

***Fcrlb* Cas9-KO Strategy**

Designer: Huimin Su

Reviewer: Ruiuri Zhang

Design Date: 2020-8-12

Project Overview

Project Name

Fcrlb

Project type

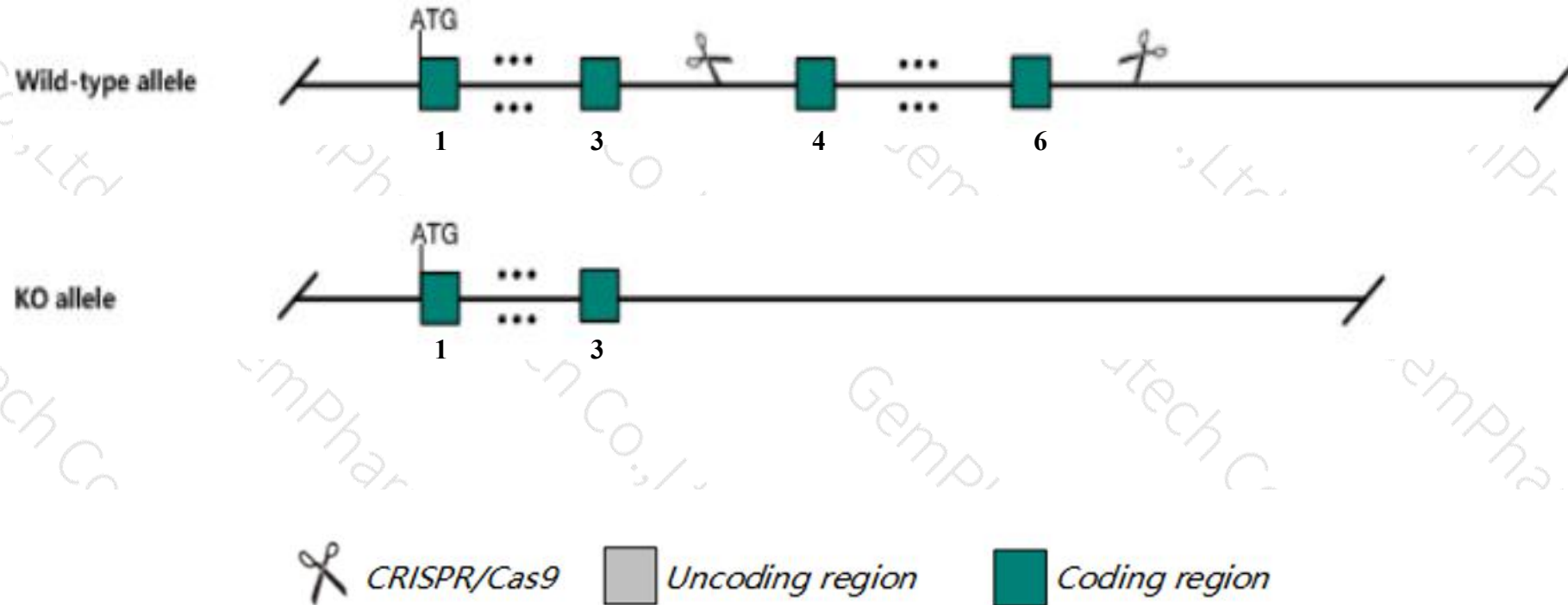
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Fcrlb* gene has 1 transcript. According to the structure of *Fcrlb* gene, exon4-exon6 of *Fcrlb*-201(ENSMUST00000094337.1) transcript is recommended as the knockout region. The region contains most of coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Fcrlb* 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.

- According to the existing MGI data, mice homozygous for a knock-out allele exhibit an enhanced antibody response to a T-dependent antigen.
- The *Fcrlb* gene is located on the Chr1. 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)

Fcrlb Fc receptor-like B [*Mus musculus* (house mouse)]

Gene ID: 435653, updated on 26-Jun-2020

Summary

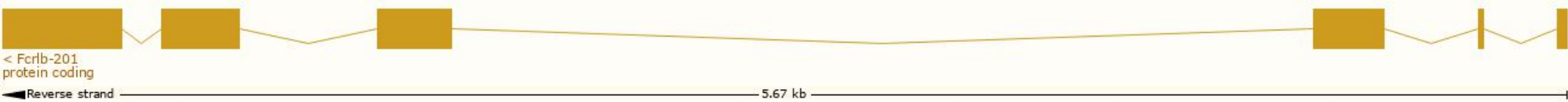
Official Symbol	Fcrlb provided by MGI
Official Full Name	Fc receptor-like B provided by MGI
Primary source	MGI:MGI:3576487
See related	Ensembl:ENSMUSG00000070524
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Fcry; FREB2; FcRL2; FREB-2; Fcrlm2; mFCRL2
Expression	Low expression observed in reference dataset See more
Orthologs	human all

Transcript information (Ensembl)

The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fcrlb-201	ENSMUST00000094337.1	1284	427aa	Protein coding	CCDS15475	Q5DRQ8	TSL:1 Gencode basic APPRIS P1

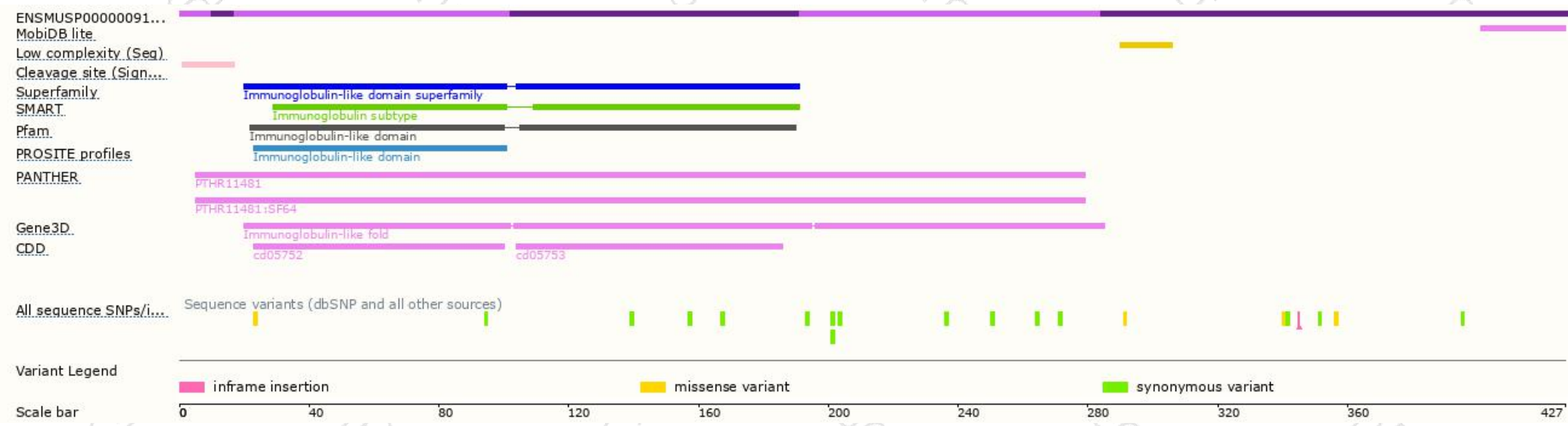
The strategy is based on the design of *Fcrlb-201* transcript, the transcription is shown below:



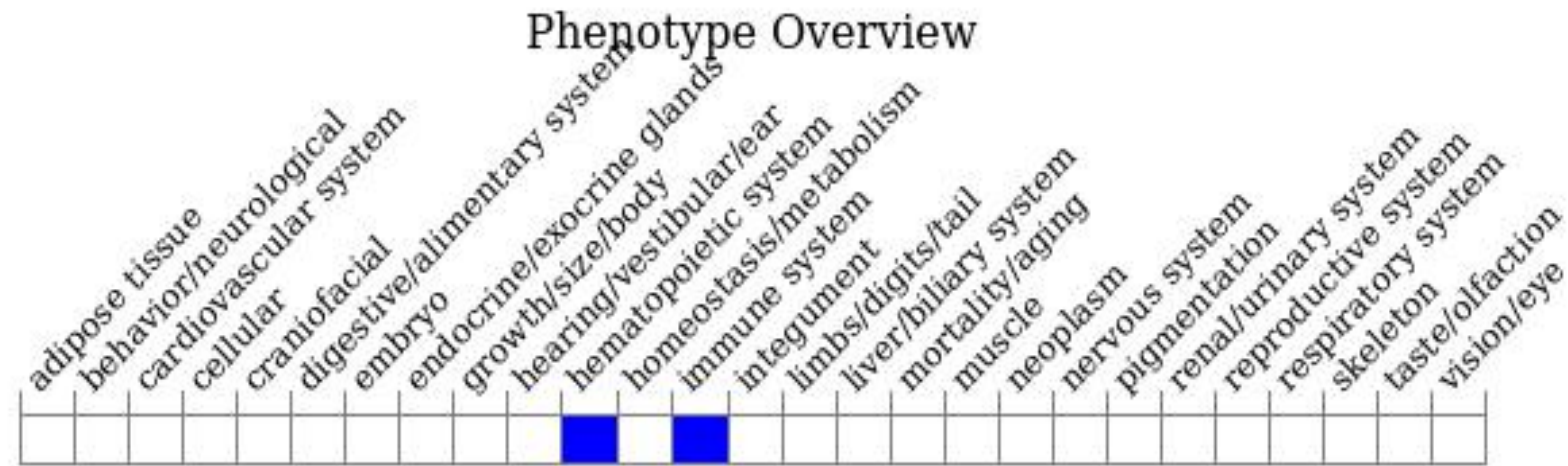
Genomic location distribution



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, mice homozygous for a knock-out allele exhibit an enhanced antibody response to a T-dependent antigen.

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

Tel: 400-9660890

