B3galnt1 Cas9-KO Strategy

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Reviewer: Xueting Zhang

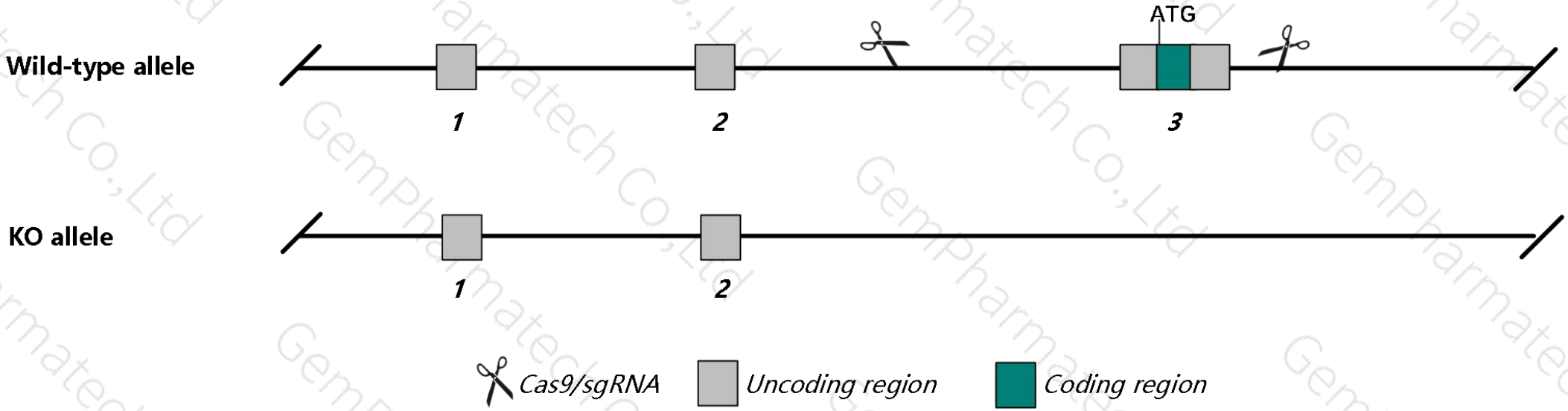
Design Date: 2020-4-15

Project Overview

Project Name	***B3galnt1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *B3galnt1* gene. The schematic diagram is as follows:



Technical routes

➢ The *B3galnt1* gene has 1 transcript. According to the structure of *B3galnt1* gene, exon3 of *B3galnt1-201* (ENSMUST00000061826.2) 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 *B3galnt1* gene. The brief process is as follows: CRISPR/Cas9 syst

Notice

- According to the existing MGI data,a homozygous null mutation of this gene results in embryonic lethality. Mice homozygous for a second allele appear normal.
- The *B3galnt1* gene is located on the Chr3. 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 gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information（NCBI）

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B3galnt1 UDP-GalNAc:betaGlcNAc beta 1,3-galactosaminyltransferase, polypeptide 1 [Mus musculus (house mouse)]

Gene ID: 26879, updated on 13-Mar-2020

Summary

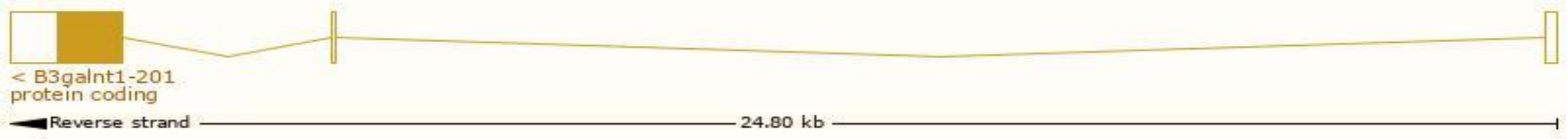
Official Symbol	B3galnt1 provided by MGI
Official Full Name	UDP-GalNAc:betaGlcNAc beta 1,3-galactosaminyltransferase, polypeptide 1 provided by MGI
Primary source	MGI:MGI:1349405
See related	Ensembl:ENSMUSG00000043300
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	B3galt3, b3GT3
Expression	Broad expression in CNS E18 (RPKM 14.0), whole brain E14.5 (RPKM 8.9) and 20 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

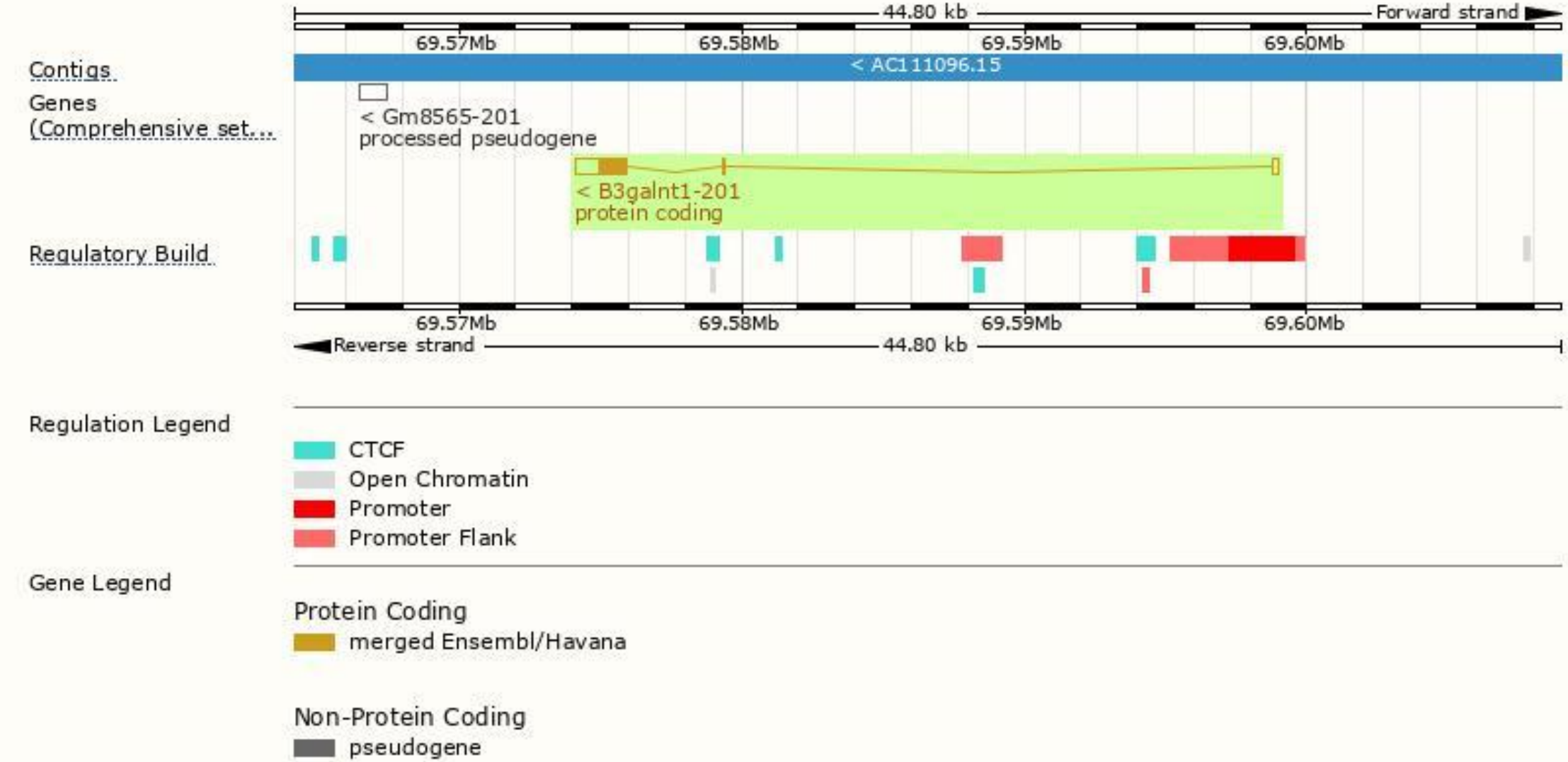
The gene has 1 transcript,and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
B3galnt1-201	ENSMUST00000061826.2	2028	331aa	Protein coding	CCDS17406	Q920V1	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

The strategy is based on the design of *B3galnt1-201* transcript,The transcription is shown below

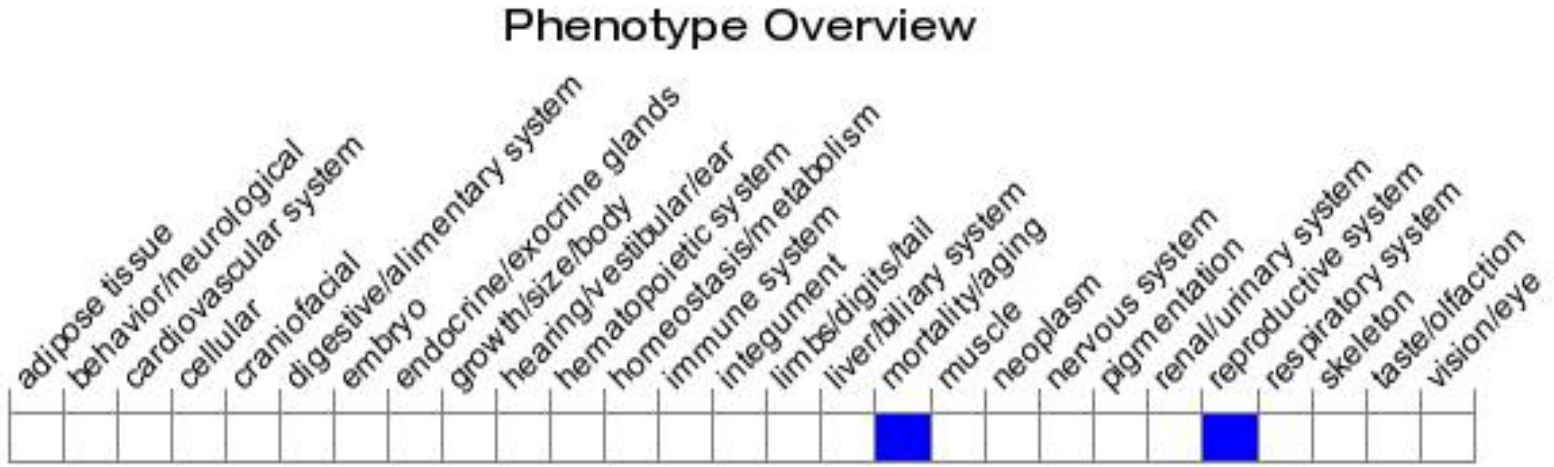


Genomic location distribution



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/).

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

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