Gli1 Cas9-CKO Strategy

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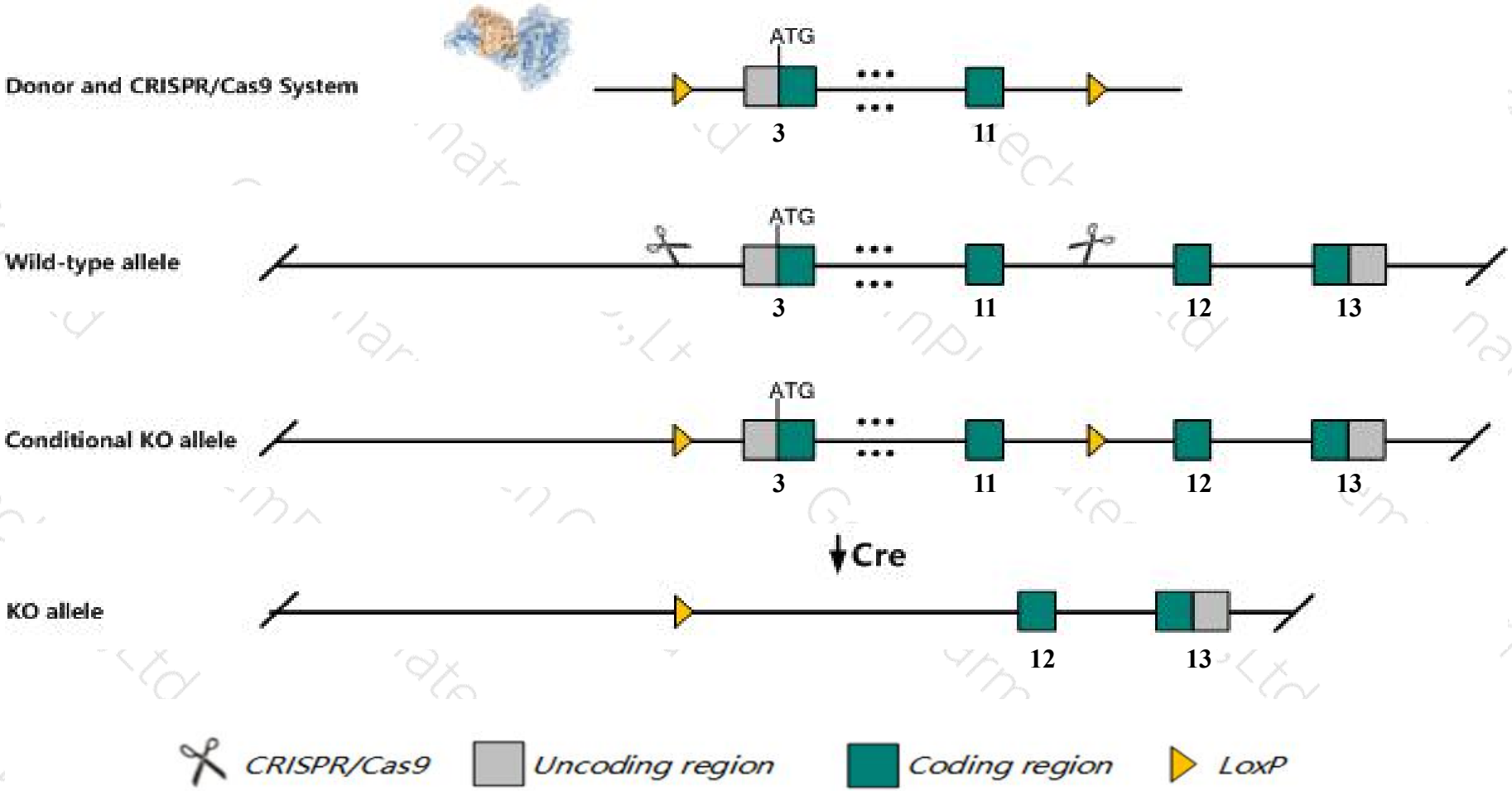
Project Overview

Project Name	***Gli1***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gli1* gene. The schematic diagram is as follows:



Technical routes

- The *Gli1* gene has 5 transcripts. According to the structure of *Gli1* gene, exon3-exon11 of *Gli1-201* (ENSMUST00000026474.4) transcript is recommended as the knockout region.The region contains start codon ATG. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Gli1* 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 sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.

- 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.

Notice

➢ According to the existing MGI data,Homozygotes for a targeted null mutation are apparently normal, but homozygotes that are also heterozygous for a Gli2 knockout die soon after birth with multiple defects, while Gli2 knockout heterozygotes are normally viable.

➢ The *Gli1* gene is located on the Chr10. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

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Gli1 GLI-Kruppel family member GLI1 [Mus musculus (house mouse)]

Gene ID: 14632, updated on 9-Apr-2019

Summary

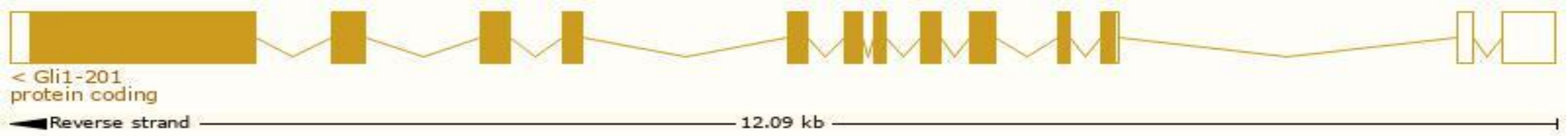
Official Symbol	Gli1 provided by MGI
Official Full Name	GLI-Kruppel family member GLI1 provided by MGI
Primary source	MGI:MGI:95727
See related	Ensembl:ENSMUSG00000025407
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AV235269, Zfp-5, Zfp5
Expression	Biased expression in limb E14.5 (RPKM 44.9), subcutaneous fat pad adult (RPKM 27.9) and 14 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

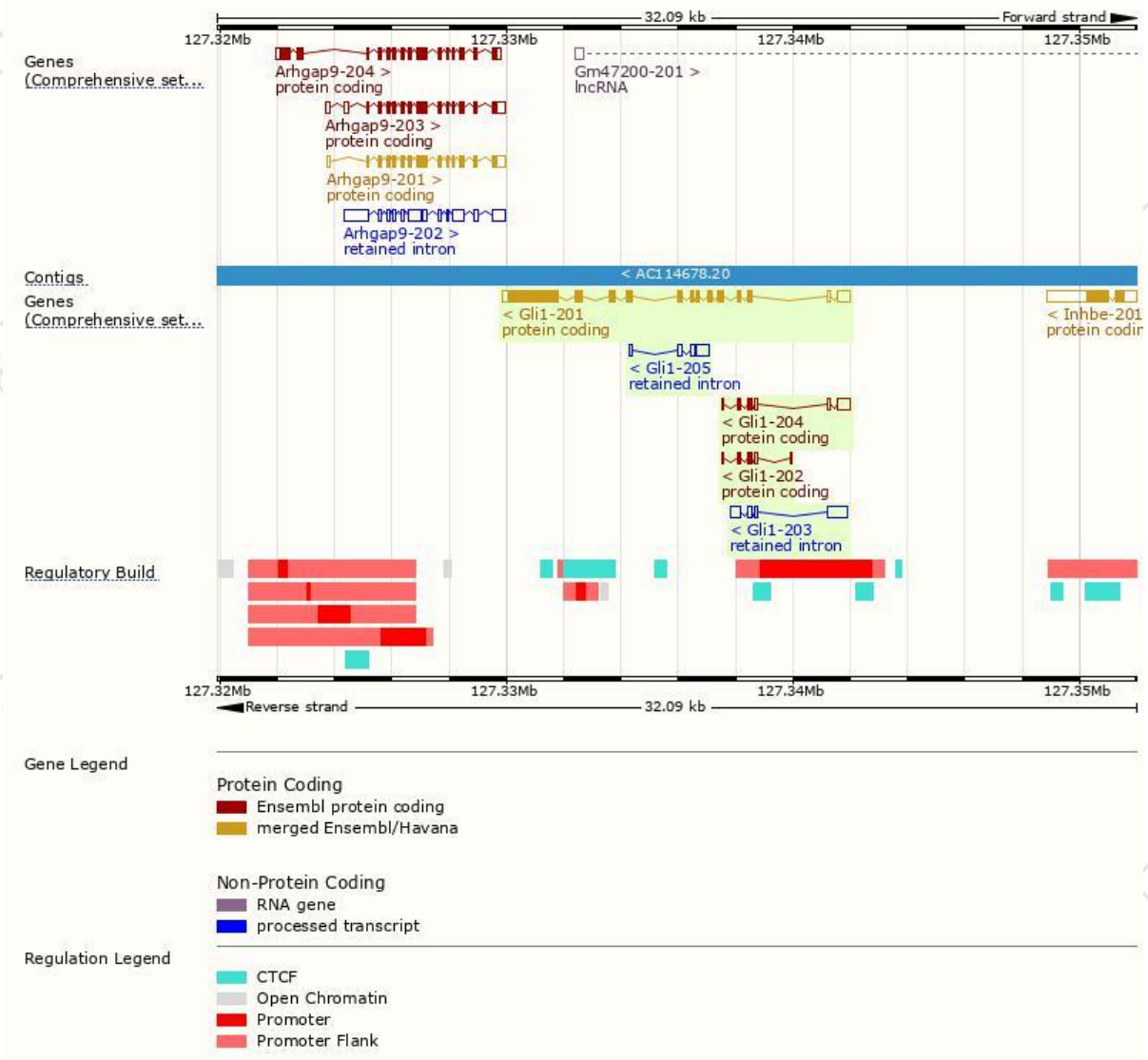
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gli1-201	ENSMUST00000026474.4	4057	1111aa	Protein coding	CCDS24238	P47806	TSL:1 GENCODE basic APPRIS P1
Gli1-204	ENSMUST00000219671.1	954	93aa	Protein coding	-	D4Q8I4	CDS 3' incomplete TSL:1
Gli1-202	ENSMUST00000218236.1	467	93aa	Protein coding	-	D4Q8I4	CDS 3' incomplete TSL:1
Gli1-203	ENSMUST00000218451.1	1252	No protein	Retained intron	-	-	TSL:1
Gli1-205	ENSMUST00000219808.1	795	No protein	Retained intron	-	-	TSL:3

The strategy is based on the design of *Gli1-201* 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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