

Glt8d2 Cas9-KO Strategy

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Project Overview

Project Name

Glt8d2

Project type

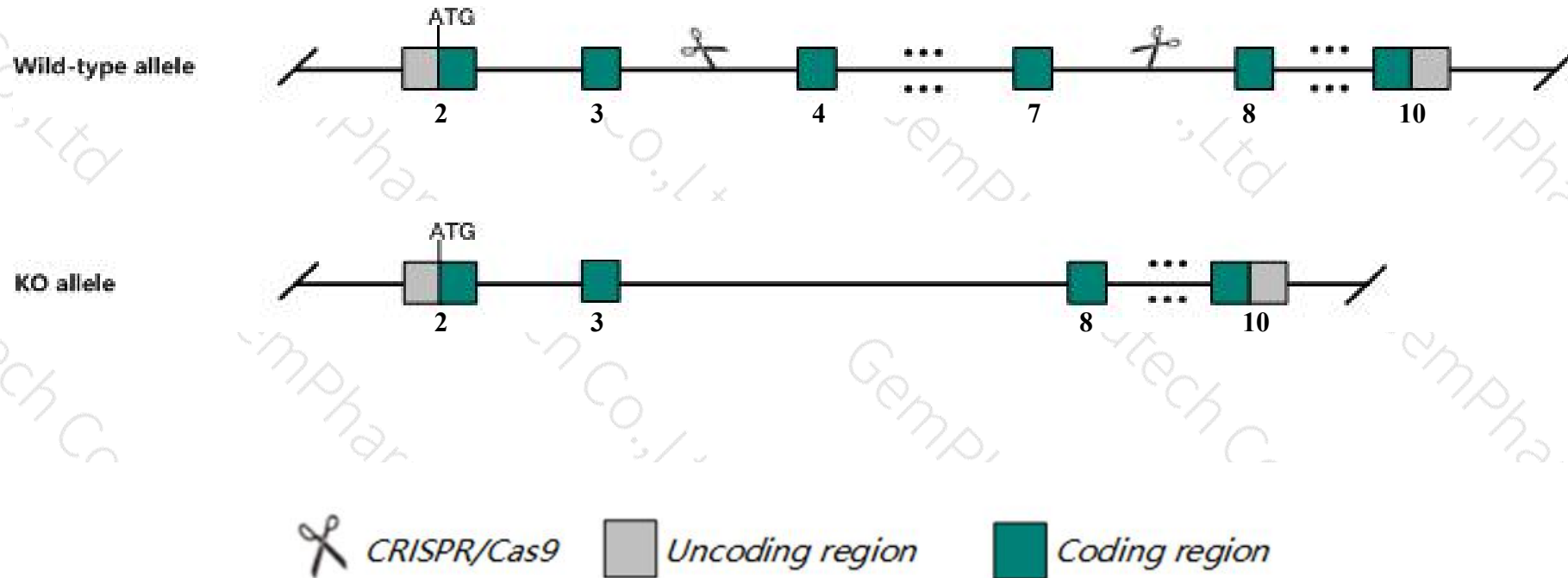
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Glt8d2* gene. The schematic diagram is as follows:



- The *Glt8d2* gene has 7 transcripts. According to the structure of *Glt8d2* gene, exon4-exon7 of *Glt8d2-201* (ENSMUST00000020485.9) transcript is recommended as the knockout region. The region contains 488bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Glt8d2* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous mutant mice show reduced viability and a decreased serum immunoglobulin response to antigen.
- Some amino acids will remain at the N-terminus and some functions may be retained.
- Transcripts 204,205 may not be affected. The effect of transcripts 206,207 is unknown.
- The *Glt8d2* 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)

Glt8d2 glycosyltransferase 8 domain containing 2 [*Mus musculus* (house mouse)]

Gene ID: 74782, updated on 12-Aug-2019

Summary



| | |
|--------------------|---|
| Official Symbol | Glt8d2 provided by MGI |
| Official Full Name | glycosyltransferase 8 domain containing 2 provided by MGI |
| Primary source | MGI:MGI:1922032 |
| See related | Ensembl:ENSMUSG00000020251 |
| 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 | 1110021D20Rik |
| Expression | Broad expression in bladder adult (RPKM 5.9), limb E14.5 (RPKM 5.3) and 16 other tissues See more |
| Orthologs | human all |

Genomic context



Location: 10; 10 C1

Exon count: 12

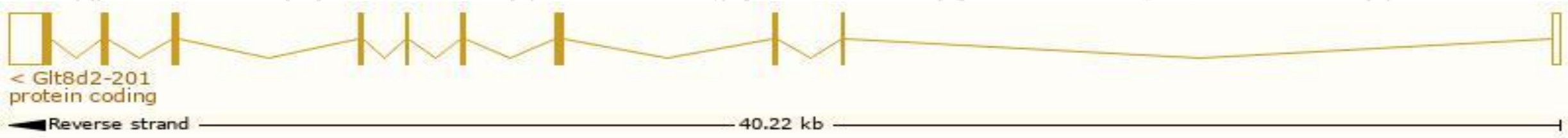
See Glt8d2 in [Genome Data Viewer](#)

Transcript information (Ensembl)

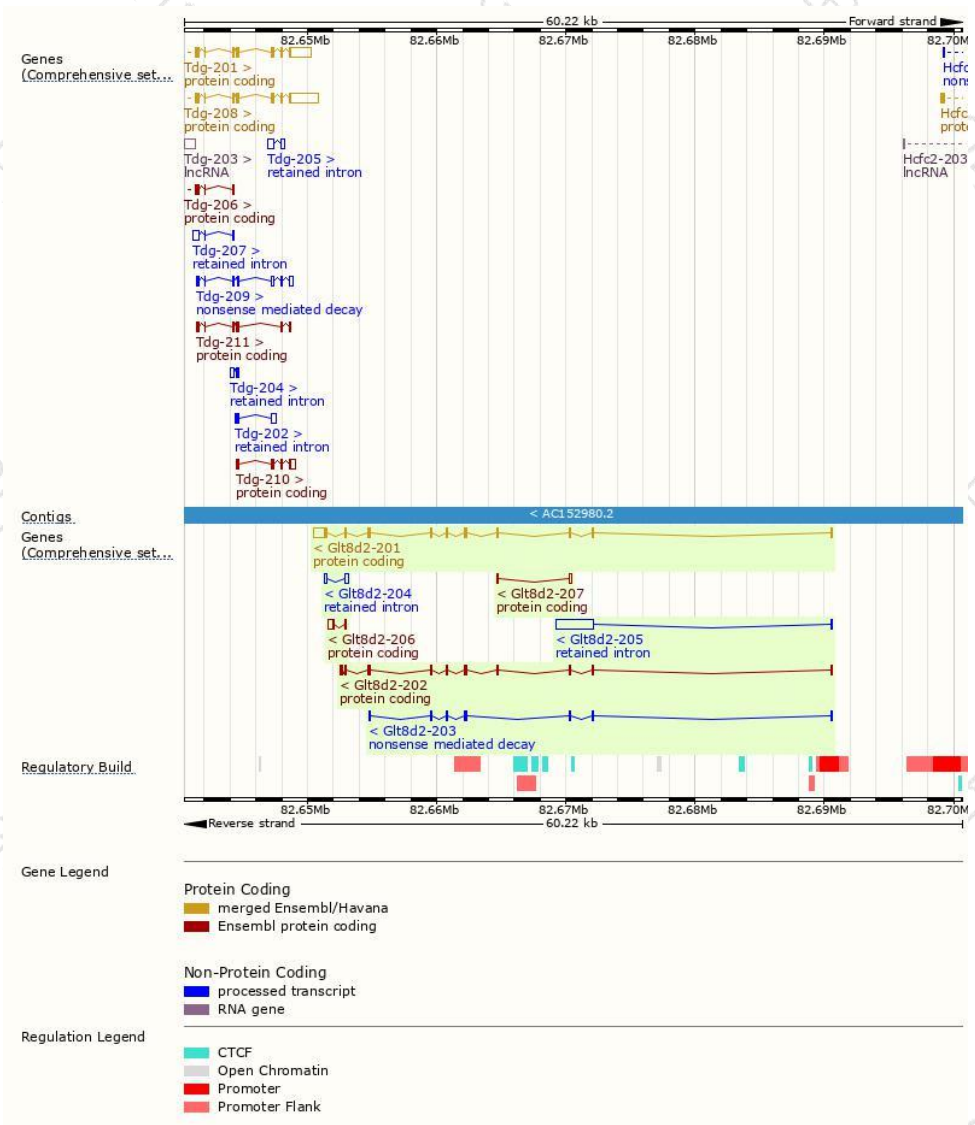
The gene has 7 transcripts,all transcripts are shown below:

| Name | Transcript ID | bp | Protein | Biotype | CCDS | UniProt | Flags |
|------------|---------------------------------------|------|-----------------------|-------------------------|---------------------------|------------------------|-------------------------------|
| Glt8d2-201 | ENSMUST00000020485.9 | 2153 | 351aa | Protein coding | CCDS24071 | E9QLV1 | TSL:1 GENCODE basic APPRIS P1 |
| Glt8d2-202 | ENSMUST00000065815.12 | 1240 | 363aa | Protein coding | - | E9PWN8 | TSL:1 GENCODE basic |
| Glt8d2-206 | ENSMUST00000150269.7 | 623 | 62aa | Protein coding | - | F6U4D1 | CDS 5' incomplete TSL:2 |
| Glt8d2-207 | ENSMUST00000155529.1 | 351 | 44aa | Protein coding | - | H3BJ56 | CDS 3' incomplete TSL:5 |
| Glt8d2-203 | ENSMUST00000125505.1 | 659 | 47aa | Nonsense mediated decay | - | H3BLS5 | TSL:3 |
| Glt8d2-205 | ENSMUST00000140071.1 | 2963 | No protein | Retained intron | - | - | TSL:1 |
| Glt8d2-204 | ENSMUST00000128142.1 | 543 | No protein | Retained intron | - | - | TSL:2 |

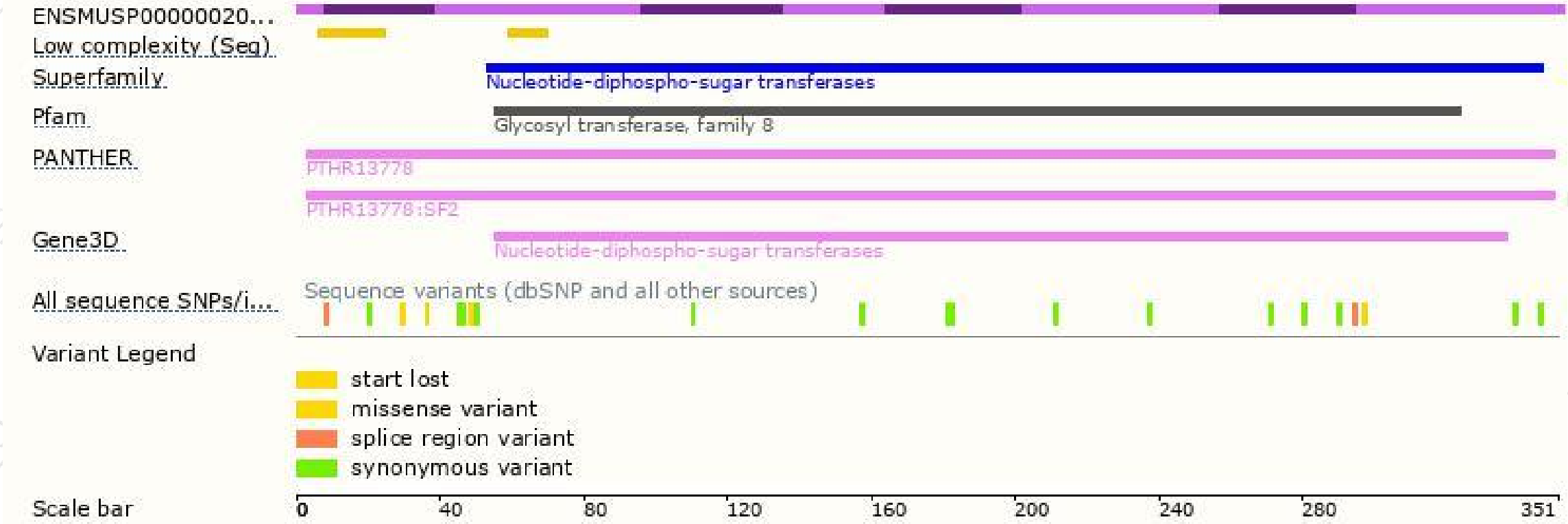
The strategy is based on the design of *Glt8d2-201* transcript,The transcription is shown below



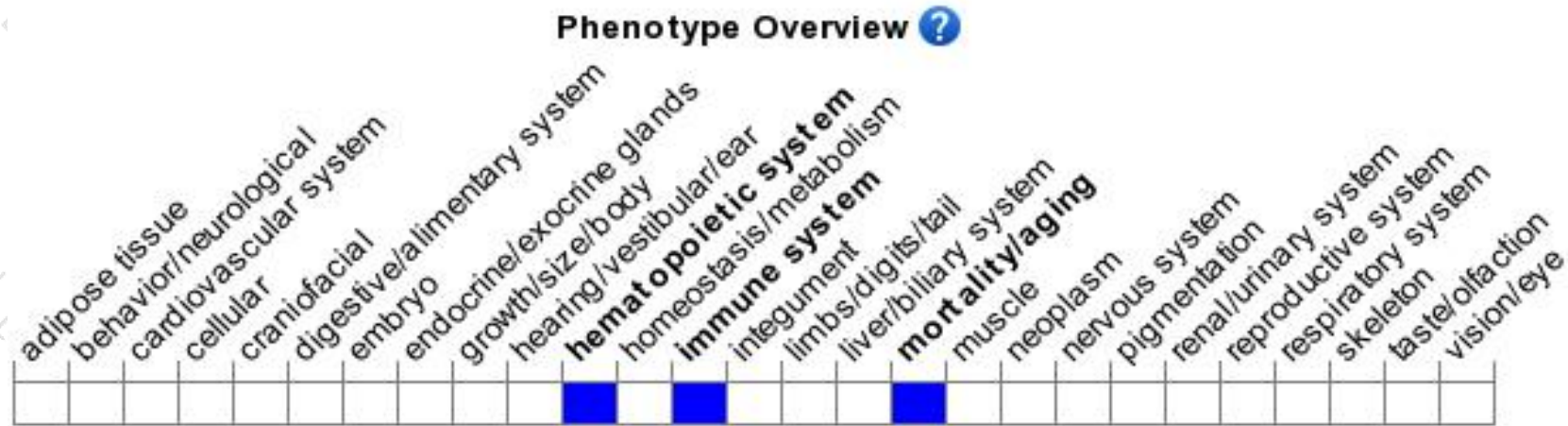
Genomic location distribution



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, Homozygous mutant mice show reduced viability and a decreased serum immunoglobulin response to antigen.

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

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