

Glp1r Cas9-KO Strategy

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Project Overview

Project Name

Glp1r

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Glp1r* gene. The schematic diagram is as follows:



- The *Glp1r* gene has 2 transcripts. According to the structure of *Glp1r* gene, exon2-exon3 of *Glp1r-201* (ENSMUST00000114574.2) transcript is recommended as the knockout region. The region contains 205bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Glp1r* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Glucose tolerance and pancreatic secretion is impaired in homozygous null mice.
- The *Glp1r* gene is located on the Chr17. 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)

Glp1r glucagon-like peptide 1 receptor [Mus musculus (house mouse)]

Gene ID: 14652, updated on 9-Apr-2019

Summary



Official Symbol	Glp1r provided by MGI
Official Full Name	glucagon-like peptide 1 receptor provided by MGI
Primary source	MGI:MGI:99571
See related	Ensembl:ENSMUSG00000024027
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	GLP-1R, GLP1Rc
Expression	Biased expression in lung adult (RPKM 40.4), duodenum adult (RPKM 18.2) and 3 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

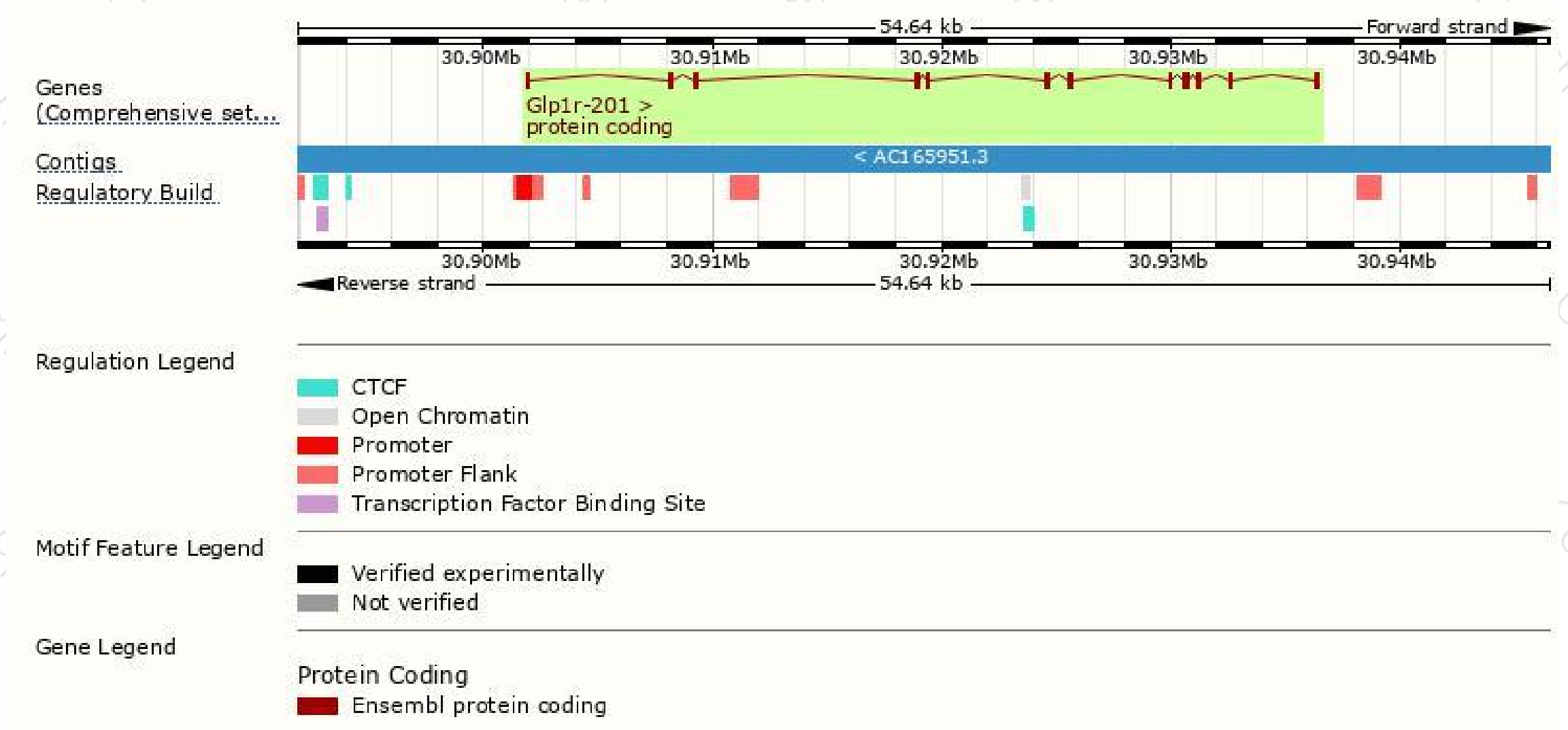
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Glp1r-201	ENSMUST00000114574.2	5811	463aa	Protein coding	CCDS37542	O35659	TSL:1 Gencode basic APPRIS P1
Glp1r-202	ENSMUST00000236038.1	2376	463aa	Nonsense mediated decay	CCDS37542	-	-

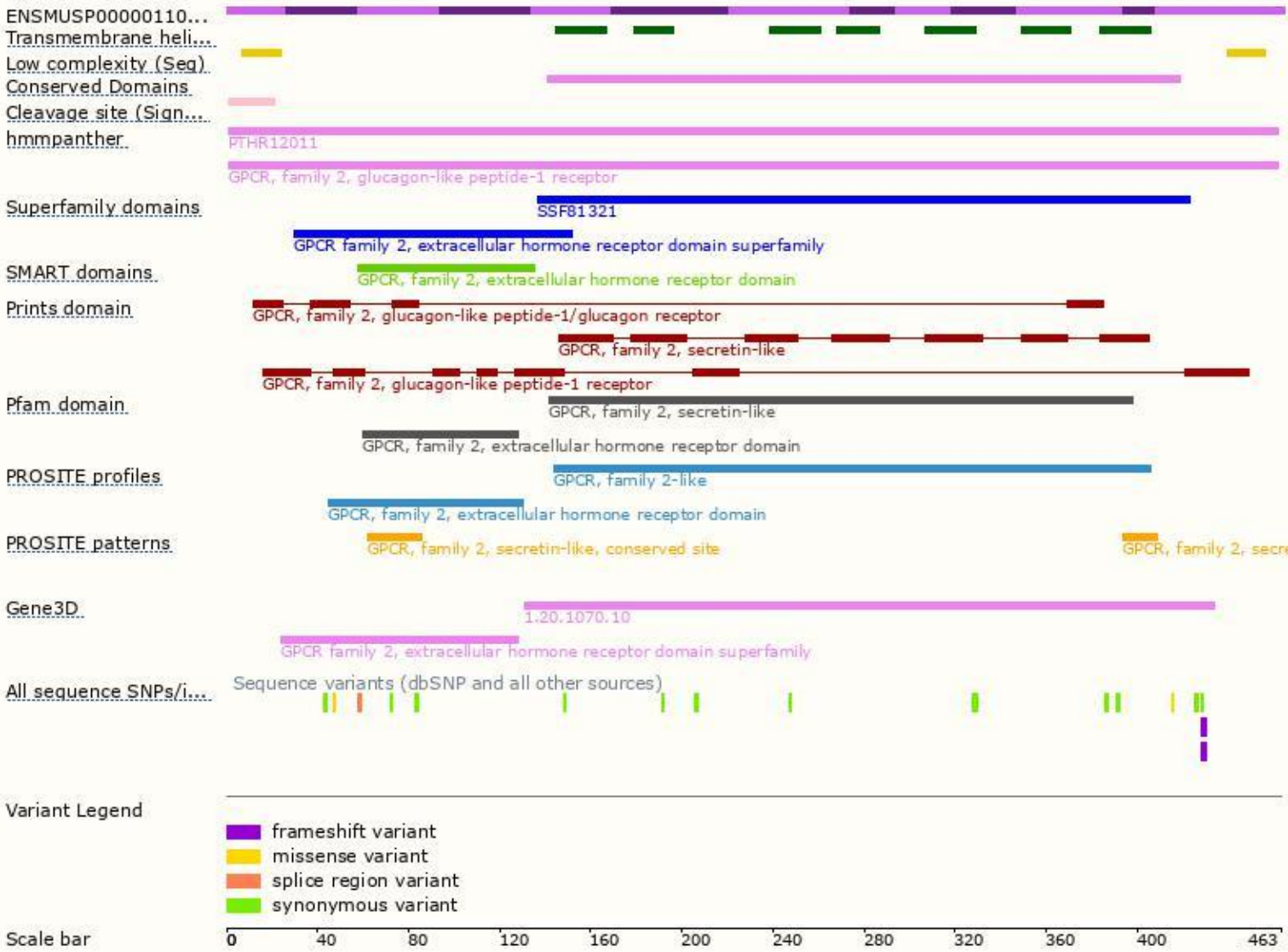
The strategy is based on the design of *Glp1r-201* transcript,The transcription is shown below



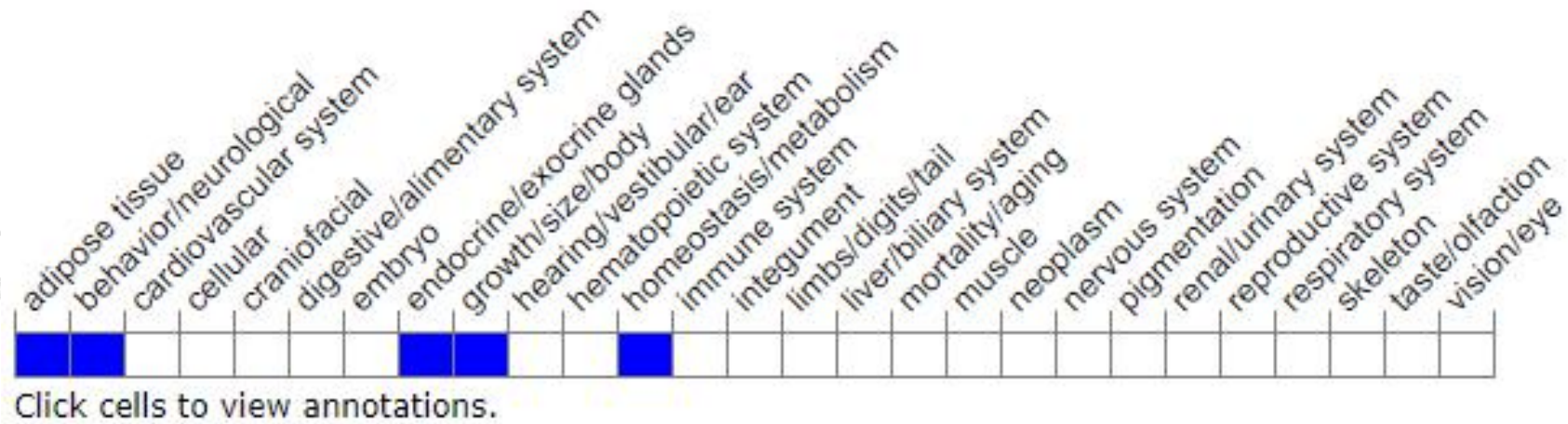
Genomic location distribution



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, Glucose tolerance and pancreatic secretion is impaired in homozygous null mice.

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

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