

L3mbtl4 Cas9-CKO Strategy

Designer: Daohua Xu

Reviewer: Xueting Zhang

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Project Overview

Project Name

L3mbtl4

Project type

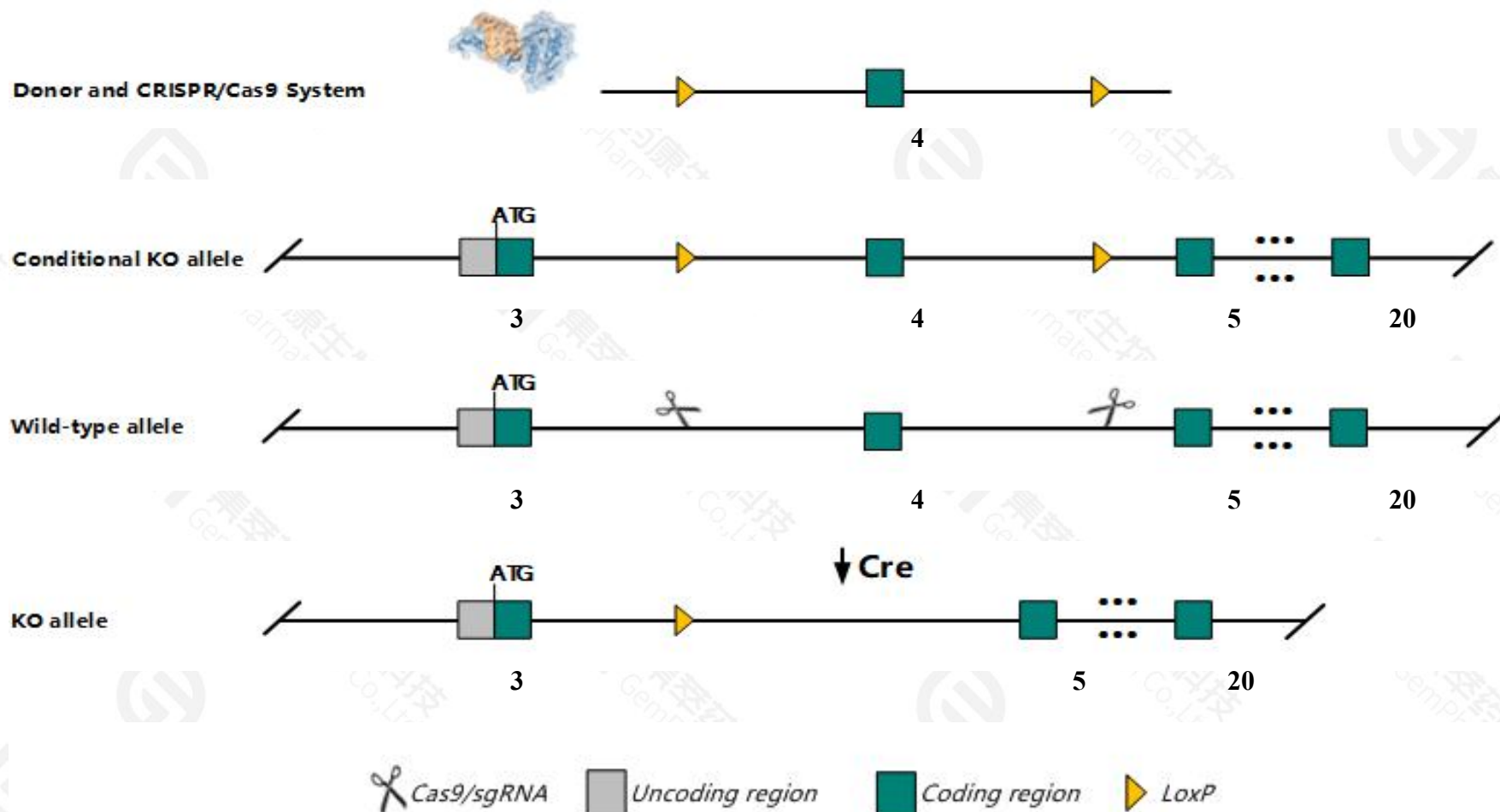
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *L3mbtl4* gene. The schematic diagram is as follows:



- The *L3mbtl4* gene has 6 transcripts. According to the structure of *L3mbtl4* gene, exon4 of *L3mbtl4-201*(ENSMUST00000093007.5) transcript is recommended as the knockout region. The region contains 55bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *L3mbtl4* 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.

- Transcript *L3mbtl4*-205 may not be affected.
- The *L3mbtl4* gene is located on the Chr17. 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)

L3mbtl4 L3MBTL4 histone methyl-lysine binding protein [Mus musculus (house mouse)]

Gene ID: 320858, updated on 13-Mar-2020

Summary



Official Symbol L3mbtl4 provided by [MGI](#)

Official Full Name L3MBTL4 histone methyl-lysine binding protein provided by [MGI](#)

Primary source [MGI:MGI:2444889](#)

See related [Ensembl:ENSMUSG00000041565](#)

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 A730037L19Rik, D930040M24Rik

Expression Low expression observed in reference dataset [See more](#)

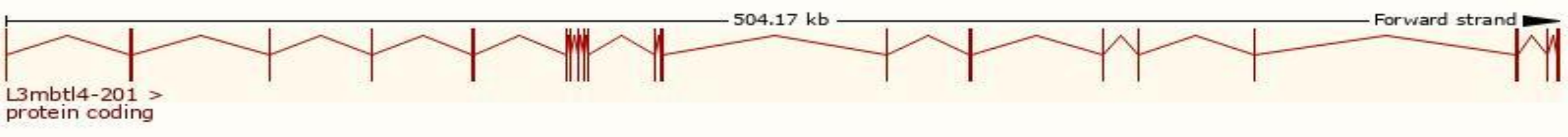
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

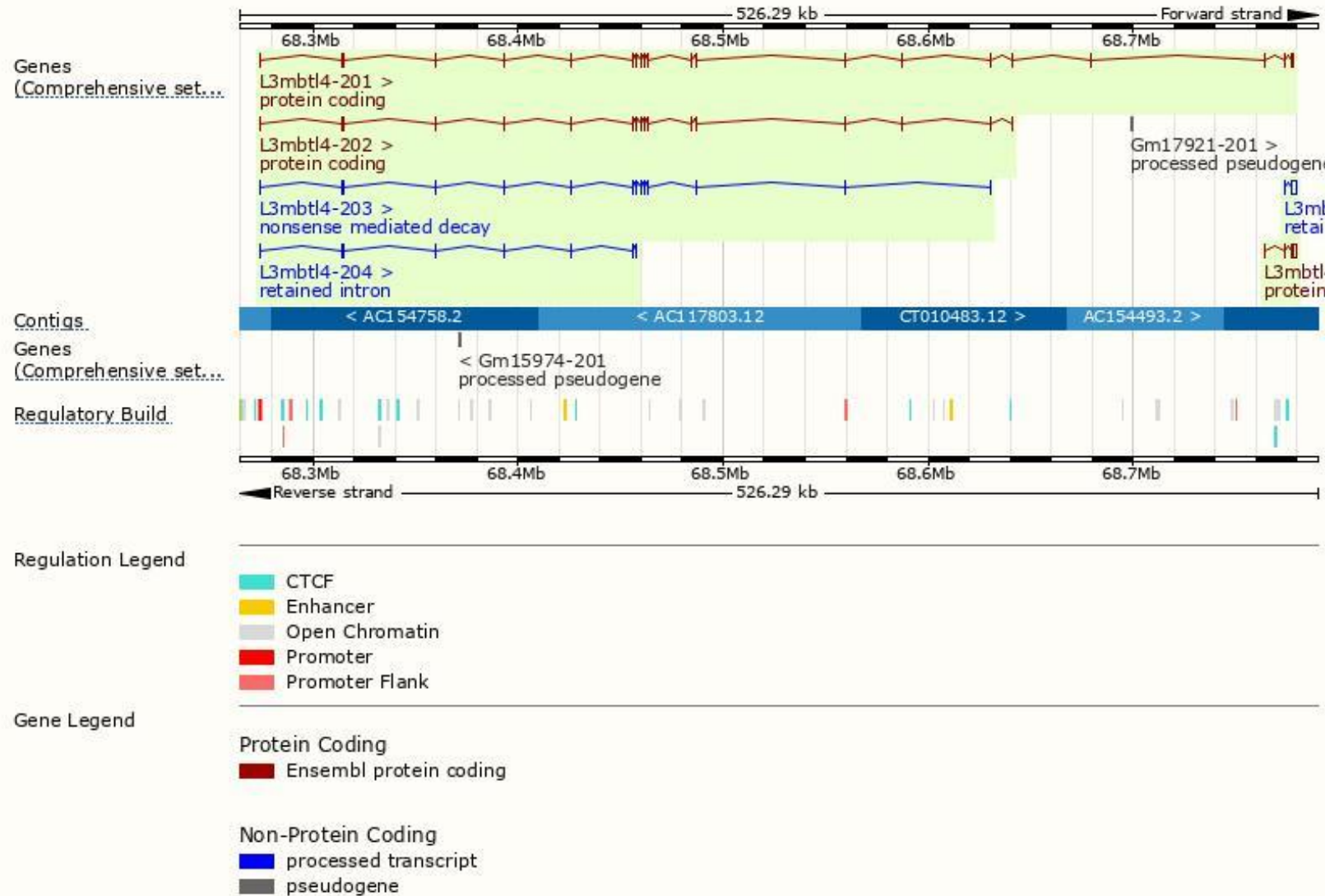
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
L3mbtl4-201	ENSMUST00000093007.5	2445	621aa	Protein coding	-	D3YW39	TSL:5 GENCODE basic APPRIS P1
L3mbtl4-205	ENSMUST00000233625.1	2216	131aa	Protein coding	-	A0A3B2WC18	CDS 5' incomplete
L3mbtl4-202	ENSMUST00000124543.7	2023	481aa	Protein coding	-	A0A0A0MQK6	CDS 3' incomplete TSL:5
L3mbtl4-203	ENSMUST00000139383.7	2308	292aa	Nonsense mediated decay	-	D6REI4	TSL:1
L3mbtl4-206	ENSMUST00000233696.1	2790	No protein	Retained intron	-	-	
L3mbtl4-204	ENSMUST00000150573.7	1564	No protein	Retained intron	-	-	TSL:1

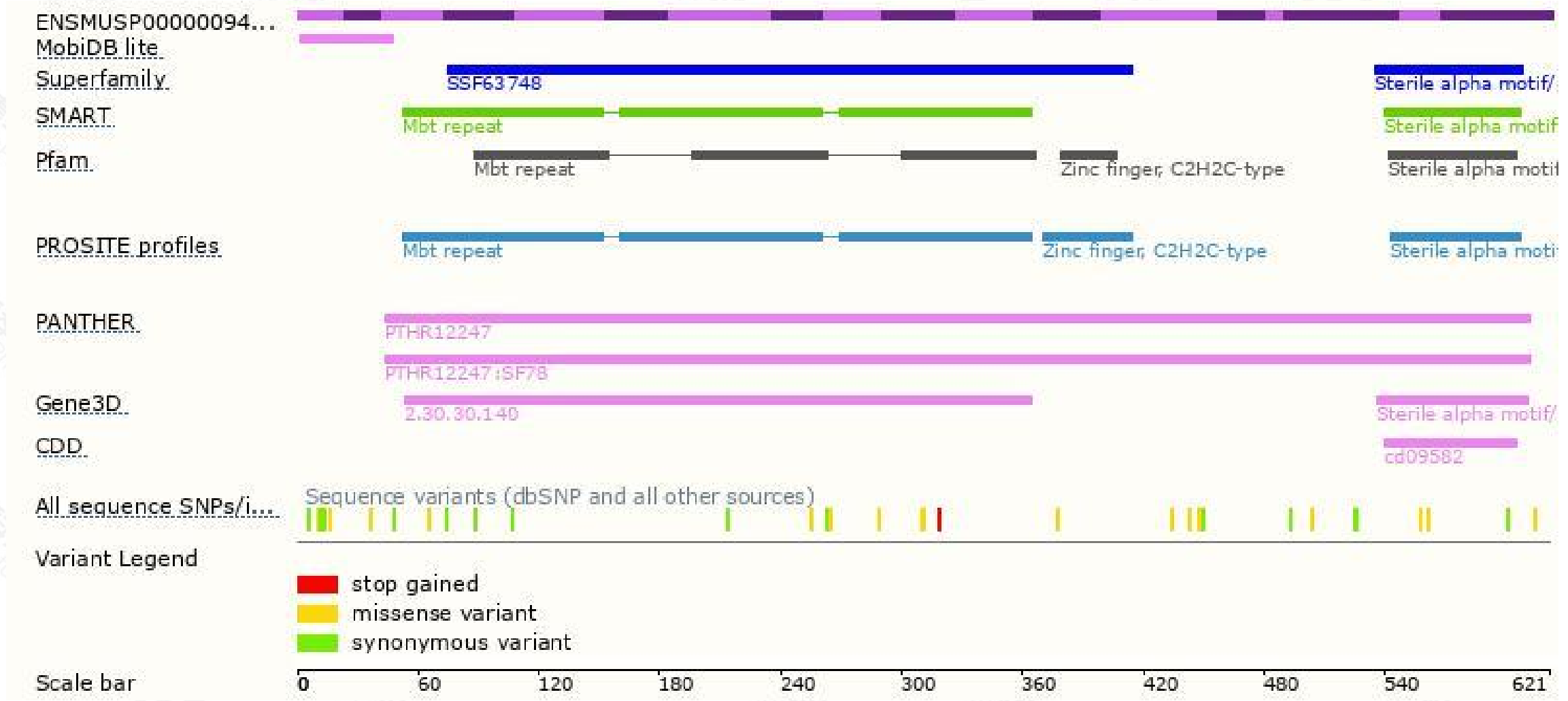
The strategy is based on the design of *L3mbtl4-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

Tel: 025-5864 1534

