

***Galnt2* Cas9-KO Strategy**

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Project Overview

Project Name

Galnt2

Project type

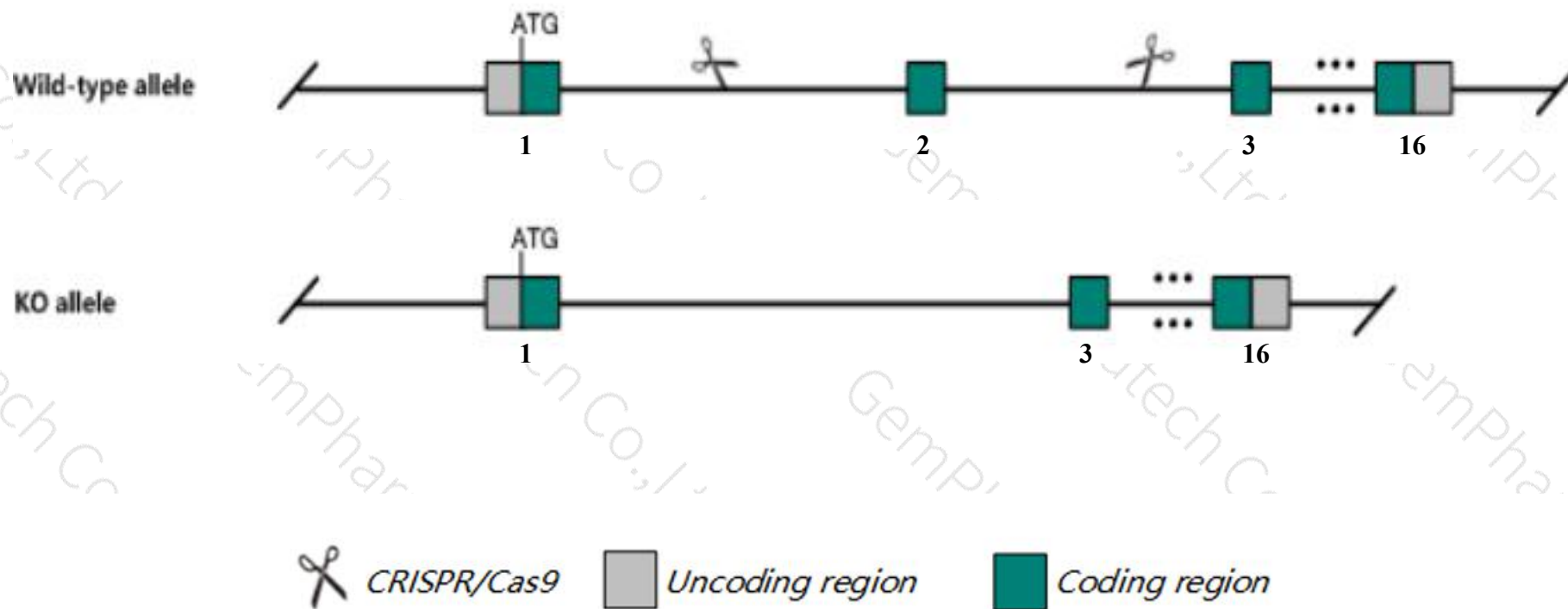
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Galnt2* gene. The schematic diagram is as follows:



- The *Galnt2* gene has 4 transcripts. According to the structure of *Galnt2* gene, exon2 of *Galnt2-201* (ENSMUST00000034458.8) transcript is recommended as the knockout region. The region contains 94bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Galnt2* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit decreased circulating HDL cholesterol levels under both chow- and Western diet-fed conditions, a marked elevation in fasting triglyceride levels, and delayed postprandial triglyceride clearance.
- *Gm20388* gene may be destroyed.
- The *Galnt2* gene is located on the Chr8. 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)

Galnt2 polypeptide N-acetylgalactosaminyltransferase 2 [*Mus musculus* (house mouse)]

Gene ID: 108148, updated on 13-Mar-2020

Summary

Official Symbol	Galnt2 provided by MGI
Official Full Name	polypeptide N-acetylgalactosaminyltransferase 2 provided by MGI
Primary source	MGI:MGI:894694
See related	Ensembl:ENSMUSG00000089704
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	AI480629
Expression	Ubiquitous expression in subcutaneous fat pad adult (RPKM 50.6), genital fat pad adult (RPKM 48.6) and 28 other tissues See more
Orthologs	human all

Genomic context

Location: 8; 8 E2

Exon count: 16

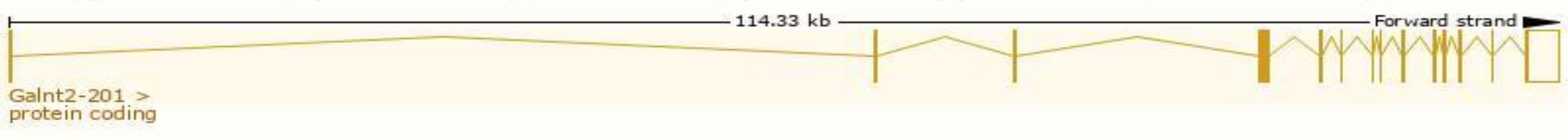
See Galnt2 in [Genome Data Viewer](#)

Transcript information (Ensembl)

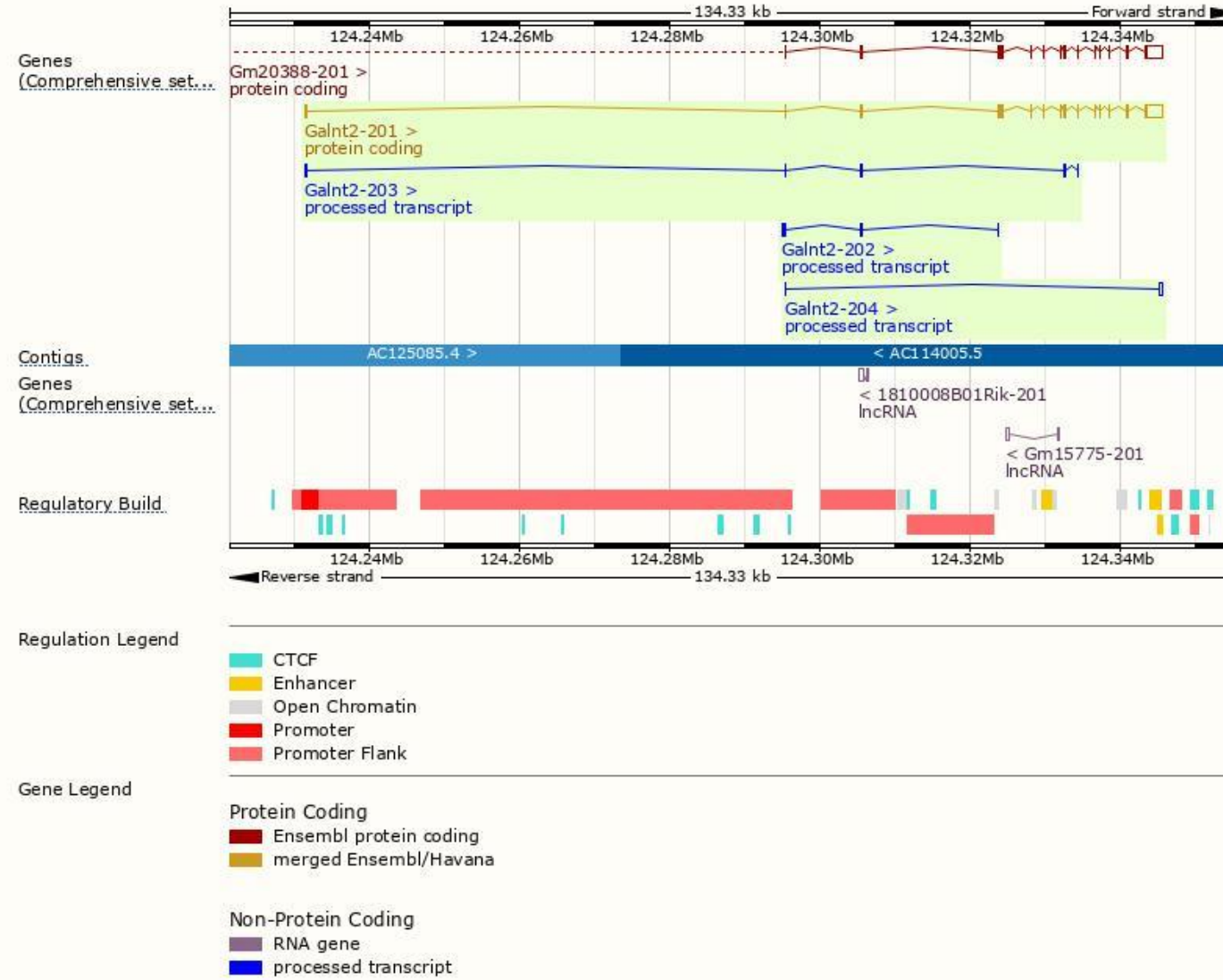
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Galnt2-201	ENSMUST00000034458.8	4113	570aa	Protein coding	CCDS22769	Q6PB93	TSL:1 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS P1
Galnt2-203	ENSMUST00000142578.7	530	No protein	Processed transcript	-	-	TSL:3
Galnt2-204	ENSMUST00000147911.1	511	No protein	Processed transcript	-	-	TSL:5
Galnt2-202	ENSMUST00000142547.1	473	No protein	Processed transcript	-	-	TSL:5

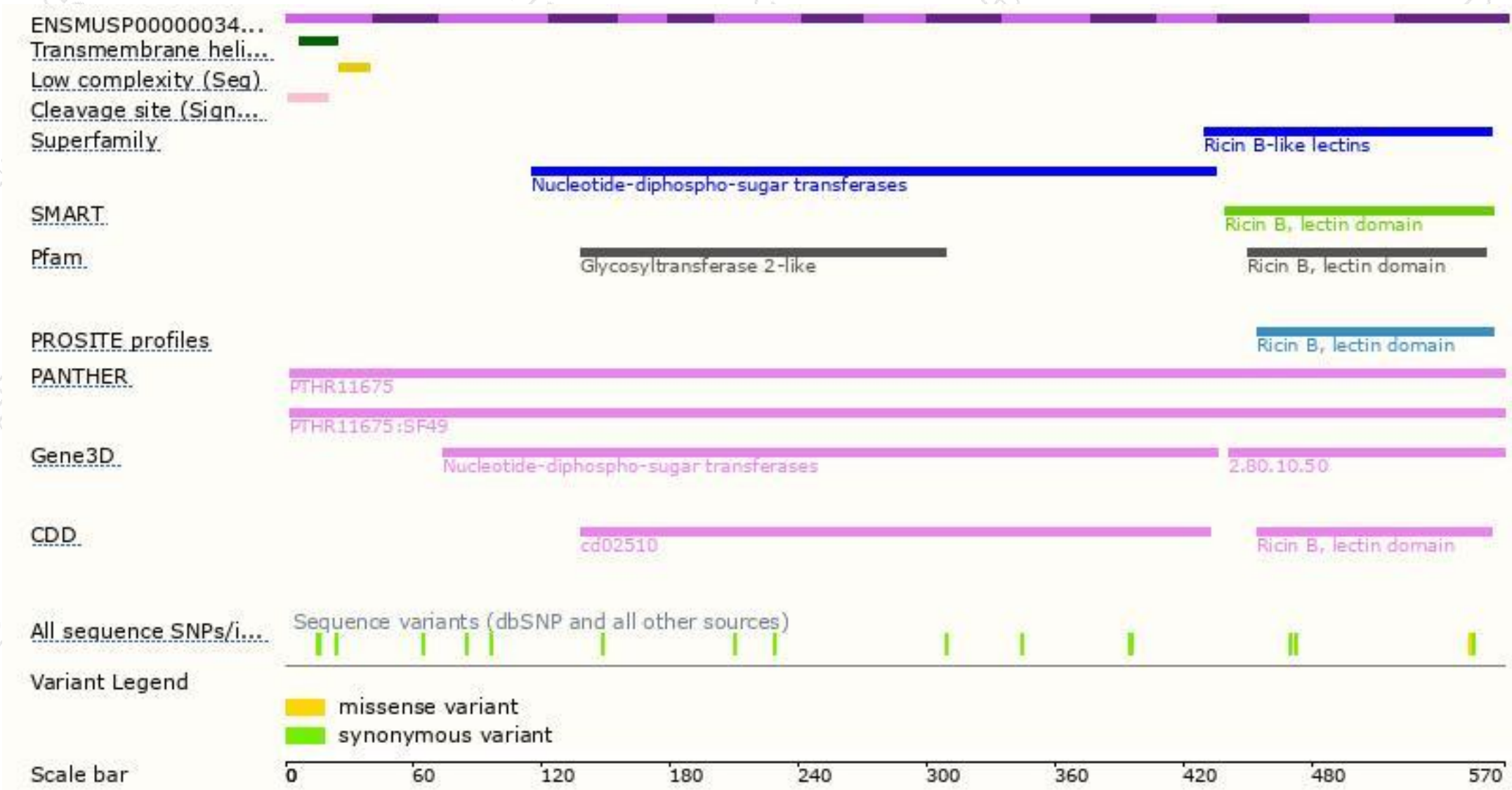
The strategy is based on the design of *Galnt2-201* transcript,The transcription is shown below



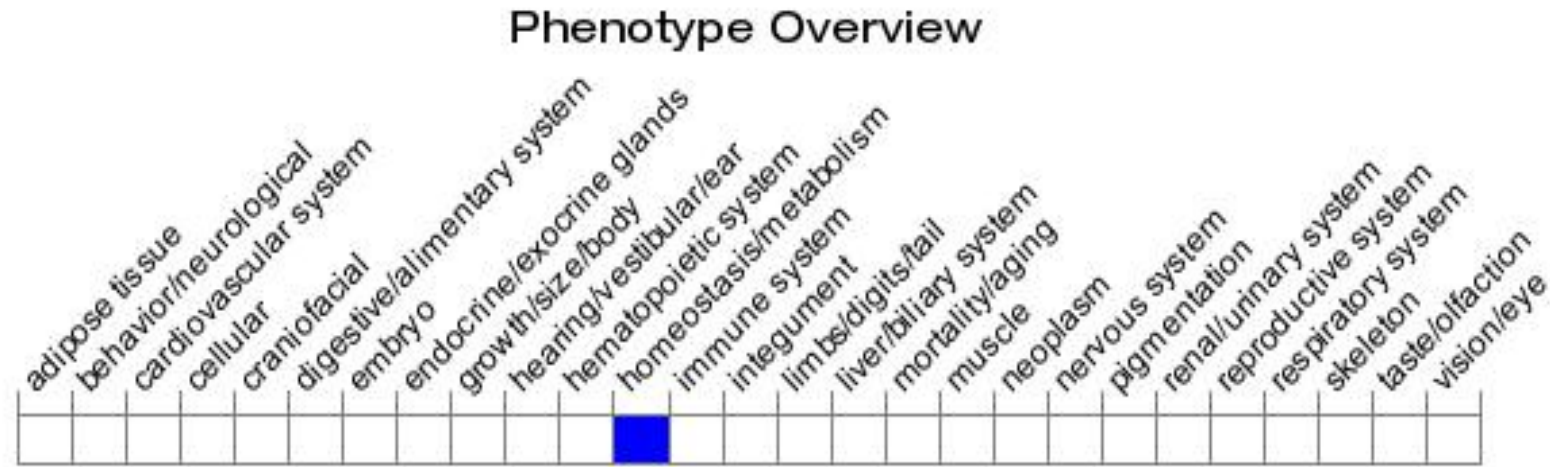
Genomic location distribution



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, Mice homozygous for a knock-out allele exhibit decreased circulating HDL cholesterol levels under both chow- and Western diet-fed conditions, a marked elevation in fasting triglyceride levels, and delayed postprandial triglyceride clearance.

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

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