

Gprc5c Cas9-KO Strategy

Designer: Xueting Zhang

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Project Overview

Project Name

Gprc5c

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gprc5c* gene. The schematic diagram is as follows:



- The *Gprc5c* gene has 8 transcripts. According to the structure of *Gprc5c* gene, exon2-exon4 of *Gprc5c-202* (ENSMUST00000053361.11) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Gprc5c* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a reporter allele are behaviorally normal but exhibit reticulocytosis, increased mean corpuscular volume, increased percentage of basophils, decreased mean corpuscular hemoglobin concentration, and increased alkaline phosphatase and lactic dehydrogenase levels.
- The *Gprc5c* 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)

Gprc5c G protein-coupled receptor, family C, group 5, member C [Mus musculus (house mouse)]

Gene ID: 70355, updated on 31-Jan-2019

Summary



Official Symbol	Gprc5c provided by MGI
Official Full Name	G protein-coupled receptor, family C, group 5, member C provided by MGI
Primary source	MGI:MGI:1917605
See related	Ensembl:ENSMUSG00000051043
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	1110028I06Rik, 3200002M13Rik, Raig3
Expression	Biased expression in kidney adult (RPKM 60.6), genital fat pad adult (RPKM 25.6) and 9 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

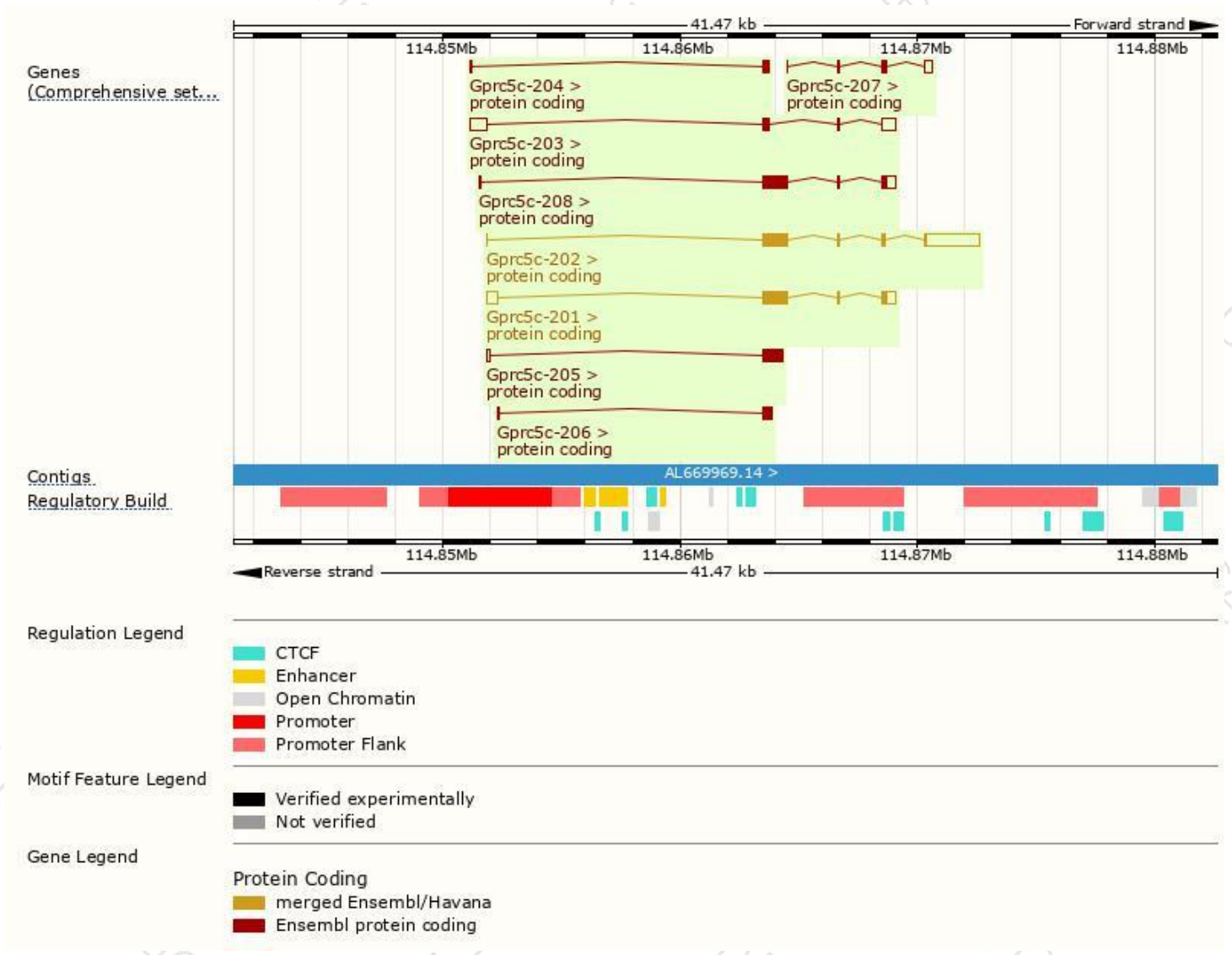
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gprc5c-202	ENSMUST00000053361.11	3667	441aa	Protein coding	CCDS48978	I7HPW4	TSL:1 GENCODE basic APPRIS ALT2
Gprc5c-201	ENSMUST00000021071.13	2200	440aa	Protein coding	CCDS25612	J3JS84	TSL:1 GENCODE basic APPRIS P3
Gprc5c-208	ENSMUST00000177952.7	1809	440aa	Protein coding	CCDS25612	J3JS84	TSL:1 GENCODE basic APPRIS P3
Gprc5c-203	ENSMUST00000122967.2	1709	104aa	Protein coding	-	E9PZP1	TSL:5 GENCODE basic
Gprc5c-205	ENSMUST00000136785.1	988	283aa	Protein coding	-	B7FAT8	CDS 3' incomplete TSL:3
Gprc5c-207	ENSMUST00000152314.1	645	109aa	Protein coding	-	B7FAT9	CDS 5' incomplete TSL:5
Gprc5c-206	ENSMUST00000142262.1	481	133aa	Protein coding	-	B7FAT7	CDS 3' incomplete TSL:5
Gprc5c-204	ENSMUST00000133245.1	359	78aa	Protein coding	-	B7FAU0	CDS 3' incomplete TSL:3

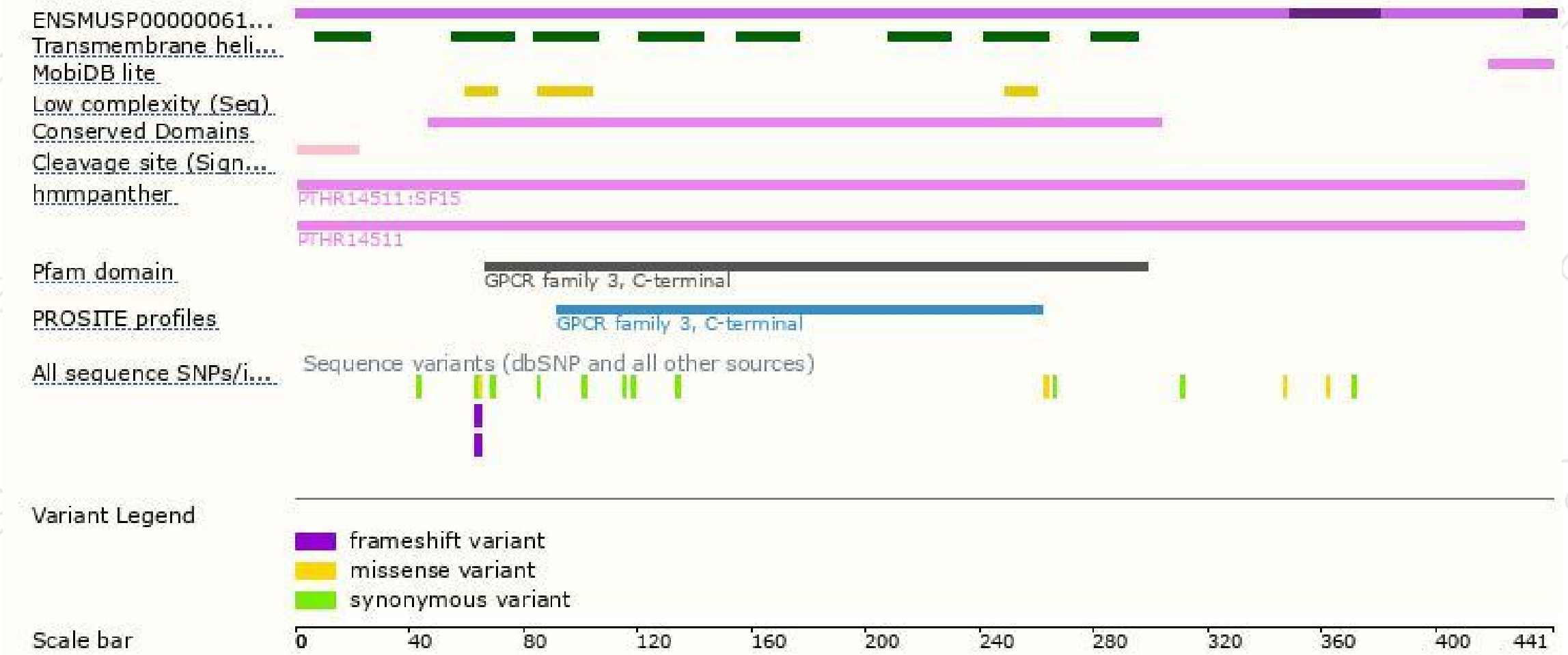
The strategy is based on the design of *Gprc5c-202* transcript,The transcription is shown below



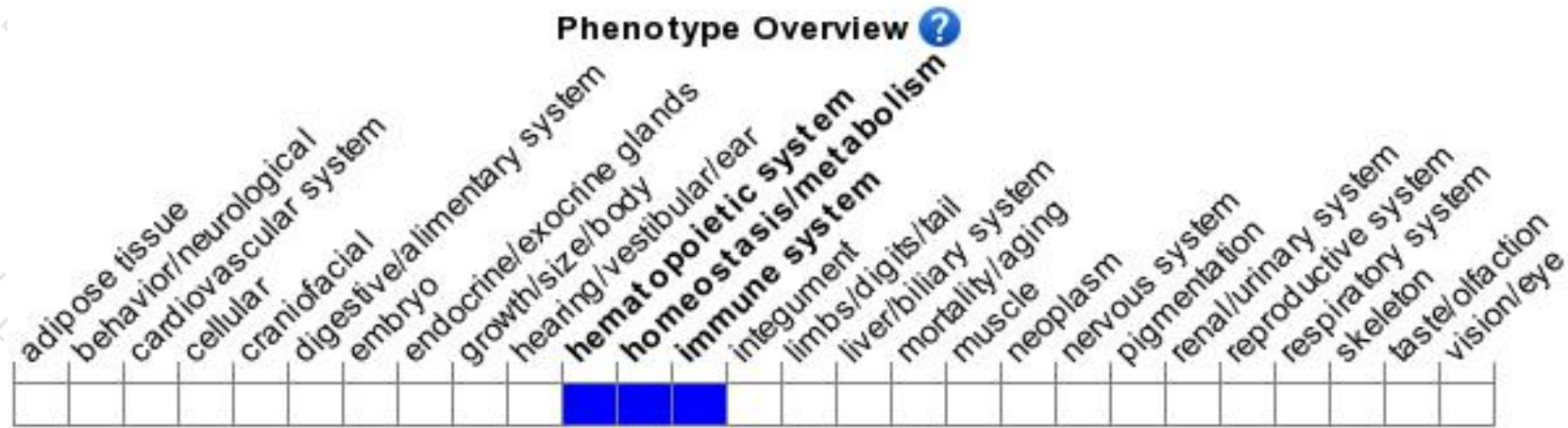
Genomic location distribution



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 reporter allele are behaviorally normal but exhibit reticulocytosis, increased mean corpuscular volume, increased percentage of basophils, decreased mean corpuscular hemoglobin concentration, and increased alkaline phosphatase and lactic dehydrogenase levels.

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

Tel: 400-9660890

