C1galt1 Cas9-KO Strategy

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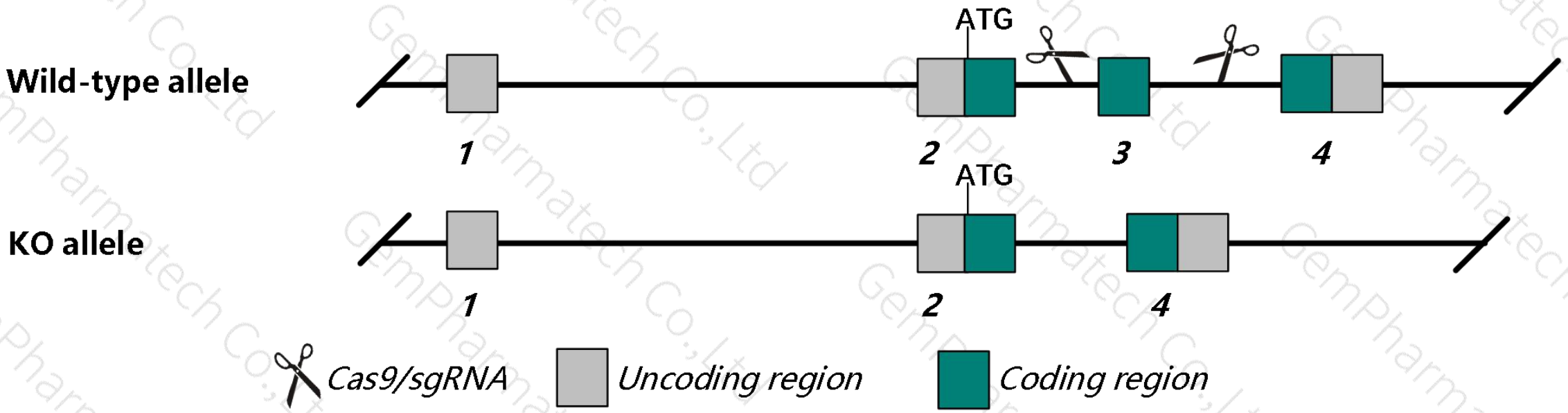
Project Overview

Project Name	***C1galt1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *C1galt1* gene. The schematic diagram is as follows:



Technical routes

➢ The *C1galt1* gene has 1 transcript. According to the structure of *C1galt1* gene, exon3 of *C1galt1-201* (ENSMUST00000040159.5) transcript is recommended as the knockout region.The region contains 668bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *C1galt1* gene. The brief process is as follows: CRISPR/Cas9 syste

Notice

- According to the existing MGI data,Embryos homozygous for a null allele show impaired angiogenesis, chaotic microvascular networks in brain, and fatal hemorrhage by E14. Eggs homozygous for another null allele show a slightly thinner zona pellucida. Mice homozygous for an ENU-induced allele develop thrombocytopenia and renal disease.
- The knockout region is near to the N-terminal of *Gm43962* gene,this strategy may influence the regulatory function of the N-terminal of *Gm43962* gene.
- The *C1galt1* gene is located on the Chr6. 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）

集萃药康 GemPharmatech

C1galt1 core 1 synthase, glycoprotein-N-acetylgalactosamine 3-beta-galactosyltransferase, 1 [*Mus musculus* (house mouse)]

Gene ID: 94192, updated on 12-Aug-2019

Summary

Official Symbol	C1galt1 provided by MGI
Official Full Name	core 1 synthase, glycoprotein-N-acetylgalactosamine 3-beta-galactosyltransferase, 1 provided by MGI
Primary source	MGI:MGI:2151071
See related	Ensembl:ENSMUSG00000042460
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	AV284120; T-synthase; 2210410E06Rik
Expression	Ubiquitous expression in placenta adult (RPKM 10.0), colon adult (RPKM 6.2) and 28 other tissues See more
Orthologs	human all

Genomic context

Location: 6; 6 A1

See C1galt1 in Genome Data Viewer

Exon count: 4

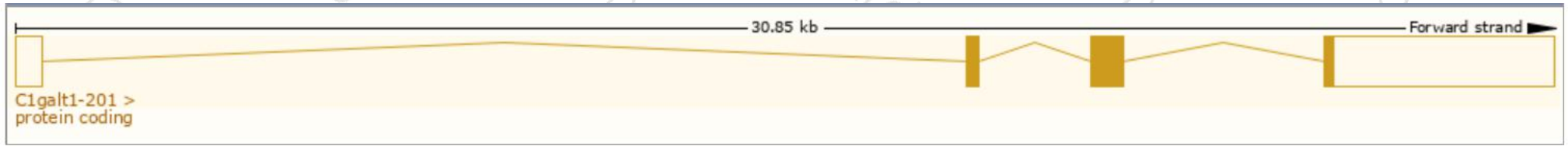
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	6	NC_000072.6 (7845224..7872042)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	6	NC_000072.5 (7795224..7822042)

Transcript information（Ensembl）

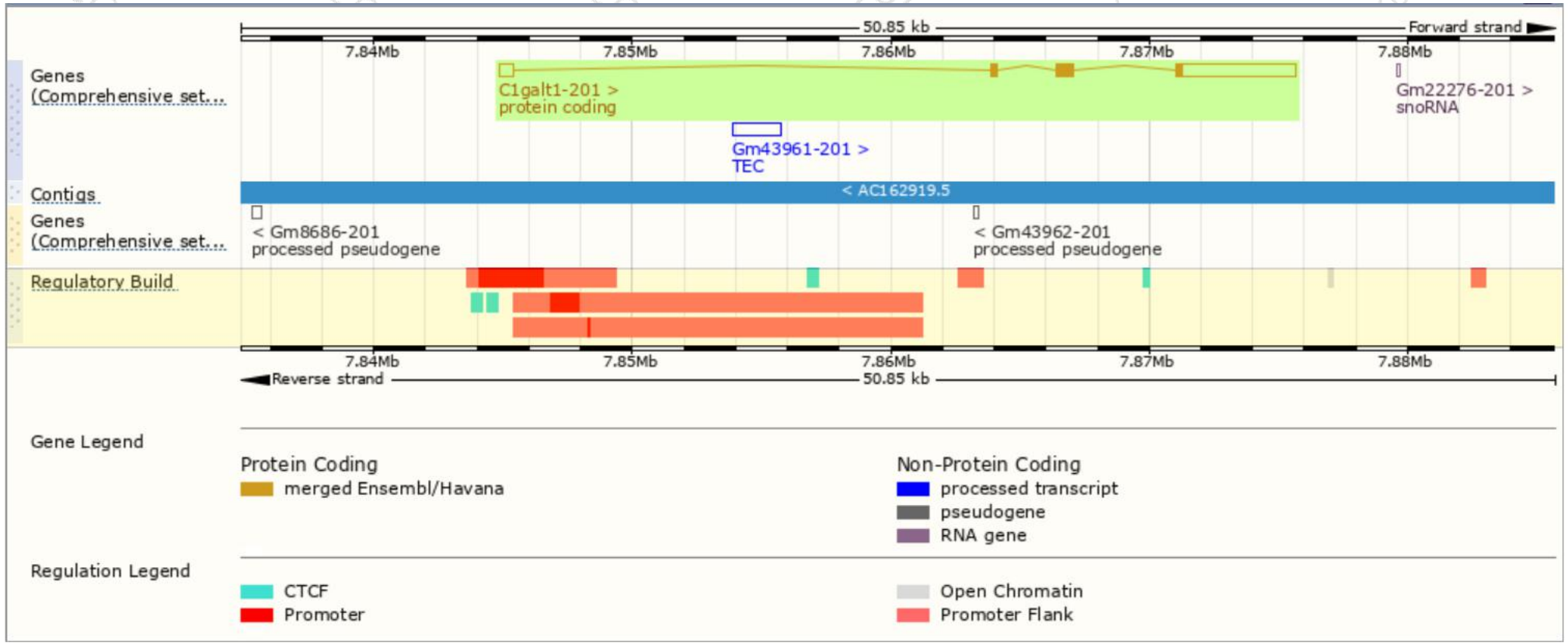
The gene has 1 transcript,the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
C1galt1-201	ENSMUST00000040159.5	6092	363aa	Protein coding	CCDS19908	Q9JJ06	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *C1galt1-201* transcript,The transcription is shown below

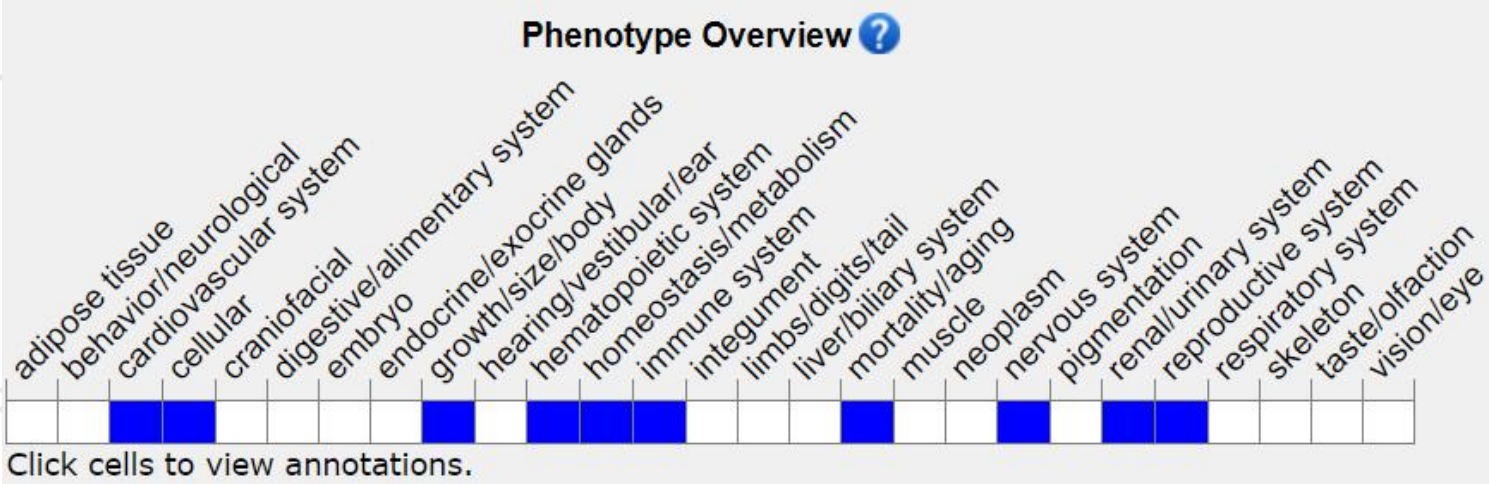


Genomic location distribution



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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