

***Igsf10* Cas9-CKO Strategy**

Designer: Xiaojing Li

Reviewer: JiaYu

Design Date: 2020-10-14

Project Overview

Project Name

Igsf10

Project type

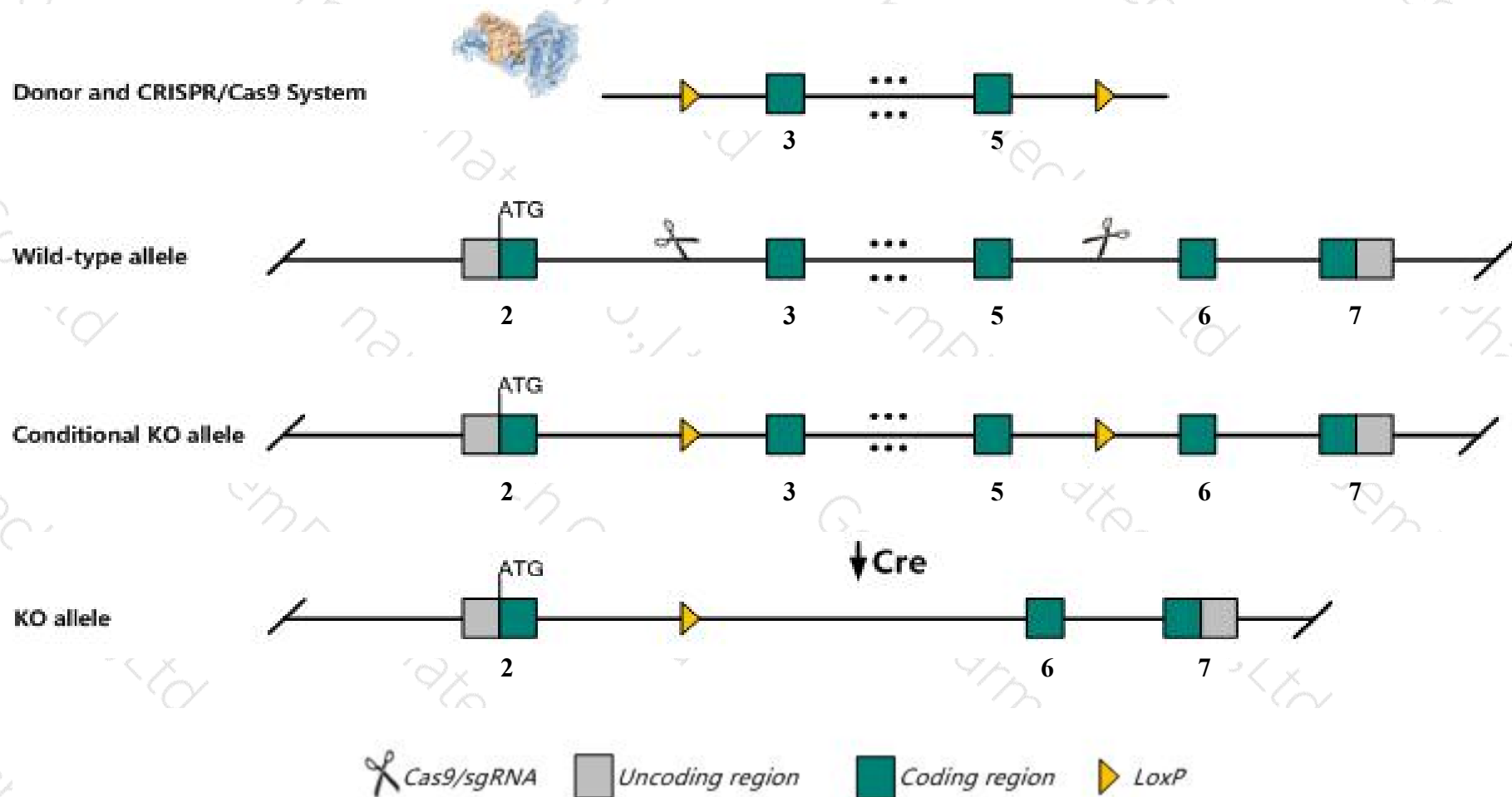
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Igsl10* gene. The schematic diagram is as follows:



Technical routes

- The *Igsf10* gene has 4 transcripts. According to the structure of *Igsf10* gene, exon3-exon5 of *Igsf10*-201(ENSMUST00000039419.11) transcript is recommended as the knockout region. The region contains 4781bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Igsf10* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was 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 *Igsf10* gene is located on the Chr3. 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)

Igsf10 immunoglobulin superfamily, member 10 [Mus musculus (house mouse)]

Gene ID: 242050, updated on 13-Mar-2020

Summary



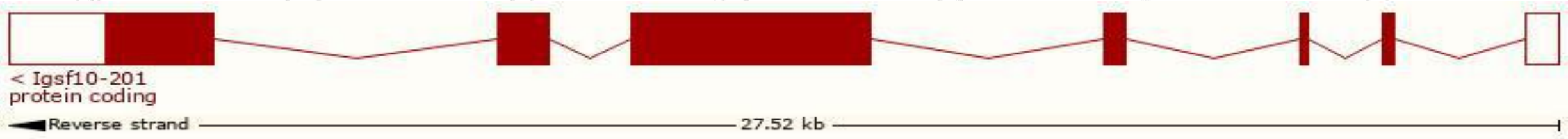
Official Symbol	Igsf10 provided by MGI
Official Full Name	immunoglobulin superfamily, member 10 provided by MGI
Primary source	MGI:MGI:1923481
See related	Ensembl:ENSMUSG00000036334
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	6530405F15Rik, 9030224D03, AA409708, AA536958, AI414626, Adlican2, CMF608
Expression	Broad expression in limb E14.5 (RPKM 6.6), subcutaneous fat pad adult (RPKM 3.5) and 16 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

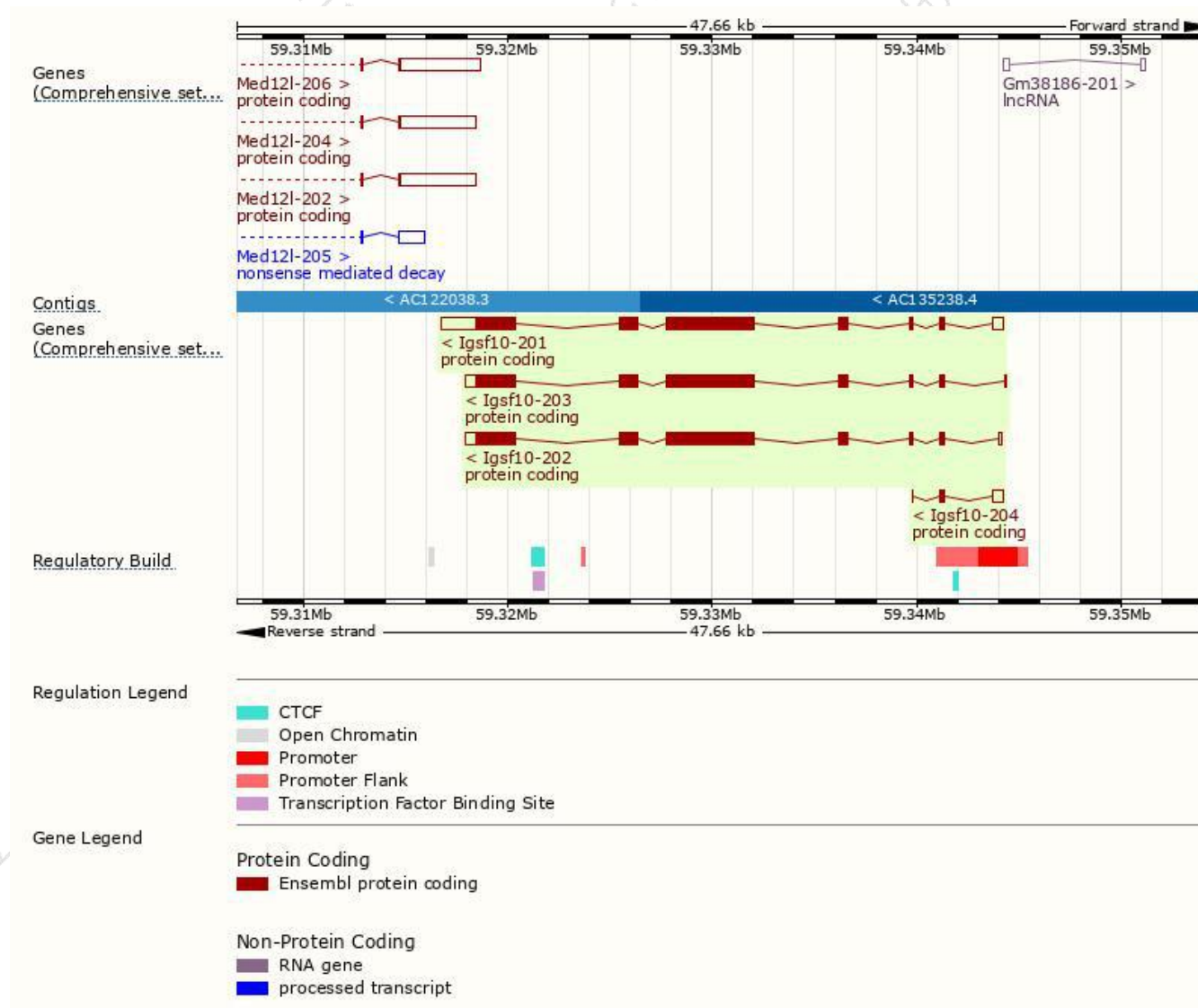
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Igsf10-201	ENSMUST00000039419.11	10084	2594aa	Protein coding	CCDS50915	Q3V1M1	TSL:5 GENCODE basic APPRIS P1
Igsf10-202	ENSMUST00000193455.5	8484	2594aa	Protein coding	CCDS50915	Q3V1M1	TSL:5 GENCODE basic APPRIS P1
Igsf10-203	ENSMUST00000194546.5	8393	2594aa	Protein coding	CCDS50915	Q3V1M1	TSL:5 GENCODE basic APPRIS P1
Igsf10-204	ENSMUST00000195983.1	797	76aa	Protein coding	-	A0A0G2JF89	CDS 3' incomplete TSL:3

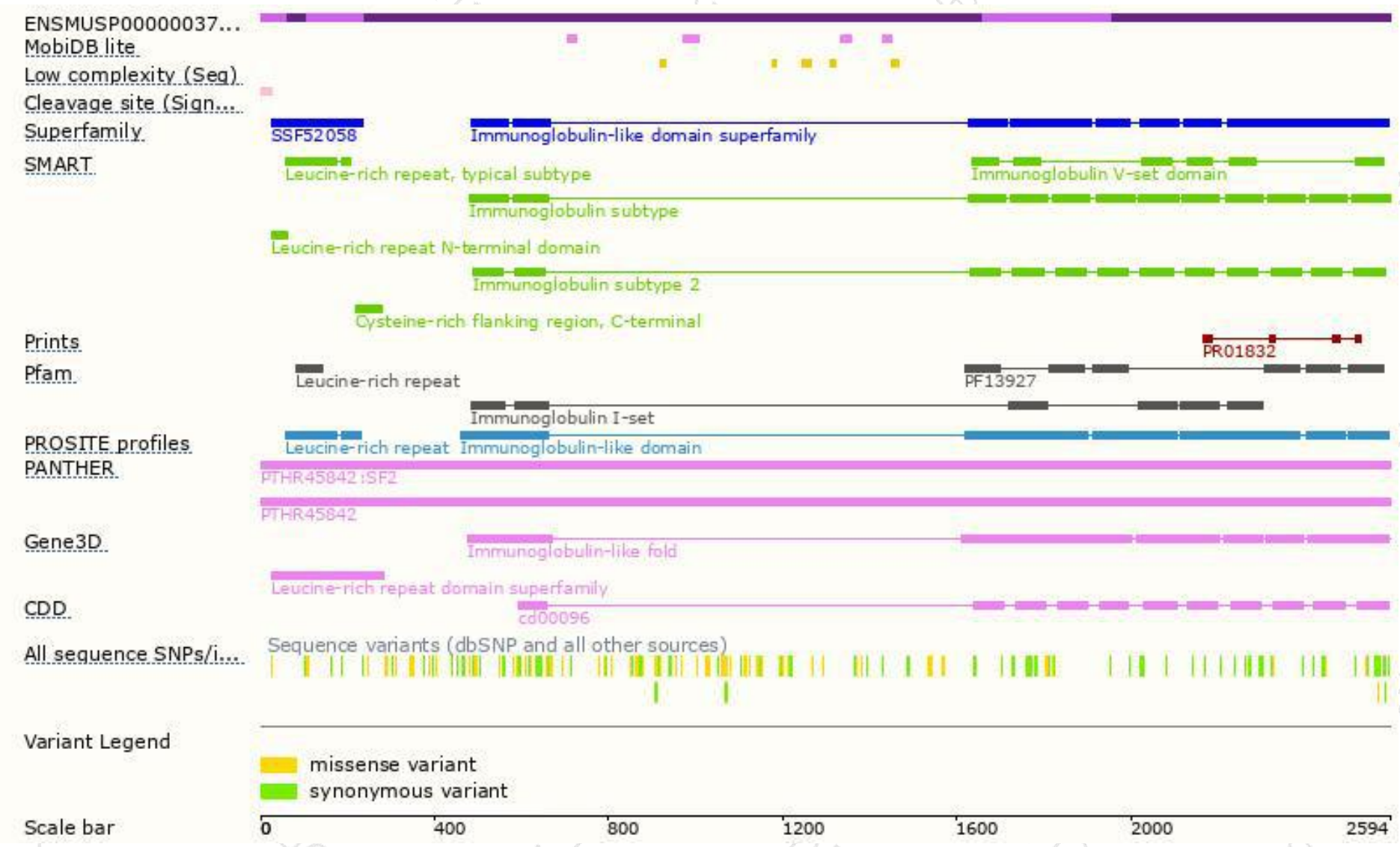
The strategy is based on the design of *Igsf10-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

Tel: 025-5864 1534

