

Gstt1 Cas9-KO Strategy

Designer:

Daohua Xu

Reviewer:

Huimin Su

Design Date:

2019-11-25

Project Overview

Project Name

Gstt1

Project type

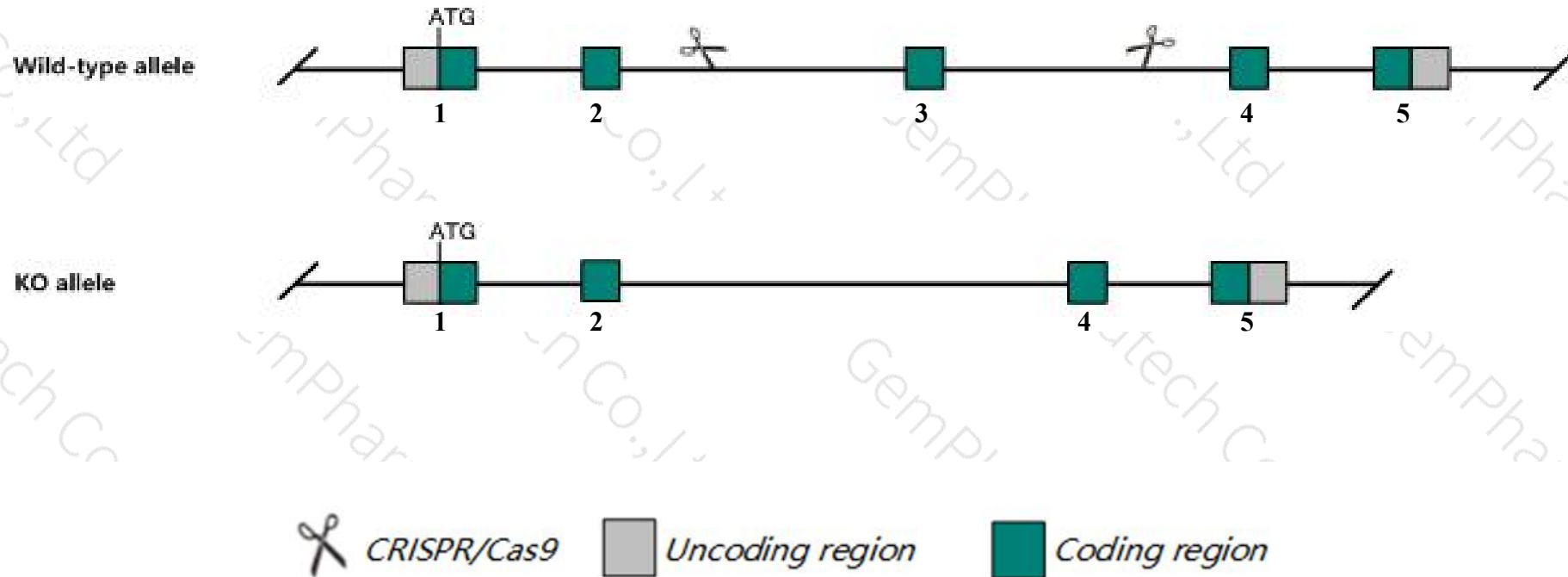
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gstt1* gene. The schematic diagram is as follows:



- The *Gstt1* gene has 3 transcripts. According to the structure of *Gstt1* gene, exon3 of *Gstt1-201* (ENSMUST00000001713.9) transcript is recommended as the knockout region. The region contains 151bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Gstt1* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for disruption of this gene appear to be normal and fertile with the exception of a reduced ability to clear 11,2-bis(2-chloroethyl)-1-nitrosourea from the plasma after a single i.p. dose.
- The *Gstt1* gene is located on the Chr10. 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)

Gstt1 glutathione S-transferase, theta 1 [Mus musculus (house mouse)]

Gene ID: 14871, updated on 31-Jan-2019

Summary



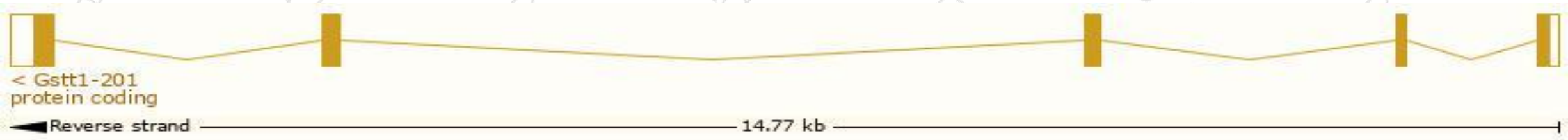
Official Symbol	Gstt1 provided by MGI
Official Full Name	glutathione S-transferase, theta 1 provided by MGI
Primary source	MGI:MGI:107379
See related	Ensembl:ENSMUSG000000001663
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI255817, Gstt1-1
Expression	Broad expression in liver adult (RPKM 231.7), kidney adult (RPKM 100.7) and 15 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

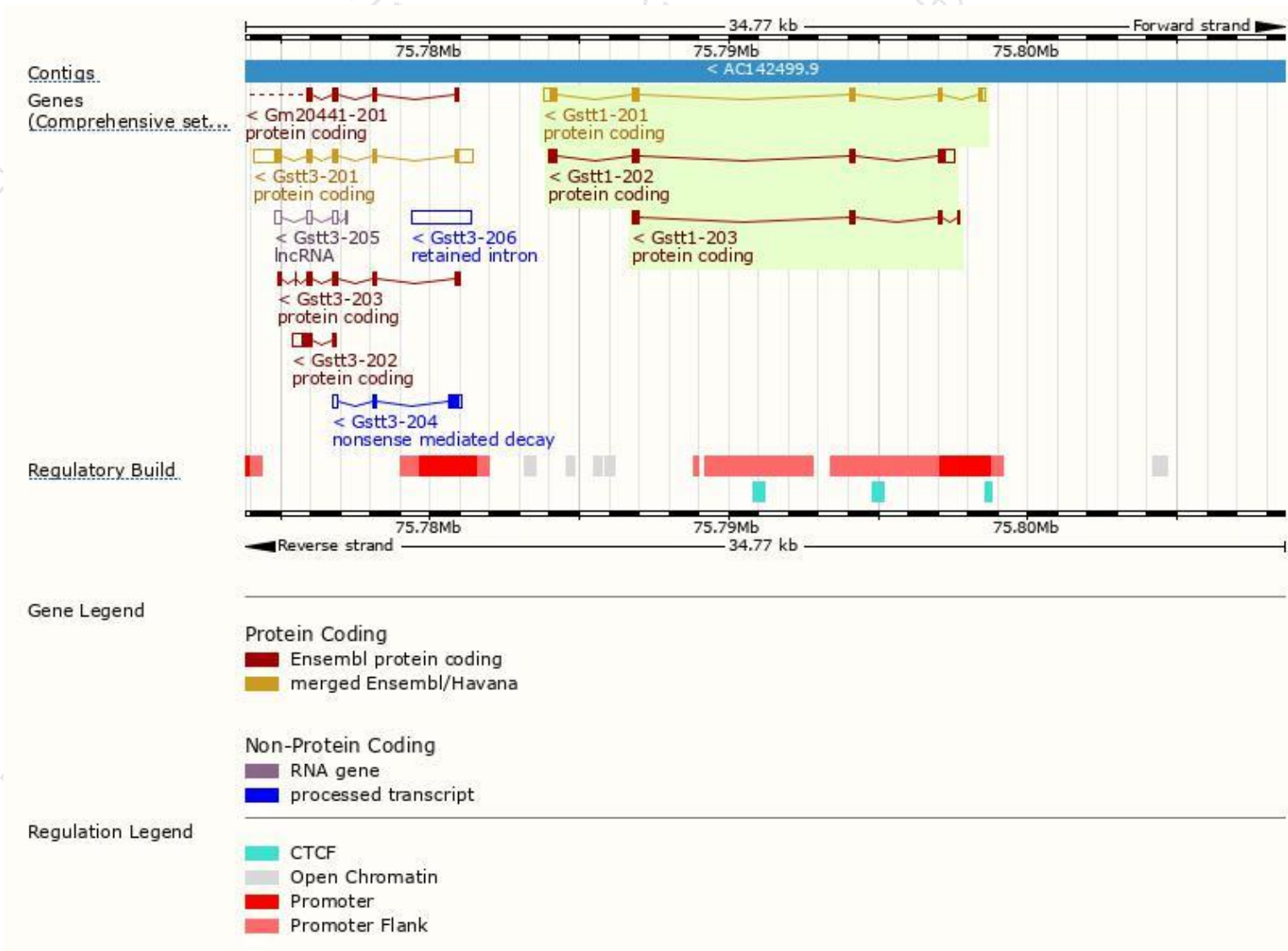
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gstt1-201	ENSMUST00000001713.9	1037	240aa	Protein coding	CCDS23932	Q64471	TSL:1 GENCODE basic APPRIS P1
Gstt1-202	ENSMUST00000120177.7	1105	232aa	Protein coding	-	D3Z3X5	TSL:2 GENCODE basic
Gstt1-203	ENSMUST00000139724.2	468	126aa	Protein coding	-	D3Z5W7	CDS 3' incomplete TSL:2

The strategy is based on the design of *Gstt1-201* transcript,The transcription is shown below



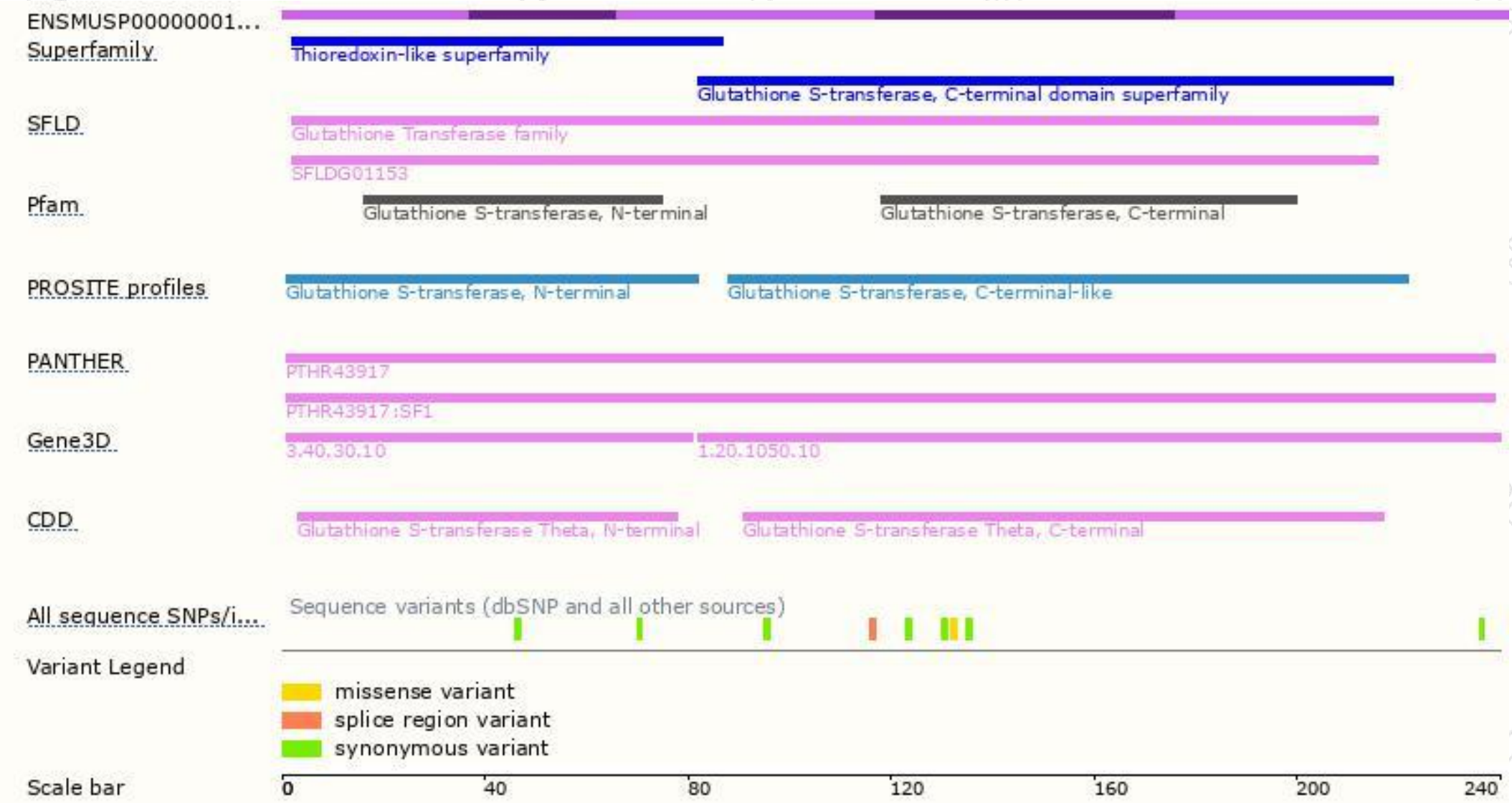
Genomic location distribution



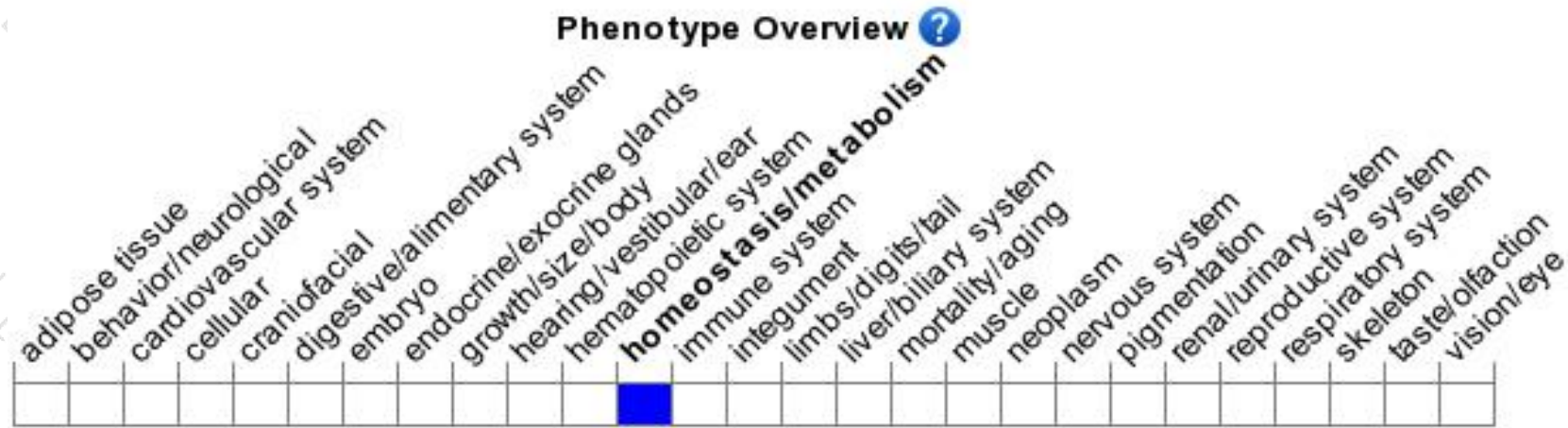
Protein domain



集萃药康
GemPharmatech



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, Mis homozygous for disruption of this gene appear to be normal and fertile with the exception of a reduced ability to clear 11,2-bis(2-chloroethyl)-1-nitrosourea from the plasma after a single i.p. dose.

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

Tel: 400-9660890

