

Mfap3l Cas9-CKO Strategy

Designer: Zihe Cui

Reviewer: Daohua Xu

Design Date: 2020-10-14

Project Overview

Project Name

Mfap3l

Project type

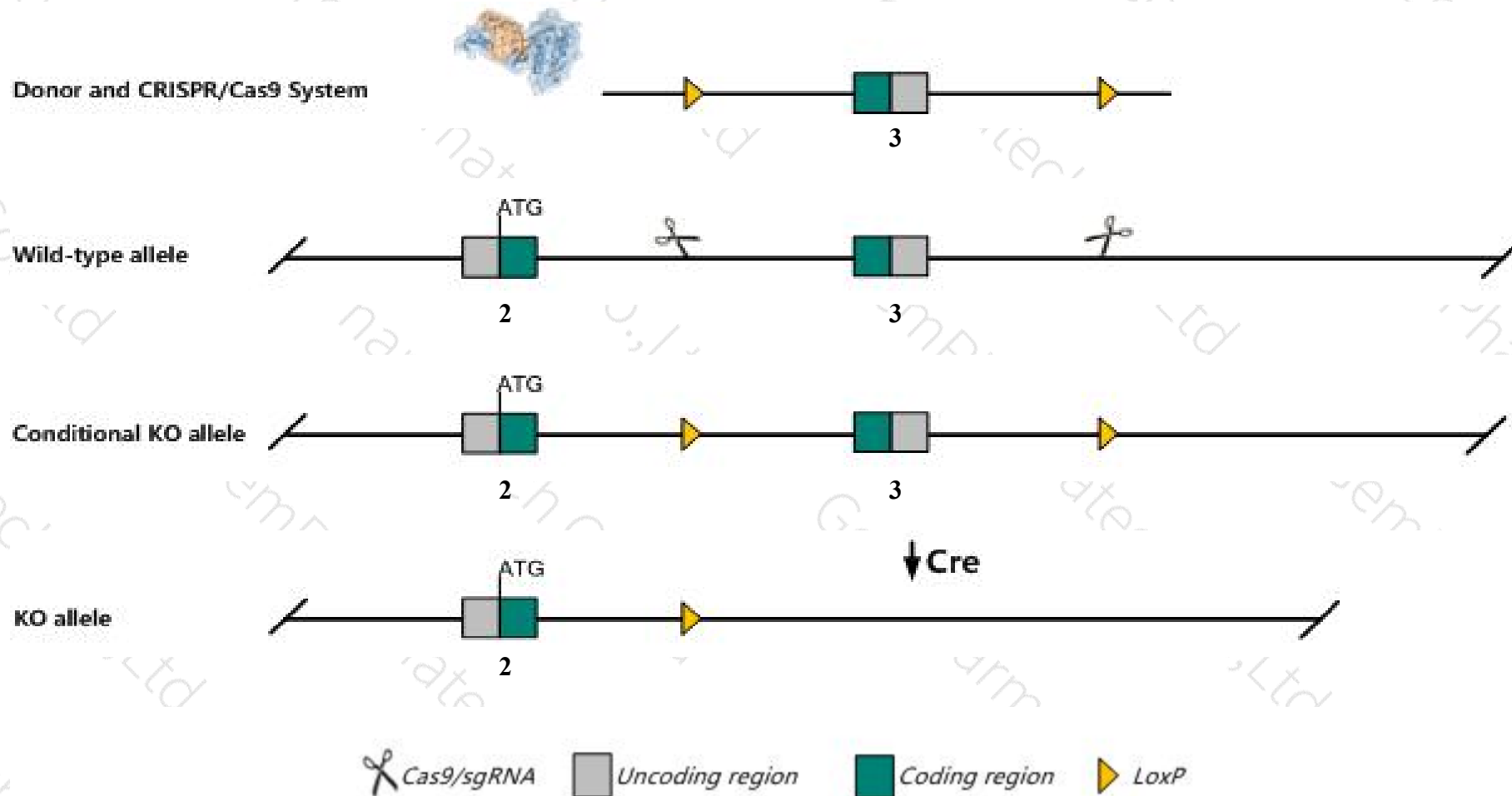
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Mfap3l* gene. The schematic diagram is as follows:



- The *Mfap3l* gene has 4 transcripts. According to the structure of *Mfap3l* gene, exon3 of *Mfap3l*-202(ENSMUST00000160719.7) transcript is recommended as the knockout region. The region contains most of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Mfap3l* 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 *Mfap3l* gene is located on the Chr8. 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)

Mfap3l microfibrillar-associated protein 3-like [*Mus musculus* (house mouse)]

Gene ID: 71306, updated on 25-Sep-2020

Summary

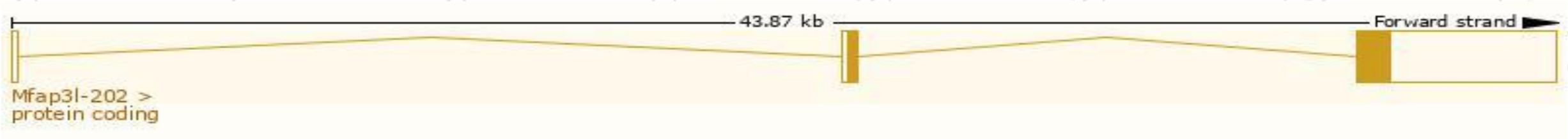
Official Symbol	Mfap3l provided by MGI
Official Full Name	microfibrillar-associated protein 3-like provided by MGI
Primary source	MGI:MGI:1918556
See related	Ensembl:ENSMUSG00000031647
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	NYD-; NYD-sp9; AI461995; AW125052; mKIAA0626; 4933428A15Rik; 5430405D20Rik
Expression	Biased expression in testis adult (RPKM 23.6), frontal lobe adult (RPKM 7.6) and 7 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

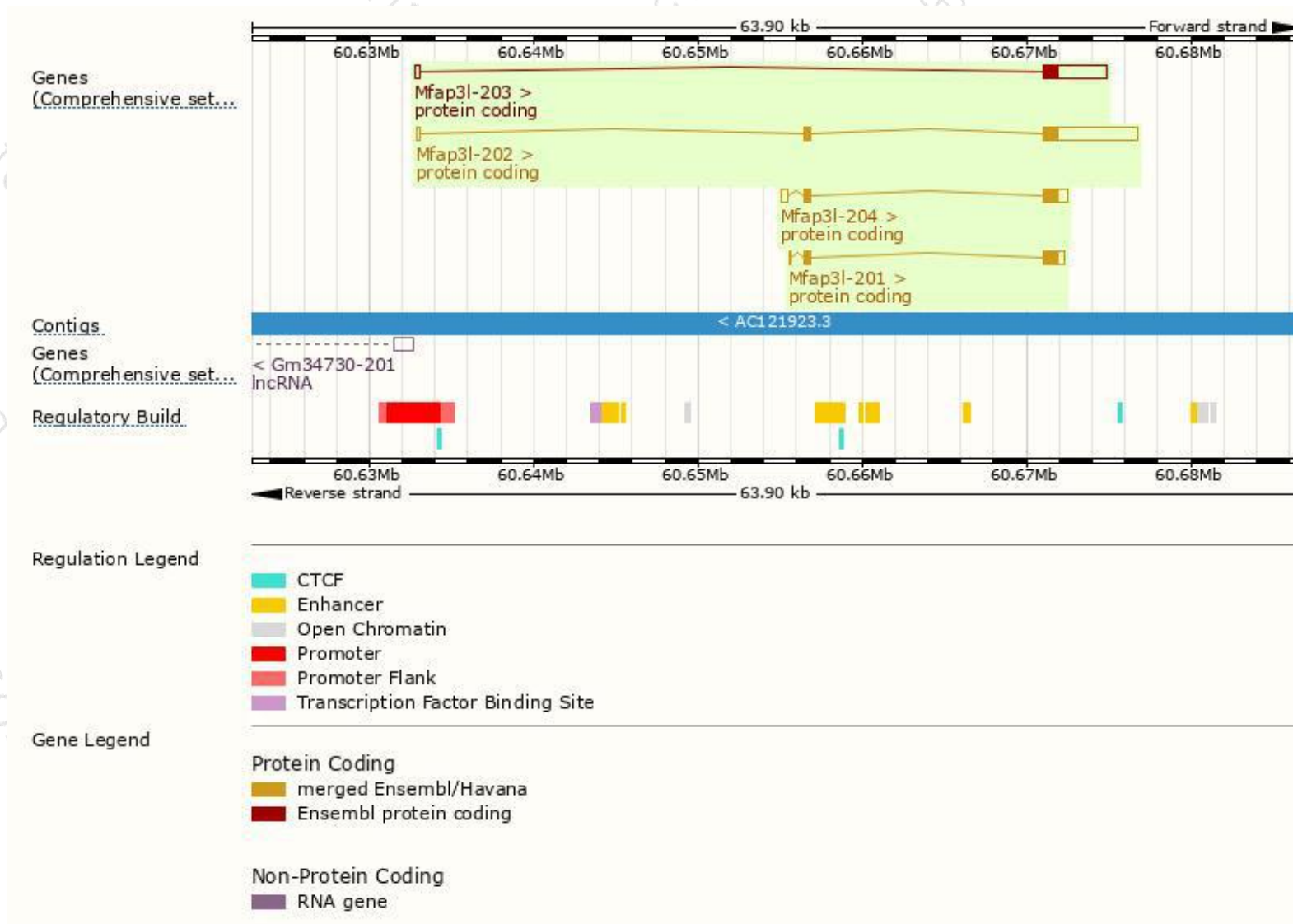
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Mfap3l-202	ENSMUST00000160719.7	6335	409aa	Protein coding	CCDS22321	Q9D3X9	TSL:1 GENCODE basic APPRIS P1
Mfap3l-203	ENSMUST00000161421.1	4142	306aa	Protein coding	CCDS80877	Q9D3X9	TSL:1 GENCODE basic
Mfap3l-204	ENSMUST00000161702.7	2215	409aa	Protein coding	CCDS22321	Q9D3X9	TSL:1 GENCODE basic APPRIS P1
Mfap3l-201	ENSMUST00000034066.3	1896	409aa	Protein coding	CCDS22321	Q9D3X9	TSL:1 GENCODE basic APPRIS P1

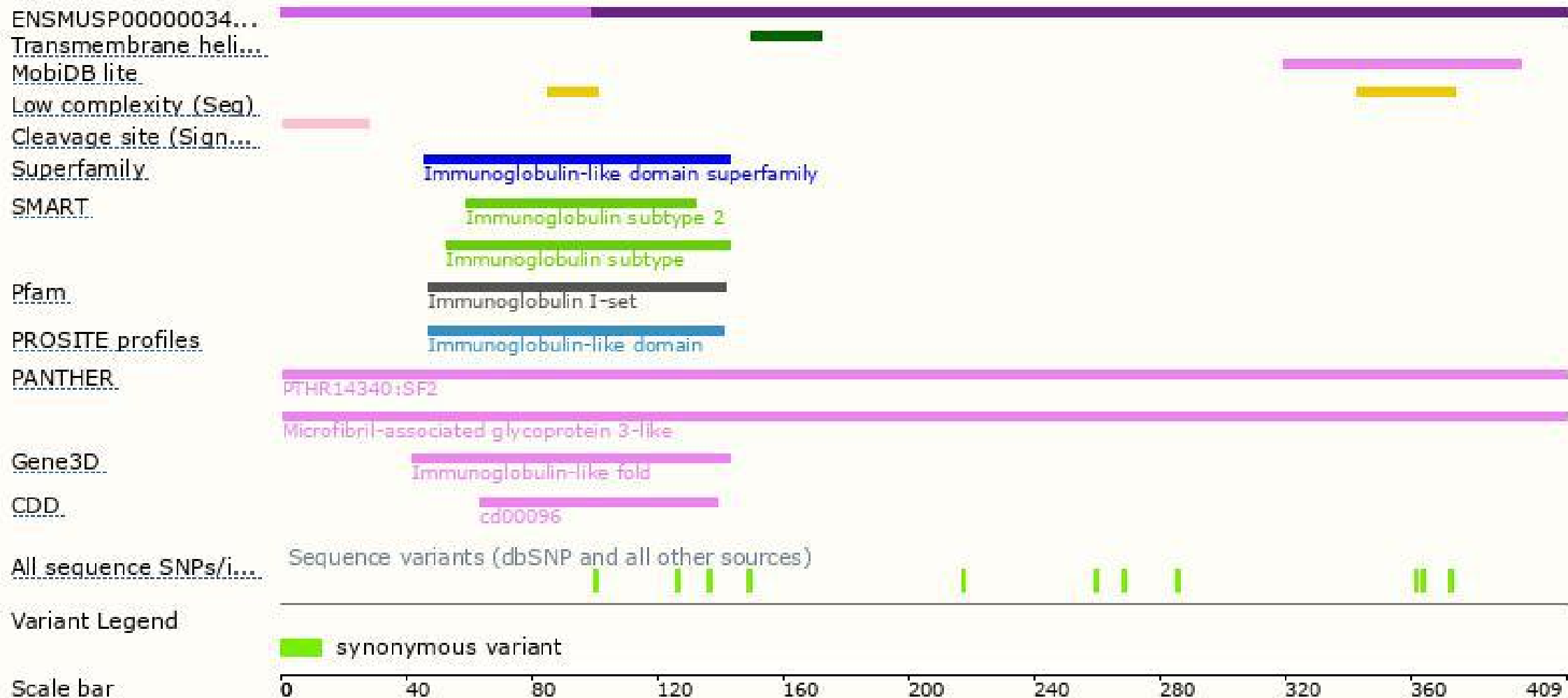
The strategy is based on the design of *Mfap3l-202* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

Tel: 025-5864 1534

