Slc39a9 Cas9-CKO Strategy

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Project Overview

Project Name	***Slc39a9***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

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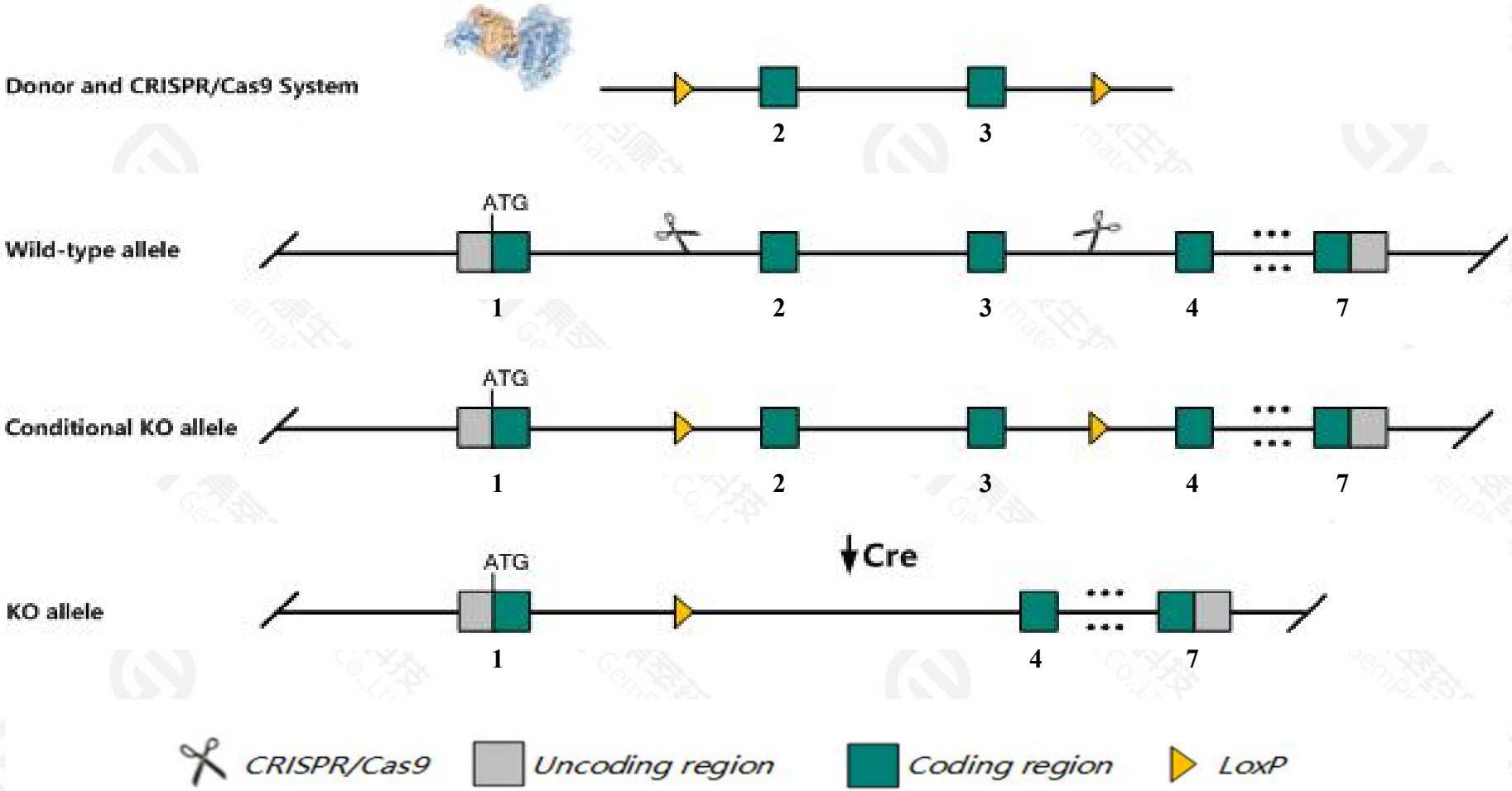
This model will use CRISPR/Cas9 technology to edit the *Slc39a9* gene. The schematic diagram is as follows:



Technical routes

➢ The *Slc39a9* gene has 8 transcripts. According to the structure of *Slc39a9* gene, exon2-exon3 of *Slc39a9-201*(ENSMUST00000085245.7) transcript is recommended as the knockout region.The region contains 310bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Slc39a9* 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.

Notice

➢ The *Slc39a9* gene is located on the Chr12. 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）

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Slc39a9 solute carrier family 39 (zinc transporter), member 9 [Mus musculus (house mouse)]

Gene ID: 328133, updated on 17-Dec-2020

Summary

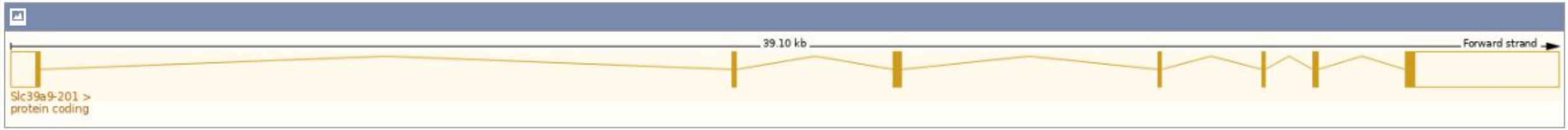
Official Symbol	Slc39a9 provided by MGI
Official Full Name	solute carrier family 39 (zinc transporter), member 9 provided byMGI
Primary source	MGI:MGI:1914820
See related	Ensembl:ENSMUSG00000048833
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2010002A02Rik, 2610511I23Rik, 4833420E20Rik, AW209151
Expression	Ubiquitous expression in large intestine adult (RPKM 22.7), colon adult (RPKM 21.1) and 28 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

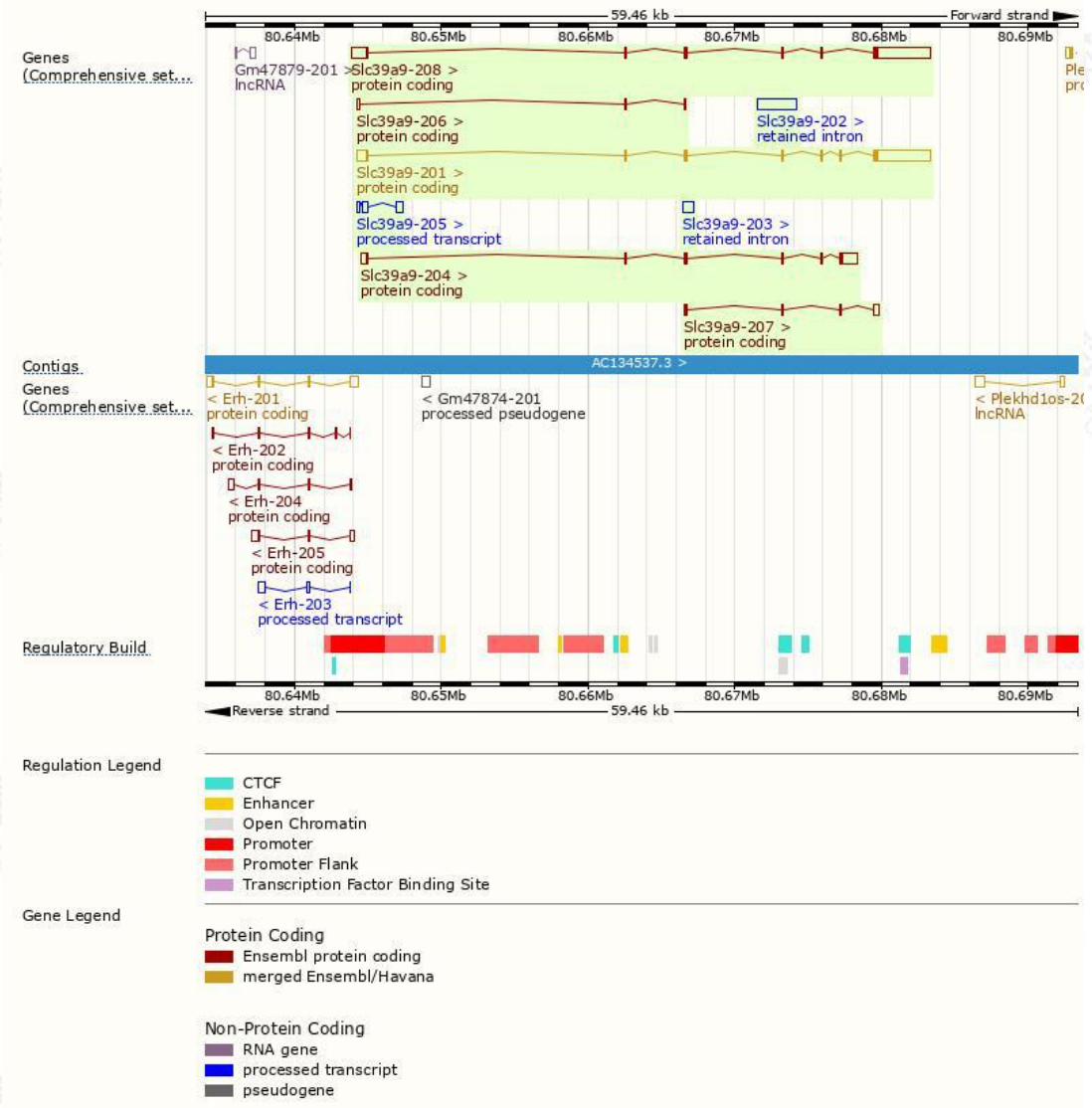
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc39a9-201	ENSMUST00000085245.7	5201	308aa	Protein coding	CCDS49099		TSL:1 , GENCODE basic , APPRIS P1 ,
Slc39a9-208	ENSMUST00000219706.2	5427	263aa	Protein coding	-		TSL:1 , GENCODE basic ,
Slc39a9-204	ENSMUST00000217889.2	2155	261aa	Protein coding	-		TSL:1 , GENCODE basic ,
Slc39a9-207	ENSMUST00000219689.2	750	115aa	Protein coding	-		CDS 5' incomplete , TSL:3 ,
Slc39a9-206	ENSMUST00000219405.2	393	23aa	Protein coding	-		CDS 3' incomplete , TSL:3 ,
Slc39a9-205	ENSMUST00000218440.2	969	No protein	Processed transcript	-		TSL:1 ,
Slc39a9-202	ENSMUST00000217679.2	2674	No protein	Retained intron	-		TSL:NA ,
Slc39a9-203	ENSMUST00000217805.2	680	No protein	Retained intron	-		TSL:NA ,

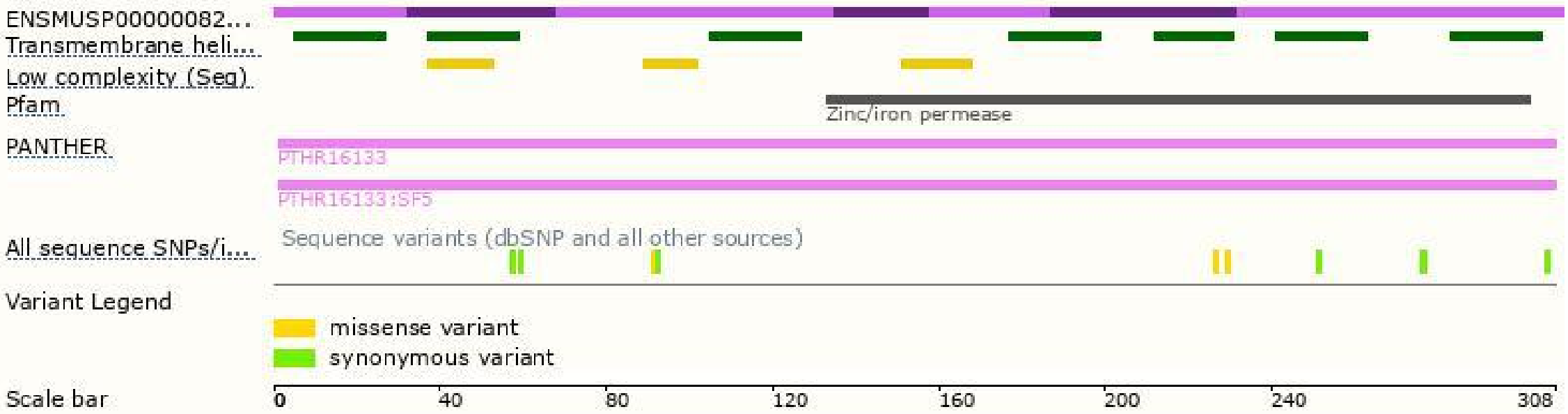
The strategy is based on the design of *Slc39a9-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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