

B4galt3 **Cas9-CKO Strategy**

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Project Overview

Project Name

B4galt3

Project type

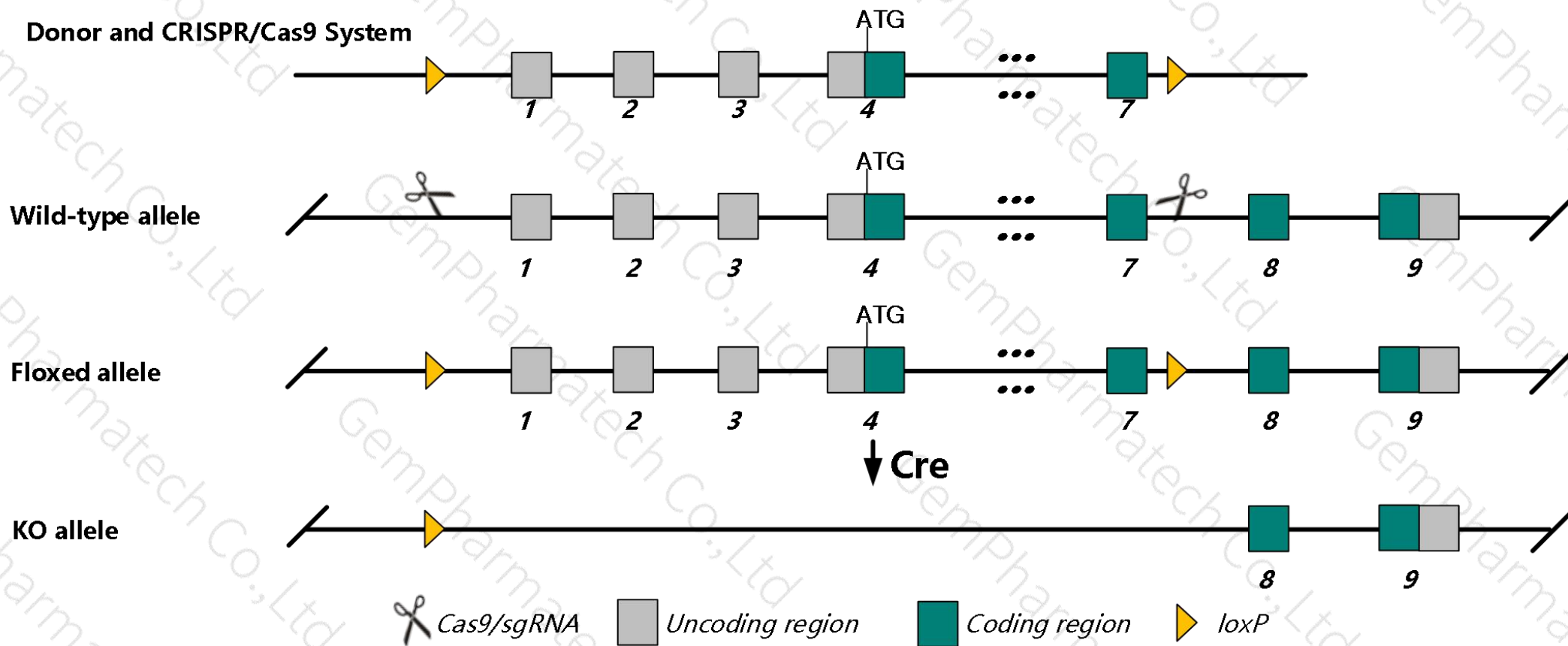
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *B4galt3* gene. The schematic diagram is as follows:



Technical routes

- The *B4galt3* gene has 11 transcripts. According to the structure of *B4galt3* gene, exon1-exon7 of *B4galt3-202* (ENSMUST00000111313.9) 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 *B4galt3* 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.

- Transcript 207 may be affected. The effect of transcripts 209,210,211 is unknown.
- The *B4galt3* gene is located on the Chr1. 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)

B4galt3 UDP-Gal:betaGlcNAc beta 1,4-galactosyltransferase, polypeptide 3 [*Mus musculus* (house mouse)]

Gene ID: 57370, updated on 10-Sep-2019

Summary



Official Symbol	B4galt3 provided by MGI
Official Full Name	UDP-Gal:betaGlcNAc beta 1,4-galactosyltransferase, polypeptide 3 provided by MGI
Primary source	MGI:MGI:1928767
See related	Ensembl:ENSMUSG00000052423
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	ESTM6; ESTM26; R74981; AA104562; AW125175; 9530061M23Rik
Expression	Ubiquitous expression in duodenum adult (RPKM 38.6), ovary adult (RPKM 29.1) and 28 other tissues See more
Orthologs	human all

Genomic context



Location: 1 H3; 1 79.29 cM

Exon count: 8

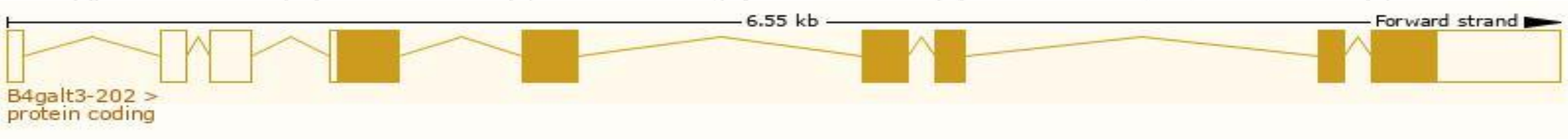
See B4galt3 in [Genome Data Viewer](#)

Transcript information (Ensembl)

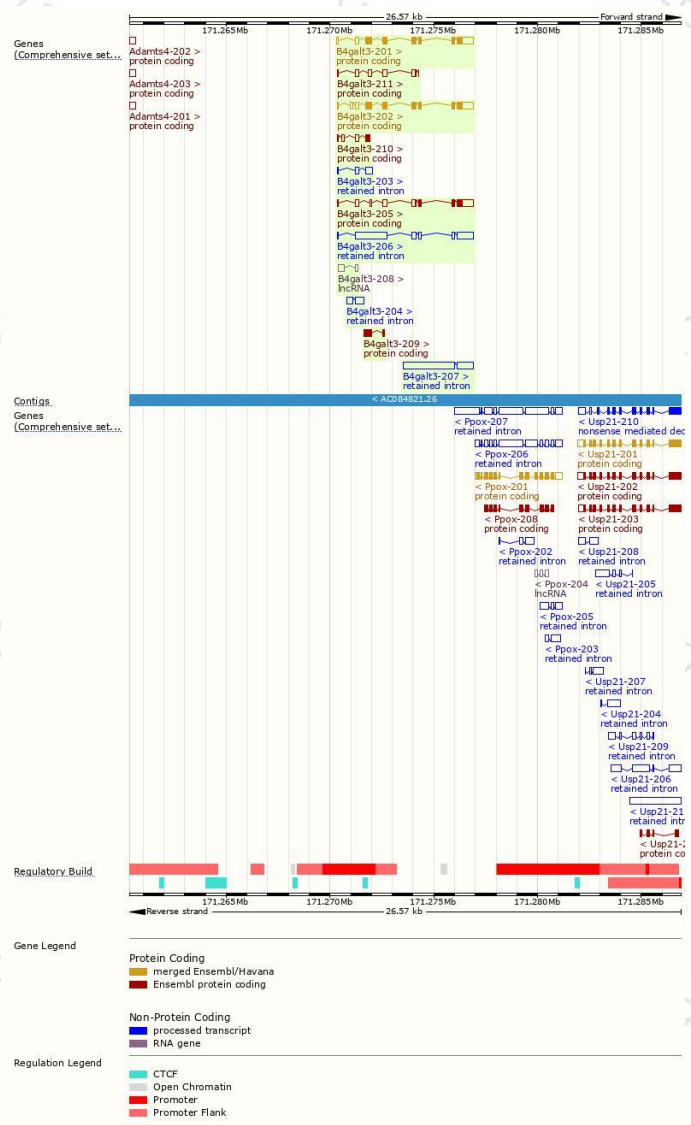
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
B4galt3-202	ENSMUST00000111313.9	2098	395aa	Protein coding	CCDS15486	Q3U260 Q91YY2	TSL:1 GENCODE basic APPRIS P1
B4galt3-201	ENSMUST00000064272.9	1998	395aa	Protein coding	CCDS15486	Q3U260 Q91YY2	TSL:1 GENCODE basic APPRIS P1
B4galt3-205	ENSMUST00000126699.3	1758	173aa	Protein coding	-	A0A0A6YXE7	TSL:5 GENCODE basic
B4galt3-211	ENSMUST00000151863.7	869	13aa	Protein coding	-	A0A0A6YXS2	CDS 3' incomplete TSL:5
B4galt3-210	ENSMUST00000141999.7	583	65aa	Protein coding	-	D3YUU0	CDS 3' incomplete TSL:3
B4galt3-209	ENSMUST00000141114.1	446	139aa	Protein coding	-	D3YVA5	CDS 3' incomplete TSL:3
B4galt3-207	ENSMUST00000132890.1	3261	No protein	Retained intron	-	-	TSL:1
B4galt3-206	ENSMUST00000129985.2	2805	No protein	Retained intron	-	-	TSL:5
B4galt3-204	ENSMUST00000125939.1	728	No protein	Retained intron	-	-	TSL:3
B4galt3-203	ENSMUST00000123954.7	566	No protein	Retained intron	-	-	TSL:2
B4galt3-208	ENSMUST00000138904.1	440	No protein	lncRNA	-	-	TSL:2

The strategy is based on the design of *B4galt3-202* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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