

# ***Abcb8 Cas9-KO Strategy***

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Date: 2020-03-10

# Project Overview

**Project Name**

*Abcb8*

**Project type**

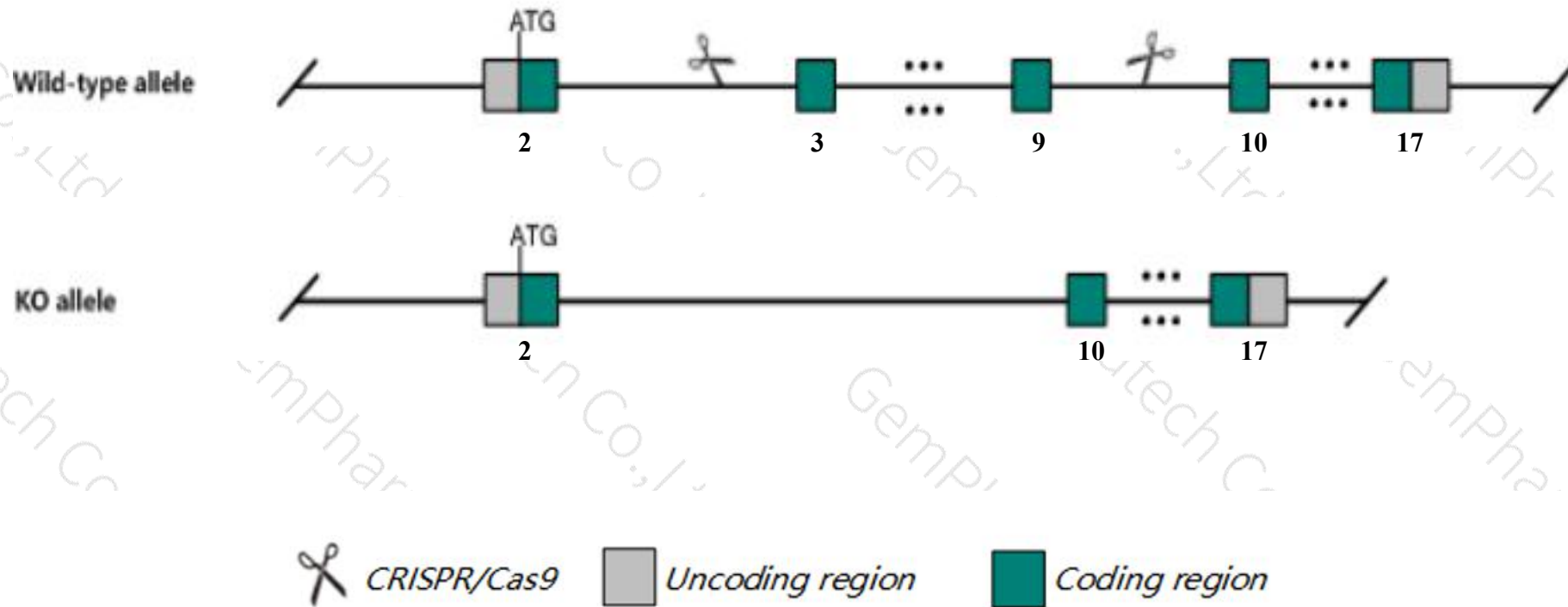
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# 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

- According to the existing MGI data, Inducible cardiac specific deletion results in mild cardiomyopathy, mitochondrial defects and elevated heart mitochondrial iron levels.
- The knockout 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology 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

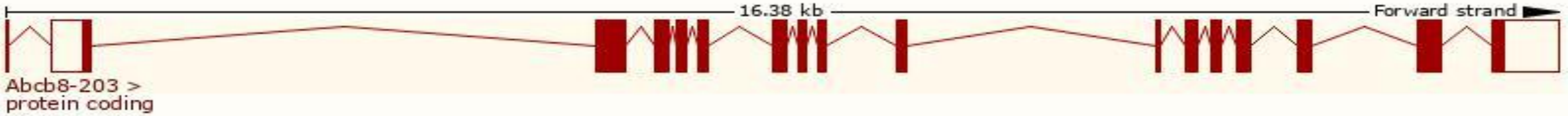
Annotation release	Status	Assembly	Chr	Location
<a href="#">108</a>	current	GRCm38.p6 ( <a href="#">GCF_000001635.26</a> )	5	NC_000071.6 (24393681..24412759)
Build 37.2	previous assembly	MGSCv37 ( <a href="#">GCF_000001635.18</a> )	5	NC_000071.5 (23899974..23915765)

# Transcript information (Ensembl)

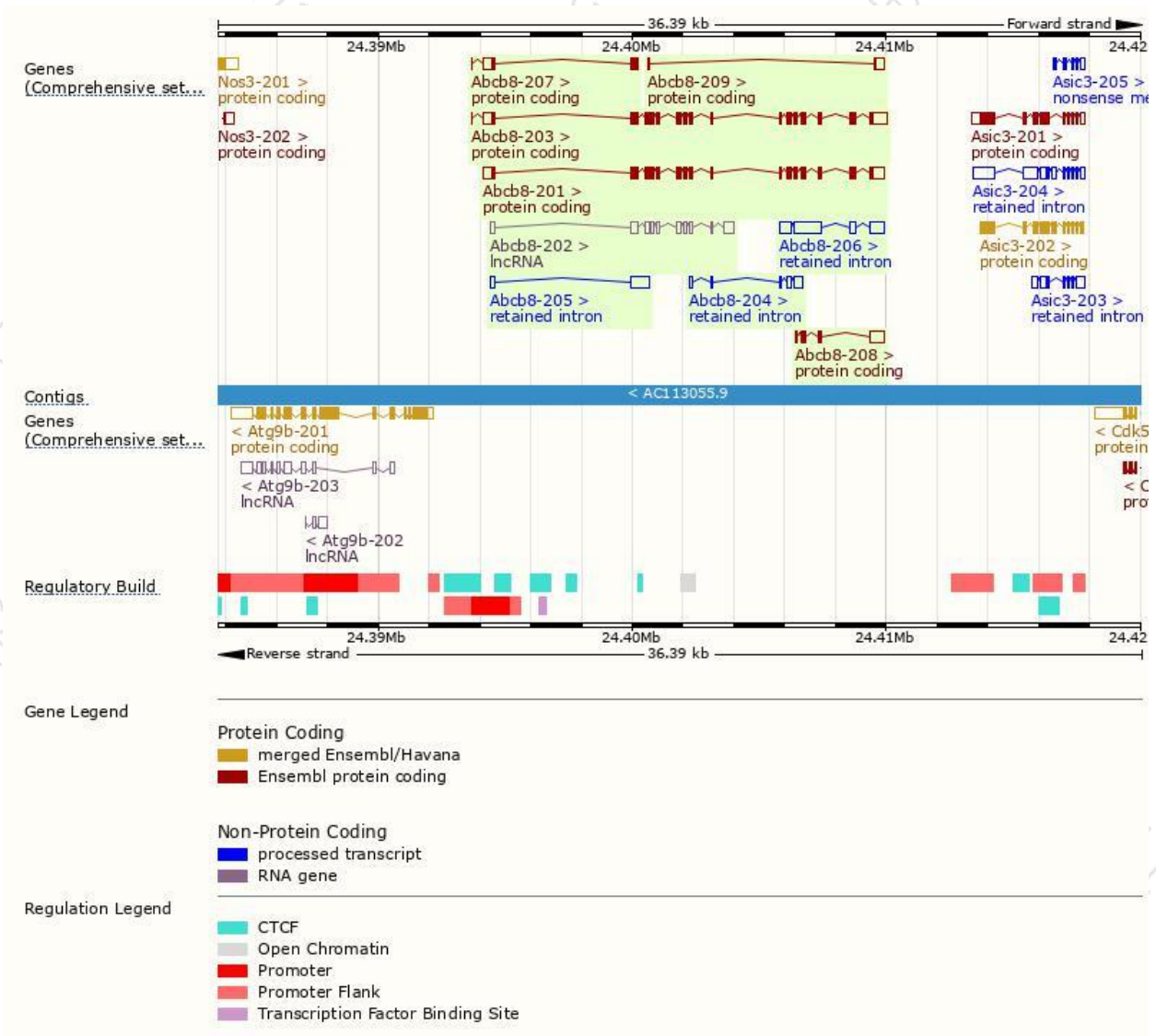
The gene has 9 transcripts,all transcripts are shown below:

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

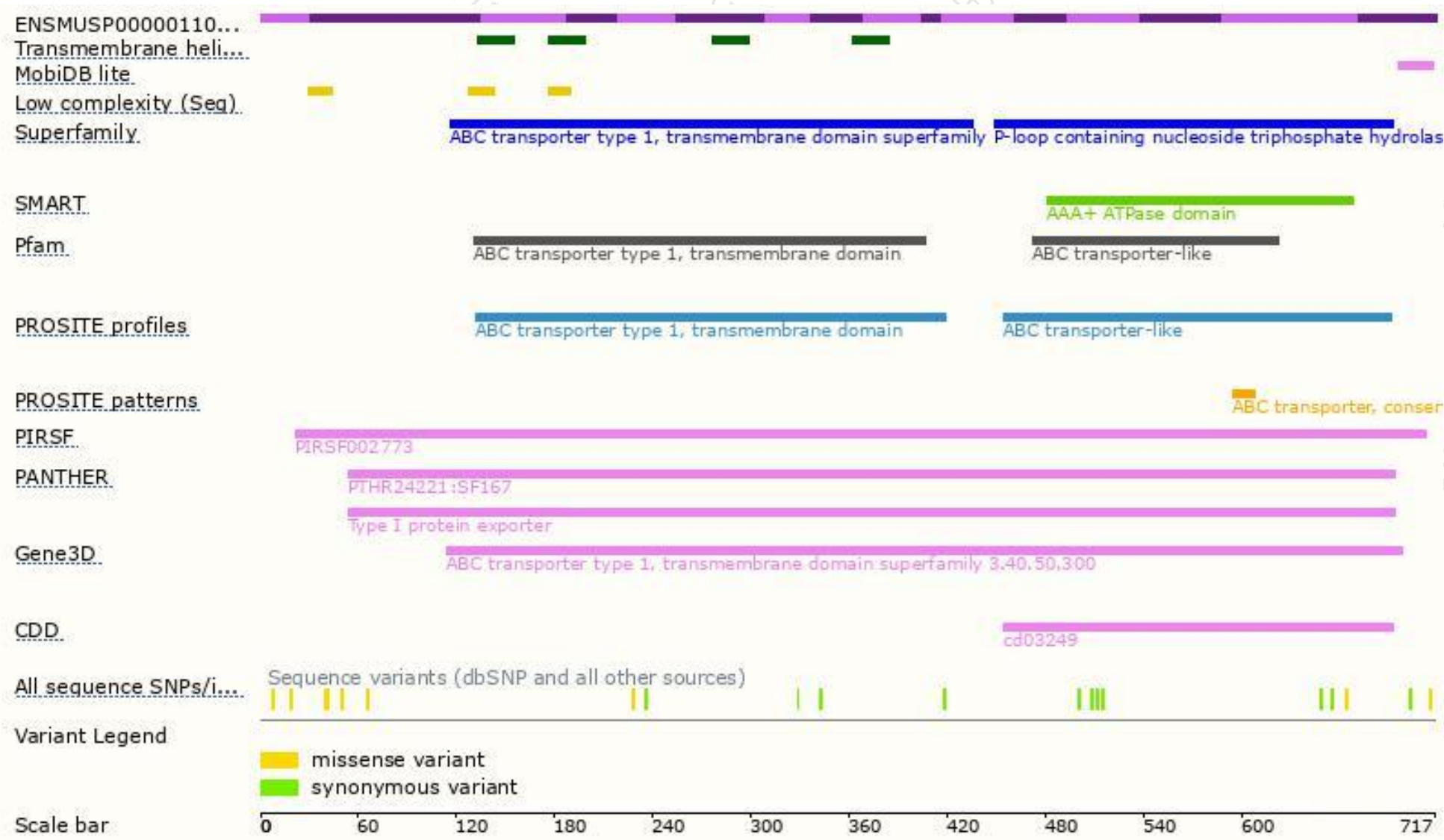




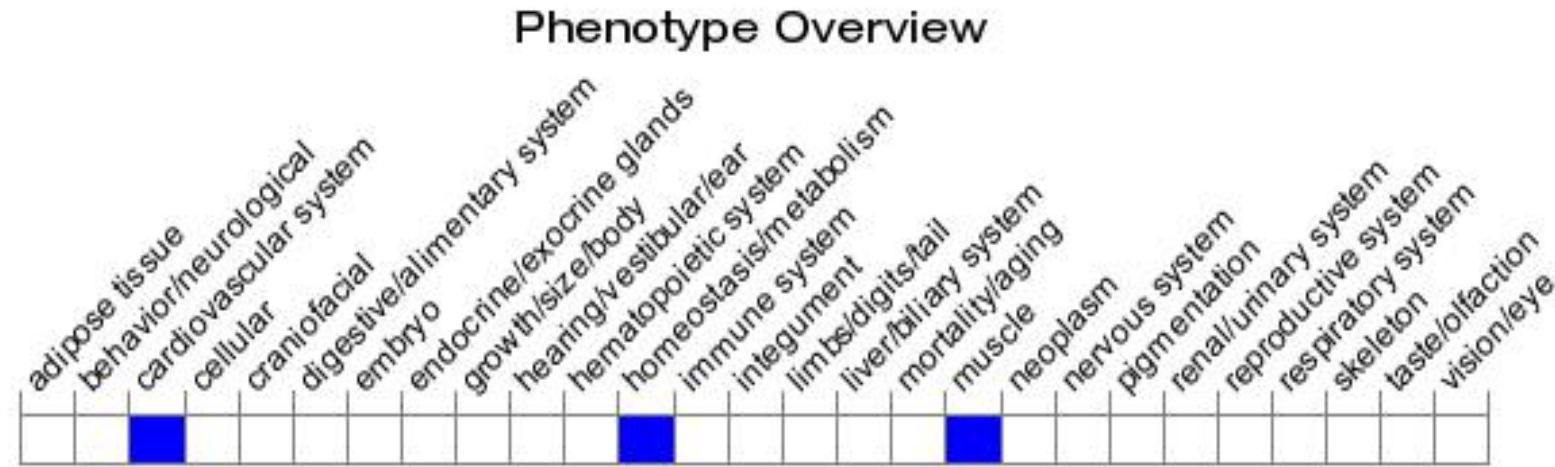
# Protein domain



集萃药康  
GemPharmatech



# 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, 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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