Lum Cas9-CKO Strategy

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Project Overview

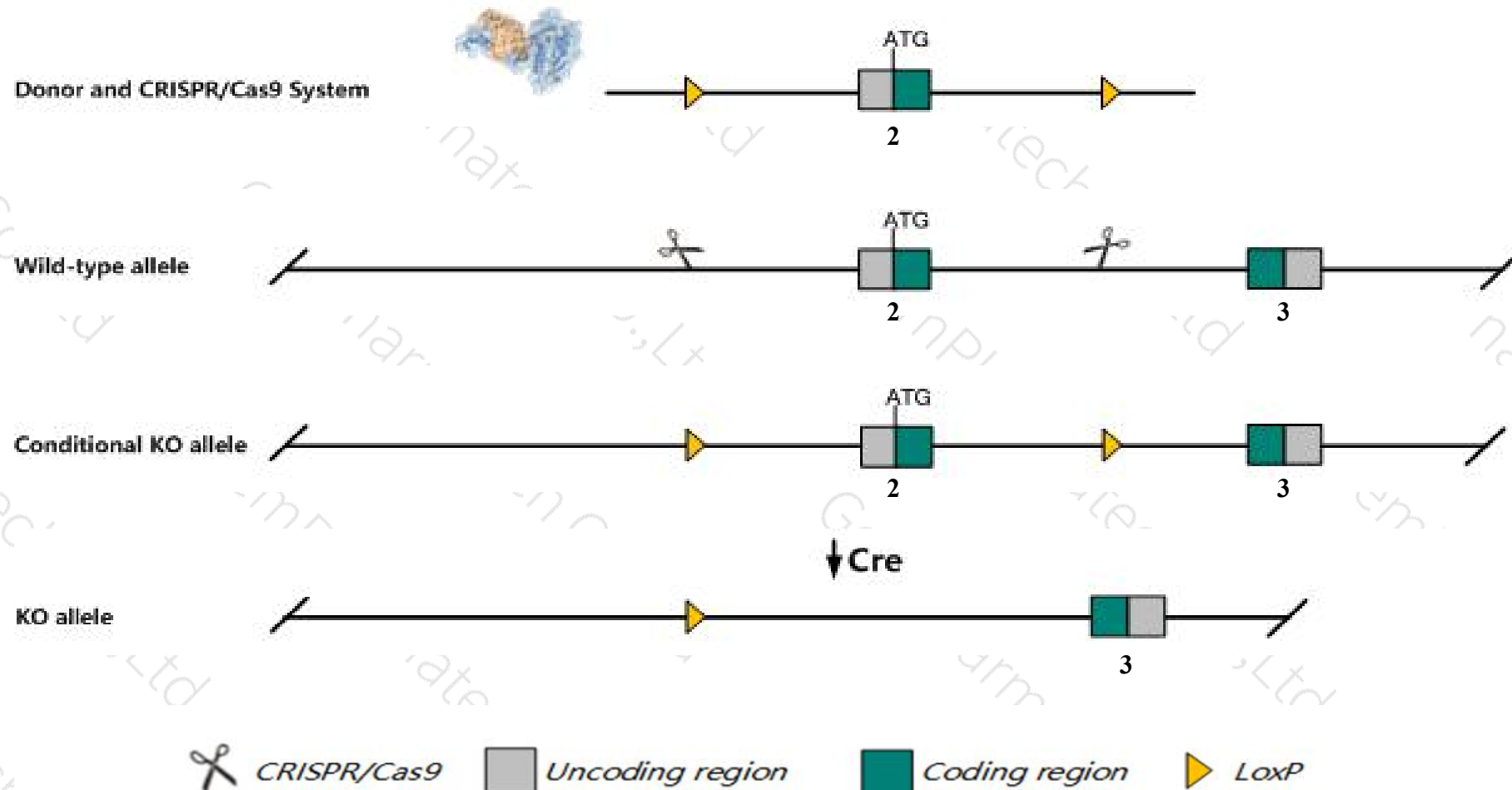|	
Project Name	*Lum*
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

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

Technical routes

➢ 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 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.

Notice

➢ 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological 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:ENSMUSG00000036446
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 tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

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

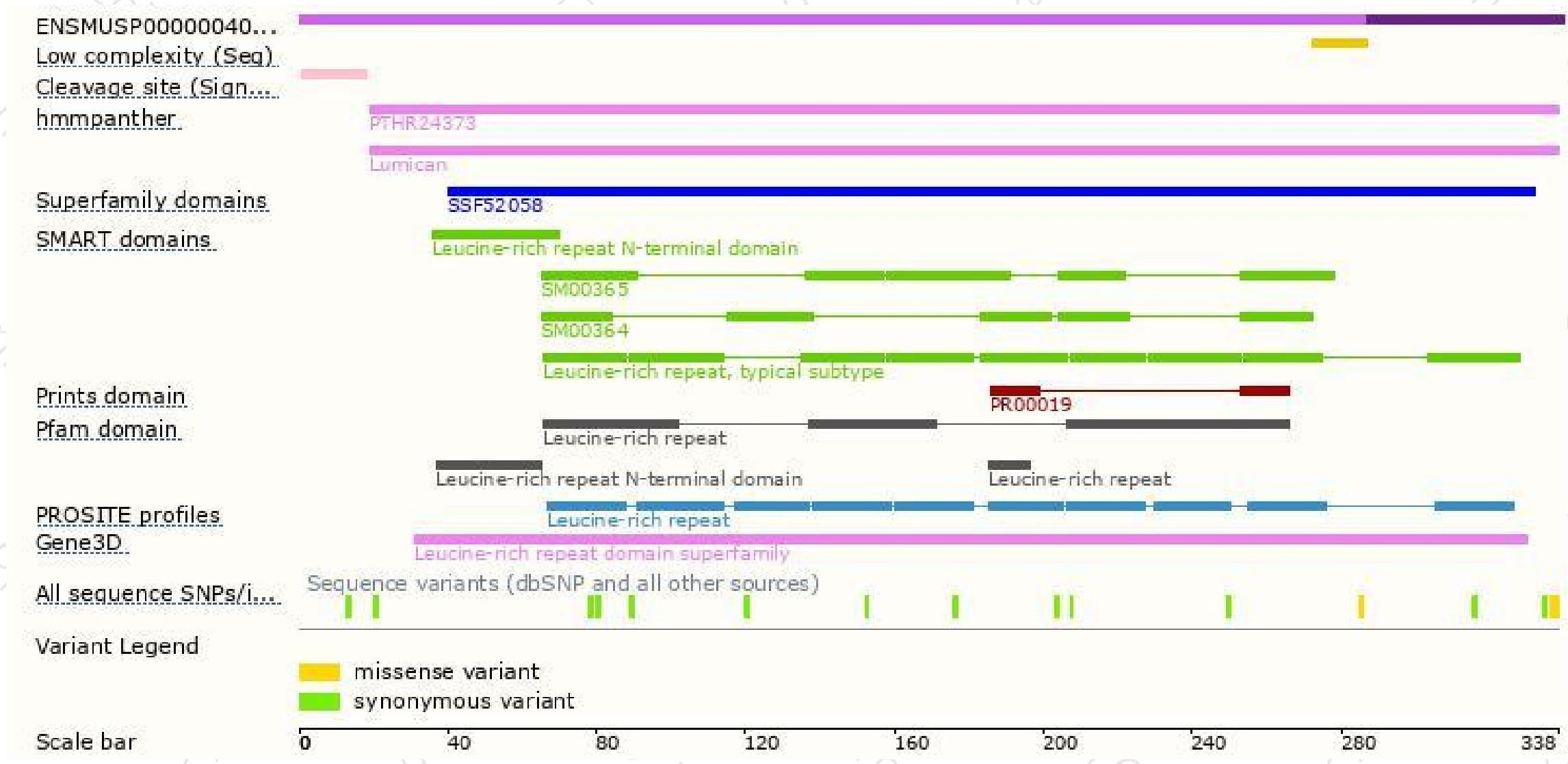| Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Lum-201	ENSMUST00000038160.5	2448	338aa	Protein coding	CCDS24142	P51885	TSL:1 GENCODE basic APPRIS P1

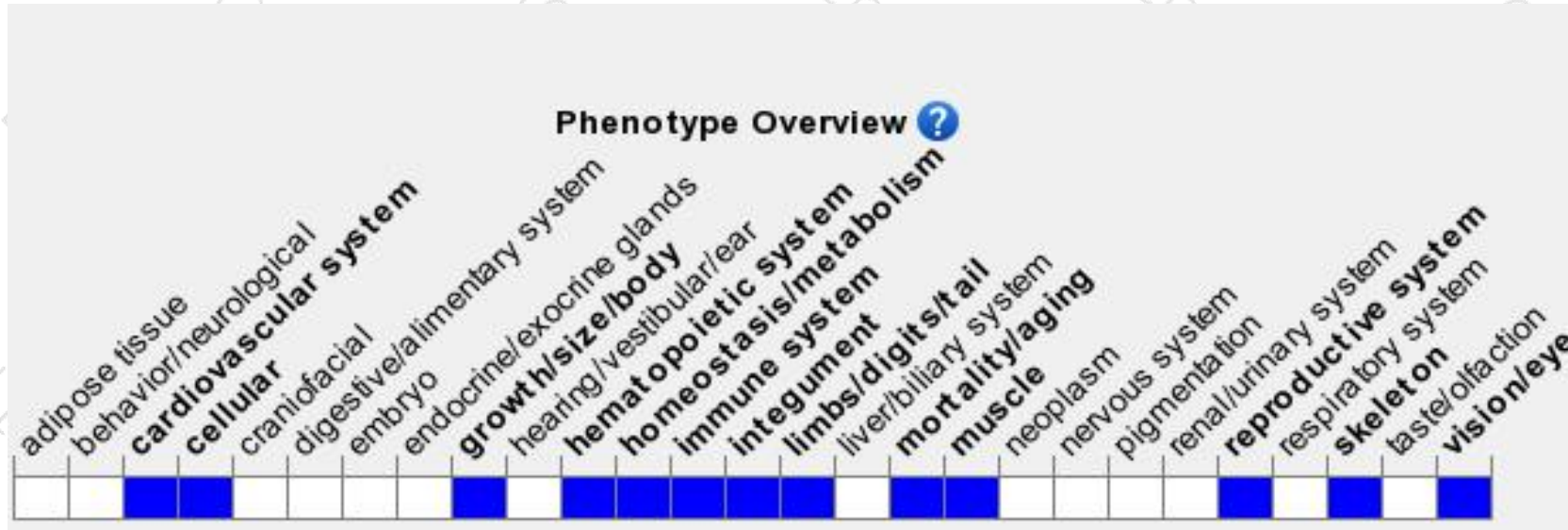The strategy is based on the design of *Lum-201* transcript,The transcription is shown below
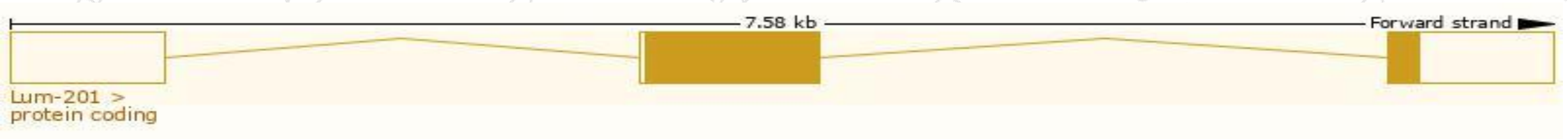
Genomic location distribution
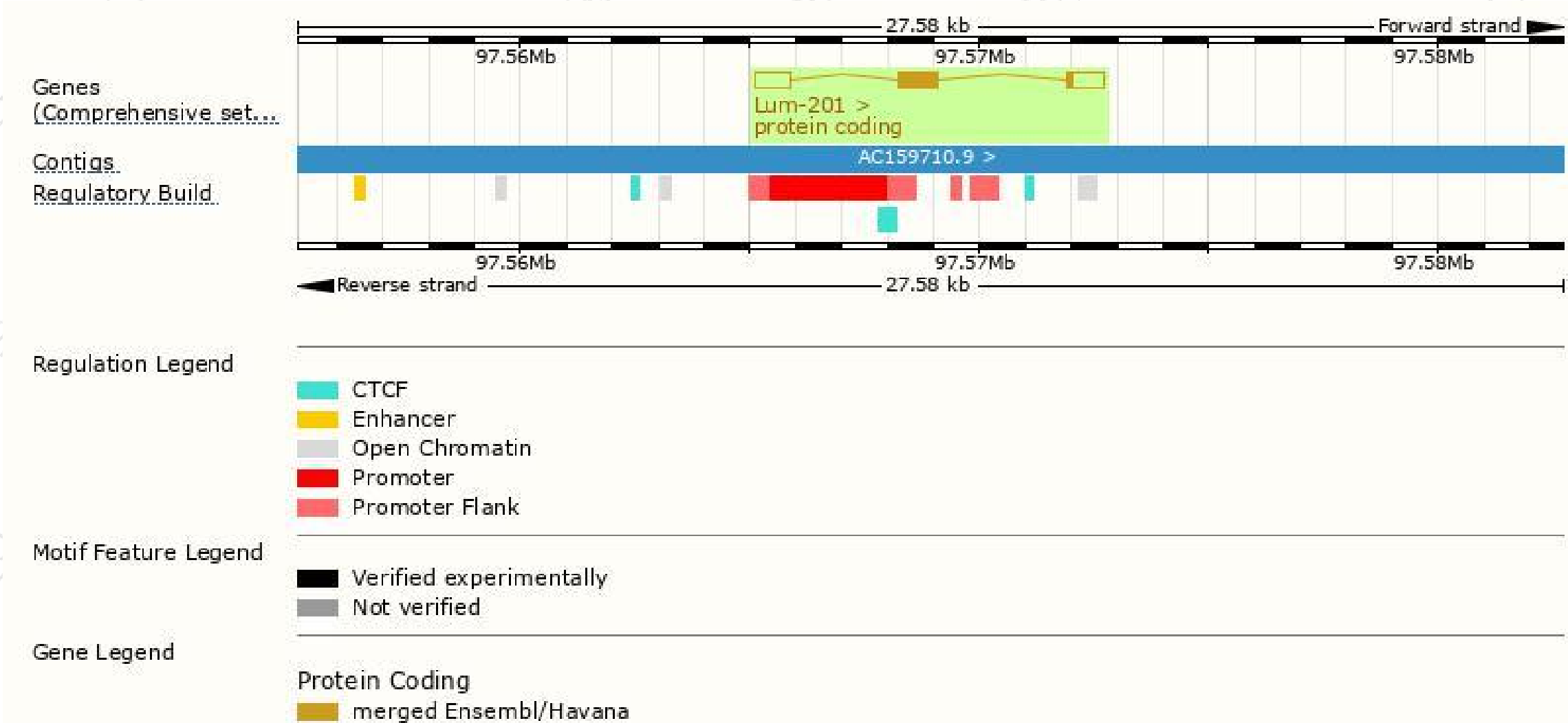
Protein domain

Mouse phenotype description(MGI)

Phenotypes affected by the gene are marked in blue.Data quoted from MGI database(http://www.informatics.jax.org/).

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