

Gpbar1 Cas9-KO Strategy

Designer:

Daohua Xu

Design Date:

2019-7-18

Project Overview

Project Name

Gpbar1

Project type

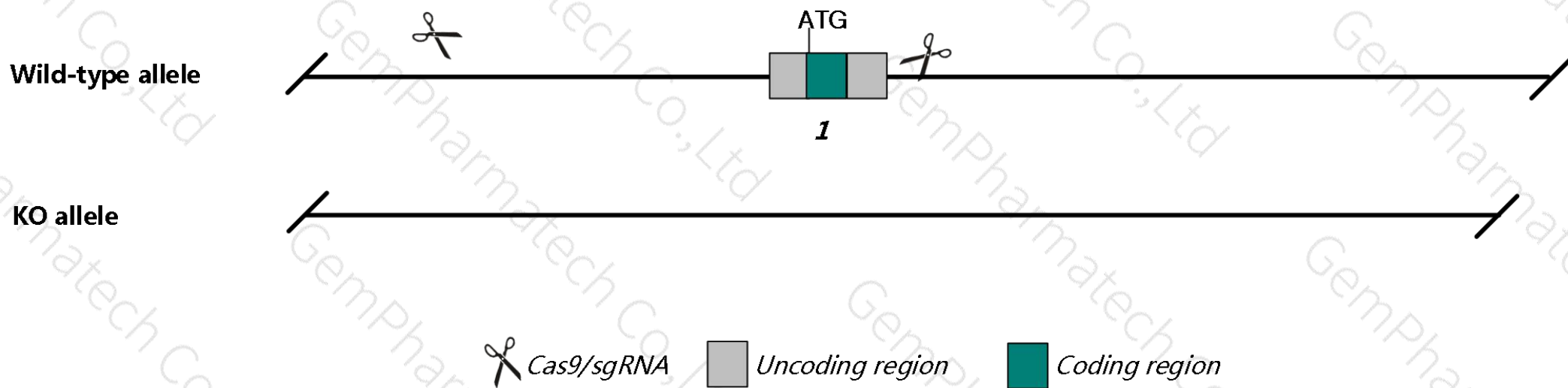
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gpbar1* gene. The schematic diagram is as follows:



Technical routes

- The *Gpbar1* gene has 1 transcript. According to the structure of *Gpbar1* gene, exon1 of *Gpbar1*-201 (ENSMUST00000077985.3) transcript is recommended as the knockout region. The region contains all coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Gpbar1* gene. The brief process is as follows: gRNA was transcribed in vitro, donor was constructed. Cas9, gRNA and Donor 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 , Mutations in this gene result in abnormal cholesterol, bile, and insulin homeostasis.
- The KO region contains functional region of the *Aamp* and *Gm28364* gene. Knockout the region may affect the function of *Aamp* and *Gm28364* gene.
- The *Gpbar1* gene is located on the Chr1. 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)

Gpbar1 G protein-coupled bile acid receptor 1 [*Mus musculus* (house mouse)]

Gene ID: 227289, updated on 25-Sep-2018

Summary

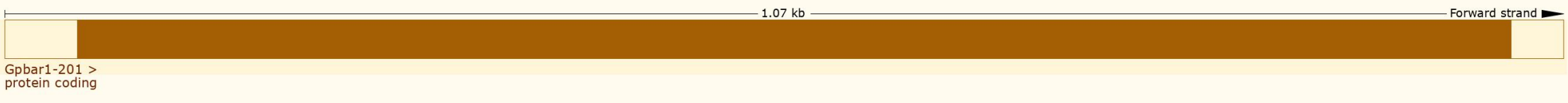
Official Symbol	Gpbar1 provided by MGI
Official Full Name	G protein-coupled bile acid receptor 1 provided by MGI
Primary source	MGI:MGI:2653863
See related	Ensembl:ENSMUSG000000064272 Vega:OTTMUSG000000047666
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	BG37; GPCR; TGR5; M-BAR; GPR131
Orthologs	human all

Transcript information (Ensembl)

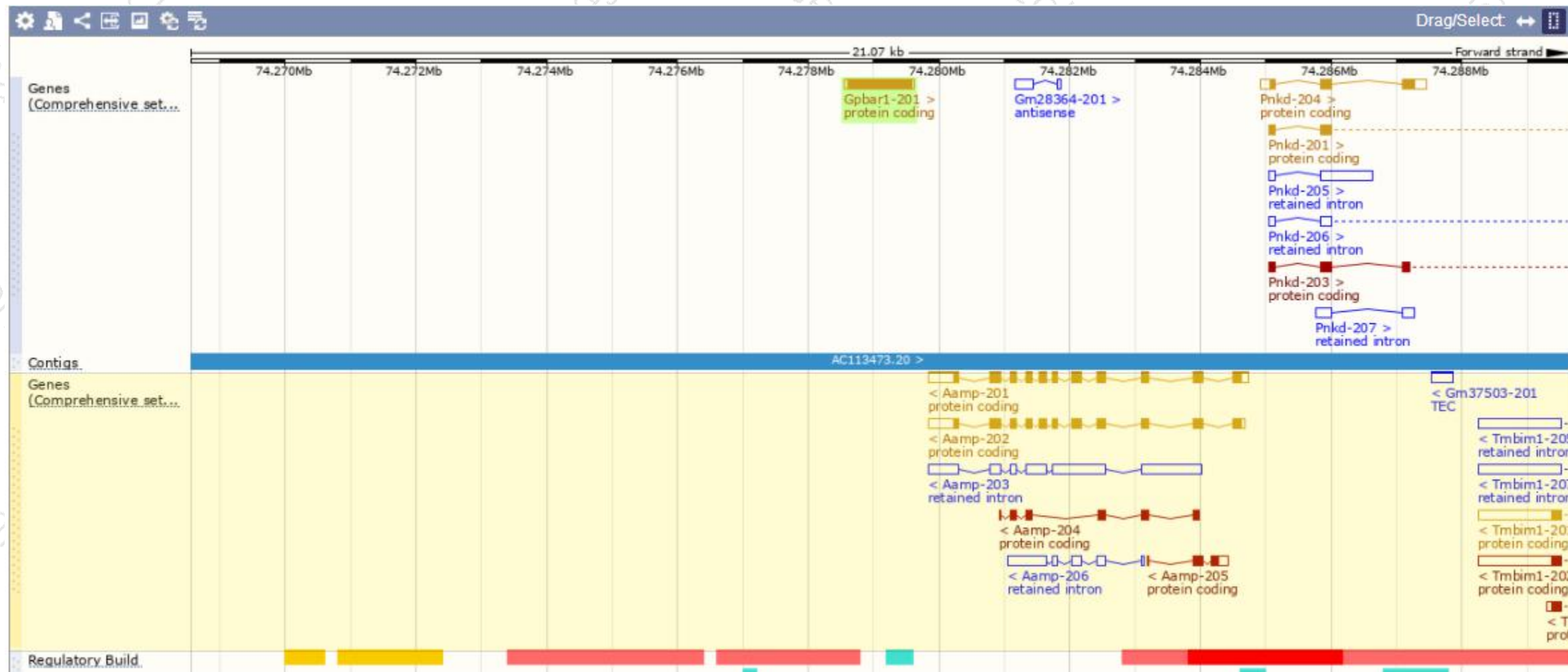
The gene has 1 transcript, and the transcript is shown below:

Show/hide columns (1 hidden)								Filter		
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags		
Gpbar1-201	ENSMUST00000077985.3	1075	329aa	Protein coding	CCDS15042	Q14AA9 Q80SS6	NM_174985 NP_778150	TSL:NA	GENCODE basic	APPRIS P1

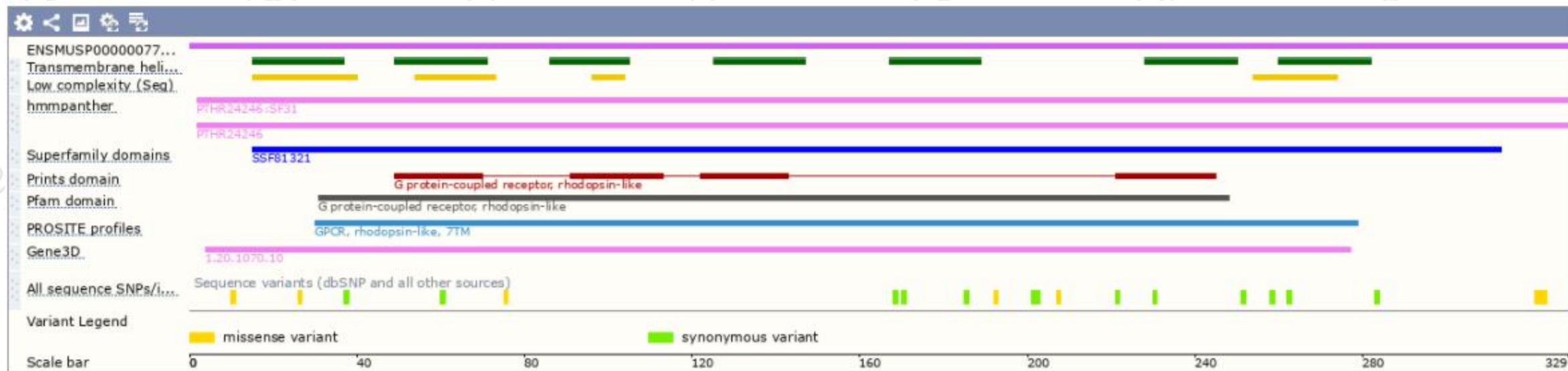
The strategy is based on the design of *Gpbar1*-201 transcript, The transcription is shown below



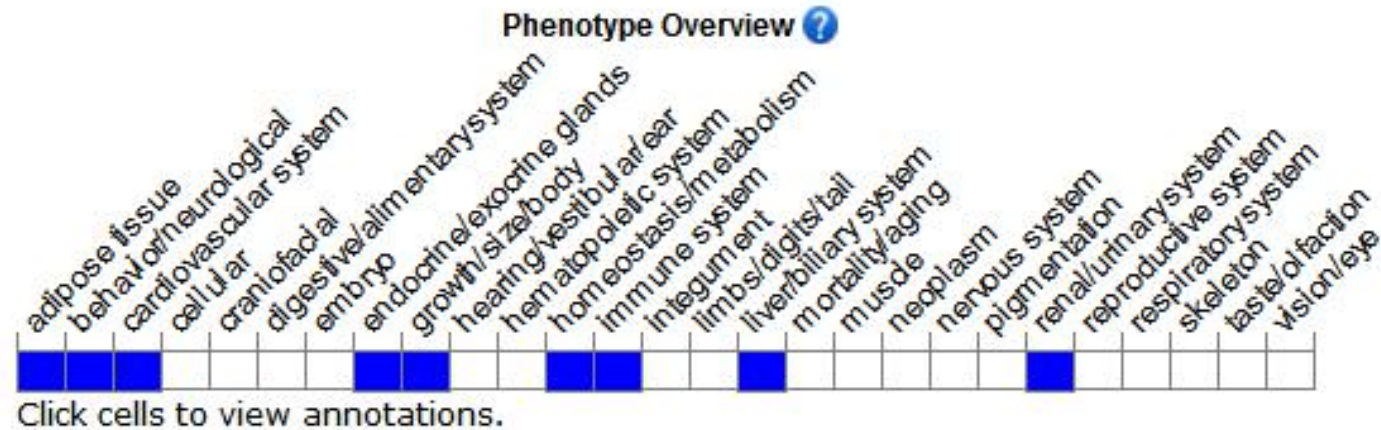
Genomic location distribution



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, Mutations in this gene result in abnormal cholesterol, bile, and insulin homeostasis.

If you have any questions, you are welcome to inquire.
Tel: 400-9660890



集萃药康生物科技
GemPharmatech Co.,Ltd

