

Lamp5 Cas9-CKO Strategy

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Project Overview

Project Name

Lamp5

Project type

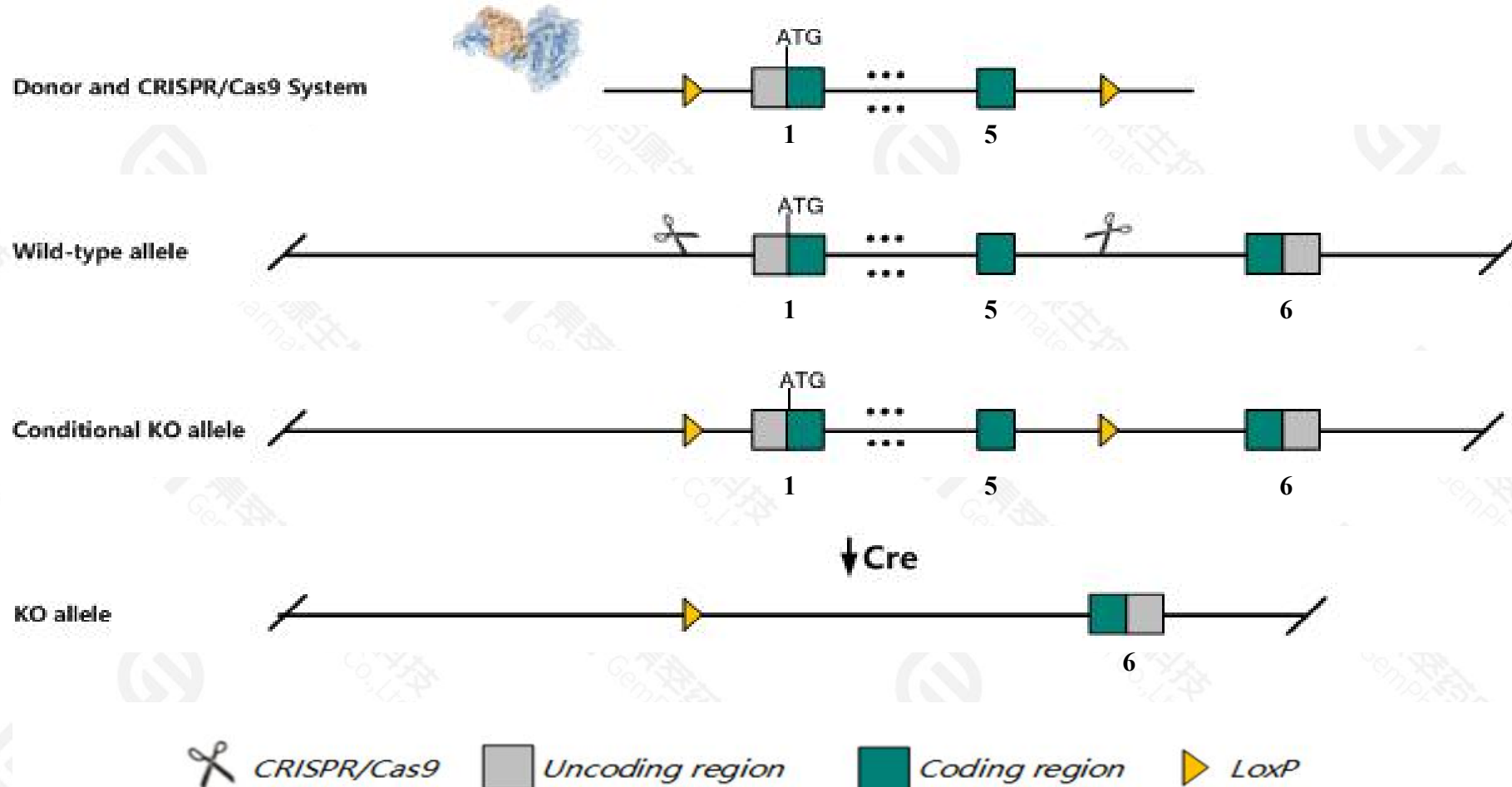
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Lamp5* gene. The schematic diagram is as follows:



- The *Lamp5* gene has 5 transcripts. According to the structure of *Lamp5* gene, exon1-exon5 of *Lamp5-201*(ENSMUST00000057503.6) 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 *Lamp5* 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.

- The *Lamp5* gene is located on the Chr2. 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)

Lamp5 lysosomal-associated membrane protein family, member 5 [Mus musculus (house mouse)]

Gene ID: 76161, updated on 13-Mar-2020

Summary



Official Symbol Lamp5 provided by [MGI](#)

Official Full Name lysosomal-associated membrane protein family, member 5 provided by [MGI](#)

Primary source [MGI:MGI:1923411](#)

See related [Ensembl:ENSMUSG00000027270](#)

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 3110035N03Rik, 6330527O06Rik, BAD-LAMP, LAMP-5

Expression Biased expression in cortex adult (RPKM 56.6), frontal lobe adult (RPKM 36.0) and 3 other tissues [See more](#)

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

Transcript information (Ensembl)

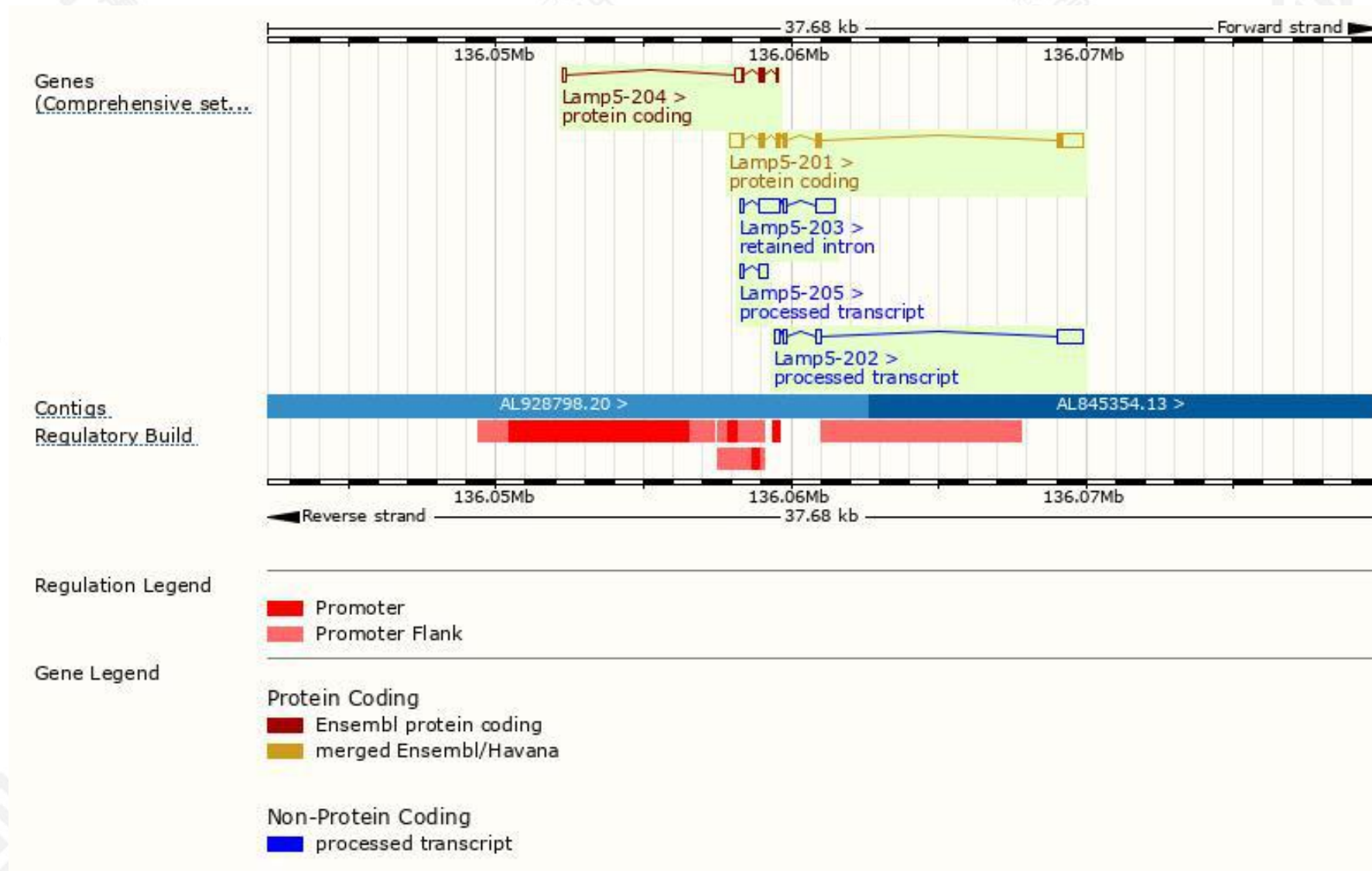
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Lamp5-201	ENSMUST00000057503.6	1955	280aa	Protein coding	CCDS16789	Q9D387	TSL:1 GENCODE basic APPRIS P1
Lamp5-204	ENSMUST00000144403.7	622	91aa	Protein coding	-	A2AT95	CDS 3' incomplete TSL:2
Lamp5-202	ENSMUST00000123436.1	1384	No protein	Processed transcript	-	-	TSL:1
Lamp5-205	ENSMUST00000154674.7	393	No protein	Processed transcript	-	-	TSL:2
Lamp5-203	ENSMUST00000143777.7	1569	No protein	Retained intron	-	-	TSL:1

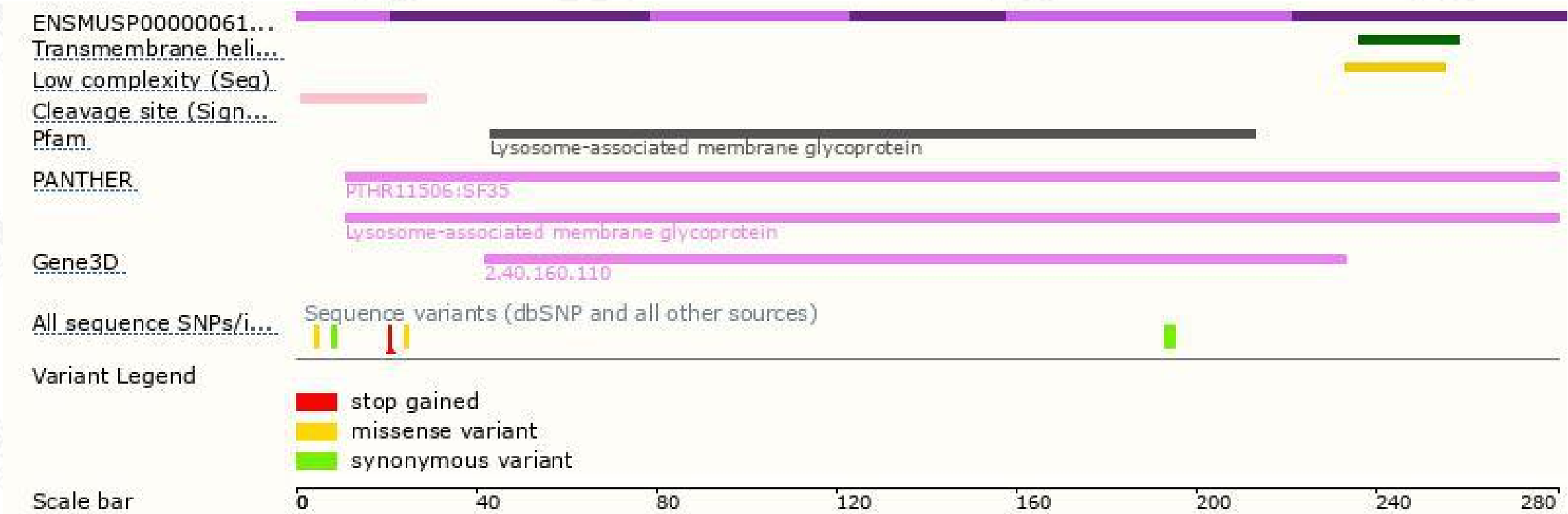
The strategy is based on the design of *Lamp5-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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