Slc35a2 Cas9-CKO Strategy

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Overview

Target Gene Name
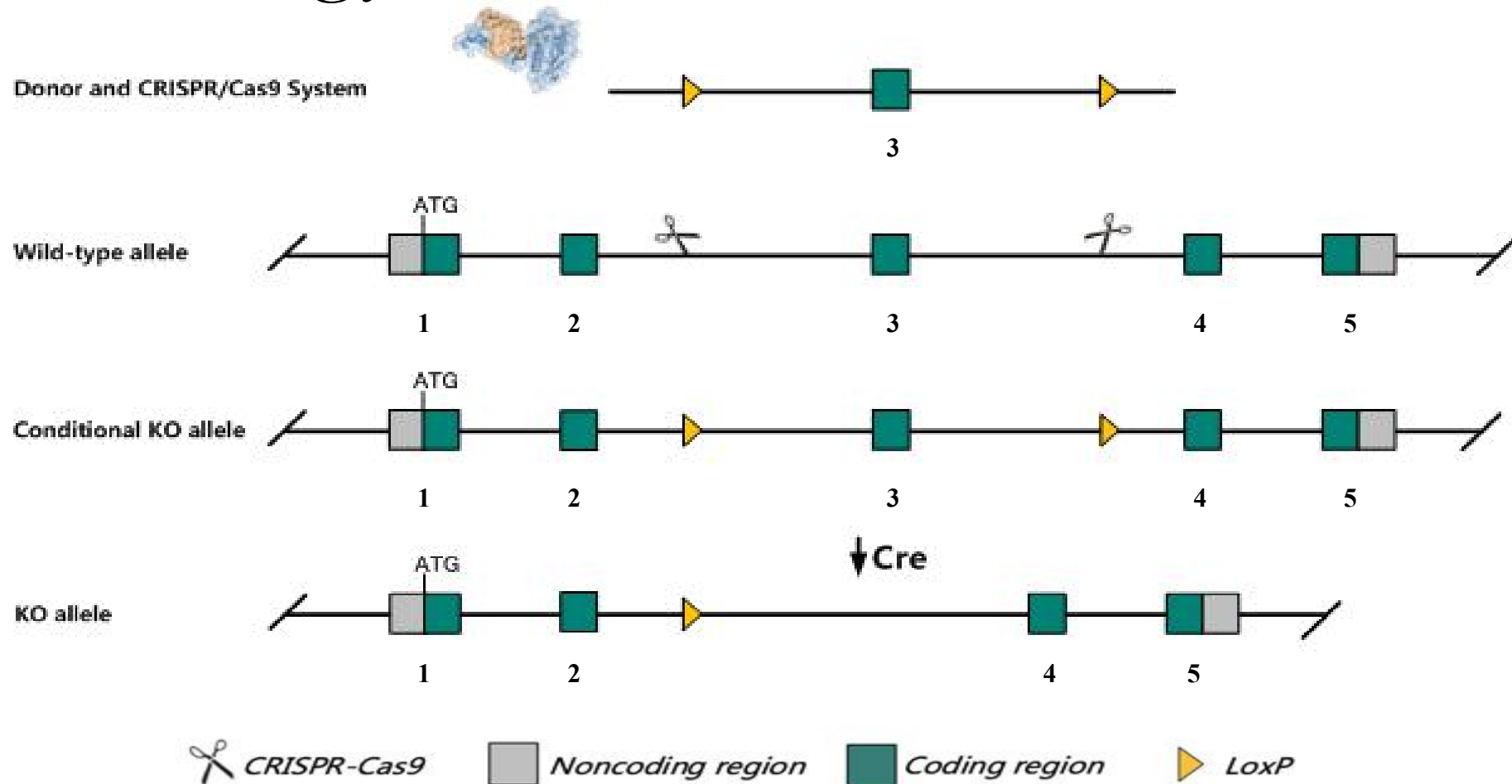
- Slc35a2

Project Type

- Cas9-CKO

Genetic Background

- C57BL/6JGpt

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Strain Strategy

Schematic representation of CRISPR-Cas9 engineering used to edit the *Slc35a2* gene.

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Technical Information

- The *Slc35a2* gene has 12 transcripts. According to the structure of *Slc35a2* gene, exon3 of *Slc35a2-203*(ENSMUST00000115663.10) transcript is recommended as the knockout region.The region contains 152bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR-Cas9 technology to modify *Slc35a2* 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 on-target amplicon sequencing. A stable F1-generation mouse strain was obtained by mating positive F0-generation mice with C57BL/6JGpt mice and confirmation of the desired mutant allele was carried out by PCR and on-target amplicon sequencing.

- 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.

Gene Information

Slc35a2 solute carrier family 35 (UDP-galactose transporter), member A2 [Mus musculus (house mouse)]

Gene ID: 22232, updated on 13-Mar-2020

▲ Summary

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Official Symbol	Slc35a2 provided by MGI
Official Full Name	solute carrier family 35 (UDP-galactose transporter), member A2 provided byMGI
Primary source	MGI:MGI:1345297
See related	Ensembl:ENSMUSG00000031156
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	AI327289, Had-1, Had1, Sfc8, UGT, Ugalt
Expression	Ubiquitous expression in colon adult (RPKM 48.8), adrenal adult (RPKM 22.5) and 28 other tissuesSee more
Orthologs	human all

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Transcript Information

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

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc35a2-202	ENSMUST00000115660.11	3094	390aa	Protein coding	CCDS52987	Q3UIP1 Q9R0M8	TSL:1 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS ALT2
Slc35a2-203	ENSMUST00000115663.9	1527	393aa	Protein coding	CCDS52986	A2AER4	TSL:2 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS P4
Slc35a2-201	ENSMUST00000096514.10	1757	242aa	Protein coding	-	A2AER3	TSL:5 GENCODE basic
Slc35a2-209	ENSMUST00000208397.1	1374	329aa	Protein coding	-	A0A140LI17	TSL:5 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS ALT2
Slc35a2-205	ENSMUST00000153620.2	830	223aa	Protein coding	-	F6WZ30	CDS 5' incomplete TSL:5
Slc35a2-210	ENSMUST00000208633.1	719	139aa	Protein coding	-	A0A140LJE6	CDS 3' incomplete TSL:5
Slc35a2-204	ENSMUST00000123277.7	663	167aa	Protein coding	-	F6QH15	CDS 5' incomplete TSL:3
Slc35a2-207	ENSMUST00000207114.1	584	191aa	Protein coding	-	A0A140LIG2	CDS 3' incomplete TSL:5
Slc35a2-211	ENSMUST00000208640.1	486	114aa	Protein coding	-	A0A140LIP5	TSL:5 GENCODE basic
Slc35a2-212	ENSMUST00000208718.1	431	143aa	Non stop decay	-	A0A140LHN4	CDS 5' incomplete TSL:5
Slc35a2-206	ENSMUST00000155967.2	1991	390aa	Nonsense mediated decay	-	Q3UIP1 Q9R0M8	TSL:5
Slc35a2-208	ENSMUST00000208023.1	2213	No protein	Retained intron	-	-	TSL:NA

The strategy is based on the design of *Slc35a2*-203 transcript, the transcription is shown below:
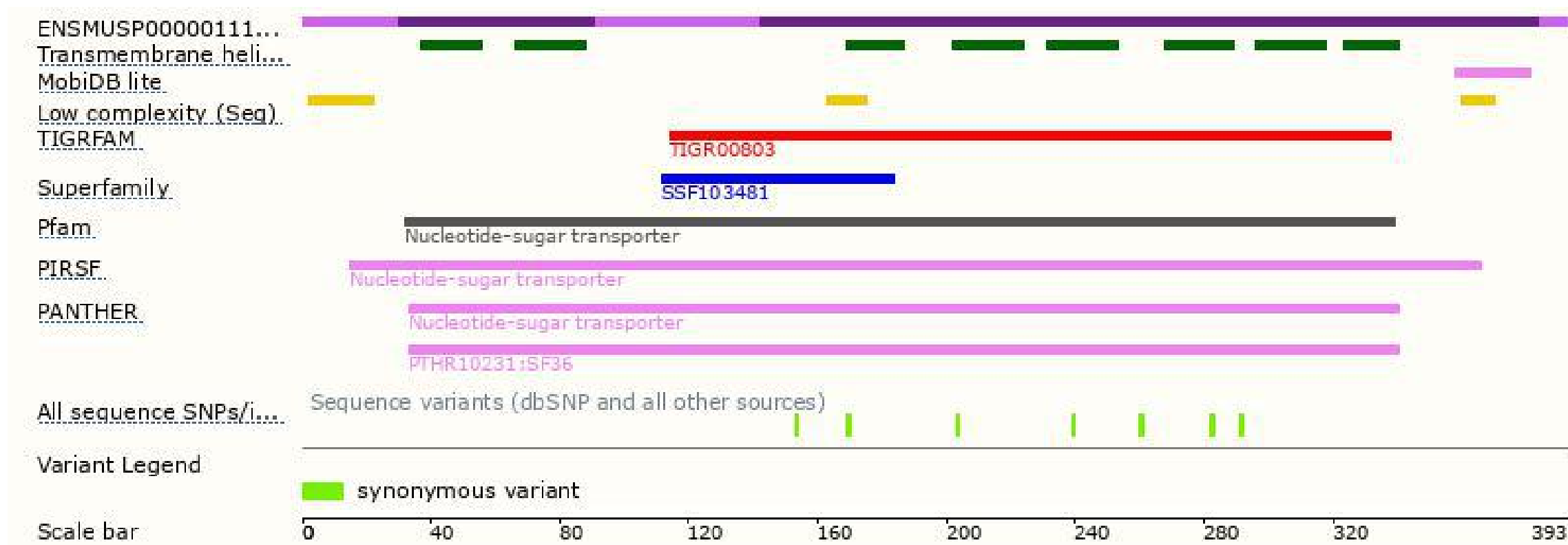

Source: https://www.ensembl.org
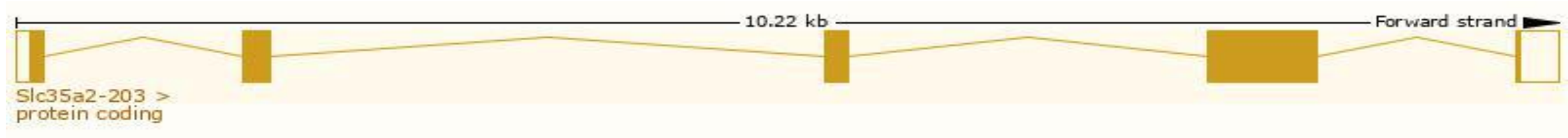
Genomic Information

Protein Information

Source: : https://www.ensembl.org
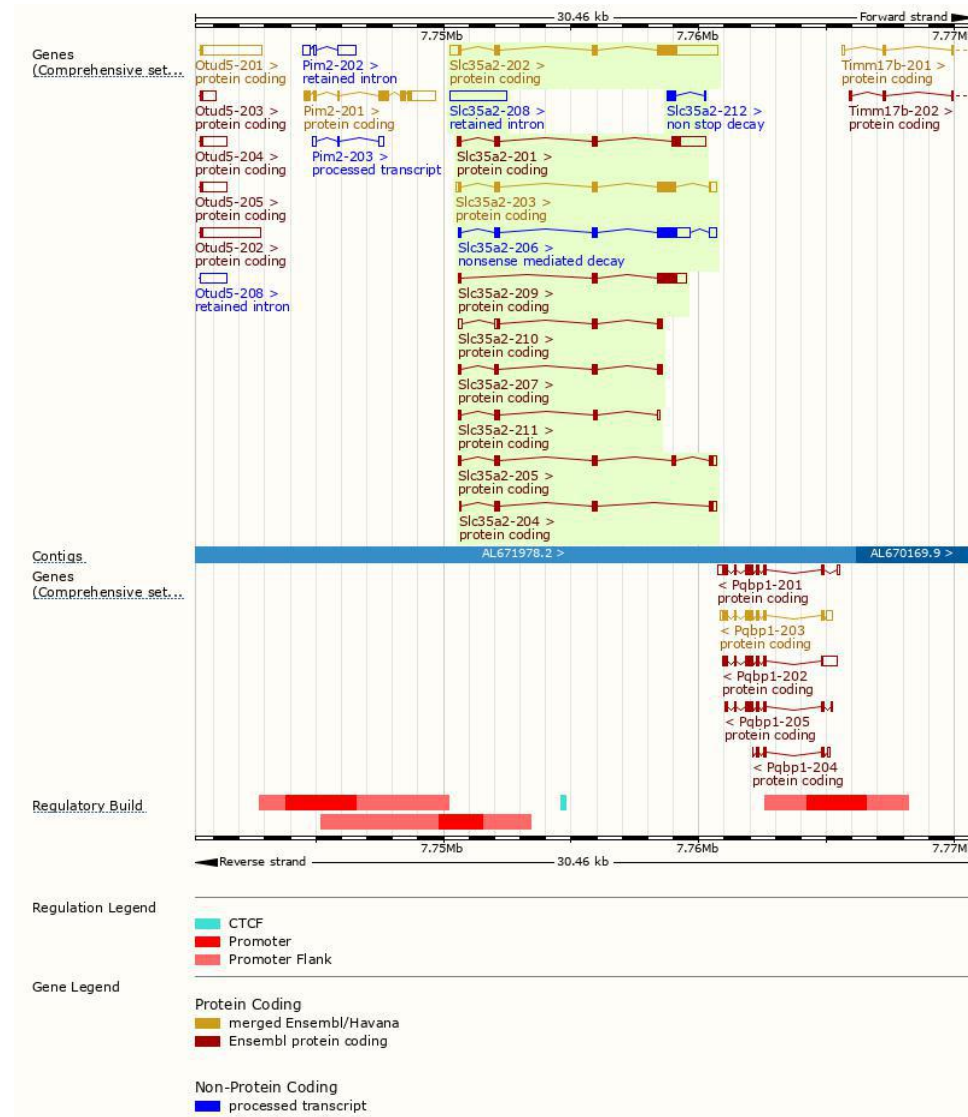
Important Information

- The N-terminal of *Slc35a2* gene will remain some amino acids,it may remain the partial function of *Slc35a2* gene.

- *Slc35a2* is located on ChrX. If the knockout mice are crossed with other mouse strains to obtain double homozygous mutant offspring, please avoid the situation that the second gene is 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 the existing technology level.