Glis1 Cas9-KO Strategy

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Project Overview

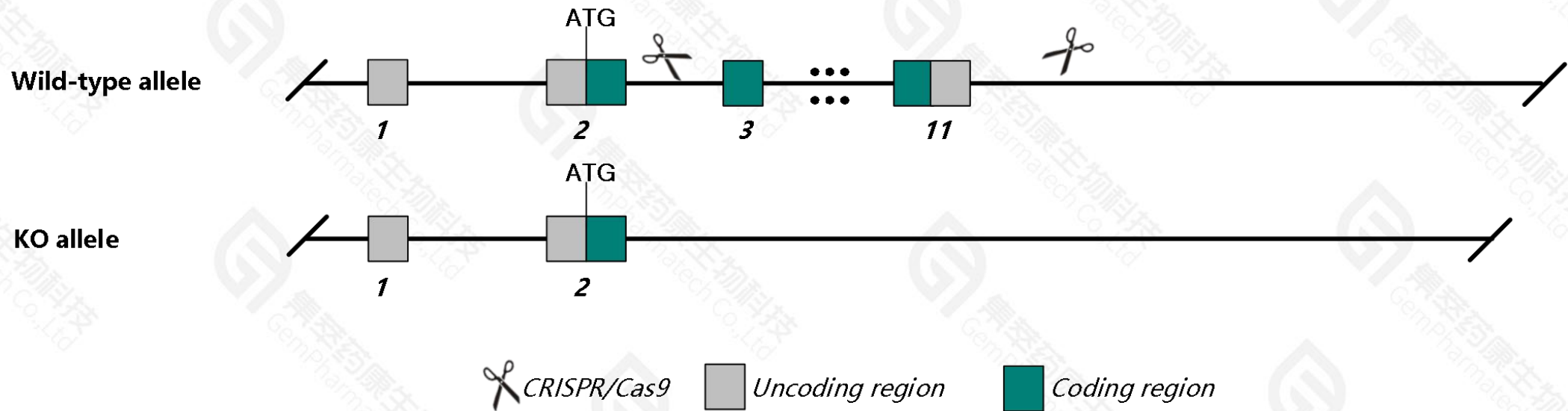|	
Project Name	*Glis1*
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Glis1* gene. The schematic diagram is as follows:

Technical routes

➤ The *Glis1* gene has 6 transcripts. According to the structure of *Glis1* gene, exon3-exon11 of *Glis1-201*(ENSMUST00000046005.9) transcript is recommended as the knockout region.The region contains 2114bp coding sequence. Knock 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 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.

Notice

➤ According to the existing MGI data,homozygous mice do not exhibit any overt abnormalities, including behavior, kidney or tooth morphology, up to 6 months of age.

➤ The KO region contains functional region of the Glis1 gene.Knockout the region may affect the function of 4930552P06Rik gene.

➤ The *Glis1* gene is located on the Chr4. 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）

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

Gene ID: 230587, updated on 10-Jan-2021

▲ Summary

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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
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	Gli, Gli5, Gli6, GliH1
Expression	Biased expression in kidney adult (RPKM 4.5), limb E14.5 (RPKM 2.5) and 12 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

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

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Glis1-201	ENSMUST00000046005.9	2906	789aa	Protein coding	CCDS38831		TSL:1 , GENCODE basic , APPRIS P2 ,
Glis1-202	ENSMUST00000106738.2	2744	601aa	Protein coding	-		TSL:5 , GENCODE basic , APPRIS ALT2 ,
Glis1-205	ENSMUST00000135835.8	432	104aa	Protein coding	-		CDS 3' incomplete , TSL:3 ,
Glis1-203	ENSMUST00000125573.2	852	No protein	Processed transcript	-		TSL:3 ,
Glis1-204	ENSMUST00000130573.2	501	No protein	Processed transcript	-		TSL:1 ,
Glis1-206	ENSMUST00000138211.8	470	No protein	Processed transcript	-		TSL:5 ,

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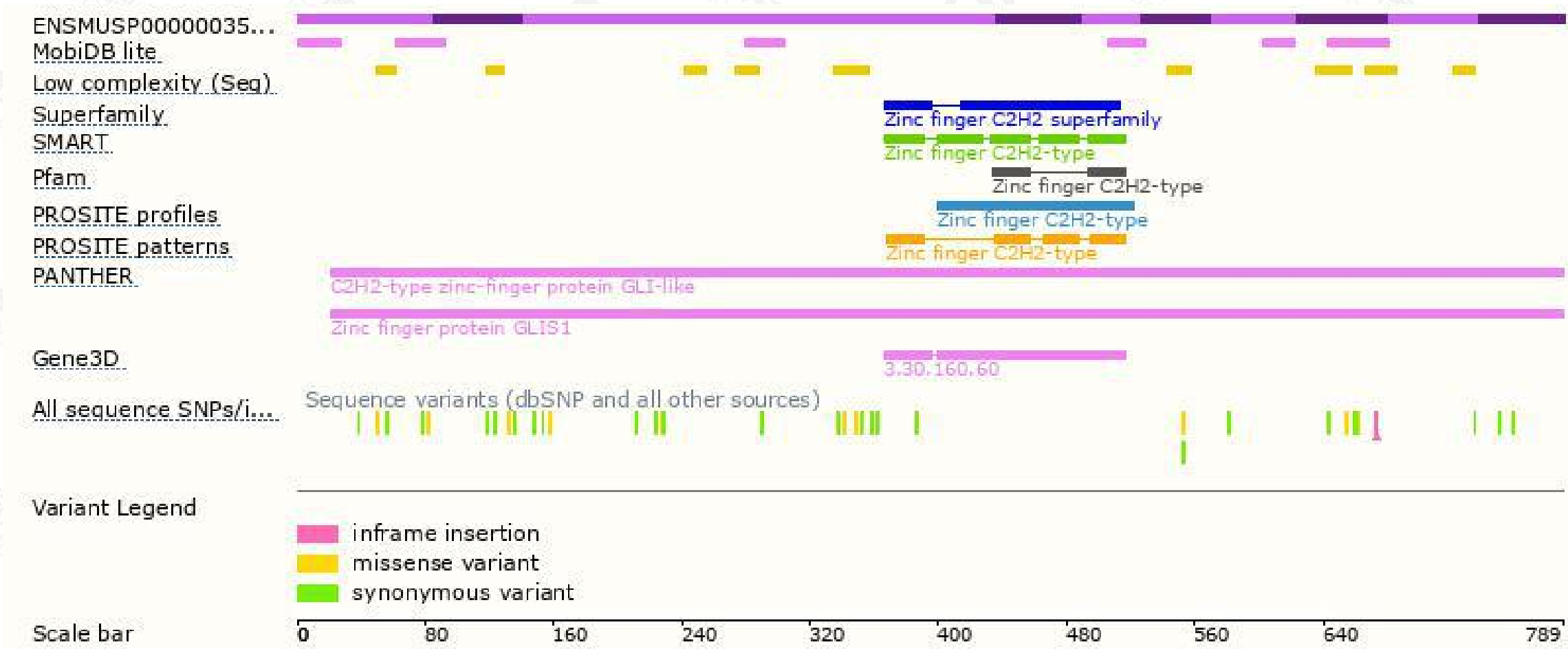
Genomic location distribution

Protein domain

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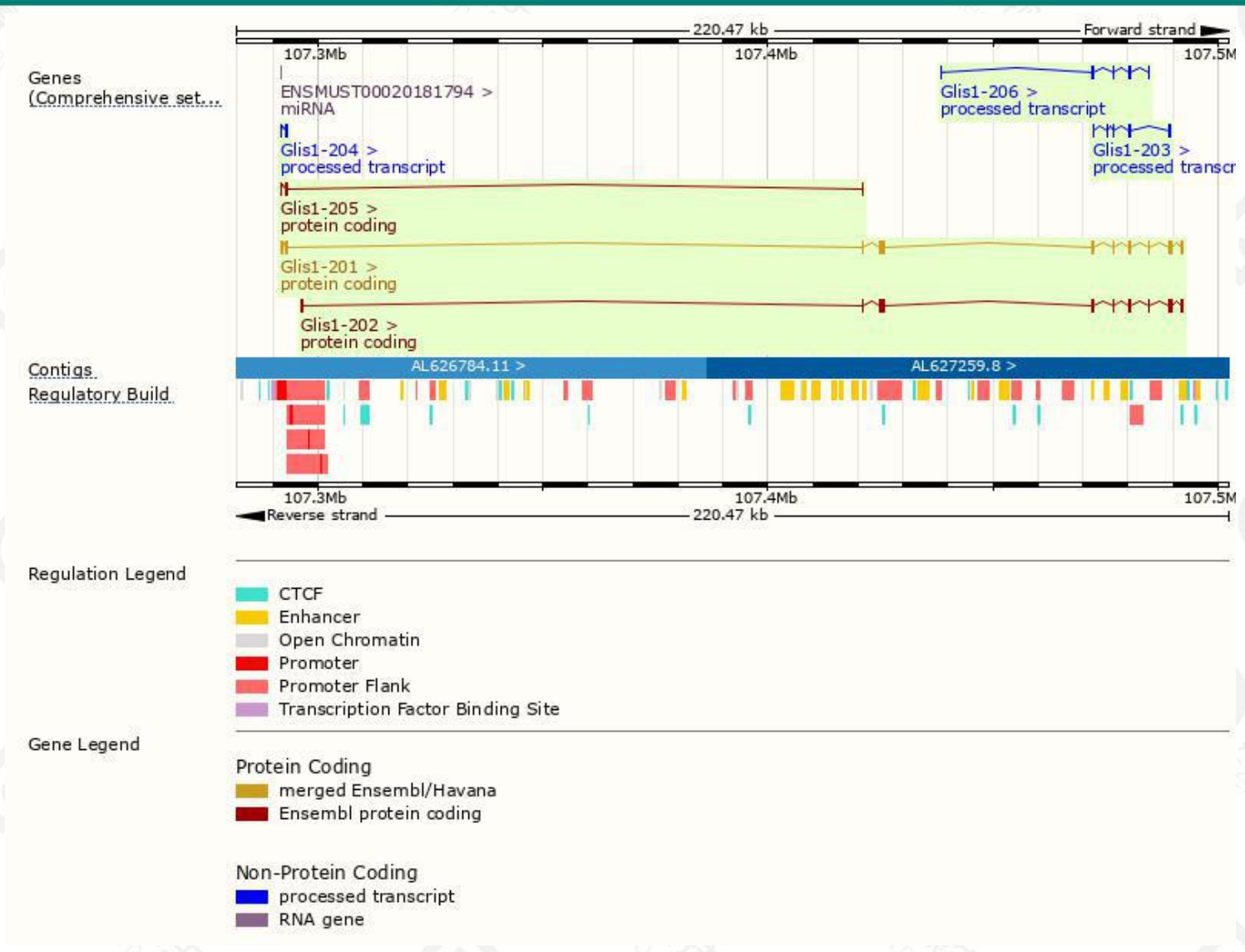
If you have any questions, you are welcome to inquire.
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