

Pcgf1 Cas9-CKO Strategy

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Design Date: 2019-8-9

Project Overview

Project Name

Pcgf1

Project type

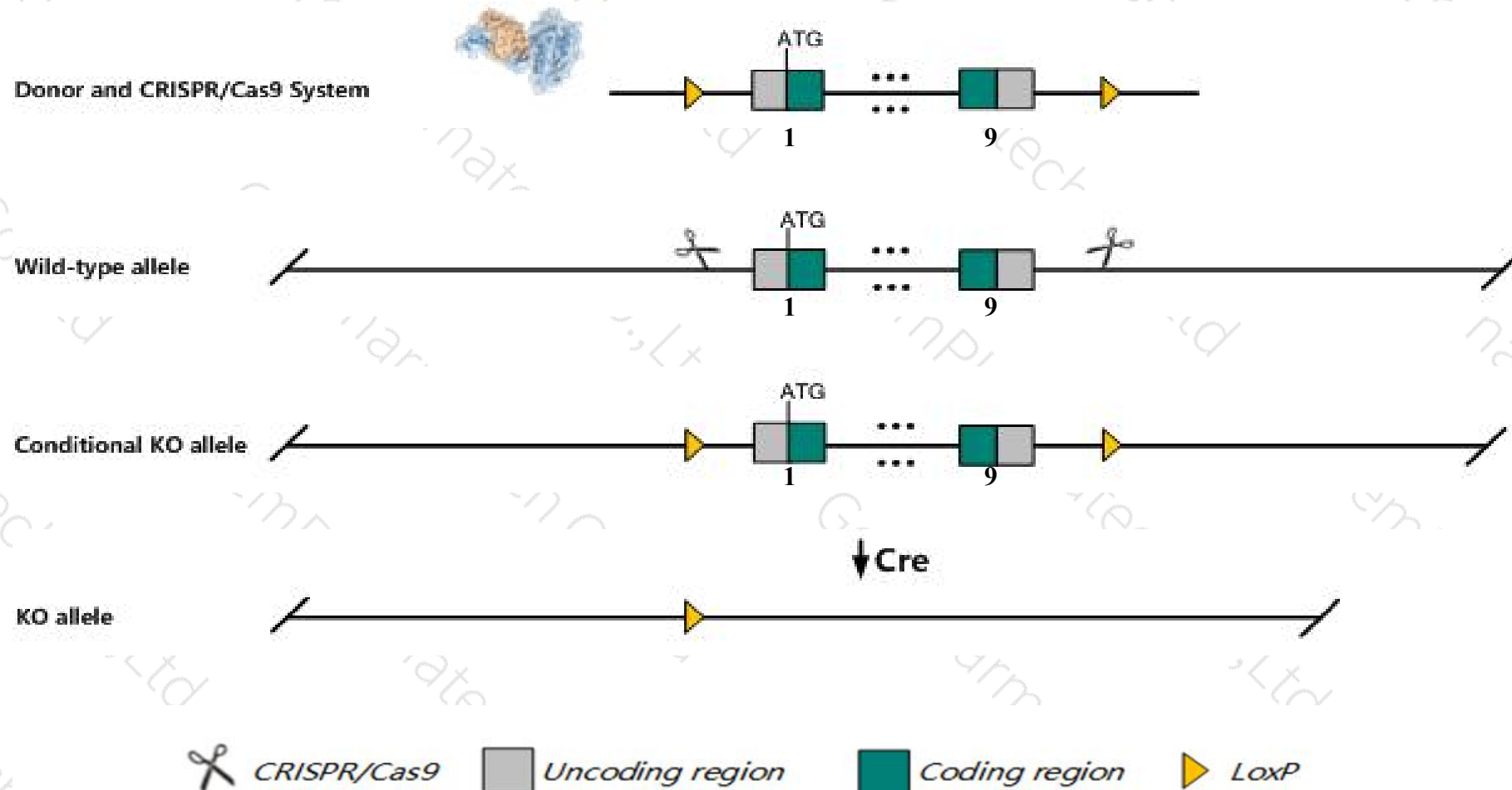
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



- The *Pcgfl* gene has 8 transcripts. According to the structure of *Pcgfl* gene, exon1-exon9 of *Pcgfl*-201 (ENSMUST00000092614.8) transcript is recommended as the knockout region. The region contains all 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 *Pcgfl* 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

- The floxed region is near to the N-terminal of *Gm37092* gene and *Lbx2* gene, this strategy may influence the regulatory function of the N-terminal of these genes.
- The *Pcgfl* gene is located on the Chr6. 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)

Pcgf1 polycomb group ring finger 1 [Mus musculus (house mouse)]

Gene ID: 69837, updated on 31-Jan-2019

Summary



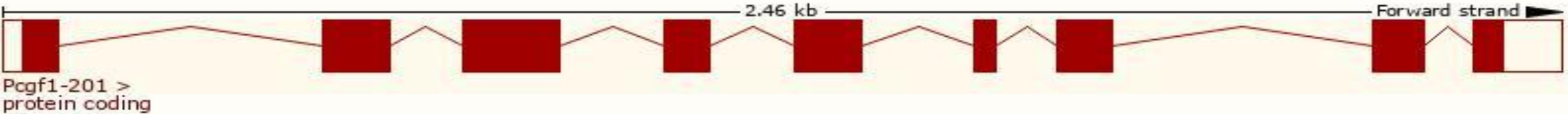
Official Symbol	Pcgf1 provided by MGI
Official Full Name	polycomb group ring finger 1 provided by MGI
Primary source	MGI:MGI:1917087
See related	Ensembl:ENSMUSG00000069678
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2010002K04Rik, AU024121, Nspc1
Expression	Ubiquitous expression in CNS E14 (RPKM 15.0), testis adult (RPKM 12.7) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

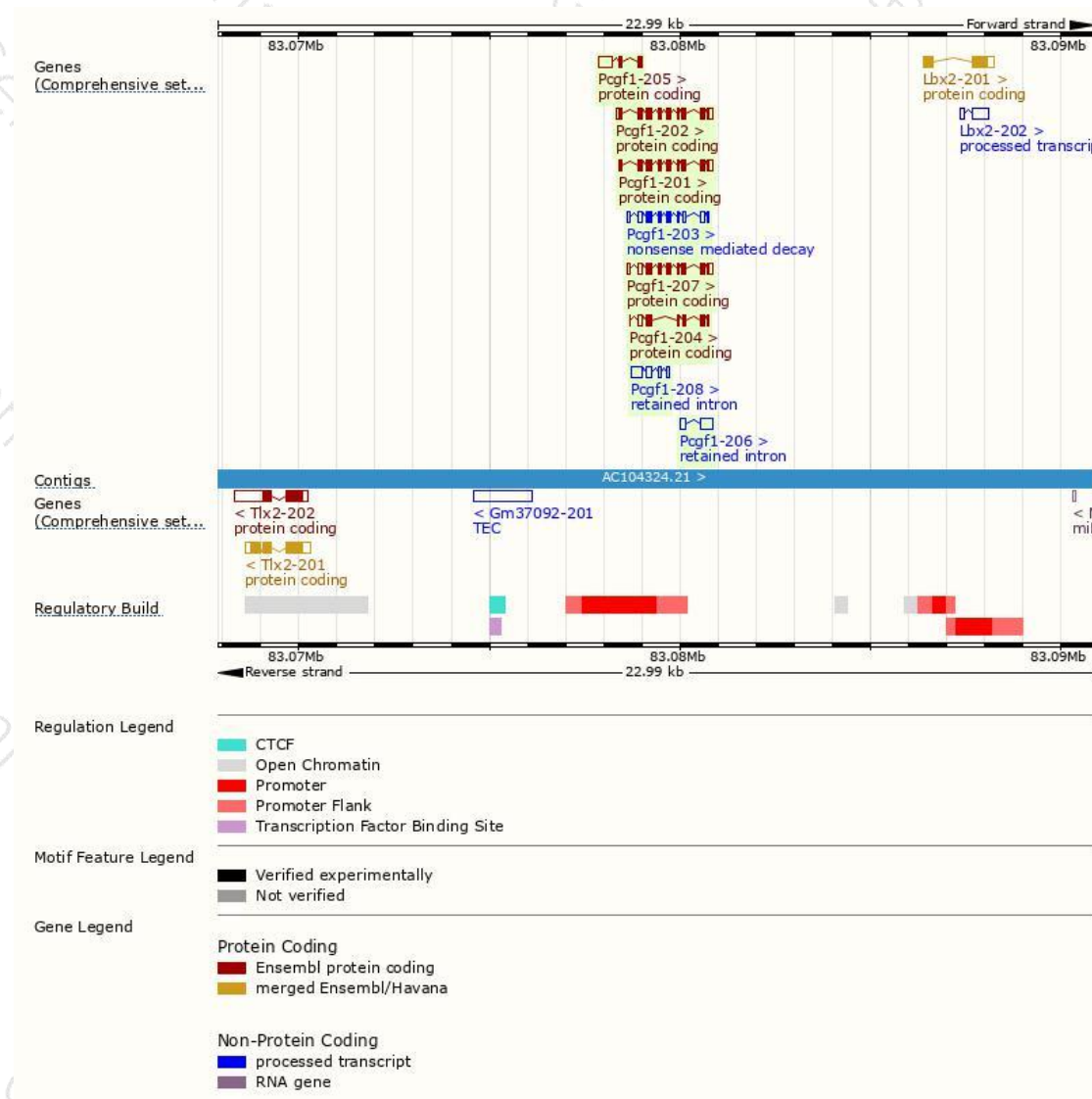
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pcgf1-201	ENSMUST00000092614.8	866	247aa	Protein coding	CCDS20270	A0A0R4J141	TSL:1 GENCODE basic
Pcgf1-202	ENSMUST00000165164.8	918	259aa	Protein coding	-	Q8R023	TSL:1 GENCODE basic APPRIS P1
Pcgf1-207	ENSMUST00000177177.7	854	176aa	Protein coding	-	H3BK85	TSL:1 GENCODE basic
Pcgf1-205	ENSMUST00000176100.1	549	52aa	Protein coding	-	H3BLR0	CDS 3' incomplete TSL:3
Pcgf1-204	ENSMUST00000176089.1	492	108aa	Protein coding	-	H3BK63	TSL:5 GENCODE basic
Pcgf1-203	ENSMUST00000176027.7	731	106aa	Nonsense mediated decay	-	H3BL61	TSL:5
Pcgf1-208	ENSMUST00000204211.1	580	No protein	Retained intron	-	-	TSL:5
Pcgf1-206	ENSMUST00000176372.1	426	No protein	Retained intron	-	-	TSL:5

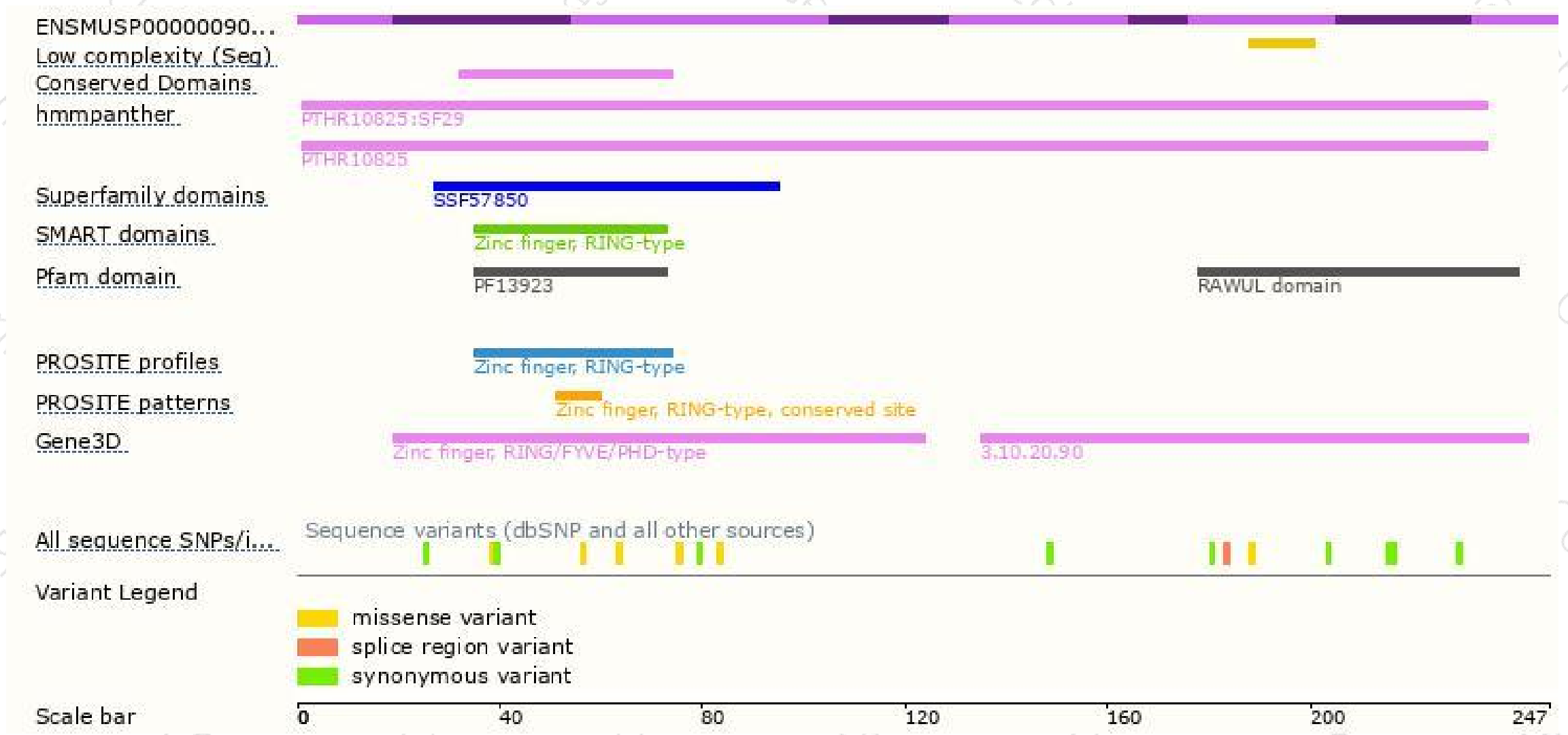
The strategy is based on the design of *Pcgf1-201* transcript,The transcription is shown below



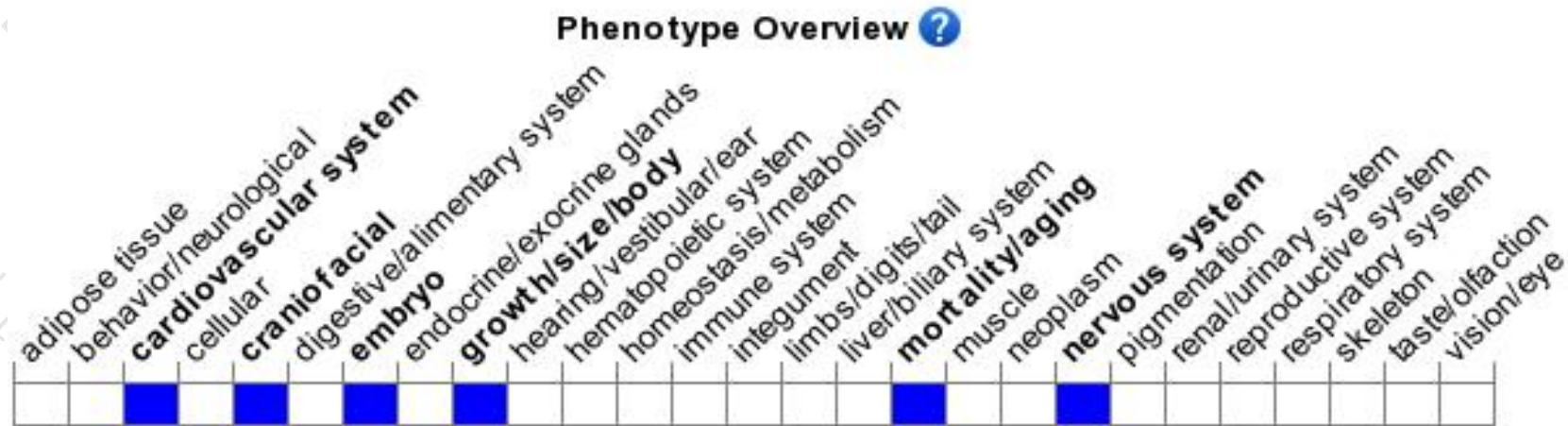
Genomic location distribution



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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