

# *Flt4* Cas9-CKO Strategy

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# Overview

## Target Gene Name

- *Flt4*

## Project Type

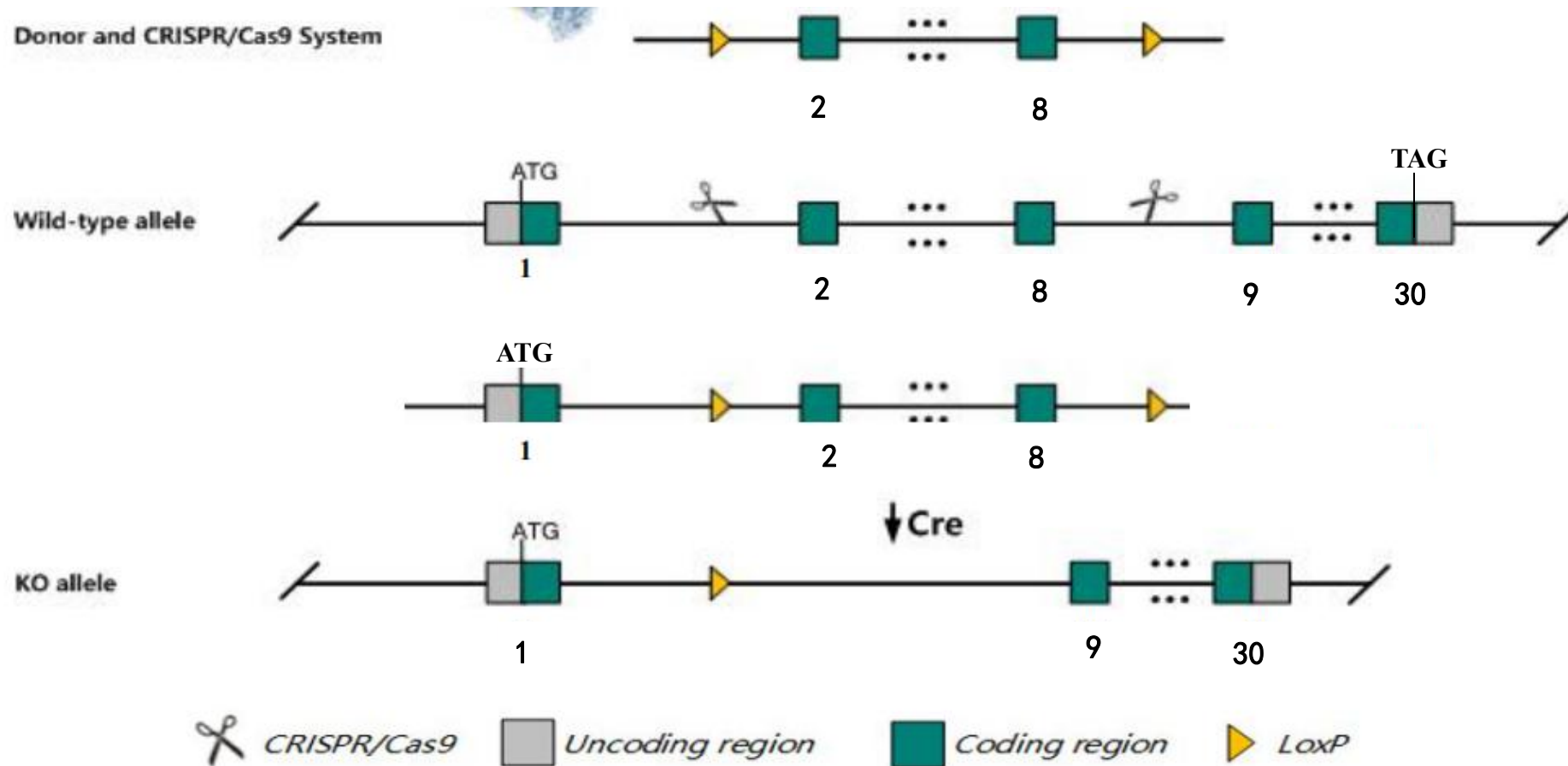
- Cas9-CKO

## Genetic Background

- C57BL/6JGpt

# Strain Strategy

This model will use CRISPR/Cas9 technology to edit the *Flt4* gene. The schematic diagram is as follows:



# Technical Information

- The *Flt4* gene has 2 transcripts. According to the structure of *Flt4* gene, exon2-exon8 of *Flt4*-201(ENSMUST00000020617.3) transcript is recommended as the knockout region. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Flt4* 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 sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.
- 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

## Flt4 FMS-like tyrosine kinase 4 [Mus musculus (house mouse)]

Gene ID: 14257, updated on 12-Mar-2019


### Summary



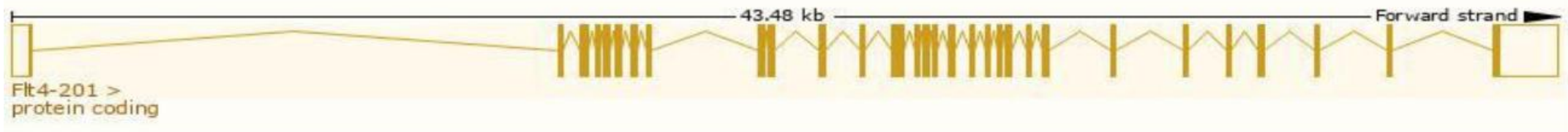
<b>Official Symbol</b>	Flt4 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	FMS-like tyrosine kinase 4 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:95561</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000020357</a>
<b>Gene type</b>	protein coding
<b>RefSeq 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>	AI323512, Chy, Flt-4, VEGFR-3, VEGFR3
<b>Expression</b>	Broad expression in lung adult (RPKM 14.6), ovary adult (RPKM 10.5) and 23 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

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

# Transcript Information

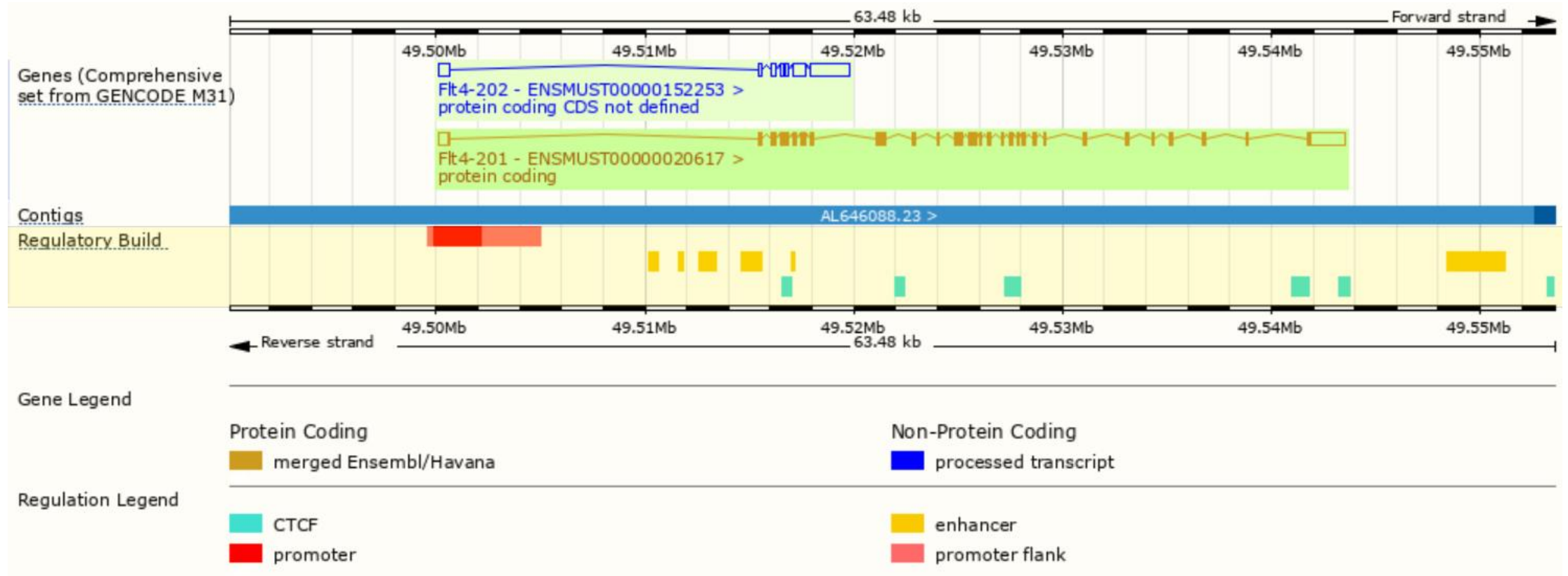
Show/hide columns (1 hidden)							Filter		
Transcript ID	Name	bp	Protein	Biotype	CCDS	UniProt Match	Flags		
<a href="#">ENSMUST00000020617.3</a>	Flt4-201	6255	<a href="#">1363aa</a>	<div><div></div>Protein coding</div>	<a href="#">CCDS24618</a>	<a href="#">P35917</a> <a href="#">Q5SU94</a>	<a href="#">Ensembl Canonical</a>	<a href="#">GENCODE basic</a>	<a href="#">APPRIS P1</a> <a href="#">TSL:1</a>
<a href="#">ENSMUST00000152253.2</a>	Flt4-202	3587	No protein	<div><div></div>Protein coding CDS not defined</div>		-	<a href="#">TSL:1</a>		

The strategy is based on the design of *Flt4-201* transcript, The transcription is shown below



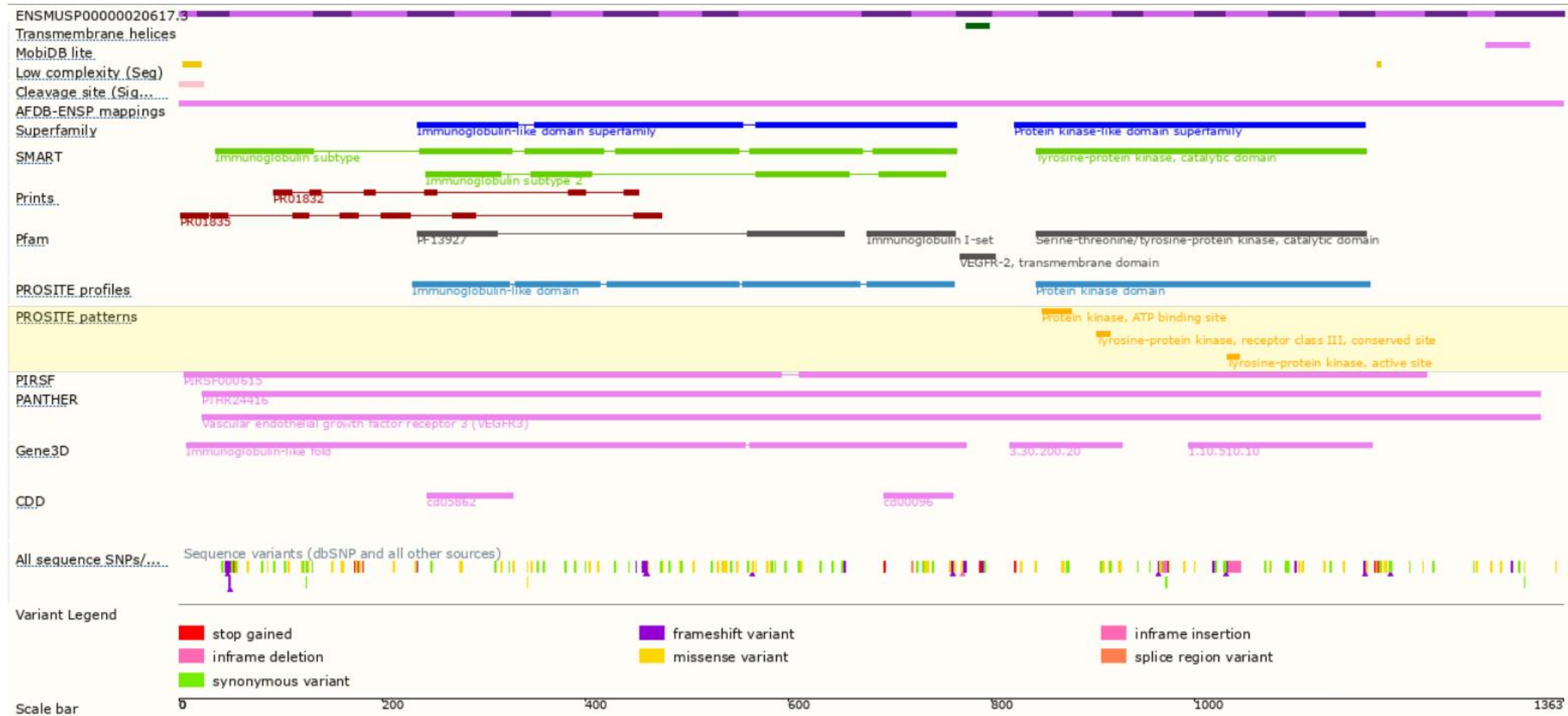
Source: <https://www.ensembl.org>

# Genomic Information



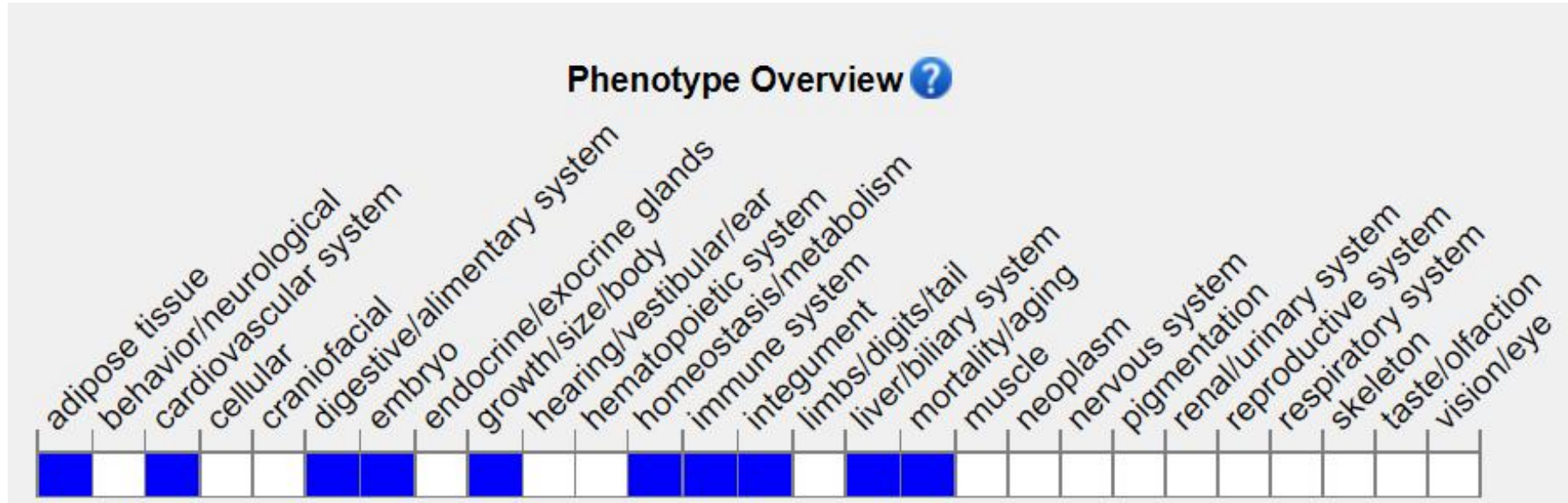


# Protein Information





# Mouse Phenotype Information (MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database

Embryos homozygous for a targeted null mutation show growth retardation, vascular abnormalities, severe anemia and die from cardiovascular failure at embryonic day 9.5. Heterozygotes for another mutation show abdominal chylous ascites, abnormal lymphatic vessels, and lymphedema.



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

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