

Map1lc3b Cas9-CKO Strategy

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Date: 2019/12/2

Project Overview

Project Name

Map1lc3b

Project type

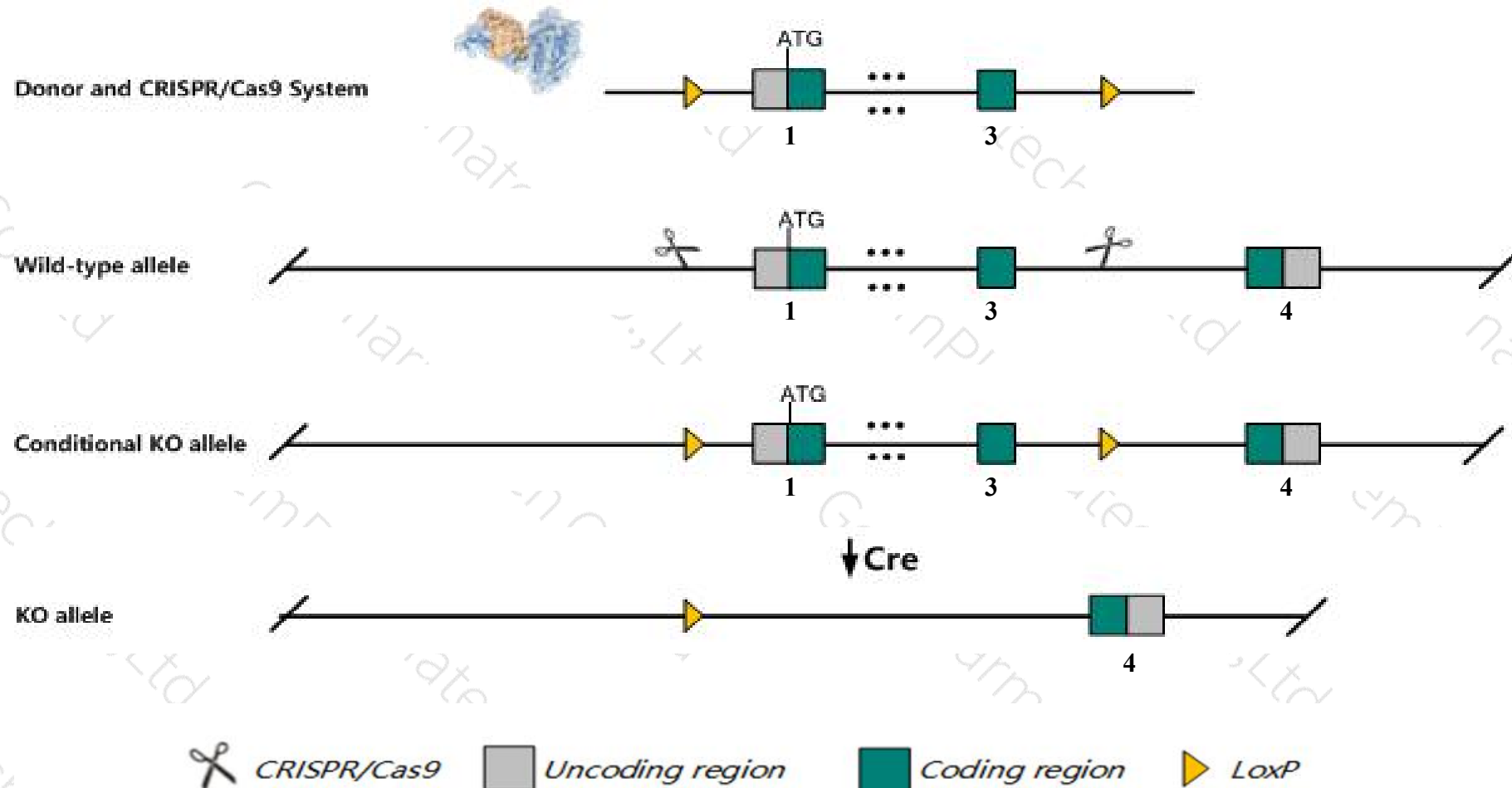
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Map1lc3b* gene. The schematic diagram is as follows:



- The *Map1lc3b* gene has 5 transcripts. According to the structure of *Map1lc3b* gene, exon1-exon3 of *Map1lc3b-201* (ENSMUST00000034270.16) 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 *Map1lc3b* 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.

- According to the existing MGI data, Mice homozygous for a knock-out allele develop, breed and behave normally and display a normal life span. In culture, mutant MEFs maintain wild-type levels of fibronectin (FN) protein despite reduced FN synthesis, and show normal induction of autophagosomes under starvation conditions.
- The *Map1lc3b* 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)

Map1lc3b microtubule-associated protein 1 light chain 3 beta [Mus musculus (house mouse)]

Gene ID: 67443, updated on 9-Apr-2019

Summary



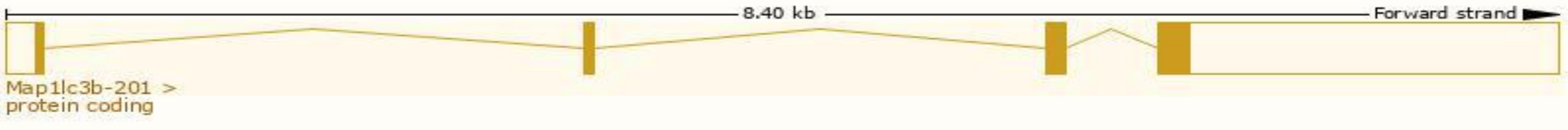
Official Symbol	Map1lc3b provided by MGI
Official Full Name	microtubule-associated protein 1 light chain 3 beta provided by MGI
Primary source	MGI:MGI:1914693
See related	Ensembl:ENSMUSG00000031812
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1010001C15Rik, Atg8, LC3b, MAP1A/MAP1B, Map1lc3
Expression	Ubiquitous expression in kidney adult (RPKM 80.9), adrenal adult (RPKM 77.3) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

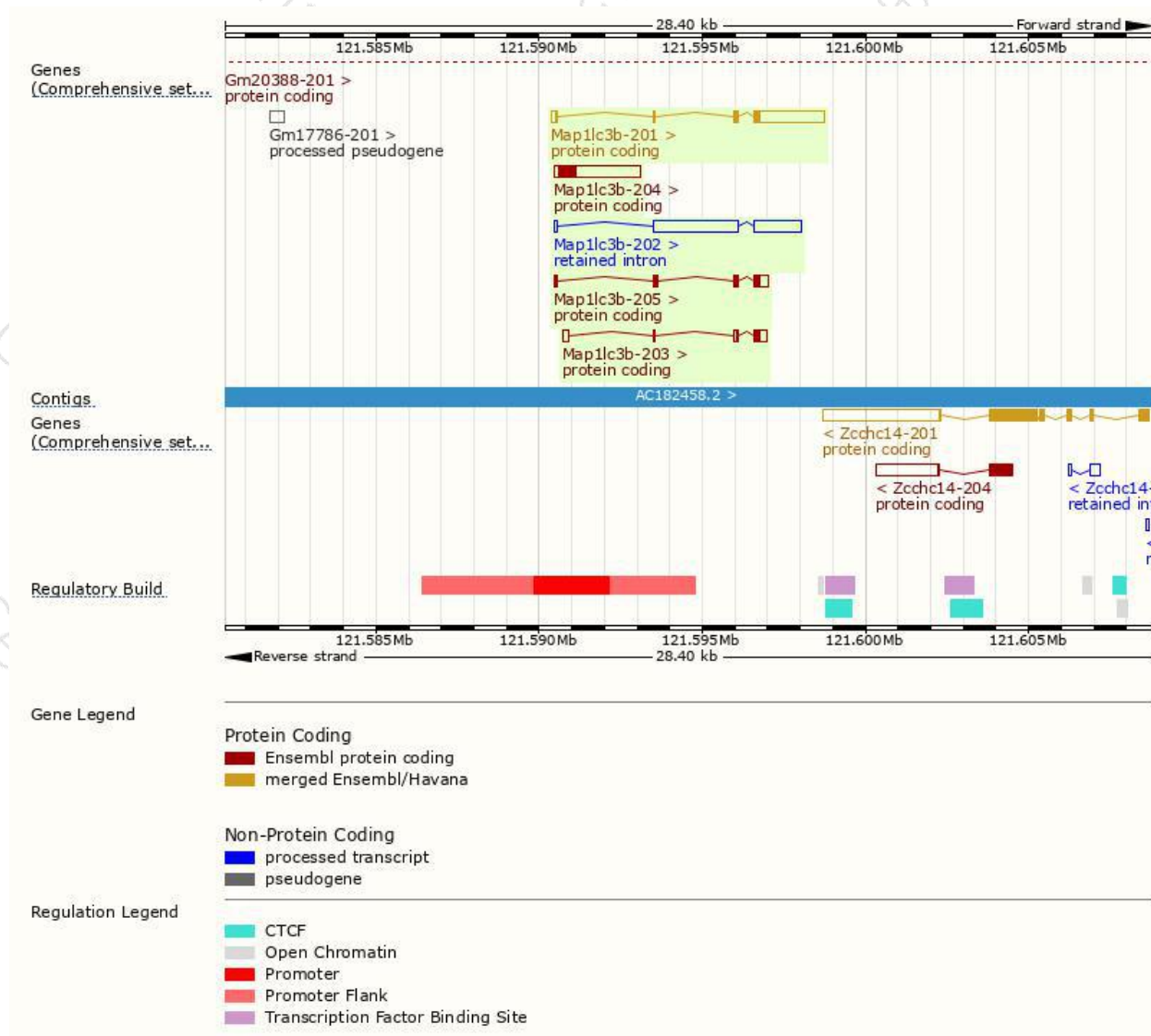
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Map1lc3b-201	ENSMUST00000034270.16	2532	125aa	Protein coding	CCDS22726	Q9CQV6	TSL:1 GENCODE basic APPRIS P1
Map1lc3b-204	ENSMUST00000181826.1	2633	173aa	Protein coding	-	A0A1D5RLG5	TSL:NA GENCODE basic
Map1lc3b-203	ENSMUST00000181521.1	775	66aa	Protein coding	-	M0QWT8	TSL:3 GENCODE basic
Map1lc3b-205	ENSMUST00000181948.1	766	160aa	Protein coding	-	M0QWC2	TSL:2 GENCODE basic
Map1lc3b-202	ENSMUST00000180548.1	4138	No protein	Retained intron	-	-	TSL:1

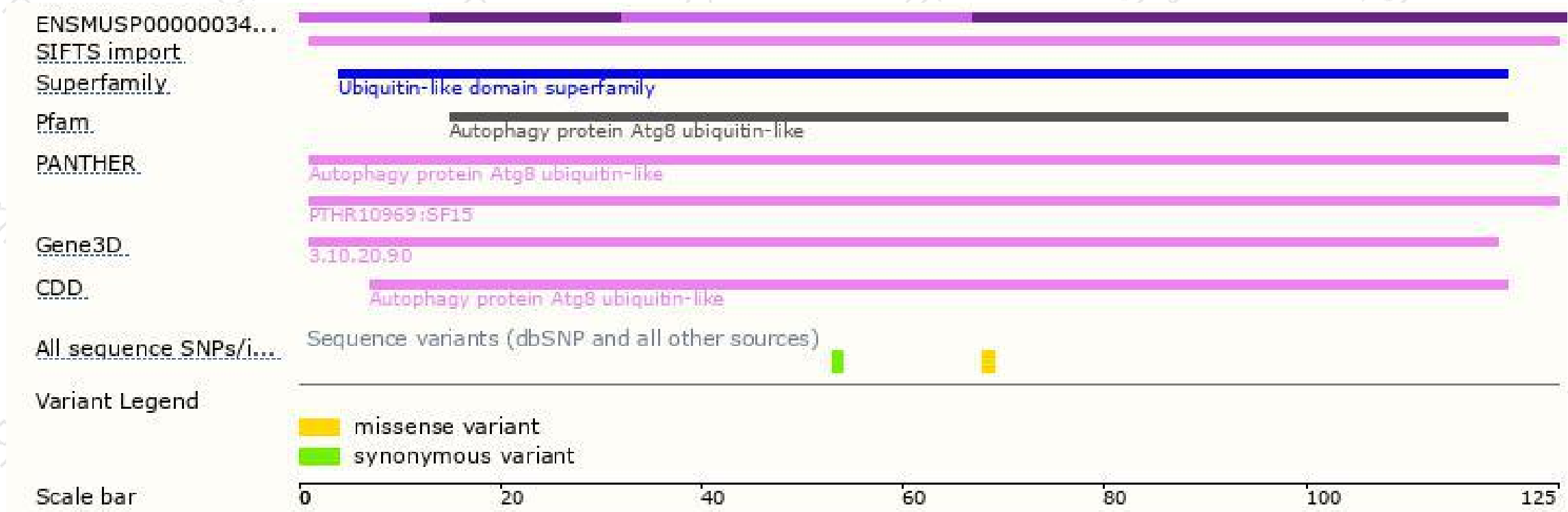
The strategy is based on the design of *Map1lc3b-201* transcript,The transcription is shown below



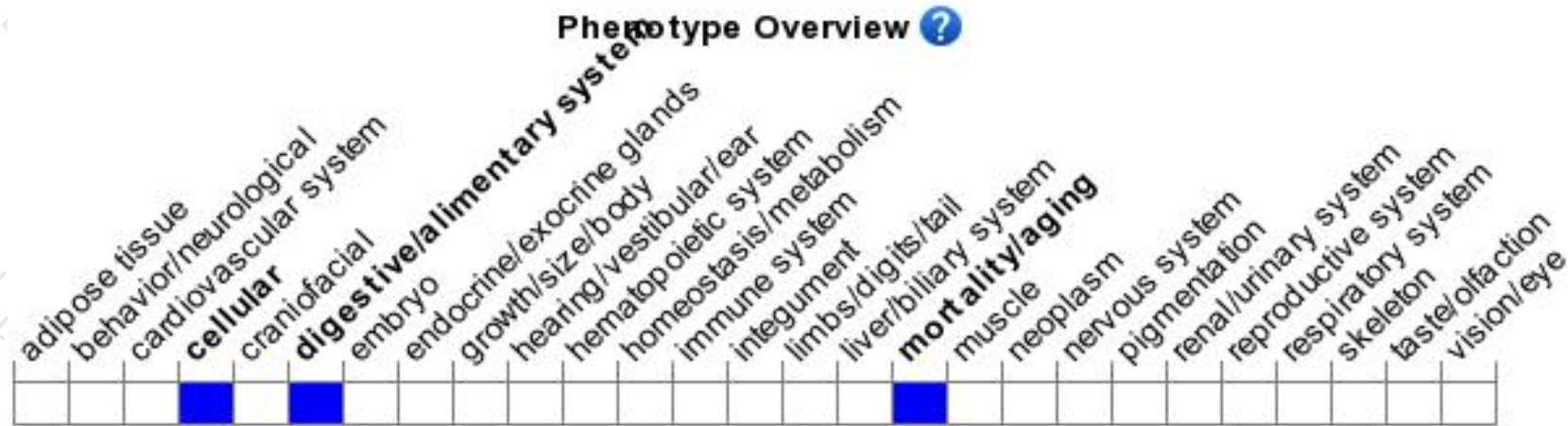
Genomic location distribution



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 develop, breed and behave normally and display a normal life span. In culture, mutant MEFs maintain wild-type levels of fibronectin (FN) protein despite reduced FN synthesis, and show normal induction of autophagosomes under starvation conditions.

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

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