

Mbl2 Cas9-CKO Strategy

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Overview

Target Gene Name

- Mbl2

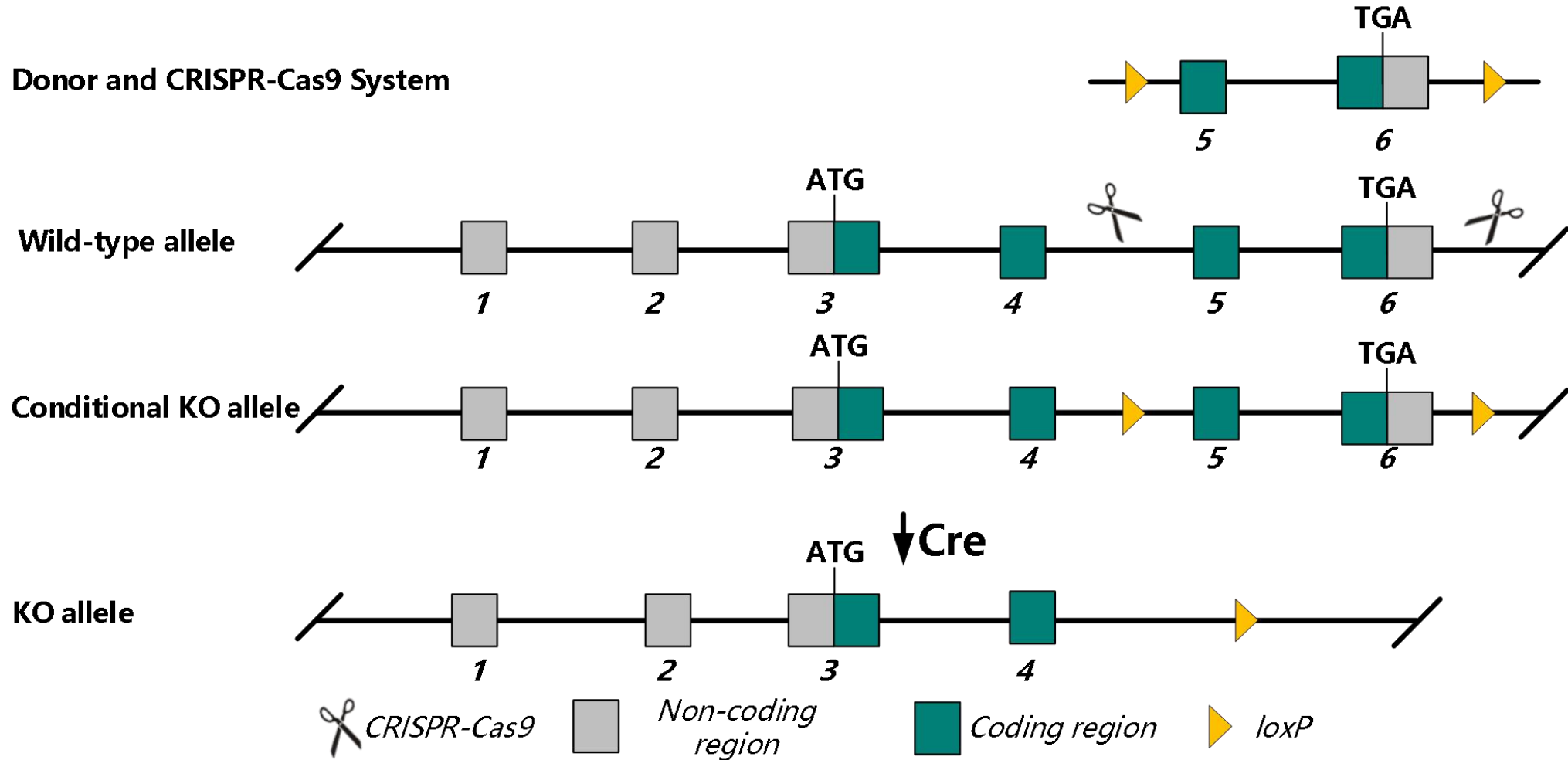
Project Type

- Cas9-CKO

Genetic Background

- C57BL/6JGpt

Strain Strategy



Schematic representation of CRISPR-Cas9 engineering used to edit the *Mbl2* gene.

Technical Information

- The *Mbl2* gene has 1 transcript. According to the structure of *Mbl2* gene, exon 5-6 of *Mbl2*-201 (ENSMUST00000025797.7) transcript is recommended as the knockout region. The region contains 443 bp of coding sequences. Knocking out the region will result in disruption of protein function.
- In this project we use CRISPR-Cas9 technology to modify *Mbl2* 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 on-target amplicon sequencing. A stable F1-generation mouse strain was obtained by mating positive F0-generation mice with C57BL/6JGpt mice and confirmation of the desired mutant allele was carried out by PCR and on-target amplicon sequencing.
- 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.

Gene Information

Mbl2 mannose-binding lectin (protein C) 2 [*Mus musculus* (house mouse)]

Gene ID: 17195, updated on 8-Dec-2022

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Summary

Official Symbol Mbl2 provided by MGI
Official Full Name mannose-binding lectin (protein C) 2 provided by MGI
Primary source MGI:MGI:96924
See related [Ensembl:ENSMUSG00000024863](#) [AllianceGenome:MGI:96924](#)
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 MBL; L-MBP; MBL-C; MBP-C; RARF/P28A
Summary Predicted to enable several functions, including calcium-dependent protein binding activity; identical protein binding activity; and mannose binding activity. Acts upstream of or within defense response to other organism and positive regulation of phagocytosis. Located in extracellular space. Is expressed in embryo. Human ortholog(s) of this gene implicated in several diseases, including autoimmune disease (multiple); bacterial infectious disease (multiple); fungal infectious disease (multiple); liver disease (multiple); and lung disease (multiple). Orthologous to human MBL2 (mannose binding lectin 2). [provided by Alliance of Genome Resources, Apr 2022]
Expression Biased expression in liver adult (RPKM 158.5), liver E18 (RPKM 28.1) and 1 other tissue [See more](#)
Orthologs [human](#) [all](#)
NEW Try the new [Gene table](#)
Try the new [Transcript table](#)

Genomic context

Location: 19 C1; 19 25.14 cM

Exon count: 6

See Mbl2 in [Genome Data Viewer](#)

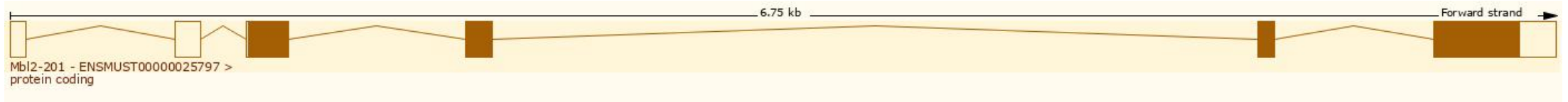
Source: <https://www.ncbi.nlm.nih.gov/>

Transcript Information

The gene has 1 transcript, the transcript are shown below:

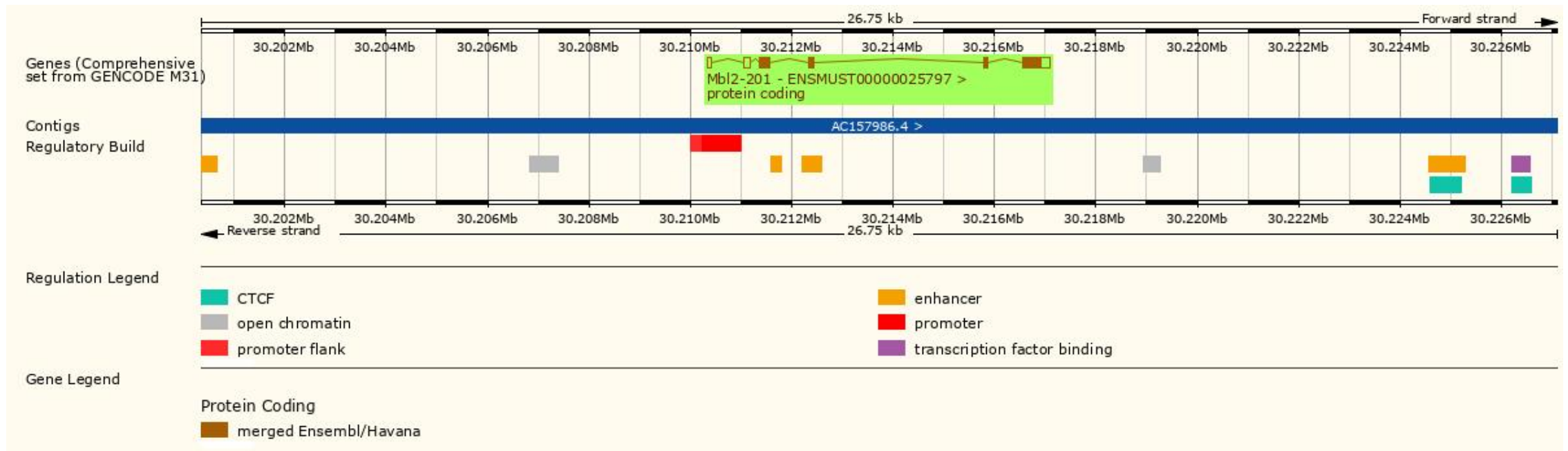
Transcript ID ▼	Name ▲	bp ▲	Protein ▲	Biotype ▲	CCDS ▲	UniProt Match ▲	Flags ▲
ENSMUST00000025797.7	Mbl2-201	1089	244aa	Protein coding	CCDS29742	P41317 Q3UEK1	Ensembl Canonical Gencode basic APPRIS P1 TSL:1

The strategy is based on the design of *Mbl2*-201 transcript, the transcription is shown below:

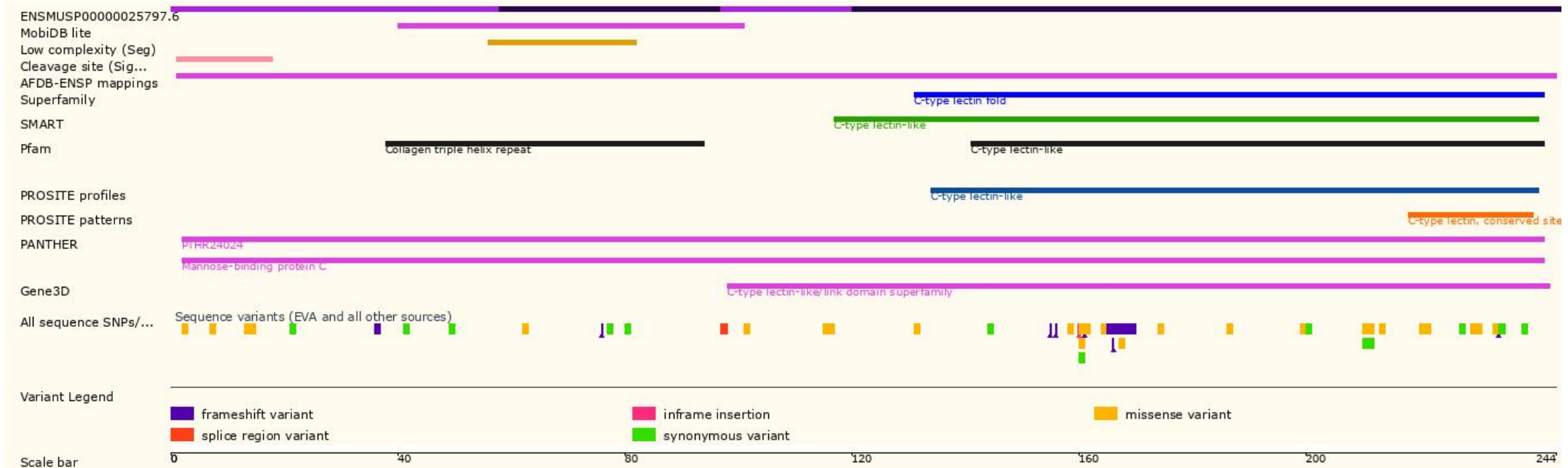


Source: <https://www.ensembl.org>

Genomic Information



Protein Information



Important Information

- A part of amino acid sequence will still remain at the N-terminal of the *Mbl2* gene.
- *Mbl2* is located on Chr 19. If the knockout mice are crossed with other mouse strains to obtain double homozygous mutant offspring, please avoid the situation that the second gene is 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 the existing technology level.