

# *Adamtsl3* Cas9-CKO Strategy

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# Overview

## Target Gene Name

- *Adamtsl3*

## Project Type

- Cas9-CKO

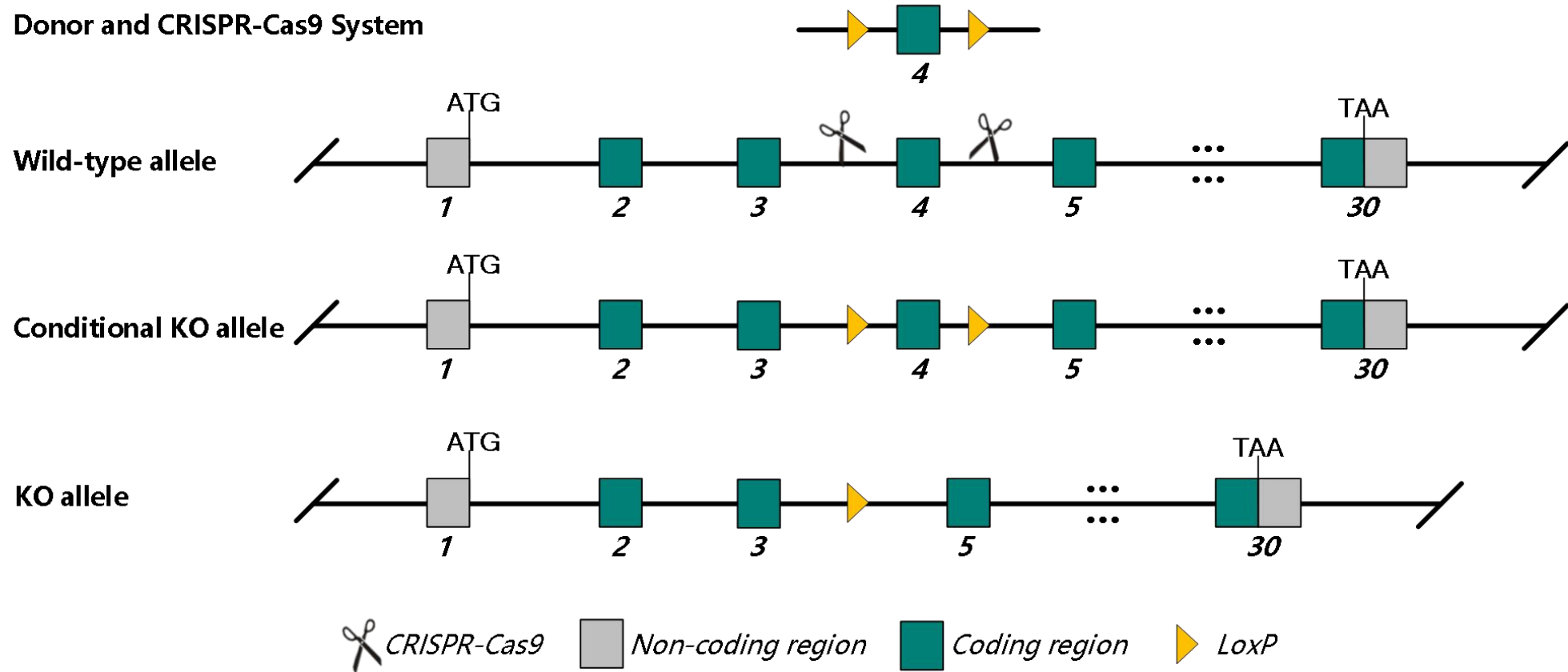
## Genetic Background

- C57BL/6JGpt



# Strain Strategy

Donor and CRISPR-Cas9 System



Schematic representation of CRISPR-Cas9 engineering used to edit the *Adamtsl3* gene.



# Technical Information

- The *Adamtsl3* gene has 5 transcripts. According to the structure of *Adamtsl3* gene, exon 4 of *Adamtsl3*-203 (ENSMUST00000173287.8) is recommended as the knockout region. The region contains 128 bp of coding sequence. Knockout the region will result in disruption of gene function.
- In this project we use CRISPR-Cas9 technology to modify *Adamtsl3* 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 on-target amplicon sequencing. A stable F1-generation mouse strain was obtained by mating positive F0-generation mice with C57BL/6JGpt mice and confirmation of the desired mutant allele was carried out by PCR and on-target amplicon sequencing.
- 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.



# Gene Information

AdamtsI3 ADAMTS-like 3 [ *Mus musculus* (house mouse) ]

Gene ID: 269959, updated on 12-Apr-2023

[Download Datasets](#)

## Summary

<b>Official Symbol</b>	AdamtsI3 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	ADAMTS-like 3 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:3028499</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000070469</a> <a href="#">AllianceGenome:MGI:3028499</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	PROVISIONAL
<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>	mKIAA1233; C130057K09; 9230119C12Rik
<b>Summary</b>	Predicted to be involved in extracellular matrix organization. Predicted to be located in intracellular membrane-bounded organelle. Predicted to be active in extracellular matrix. Orthologous to human ADAMTSL3 (ADAMTS like 3). [provided by Alliance of Genome Resources, Apr 2022]
<b>Expression</b>	Biased expression in bladder adult (RPKM 4.3), limb E14.5 (RPKM 2.6) and 13 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>
<b>NEW</b>	Try the new <a href="#">Gene table</a> Try the new <a href="#">Transcript table</a>

## Genomic context

Location: 7; 7 D3

Exon count: 31

See AdamtsI3 in [Genome Data Viewer](#)

<https://www.ncbi.nlm.nih.gov/gene/269959>

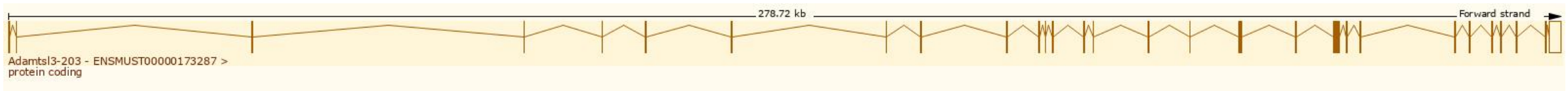


# Transcript Information

The gene has 5 transcripts, all transcripts are shown below:

Show/hide columns (1 hidden) <span>Filter</span>							
Transcript ID	Name	bp	Protein	Biotype	CCDS	UniProt Match	Flags
<a href="#">ENSMUST00000173287.8</a>	Adamtsl3-203	7249	<a href="#">1706aa</a>	Protein coding	<a href="#">CCDS57559</a>	<a href="#">G3UXC7</a>	Ensembl Canonical GENCODE basic APPRIS P1 TSL:5
<a href="#">ENSMUST00000173828.3</a>	Adamtsl3-204	2292	<a href="#">763aa</a>	Protein coding		<a href="#">G3UWL5</a>	GENCODE basic TSL:5
<a href="#">ENSMUST00000172784.2</a>	Adamtsl3-202	497	<a href="#">50aa</a>	Protein coding		<a href="#">G3UYN1</a>	TSL:2 CDS 5' incomplete
<a href="#">ENSMUST00000172490.2</a>	Adamtsl3-201	440	No protein	Protein coding CDS not defined		-	TSL:2
<a href="#">ENSMUST00000174495.2</a>	Adamtsl3-205	845	No protein	Retained intron		-	TSL:1

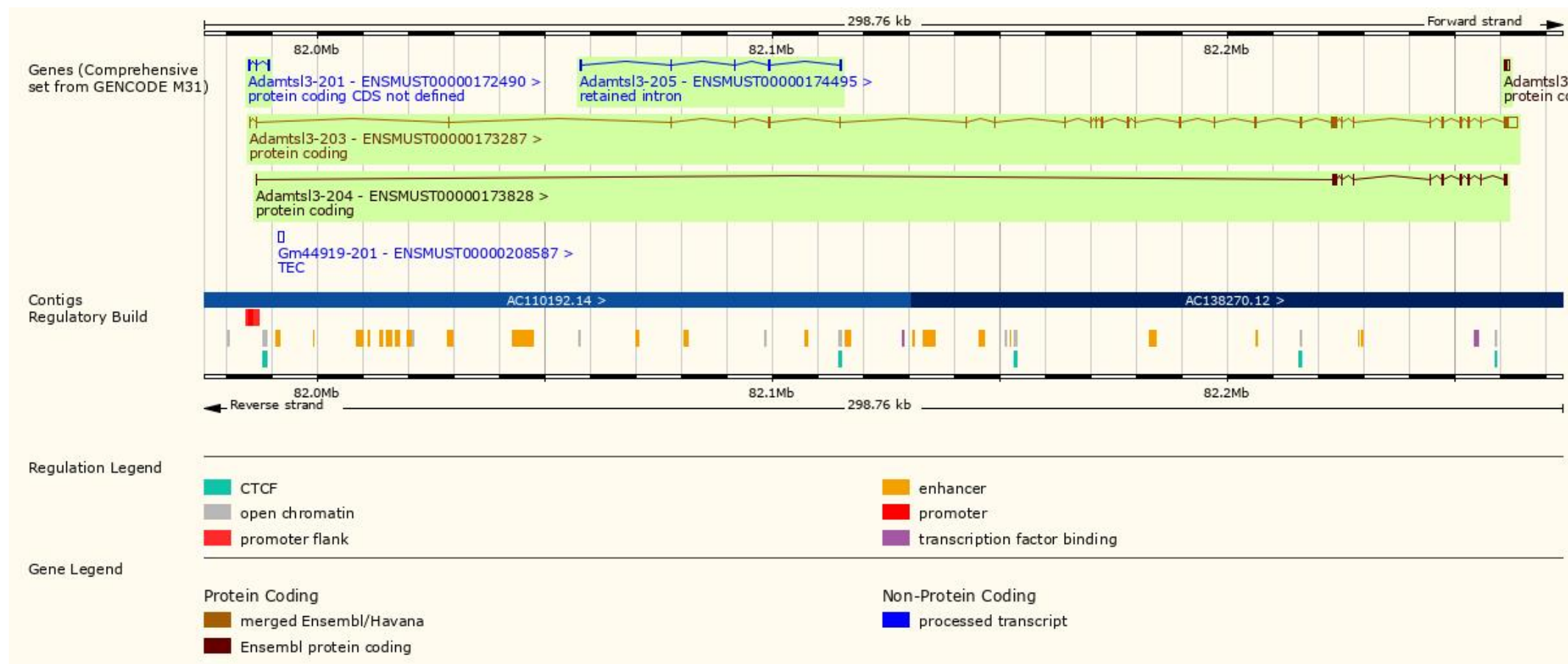
The strategy is based on the design of *Adamtsl3*-203 transcript, the transcription is shown below:



Source: <http://asia.ensembl.org/>

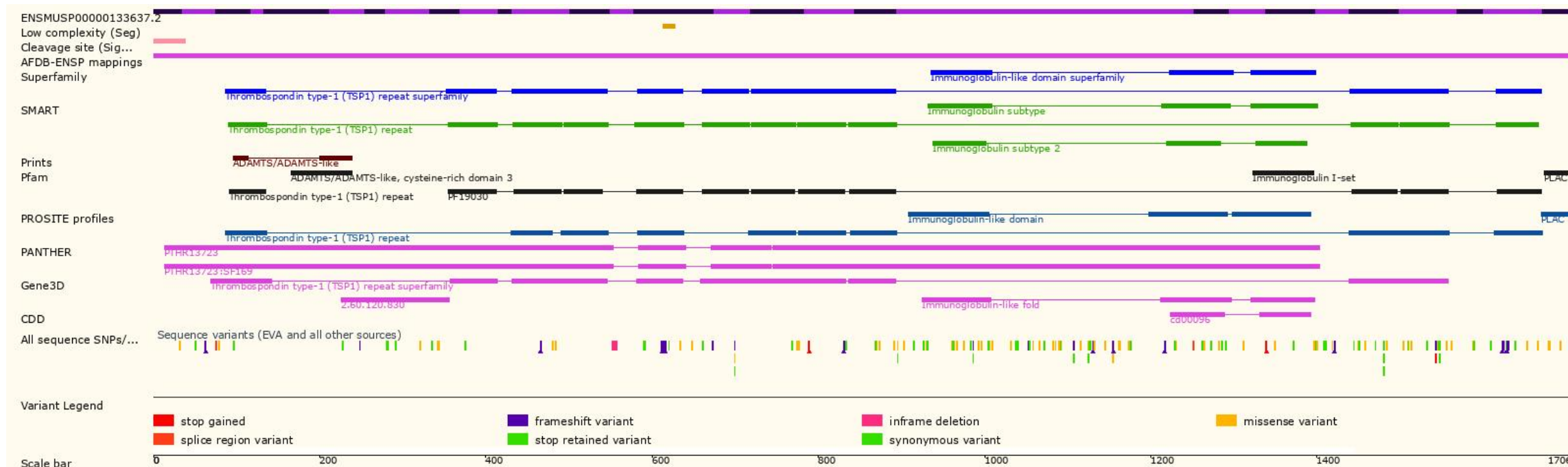


# Genomic Information



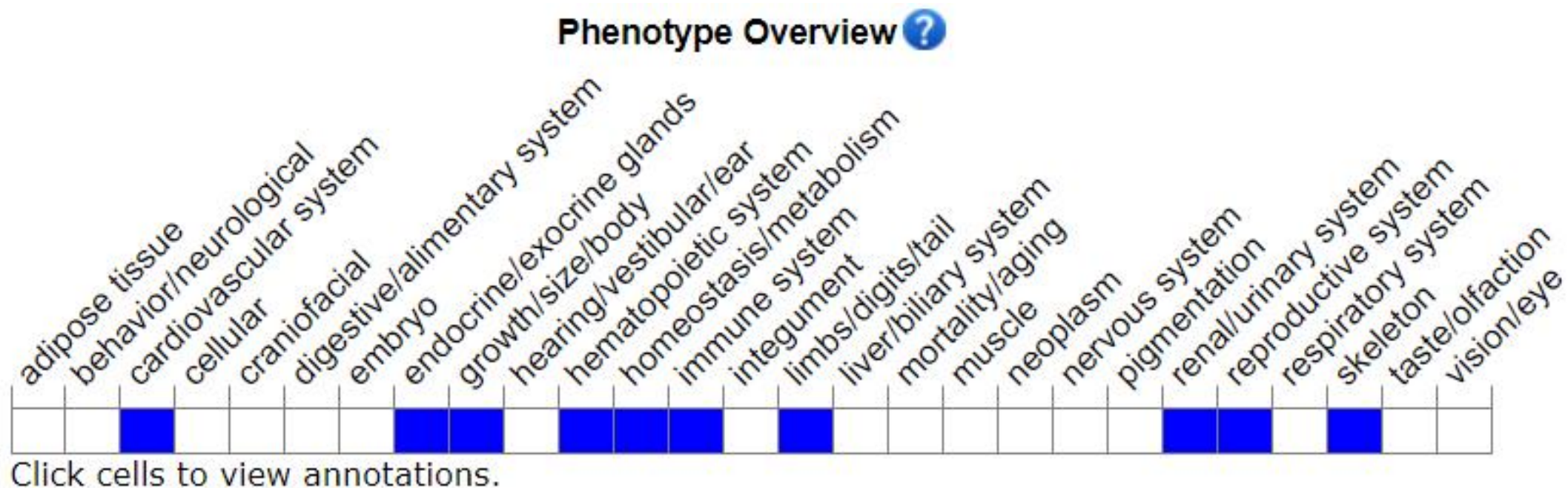


# Protein Information





# Mouse Phenotype Information (MGI)



Mice homozygous for a null allele exhibit increased heart weight, longer tibia bones, and exacerbated cardiac dilatation and contractile dysfunction as well as higher mortality in response to pressure overload.



# Important Information

- According to the existing MGI data, mice homozygous for a null allele exhibit increased heart weight, longer tibia bones, and exacerbated cardiac dilatation and contractile dysfunction as well as higher mortality in response to pressure overload.
- This strategy may have no effect on the *Adamtsl3*-201, *Adamtsl3*-202 and *Adamtsl3*-204 transcript.
- *Adamtsl3* is located on Chr 7. If the knockout mice are crossed with other mouse strains to obtain double homozygous mutant offspring, please avoid the situation that the second gene is 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 the existing technology level.