

Gpr135 Cas9-CKO Strategy

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Overview

Target Gene Name

- Gpr135

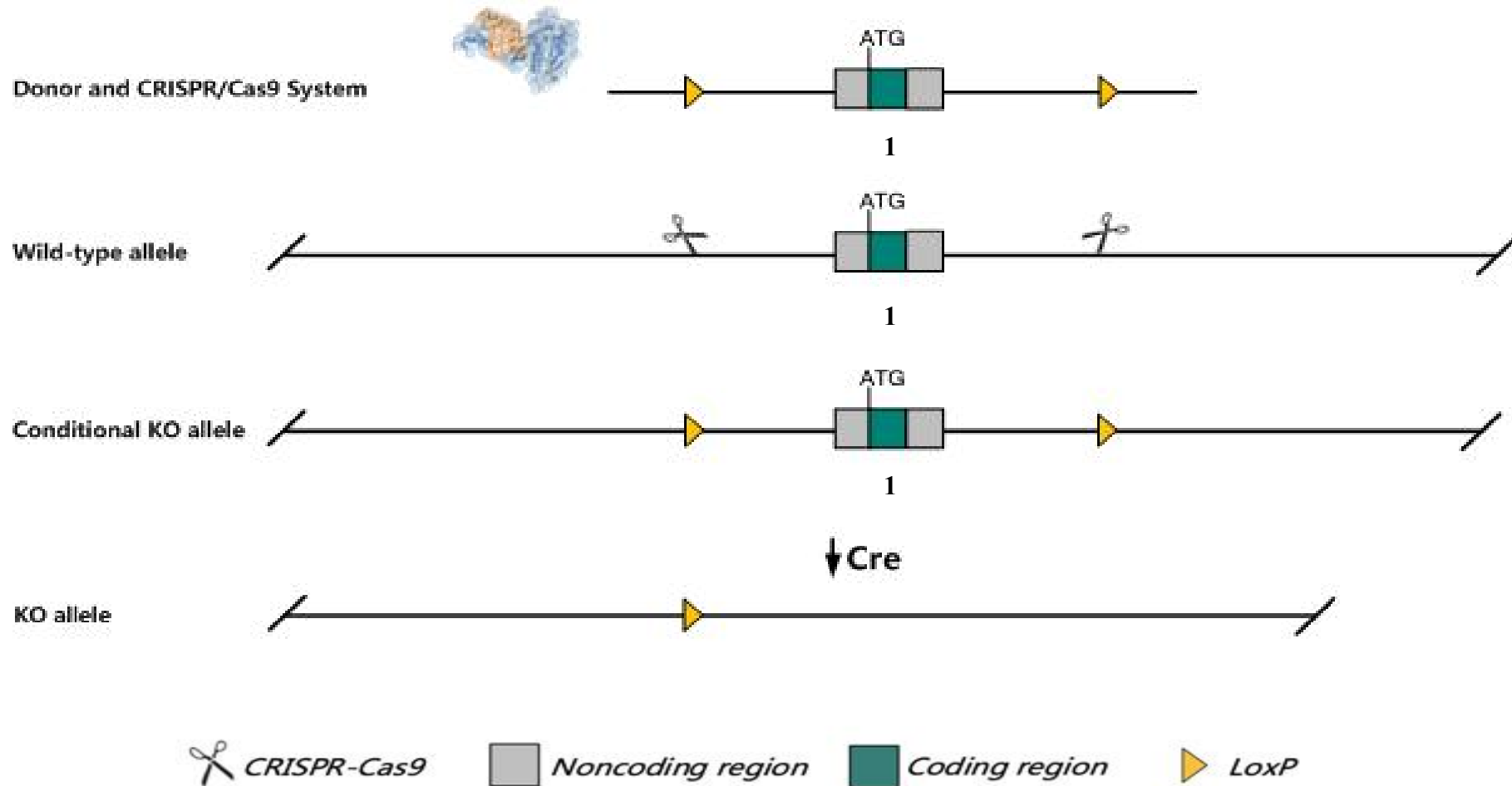
Project Type

- Cas9-CKO

Genetic Background

- C57BL/6JGpt

Strain Strategy



Schematic representation of CRISPR-Cas9 engineering used to edit the *Gpr135* gene.

Technical Information

- The *Gpr135* gene has 1 transcript. According to the structure of *Gpr135* gene, exon1 of *Gpr135*-201 (ENSMUST00000050649.6) transcript is recommended as the knockout region. The region contains all of the coding sequence. Knocking out the region will result in disruption of protein function.
- In this project we use CRISPR-Cas9 technology to modify *Gpr135* gene. The brief process is as follows: CRISPR-Cas9 system 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 on-target amplicon sequencing. A stable F1-generation mouse strain was obtained by mating positive F0-generation mice with C57BL/6JGpt mice and confirmation of the desired mutant allele was carried out by PCR and on-target amplicon sequencing.
- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

Gene Information

Gpr135 G protein-coupled receptor 135 [Mus musculus (house mouse)]

Gene ID: 238252, updated on 12-Apr-2023

Summary

Official Symbol Gpr135 provided by [MGI](#)

Official Full Name G protein-coupled receptor 135 provided by [MGI](#)

Primary source [MGI:MGI:2676315](#)

See related [Ensembl:ENSMUSG00000043398](#)

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 PAFR

Summary Predicted to enable G protein-coupled receptor activity and arrestin family protein binding activity. Predicted to be involved in G protein-coupled receptor signaling pathway. Predicted to act upstream of or within signal transduction. Predicted to be located in membrane. Predicted to be integral component of membrane. Predicted to be active in endosome and plasma membrane. Orthologous to human GPR135 (G protein-coupled receptor 135). [provided by Alliance of Genome Resources, Apr 2022]

Orthologs [human](#) [all](#)

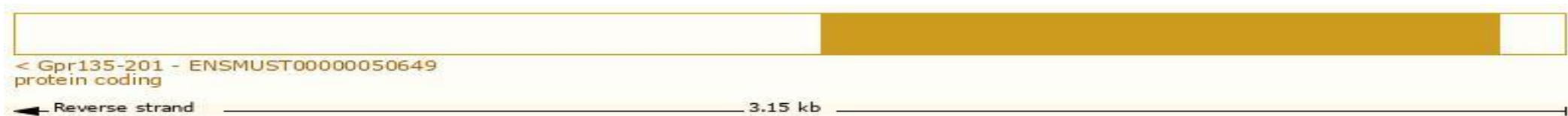
Source: <https://www.ncbi.nlm.nih.gov/>

Transcript Information

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

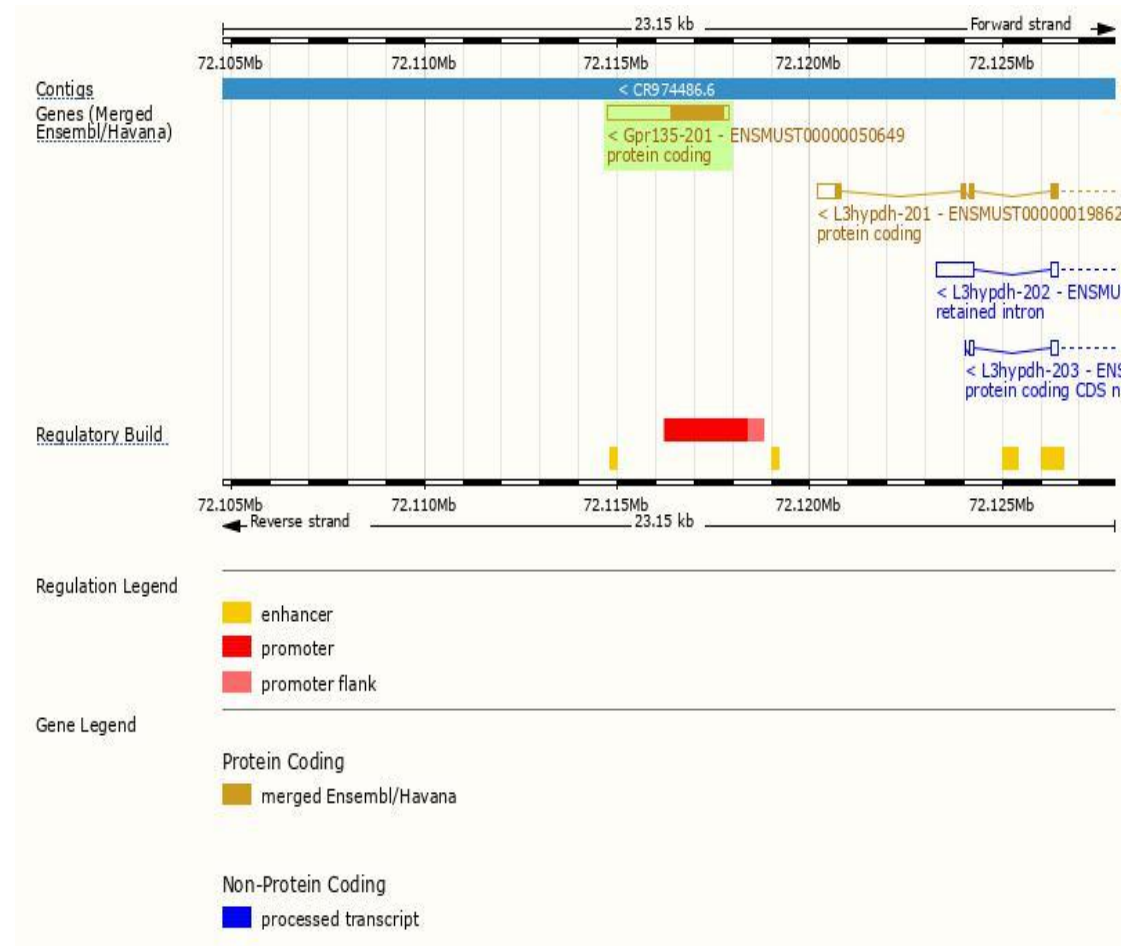
| Show/hide columns (1 hidden) | | | | | | | Filter | |
|--------------------------------------|------------|------|-----------------------|----------------|---------------------------|---|-----------------------------------|--|
| Transcript ID | Name | bp | Protein | Biotype | CCDS | UniProt Match | Flags | |
| ENSMUST00000050649.6 | Gpr135-201 | 3150 | 457aa | Protein coding | CCDS25965 | A7E1Z8 Q7TQP2 | Ensembl Canonical | GENCODE basic APPRIS P1 TSL:NA |

The strategy is based on the design of *Gpr135-201* transcript, the transcription is shown below:

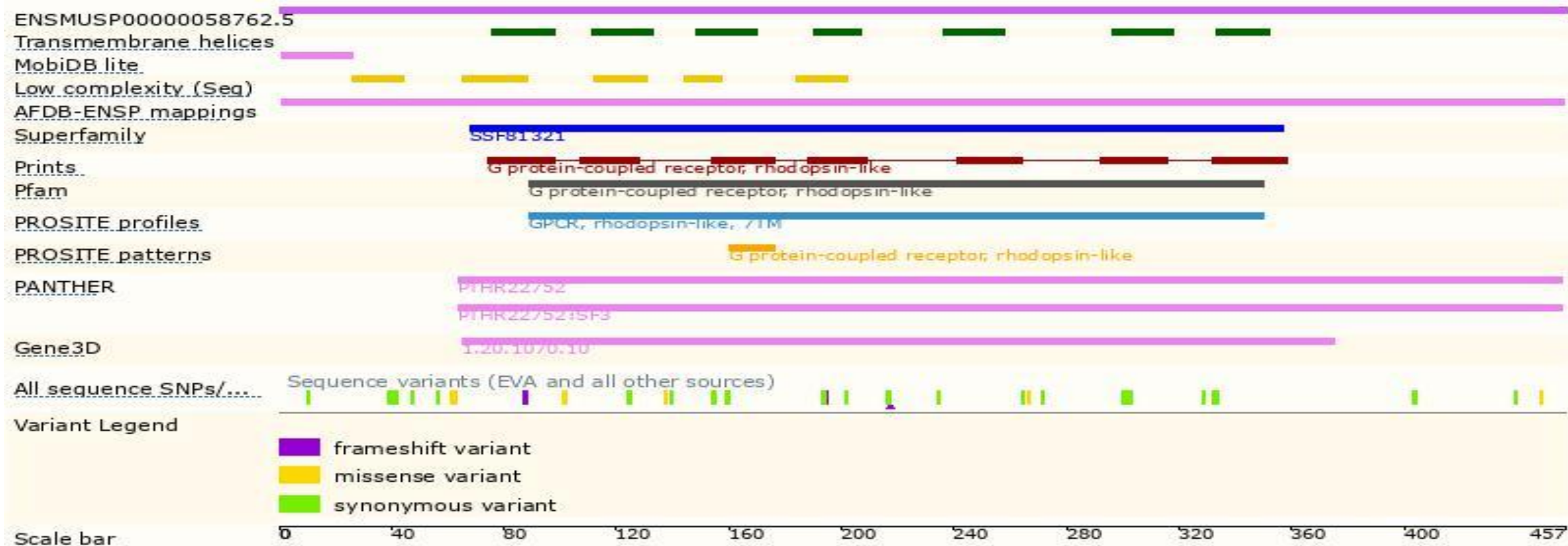


Source: <https://www.ensembl.org>

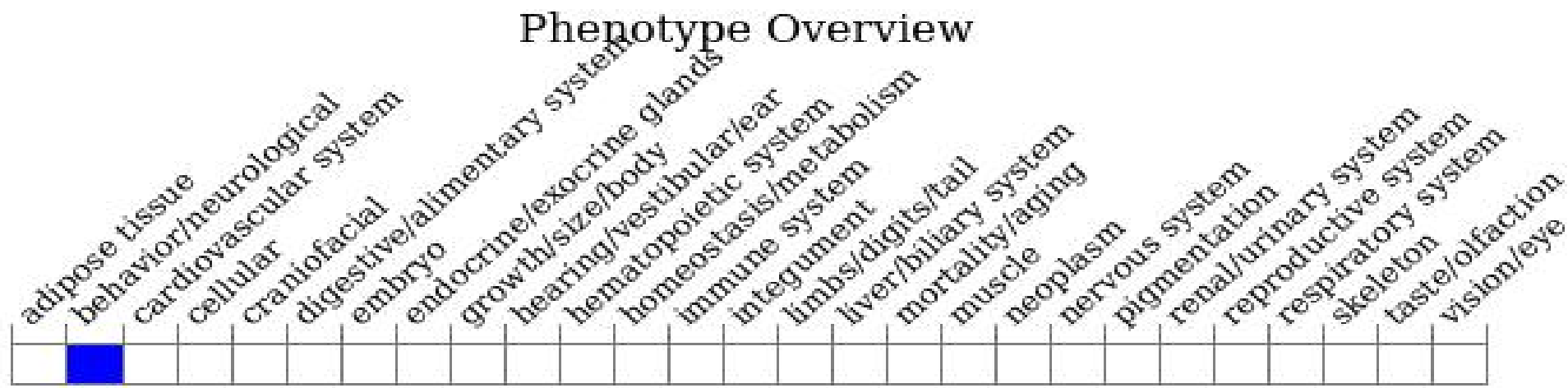
Genomic Information



Protein Information



Mouse Phenotype Information (MGI)



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Important Information

- The floxed region is near to the C-terminal of *L3hypdh* gene, this strategy may influence the regulatory function of the C-terminal of *L3hypdh* gene.
- This strategy may influence the regulatory function of the N-terminal of *Gpr135* gene.
- *Gpr135* is located on Chr12. If the knockout mice are crossed with other mouse strains to obtain double homozygous mutant offspring, please avoid the situation that the second gene is 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.