

Gigyf1 Cas9-CKO Strategy

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Project Overview

Project Name

Gigyf1

Project type

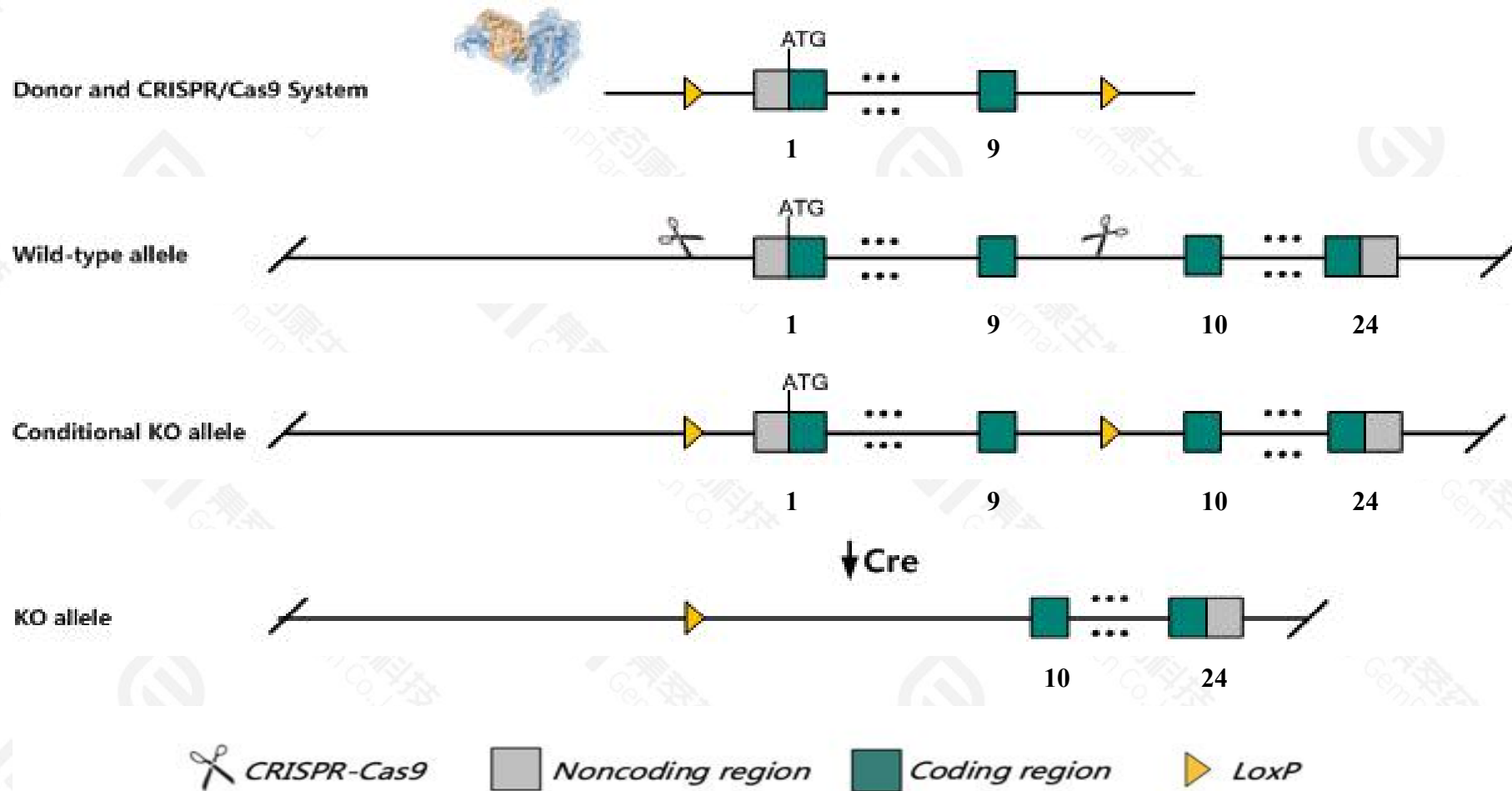
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR-Cas9 technology to edit the *Gigylf1* gene. The schematic diagram is as follows:



- The *Gigyf1* gene has 2 transcripts. According to the structure of *Gigyf1* gene, exon1-exon9 of *Gigyf1-201*(ENSMUST00000031727.10) 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 *Gigyf1* 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.

- The *Gigyf1* gene is located on the Chr5. 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.
- The KO region contains part of intron region of the *Epo* gene. Knockout the region may affect the function of *Epo* gene.
- The KO region is near to C-terminal of *Gm8066* gene, knockout the region may affect the function of C-terminal of *Gm8066* gene.
- Loxp insertion in N-terminal of *Gigyf1* gene, it may affect the function of *Gigyf1* gene.
- 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)

Gigyf1 GRB10 interacting GYF protein 1 [Mus musculus (house mouse)]

Gene ID: 57330, updated on 31-Jan-2019

Summary



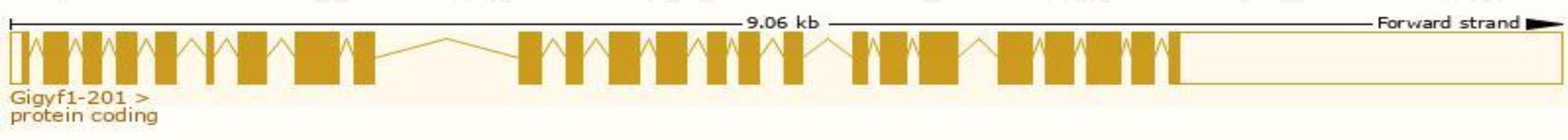
Official Symbol	Gigyf1 provided by MGI
Official Full Name	GRB10 interacting GYF protein 1 provided by MGI
Primary source	MGI:MGI:1888677
See related	Ensembl:ENSMUSG00000029714
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Perq1, mKIAA4110
Expression	Ubiquitous expression in thymus adult (RPKM 27.6), ovary adult (RPKM 21.3) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gigyf1-201	ENSMUST00000031727.9	5440	1044aa	Protein coding	CCDS51673	Q99MR1	TSL:1 GENCODE basic APPRIS P1
Gigyf1-202	ENSMUST00000197624.4	827	229aa	Protein coding	-	A0A0G2JGR7	CDS 3' incomplete TSL:5

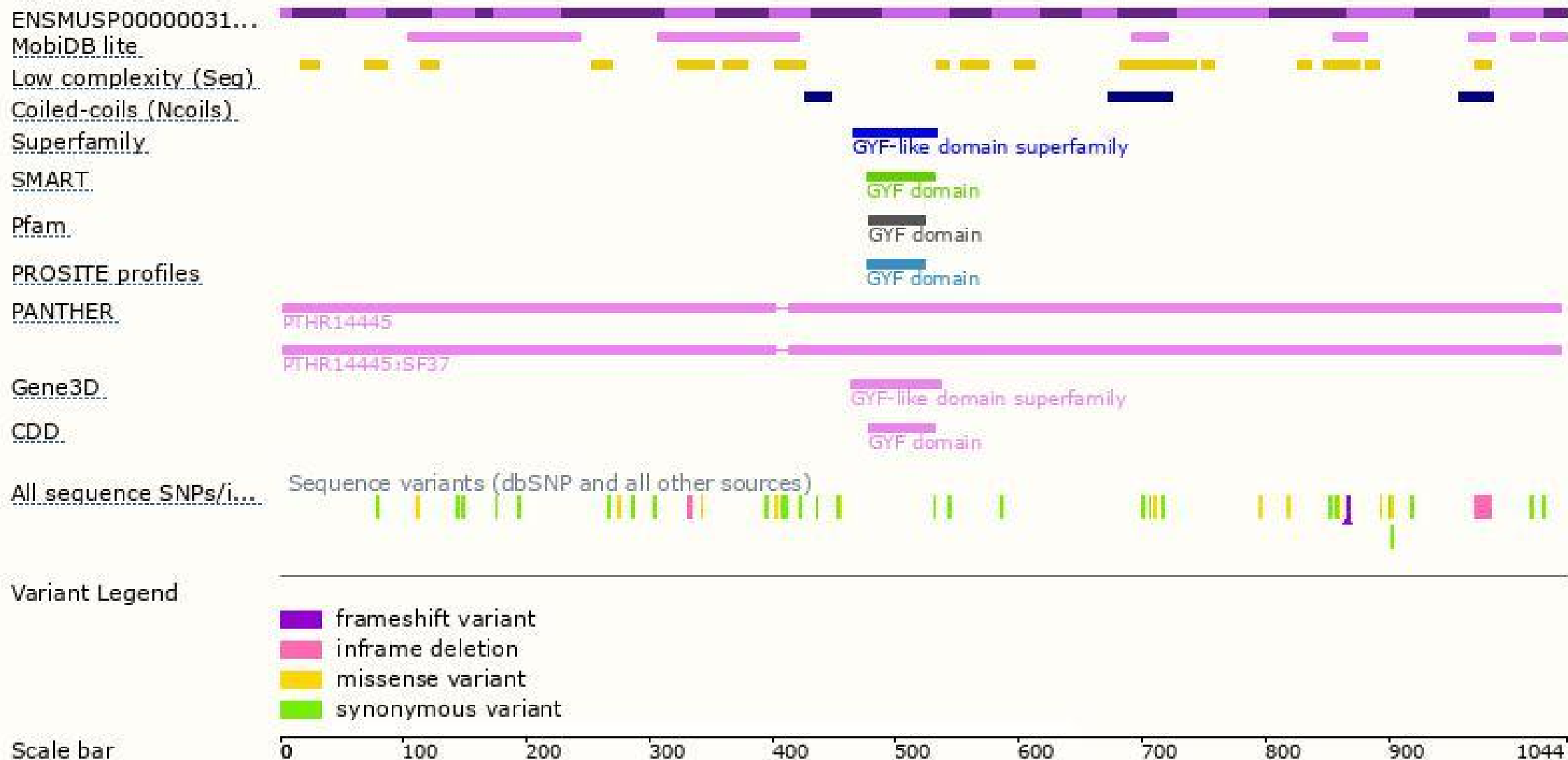
The strategy is based on the design of *Gigyf1-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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