B4galnt4 Cas9-KO Strategy

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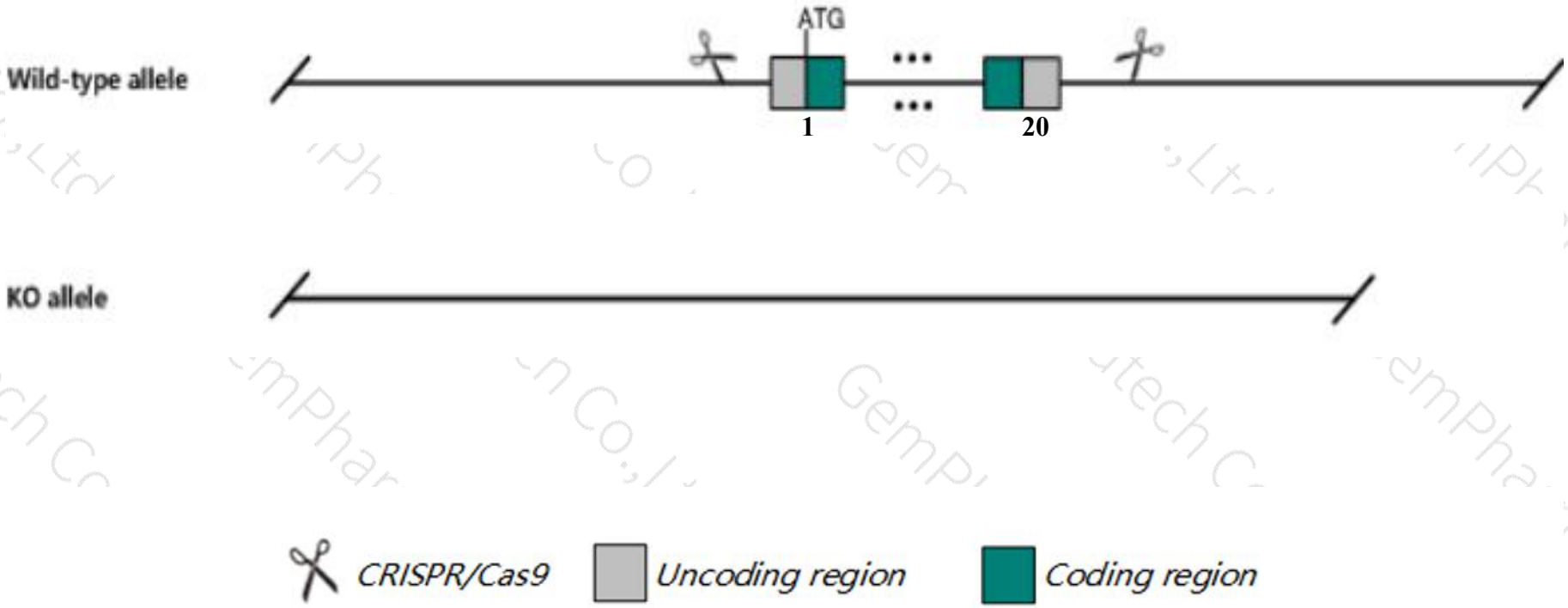
Project Overview

Project Name	***B4galnt4***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *B4galnt4* gene. The schematic diagram is as follows:



Technical routes

➢ The *B4galnt4* gene has 5 transcripts. According to the structure of *B4galnt4* gene, exon1-exon20 of *B4galnt4-201* (ENSMUST00000048002.6) 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 *B4galnt4* gene. The brief process is as follows: CRISPR/Cas9 syst

Notice

- The *B4galnt4* 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 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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B4galnt4 beta-1,4-N-acetyl-galactosaminyl transferase 4 [Mus musculus (house mouse)]

Gene ID: 330671, updated on 13-Mar-2020

Summary

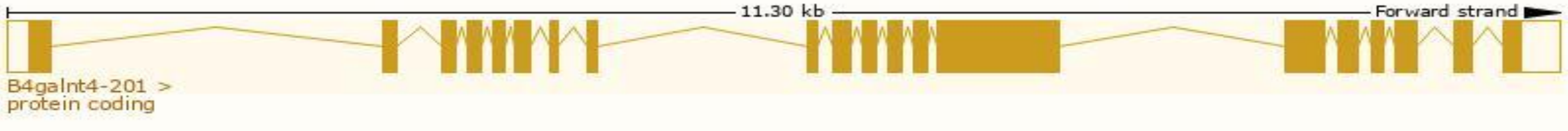
Official Symbol	B4galnt4 provided by MGI
Official Full Name	beta-1,4-N-acetyl-galactosaminyl transferase 4 provided by MGI
Primary source	MGI:MGI:2652891
See related	Ensembl:ENSMUSG00000055629
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Gm1095, NGalNAc-T1, beta4GalNAcT4
Expression	Biased expression in CNS E18 (RPKM 44.9), whole brain E14.5 (RPKM 39.5) and 11 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

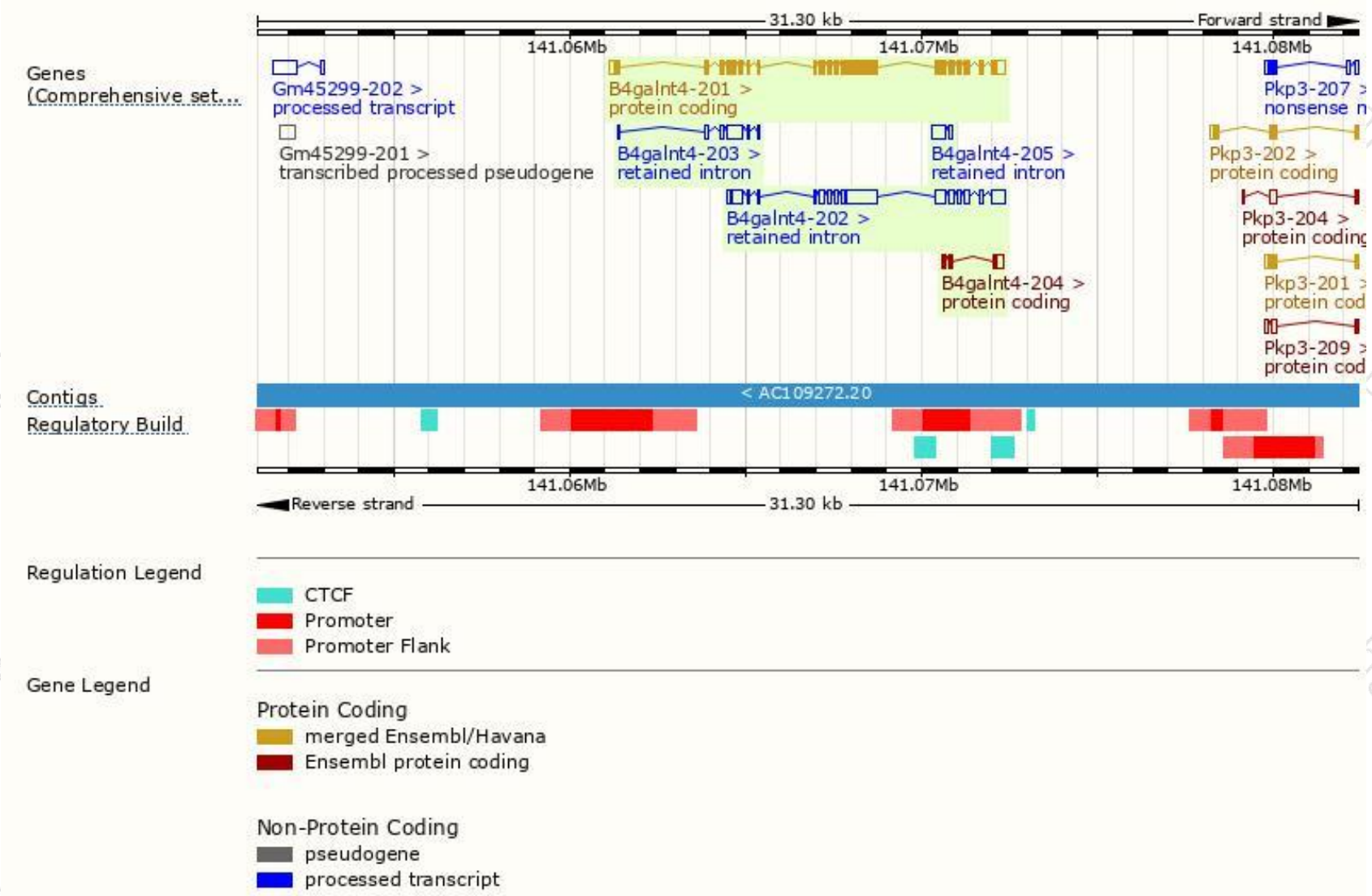
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
B4galnt4-201	ENSMUST00000048002.6	3556	1034aa	Protein coding	CCDS21998	Q766D5	TSL:1 GENCODE basic APPRIS P1
B4galnt4-204	ENSMUST00000210517.1	476	95aa	Protein coding	-	A0A1B0GR40	CDS 5' incomplete TSL:2
B4galnt4-202	ENSMUST00000209546.1	3076	No protein	Retained intron	-	-	TSL:1
B4galnt4-203	ENSMUST00000210203.1	827	No protein	Retained intron	-	-	TSL:5
B4galnt4-205	ENSMUST00000211455.1	485	No protein	Retained intron	-	-	TSL:2

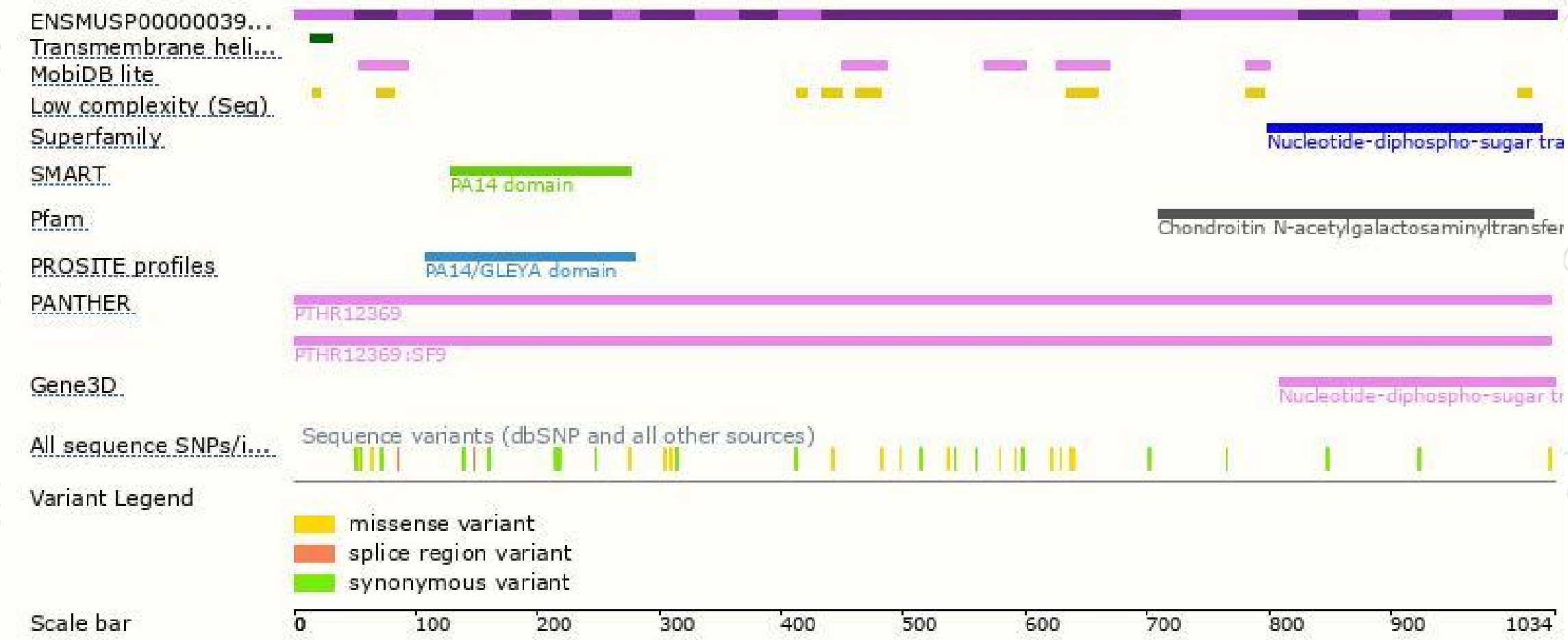
The strategy is based on the design of *B4galnt4-201* transcript,the transcription is shown below：



Genomic location distribution



Protein domain



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

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