Galnt11 Cas9-CKO Strategy

Designer: Yanhua Shen

Reviewer: Xueting Zhang

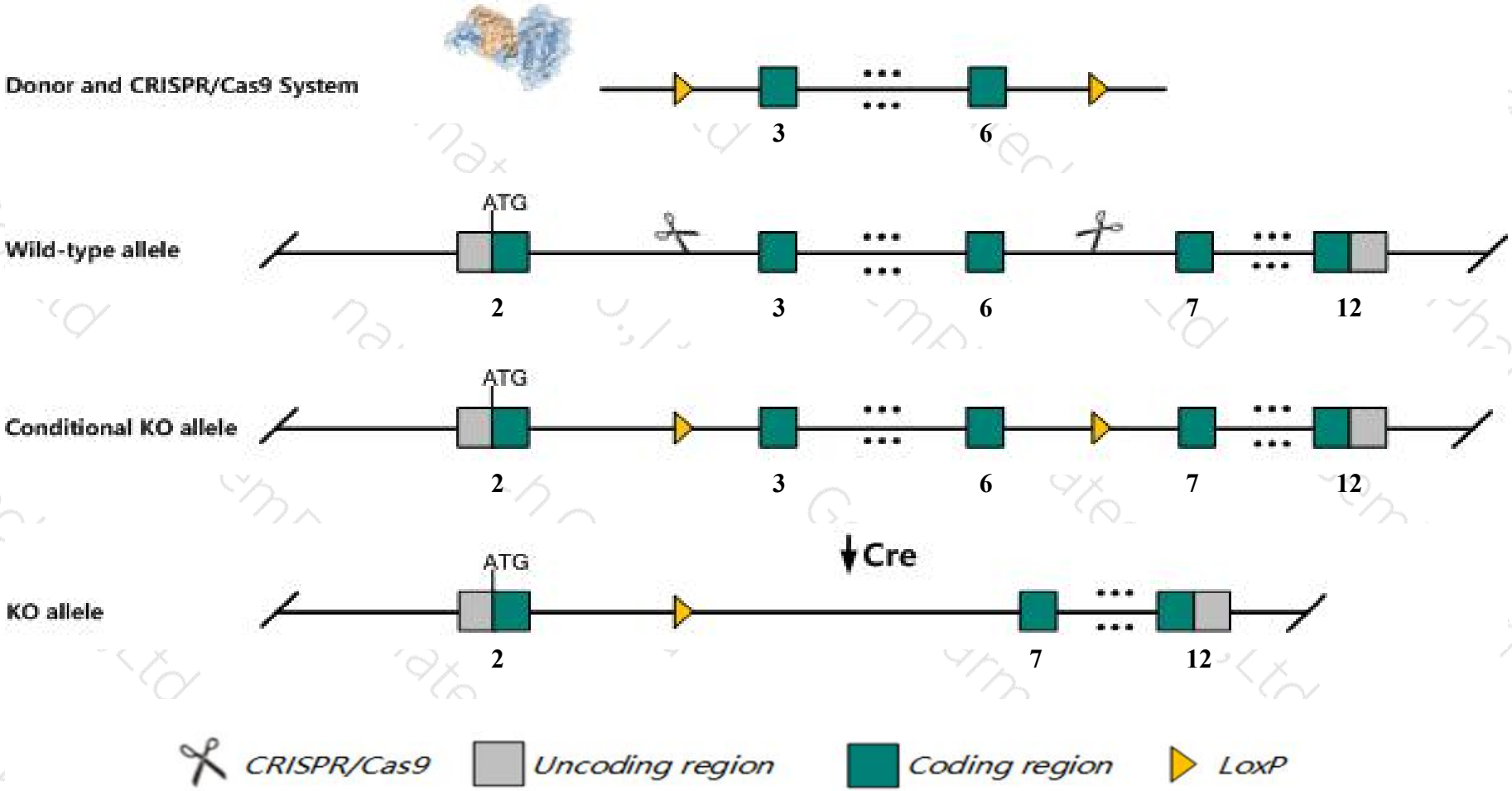
Design Date: 2020-4-14

Project Overview

Project Name	***Galnt11***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Galnt11* gene. The schematic diagram is as follows:



Technical routes

- The *Galnt11* gene has 5 transcripts. According to the structure of *Galnt11* gene, exon3-exon6 of *Galnt11-201* (ENSMUST00000045737.13) transcript is recommended as the knockout region.The region contains 667bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Galnt11* 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

- Some amino acids will remain at the N-terminus and some functions may be retained.
- The effect of transcript 204 is unknown.
- The transcript 205 may not be affected.
- The *Galnt11* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

集萃药康 GemPharmatech

Galnt11 polypeptide N-acetylgalactosaminyltransferase 11 [Mus musculus (house mouse)]

Gene ID: 231050, updated on 13-Mar-2020

Summary

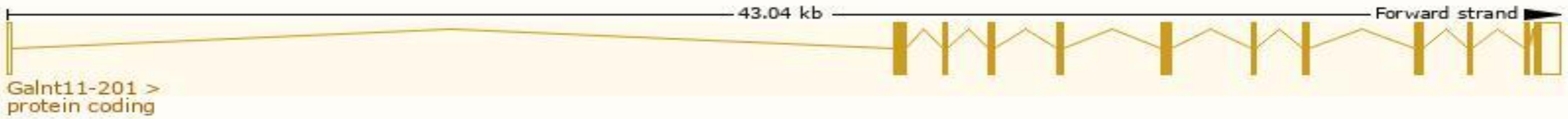
Official Symbol	Galnt11 provided by MGI
Official Full Name	polypeptide N-acetylgalactosaminyltransferase 11 provided by MGI
Primary source	MGI:MGI:2444392
See related	Ensembl:ENSMUSG00000038072
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	A430075I06Rik, AI648252, E430002F06Rik
Expression	Biased expression in kidney adult (RPKM 102.6), CNS E18 (RPKM 9.5) and 11 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

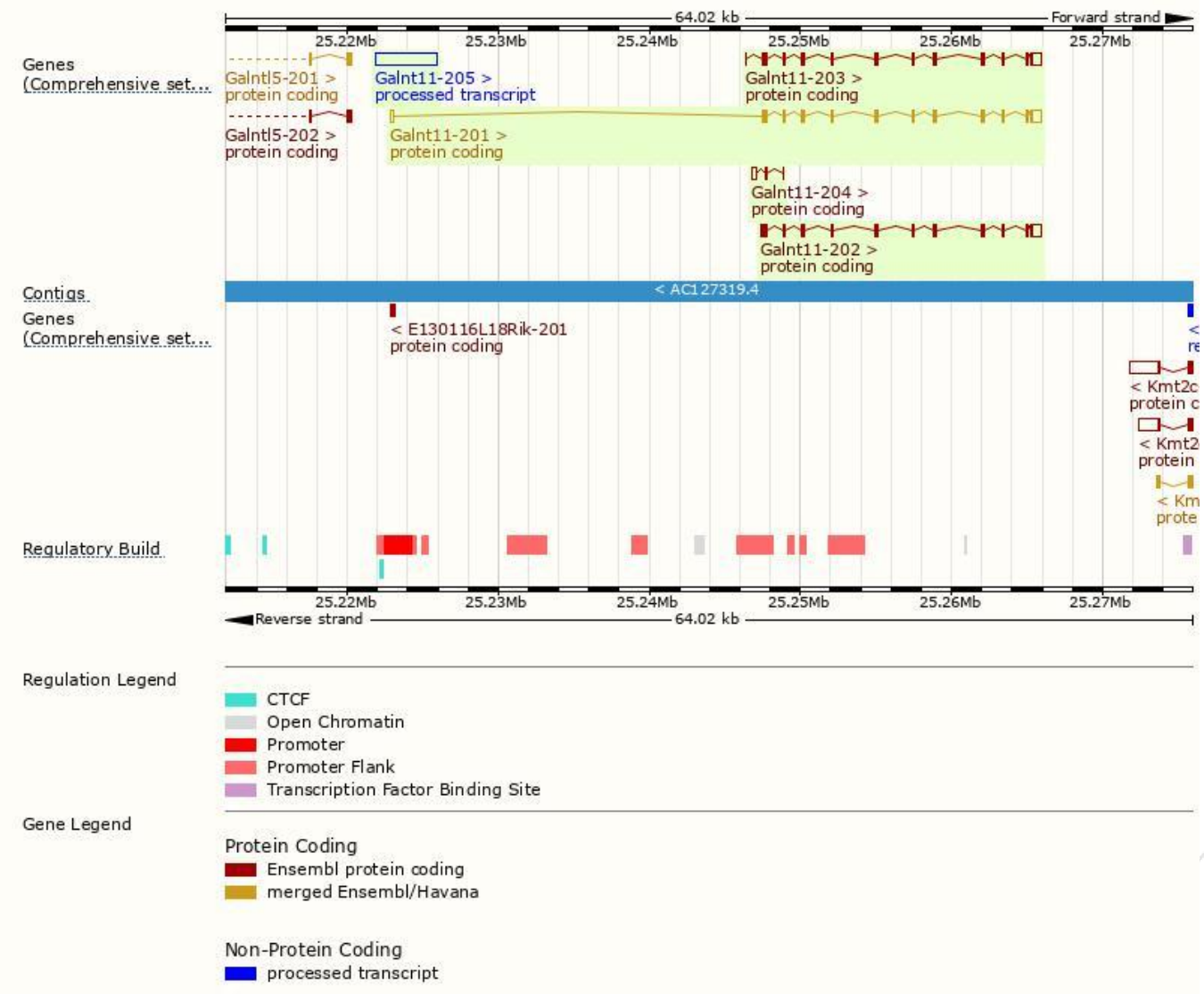
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Galnt11-201	ENSMUST00000045737.13	2552	608aa	Protein coding	CCDS19133	Q921L8	TSL:1 GENCODE basic APPRIS P1
Galnt11-202	ENSMUST00000114950.1	2493	608aa	Protein coding	CCDS19133	Q921L8	TSL:1 GENCODE basic APPRIS P1
Galnt11-203	ENSMUST00000114952.7	2449	608aa	Protein coding	CCDS19133	Q921L8	TSL:1 GENCODE basic APPRIS P1
Galnt11-204	ENSMUST00000144971.1	469	46aa	Protein coding	-	D3YUC2	CDS 3' incomplete TSL:5
Galnt11-205	ENSMUST00000196213.1	4010	No protein	Processed transcript	-	-	TSL:NA

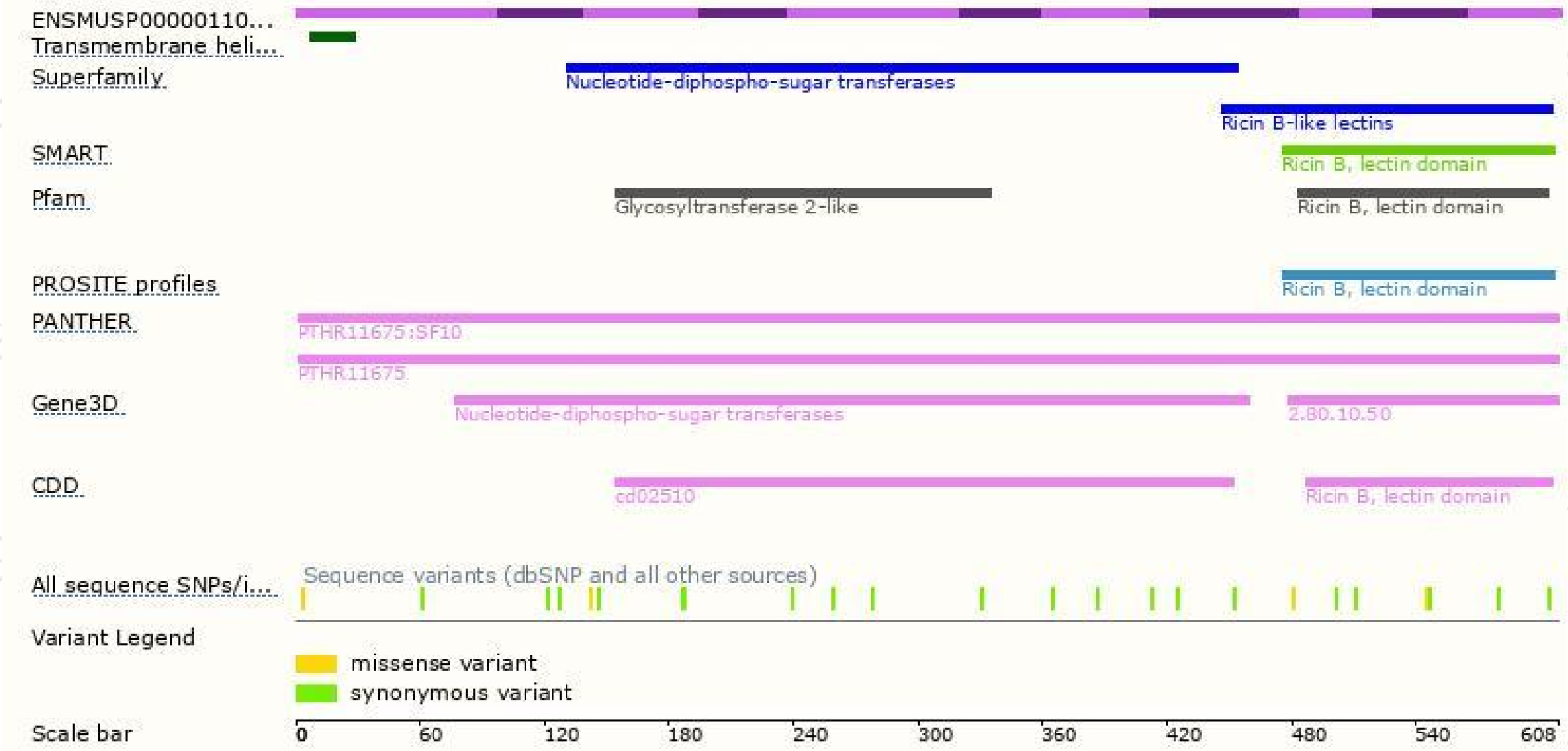
The strategy is based on the design of *Galnt11-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



集萃药康
GemPharmatech

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

Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd