

Cd48 Cas9-CKO Strategy

Designer:

Yang Zeng

Reviewer:

Xueting Zhang

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Project Overview

Project Name

Cd48

Project type

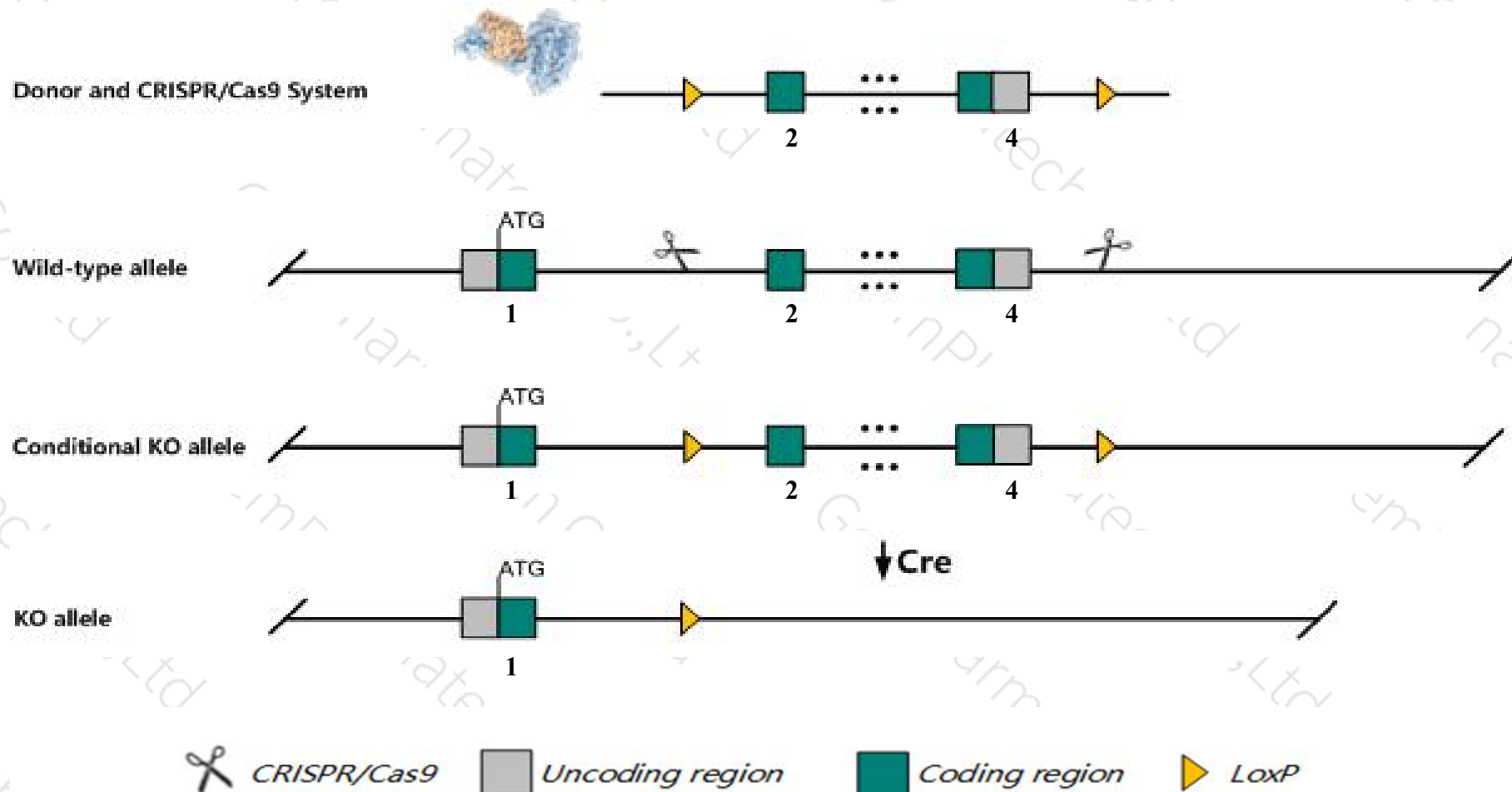
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cd48* gene. The schematic diagram is as follows:



Technical routes

- The *Cd48* gene has 2 transcripts. According to the structure of *Cd48* gene, exon2-exon4 of *Cd48-202* (ENSMUST00000068584.6) transcript is recommended as the knockout region. The region contains most of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cd48* 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, Homozygous mutation of this gene results in a slight increase in CD4+CD8- thymocytes and impaired T cell proliferation in response to mitogens, anti-CD3 antibodies, and alloantigens.
- The *Cd48* gene is located on the Chr1. 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)

Cd48 CD48 antigen [*Mus musculus* (house mouse)]

Gene ID: 12506, updated on 24-Oct-2019

Summary



Official Symbol Cd48 provided by [MGI](#)

Official Full Name CD48 antigen provided by [MGI](#)

Primary source [MGI:MGI:88339](#)

See related [Ensembl:ENSMUSG00000015355](#)

Gene type protein coding

RefSeq status VALIDATED

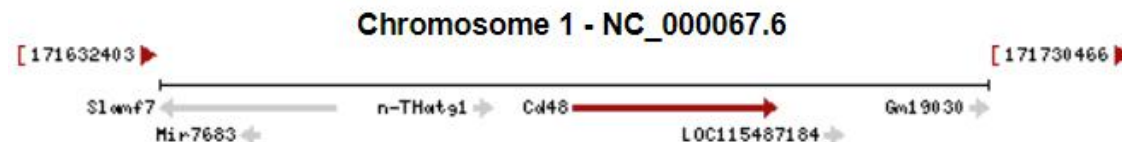
Organism [Mus musculus](#)

Lineage Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus

Also known as BCM1; BLAST; Bcm-1; BLAST1; SLAMF2; Sgp-60; BLAST-1; MEM-102; AI449234; AW610730

Expression Biased expression in spleen adult (RPKM 16.9), thymus adult (RPKM 12.5) and 13 other tissues [See more](#)

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

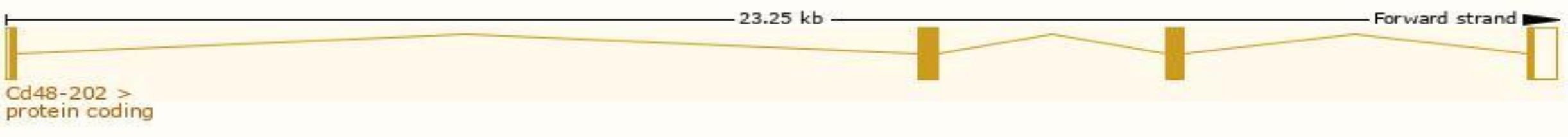


Transcript information (Ensembl)

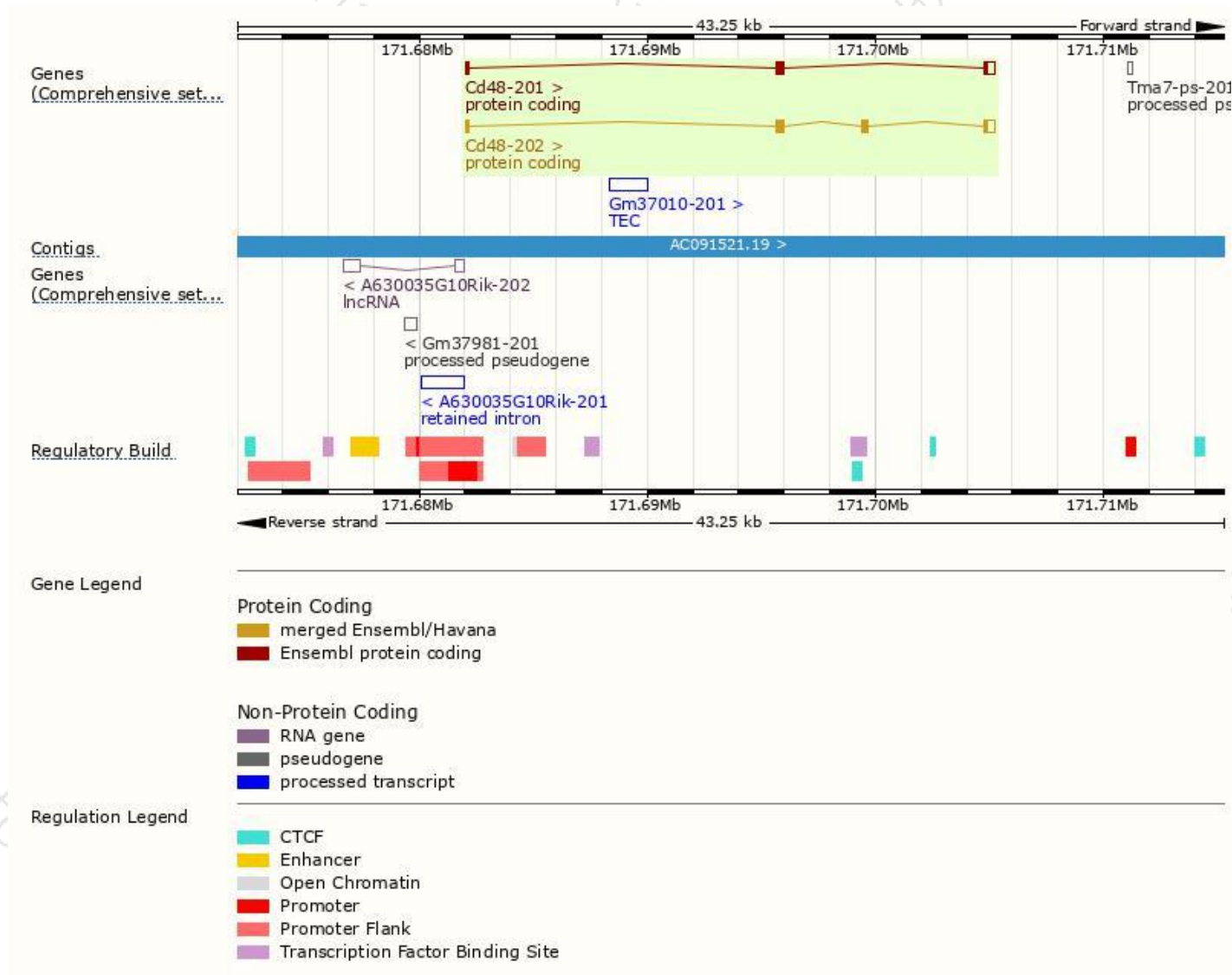
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Cd48-202	ENSMUST00000068584.6	1186	240aa	ENSMUSP00000064241.5	Protein coding	CCDS15501	P18181	TSL:1 GENCODE basic APPRIS P1
Cd48-201	ENSMUST00000015499.13	922	151aa	ENSMUSP00000015499.7	Protein coding	-	F8WHM0	TSL:1 GENCODE basic

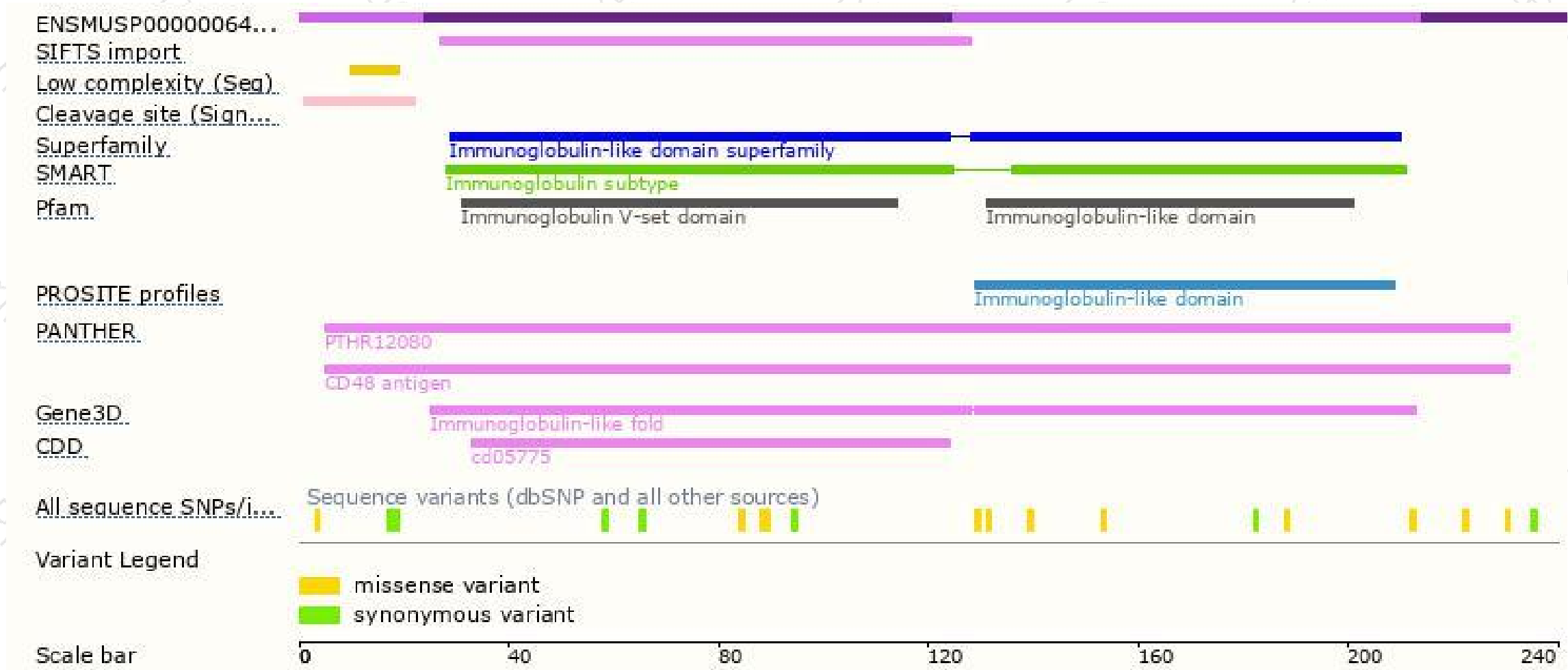
The strategy is based on the design of *Cd48-202* transcript,The transcription is shown below



Genomic location distribution

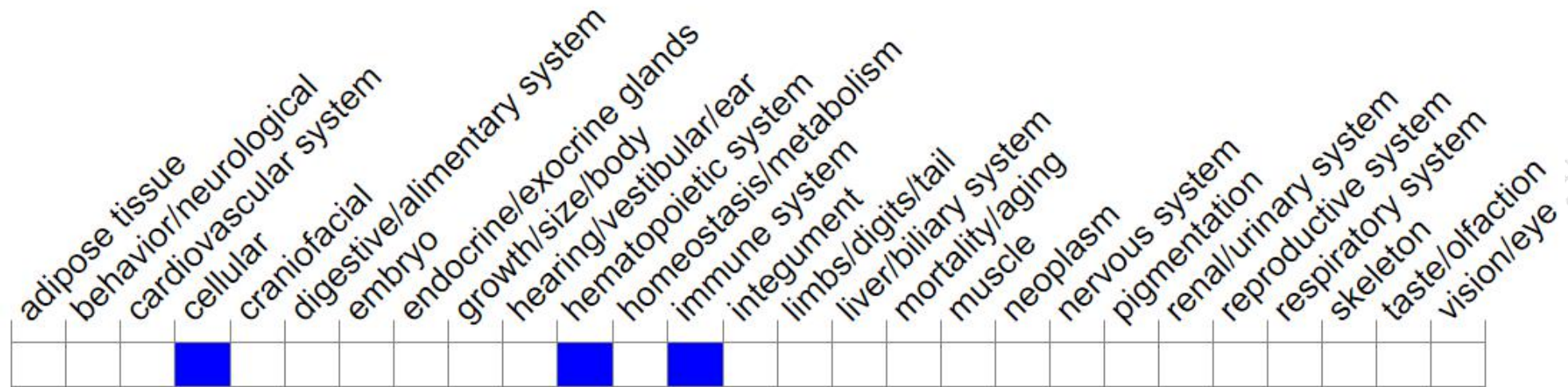


Protein domain



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/>).

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

Tel: 400-9660890

