

Slc36a4 Cas9-CKO Strategy

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Project Overview

Project Name

Slc36a4

Project type

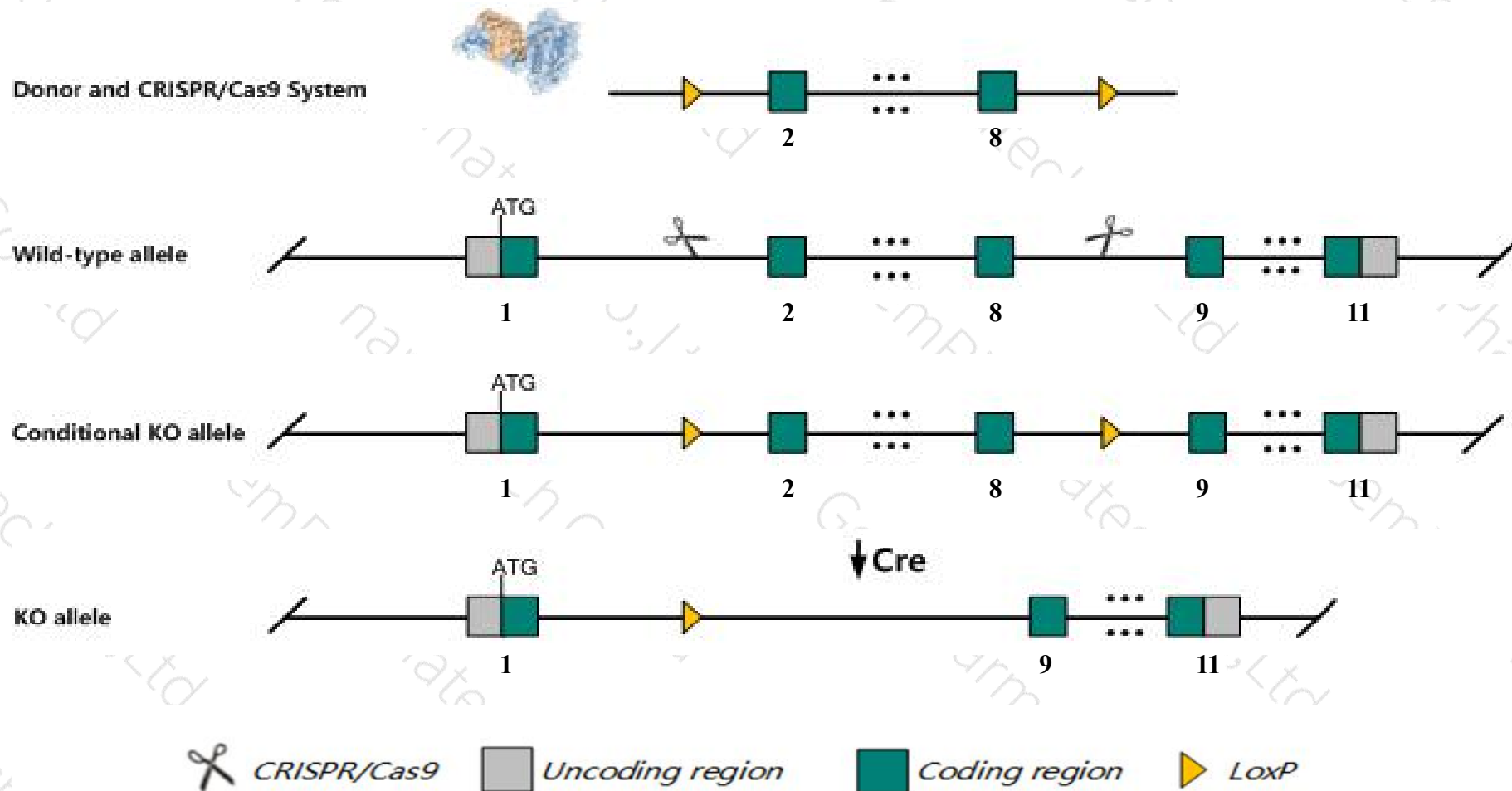
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc36a4* gene. The schematic diagram is as follows:



Technical routes

- The *Slc36a4* gene has 3 transcripts. According to the structure of *Slc36a4* gene, exon2-exon8 of *Slc36a4-201* (ENSMUST00000061568.8) transcript is recommended as the knockout region. The region contains 812bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Slc36a4* 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 *Slc36a4* gene is located on the Chr9. 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)

Slc36a4 solute carrier family 36 (proton/amino acid symporter), member 4 [*Mus musculus* (house mouse)]

Gene ID: 234967, updated on 13-Mar-2020

Summary

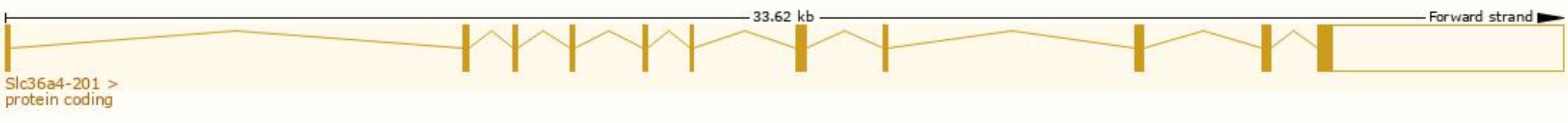
Official Symbol	Slc36a4 provided by MGI
Official Full Name	solute carrier family 36 (proton/amino acid symporter), member 4 provided by MGI
Primary source	MGI:MGI:2442595
See related	Ensembl:ENSMUSG00000043885
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	PAT4; 6330573I15Rik
Expression	Broad expression in CNS E18 (RPKM 9.5), whole brain E14.5 (RPKM 7.8) and 26 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

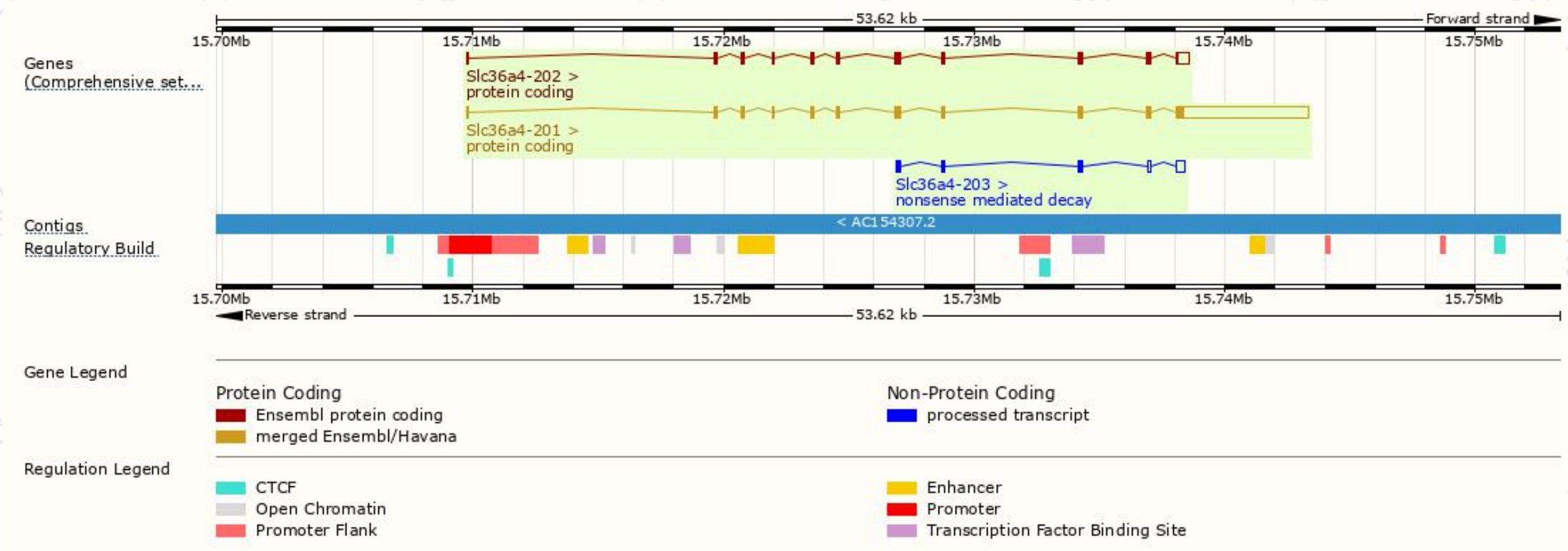
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc36a4-201	ENSMUST000000061568.8	6539	500aa	Protein coding	CCDS22840	A0A0R4J0Q3	TSL:1 GENCODE basic APPRIS P2
Slc36a4-202	ENSMUST00000115588.7	1745	404aa	Protein coding	-	D3Z0L1	TSL:1 GENCODE basic APPRIS ALT2
Slc36a4-203	ENSMUST00000214954.1	855	140aa	Nonsense mediated decay	-	A0A1L1SSD8	CDS 5' incomplete TSL:3

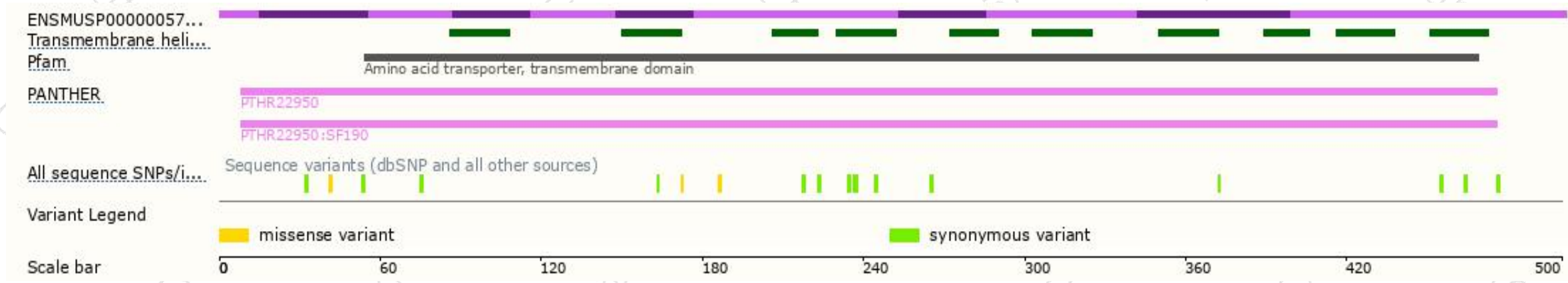
The strategy is based on the design of *Slc36a4-201* transcript, the transcription is shown below



Genomic location distribution



Protein domain



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

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