

# *Abce1* Cas9-KO Strategy

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# Project Overview

**Project Name**

*Abcel*

**Project type**

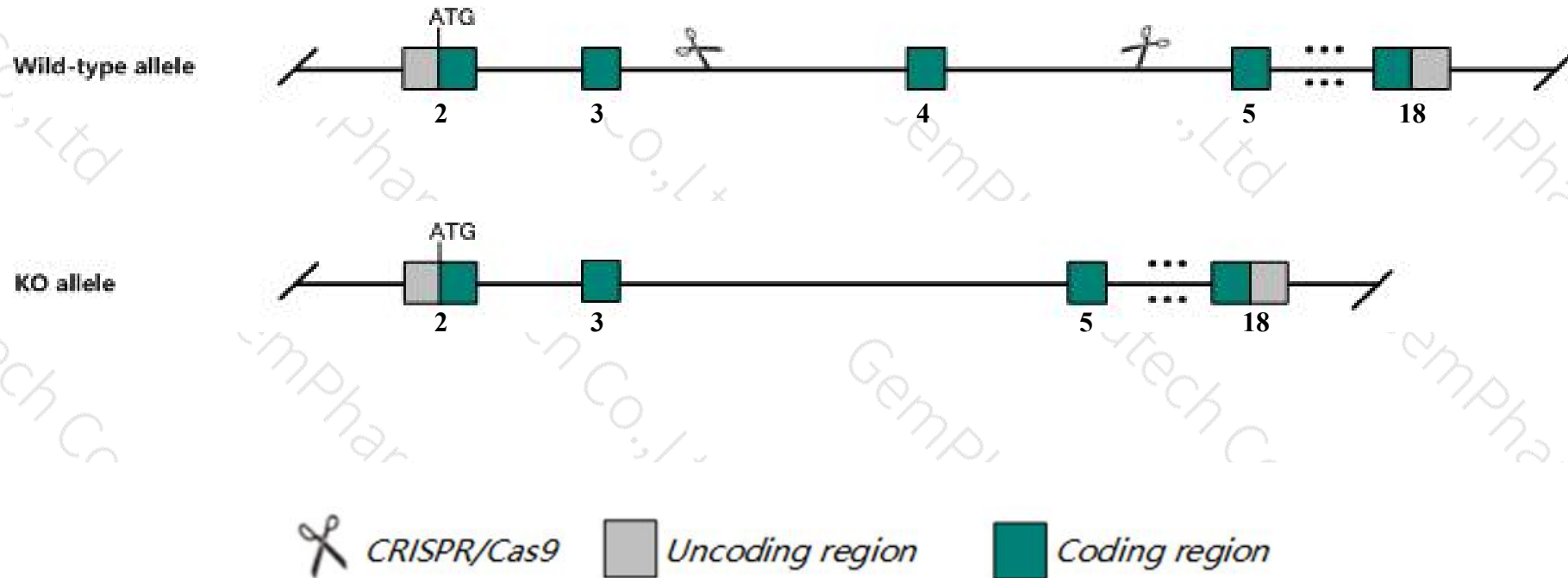
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Abce1* gene. The schematic diagram is as follows:



- The *Abce1* gene has 4 transcripts. According to the structure of *Abce1* gene, exon4 of *Abce1-201* (ENSMUST00000080536.7) transcript is recommended as the knockout region. The region contains 98bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Abce1* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Mice homozygous for a transgenic gene disruption exhibit embryonic lethality at E7.
- The *Abce1* gene is located on the Chr8. 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)

## Abce1 ATP-binding cassette, sub-family E (OABP), member 1 [Mus musculus (house mouse)]

Gene ID: 24015, updated on 31-Jan-2019

### Summary



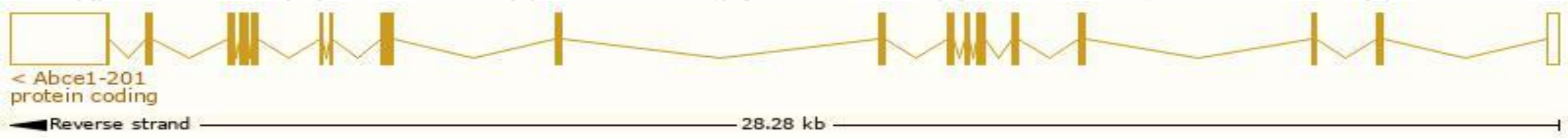
<b>Official Symbol</b>	Abce1 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	ATP-binding cassette, sub-family E (OABP), member 1 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:1195458</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000058355</a>
<b>Gene type</b>	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>	C79080, Oabp, RLI, RNS41, RNS4I, Rnaseli
<b>Summary</b>	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 OABP subfamily. Alternatively referred to as the RNase L inhibitor, this protein functions to block the activity of ribonuclease L. Activation of ribonuclease L leads to inhibition of protein synthesis in the 2-5A/RNase L system, the central pathway for viral interferon action. [provided by RefSeq, Jul 2008]
<b>Expression</b>	Ubiquitous expression in liver E14 (RPKM 27.7), CNS E11.5 (RPKM 26.2) and 24 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

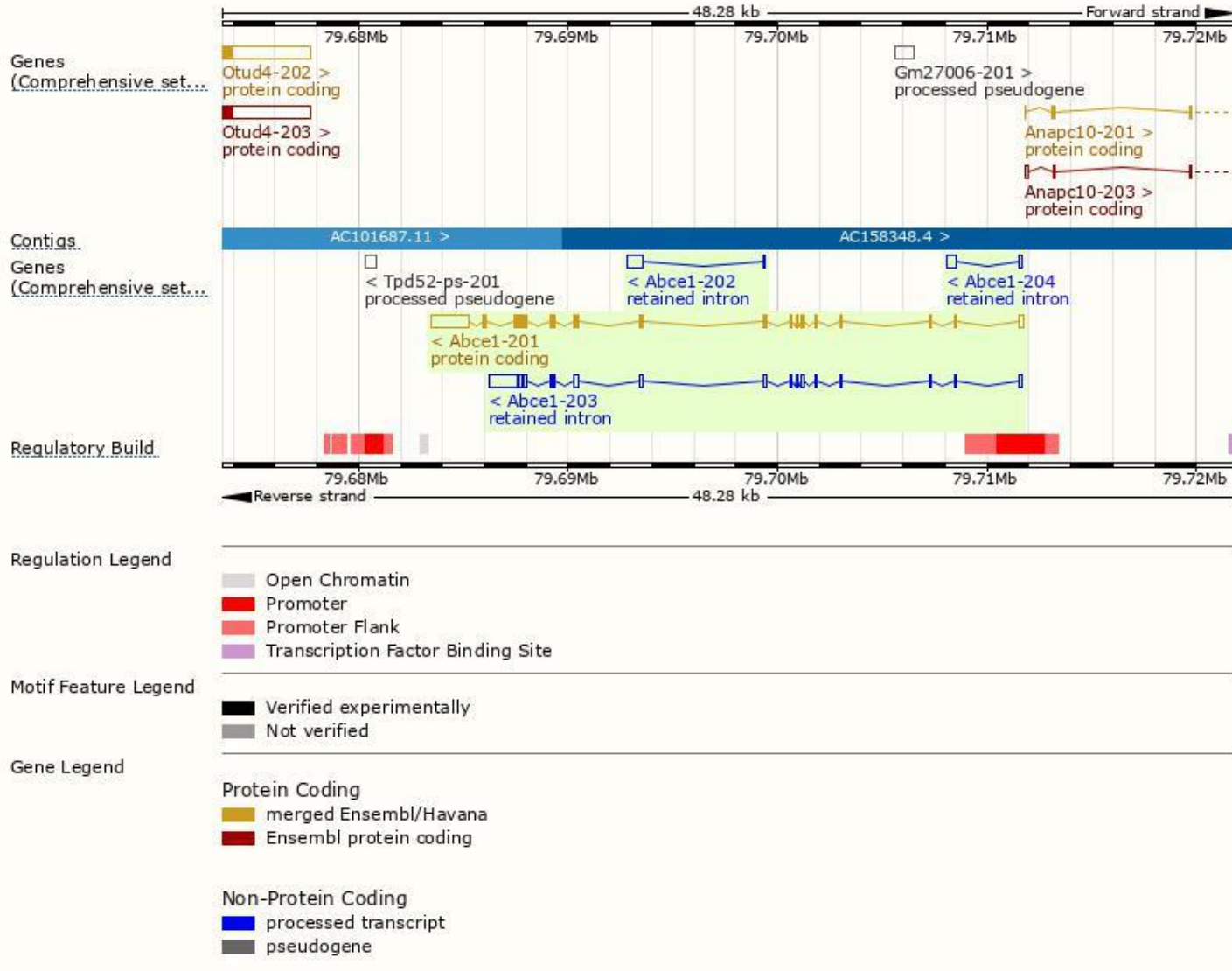
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Abce1-201	<a href="#">ENSMUST00000080536.7</a>	3793	<a href="#">599aa</a>	Protein coding	<a href="#">CCDS22438</a>	<a href="#">P61222 Q3UHY8</a>	TSL:1 GENCODE basic APPRIS P1
Abce1-203	<a href="#">ENSMUST00000211509.1</a>	3030	No protein	Retained intron	-	-	TSL:1
Abce1-202	<a href="#">ENSMUST00000209354.1</a>	814	No protein	Retained intron	-	-	TSL:3
Abce1-204	<a href="#">ENSMUST00000213842.1</a>	589	No protein	Retained intron	-	-	TSL:2

The strategy is based on the design of *Abce1-201* transcript,The transcription is shown below

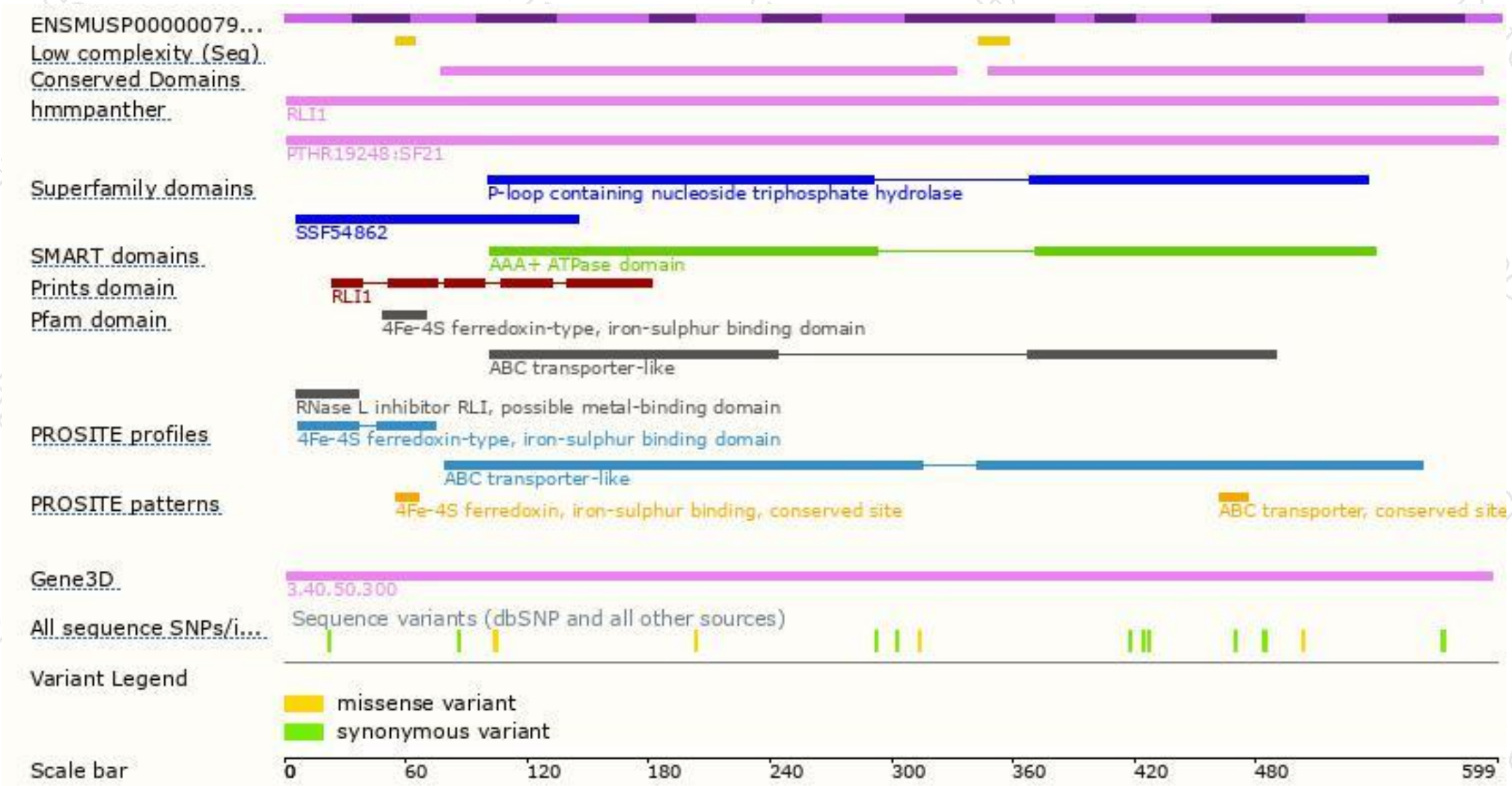


# Genomic location distribution

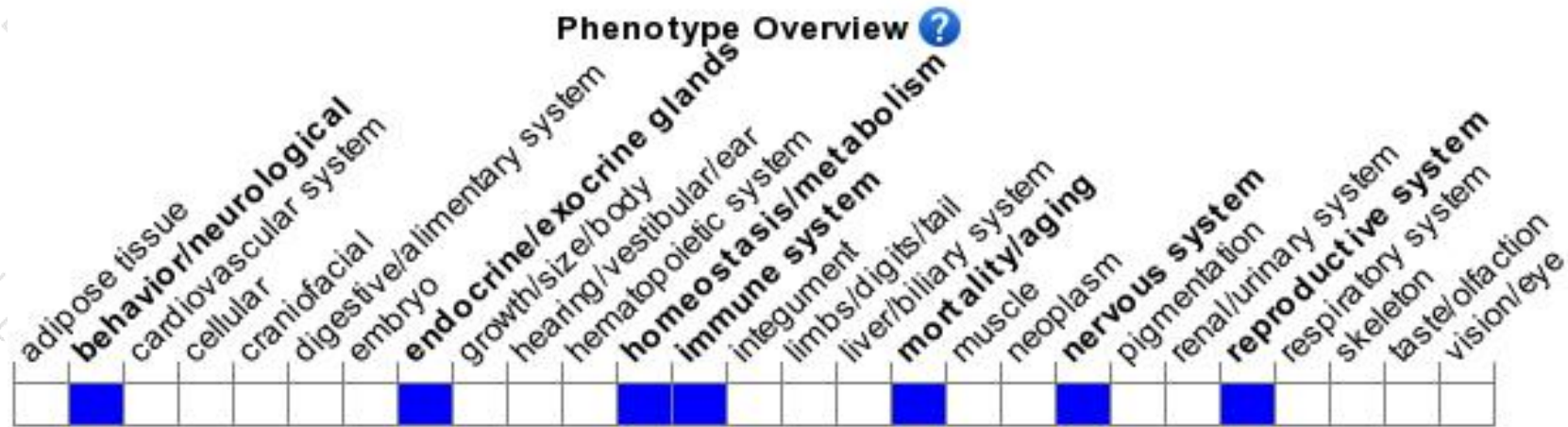




# Protein domain



# Mouse phenotype description(MGI )



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

According to the existing MGI data, Mice homozygous for a transgenic gene disruption exhibit embryonic lethality at E7.

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

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