Gxylt1 Cas9-KO Strategy

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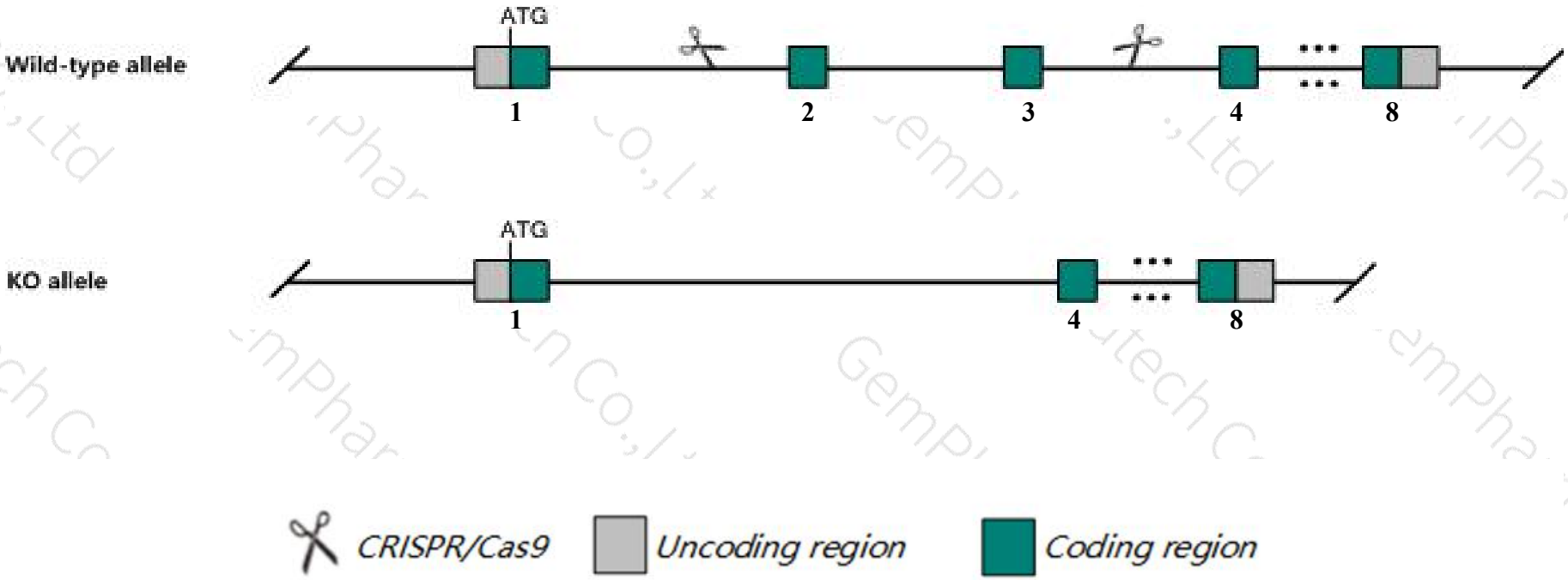
Project Overview

Project Name	***Gxylt1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gxylt1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Gxylt1* gene has 3 transcripts. According to the structure of *Gxylt1* gene, exon2-exon3 of *Gxylt1-202* (ENSMUST00000057896.4) transcript is recommended as the knockout region.The region contains 265bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Gxylt1* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

➢Some amino acids will remain at the N-terminus and some functions may be retained.

➢The *Gxylt1* gene is located on the Chr15. 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）

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Gxylt1 glucoside xylosyltransferase 1 [*Mus musculus* (house mouse)]

Gene ID: 223827, updated on 12-Nov-2019

Summary

Official Symbol	Gxylt1 provided by MGI
Official Full Name	glucoside xylosyltransferase 1 provided by MGI
Primary source	MGI:MGI:2684933
See related	Ensembl:ENSMUSG00000036197
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	Gm87; Glt8d3; Gm1228
Expression	Ubiquitous expression in CNS E11.5 (RPKM 6.5), placenta adult (RPKM 5.6) and 28 other tissues See more
Orthologs	human all

Genomic context

Location: 15; 15 E3

See Gxylt1 in Genome Data Viewer

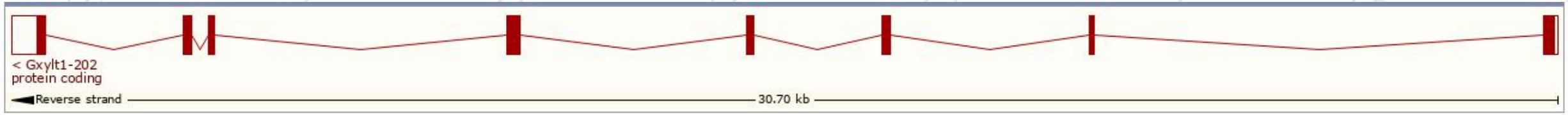
Exon count: 9

Transcript information（Ensembl）

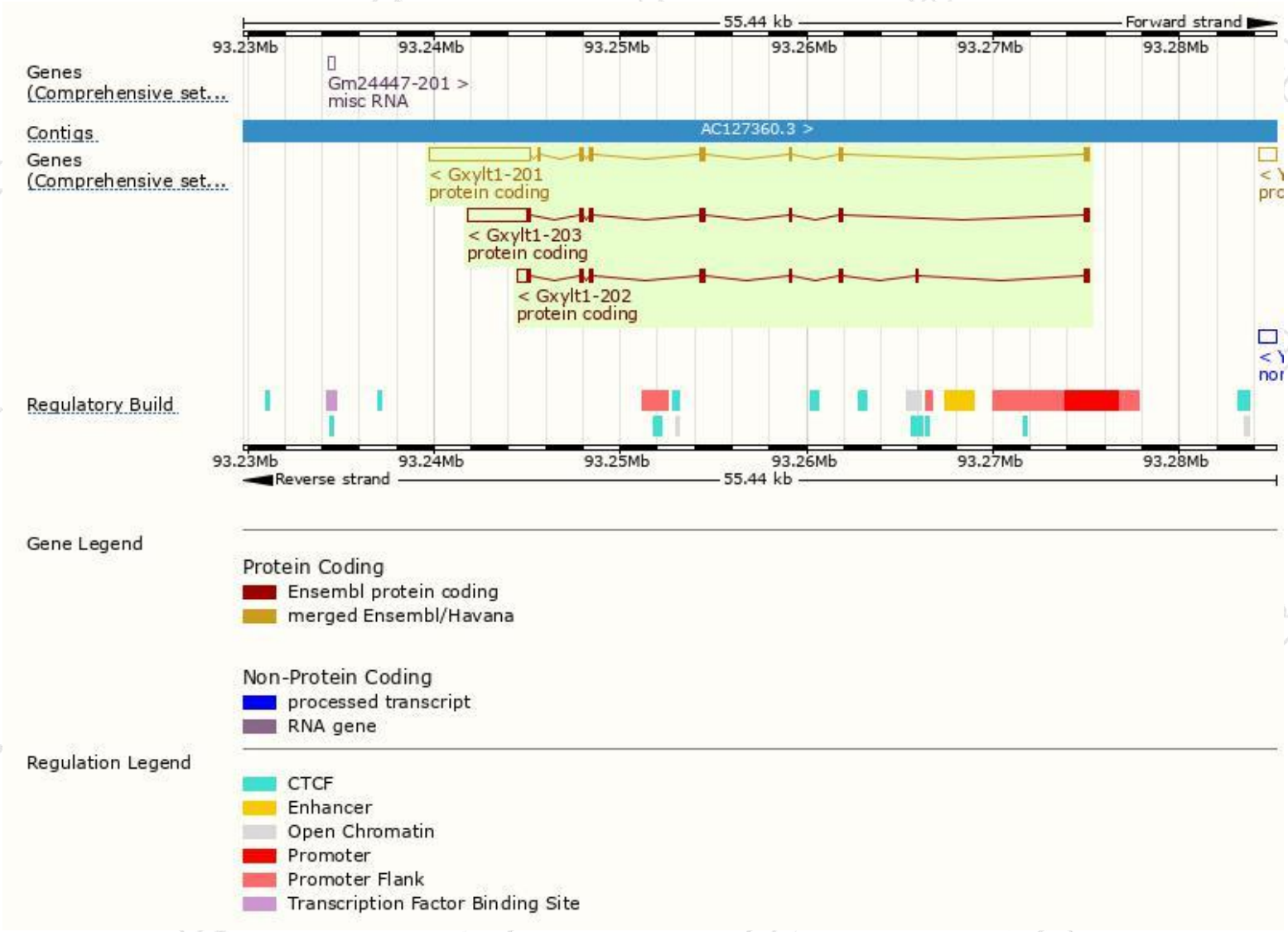
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gxylt1-201	ENSMUST00000049484.12	6611	372aa	Protein coding	CCDS27764	Q3UHH8	TSL:1 GENCODE basic APPRIS P3
Gxylt1-202	ENSMUST00000057896.4	1891	435aa	Protein coding	CCDS84189	D3Z6W7	TSL:5 GENCODE basic APPRIS ALT2
Gxylt1-203	ENSMUST00000230063.1	4427	404aa	Protein coding	-	Q3UHH8	GENCODE basic APPRIS ALT2

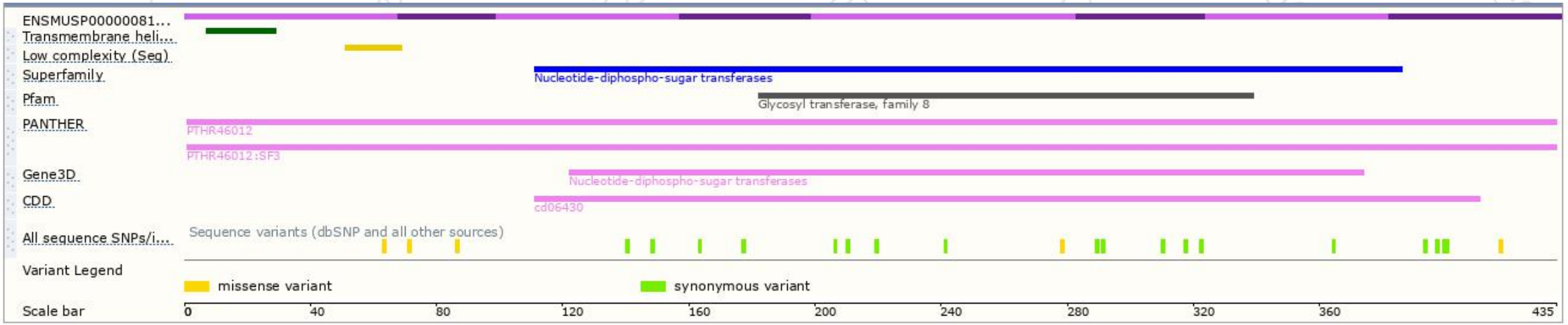
The strategy is based on the design of *Gxylt1-202* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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