

Lama1 Cas9-KO Strategy

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Project Overview

Project Name

Lama1

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Lama1* gene. The schematic diagram is as follows:



- The *Lama1* gene has 3 transcripts. According to the structure of *Lama1* gene, exon2-exon3 of *Lama1-201* (ENSMUST00000035471.8) transcript is recommended as the knockout region. The region contains 284bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Lama1* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous null mice display embryonic lethality before somite formation with impaired formation of Reicherts membrane.
- The *Lamal* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Lama1 laminin, alpha 1 [Mus musculus (house mouse)]

Gene ID: 16772, updated on 19-Mar-2019

Summary



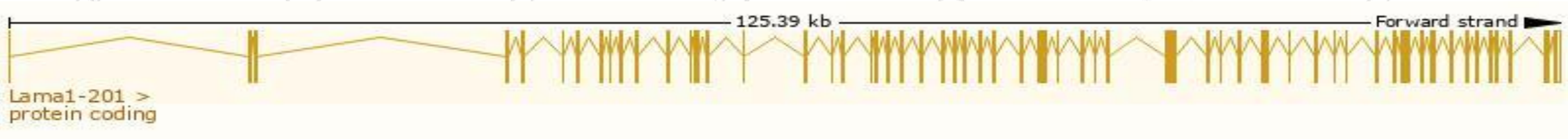
Official Symbol	Lama1 provided by MGI
Official Full Name	laminin, alpha 1 provided by MGI
Primary source	MGI:MGI:99892
See related	Ensembl:ENSMUSG00000032796
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AA408497, Lama
Expression	Biased expression in ovary adult (RPKM 19.3), placenta adult (RPKM 10.0) and 8 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

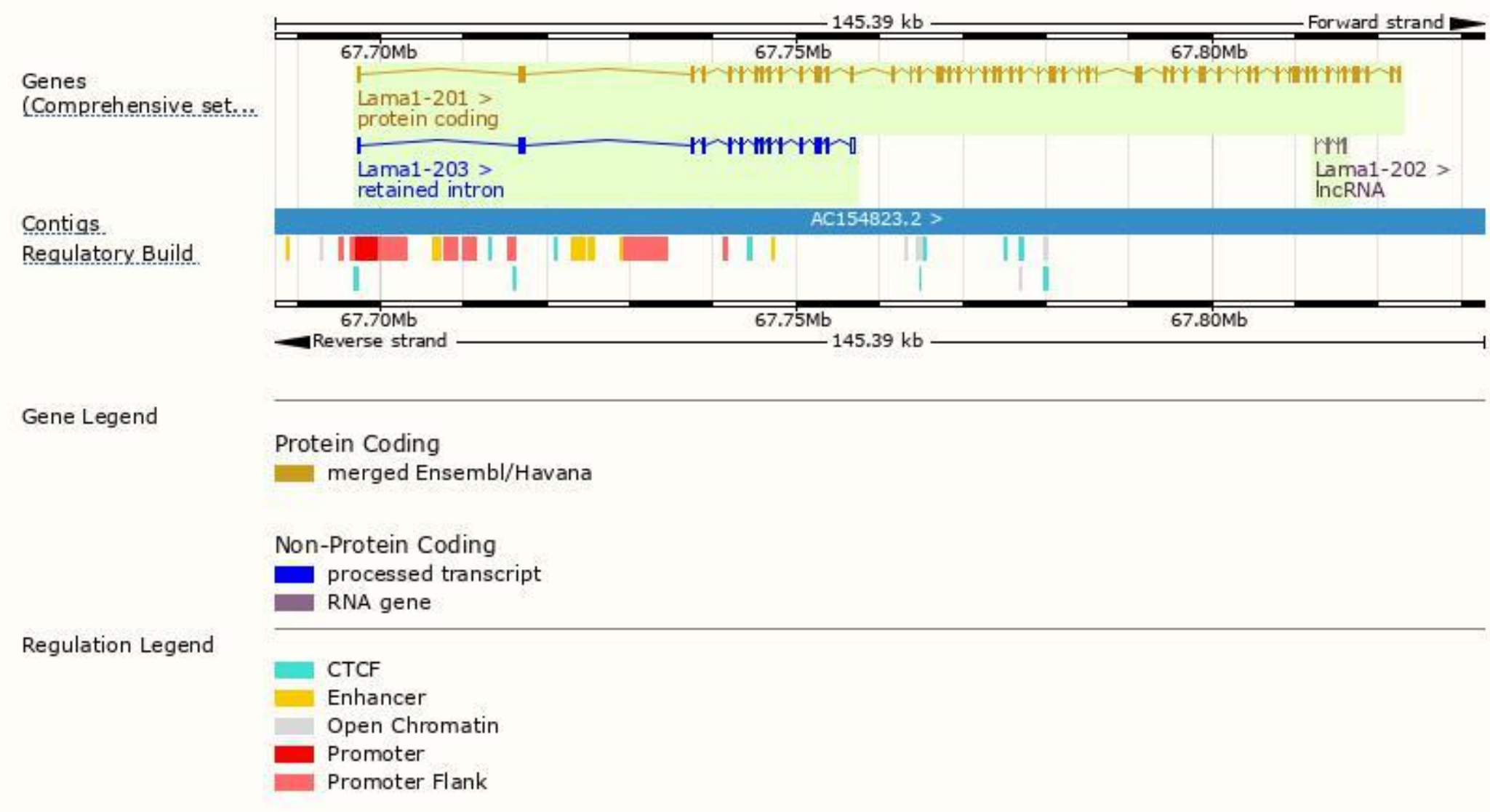
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Lama1-201	ENSMUST00000035471.8	9526	3083aa	Protein coding	CCDS37681	P19137	TSL:1 GENCODE basic APPRIS P1
Lama1-203	ENSMUST00000233821.1	2500	No protein	Retained intron	-	-	
Lama1-202	ENSMUST00000233224.1	565	No protein	lncRNA	-	-	

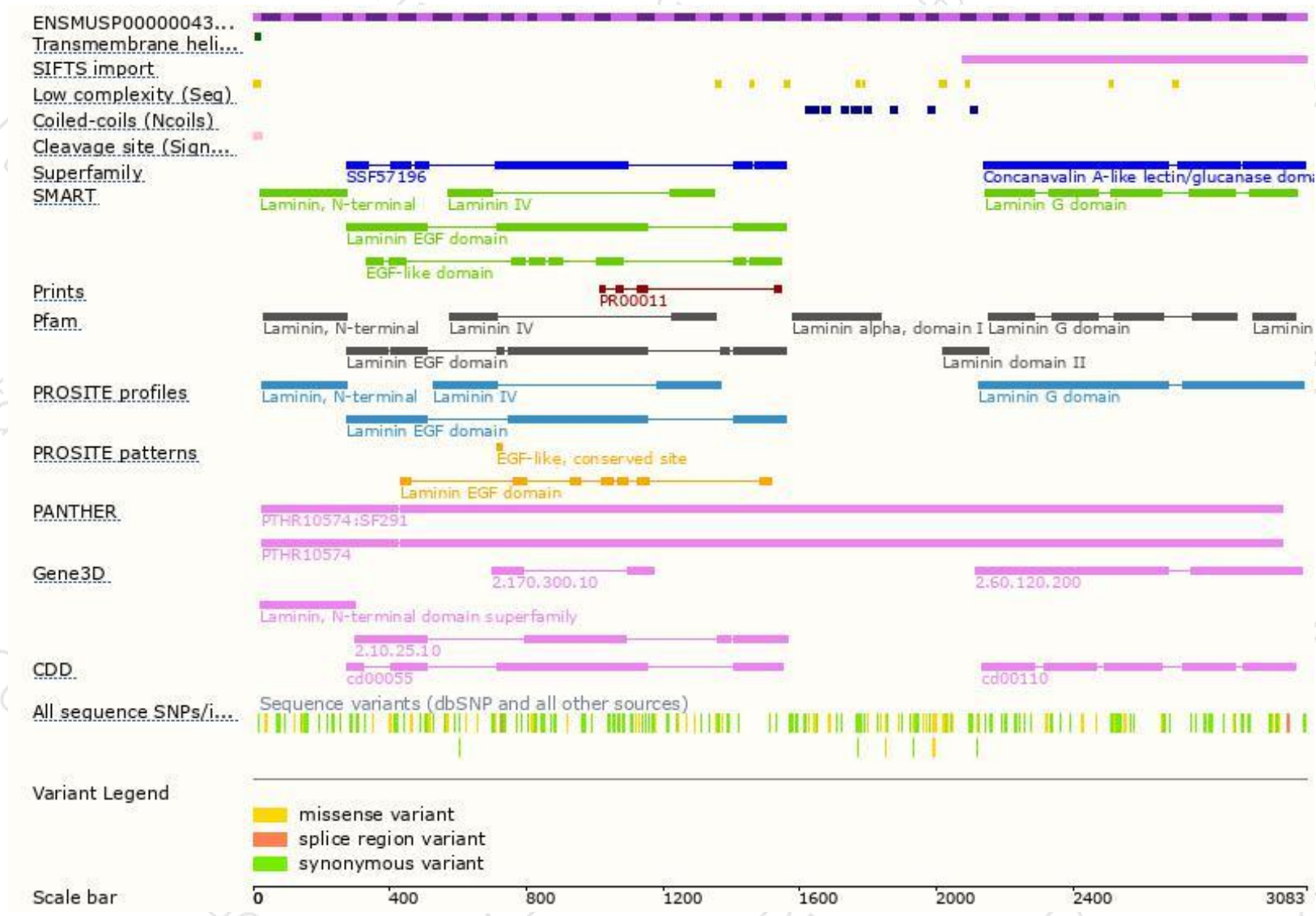
The strategy is based on the design of *Lama1-201* transcript,The transcription is shown below



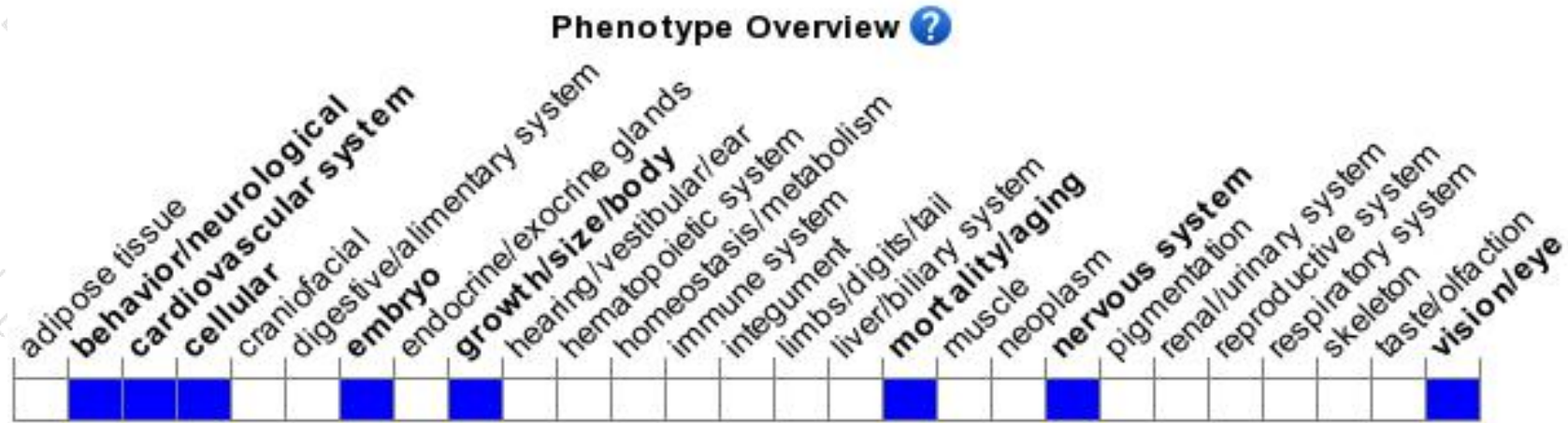
Genomic location distribution



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, Homozygous null mice display embryonic lethality before somite formation with impaired formation of Reicherts membrane.

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

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