

# *Abcb9* Cas9-CKO Strategy

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Date: 2020-02-24

# Project Overview

**Project Name**

*Abcb9*

**Project type**

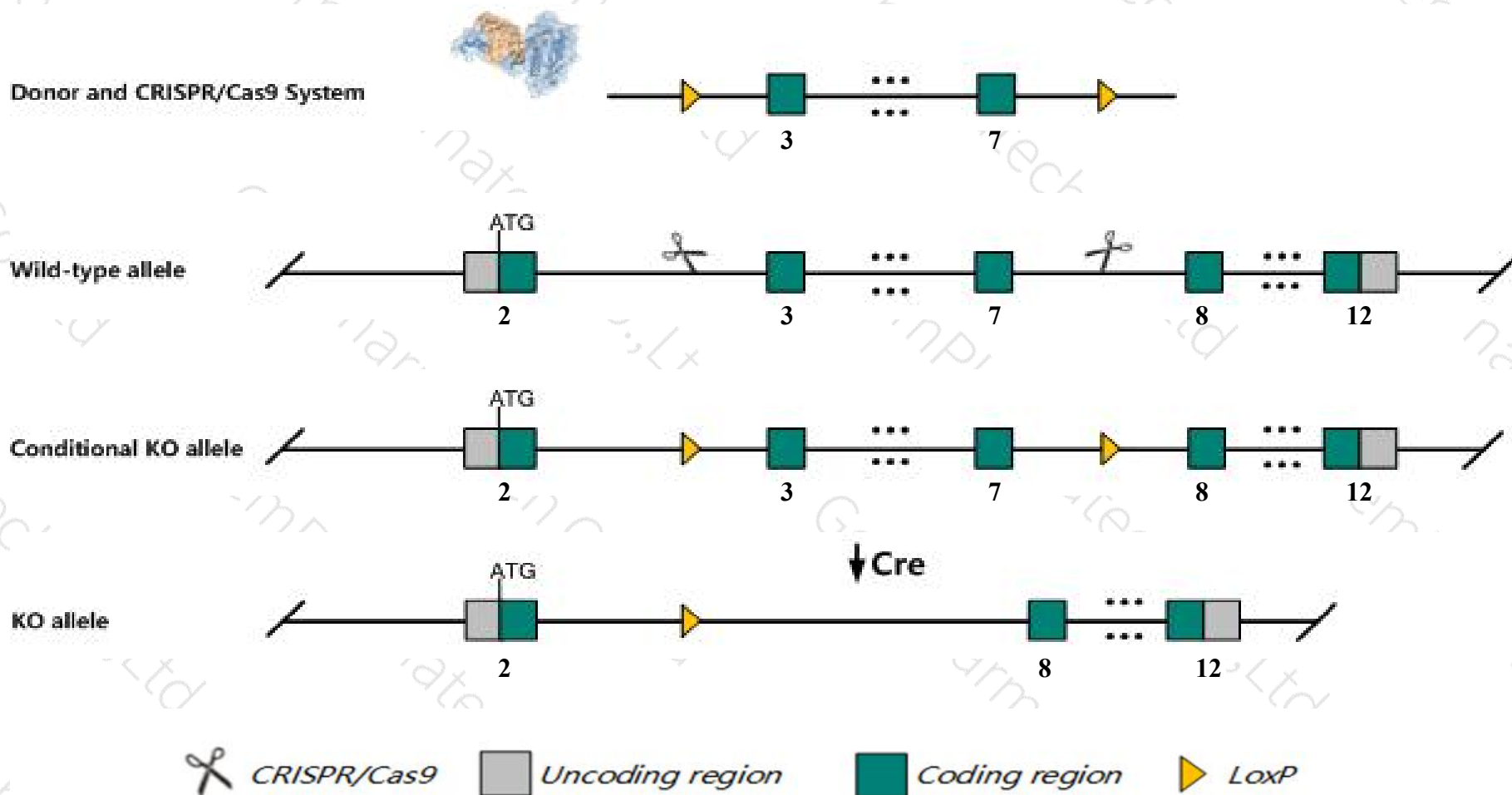
**Cas9-CKO**

**Strain background**

**C57BL/6JGpt**

# Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Abcb9* gene. The schematic diagram is as follows:



- The *Abcb9* gene has 6 transcripts. According to the structure of *Abcb9* gene, exon3-exon7 of *Abcb9*-201 (ENSMUST00000031354.10) transcript is recommended as the knockout region. The region contains 779bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Abcb9* 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.

# Notice

- Transcript *Abcb9*-203 may not be affected.
- The *Abcb9* 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)

## Abcb9 ATP-binding cassette, sub-family B (MDR/TAP), member 9 [ *Mus musculus* (house mouse) ]

Gene ID: 56325, updated on 10-Oct-2019

### Summary

**Official Symbol** Abcb9 provided by [MGI](#)  
**Official Full Name** ATP-binding cassette, sub-family B (MDR/TAP), member 9 provided by [MGI](#)  
**Primary source** [MGI:MGI:1861729](#)  
**See related** [Ensembl:ENSMUSG00000029408](#)  
**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** TAPL; mKIAA1520  
**Summary** The membrane-associated protein encoded by this gene is a member of the superfamily of ATP-binding cassette (ABC) transporters. ABC proteins transport various molecules across extra- and intra-cellular membranes. ABC genes are divided into seven distinct subfamilies (ABC1, MDR/TAP, MRP, ALD, OABP, GCN20, White). This protein is a member of the MDR/TAP subfamily. Members of the MDR/TAP subfamily are involved in multidrug resistance as well as antigen presentation. The function of this half-transporter has not yet been determined; however, it may be associated with lysosome activity. [provided by RefSeq, Jul 2008]  
**Expression** Broad expression in thymus adult (RPKM 11.0), genital fat pad adult (RPKM 8.2) and 24 other tissues [See more](#)  
**Orthologs** [human](#) [all](#)

### Genomic context

**Location:** 5; 5 F [See Abcb9 in Genome Data Viewer](#)  
**Exon count:** 13

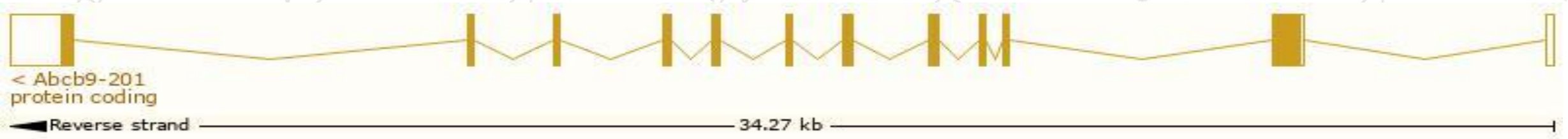
Annotation release	Status	Assembly	Chr	Location
<a href="#">108</a>	current	GRCm38.p6 ( <a href="#">GCF_000001635.26</a> )	5	NC_000071.6 (124061857..124095955, complement)
Build 37.2	previous assembly	MGSCv37 ( <a href="#">GCF_000001635.18</a> )	5	NC_000071.5 (124511866..124545807, complement)

# Transcript information (Ensembl)

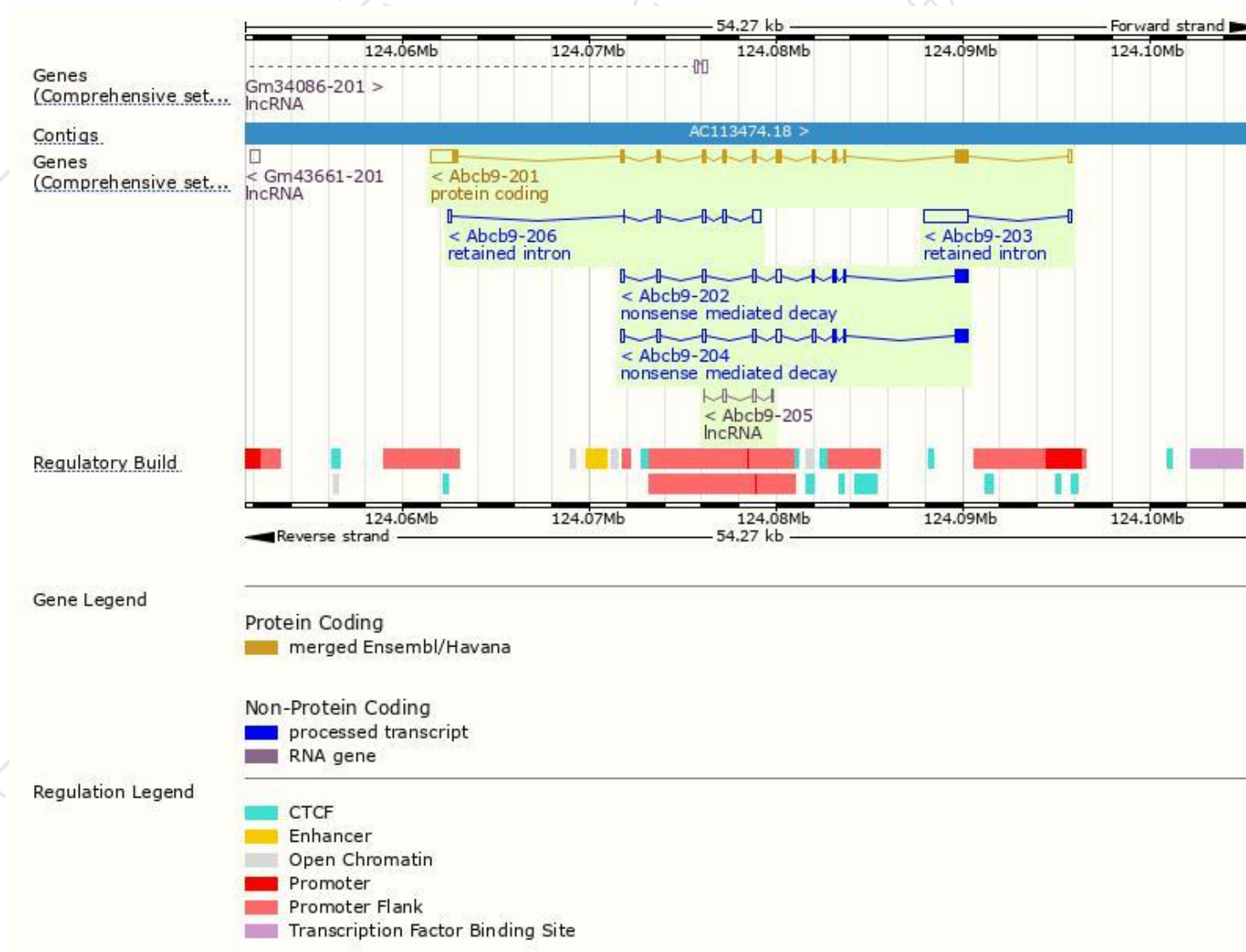
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Abcb9-201	<a href="#">ENSMUST00000031354.10</a>	3661	<a href="#">762aa</a>	Protein coding	<a href="#">CCDS19671</a>	<a href="#">Q9JJ59</a>	TSL:1 GENCODE basic APPRIS P1
Abcb9-204	<a href="#">ENSMUST00000141510.7</a>	1911	<a href="#">268aa</a>	Nonsense mediated decay	-	<a href="#">D6RFD9</a>	TSL:5
Abcb9-202	<a href="#">ENSMUST00000126856.7</a>	1794	<a href="#">268aa</a>	Nonsense mediated decay	-	<a href="#">D6RFD9</a>	TSL:5
Abcb9-203	<a href="#">ENSMUST00000126970.2</a>	2469	No protein	Retained intron	-	-	TSL:1
Abcb9-206	<a href="#">ENSMUST00000153433.7</a>	1036	No protein	Retained intron	-	-	TSL:5
Abcb9-205	<a href="#">ENSMUST00000148392.1</a>	430	No protein	lncRNA	-	-	TSL:2

The strategy is based on the design of *Abcb9-201* transcript,The transcription is shown below

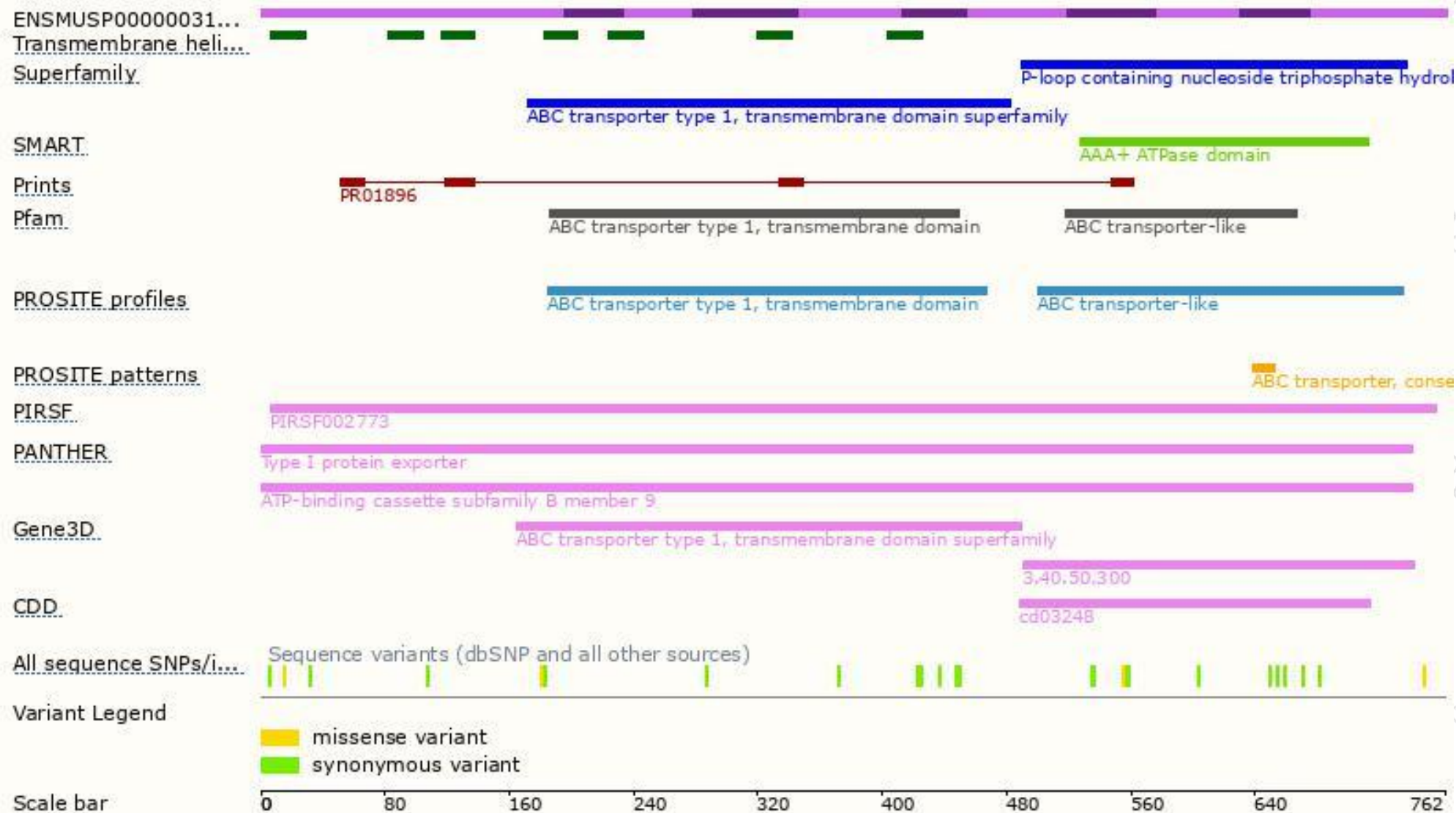


# Genomic location distribution

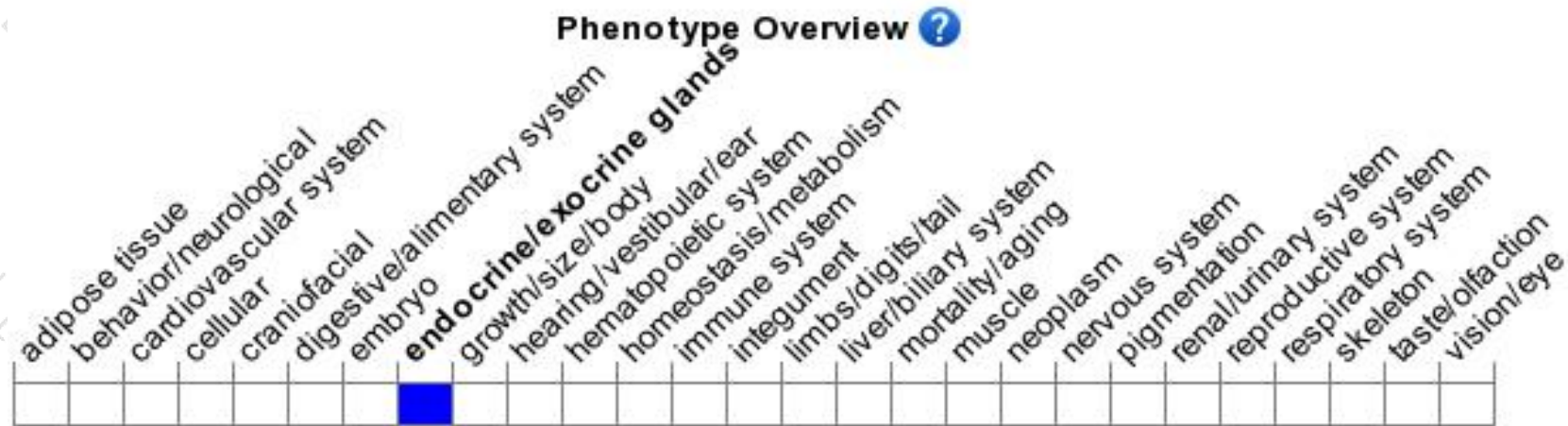




# Protein domain



# Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

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

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