

# ***Lama5* Cas9-KO Strategy**

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# Project Overview

**Project Name**

***Lama5***

**Project type**

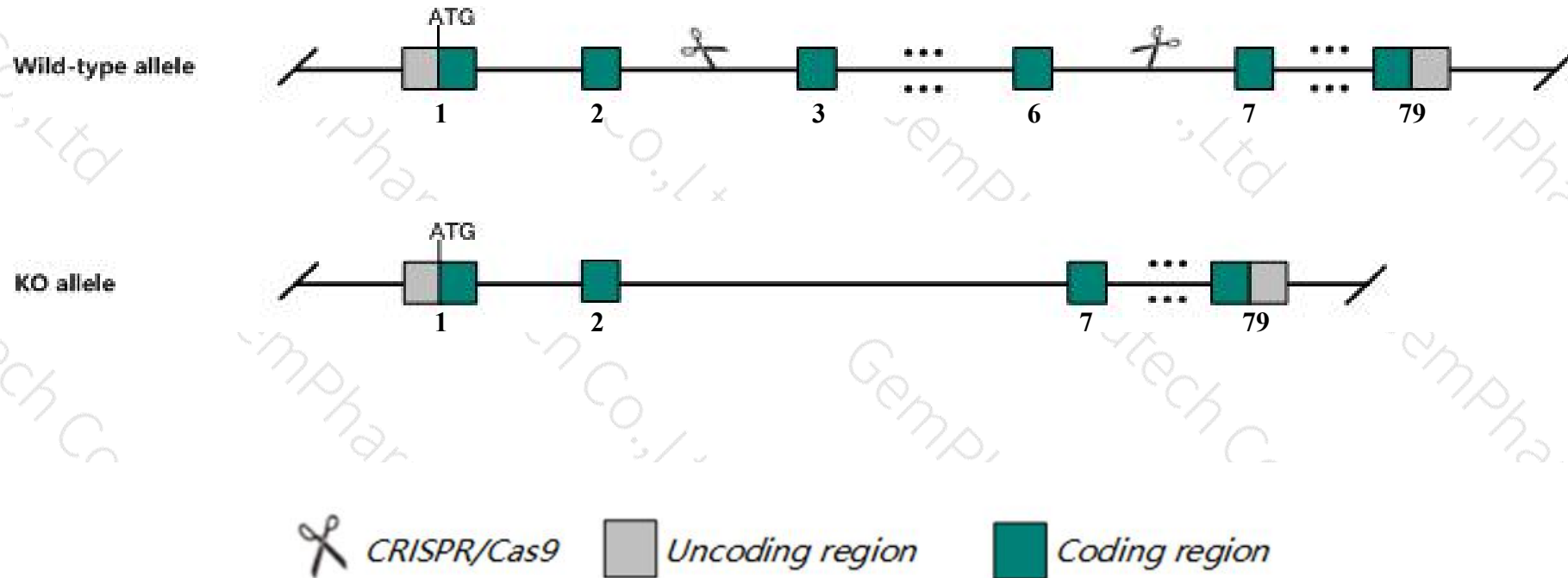
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Lama5* gene. The schematic diagram is as follows:



- The *Lama5* gene has 4 transcripts. According to the structure of *Lama5* gene, exon3-exon6 of *Lama5-201* (ENSMUST00000015791.5) transcript is recommended as the knockout region. The region contains 506bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Lama5* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygotes for a targeted null mutation exhibit disrupted basal laminae leading to exencephaly, syndactyly, placentopathy, kidney defects, abnormal lobar septation with absence of a visceral pleural membrane, and lethality in late gestation.
- The *Lama5* gene is located on the Chr2. 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)

## Lama5 laminin, alpha 5 [Mus musculus (house mouse)]

Gene ID: 16776, updated on 12-Mar-2019

### Summary



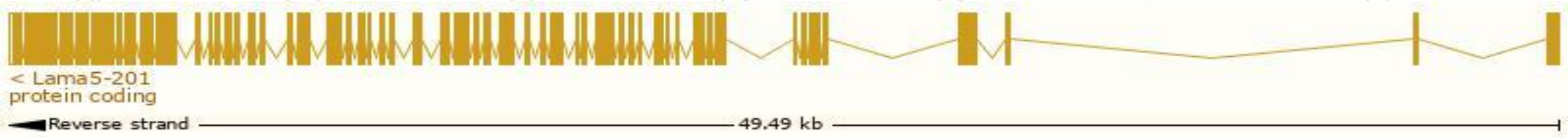
<b>Official Symbol</b>	Lama5 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	laminin, alpha 5 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:105382</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000015647</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	VALIDATED
<b>Organism</b>	<a href="#">Mus musculus</a>
<b>Lineage</b>	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
<b>Also known as</b>	AA408760, AA408762, A1853660, [a]5, laminin-511, mKIAA0533
<b>Expression</b>	Broad expression in lung adult (RPKM 40.7), mammary gland adult (RPKM 30.3) and 16 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

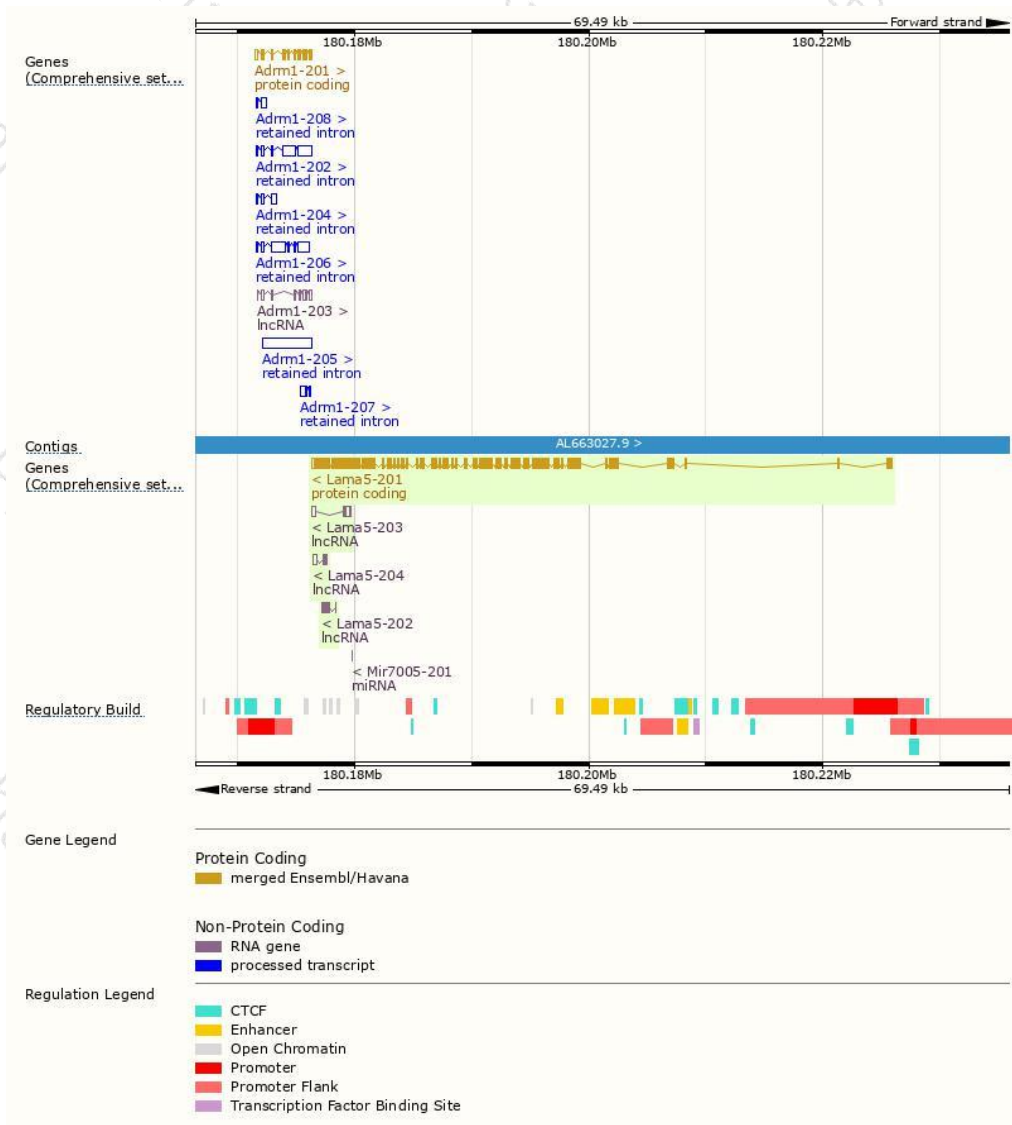
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Lama5-201	<a href="#">ENSMUST00000015791.5</a>	11388	<a href="#">3718aa</a>	Protein coding	<a href="#">CCDS38375</a>	<a href="#">Q61001</a>	TSL:1 GENCODE basic APPRIS P1
Lama5-203	<a href="#">ENSMUST00000130796.1</a>	734	No protein	lncRNA	-	-	TSL:5
Lama5-204	<a href="#">ENSMUST00000149812.1</a>	478	No protein	lncRNA	-	-	TSL:5
Lama5-202	<a href="#">ENSMUST00000123906.1</a>	451	No protein	lncRNA	-	-	TSL:5

The strategy is based on the design of *Lama5-201* transcript,The transcription is shown below

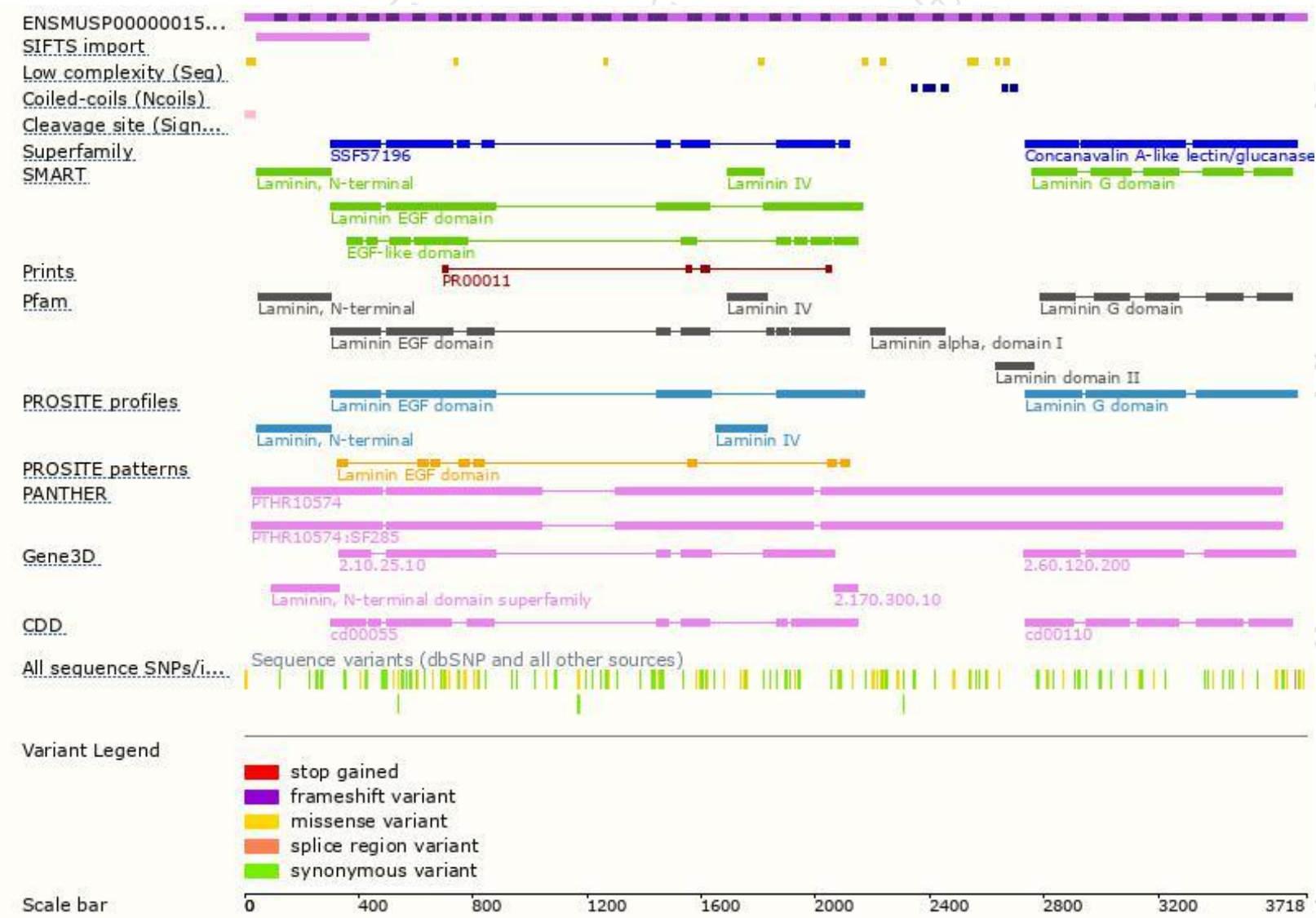


# Genomic location distribution

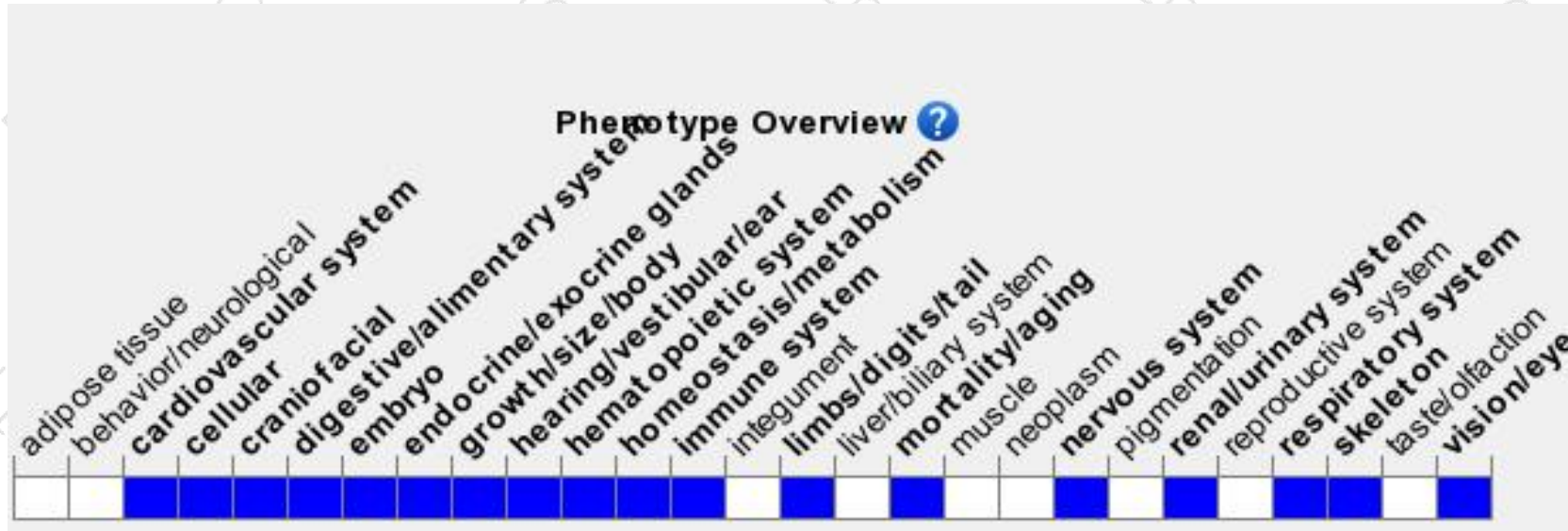




# Protein domain



# 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, Homozygotes for a targeted null mutation exhibit disrupted basal laminae leading to exencephaly, syndactyly, placentopathy, kidney defects, abnormal lobar septation with absence of a visceral pleural membrane, and lethality in late gestation.

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

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