GemPharmatech™

Glis1 Cas9-CKO Strategy

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Overview

Target Gene Name

- Glis1

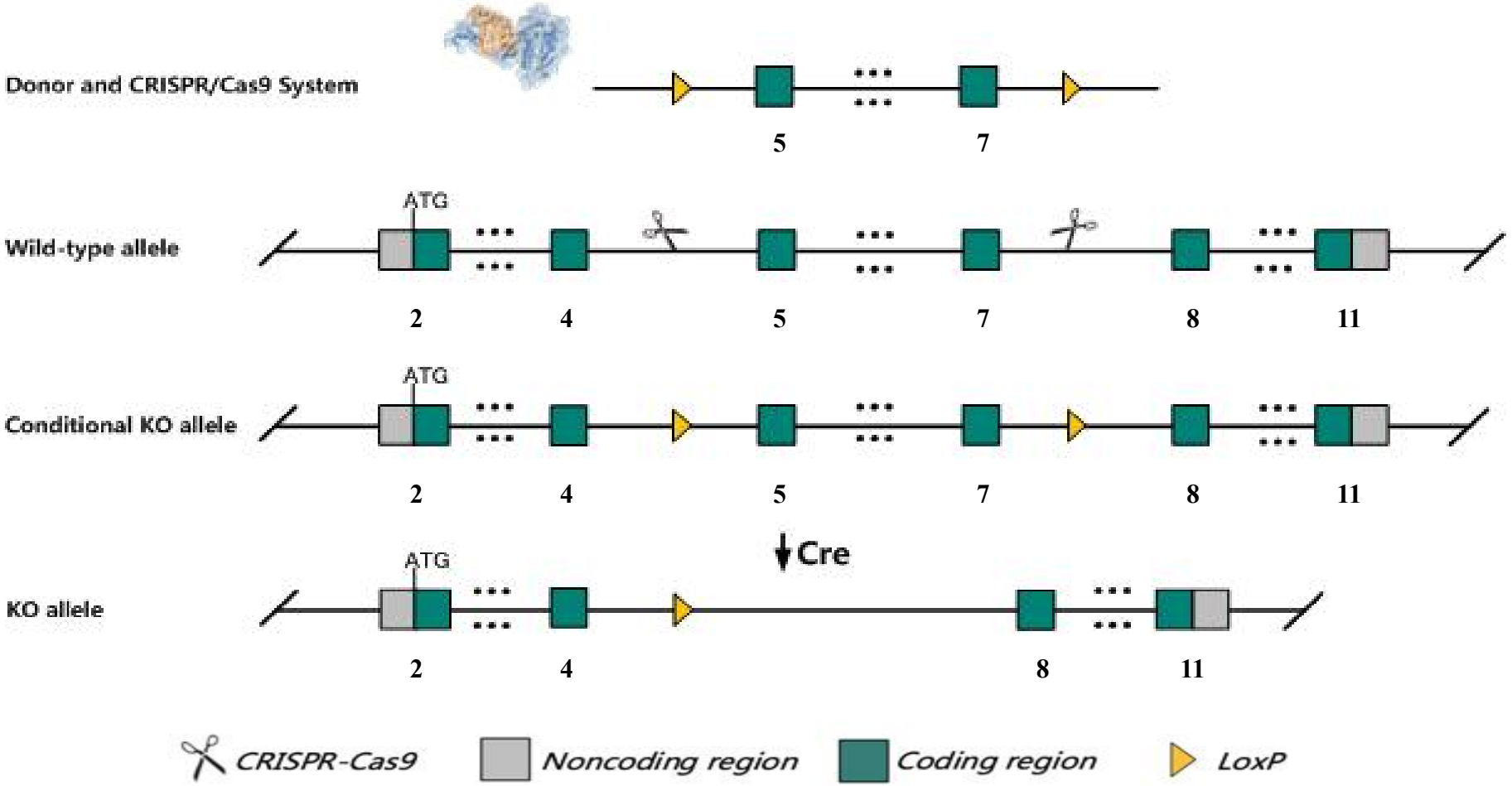
Project Type

- Cas9-CKO

Genetic Background

- C57BL/6JGpt

Strain Strategy



Schematic representation of CRISPR-Cas9 engineering used to edit the *Glis1* gene.

Technical Information

- The *Glis1* gene has 6 transcripts. According to the structure of *Glis1* gene, exon5-exon7 of *Glis1*-201 (ENSMUST00000046005.9) transcript is recommended as the knockout region. The region contains 406bp coding sequence. Knocking out the region will result in disruption of protein function.
- In this project we use CRISPR-Cas9 technology to modify *Glis1* 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

Glis1 GLIS family zinc finger 1 [*Mus musculus* (house mouse)]

Download Datasets

Gene ID: 230587, updated on 3-May-2025

Summary

Official Symbol	Glis1 provided by MGI
Official Full Name	GLIS family zinc finger 1 provided by MGI
Primary source	MGI:MGI:2386723
See related	Ensembl:ENSMUSG00000034762 AllianceGenome:MGI:2386723
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	Gli5; Gli6; GliH1
Summary	Enables DNA-binding transcription activator activity, RNA polymerase II-specific; DNA-binding transcription repressor activity, RNA polymerase II-specific; and RNA polymerase II transcription regulatory region sequence-specific DNA binding activity. Involved in several processes, including fat cell differentiation; osteoblast differentiation; and regulation of transcription by RNA polymerase II. Acts upstream of or within positive regulation of DNA-templated transcription and regulation of transcription by RNA polymerase II. Located in nucleus. Is expressed in several structures, including embryo mesenchyme; genitourinary system; heart and pericardium; sensory organ; and skin. Orthologous to human GLIS1 (GLIS family zinc finger 1). [provided by Alliance of Genome Resources, May 2025]
Expression	Biased expression in kidney adult (RPKM 4.5), limb E14.5 (RPKM 2.5) and 12 other tissues See more
Orthologs	human all

NEW **Try the new Gene table**
Try the new Transcript table

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

Transcript Information

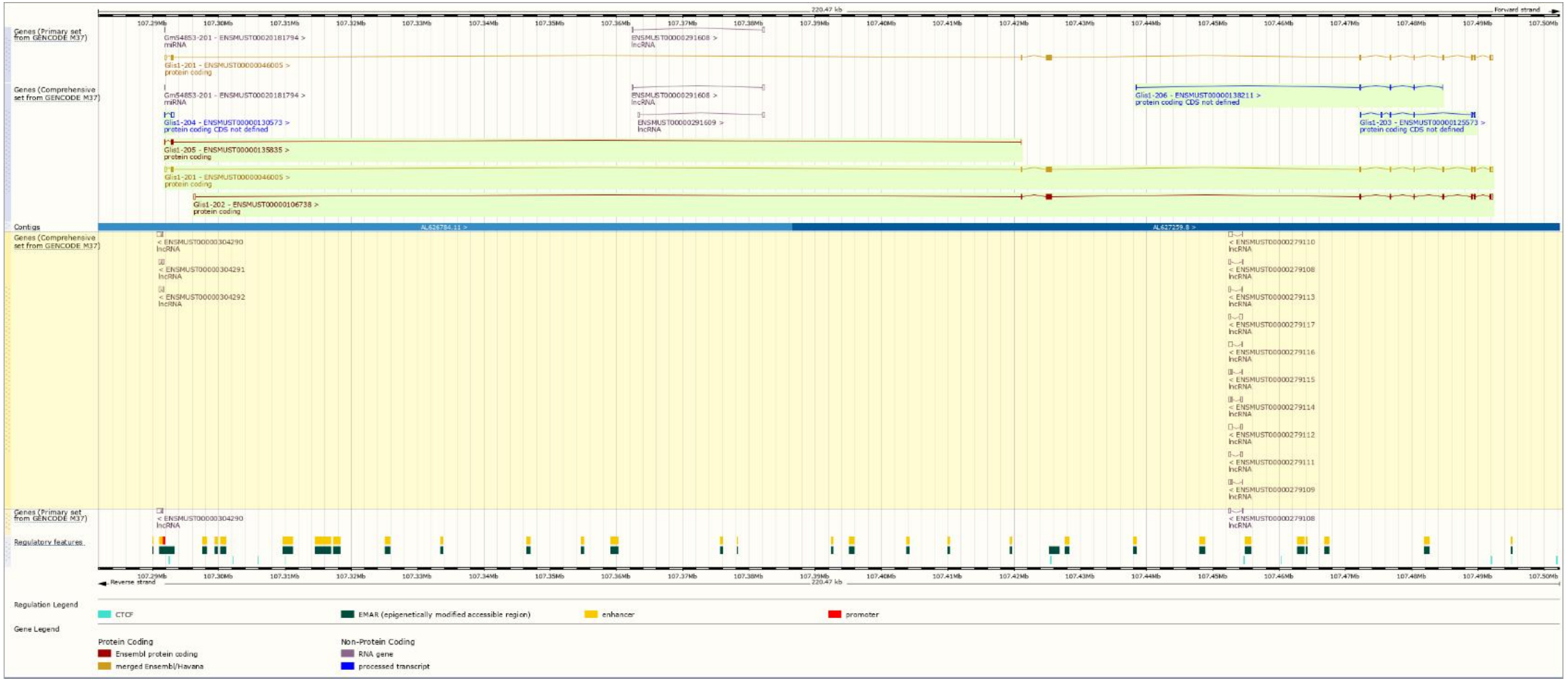
The gene has 6 transcripts,all transcripts are shown below:

Transcript ID	Name	bp	Protein	Biotype	CCDS	UniProt Match	Flags
ENSMUST00000046005.9	Glis1-201	2906	789aa	Protein coding	CCDS38831	Q8K1M4-1	Ensembl Canonical GENCODE Primary GENCODE Basic APPRIS P2 TSL:1
ENSMUST00000106738.2	Glis1-202	2744	601aa	Protein coding		B1ASP5	GENCODE Basic APPRIS ALT2 TSL:5
ENSMUST00000135835.8	Glis1-205	432	104aa	Protein coding		A2A8S0	TSL:3 CDS 3' incomplete
ENSMUST00000125573.2	Glis1-203	852	No protein	Protein coding CDS not defined		-	TSL:3
ENSMUST00000130573.2	Glis1-204	501	No protein	Protein coding CDS not defined		-	TSL:1
ENSMUST00000138211.8	Glis1-206	470	No protein	Protein coding CDS not defined		-	TSL:5

The strategy is based on the design of *Glis1*-201 transcript, the transcription is shown below:

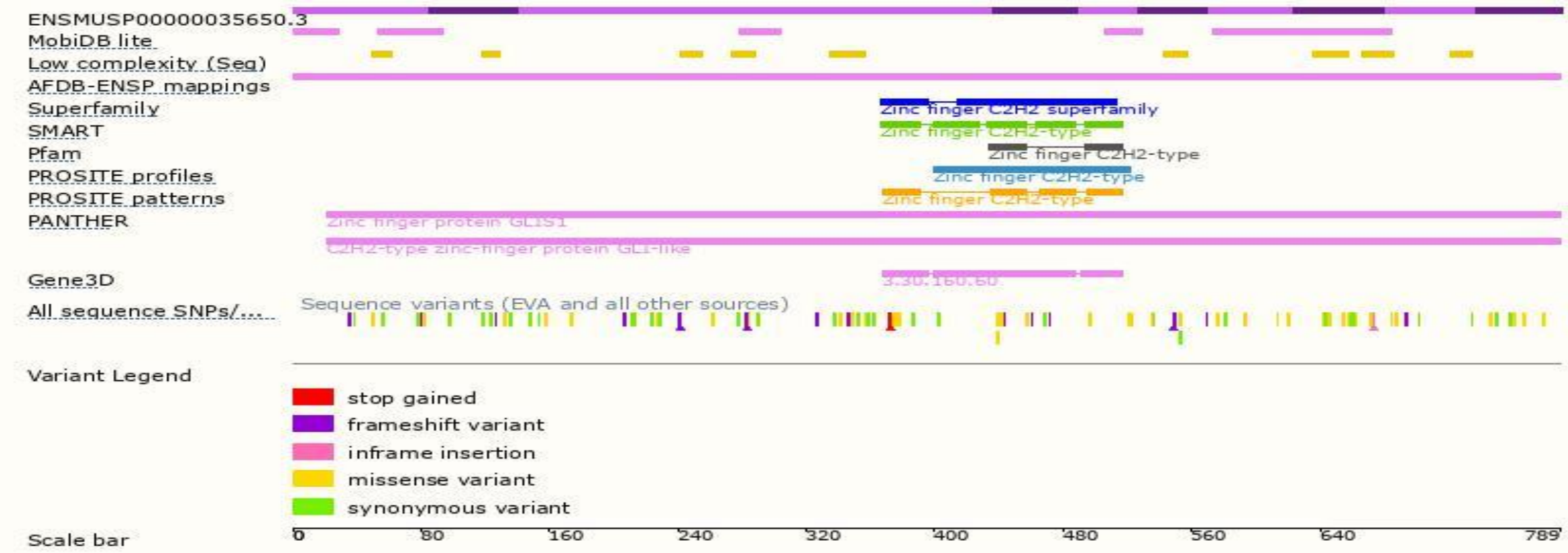
Source: https://www.ensembl.org

Genomic Information



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

Protein Information



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

Mouse Phenotype Information (MGI)

- Homozygous mice do not exhibit any overt abnormalities, including behavior, kidney or tooth morphology, up to 6 months of age.

Source: https://www.informatics.jax.org

Important Information

- According to MGI information,Homozygous mice do not exhibit any overt abnormalities, including behavior, kidney or tooth morphology, up to 6 months of age.
- The majority of amino acid residues remain at the N-terminus of this strategy, and the effect is unknown.
- The *Glis1-205* transcript is not affected and the effect is unknown.
- *Glis1* is located on Chr4. 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.