

***Galr3* Cas9-KO Strategy**

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Project Overview

Project Name

Galr3

Project type

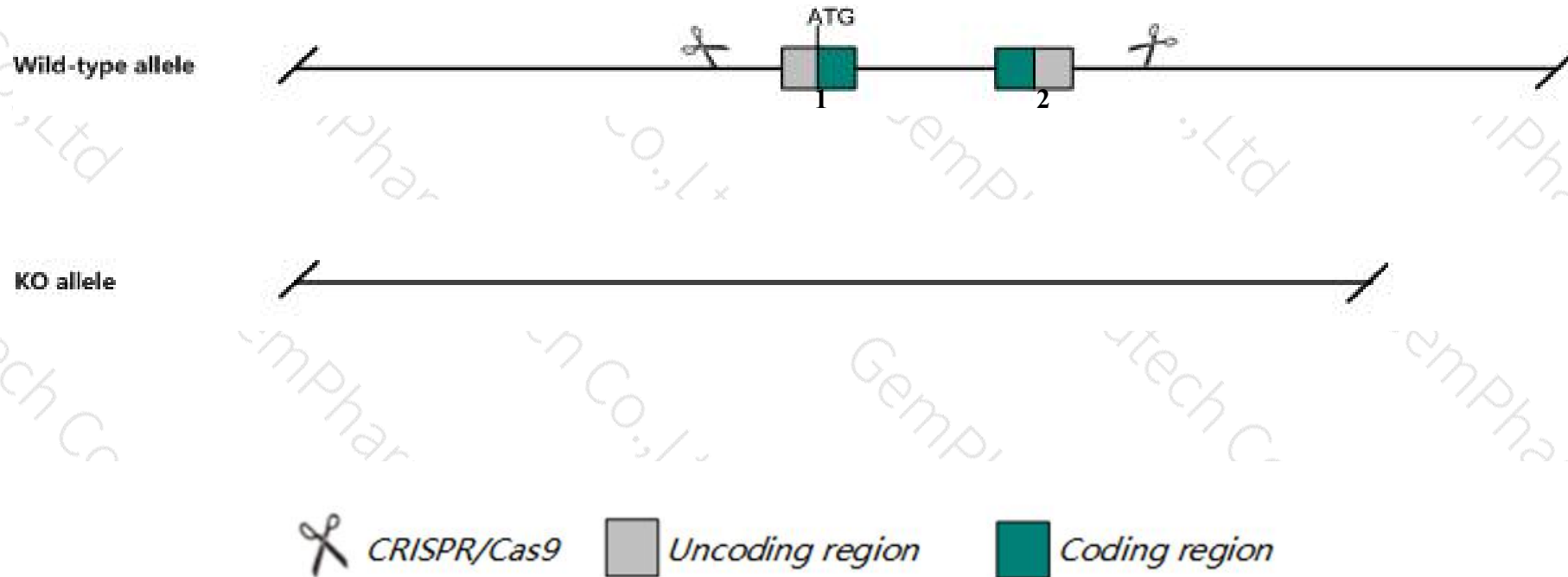
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Galr3* gene. The schematic diagram is as follows:



- The *Galr3* gene has 1 transcript. According to the structure of *Galr3* gene, exon1-exon2 of *Galr3-201* (ENSMUST00000058004.3) 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 *Galr3* gene. The brief process is as follows: gRNA was transcribed in vitro. Cas9 and gRNA 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.

- According to the existing MGI data, mice homozygous for a null allele exhibit increased anxiety-like behavior and abnormal social investigation.
- The knockout region is near to the C-terminal of *Gm3924* gene, this strategy may influence the regulatory function of the C-terminal of *Gm3924* gene.
- *Gcat* gene will be destroyed together in this strategy.
- The *Galr3* gene is located on the Chr15. 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)

Galr3 galanin receptor 3 [*Mus musculus* (house mouse)]

Gene ID: 14429, updated on 12-Aug-2019

Summary

Official Symbol Galr3 provided by [MGI](#)
Official Full Name galanin receptor 3 provided by [MGI](#)
Primary source [MGI:MGI:1329003](#)
See related [Ensembl:ENSMUSG00000114755](#)
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 Galnr3
Expression Biased expression in duodenum adult (RPKM 6.2), small intestine adult (RPKM 2.3) and 11 other tissues [See more](#)
Orthologs [human](#) [all](#)

Genomic context

Location: 15 E1; 15 37.7 cM

See Galr3 in [Genome Data Viewer](#)

Exon count: 2

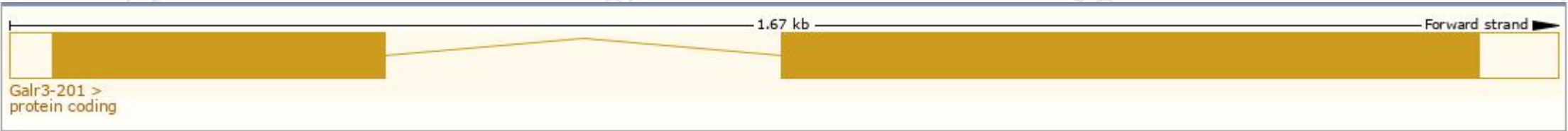
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	15	NC_000081.6 (79041885..79043558)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	15	NC_000081.5 (78872315..78873988)

Transcript information (Ensembl)

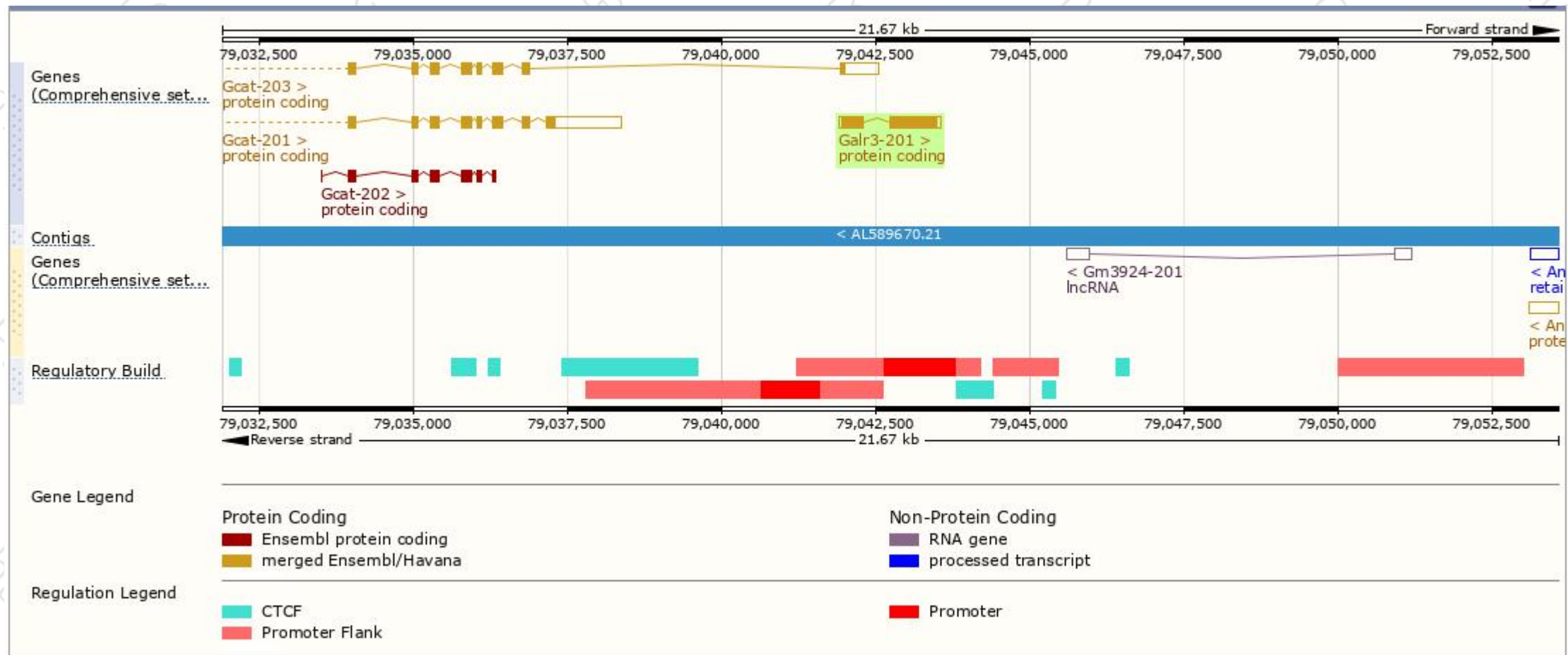
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Galr3-201	ENSMUST00000058004.3	1245	370aa	Protein coding	CCDS27631	O88853	TSL:1 Gencode basic APPRIS P1

The strategy is based on the design of *Galr3-201* transcript, The transcription is shown below



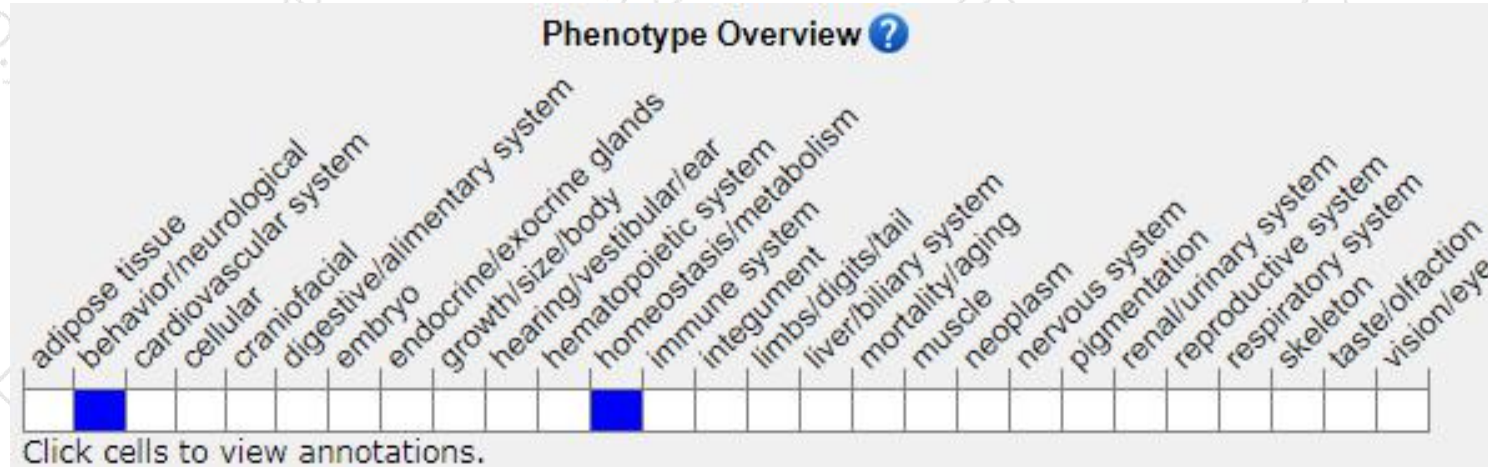
Genomic location distribution



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 homozygous for a null allele exhibit increased anxiety-like behavior and abnormal social investigation.

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

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