Galnt9 Cas9-KO Strategy

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Project Overview

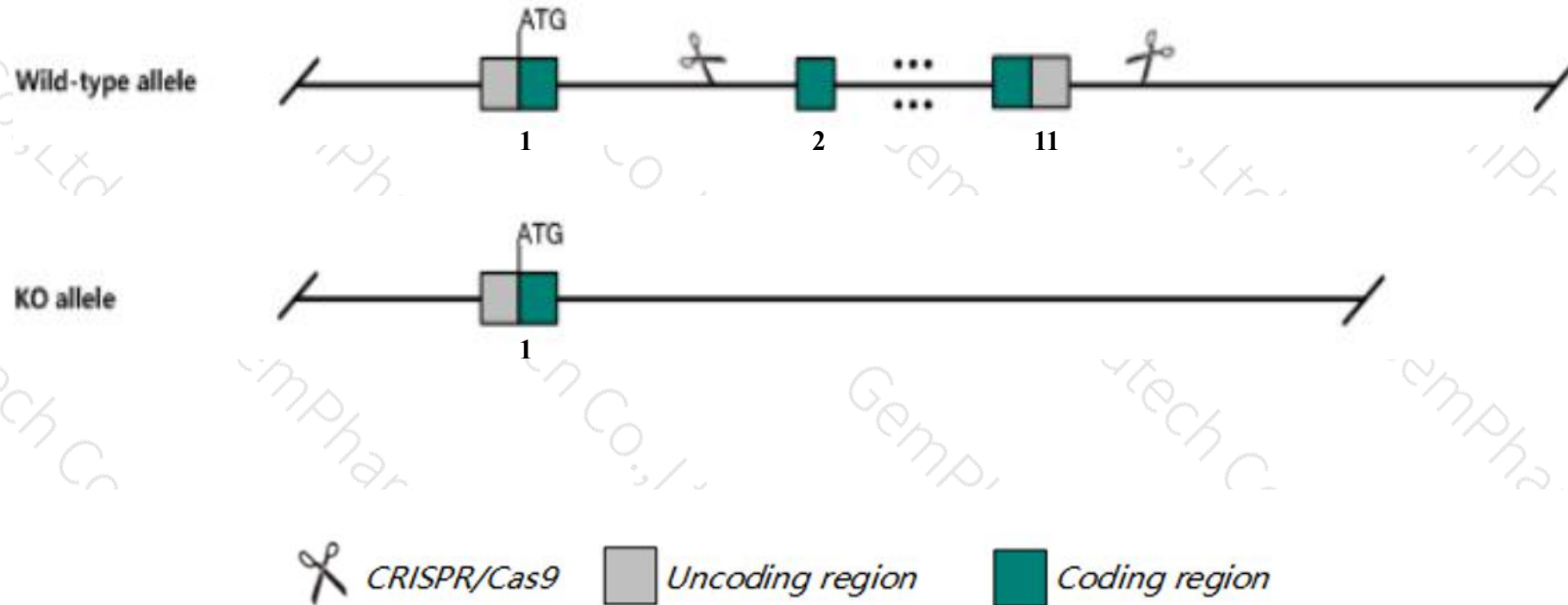|	
Project Name	***Galnt9***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Galnt9* gene. The schematic diagram is as follows:

Technical routes

➢ The *Galnt9* gene has 3 transcripts. According to the structure of *Galnt9* gene, exon2-exon11 of *Galnt9-201*(ENSMUST00000040001.13) transcript is recommended as the knockout region.The region contains 1574bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Galnt9* gene. The brief process is as follows: CRISPR/Cas9 system 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

➤ The *Galnt9* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information （NCBI）

Galnt9 polypeptide N-acetylgalactosaminyltransferase 9 [Mus musculus (house mouse)]
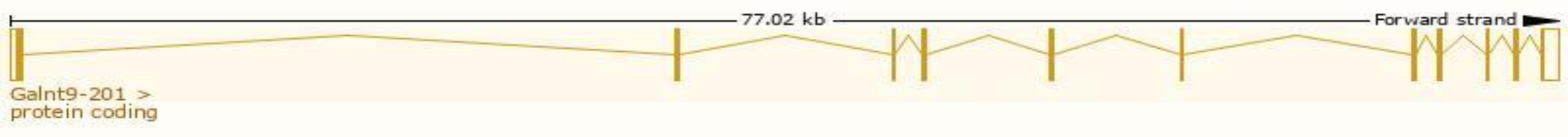
Gene ID: 231605, updated on 13-Mar-2020

▲ Summary

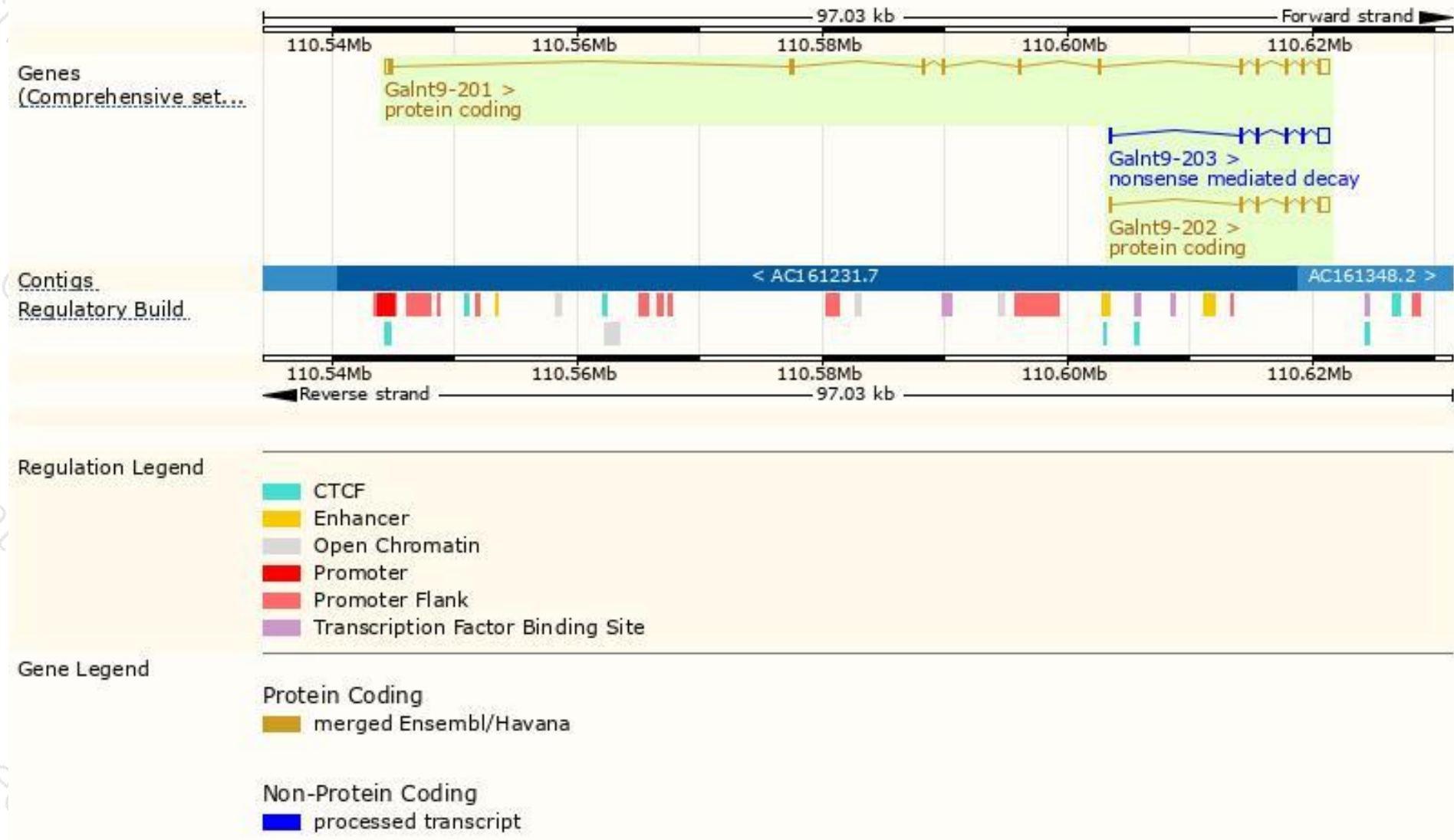|	
Official Symbol	Galnt9 provided by MGI
Official Full Name	polypeptide N-acetylgalactosaminyltransferase 9 provided by MGI
Primary source	MGI:MGI:2677965
See related	Ensembl:ENSMUSG00000033316
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	GalNAc-T9
Expression	Biased expression in cerebellum adult (RPKM 21.5), cortex adult (RPKM 19.3) and 6 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

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

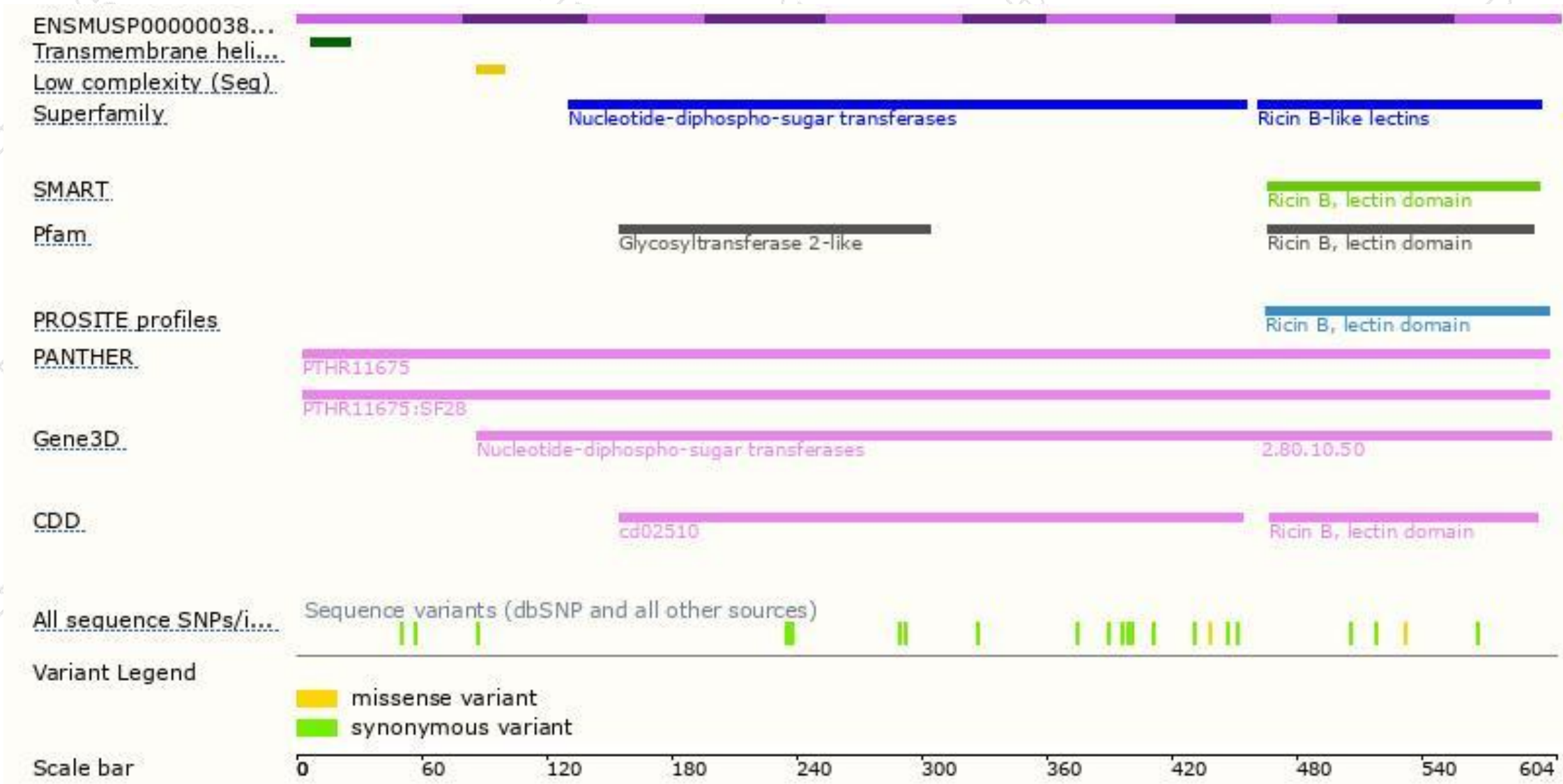| Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Galnt9-201	ENSMUST00000040001.13	2883	604aa	Protein coding	CCDS51610	G3X942	TSL:1 GENCODE basic APPRIS P1
Galnt9-202	ENSMUST00000165856.2	1541	237aa	Protein coding	CCDS51611	Q3TB05	TSL:1 GENCODE basic
Galnt9-203	ENSMUST00000200404.4	1576	137aa	Nonsense mediated decay	-	A0A0G2JGP7	TSL:1

The strategy is based on the design of *Galnt9-201* transcript,the transcription is shown below:

Genomic location distribution

Protein domain

ENSMUSP00000038...		
Transmembrane heli...		
Low complexity (Seg)		
Superfamily	Nucleotide-diphospho-sugar transferases	Ricin B-like lectins
SMART		Ricin B, lectin domain
Pfam	Glycosyltransferase 2-like	Ricin B, lectin domain
PROSITE profiles		Ricin B, lectin domain
PANTHER	PTHR11675	
	PTHR11675:SF28	
Gene3D	Nucleotide-diphospho-sugar transferases	2.80.10.50
CDD	cd02510	Ricin B, lectin domain
All sequence SNPs/i...	Sequence variants (dbSNP and all other sources)	
Variant Legend		

■ missense variant
■ synonymous variant

Scale bar 0   60   120   180   240   300   360   420   480   540   604

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