

Slc7a11 Cas9-KO Strategy

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Project Overview

Project Name

Slc7a11

Project type

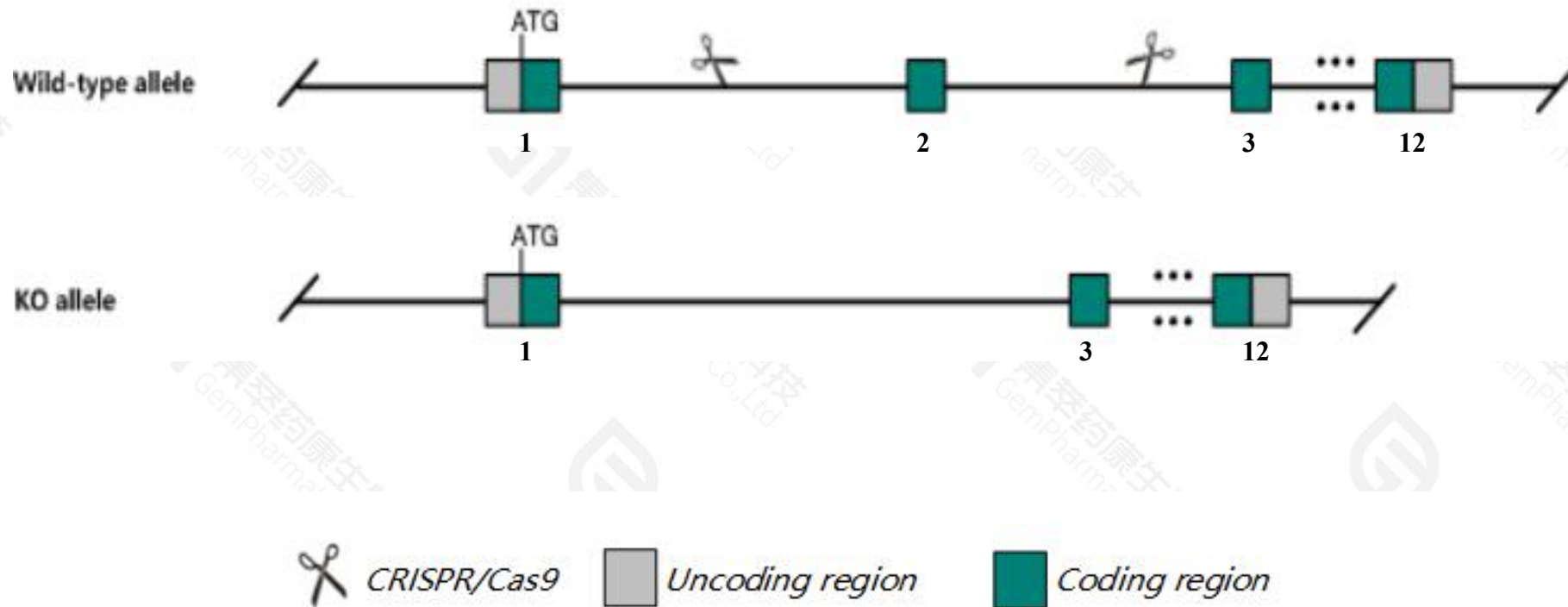
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc7a11* gene. The schematic diagram is as follows:



- The *Slc7a11* gene has 5 transcripts. According to the structure of *Slc7a11* gene, exon2 of *Slc7a11-201*(ENSMUST00000029297.6) transcript is recommended as the knockout region. The region contains 127bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Slc7a11* gene. The brief process is as follows: CRISPR/Cas9 system 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.

- According to the existing MGI data, homozygous mutant mice show a reduction in yellow pigment resulting in dilution of agouti; only pinna hairs are affected in nonagouti mice. Mice homozygous for an ENU-induced allele exhibit decreased survival of LPS-induced macrophages and increased incidence of chemically-induced tumors.
- Transcript *Slc7a11-203*, *Slc7a11-204* may not be affected.
- The *Slc7a11* gene is located on the Chr3. 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.

Slc7a11 solute carrier family 7 (cationic amino acid transporter, y+ system), member 11 [Mus musculus (house mouse)]

Gene ID: 26570, updated on 14-Feb-2021

Summary



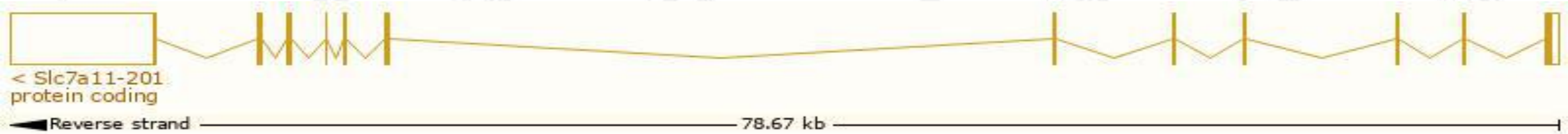
Official Symbol	Slc7a11 provided by MGI
Official Full Name	solute carrier family 7 (cationic amino acid transporter, y+ system), member 11 provided by MGI
Primary source	MGI:MGI:1347355
See related	Ensembl:ENSMUSG00000027737
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9930009M05Rik, AI451155, su, sut, xCT
Expression	Ubiquitous expression in genital fat pad adult (RPKM 13.5), subcutaneous fat pad adult (RPKM 12.7) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

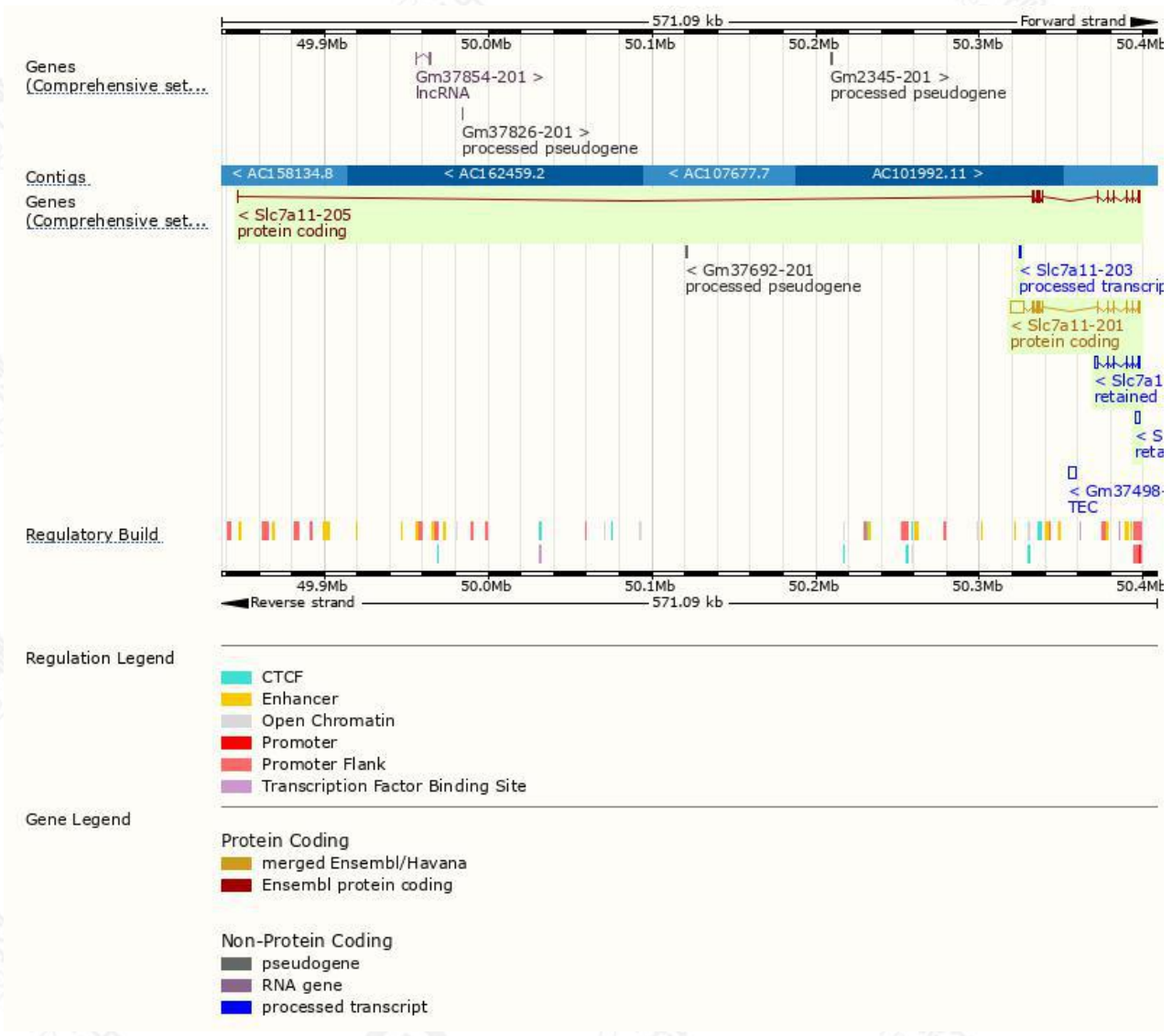
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc7a11-201	ENSMUST00000029297.6	9223	502aa	Protein coding	CCDS17335		TSL:1 , GENCODE basic , APPRIS P1 ,
Slc7a11-205	ENSMUST00000194462.6	2419	490aa	Protein coding	-		TSL:1 , GENCODE basic ,
Slc7a11-203	ENSMUST00000192564.2	481	No protein	Processed transcript	-		TSL:5 ,
Slc7a11-202	ENSMUST00000142932.3	3162	No protein	Retained intron	-		TSL:1 ,
Slc7a11-204	ENSMUST00000193838.2	2677	No protein	Retained intron	-		TSL:NA ,

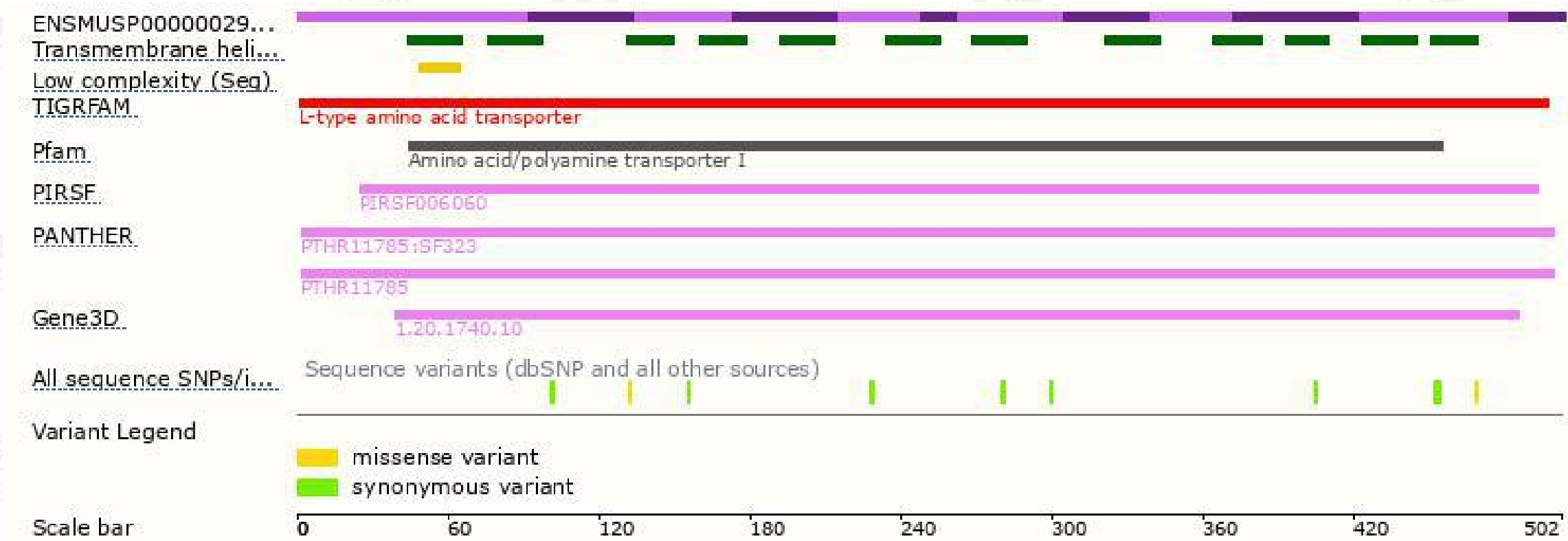
The strategy is based on the design of *Slc7a11-201* transcript,the transcription is shown below:



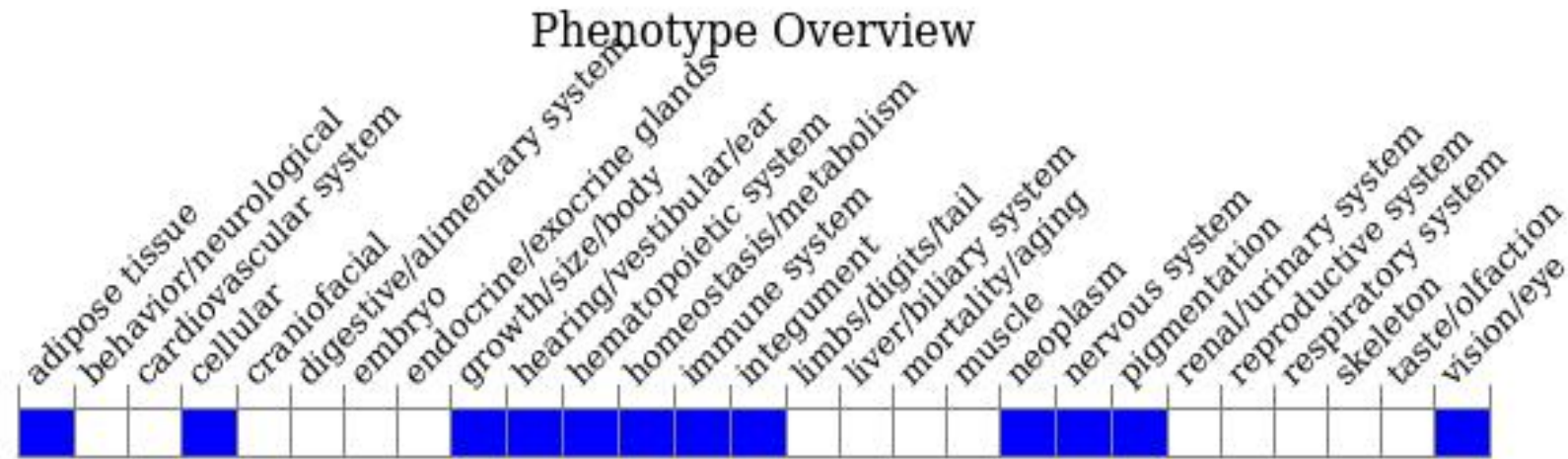
Genomic location distribution



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, homozygous mutant mice show a reduction in yellow pigment resulting in dilution of agouti; only pinna hairs are affected in nonagouti mice. Mice homozygous for an ENU-induced allele exhibit decreased survival of LPS-induced macrophages and increased incidence of chemically-induced tumors.

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