

Gpr83 Cas9-KO Strategy

Designer:

Ruirui Zhang

Reviewer

Huimin Su

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Project Overview

Project Name

Gpr83

Project type

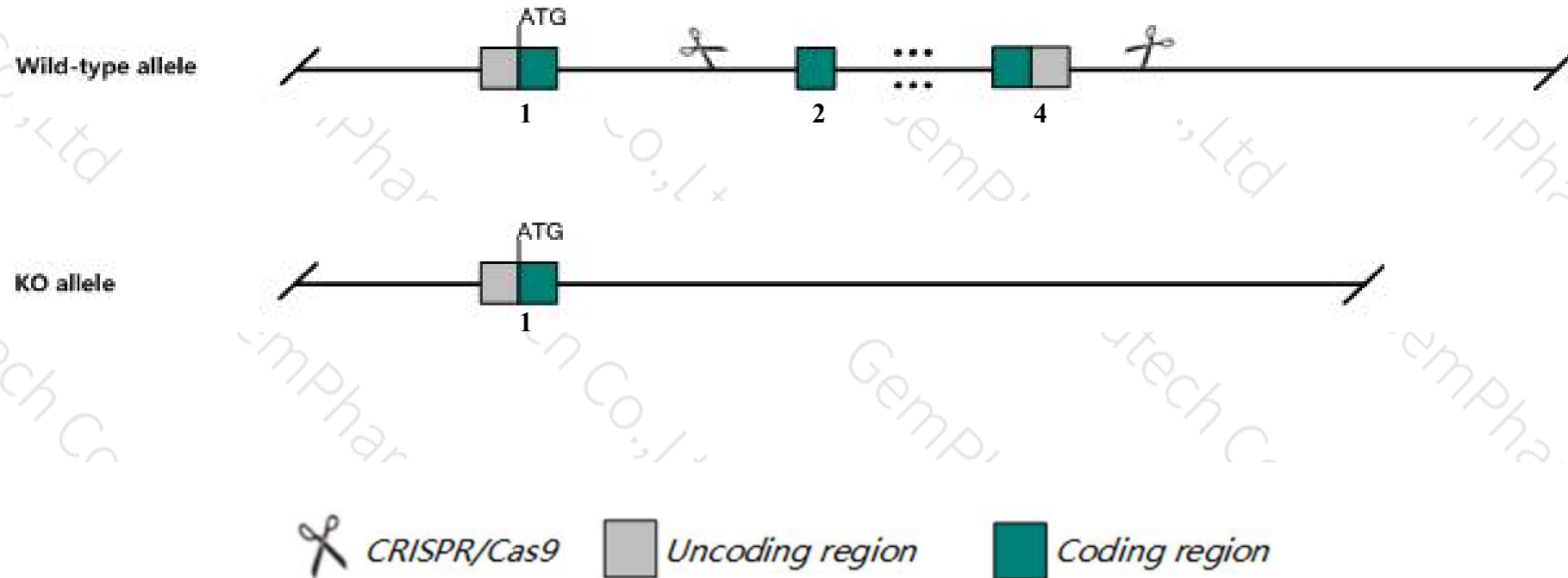
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gpr83* gene. The schematic diagram is as follows:



- The *Gpr83* gene has 3 transcripts. According to the structure of *Gpr83* gene, exon2-exon4 of *Gpr83-201* (ENSMUST00000034408.11) transcript is recommended as the knockout region. The region contains most 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 *Gpr83* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, mice homozygous for a null allele exhibit normal regulatory T cell development. Mice homozygous for a different targeted allele exhibit attenuated stress-evoked anxiety, increased sucrose preference and delayed spatial learning.
- The *Gpr83* gene is located on the Chr9. 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)

Gpr83 G protein-coupled receptor 83 [*Mus musculus* (house mouse)]

Gene ID: 14608, updated on 12-Aug-2019

Summary

Official Symbol	Gpr83 provided by MGI
Official Full Name	G protein-coupled receptor 83 provided by MGI
Primary source	MGI:MGI:95712
See related	Ensembl:ENSMUSG00000031932
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	Gir; RP39; RP82; Gpr72; RP105; AW045253
Expression	Biased expression in cortex adult (RPKM 4.8), frontal lobe adult (RPKM 3.6) and 11 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

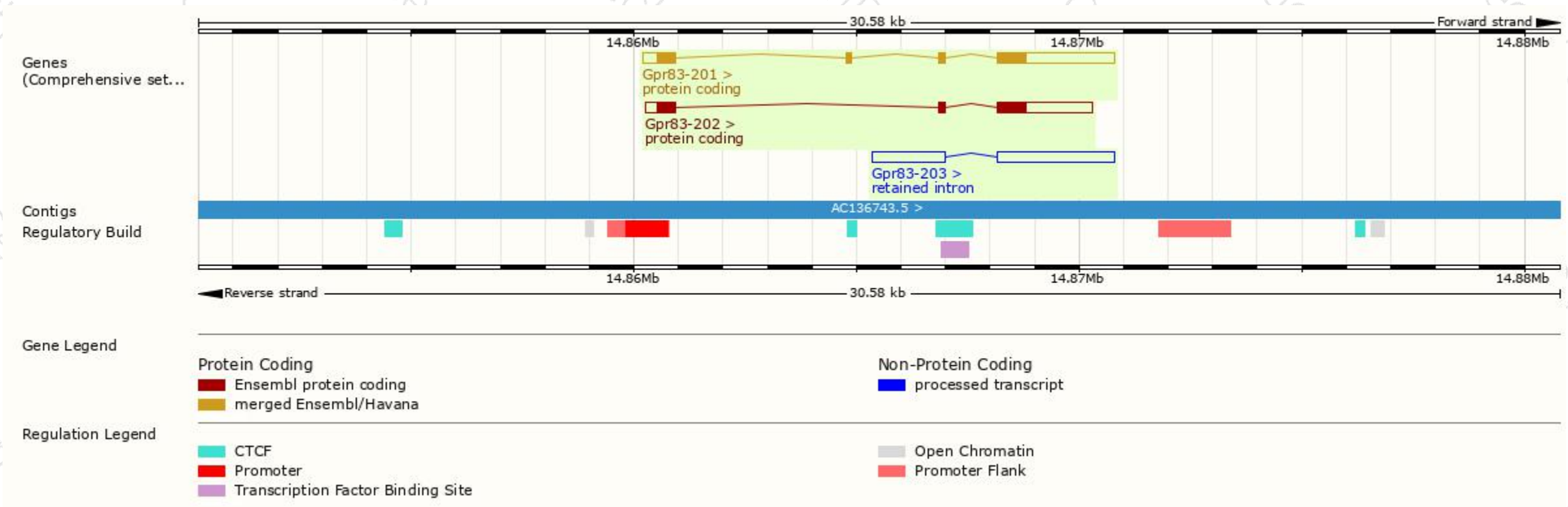
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gpr83-201	ENSMUST00000034408.11	3586	423aa	Protein coding	CCDS22829	P30731 Q542Q9	TSL:1 GENCODE basic APPRIS P1
Gpr83-202	ENSMUST00000115624.2	2937	381aa	Protein coding	CCDS80959	P30731 Q544C4	TSL:1 GENCODE basic
Gpr83-203	ENSMUST00000133278.1	4258	No protein	Retained intron	-	-	TSL:1

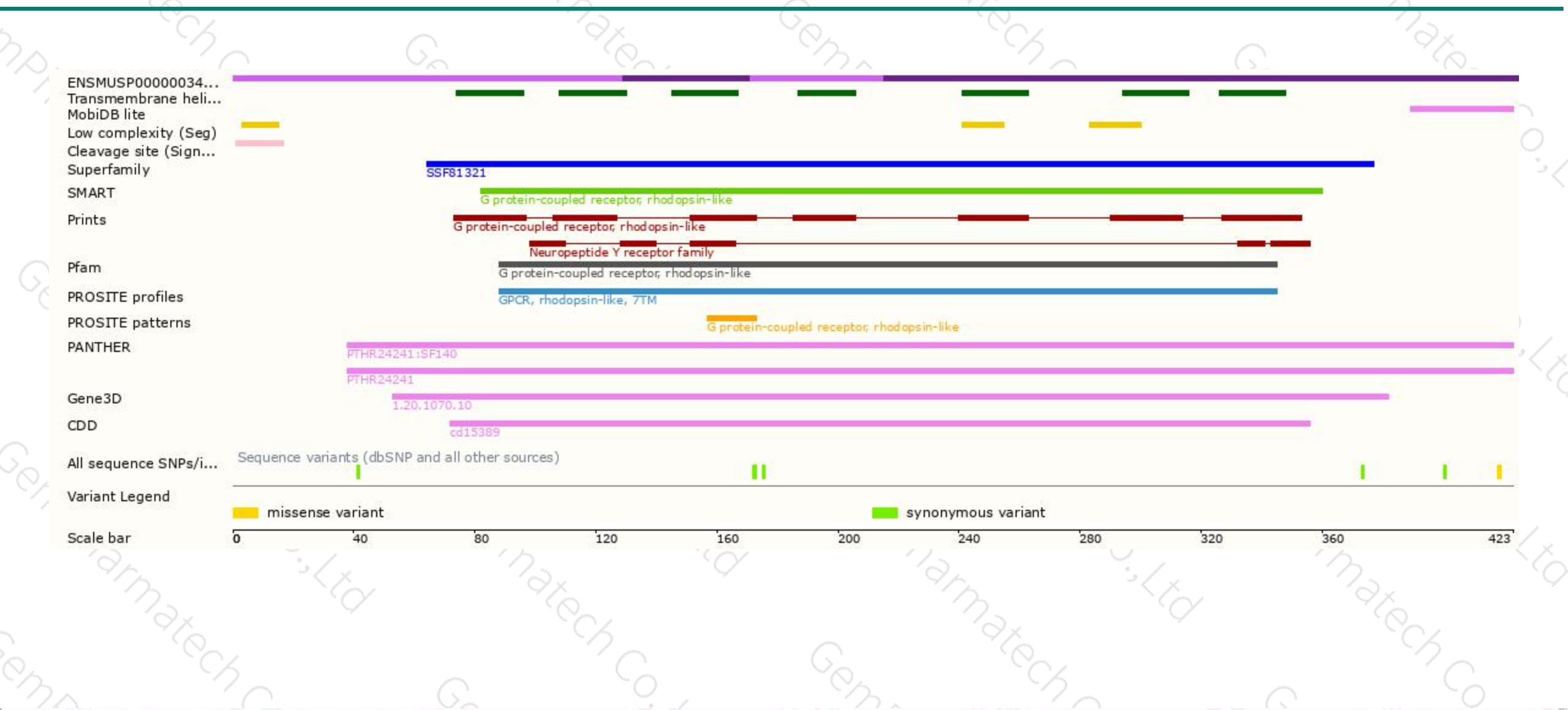
The strategy is based on the design of *Gpr83-201* transcript,The transcription is shown below



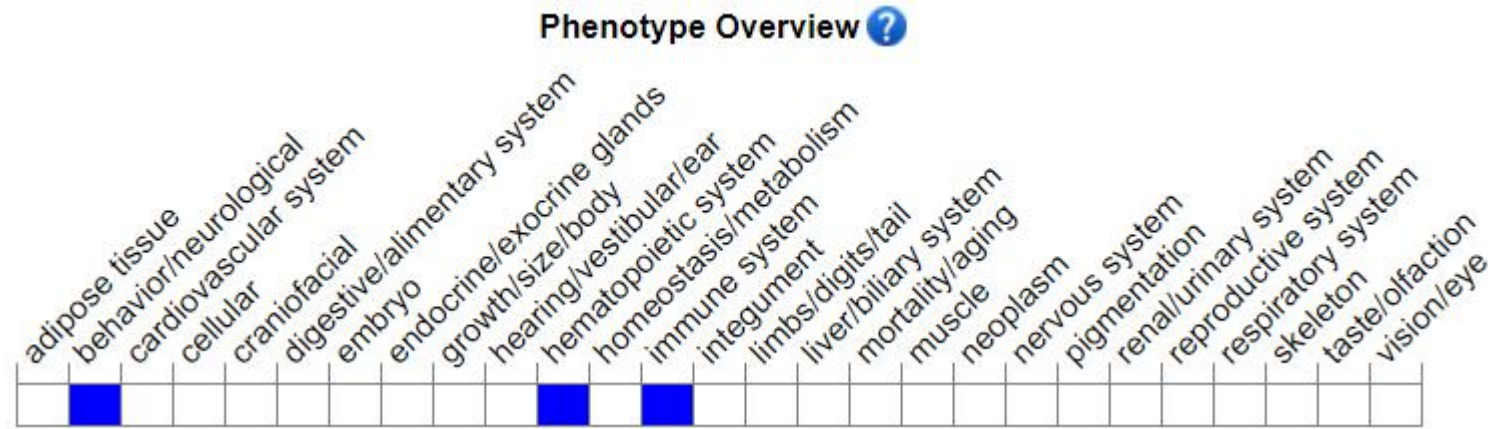
Genomic location distribution



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 normal regulatory T cell development. Mice homozygous for a different targeted allele exhibit attenuated stress-evoked anxiety, increased sucrose preference and delayed spatial learning.

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

Tel: 400-9660890

