B3gnt6 Cas9-CKO *Strategy*

Designer: **Daohua Xu**
Reviewer： **Huimin Su**

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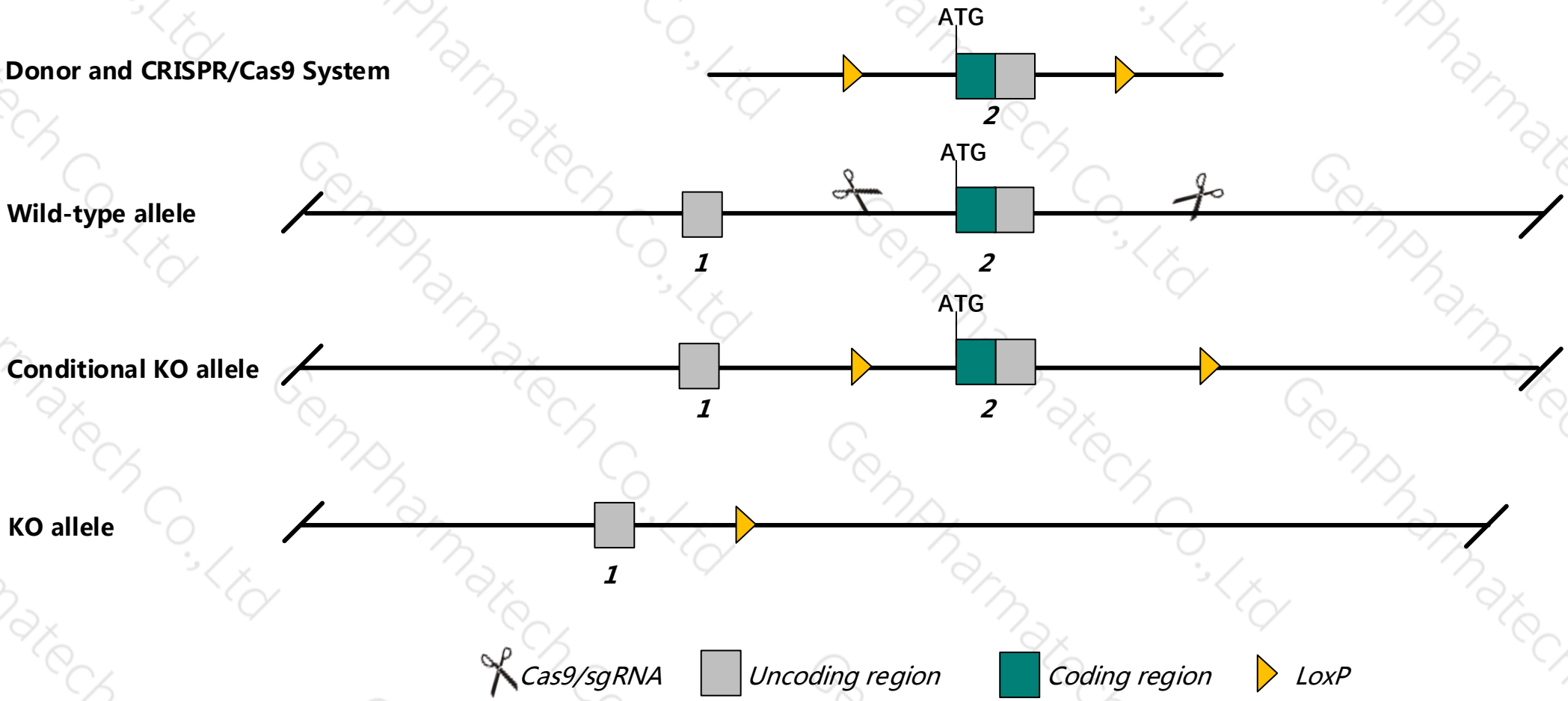
Project Overview

Project Name	***B3gnt6***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *B3gnt6* gene. The schematic diagram is as follows:



Technical routes

- The *B3gnt6* gene has 1 transcript.According to the structure of *B3gnt6* gene, exon2 of *B3gnt6*-201 (
- ENSMUST00000098278.3) transcript is recommended as the knockout region.The region contains all of the coding sequence.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *B3gnt6* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed.Cas9, sgRNA 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 was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues or cell types.

Notice

- According to the existing MGI data，Mice homozgous for a knock-out allele exhibit increased permeability of the intestinal barrier, increased susceptibility to DSS-induced colitis and accelerated colorectal tumorigenesis in mice treated with AOM and DSS.

- The *B3gnt6* gene is located on the Chr7. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information （NCBI）

B3gnt6 UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase 6 (core 3 synthase) [*Mus musculus* (house mouse)]

Gene ID: 272411, updated on 13-Mar-2020

Summary

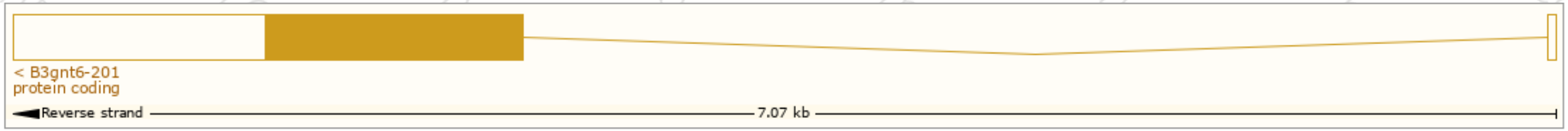
Official Symbol	B3gnt6 provided by MGI
Official Full Name	UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase 6 (core 3 synthase) provided by MGI
Primary source	MGI:MGI:3039603
See related	Ensembl:ENSMUSG00000074004
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Core3; Core-3; BC039789
Expression	Biased expression in colon adult (RPKM 47.3) and large intestine adult (RPKM 2.1) See more
Orthologs	human all

Transcript information（Ensembl）

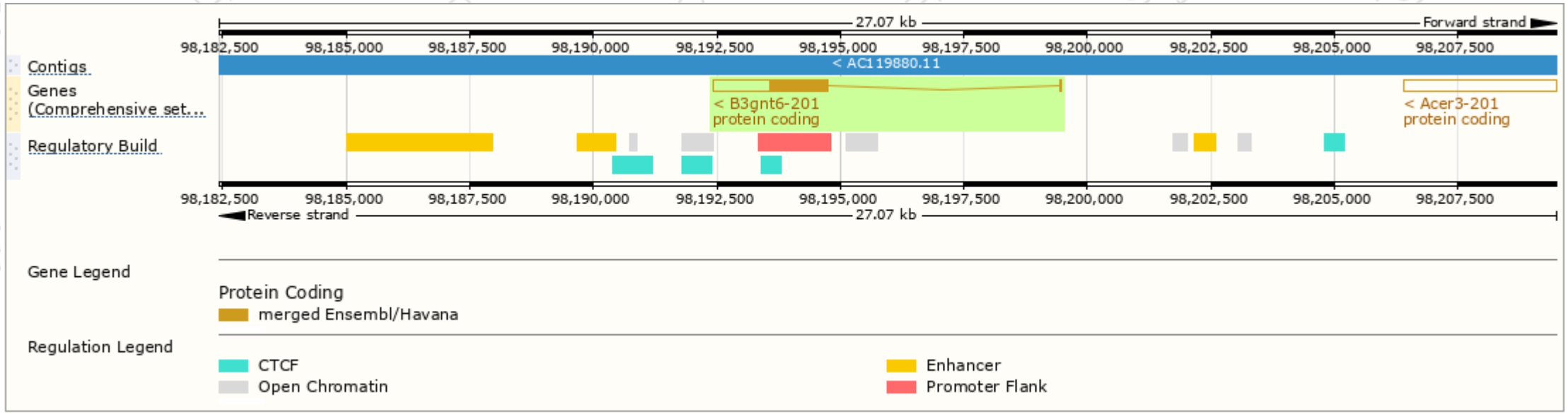
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
B3gnt6-201	ENSMUST00000098278.3	2371	391aa	Protein coding	CCDS40027	Q3USF0	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *B3gnt6*-201 transcript,The transcription is shown below

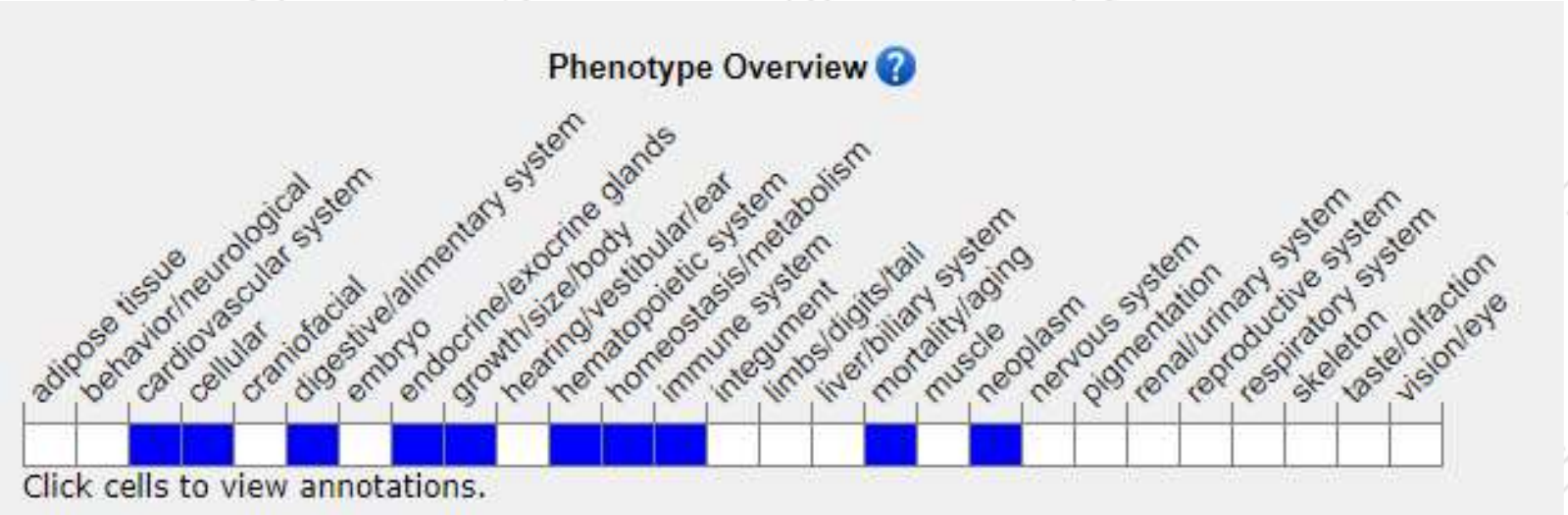


Genomic location distribution



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 homozgous for a knock-out allele exhibit increased permeability of the intestinal barrier, increased susceptibility to DSS-induced colitis and accelerated colorectal tumorigenesis in mice treated with AOM and DSS.

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

Tel: 025-5864 1534

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GemPharmatech Co.,Ltd