

***Galnt16* Cas9-CKO Strategy**

Designer:

Yanhua Shen

Reviewer:

Xueting Zhang

Design Date:

2020-4-15

Project Overview

Project Name

Galnt16

Project type

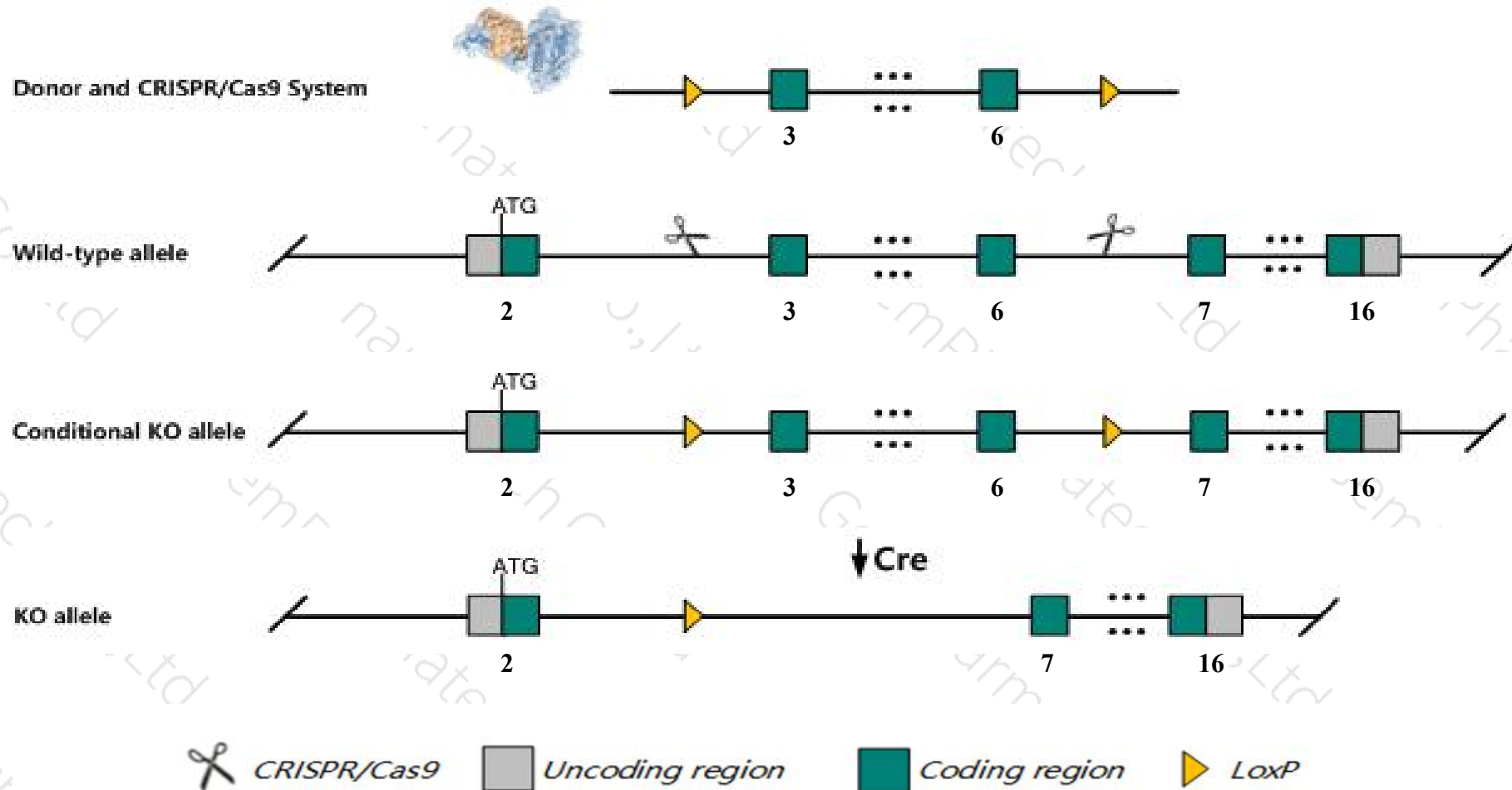
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Galnt16* gene. The schematic diagram is as follows:



Technical routes

- The *Galnt16* gene has 6 transcripts. According to the structure of *Galnt16* gene, exon3-exon6 of *Galnt16*-206 (ENSMUST00000219993.1) transcript is recommended as the knockout region. The region contains 391bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Galnt16* gene. The brief process is as follows: CRISPR/Cas9 system and Donor 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.
- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

- Some amino acids will remain at the N-terminus and some functions may be retained.
- The effect of transcripts 202,205 is unknown.
- Transcript 203 may not be affected.
- The *Galnt16* gene is located on the Chr12. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Galnt16 polypeptide N-acetylgalactosaminyltransferase 16 [Mus musculus (house mouse)]

Gene ID: 108760, updated on 13-Mar-2020

Summary



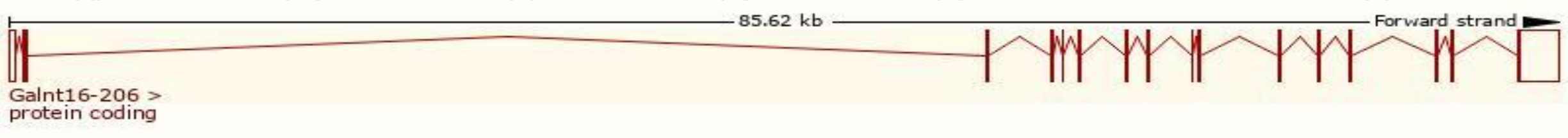
Official Symbol	Galnt16 provided by MGI
Official Full Name	polypeptide N-acetylgalactosaminyltransferase 16 provided by MGI
Primary source	MGI:MGI:1917754
See related	Ensembl:ENSMUSG000000021130
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	5730405L21Rik, AI415388, Galnt11, galNAc-T16, mpp-GalNAc-T16
Expression	Broad expression in frontal lobe adult (RPKM 9.5), cerebellum adult (RPKM 7.3) and 19 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

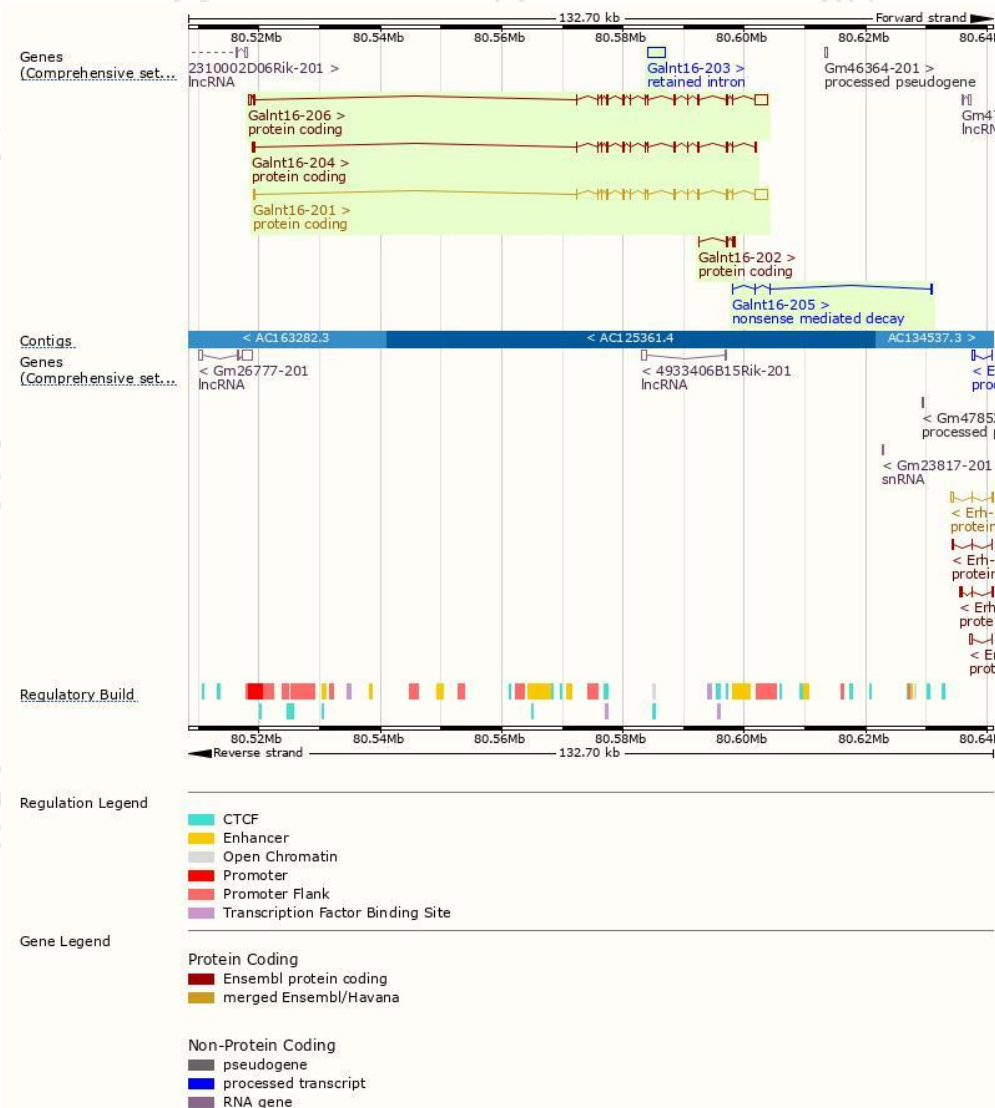
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Galnt16-206	ENSMUST00000219993.1	4222	558aa	Protein coding	CCDS36482	Q9JJ61	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
Galnt16-201	ENSMUST0000021558.7	3922	558aa	Protein coding	CCDS36482	Q9JJ61	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
Galnt16-204	ENSMUST00000218943.1	2047	558aa	Protein coding	CCDS36482	Q9JJ61	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
Galnt16-202	ENSMUST00000217926.1	771	125aa	Protein coding	-	A0A1W2P6P9	CDS 5' incomplete TSL:2
Galnt16-205	ENSMUST00000219267.1	502	59aa	Nonsense mediated decay	-	A0A1W2P7U3	CDS 5' incomplete TSL:3
Galnt16-203	ENSMUST00000218648.1	2827	No protein	Retained intron	-	-	TSL:NA

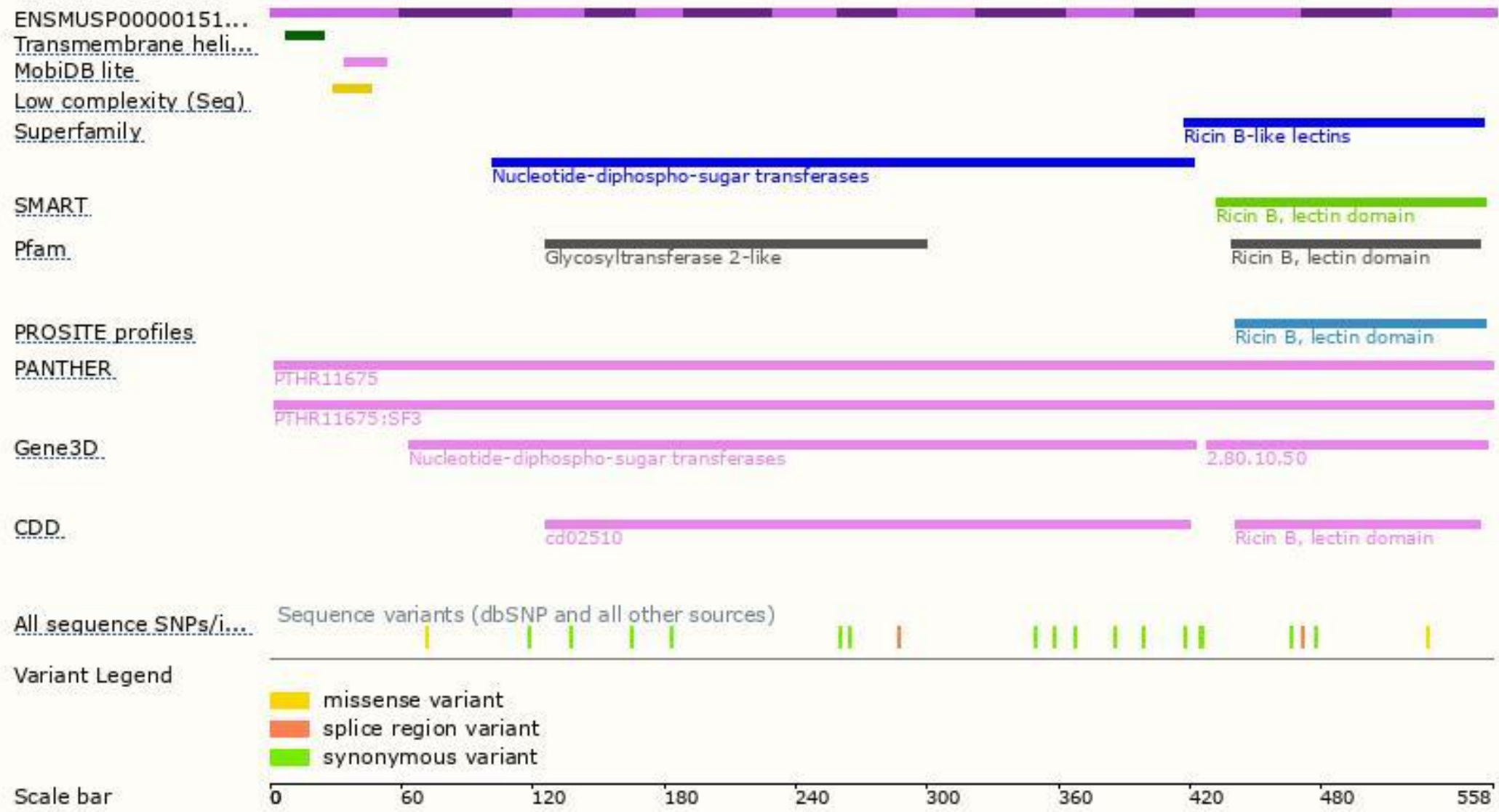
The strategy is based on the design of *Galnt16-206* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

Tel: 400-9660890

