Slc35d1 Cas9-KO Strategy

Designer: Yun Li

Reviewer: Longyun Hu

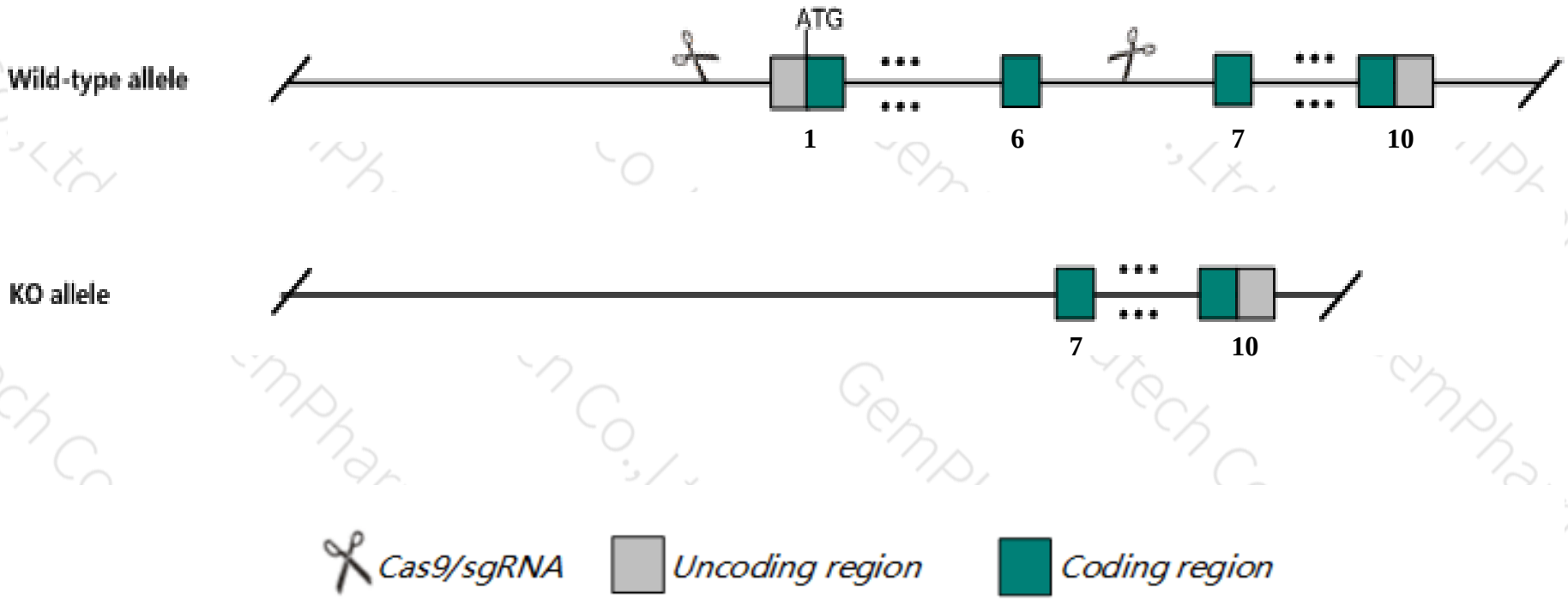
Design Date: 2021-1-4

Project Overview

Project Name	***Slc35d1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc35d1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Slc35d1* gene has 5 transcripts. According to the structure of *Slc35d1* gene, exon1-exon6 of *Slc35d1-203*(ENSMUST00000150285.7) transcript is recommended as the knockout region.The region contains start codon ATG.Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Slc35d1* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA 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.

Notice

➢ According to the existing MGI data,mice homozygous for a null allele exhibit neonatal lethality and chondrodystrophy associated with impaired chondroitin sulfate biosynthesis.

➢ The *Slc35d1* gene is located on the Chr4. 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.

Gene information（NCBI）

集萃药康 GemPharmatech

Slc35d1 solute carrier family 35 (UDP-glucuronic acid/UDP-N-acetylgalactosamine dual transporter), member D1 [Mus musculus (house mouse)]

Gene ID: 242585, updated on 13-Mar-2020

Summary

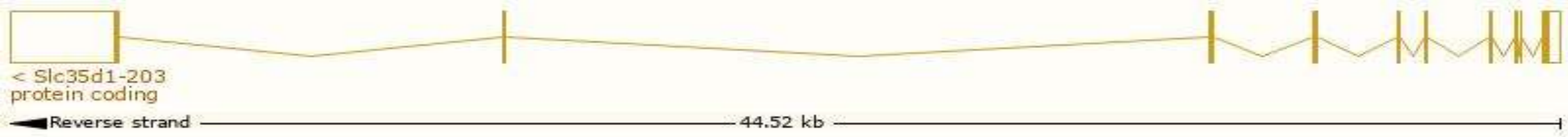
Official Symbol	Slc35d1 provided by MGI
Official Full Name	solute carrier family 35 (UDP-glucuronic acid/UDP-N-acetylgalactosamine dual transporter), member D1 provided byMGI
Primary source	MGI:MGI:2140361
See related	Ensembl:ENSMUSG00000028521
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI834976, C330011J09, UGTREL7, mKIAA0260
Expression	Ubiquitous expression in liver adult (RPKM 5.4), limb E14.5 (RPKM 3.4) and 28 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

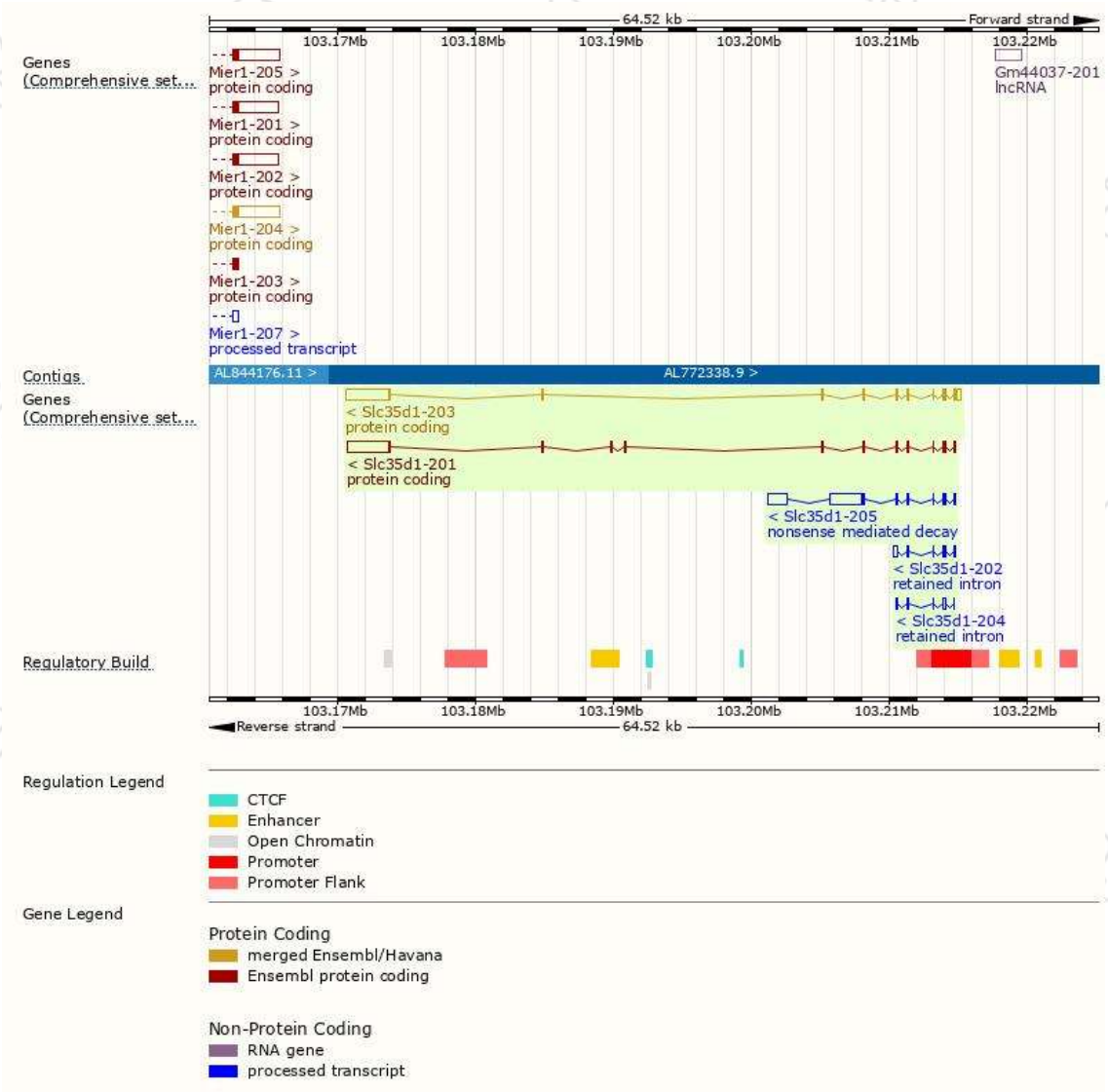
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc35d1-203	ENSMUST00000150285.7	4242	306aa	Protein coding	CCDS18409	A2AKQ0	TSL:1 GENCODE basic APPRIS P1
Slc35d1-201	ENSMUST00000036195.12	4021	334aa	Protein coding	-	A0A217FL58	CDS 5' incomplete TSL:1
Slc35d1-205	ENSMUST00000183432.5	4414	211aa	Nonsense mediated decay	-	V9GX08	CDS 5' incomplete TSL:5
Slc35d1-202	ENSMUST00000094947.4	663	No protein	Retained intron	-	-	TSL:1
Slc35d1-204	ENSMUST00000154845.1	416	No protein	Retained intron	-	-	TSL:5

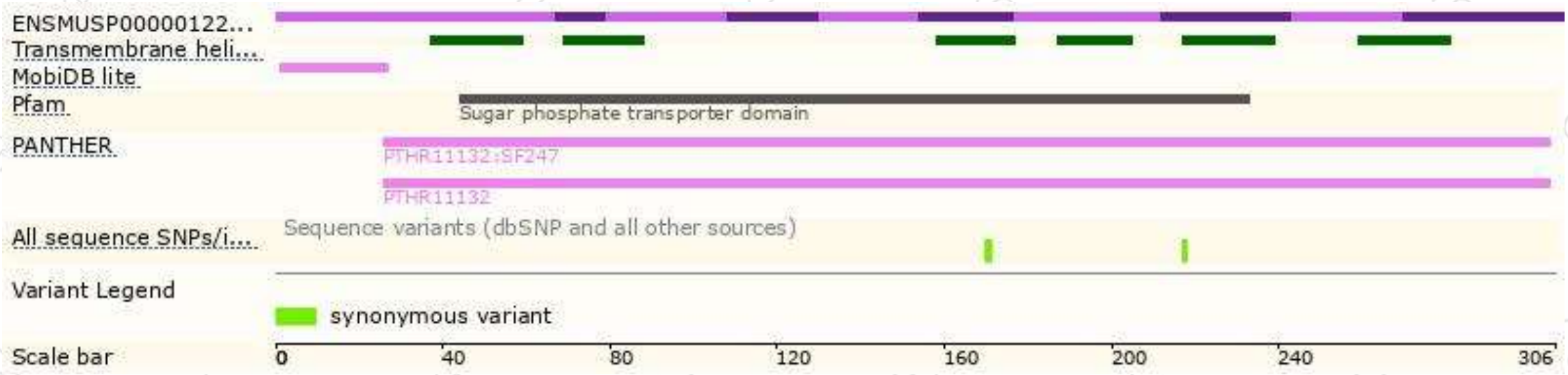
The strategy is based on the design of *Slc35d1-203* transcript,the transcription is shown below:



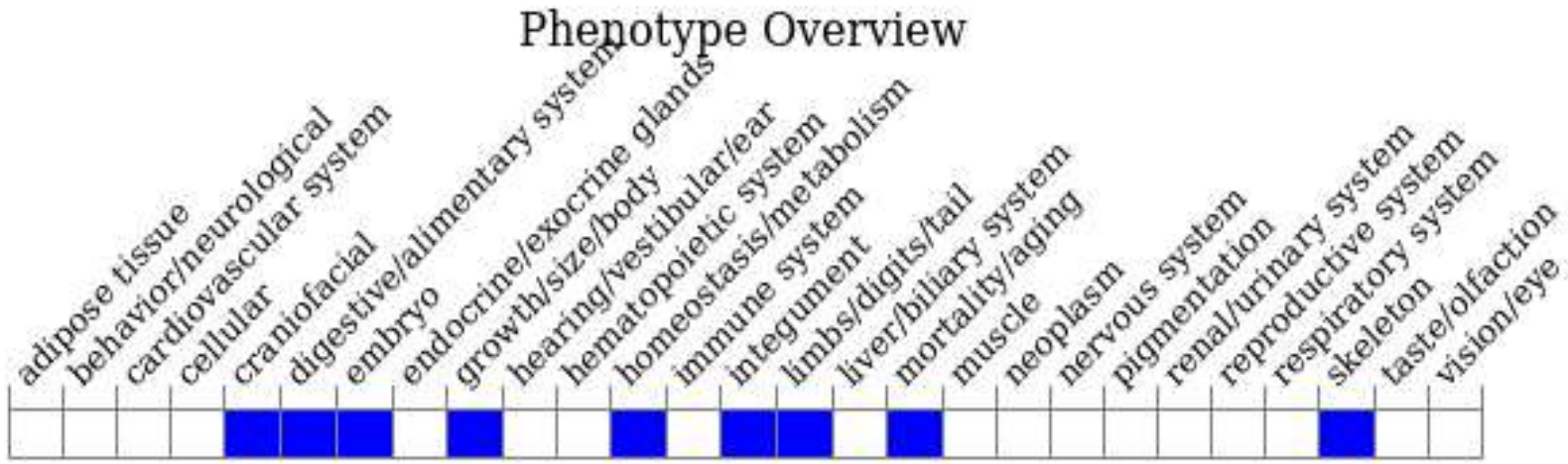
Genomic location distribution



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 null allele exhibit neonatal lethality and chondrodystrophy associated with impaired chondroitin sulfate biosynthesis.

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

Tel: 025-5864 1534

集萃药康生物科技
GemPharmatech Co.,Ltd