

B4galt7 Cas9-CKO Strategy

Designer: Yanhua Shen

Reviewer: Xueting Zhang

Design Date: 2020-2-15

Project Overview

Project Name

B4galt7

Project type

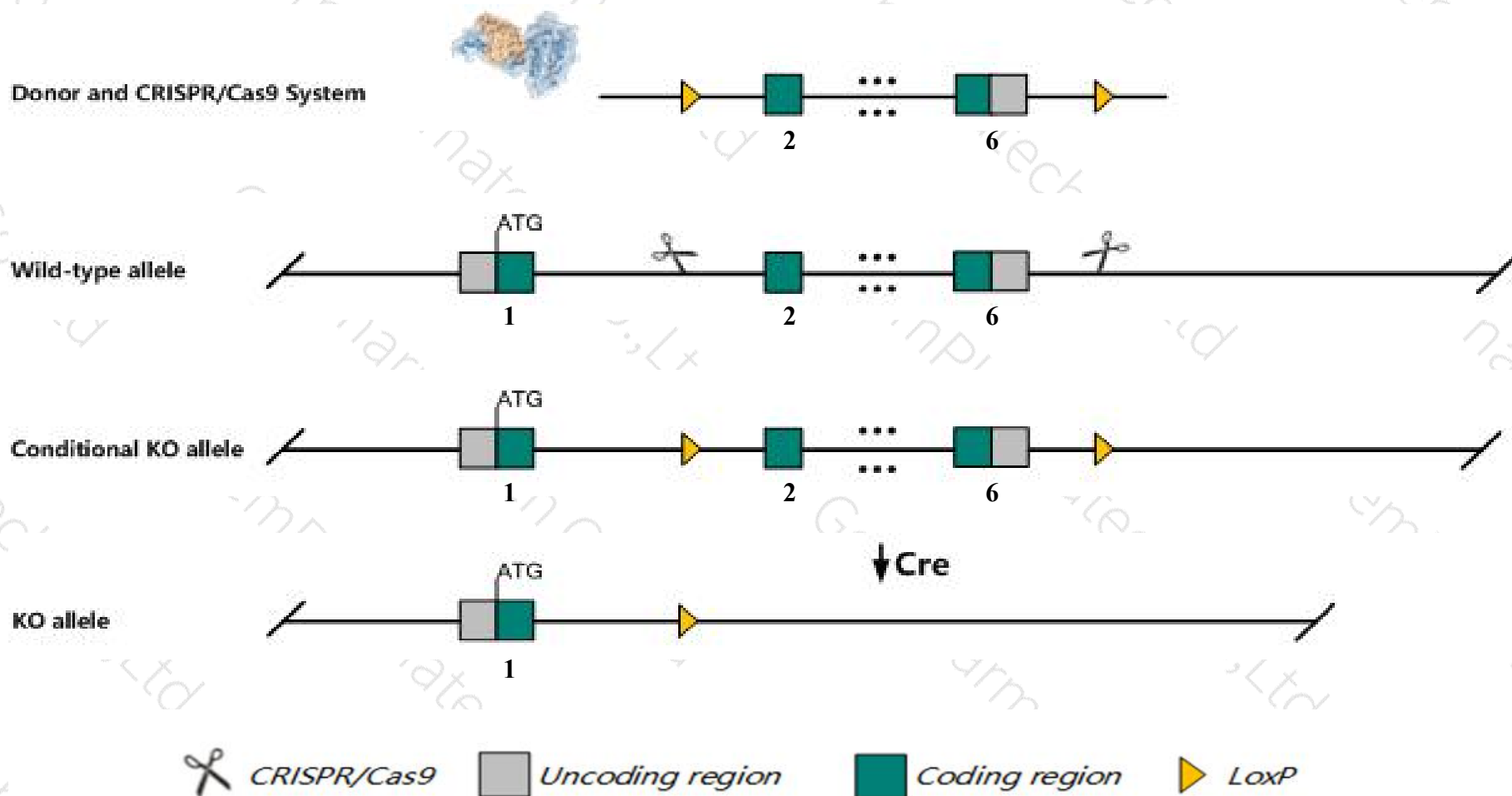
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *B4galt7* gene. The schematic diagram is as follows:



- The *B4galt7* gene has 4 transcripts. According to the structure of *B4galt7* gene, exon2-exon6 of *B4galt7-201* (ENSMUST00000064701.7) transcript is recommended as the knockout region. The region contains most of coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *B4galt7* 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.

Notice

- *Gm15911*-201 gene may be destroyed.
- The effect of transcript 203 is unknown.
- The *B4galt7* gene is located on the Chr13. 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)

B4galt7 xylosylprotein beta1,4-galactosyltransferase, polypeptide 7 (galactosyltransferase I) [*Mus musculus* (house mouse)]

Gene ID: 218271, updated on 12-Aug-2019

Summary



Official Symbol	B4galt7 provided by MGI
Official Full Name	xylosylprotein beta1,4-galactosyltransferase, polypeptide 7 (galactosyltransferase I) provided by MGI
Primary source	MGI:MGI:2384987
See related	Ensembl:ENSMUSG000000021504
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	XGPT; XGalT-1
Expression	Ubiquitous expression in whole brain E14.5 (RPKM 11.8), limb E14.5 (RPKM 11.7) and 28 other tissues See more
Orthologs	human all

Genomic context



Location: 13; 13 B1

Exon count: 6

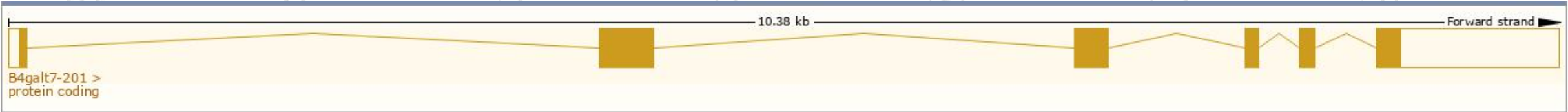
See B4galt7 in [Genome Data Viewer](#)

Transcript information (Ensembl)

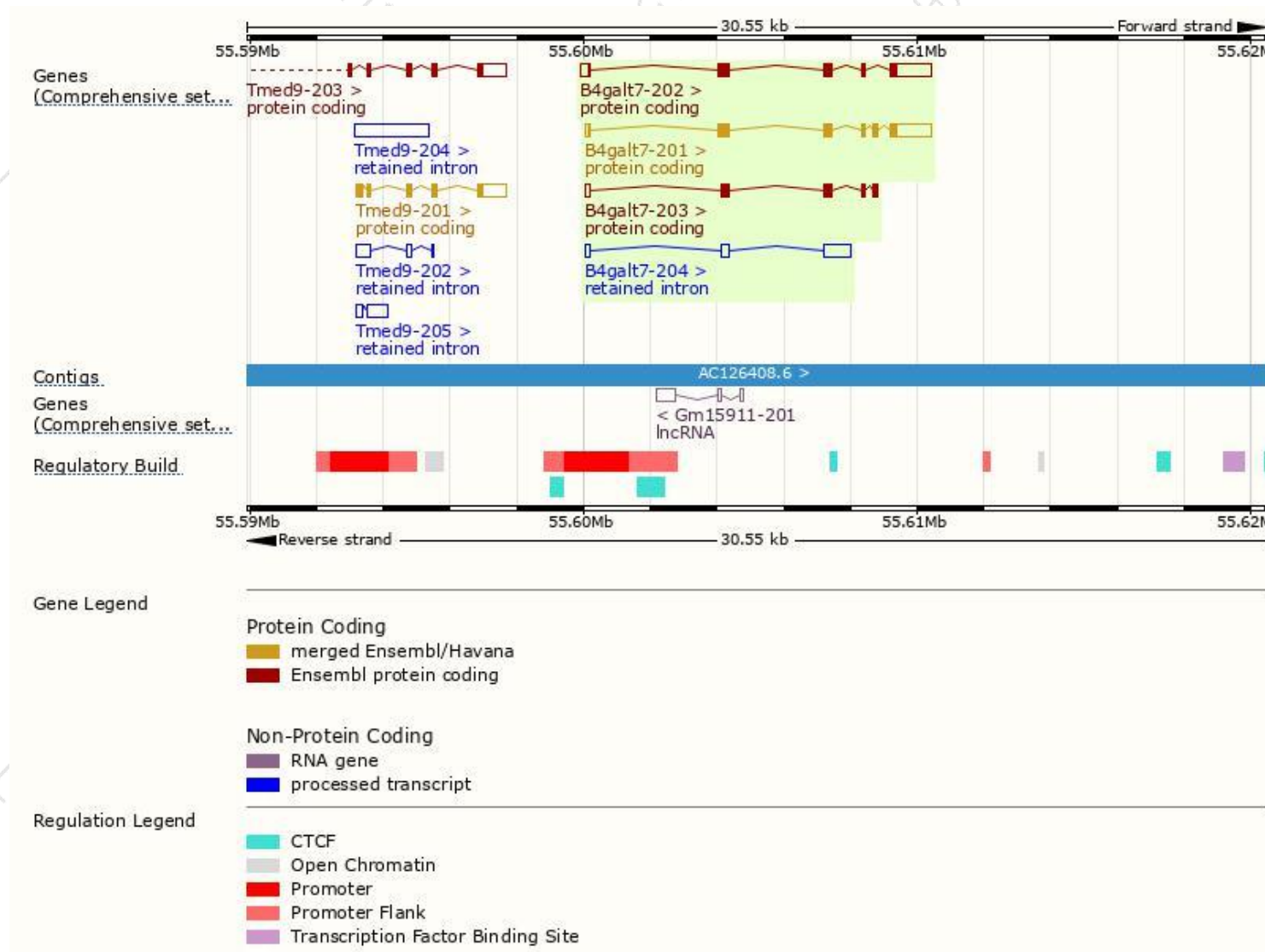
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
B4galt7-202	ENSMUST00000100764.9	2195	292aa	Protein coding	CCDS79190	Q8R087	TSL:1 GENCODE basic
B4galt7-201	ENSMUST00000064701.7	2130	327aa	Protein coding	CCDS26550	Q3TAW1 Q8R087	TSL:1 GENCODE basic APPRIS P1
B4galt7-203	ENSMUST00000133176.7	806	220aa	Protein coding	-	D3Z065	CDS 3' incomplete TSL:3
B4galt7-204	ENSMUST00000142654.7	1213	No protein	Retained intron	-	-	TSL:1

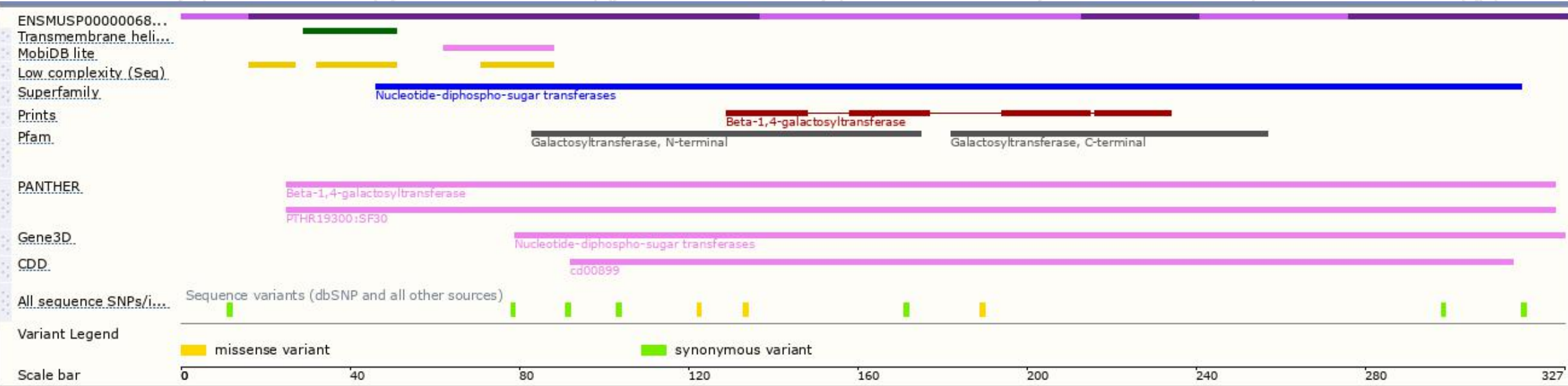
The strategy is based on the design of *B4galt7-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

Tel: 400-9660890

