

Adams3 Cas9-CKO Strategy

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Design Date: 2023-12-25

Overview

Target Gene Name

- Adamts3

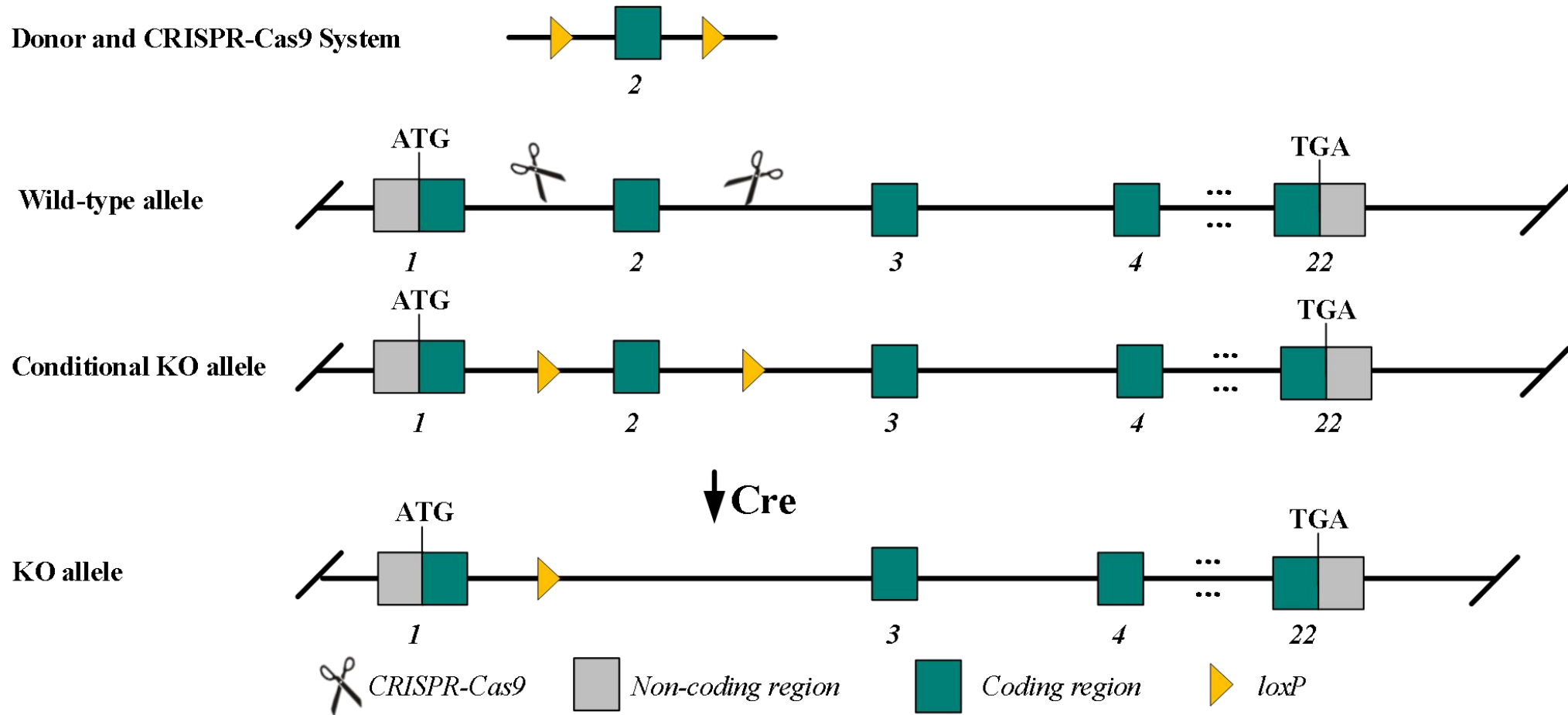
Project Type

- Cas9-CKO

Genetic Background

- C57BL/6JGpt

Strain Strategy



Schematic representation of CRISPR-Cas9 engineering used to edit the *Adamts3* gene.

Technical Information

- The *Adamts3* gene has 4 transcripts. According to the structure of *Adamts3* gene, exon 2 of *Adamts3*-202 (ENSMUST00000163159.8) transcript is recommended as the knockout region. The region contains 28 bp of coding sequences. Knocking out the region will result in disruption of protein function.
- In this project we use CRISPR-Cas9 technology to modify *Adamts3* 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

Adamts3 ADAM metalloproteinase with thrombospondin type 1 motif 3 [*Mus musculus* (house mouse)]

[Download Datasets](#)

Gene ID: 330119, updated on 23-Nov-2023

Summary

Official Symbol	Adamts3 provided by MGI
Official Full Name	ADAM metalloproteinase with thrombospondin type 1 motif 3 provided by MGI
Primary source	MGI:3045353
See related	Ensembl:ENSMUSG00000043635 AllianceGenome:MGI:3045353
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	1100001H14Rik; 6330442E02Rik
Summary	Enables peptidase activity. Acts upstream of or within in utero embryonic development and protein processing. Predicted to be located in extracellular space. Predicted to be active in extracellular matrix. Is expressed in embryo; footplate apical ectodermal ridge; and handplate apical ectodermal ridge. Human ortholog(s) of this gene implicated in Hennekam syndrome. Orthologous to human ADAMTS3 (ADAM metalloproteinase with thrombospondin type 1 motif 3). [provided by Alliance of Genome Resources, Apr 2022]
Expression	Broad expression in limb E14.5 (RPKM 3.5), CNS E18 (RPKM 3.3) and 18 other tissues See more
Orthologs	human all
NEW	Try the new Gene table Try the new Transcript table

Genomic context

Location: 5 E1; 5 44.32 cM

See Adamts3 in [Genome Data Viewer](#)

Exon count: 23

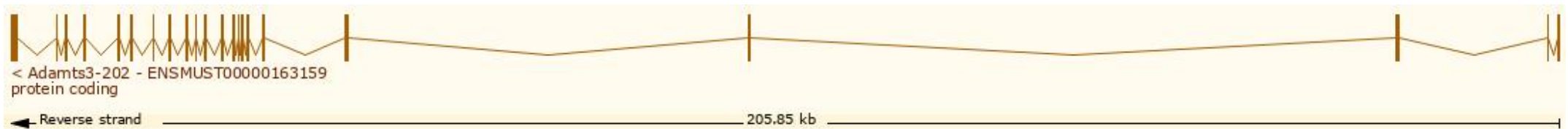
Source: <https://www.ncbi.nlm.nih.gov/>

Transcript Information

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

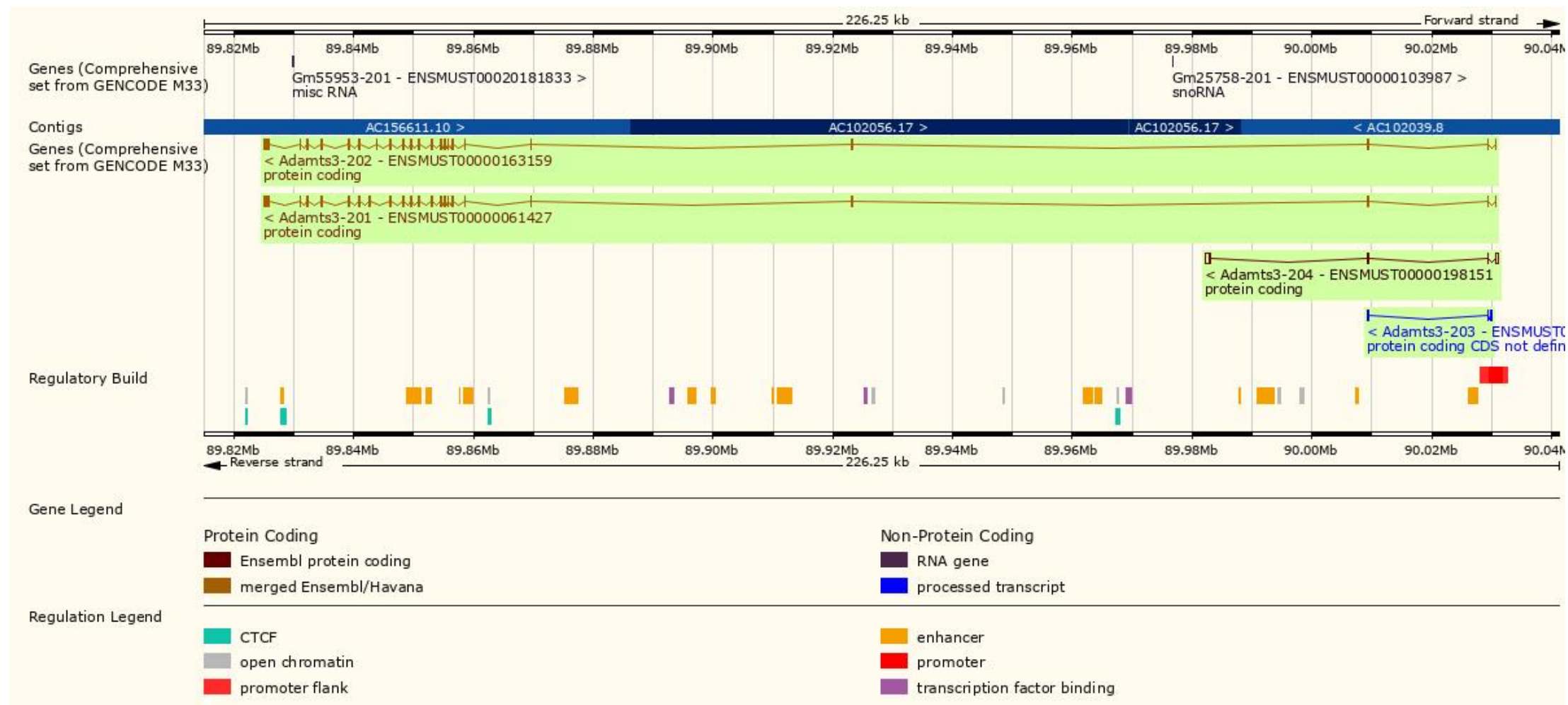
Transcript ID	Name	bp	Protein	Biotype	CCDS	UniProt Match	Flags
ENSMUST00000061427.10	Adamts3-201	3934	1203aa	Protein coding	CCDS39140	G3X9D2	GENCODE basic APPRIS P1 TSL:1
ENSMUST00000163159.8	Adamts3-202	3937	1204aa	Protein coding	CCDS51542	E9Q287	Ensembl Canonical GENCODE basic TSL:1
ENSMUST00000196507.2	Adamts3-203	563	No protein	Protein coding CDS not defined		-	TSL:3
ENSMUST00000198151.2	Adamts3-204	1833	228aa	Protein coding		Q8BIB2	GENCODE basic TSL:1

The strategy is based on the design of *Adamts3-202* transcript, the transcription is shown below:

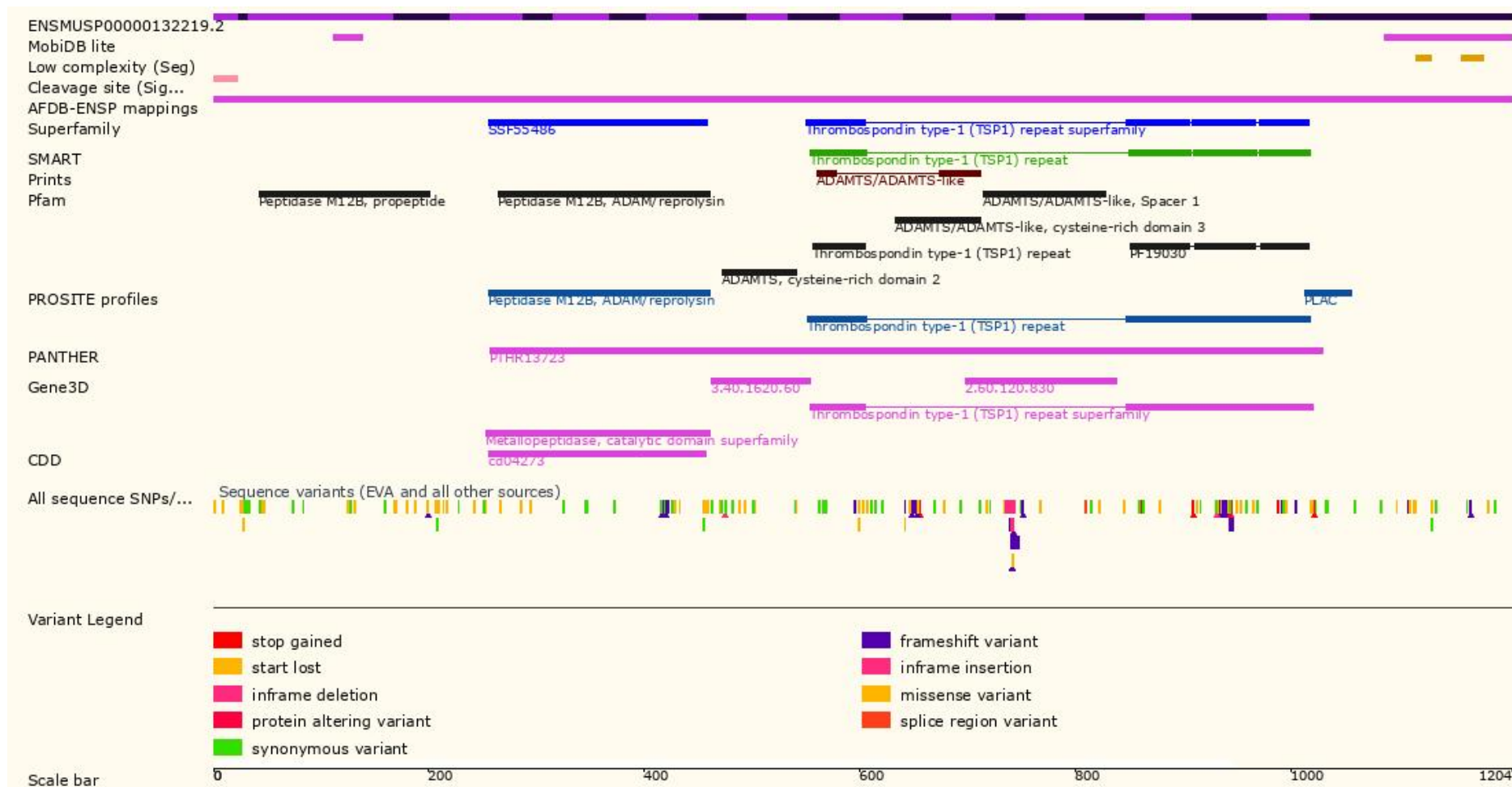


Source: <https://www.ensembl.org>

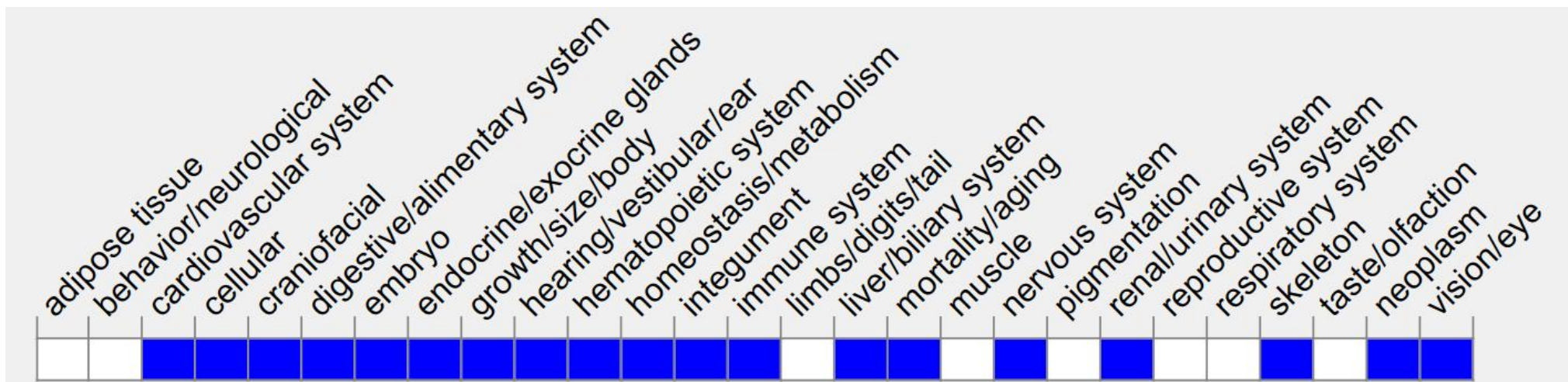
Genomic Information



Protein Information



Mouse Phenotype Information (MGI)



Mice homozygous for a knockout allele exhibit lethality after E15, edema, absent lymphatic vessels, liver degeneration, and abnormal placenta labyrinth morphology.

Important Information

- Mice homozygous for a knockout allele exhibit lethality after E15, edema, absent lymphatic vessels, liver degeneration, and abnormal placenta labyrinth morphology.
- *Adamts3* is located on Chr 5. 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.