

Gli3 Cas9-KO Strategy

Designer: JiaYu

Project Overview

Project Name

Gli3

Project type

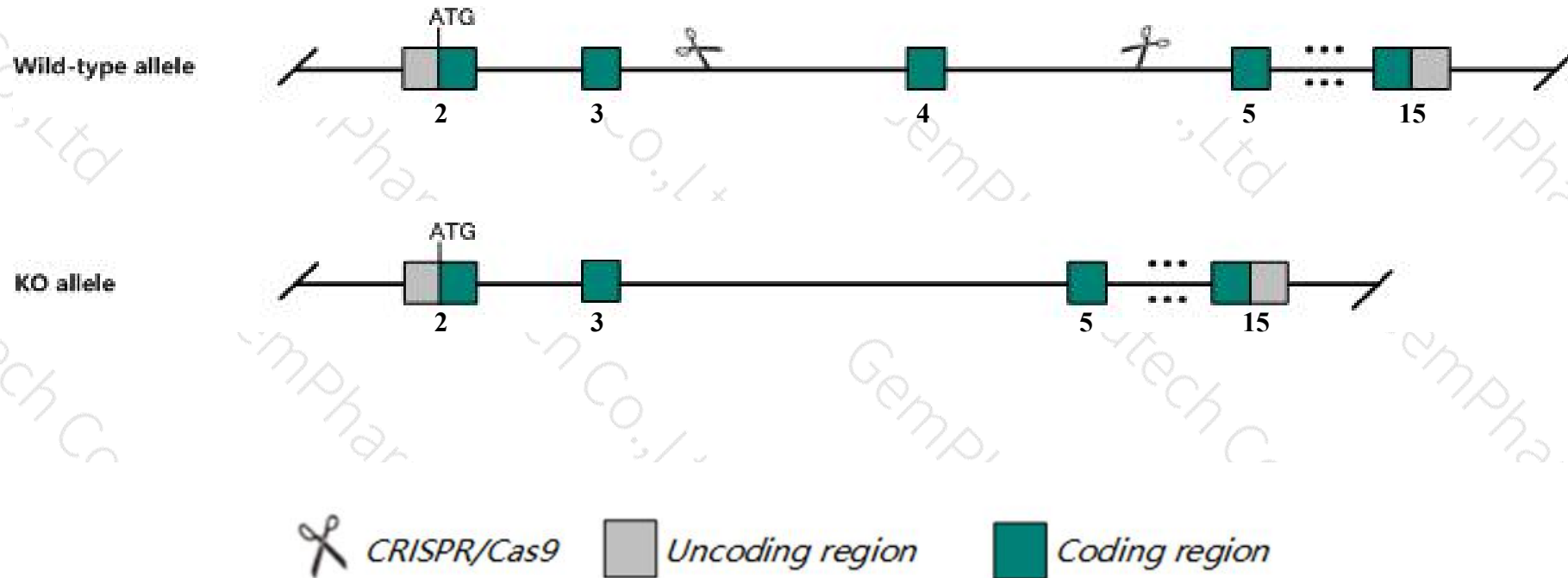
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gli3* gene. The schematic diagram is as follows:



- The *Gli3* gene has 4 transcripts. According to the structure of *Gli3* gene, exon4 of *Gli3-201* (ENSMUST00000110510.3) transcript is recommended as the knockout region. The region contains 106bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Gli3* gene. The brief process is as follows: CRISPR/Cas9 system w

- According to the existing MGI data, Homozygous mutants die perinatally with gross polydactyly, multiple craniofacial defects, and frequently, exencephaly. Heterozygotes exhibit enlarged interfrontal bone and extra preaxial digits.
- The *Gli3* gene is located on the Chr13. 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)

Gli3 GLI-Kruppel family member GLI3 [Mus musculus (house mouse)]

Gene ID: 14634, updated on 26-Feb-2019

Summary



Official Symbol	Gli3 provided by MGI
Official Full Name	GLI-Kruppel family member GLI3 provided by MGI
Primary source	MGI:MGI:95729
See related	Ensembl:ENSMUSG00000021318
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	AI854843, AU023367, Bph, GLI3-190, GLI3FL, Pdn, Xt, add
Expression	Biased expression in limb E14.5 (RPKM 12.4), CNS E11.5 (RPKM 9.9) and 14 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

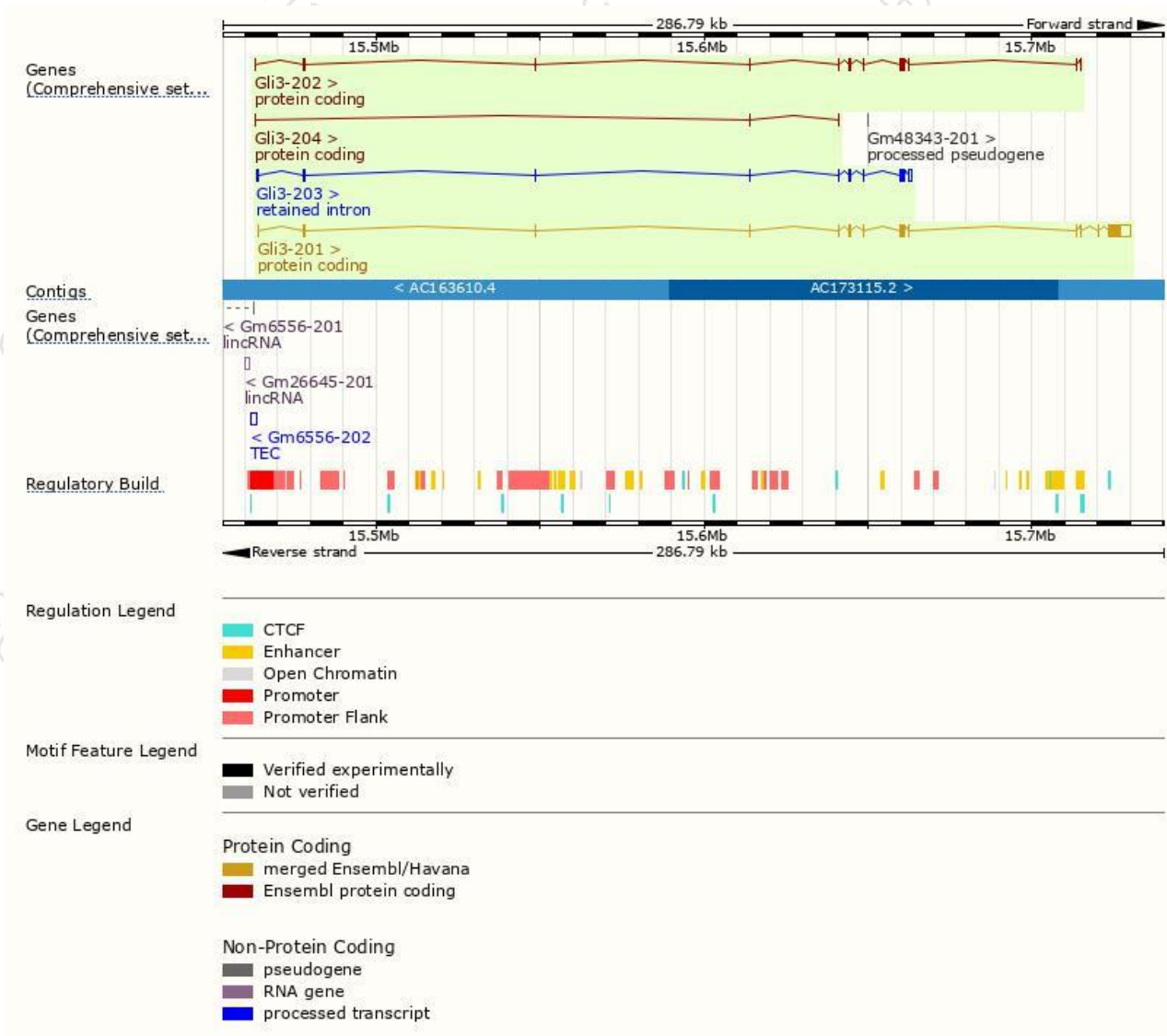
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gli3-201	ENSMUST00000110510.3	8170	1583aa	Protein coding	CCDS36603	B2RUG4 Q61602	TSL:1 GENCODE basic APPRIS P1
Gli3-202	ENSMUST00000130065.7	2004	596aa	Protein coding	-	Q3UMJ8	CDS 3' incomplete TSL:1
Gli3-204	ENSMUST00000141194.7	466	77aa	Protein coding	-	A0A1Y7VKQ8	TSL:2 GENCODE basic
Gli3-203	ENSMUST00000130535.1	2915	No protein	Retained intron	-	-	TSL:1

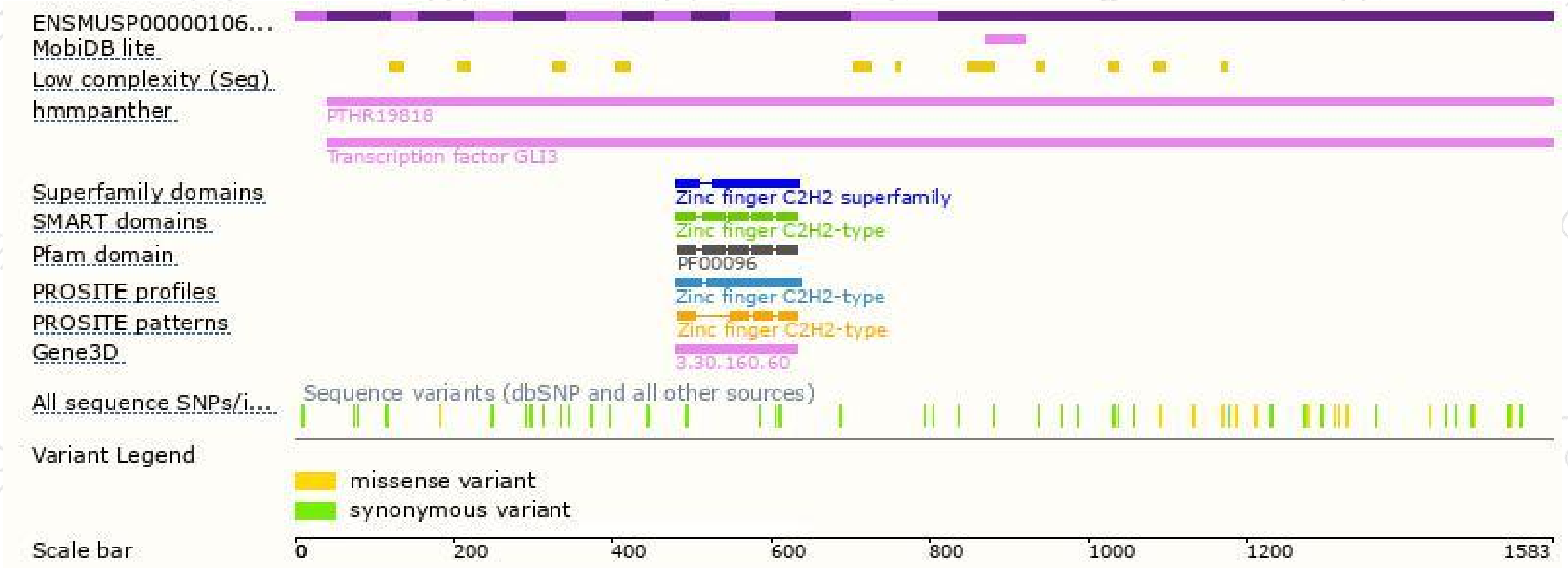
The strategy is based on the design of *Gli3-201* transcript,The transcription is shown below



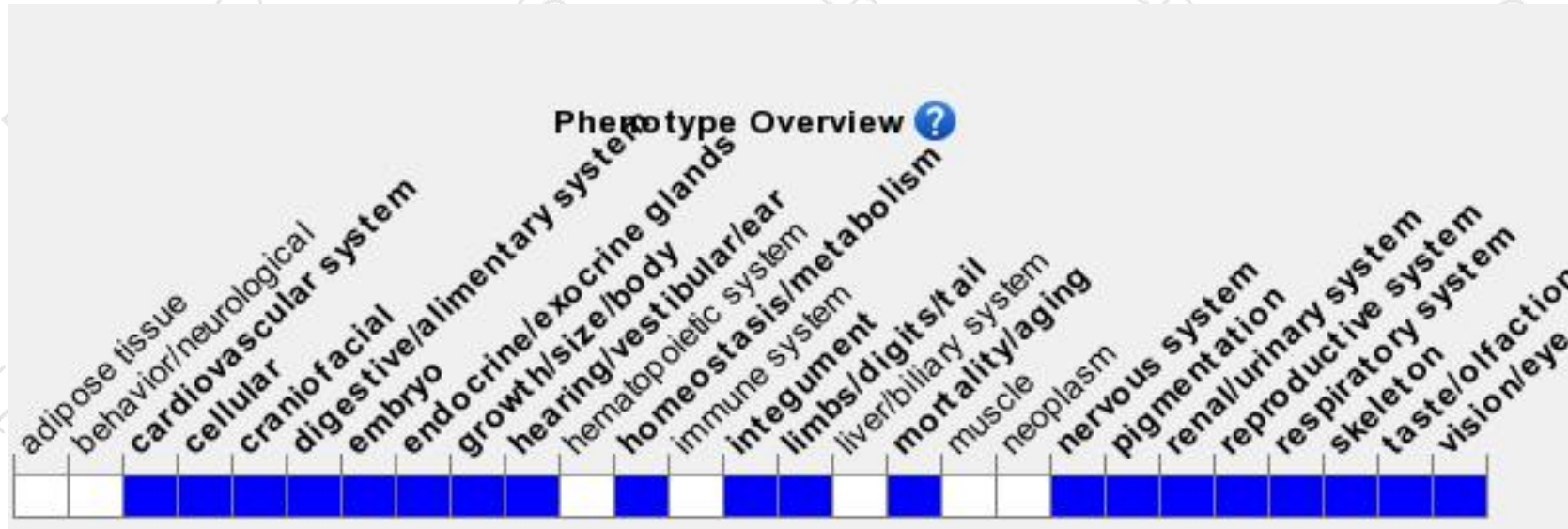
Genomic location distribution



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, Homozygous mutants die perinatally with gross polydactyly, multiple craniofacial defects, and frequently, exencephaly. Heterozygotes exhibit enlarged interfrontal bone and extra preaxial digits.

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

Tel: 400-9660890

