

Sult2b1 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Sult2b1

Project type

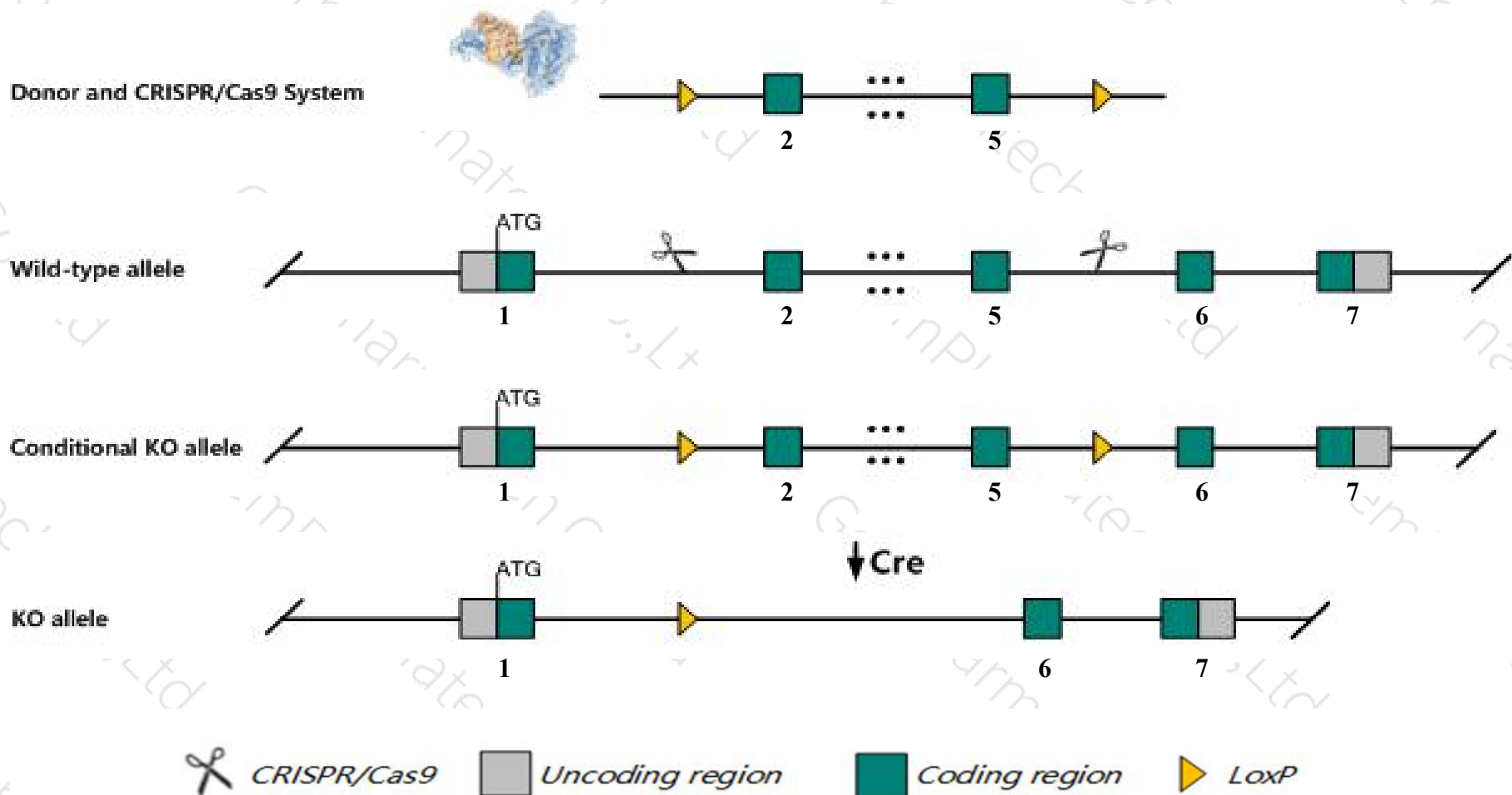
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Sult2b1* gene. The schematic diagram is as follows:



Technical routes

- The *Sult2b1* gene has 8 transcripts. According to the structure of *Sult2b1* gene, exon2-exon5 of *Sult2b1-201* (ENSMUST00000075571.15) transcript is recommended as the knockout region. The region contains 574bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Sult2b1* 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 lack cholesterol sulfate in the dermis but otherwise appear to have normal lipid metabolism.
- The *Sult2b1* gene is located on the Chr7. 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)

Sult2b1 sulfotransferase family, cytosolic, 2B, member 1 [Mus musculus (house mouse)]

Gene ID: 54200, updated on 31-Jan-2019

Summary



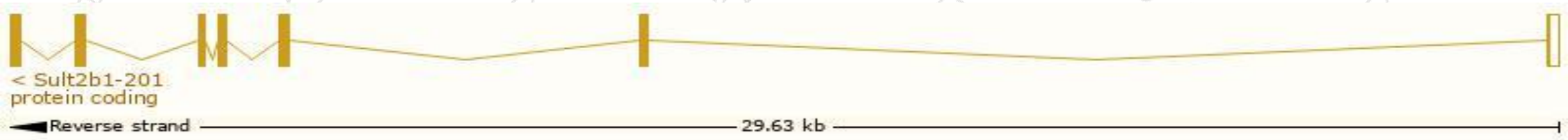
Official Symbol	Sult2b1 provided by MGI
Official Full Name	sulfotransferase family, cytosolic, 2B, member 1 provided by MGI
Primary source	MGI:MGI:1926342
See related	Ensembl:ENSMUSG00000003271
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI326997, BB173635, ST2B1, SULT2B
Expression	Biased expression in duodenum adult (RPKM 60.2), large intestine adult (RPKM 56.9) and 4 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

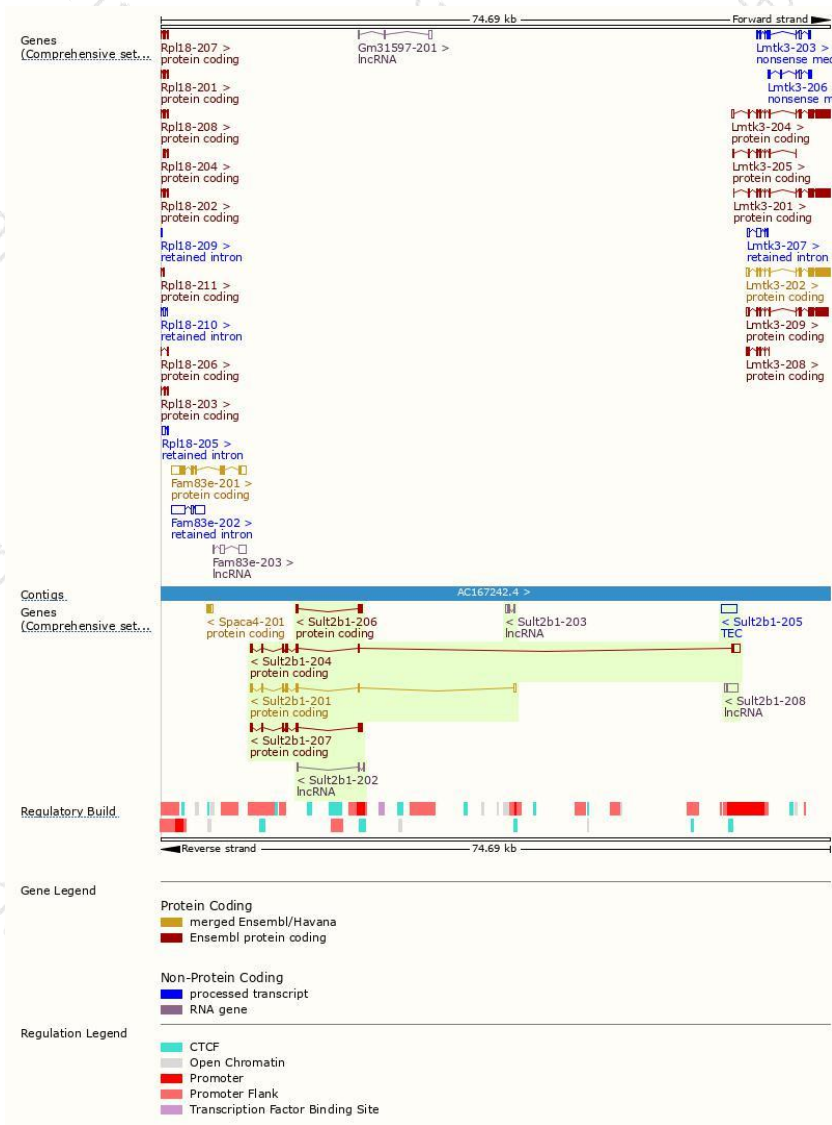
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Sult2b1-201	ENSMUST00000075571.15	1193	338aa	Protein coding	CCDS21263	O35400	TSL:1 GENCODE basic APPRIS P2
Sult2b1-204	ENSMUST00000209739.1	1858	370aa	Protein coding	-	A0A1B0GR49	TSL:5 GENCODE basic APPRIS ALT 2
Sult2b1-207	ENSMUST00000210754.1	1242	372aa	Protein coding	-	A0A1B0GST5	TSL:1 GENCODE basic APPRIS ALT 2
Sult2b1-206	ENSMUST00000210147.1	513	130aa	Protein coding	-	A0A1B0GRK8	CDS 3' incomplete TSL:3
Sult2b1-208	ENSMUST00000211779.1	1427	No protein	Processed transcript	-	-	TSL:1
Sult2b1-203	ENSMUST00000209464.1	431	No protein	Processed transcript	-	-	TSL:3
Sult2b1-202	ENSMUST00000209435.1	422	No protein	Processed transcript	-	-	TSL:2
Sult2b1-205	ENSMUST00000210021.1	1690	No protein	TEC	-	-	TSL:NA

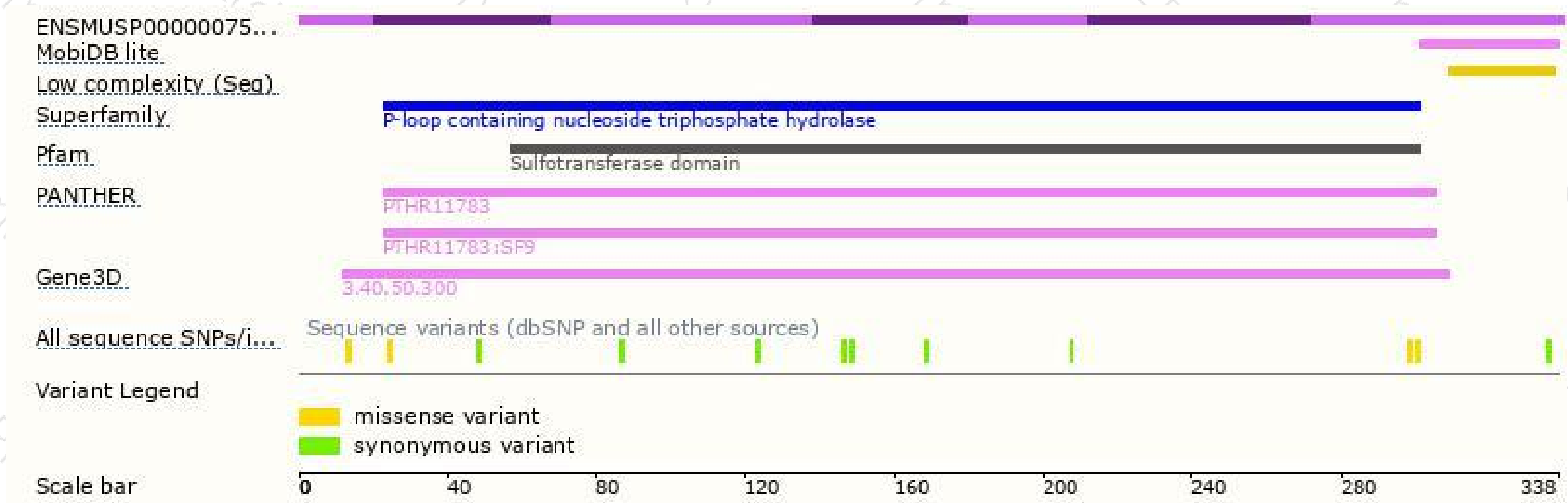
The strategy is based on the design of *Sult2b1-201* transcript,The transcription is shown below



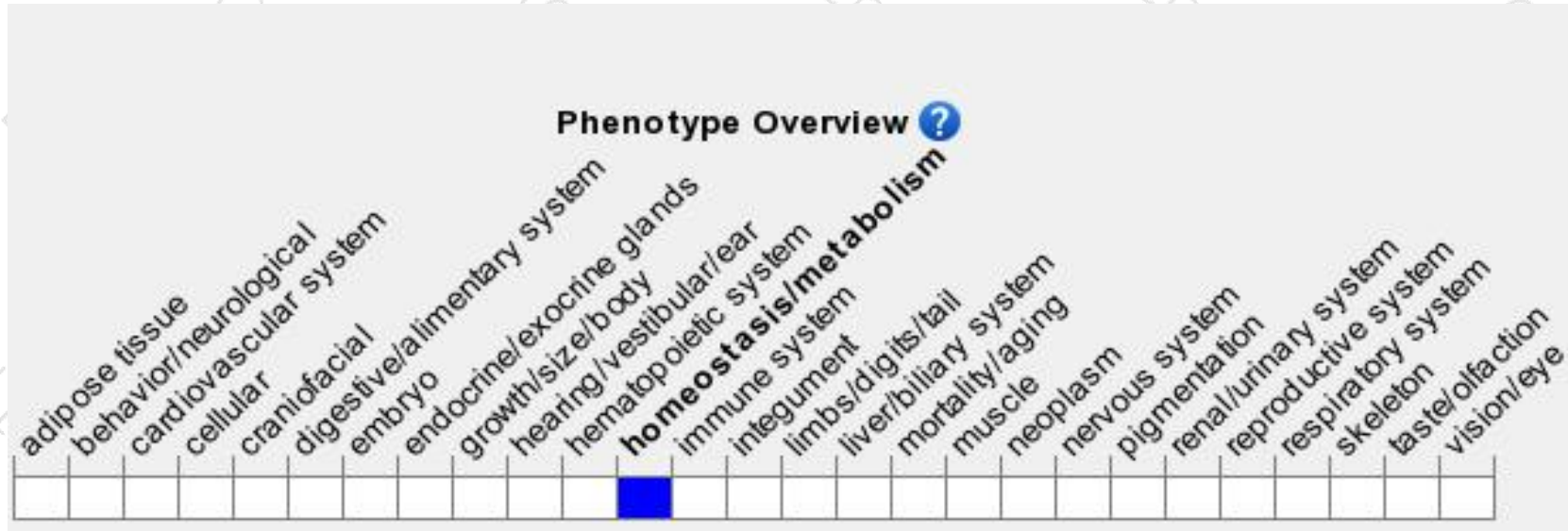
Genomic location distribution



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 lack cholesterol sulfate in the dermis but otherwise appear to have normal lipid metabolism.

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

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