

Abcb8 Cas9-CKO Strategy

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Project Overview

Project Name

Abcb8

Project type

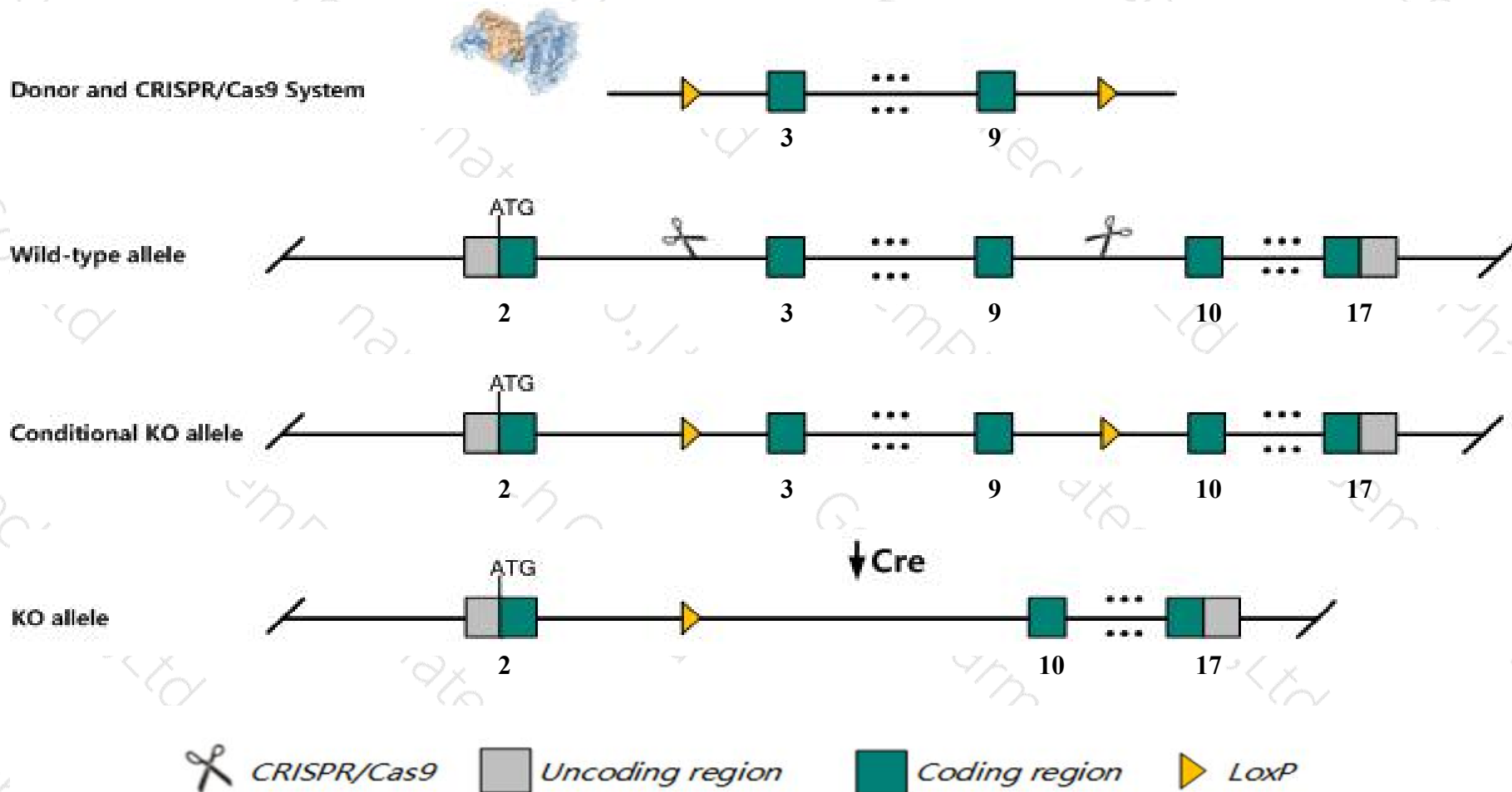
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Abcb8* gene. The schematic diagram is as follows:



- The *Abcb8* gene has 9 transcripts. According to the structure of *Abcb8* gene, exon3-exon9 of *Abcb8*-203 (ENSMUST00000115077.7) transcript is recommended as the knockout region. The region contains 1013bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Abcb8* 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.

- According to the existing MGI data, Inducible cardiac specific deletion results in mild cardiomyopathy, mitochondrial defects and elevated heart mitochondrial iron levels.
- The floxed region is near to the N-terminal of *Atg9b* gene, this strategy may influence the regulatory function of the N-terminal of *Atg9b* gene.
- Transcript *Abcb8*-206 may not be affected.
- The effect on transcript *Abcb8*-208 is unknown.
- The *Abcb8* gene is located on the Chr5. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Abcb8 ATP-binding cassette, sub-family B (MDR/TAP), member 8 [*Mus musculus* (house mouse)]

Gene ID: 74610, updated on 27-Feb-2020

Summary

- Official Symbol

Abcb8 provided by MGI
- Official Full Name

ATP-binding cassette, sub-family B (MDR/TAP), member 8 provided by MGI
- Primary source

[MGI:MGI:1351667](#)
- See related

[Ensembl:ENSMUSG00000028973](#)
- 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

MITOSUR; AA409895; 4833412N02Rik
- Expression

Ubiquitous expression in adrenal adult (RPKM 40.2), heart adult (RPKM 32.8) and 28 other tissues [See more](#)
- Orthologs

[human](#) [all](#)

Genomic context

Location:

5; 5 A3

See Abcb8 in [Genome Data Viewer](#)

Exon count:

17

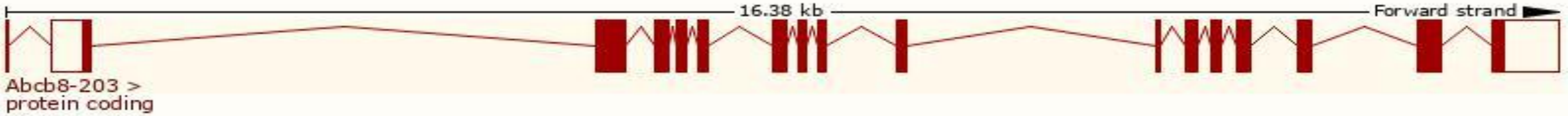
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	5	NC_000071.6 (24393681..24412759)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	5	NC_000071.5 (23899974..23915765)

Transcript information (Ensembl)

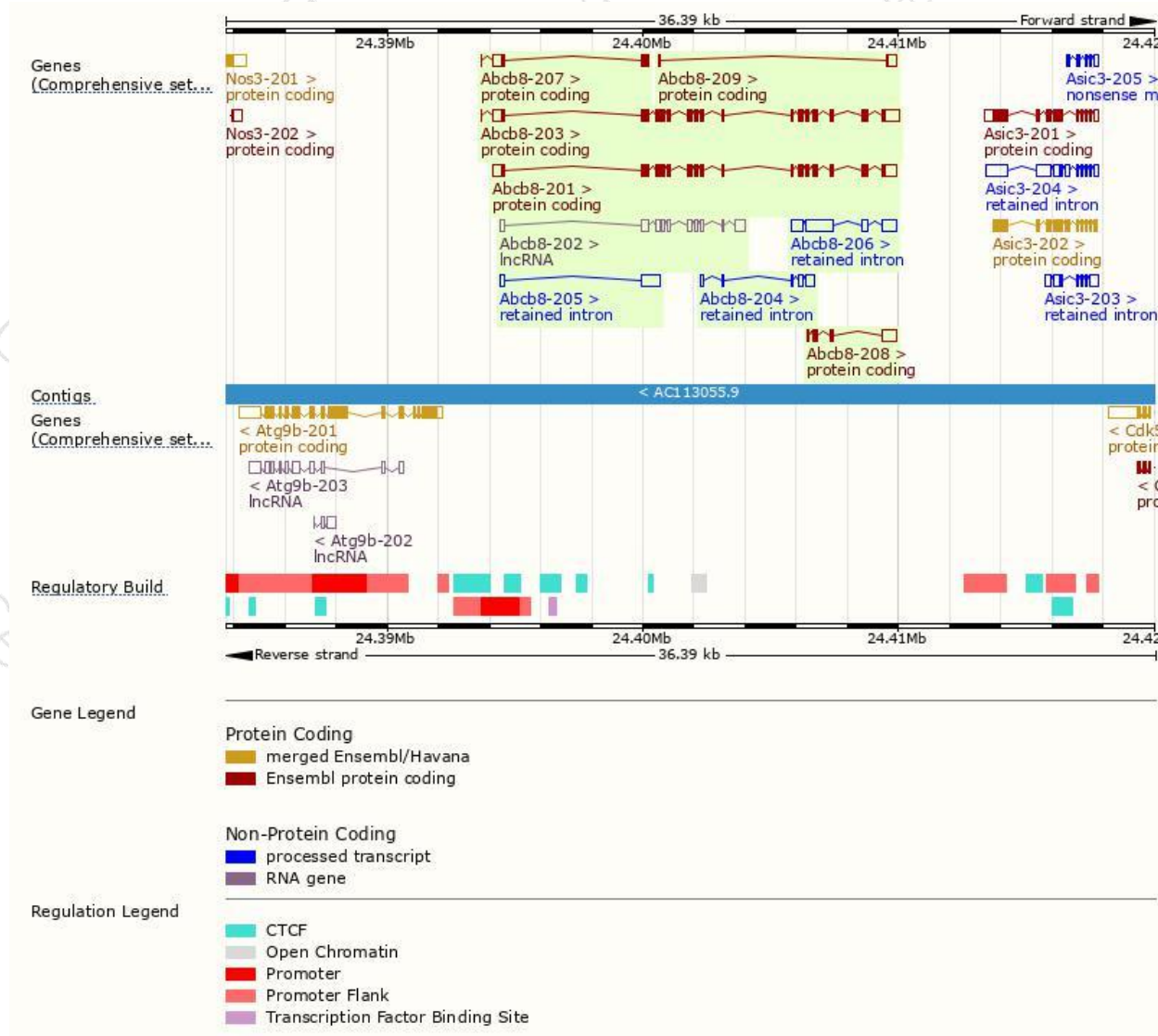
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Abcb8-203	ENSMUST00000115077.7	3074	717aa	Protein coding	CCDS19118	Q9CXJ4	TSL:5 GENCODE basic APPRIS P1
Abcb8-201	ENSMUST00000073076.11	2939	717aa	Protein coding	CCDS19118	Q9CXJ4	TSL:1 GENCODE basic APPRIS P1
Abcb8-208	ENSMUST00000151535.1	940	131aa	Protein coding	-	F6ZFC5	CDS 5' incomplete TSL:1
Abcb8-207	ENSMUST00000138168.2	830	135aa	Protein coding	-	D3Z1J6	CDS 3' incomplete TSL:3
Abcb8-209	ENSMUST00000198166.1	518	60aa	Protein coding	-	A0A0G2JFJ3	CDS 5' incomplete TSL:5
Abcb8-206	ENSMUST00000136459.1	2340	No protein	Retained intron	-	-	TSL:1
Abcb8-205	ENSMUST00000136414.1	929	No protein	Retained intron	-	-	TSL:2
Abcb8-204	ENSMUST00000127816.1	675	No protein	Retained intron	-	-	TSL:3
Abcb8-202	ENSMUST00000115074.5	1657	No protein	lncRNA	-	-	TSL:1

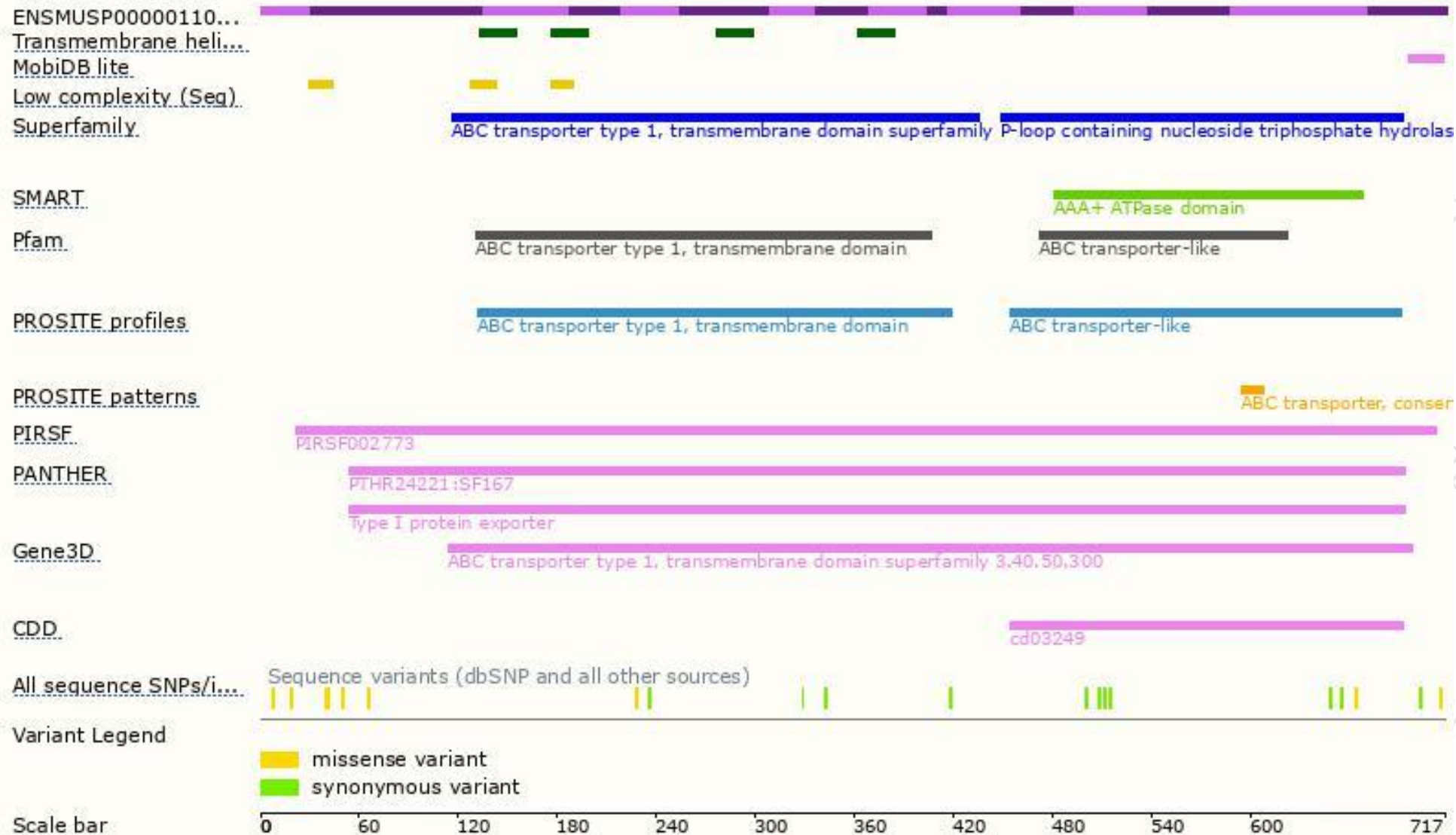
The strategy is based on the design of *Abcb8-203* transcript,The transcription is shown below



Genomic location distribution

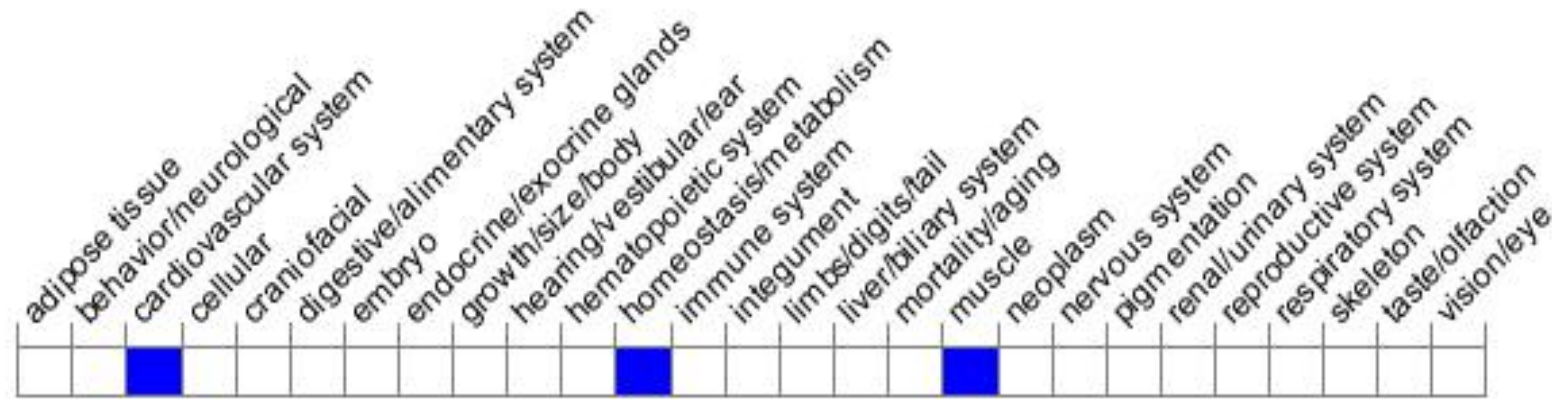


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview



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, Inducible cardiac specific deletion results in mild cardiomyopathy, mitochondrial defects and elevated heart mitochondrial iron levels.

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

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