

Lamp1 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Lamp1

Project type

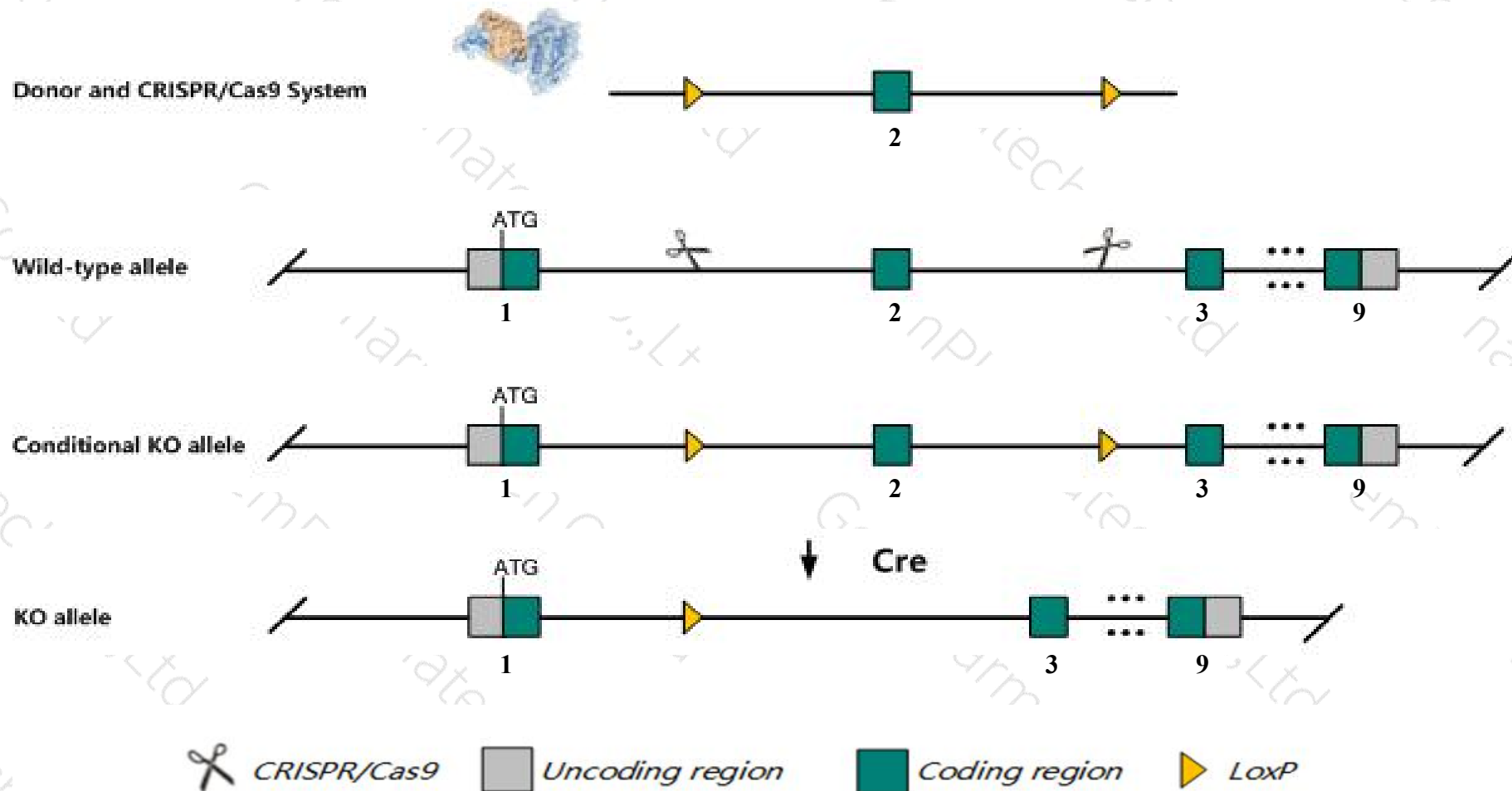
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Lamp1* gene. The schematic diagram is as follows:



- The *Lamp1* gene has 2 transcripts. According to the structure of *Lamp1* gene, exon2 of *Lamp1-201* (ENSMUST00000033824.7) transcript is recommended as the knockout region. The region contains 119bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Lamp1* 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 disruptions in this gene display a normal phenotype.
- The *Lamp1* 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)

Lamp1 lysosomal-associated membrane protein 1 [*Mus musculus* (house mouse)]

Gene ID: 16783, updated on 12-Aug-2019

Summary

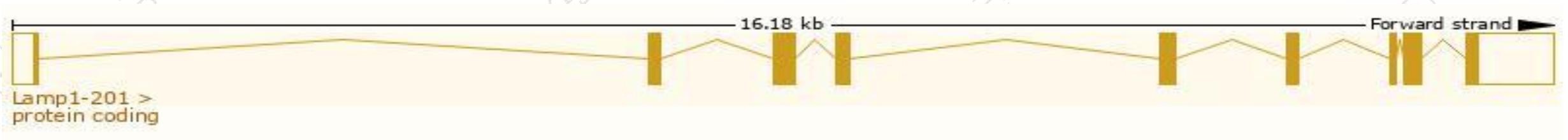
Official Symbol	Lamp1 provided by MGI
Official Full Name	lysosomal-associated membrane protein 1 provided by MGI
Primary source	MGI:MGI:96745
See related	Ensembl:ENSMUSG000000031447
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	P2B; Perk; LGP-A; CD107a; Lamp-1; LGP-120
Expression	Ubiquitous expression in kidney adult (RPKM 604.1), genital fat pad adult (RPKM 489.5) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

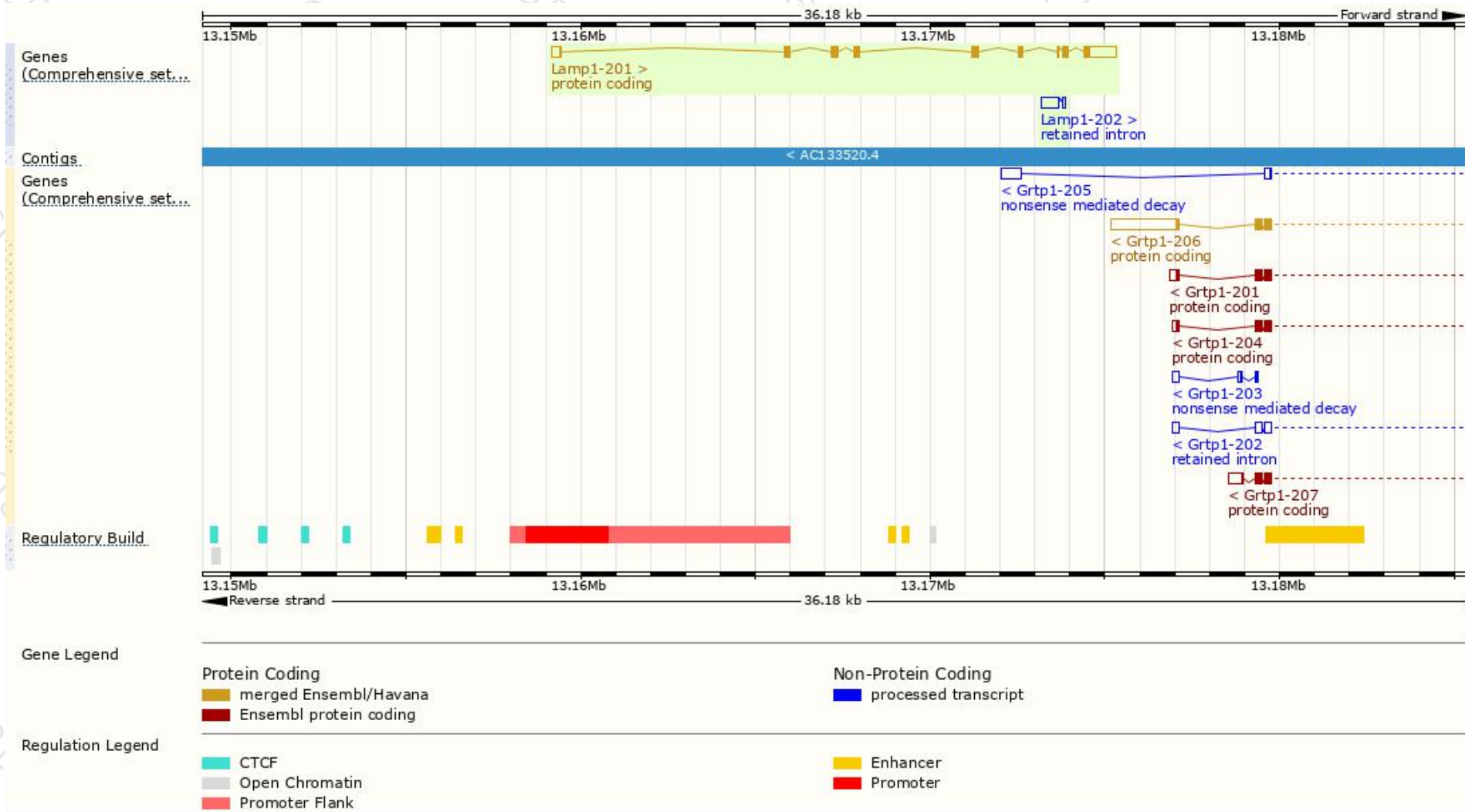
The gene has 2 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Lamp1-201	ENSMUST00000033824.7	2229	406aa	Protein coding	CCDS22106	P11438 Q3TA96	TSL:1 GENCODE basic APPRIS P1
Lamp1-202	ENSMUST00000209709.1	618	No protein	Retained intron	-	-	TSL:3

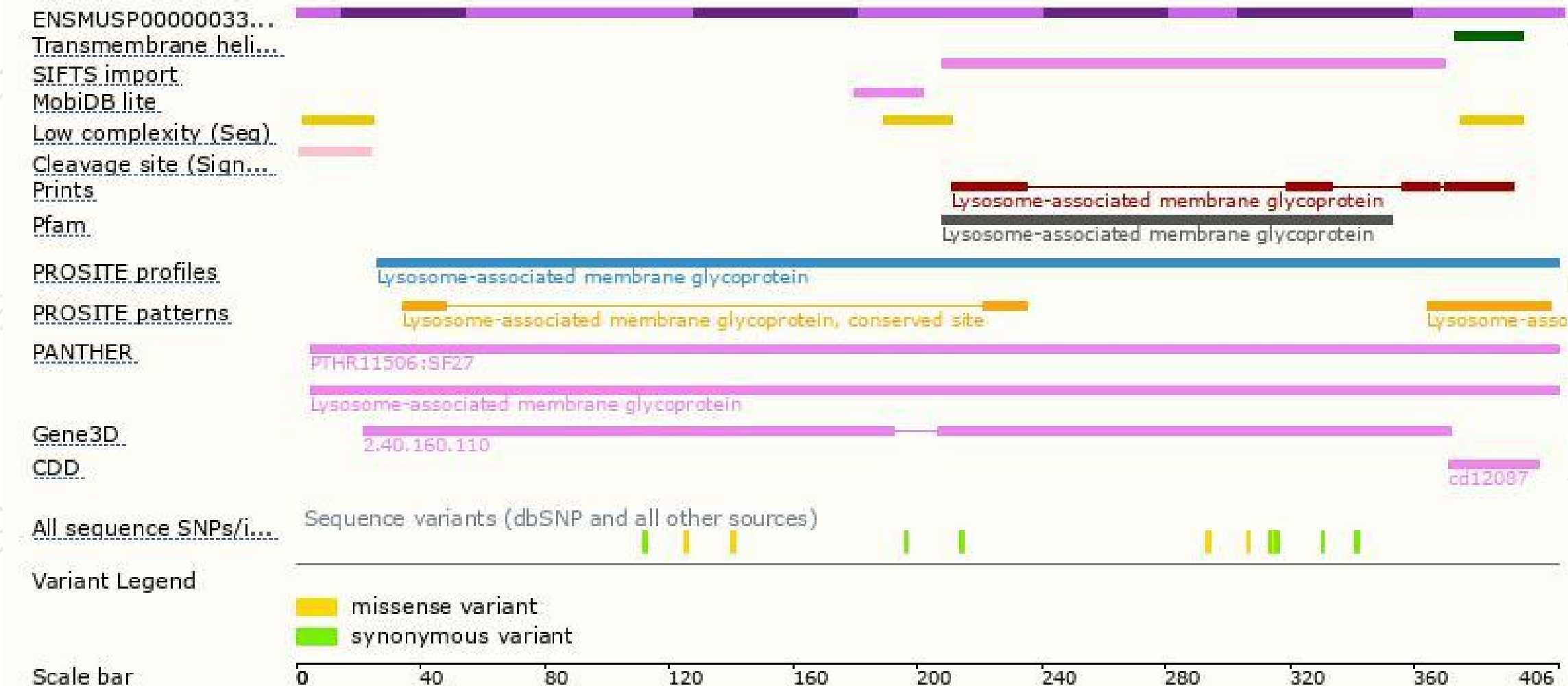
The strategy is based on the design of *Lamp1-201* transcript, The transcription is shown below



Genomic location distribution



Protein domain



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

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