

S1pr4 Cas9-KO Strategy

Designer: Xueting Zhang

Design Date: 2019-8-5

Project Overview

Project Name

S1pr4

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slpr4* gene. The schematic diagram is as follows:



- The *Slpr4* gene has 1 transcript. According to the structure of *Slpr4* gene, exon1 of *Slpr4-201* (ENSMUST00000053646.6) 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 *Slpr4* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous mutation of this gene results in mid-gestation embryonic lethality. Heterozygotes exhibit decreased prepulse inhibition.
- The knockout region is near to the N-terminal of *Ncln* gene and the C-terminal of *Gnal5* gene, this strategy may influence the regulatory function of the N-terminal of *Ncln* gene and the C-terminal of *Gnal5* gene.
- The *Slpr4* gene is located on the Chr13. 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)

S1pr4 sphingosine-1-phosphate receptor 4 [*Mus musculus* (house mouse)]

Gene ID: 13611, updated on 31-Jan-2019

Summary

- Official Symbol** S1pr4 provided by MGI
- Official Full Name** sphingosine-1-phosphate receptor 4 provided by MGI
- Primary source** [MGI:MGI:1333809](#)
- See related** [Ensembl:ENSMUSG00000044199](#)
- Gene type** protein coding
- RefSeq status** REVIEWED
- Organism** [Mus musculus](#)
- Lineage** Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
- Also known as** Edg6; Lpc1; S1p4
- Summary** This gene encodes a member of the G-protein coupled receptor 1 family. The encoded protein is a receptor for the lysophospholipid sphingosine 1-phosphate. The encoded protein is one of the predominant sphingosine 1-phosphate G-protein coupled receptors expressed in T cells, and it plays a role in suppression of T cell proliferation, generation of cytokines, and potentially other aspects of immune activation. [provided by RefSeq, Feb 2010]
- Orthologs** [human](#) [all](#)

Genomic context

Location: 10; 10 C1 See S1pr4 in [Genome Data Viewer](#)

Exon count: 1

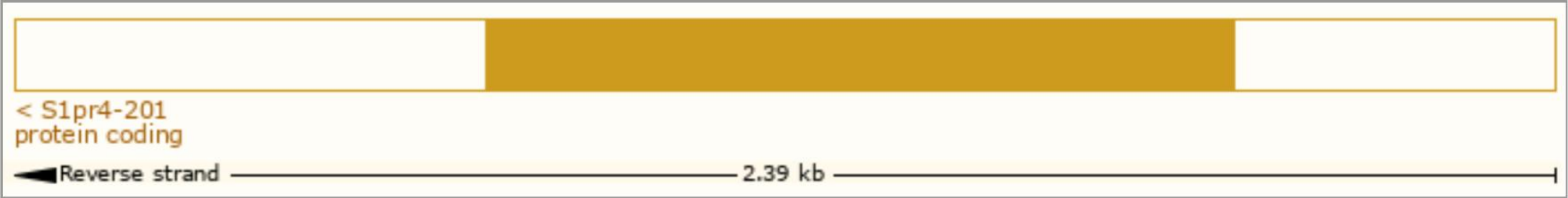
Annotation release	Status	Assembly	Chr	Location
106	current	GRCm38.p4 (GCF_000001635.24)	10	NC_000076.6 (81497745..81500137, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	10	NC_000076.5 (80960490..80962882, complement)

Transcript information (Ensembl)

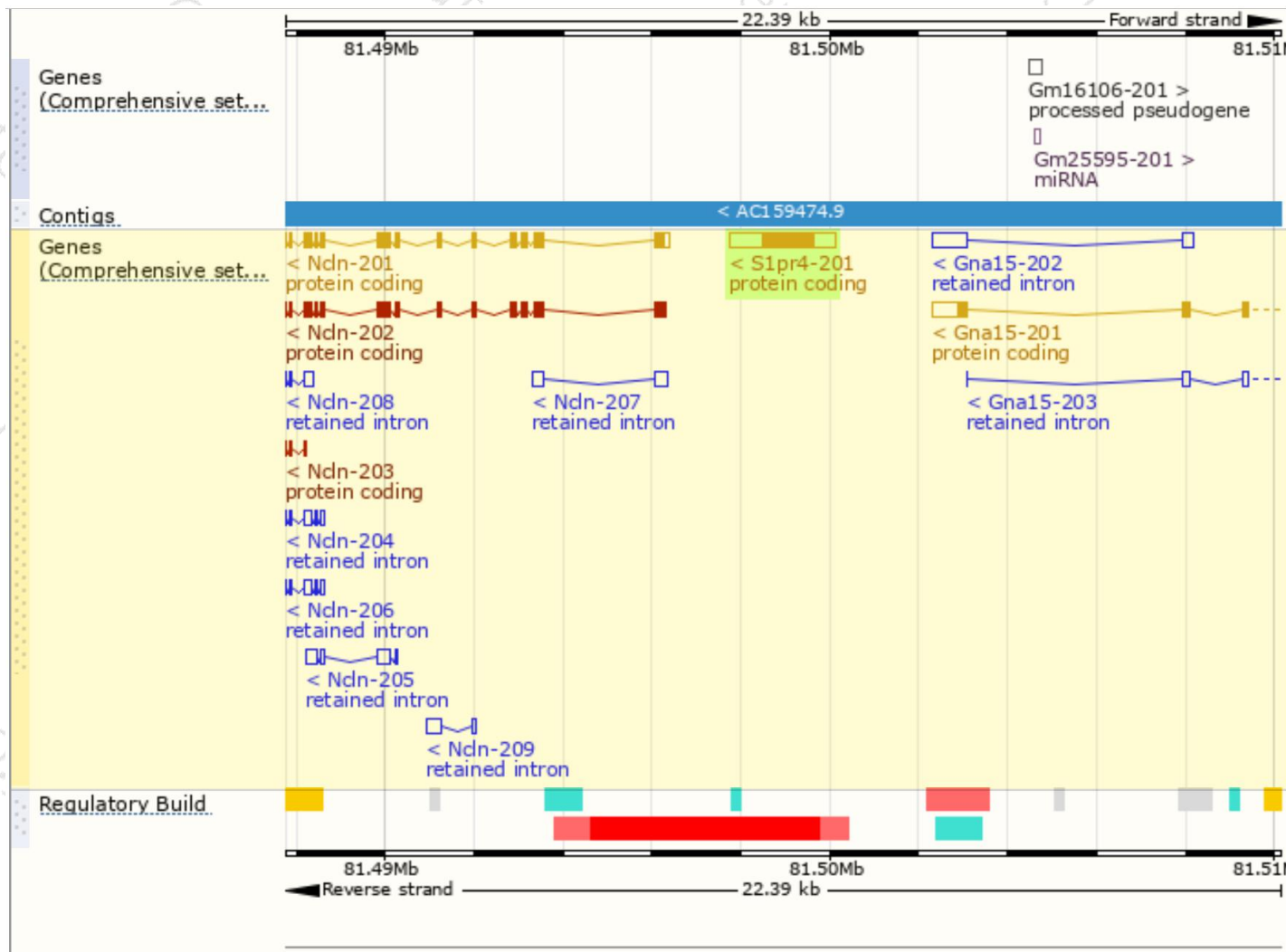
The gene has 1 transcript,and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
S1pr4-201	ENSMUST00000053646.6	2386	386aa	Protein coding	CCDS24059	Q9Z0L1	TSL:NA GENCODE basic APPRIS P1

The strategy is based on the design of *S1pr4-201* transcript,The transcription is shown below



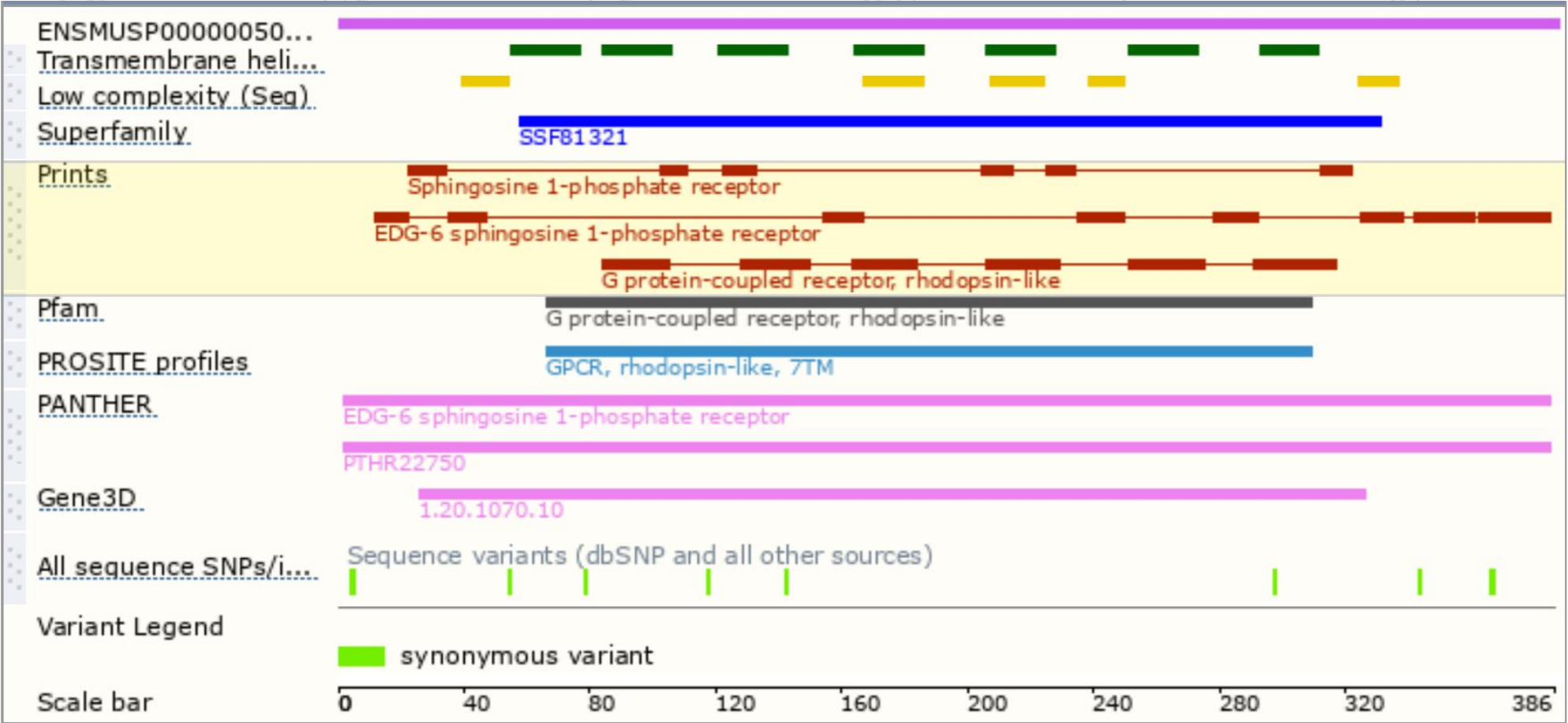
Genomic location distribution



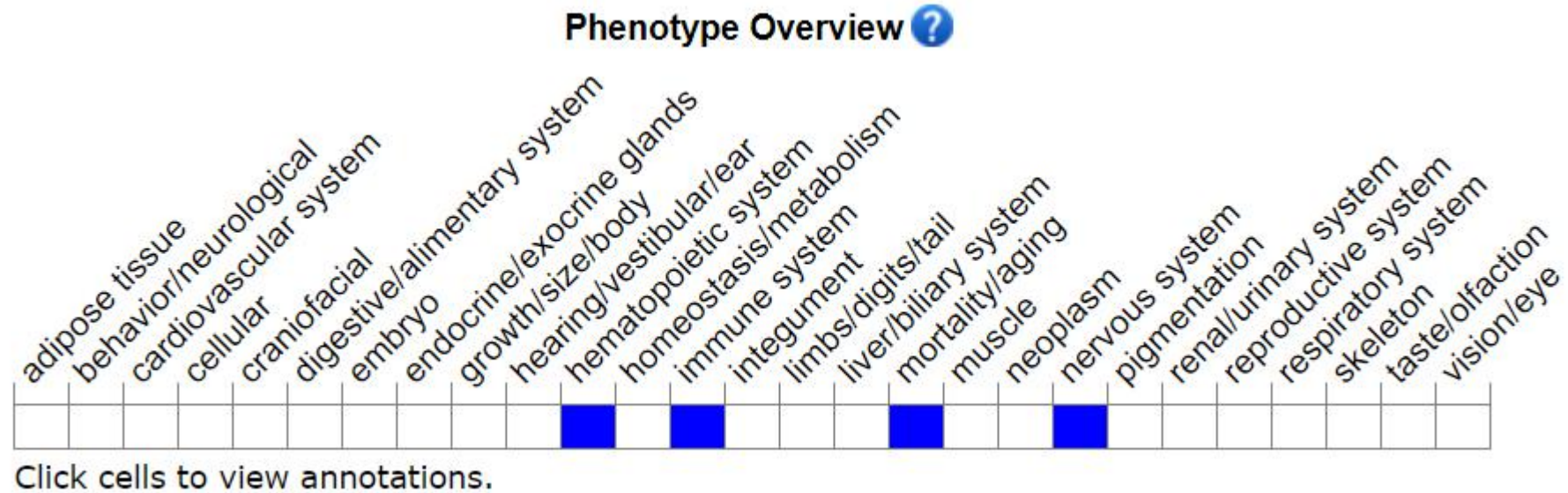
Protein domain



集萃药康
GemPharmatech



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

Homozygous mutation of this gene results in mid-gestation embryonic lethality. Heterozygotes exhibit decreased prepulse inhibition.

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

Tel: 400-9660890

