gene ID: 106957, updated on 12-Aug-2019

Summary

Official Symbol	Slc39a6 provided by MGI
Official Full Name	solute carrier family 39 (metal ion transporter), member 6 provided by MGI
Primary source	MGI:MGI:2147279
See related	Ensembl:ENSMUSG00000024270
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	Zip6; Ermelin
Expression	Broad expression in whole brain E14.5 (RPKM 19.9), CNS E14 (RPKM 19.7) and 24 other tissues See more
Orthologs	human all

Genomic context

Location: 18; 18 A2

See Slc39a6 in Genome Data Viewer

Exon count: 10

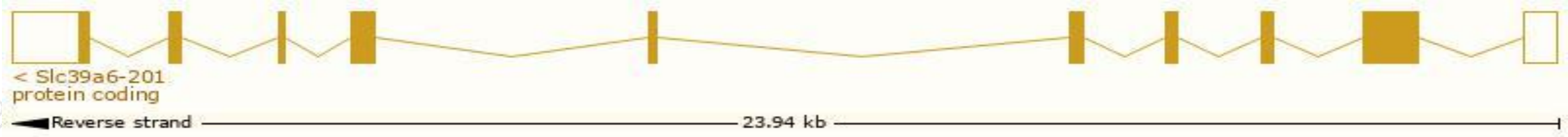
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	18	NC_000084.6 (24579881..24603817, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	18	NC_000084.5 (24738382..24762318, complement)

Transcript information（Ensembl）

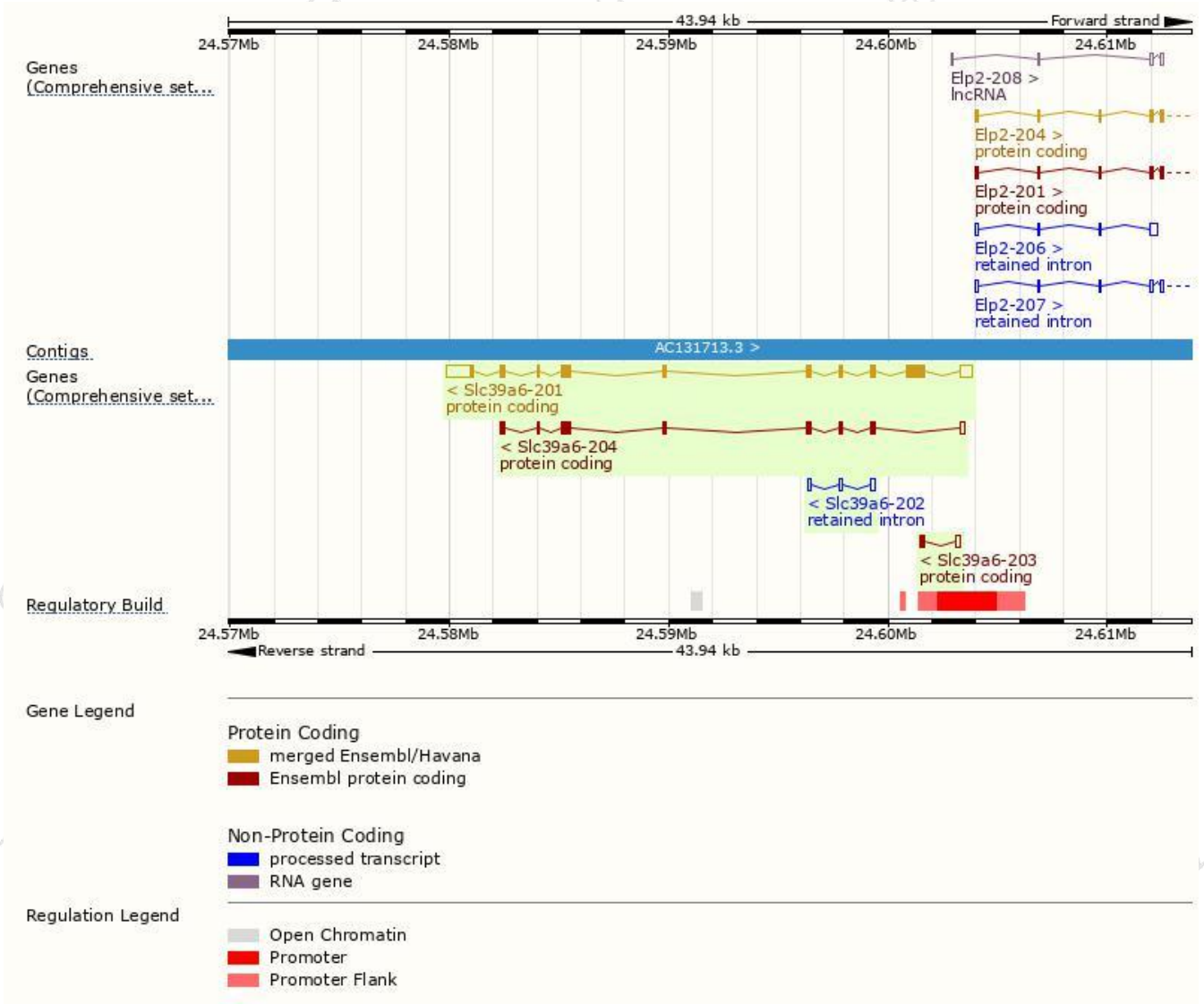
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc39a6-201	ENSMUST00000070726.9	3882	765aa	Protein coding	CCDS50239	Q8C145	TSL:1 GENCODE basic APPRIS P1
Slc39a6-204	ENSMUST00000154205.1	1567	434aa	Protein coding	-	D3Z7N4	CDS 3' incomplete TSL:5
Slc39a6-203	ENSMUST00000152504.1	337	48aa	Protein coding	-	D3Z0J4	CDS 3' incomplete TSL:3
Slc39a6-202	ENSMUST00000128106.1	529	No protein	Retained intron	-	-	TSL:2

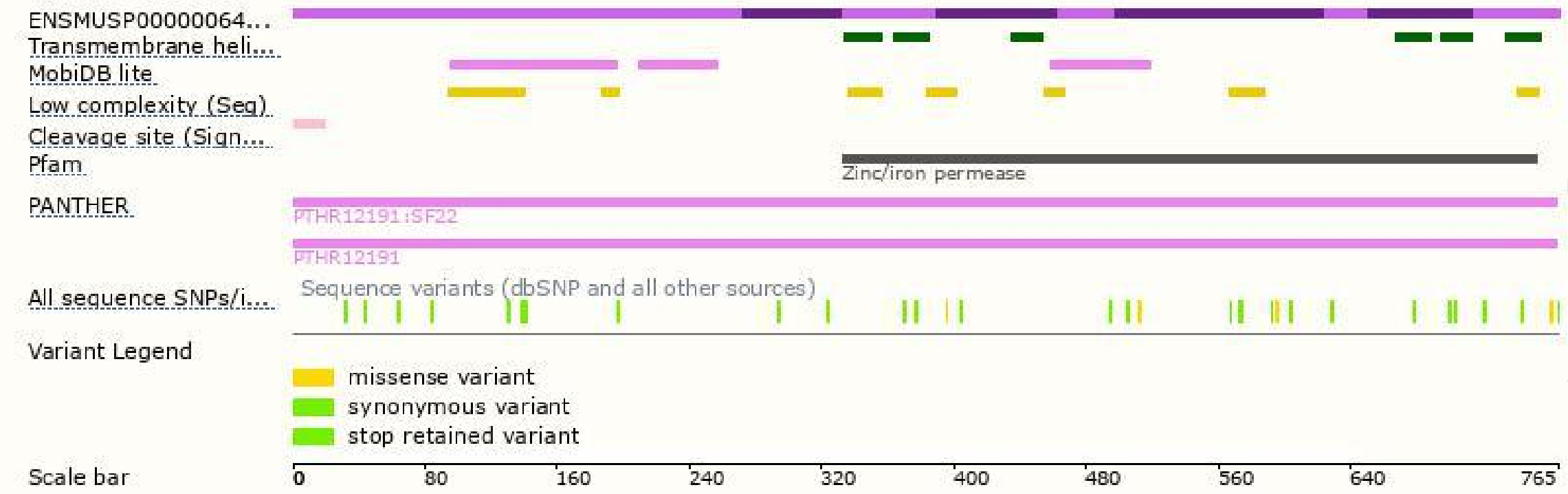
The strategy is based on the design of *Slc39a6-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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