

Slc24a5 Cas9-CKO Strategy

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Project Overview

Project Name

Slc24a5

Project type

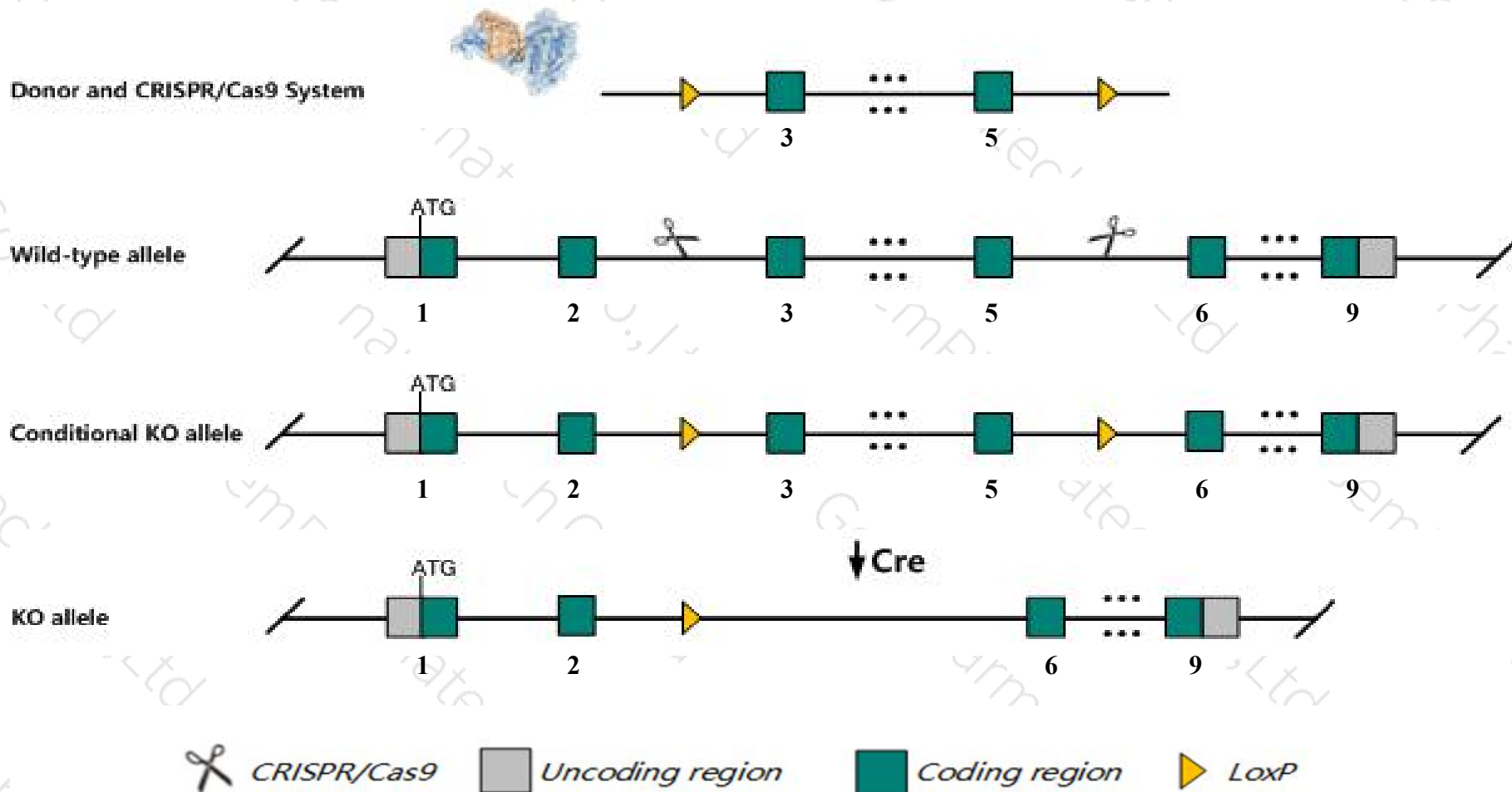
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc24a5* gene. The schematic diagram is as follows:



Technical routes

- The *Slc24a5* gene has 3 transcripts. According to the structure of *Slc24a5* gene, exon3-exon5 of *Slc24a5-201* (ENSMUST00000070353.3) transcript is recommended as the knockout region. The region contains 289bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Slc24a5* 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.

- According to the existing MGI data, mice homozygous for a knock-out allele exhibit hypopigmentation and ocular albinism.
- The *Slc24a5* gene is located on the Chr2. 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)

Slc24a5 solute carrier family 24, member 5 [Mus musculus (house mouse)]

Gene ID: 317750, updated on 13-Mar-2020

Summary



Official Symbol	Slc24a5 provided by MGI
Official Full Name	solute carrier family 24, member 5 provided by MGI
Primary source	MGI:MGI:2677271
See related	Ensembl:ENSMUSG00000035183
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	F630045L20Rik, JSX, NCKX5, NCX5, Oca6
Expression	Broad expression in CNS E14 (RPKM 23.7), whole brain E14.5 (RPKM 21.5) and 16 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

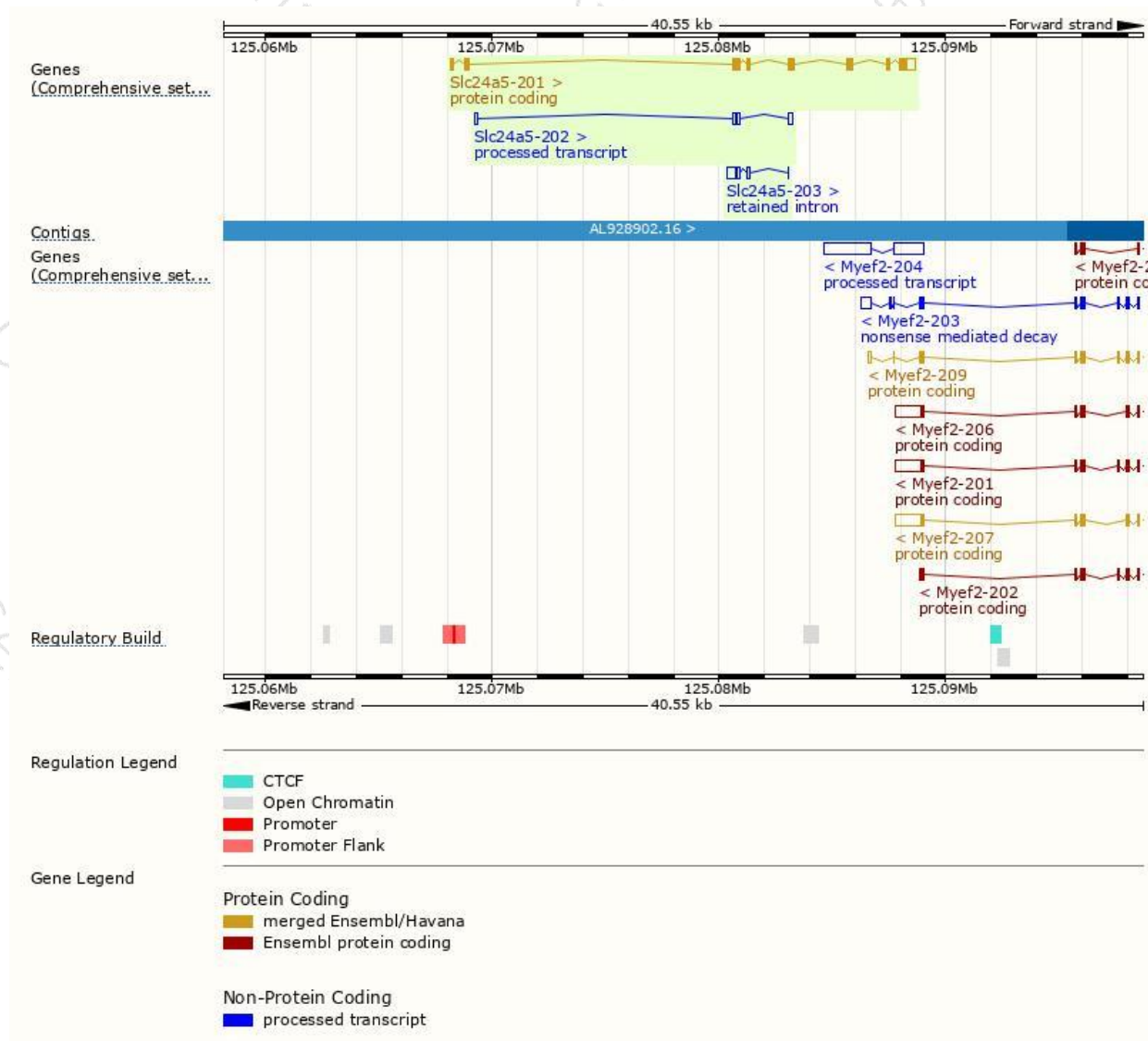
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc24a5-201	ENSMUST00000070353.3	1954	501aa	Protein coding	CCDS38226	A2ATP8 Q8C261	TSL:1 GENCODE basic APPRIS P1
Slc24a5-202	ENSMUST00000139615.7	494	No protein	Processed transcript	-	-	TSL:3
Slc24a5-203	ENSMUST00000149963.1	604	No protein	Retained intron	-	-	TSL:3

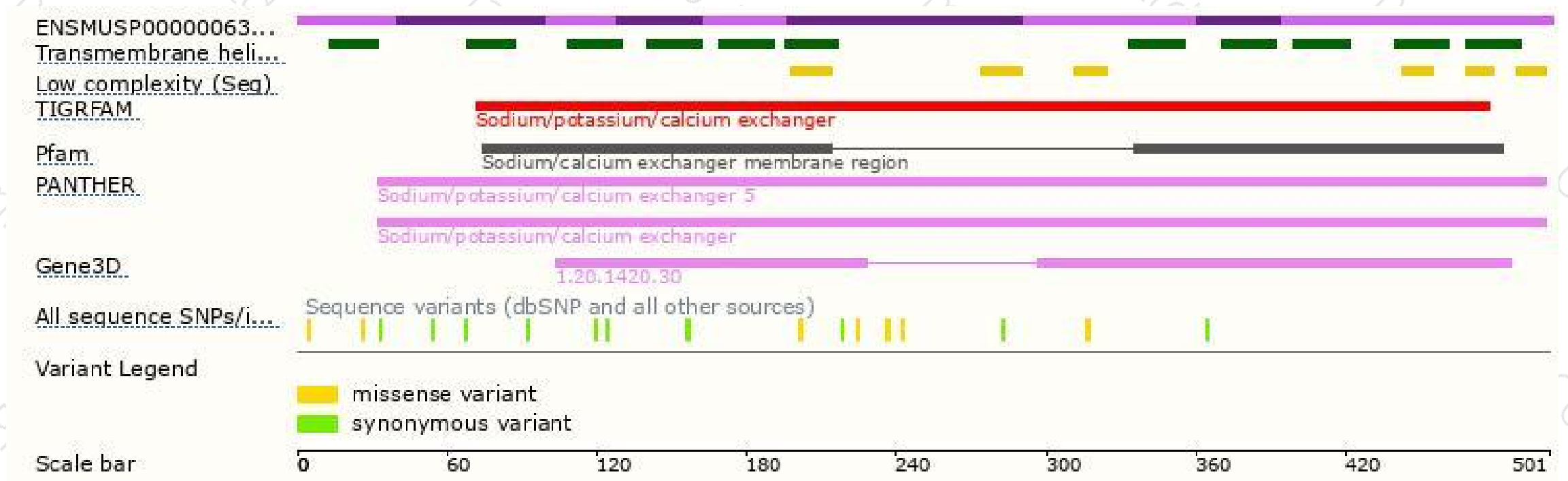
The strategy is based on the design of *Slc24a5-201* transcript,the transcription is shown below:



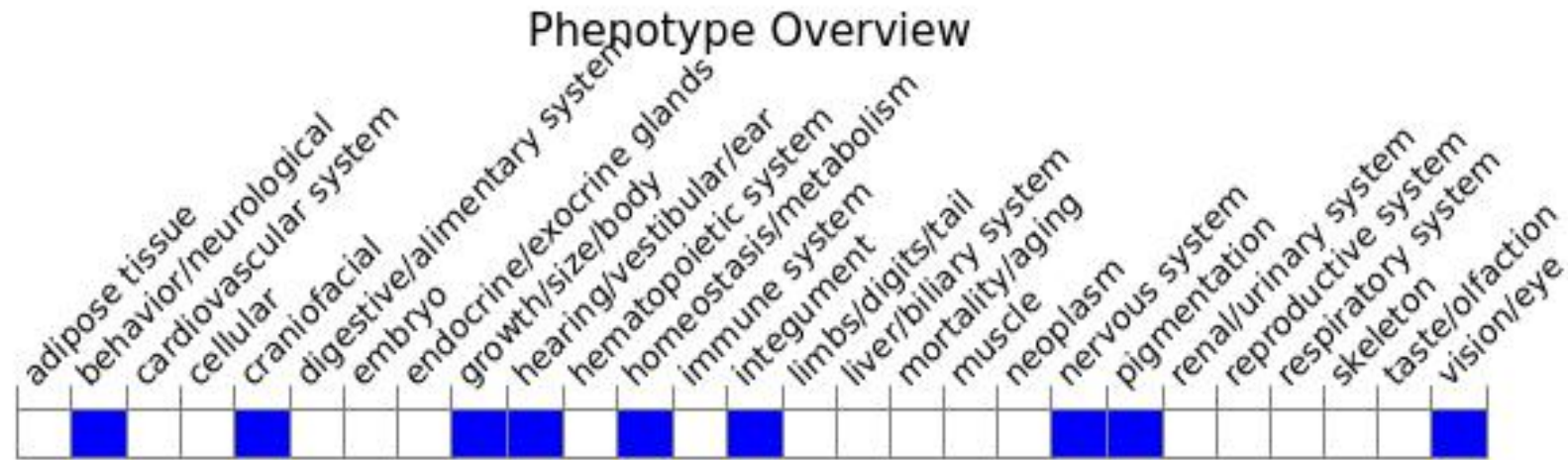
Genomic location distribution



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, mice homozygous for a knock-out allele exhibit hypopigmentation and ocular albinism.

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

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