

Lum Cas9-KO Strategy

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Project Overview

Project Name

Lum

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Lum* gene has 1 transcript. According to the structure of *Lum* gene, exon2 of *Lum*-201 (ENSMUST00000038160.5) 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 *Lum* gene. The brief process is as follows: CRISPR/Cas9 system w

- According to the existing MGI data, Mice homozygous for targeted disruptions of this gene have abnormally large and aberrantly contoured collagen fibrils forming a disorganized matrix in the tendon, skin, cornea and sclera, with consequent reductions in skin tensile strength and corneal clarity.
- The *Lum* gene is located on the Chr10. 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)

Lum lumican [Mus musculus (house mouse)]

Gene ID: 17022, updated on 5-Mar-2019

Summary



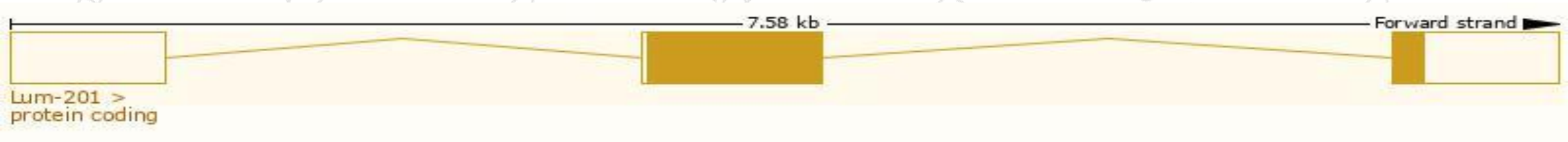
Official Symbol	Lum provided by MGI
Official Full Name	lumican provided by MGI
Primary source	MGI:MGI:109347
See related	Ensembl:ENSMUSG000000036446
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Ldc, SLRR2D
Expression	Biased expression in bladder adult (RPKM 192.5), limb E14.5 (RPKM 161.5) and 13 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

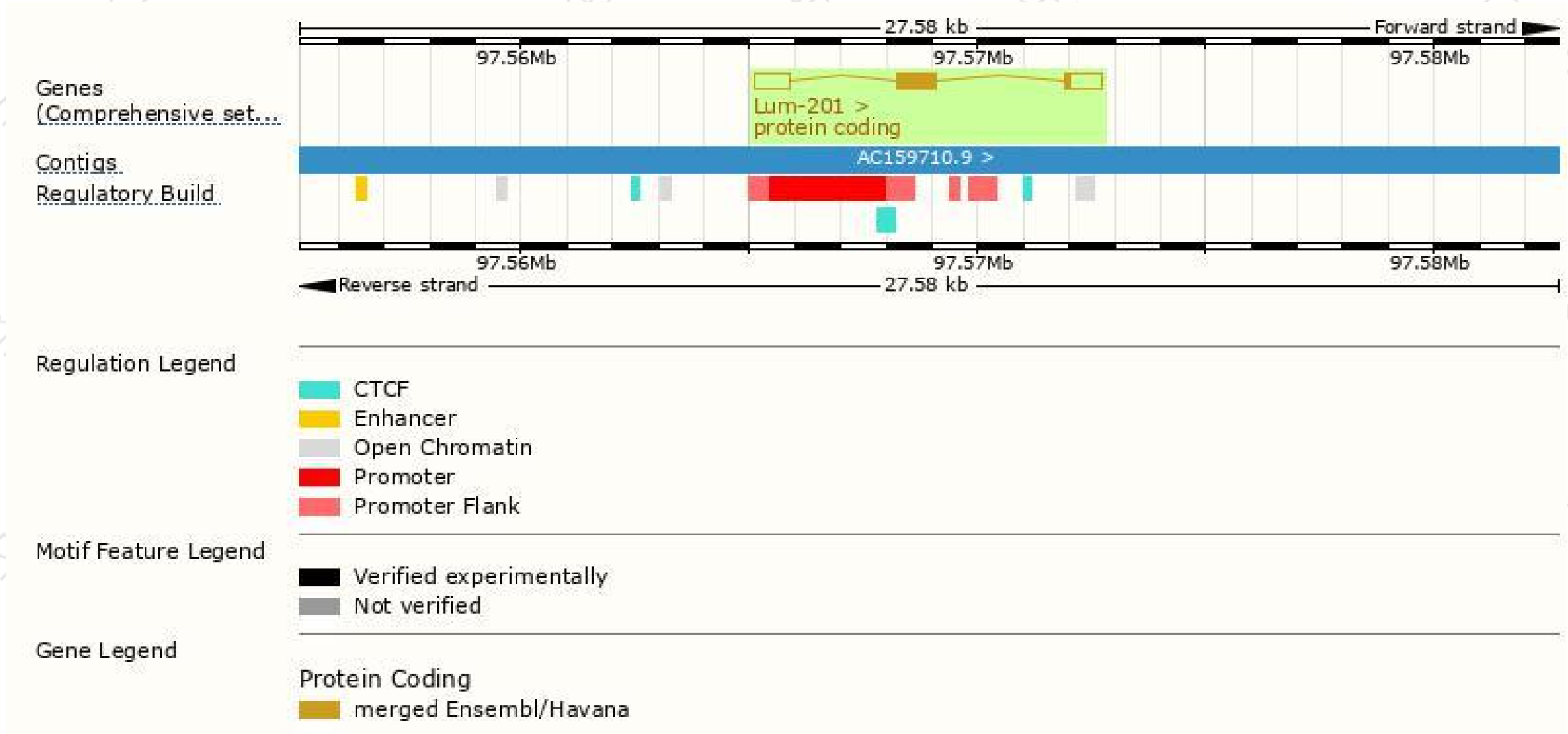
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Lum-201	ENSMUST00000038160.5	2448	338aa	Protein coding	CCDS24142	P51885	TSL:1 GENCODE basic APPRIS P1

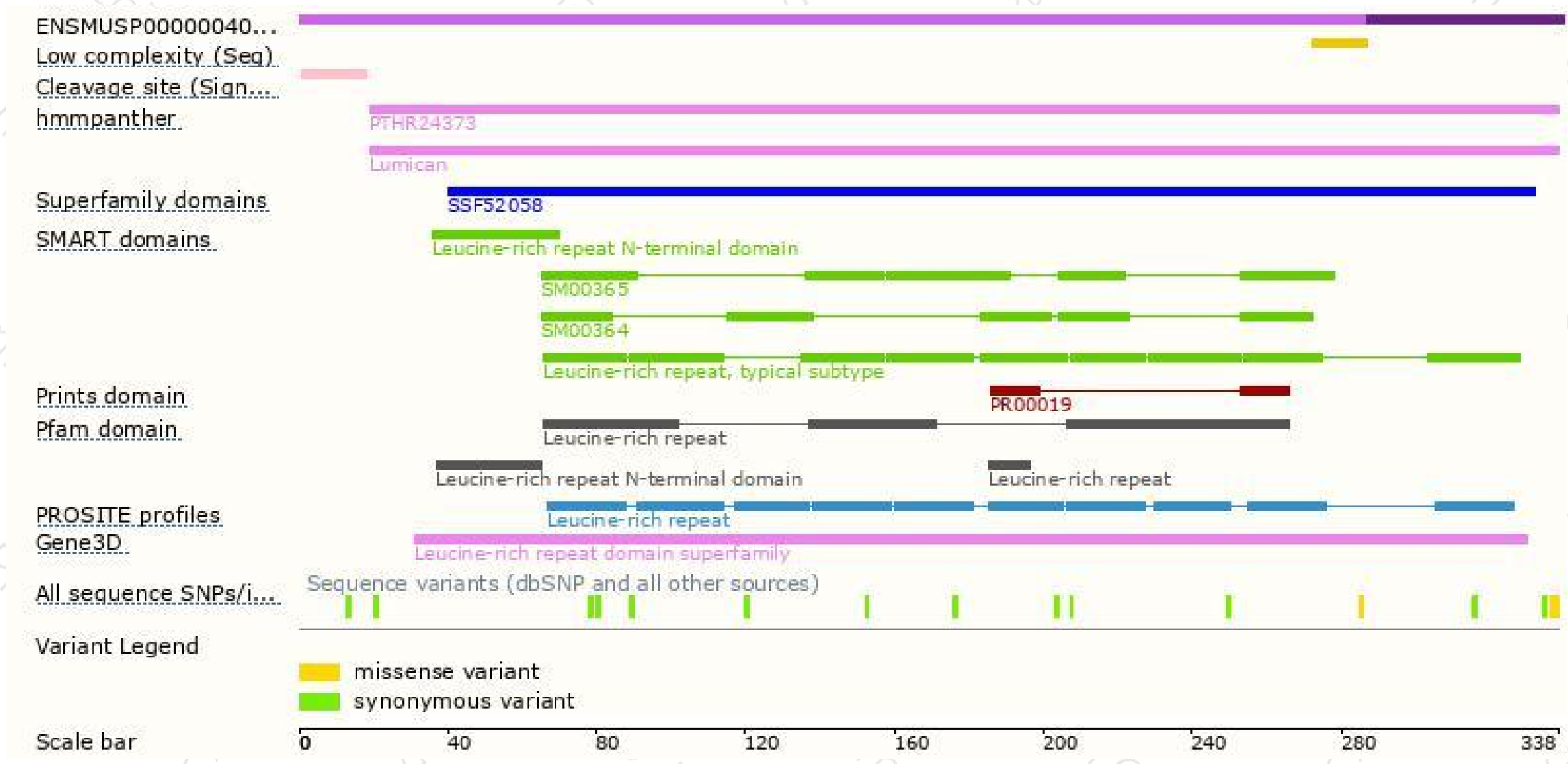
The strategy is based on the design of *Lum-201* transcript, The transcription is shown below



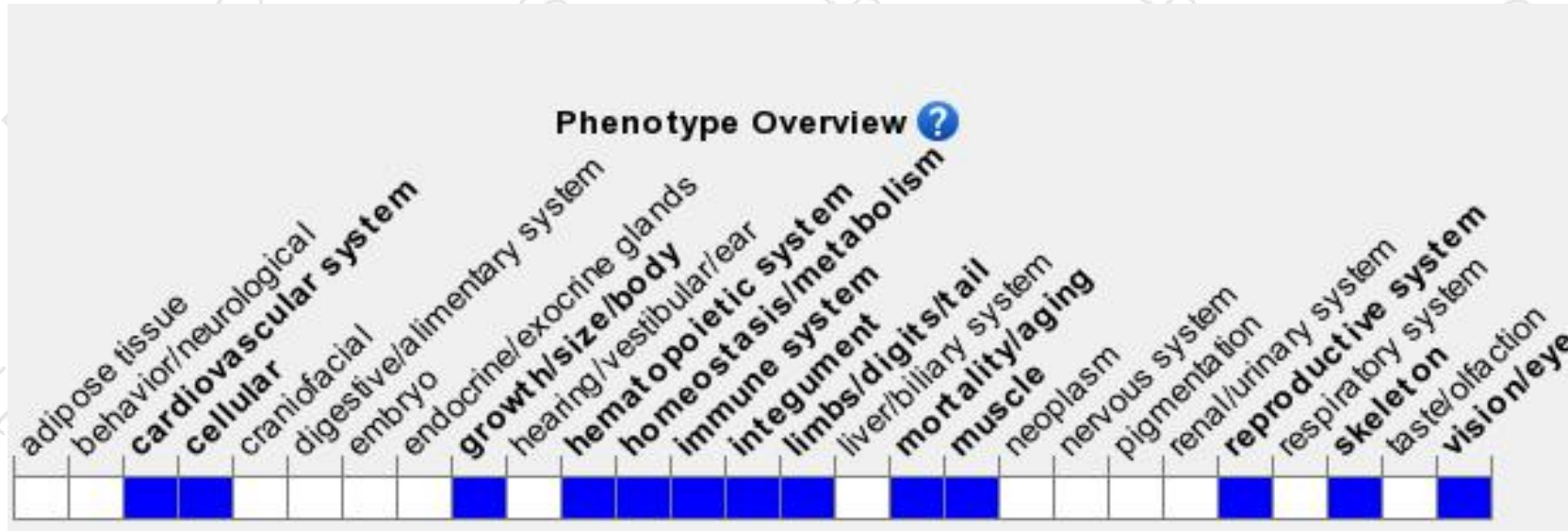
Genomic location distribution



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, Mice homozygous for targeted disruptions of this gene have abnormally large and aberrantly contoured collagen fibrils forming a disorganized matrix in the tendon, skin, cornea and sclera, with consequent reductions in skin tensile strength and corneal clarity.

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

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