

***Lamc1* Cas9-KO Strategy**

Designer: Linxin LYU

Project Overview

Project Name

Lamc1

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Lamc1* gene. The schematic diagram is as follows:



- The *Lamc1* gene has 5 transcripts. According to the structure of *Lamc1* gene, exon2 of *Lamc1-201* (ENSMUST00000027752.14) transcript is recommended as the knockout region. The region contains 305bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Lamc1* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Embryos homozygous for a targeted null mutation lack development of basement membranes, migration of primitive endoderm cells out of the inner cell mass, and parietal yolk sac development, resulting in lethality by embryonic day 5.5.
- Because the N-terminal of transcript 204 is incomplete, the impact of this strategy on it is unknown.
- The *Lamc1* gene is located on the Chr1. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Lamc1 laminin, gamma 1 [Mus musculus (house mouse)]

Gene ID: 226519, updated on 3-Feb-2019

Summary



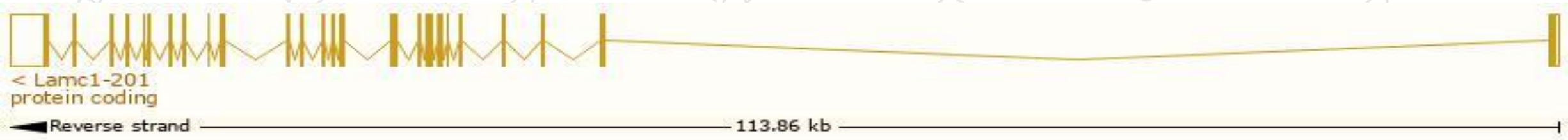
Official Symbol	Lamc1 provided by MGI
Official Full Name	laminin, gamma 1 provided by MGI
Primary source	MGI:MGI:99914
See related	Ensembl:ENSMUSG00000026478
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Lamb2
Expression	Broad expression in subcutaneous fat pad adult (RPKM 50.7), bladder adult (RPKM 46.9) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

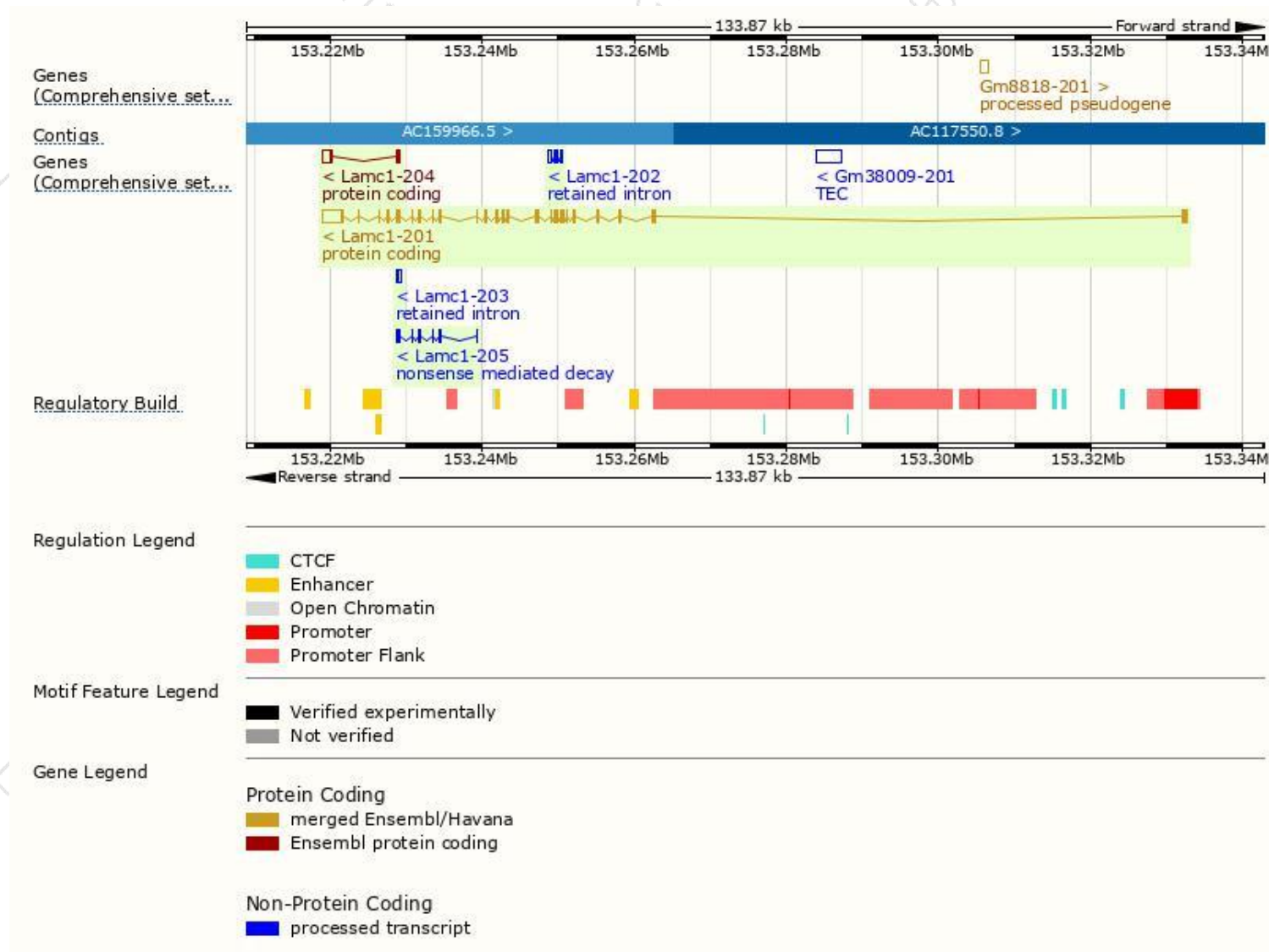
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Lamc1-201	ENSMUST00000027752.14	7622	1607aa	Protein coding	CCDS15370	F8VQJ3	TSL:1 GENCODE basic APPRIS P1
Lamc1-204	ENSMUST00000161744.1	1447	104aa	Protein coding	-	F6SFQ3	CDS 5' incomplete TSL:5
Lamc1-205	ENSMUST00000163011.1	762	125aa	Nonsense mediated decay	-	F6TLW1	CDS 5' incomplete TSL:5
Lamc1-202	ENSMUST00000159251.1	924	No protein	Retained intron	-	-	TSL:3
Lamc1-203	ENSMUST00000160515.1	466	No protein	Retained intron	-	-	TSL:3

The strategy is based on the design of *Lamc1-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



集萃药康
GemPharmatech



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, Embryos homozygous for a targeted null mutation lack development of basement membranes, migration of primitive endoderm cells out of the inner cell mass, and parietal yolk sac development, resulting in lethality by embryonic day 5.5.

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

Tel: 400-9660890

