

Glis2 Cas9-KO Strategy

Designer:

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Design Date:

2019-7-18

Project Overview

Project Name

Glis2

Project type

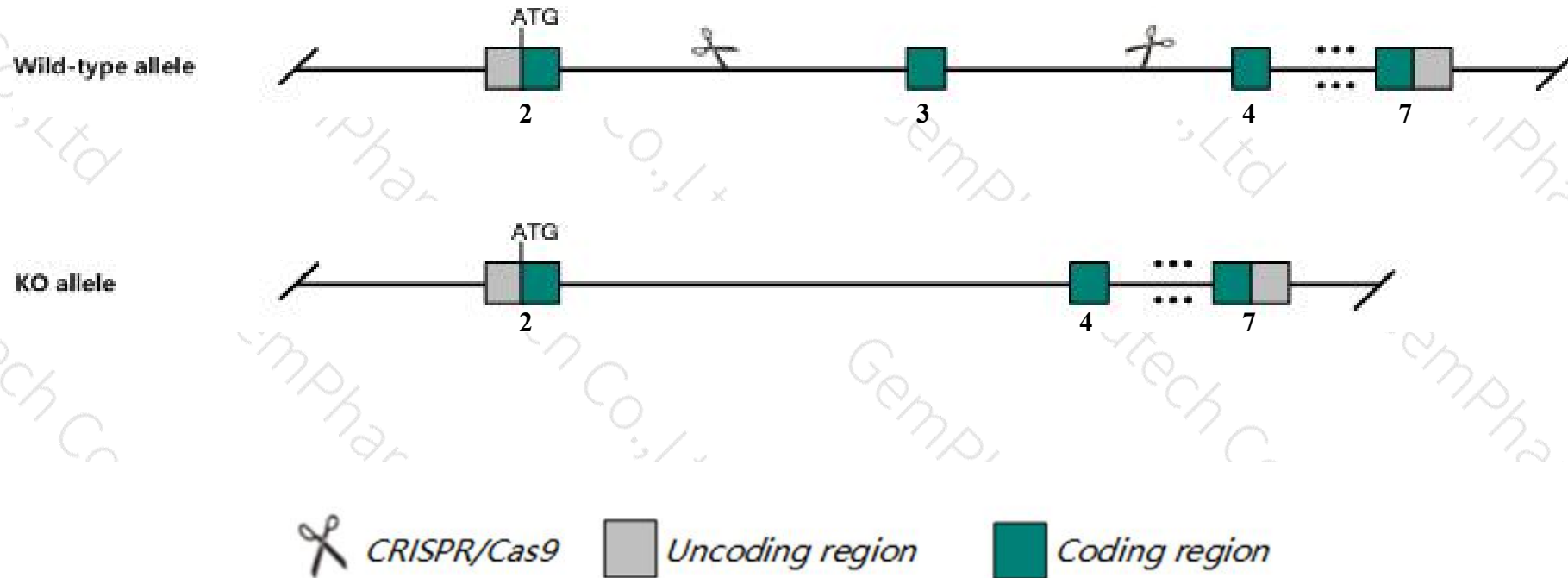
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Glis2* gene. The schematic diagram is as follows:



- The *Glis2* gene has 5 transcripts. According to the structure of *Glis2* gene, exon3 of *Glis2-201* (ENSMUST00000014447.12) transcript is recommended as the knockout region. The region contains 173bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Glis2* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a fusion allele exhibit decreased kidney weight, kidney atrophy, kidney cysts, and interstitial fibrosis.
- The *Glis2* gene is located on the Chr16. 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)

Glis2 GLIS family zinc finger 2 [Mus musculus (house mouse)]

Gene ID: 83396, updated on 5-Feb-2019

Summary



| | |
|---------------------------|---|
| Official Symbol | Glis2 provided by MGI |
| Official Full Name | GLIS family zinc finger 2 provided by MGI |
| Primary source | MGI:MGI:1932535 |
| See related | Ensembl:ENSMUSG00000014303 |
| 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, Klf16, Nkl |
| Expression | Broad expression in kidney adult (RPKM 54.7), ovary adult (RPKM 24.8) and 24 other tissues See more |
| Orthologs | human all |

Transcript information (Ensembl)

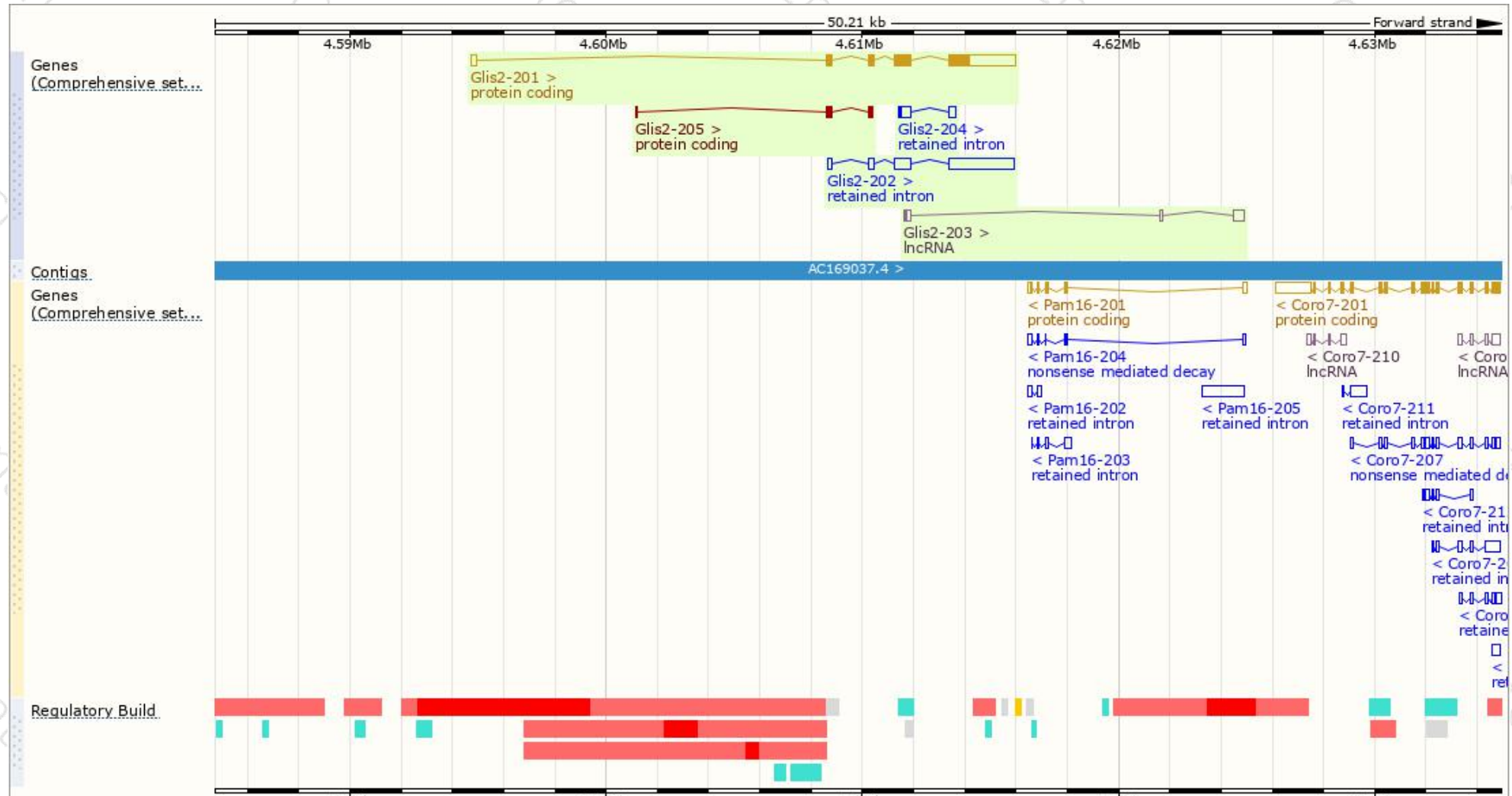
The gene has 5 transcripts,all transcripts are shown below:

| Show/hide columns (1 hidden) | | | | | Filter | | Flags |
|------------------------------|---------------------------------------|------|-----------------------|-----------------|---------------------------|------------------------|-------------------------------|
| Name | Transcript ID | bp | Protein | Biotype | CCDS | UniProt | |
| Glis2-201 | ENSMUST00000014447.12 | 3619 | 521aa | Protein coding | CCDS27920 | Q8VDL9 | TSL:1 GENCODE basic APPRIS P1 |
| Glis2-205 | ENSMUST000000141682.1 | 418 | 109aa | Protein coding | - | D3YYX4 | CDS 3' incomplete TSL:3 |
| Glis2-202 | ENSMUST000000122896.1 | 3512 | No protein | Retained intron | - | - | TSL:2 |
| Glis2-204 | ENSMUST000000135577.1 | 655 | No protein | Retained intron | - | - | TSL:3 |
| Glis2-203 | ENSMUST000000127120.1 | 711 | No protein | lncRNA | - | - | TSL:3 |

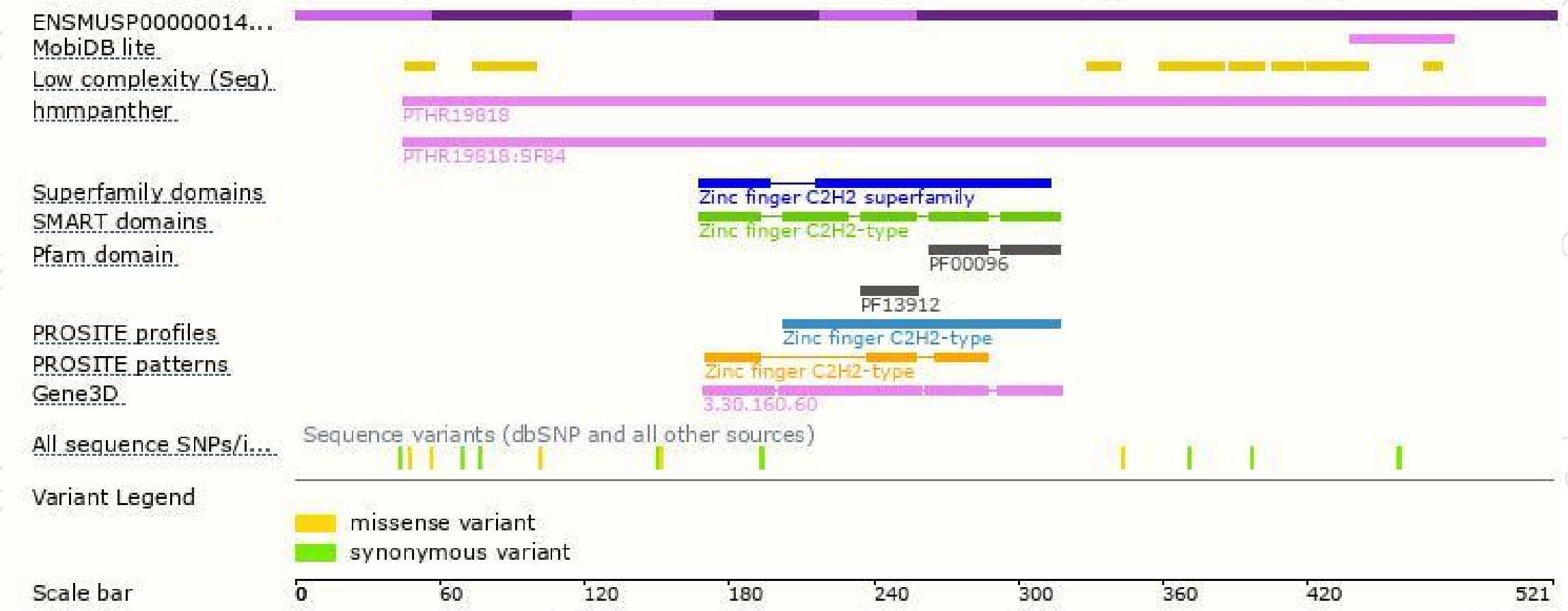
The strategy is based on the design of *Glis2-201* transcript,The transcription is shown below



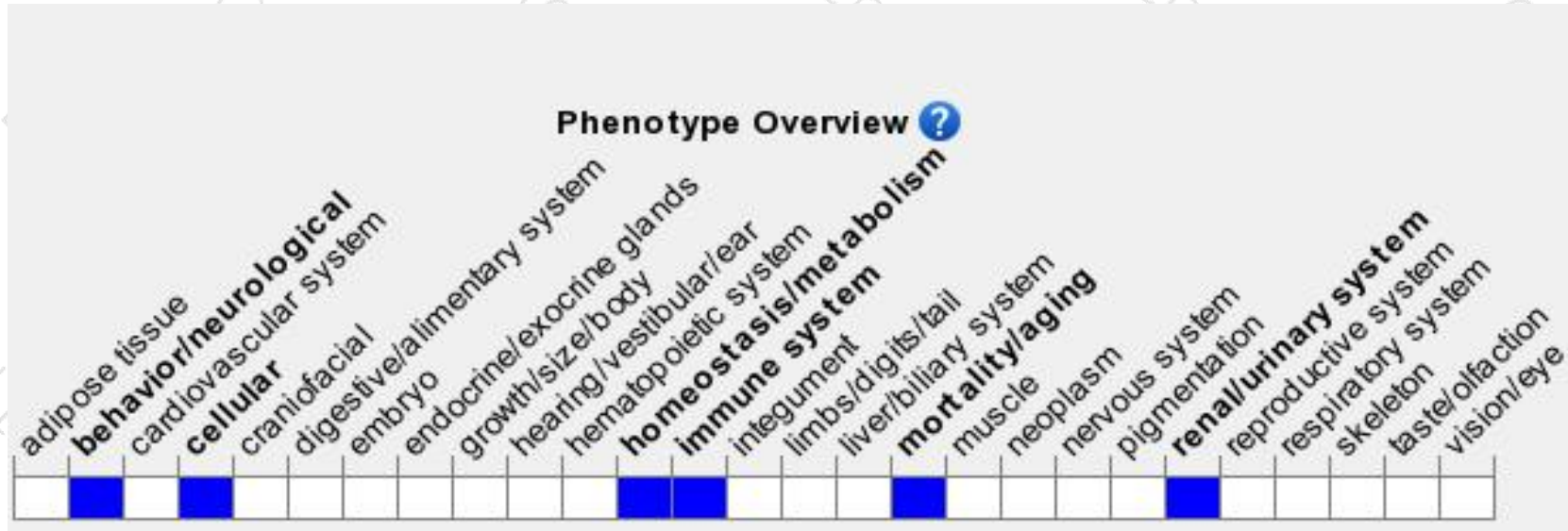
Genomic location distribution



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, Mice homozygous for a fusion allele exhibit decreased kidney weight, kidney atrophy, kidney cysts, and interstitial fibrosis.

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

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