Lama2 Cas9-KO Strategy

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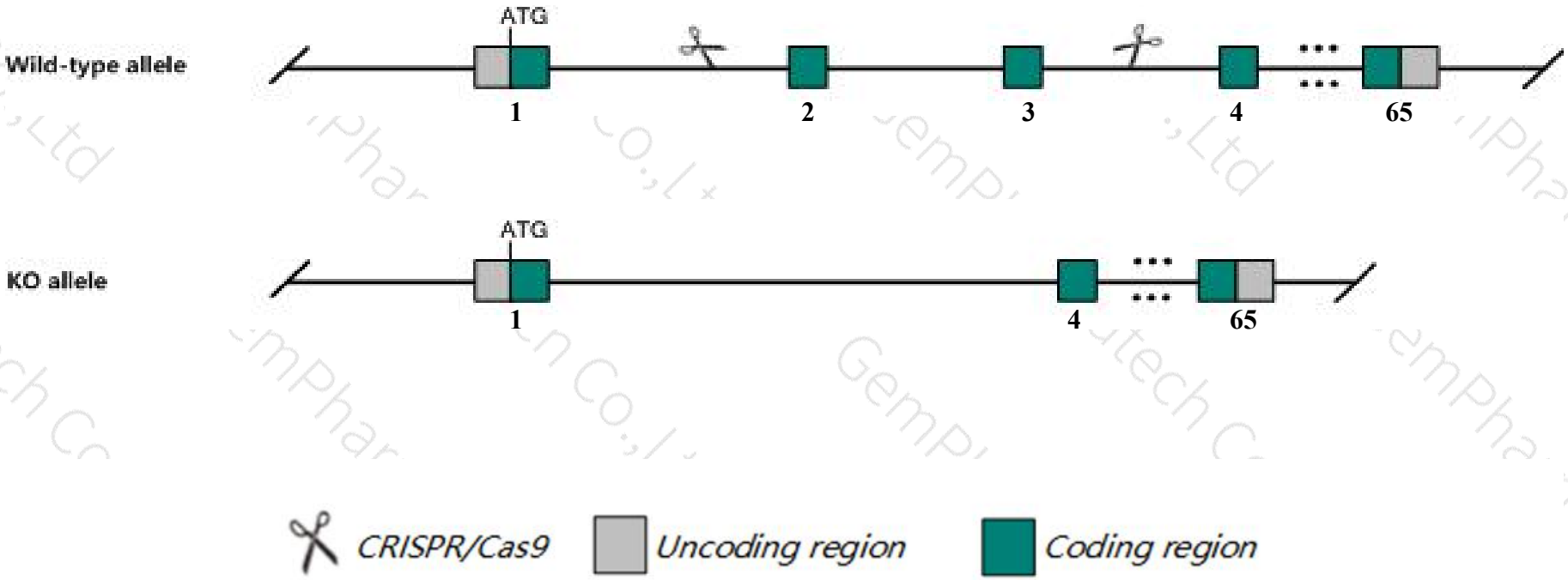
Project Overview

Project Name	***Lama2***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Lama2* gene. The schematic diagram is as follows:



Technical routes

➢ The *Lama2* gene has 8 transcripts. According to the structure of *Lama2* gene, exon2-exon3 of *Lama2-201* (ENSMUST00000092639.11) 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 *Lama2* gene. The brief process is as follows: CRISPR/Cas9 systen

Notice

- According to the existing MGI data,Homozygotes for targeted and spontaneous mutations exhibit progressive growth retardation, ataxia, muscle atrophy and degeneration, infertility, and premature lethality. Muscle fiber degeneration is evident as early as the first week of life.

- The *Lama2* 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）

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Lama2 laminin, alpha 2 [Mus musculus (house mouse)]

Gene ID: 16773, updated on 19-Mar-2019

Summary

Official Symbol	Lama2 provided by MGI
Official Full Name	laminin, alpha 2 provided byMGI
Primary source	MGI:MGI:99912
See related	Ensembl:ENSMUSG00000019899
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	5830440B04, dy, mKIAA4087, mer, merosin
Expression	Broad expression in bladder adult (RPKM 7.3), heart adult (RPKM 7.3) and 22 other tissuesSee more
Orthologs	human all

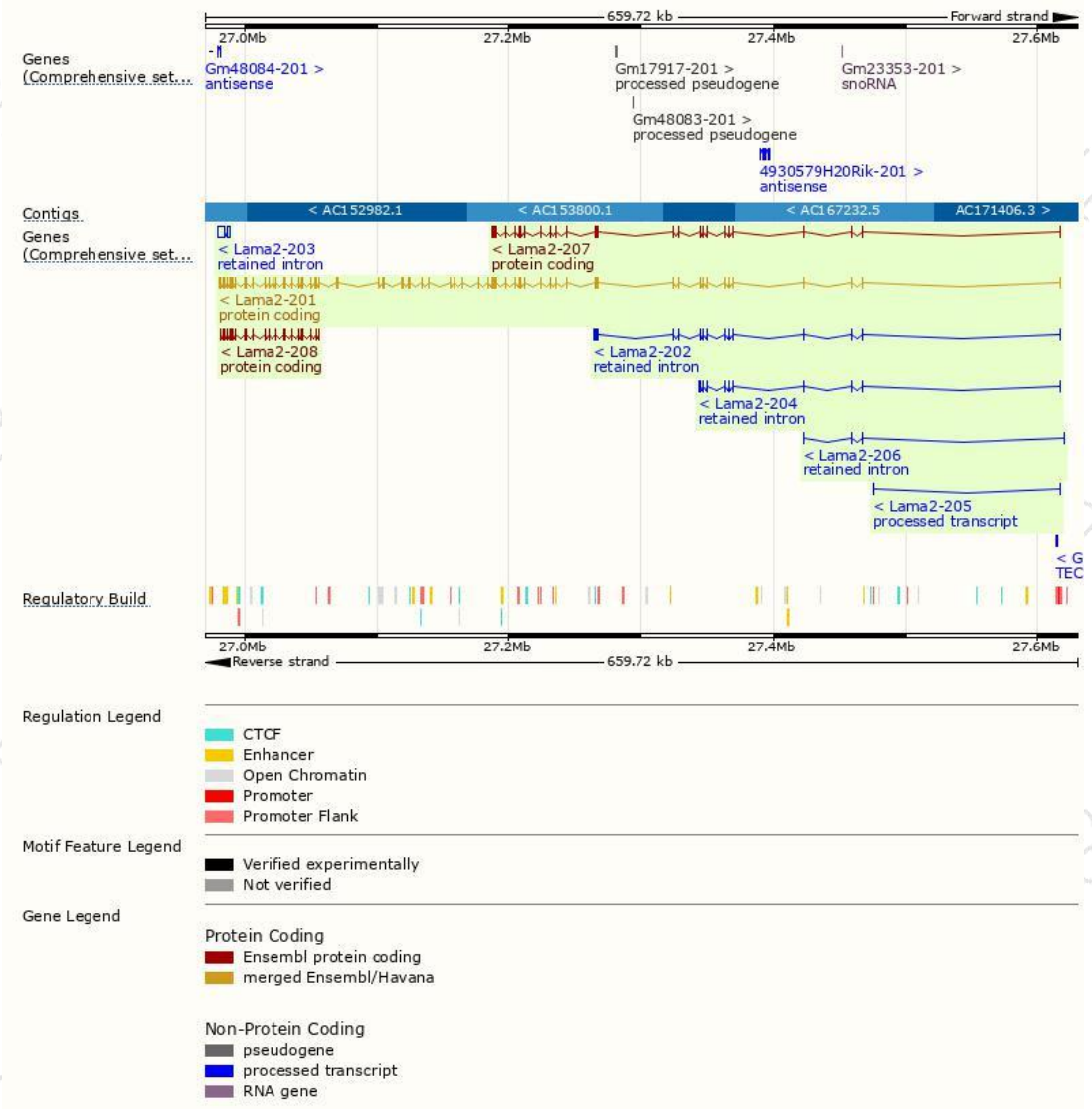
Transcript information（Ensembl）

The gene has 8 transcripts,all transcripts are shown below:

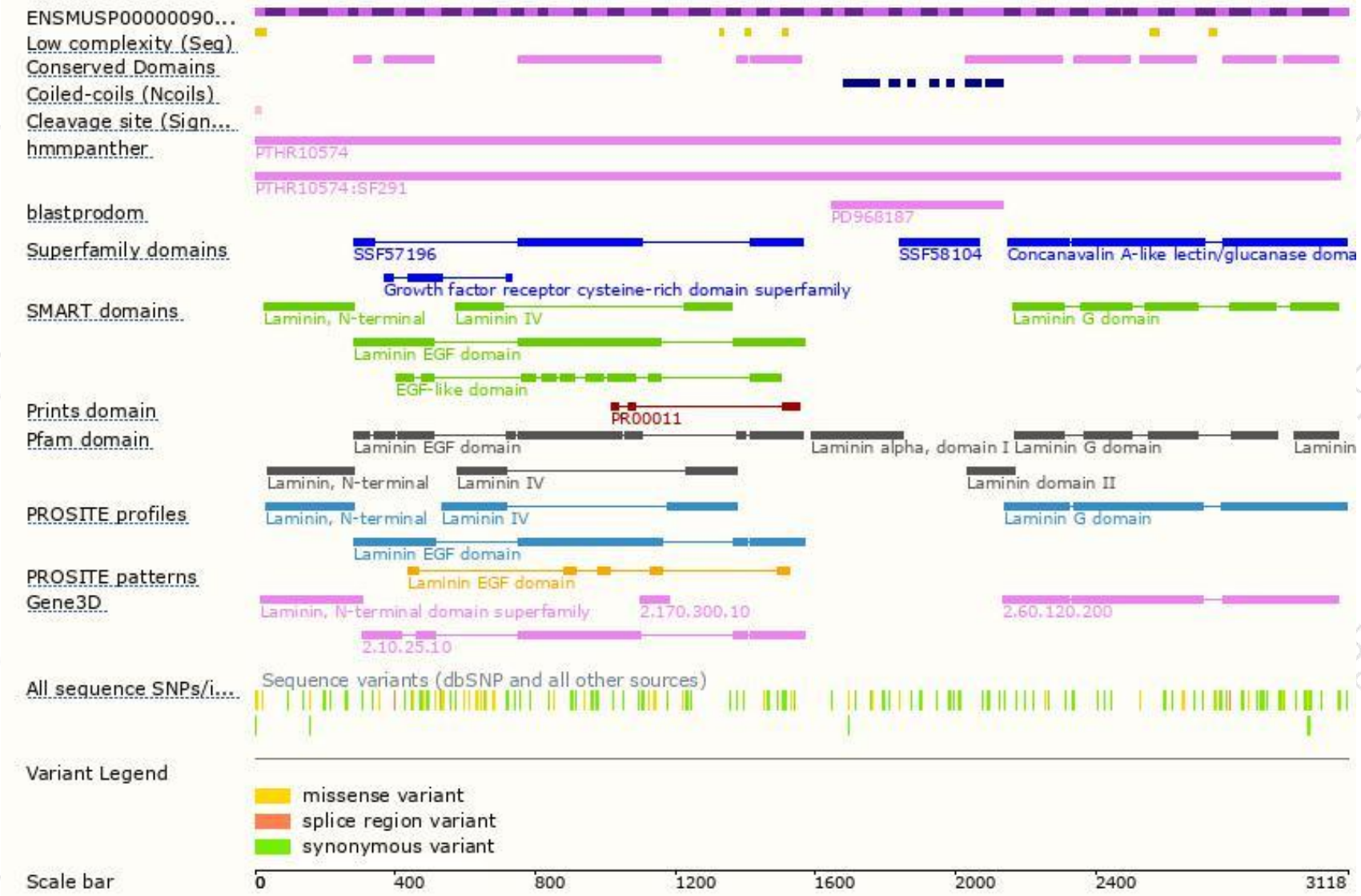
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Lama2-201	ENSMUST00000092639.11	9614	3118aa	Protein coding	CCDS48526	Q60675	TSL:5 GENCODE basic APPRIS P1
Lama2-207	ENSMUST00000189575.1	4244	1349aa	Protein coding	-	A0A087WRP2	TSL:5 GENCODE basic
Lama2-208	ENSMUST00000219763.1	3383	1127aa	Protein coding	-	A0A1W2P7N3	CDS 5' incomplete TSL:5
Lama2-205	ENSMUST00000187535.1	328	No protein	Processed transcript	-	-	TSL:1
Lama2-203	ENSMUST00000186279.1	6203	No protein	Retained intron	-	-	TSL:1
Lama2-202	ENSMUST00000185839.6	2740	No protein	Retained intron	-	-	TSL:1
Lama2-204	ENSMUST00000186965.6	1687	No protein	Retained intron	-	-	TSL:1
Lama2-206	ENSMUST00000188963.1	643	No protein	Retained intron	-	-	TSL:3

The strategy is based on the design of *Lama2-201* transcript,The transcription is shown below

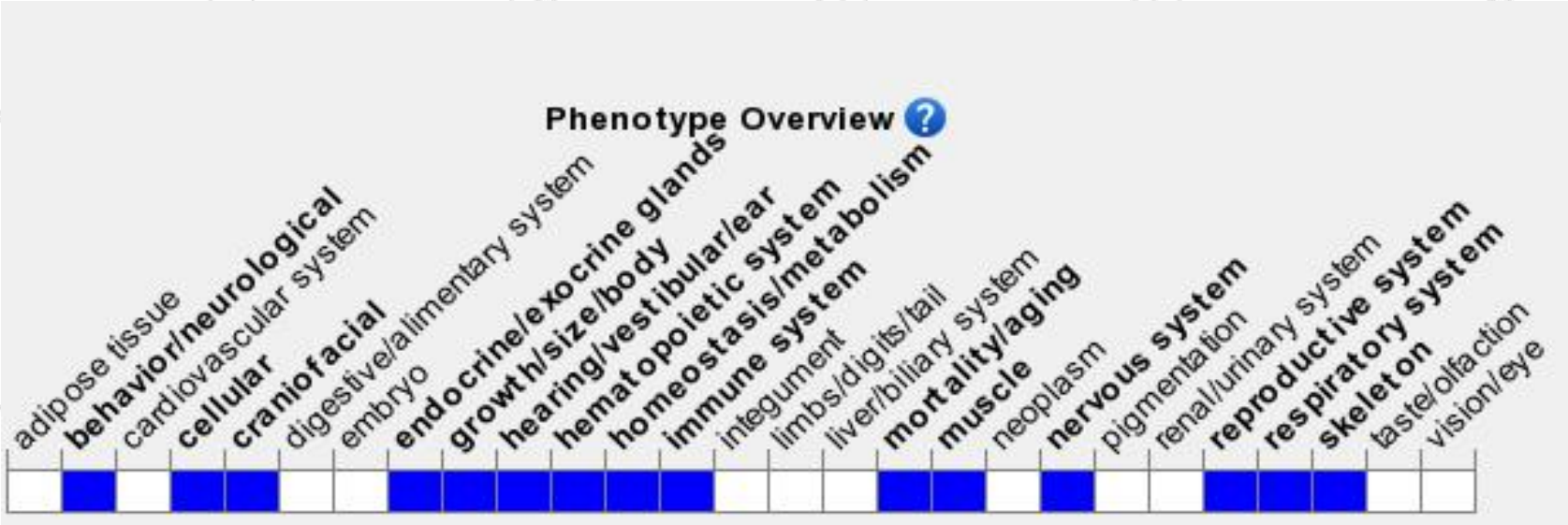
Genomic location distribution



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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