

# ***Klhl41* Cas9-KO Strategy**

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**Reviewer:**

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**2020-3-5**

# Project Overview

**Project Name**

***Klhl41***

**Project type**

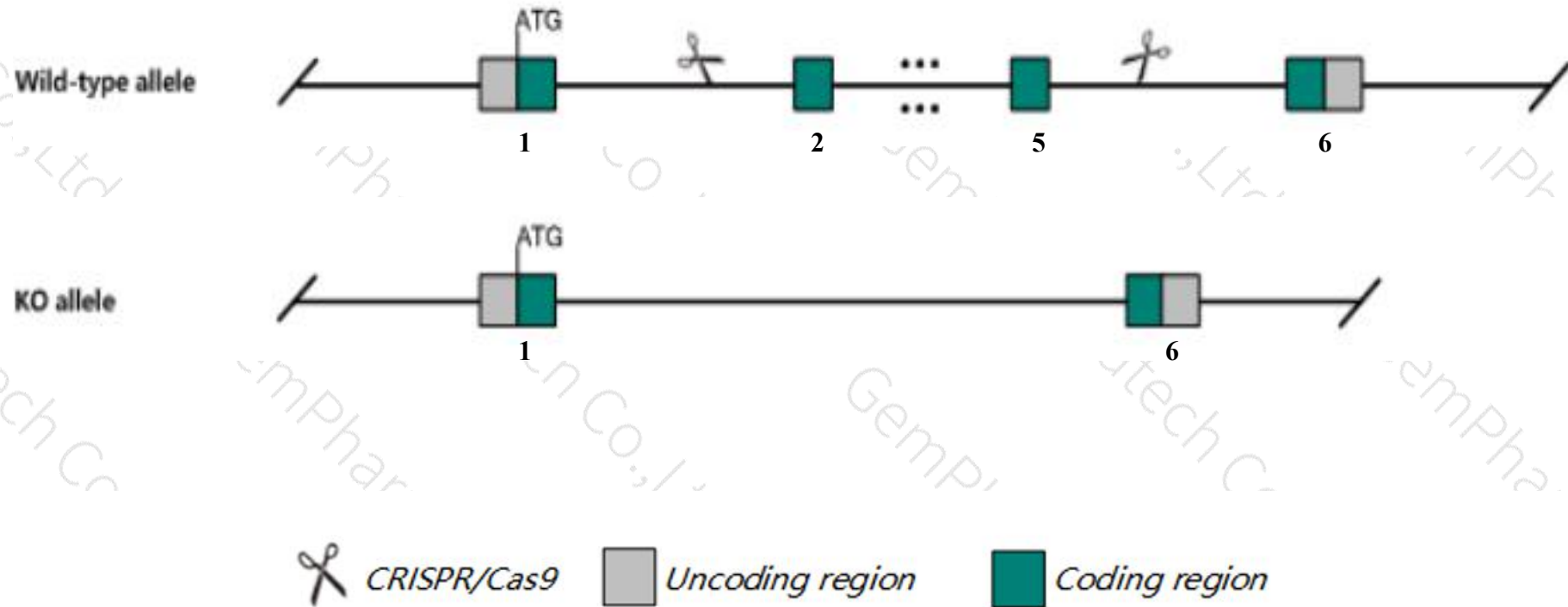
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Klhl41* gene. The schematic diagram is as follows:



- The *Klhl41* gene has 1 transcript. According to the structure of *Klhl41* gene, exon2-exon5 of *Klhl41-201* (ENSMUST00000100050.3) transcript is recommended as the knockout region. The region contains 599bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Klhl41* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, The gene product is involved in stabilizing proteins involved in muscle function. Homozygous knockout affects the structure of muscle fibers and their sarcomeres, resulting in neonatal death.
- Some amino acids will remain at the N-terminus and some functions may be retained.
- The *Klhl41* 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)

## Klhl41 kelch-like 41 [Mus musculus (house mouse)]

Gene ID: 228003, updated on 31-Jan-2019

### Summary



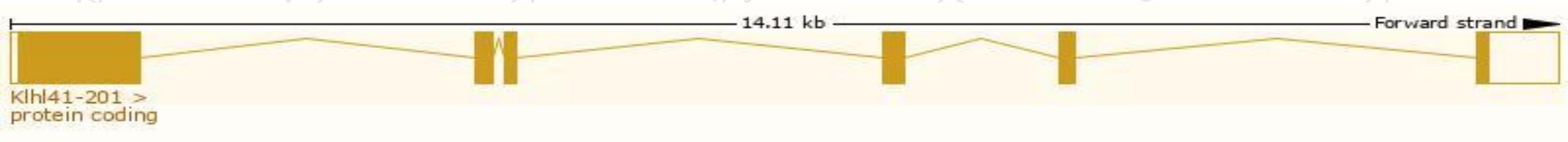
<b>Official Symbol</b>	Klhl41 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	kelch-like 41 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:2683854</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000075307</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	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>	Gm112, Kbtbd10, SARCOSIN
<b>Expression</b>	Biased expression in heart adult (RPKM 9.8), mammary gland adult (RPKM 7.3) and 6 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

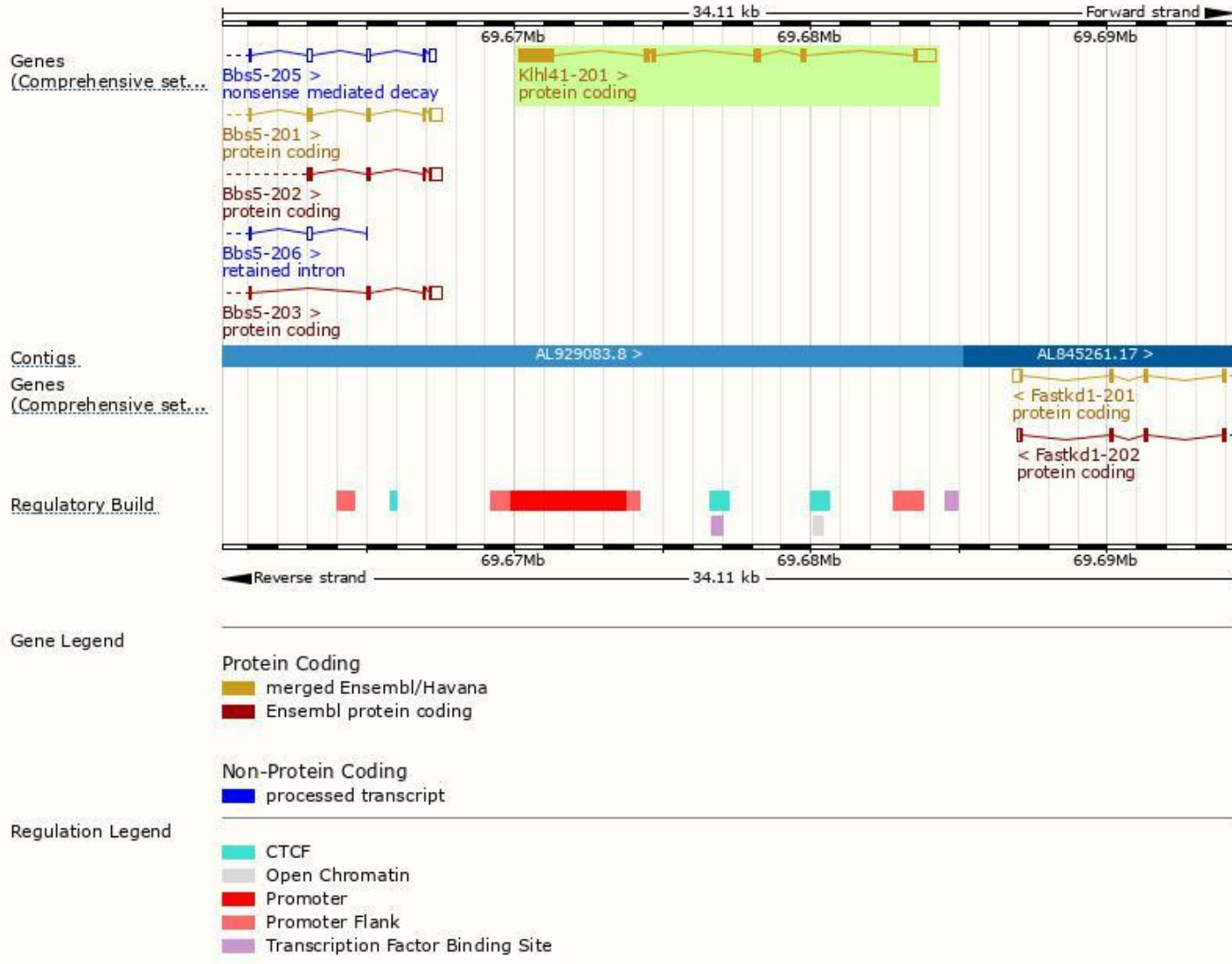
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Klhl41-201	<a href="#">ENSMUST00000100050.3</a>	2529	<a href="#">606aa</a>	Protein coding	<a href="#">CCDS38136</a>	<a href="#">A2AUC9</a>	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Klhl41-201* transcript, The transcription is shown below

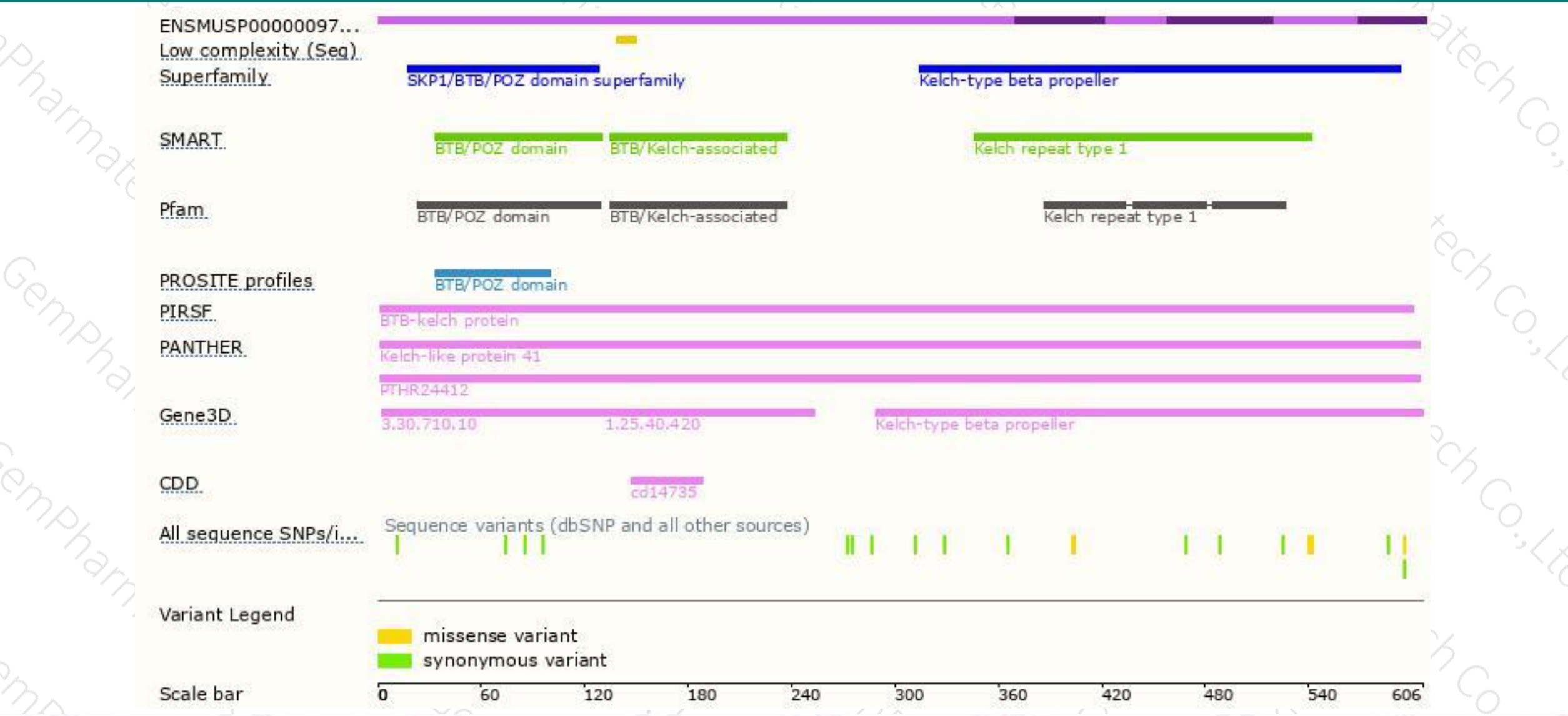


# Genomic location distribution

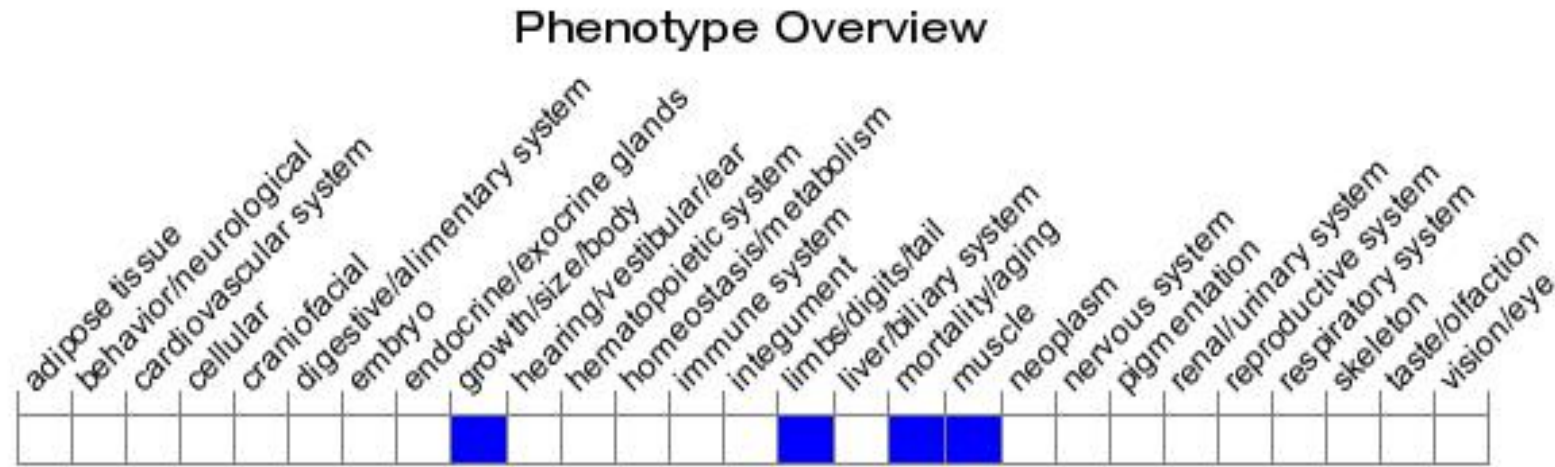




# Protein domain



# 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, The gene product is involved in stabilizing proteins involved in muscle function.

Homozygous knockout affects the structure of muscle fibers and their sarcomeres, resulting in neonatal death.

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

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