

***Dock11* Cas9-CKO Strategy**

Designer: Xueting Zhang
reviewer: Yanhua Shen
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Project Overview

Project Name

Dock11

Project type

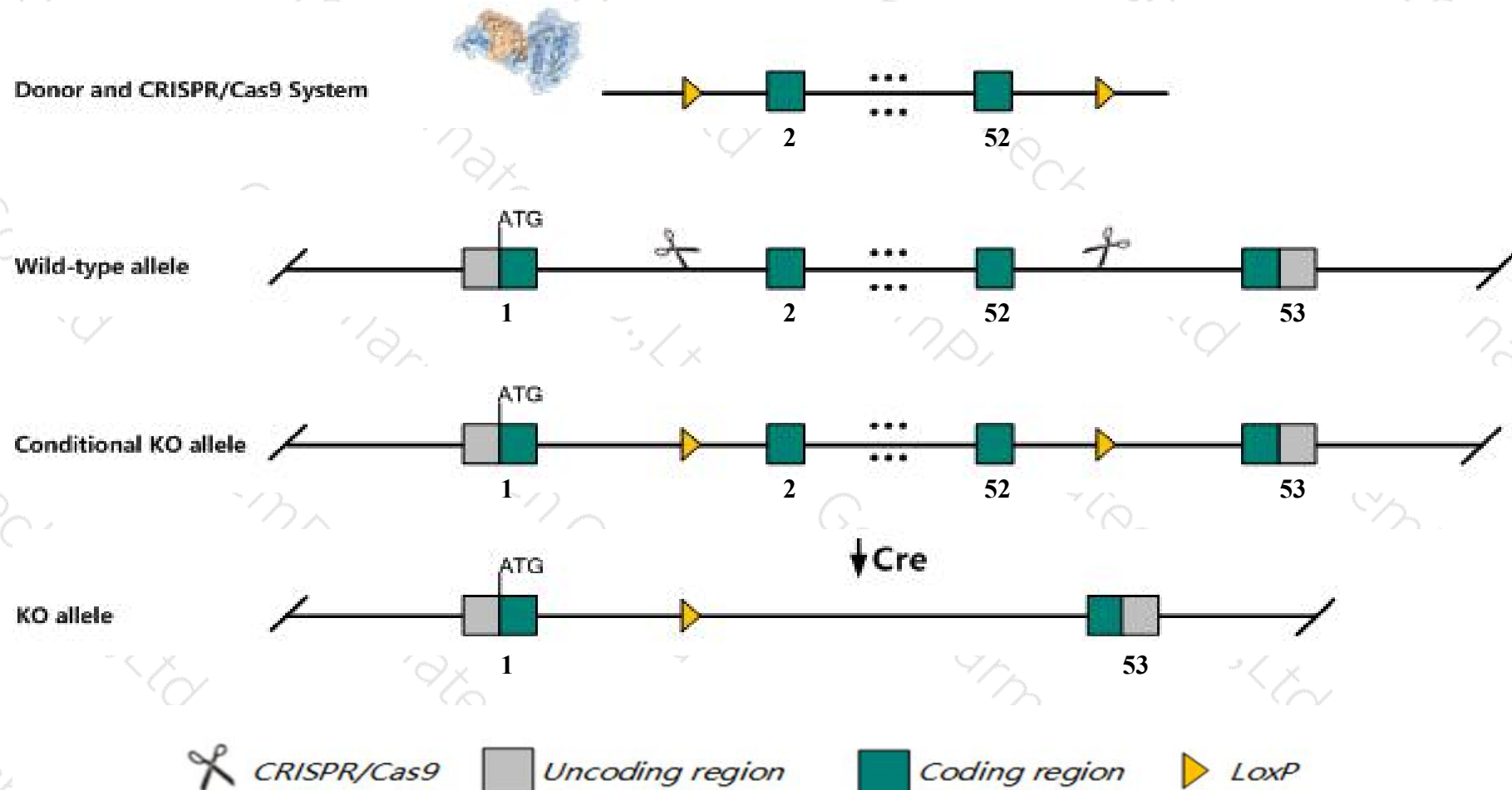
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dock11* gene. The schematic diagram is as follows:



- The *Dock11* gene has 5 transcripts. According to the structure of *Dock11* gene, exon2-exon52 of *Dock11-201* (ENSMUST00000033419.12) 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 *Dock11* 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

- *Gm50468* gene will be deleted.
- The *Dock11* gene is located on the ChrX. 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)

Dock11 dedicator of cytokinesis 11 [*Mus musculus* (house mouse)]

Gene ID: 75974, updated on 8-Dec-2019

Summary

- Official Symbol

Dock11 provided by [MGI](#)
- Official Full Name

dedicator of cytokinesis 11 provided by [MGI](#)
- Primary source

[MGI:MGI:1923224](#)
- See related

[Ensembl:ENSMUSG000000031093](#)
- 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

sph238; Zizimin2; 8030476J24; 5033414A21Rik
- Expression

Broad expression in CNS E11.5 (RPKM 4.2), CNS E14 (RPKM 3.9) and 22 other tissues [See more](#)
- Orthologs

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

Genomic context

Location: X; X A3.3

See Dock11 in [Genome Data Viewer](#)

Exon count: 55

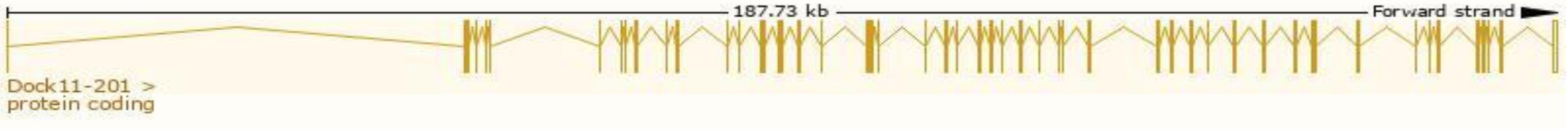
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	X	NC_000086.7 (35887271..36076570)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	X	NC_000086.6 (33428827..33616557)

Transcript information (Ensembl)

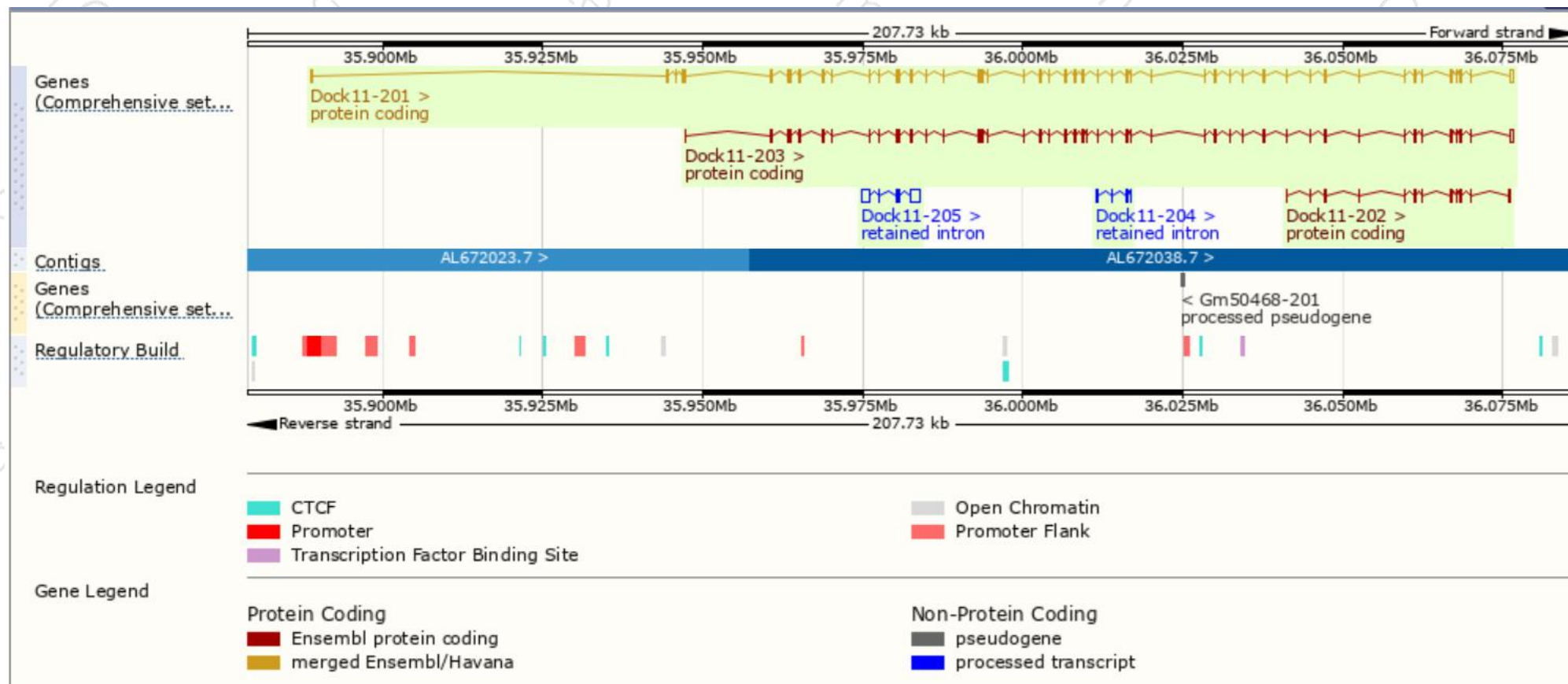
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dock11-201	ENSMUST00000033419.12	6665	2073aa	Protein coding	CCDS40923	A2AF47	TSL:1 GENCODE basic APPRIS P1
Dock11-203	ENSMUST00000115266.7	6047	1902aa	Protein coding	-	A2AF67	TSL:5 GENCODE basic
Dock11-202	ENSMUST00000115264.1	1725	527aa	Protein coding	-	A2AF65	TSL:5 GENCODE basic
Dock11-205	ENSMUST00000145757.1	2970	No protein	Retained intron	-	-	TSL:1
Dock11-204	ENSMUST00000140175.1	619	No protein	Retained intron	-	-	TSL:3

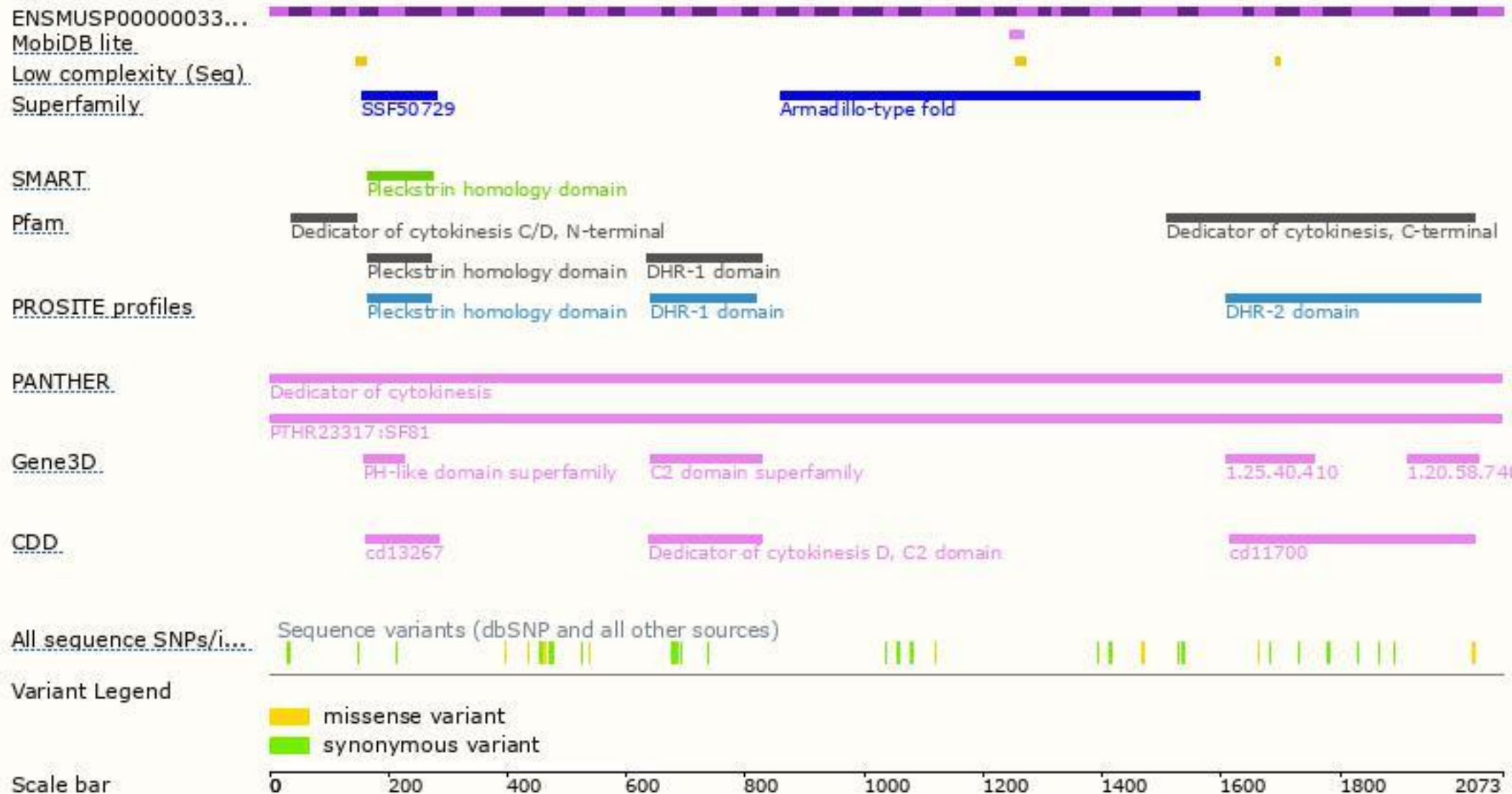
The strategy is based on the design of *Dock11-201* transcript,The transcription is shown below



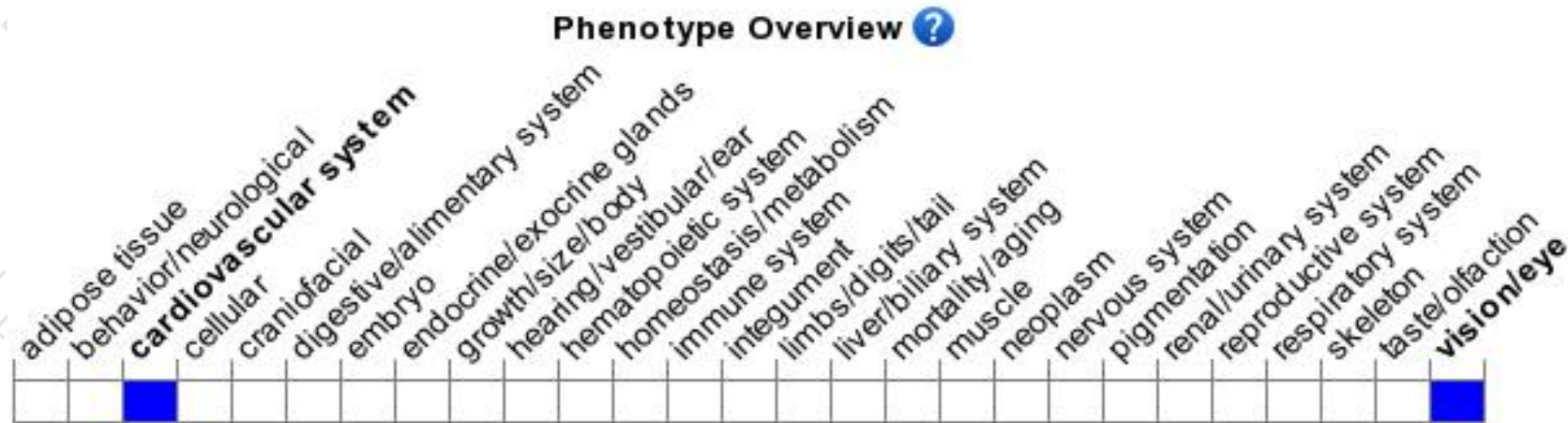
Genomic location distribution



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.

Tel: 400-9660890

