

***Galr2* Cas9-KO Strategy**

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Project Overview

Project Name

Galr2

Project type

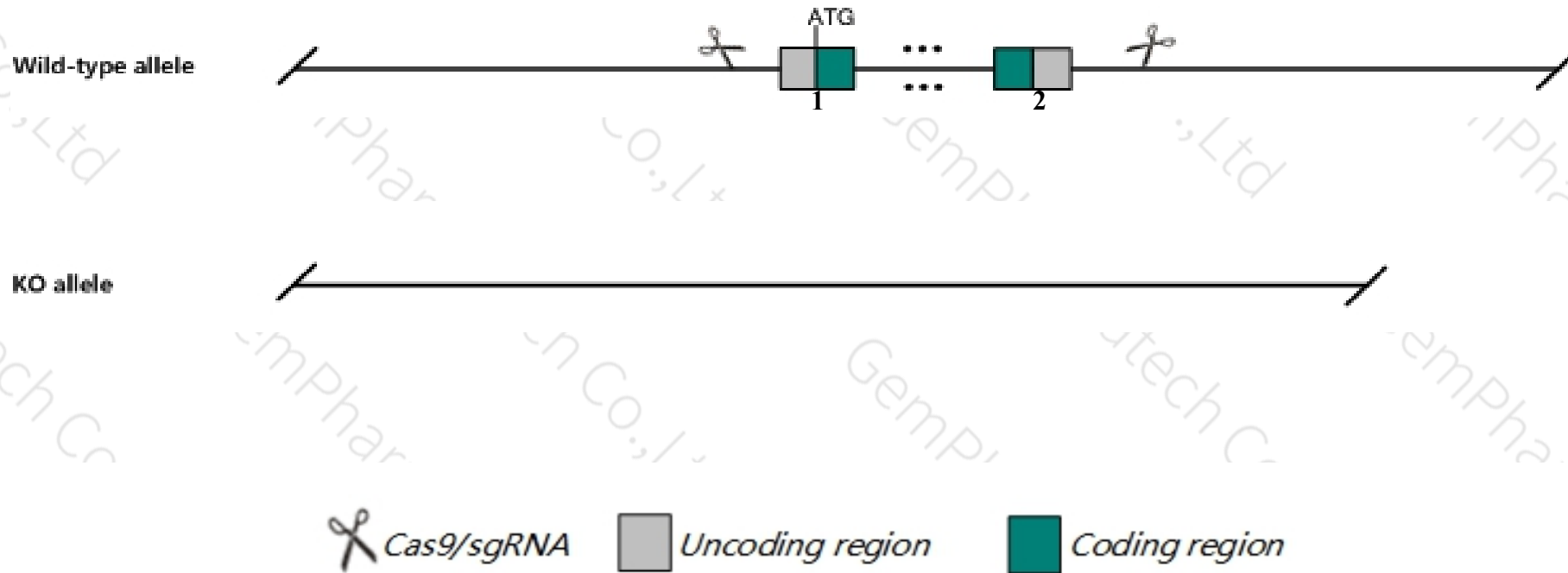
Cas9-KO

Strain background

C57BL/6J

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Galr2* gene. The schematic diagram is as follows:



- The *Galr2* gene has 1 transcript. According to the structure of *Galr2* gene, exon1-exon2 of *Galr2-201* (ENSMUST00000055872.2) 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 *Galr2* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

- According to the existing MGI data, Mice homozygous for disruptions in this gene display a reduction in exploratory activity. There is also a modest shift in the distribution of different lymphocyte cell types.
- The *Galr2* gene is located on the Chr11. 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)

Galr2 galanin receptor 2 [*Mus musculus* (house mouse)]

Gene ID: 14428, updated on 9-Apr-2019

Summary

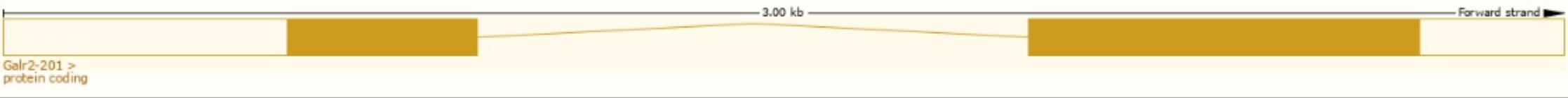
Official Symbol	Galr2 provided by MGI
Official Full Name	galanin receptor 2 provided by MGI
Primary source	MGI:MGI:1337018
See related	Ensembl:ENSMUSG00000020793
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	mGalR
Expression	Broad expression in large intestine adult (RPKM 4.8), colon adult (RPKM 3.3) and 18 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

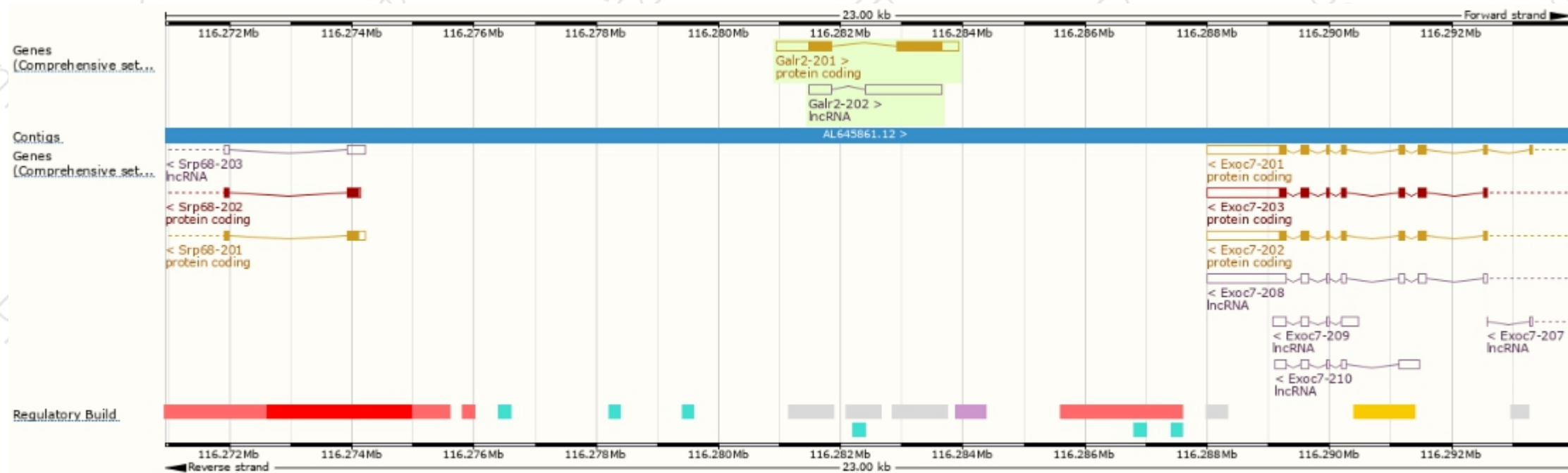
The gene has 2 transcript,and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Galr2-201	ENSMUST00000055872.2	1940	371aa	Protein coding	CCDS25663	Q88854	TSL:1 GENCODE basic APPRIS P1
Galr2-202	ENSMUST00000154277.1	1632	No protein	lncRNA	-	-	TSL:5

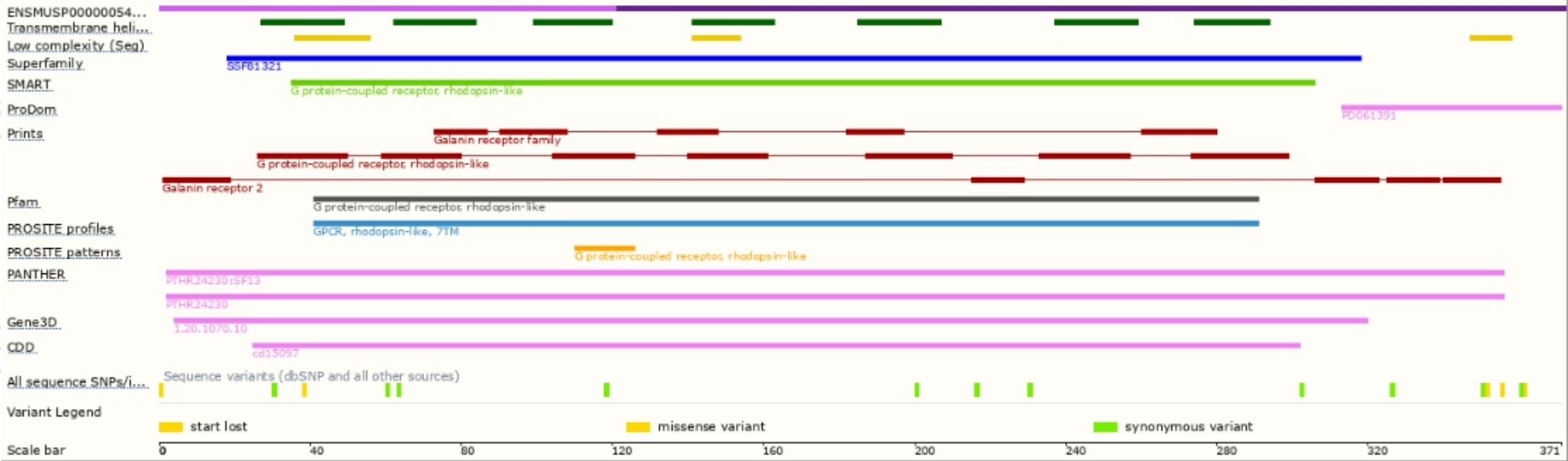
The strategy is based on the design of *Galr2-201* transcript,The transcription is shown below



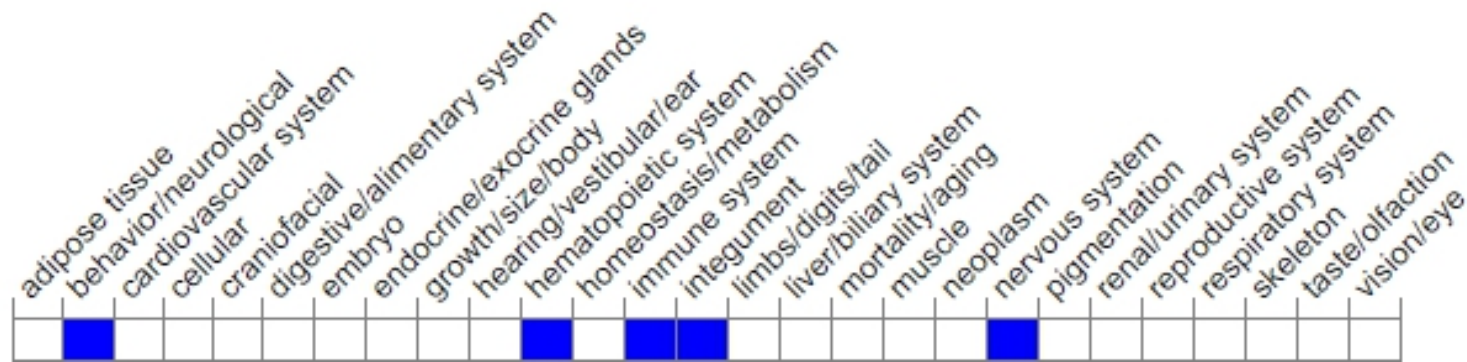
Genomic location distribution



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 disruptions in this gene display a reduction in exploratory activity. There is also a modest shift in the distribution of different lymphocyte cell types.

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

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