

Glt1d1 Cas9-CKO Strategy

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Project Overview

Project Name

Glt1d1

Project type

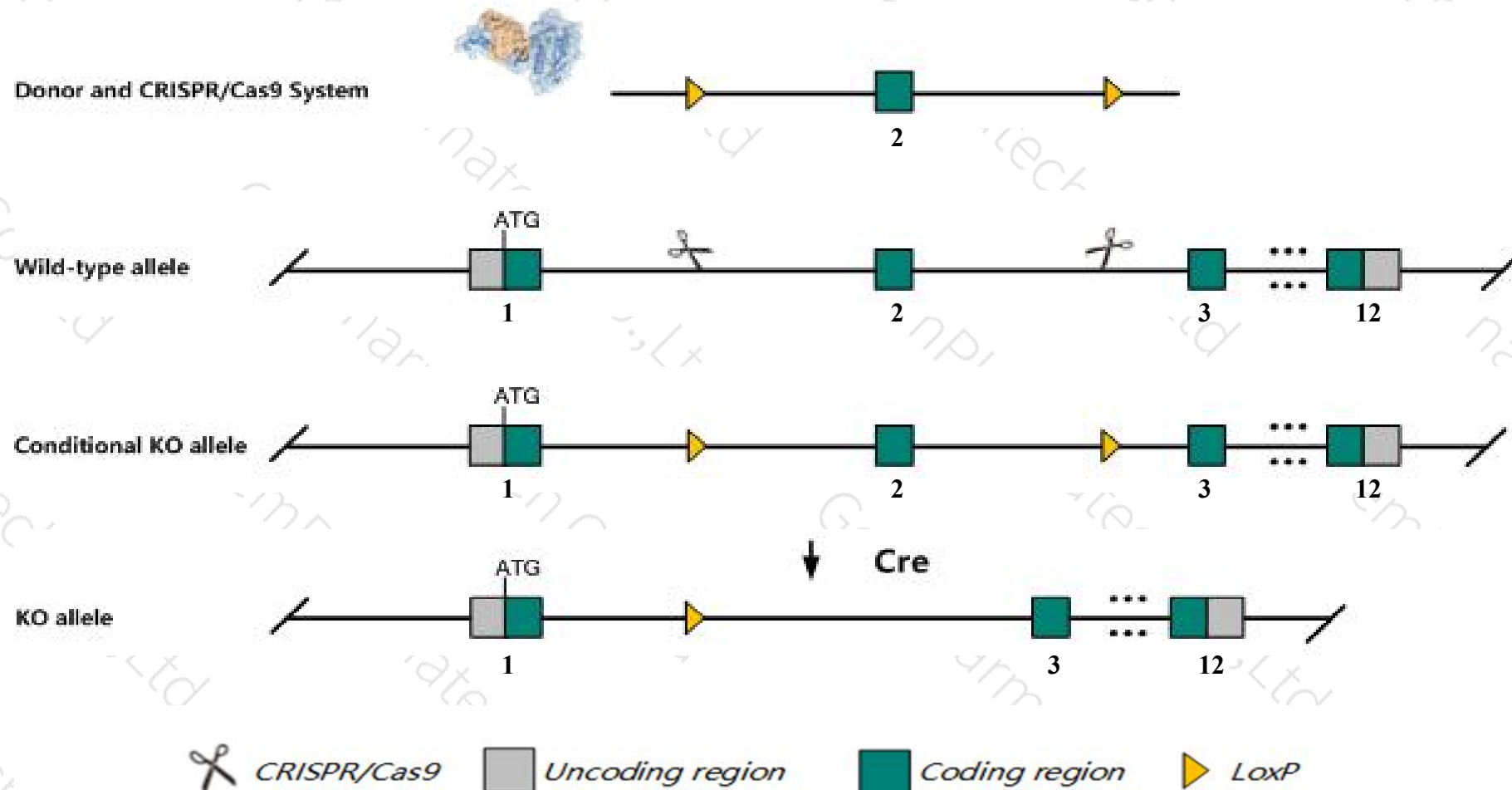
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Glt1d1* gene. The schematic diagram is as follows:



- The *Glt1d1* gene has 3 transcripts. According to the structure of *Glt1d1* gene, exon2 of *Glt1d1-201* (ENSMUST00000118139.2) transcript is recommended as the knockout region. The region contains 149bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Glt1d1* 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.

- Transcript 202 may not be affected.
- The *Glt1d1* gene is located on the Chr5. 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)

Glt1d1 glycosyltransferase 1 domain containing 1 [*Mus musculus* (house mouse)]

Gene ID: 319804, updated on 12-Aug-2019

Summary

Official Symbol	Glt1d1 provided by MGI
Official Full Name	glycosyltransferase 1 domain containing 1 provided by MGI
Primary source	MGI:MGI:2442755
See related	Ensembl:ENSMUSG00000049971
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	5730455A04Rik
Expression	Biased expression in testis adult (RPKM 16.9), cortex adult (RPKM 4.4) and 10 other tissues See more
Orthologs	human all

Genomic context

Location: 5; 5 G1.2

See Glt1d1 in [Genome Data Viewer](#)

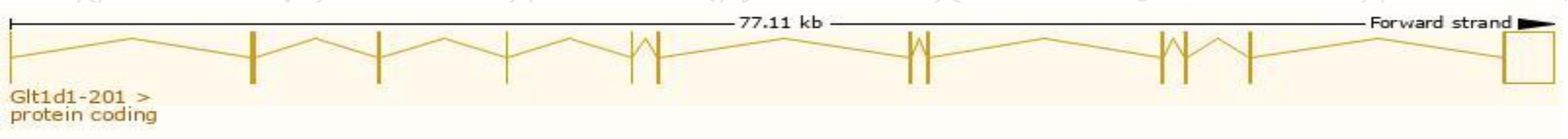
Exon count: 14

Transcript information (Ensembl)

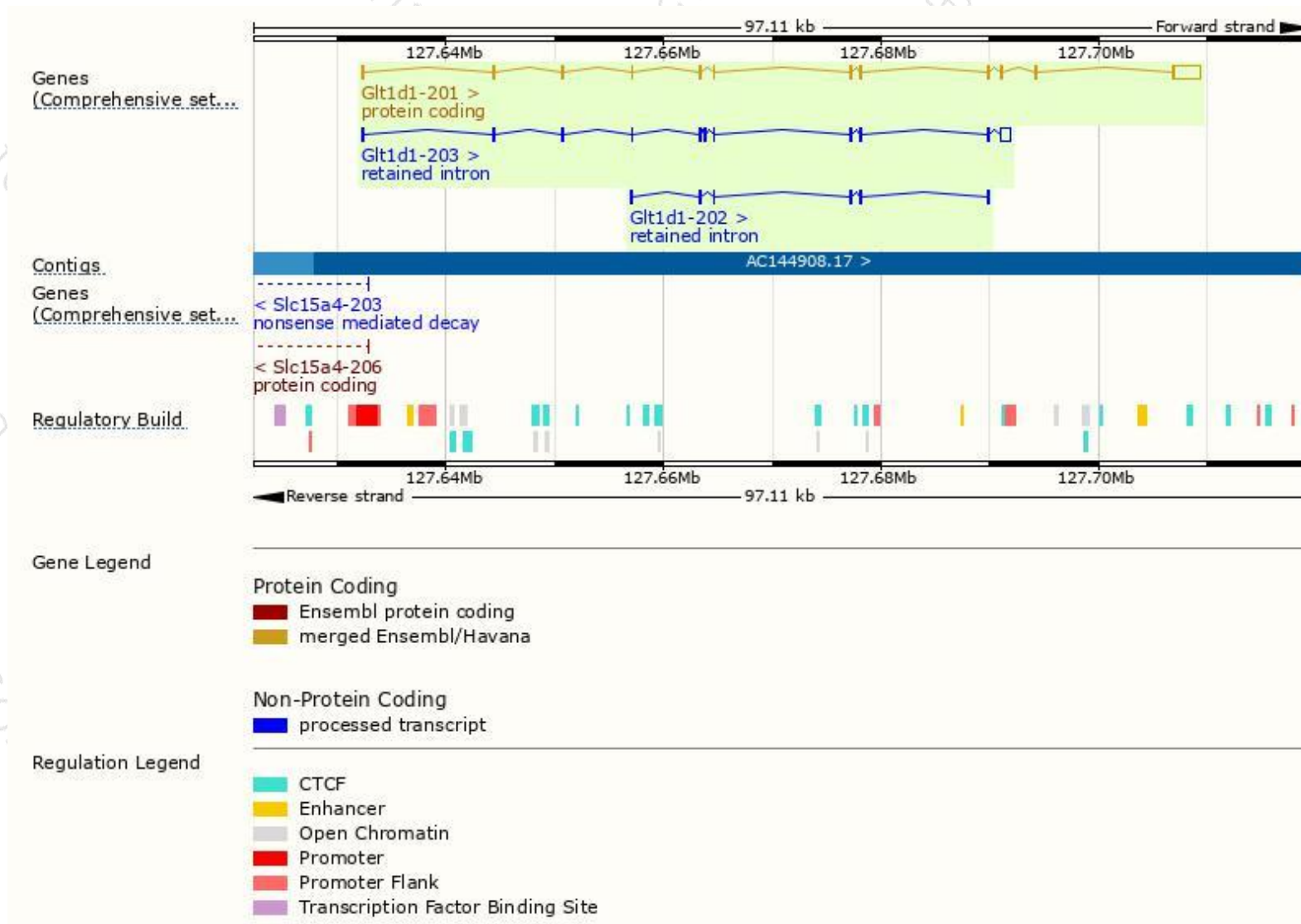
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Glt1d1-201	ENSMUST00000118139.2	3413	346aa	Protein coding	CCDS51651	A4FUP9	TSL:1 GENCODE basic APPRIS P1
Glt1d1-203	ENSMUST00000137157.7	1713	No protein	Retained intron	-	-	TSL:2
Glt1d1-202	ENSMUST00000134529.1	381	No protein	Retained intron	-	-	TSL:3

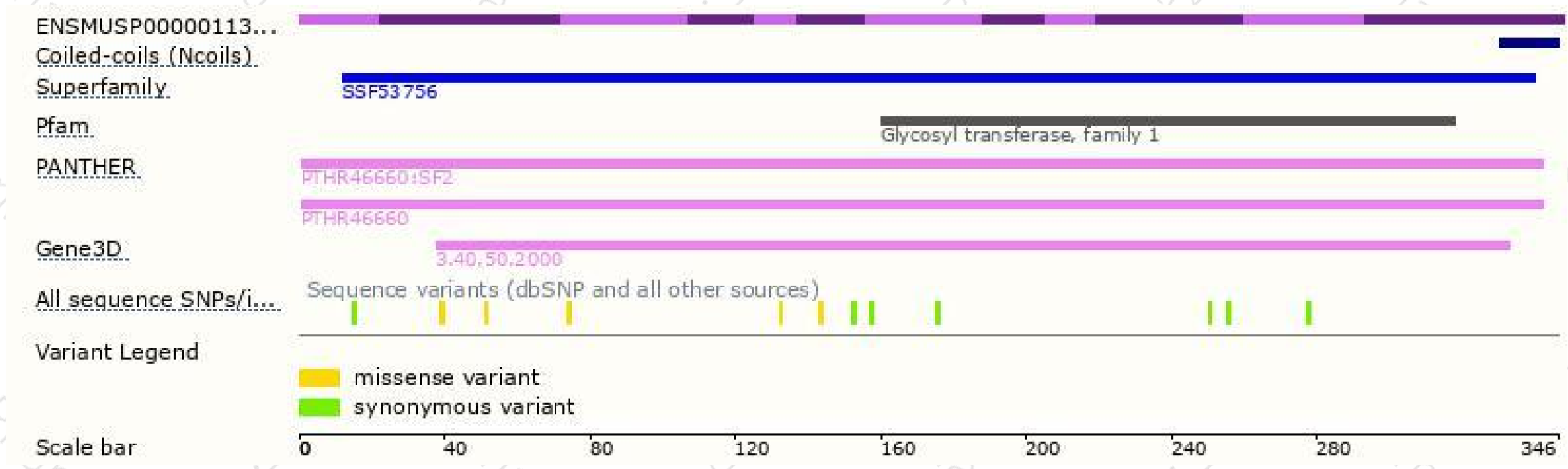
The strategy is based on the design of *Glt1d1-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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