Fbn2 Cas9-CKO Strategy

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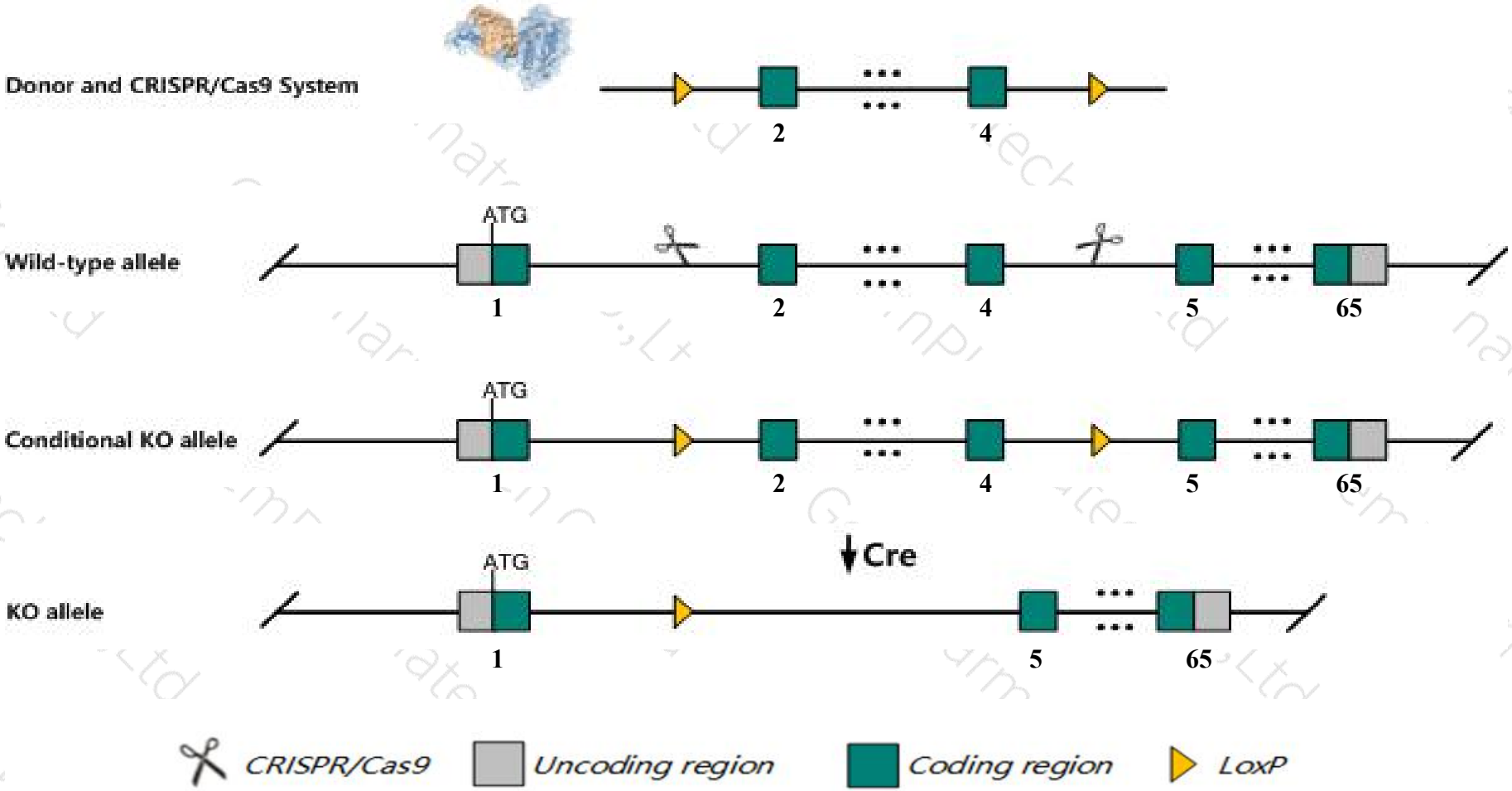
Project Overview

Project Name	***Fbn2***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fbn2* gene. The schematic diagram is as follows:



Technical routes

- The *Fbn2* gene has 6 transcripts. According to the structure of *Fbn2* gene, exon2-exon4 of *Fbn2-201* (ENSMUST00000025497.7) transcript is recommended as the knockout region.The region contains 278bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Fbn2* 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

- According to the existing MGI data,Homozygotes for spontaneous, chemically-induced, and targeted null mutations show bilateral syndactyly with fusion of both soft and hard tissues. Deafness found in an X-ray induced allelic mutant is apparently due to the joint disruption of a linked gene.

- The *Fbn2* gene is located on the Chr18. 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）

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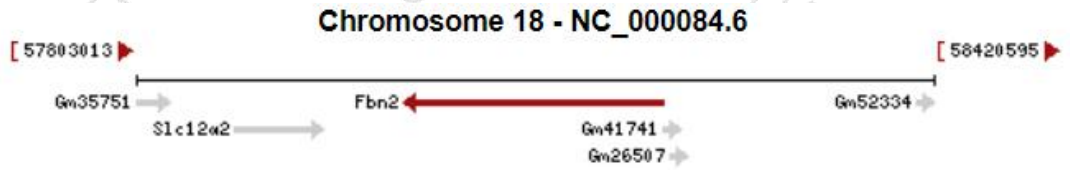
Fbn2 fibrillin 2 [*Mus musculus* (house mouse)]

Gene ID: 14119, updated on 17-Dec-2019

Summary

Official Symbol	Fbn2 provided by MGI
Official Full Name	fibrillin 2 provided by MGI
Primary source	MGI:MGI:95490
See related	Ensembl:ENSMUSG00000024598
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	sy; sne; Fib-2; BC063774; mKIAA4226
Expression	Biased expression in limb E14.5 (RPKM 40.9), CNS E11.5 (RPKM 13.1) and 5 other tissues See more
Orthologs	human all

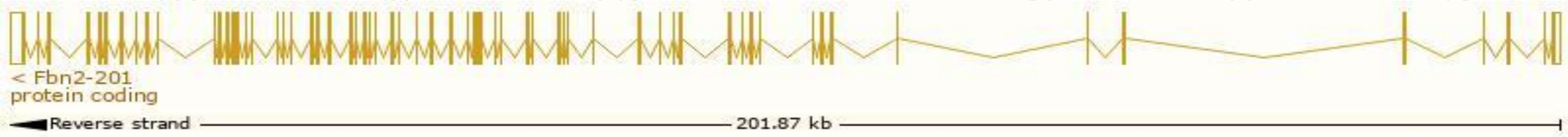


Transcript information（Ensembl）

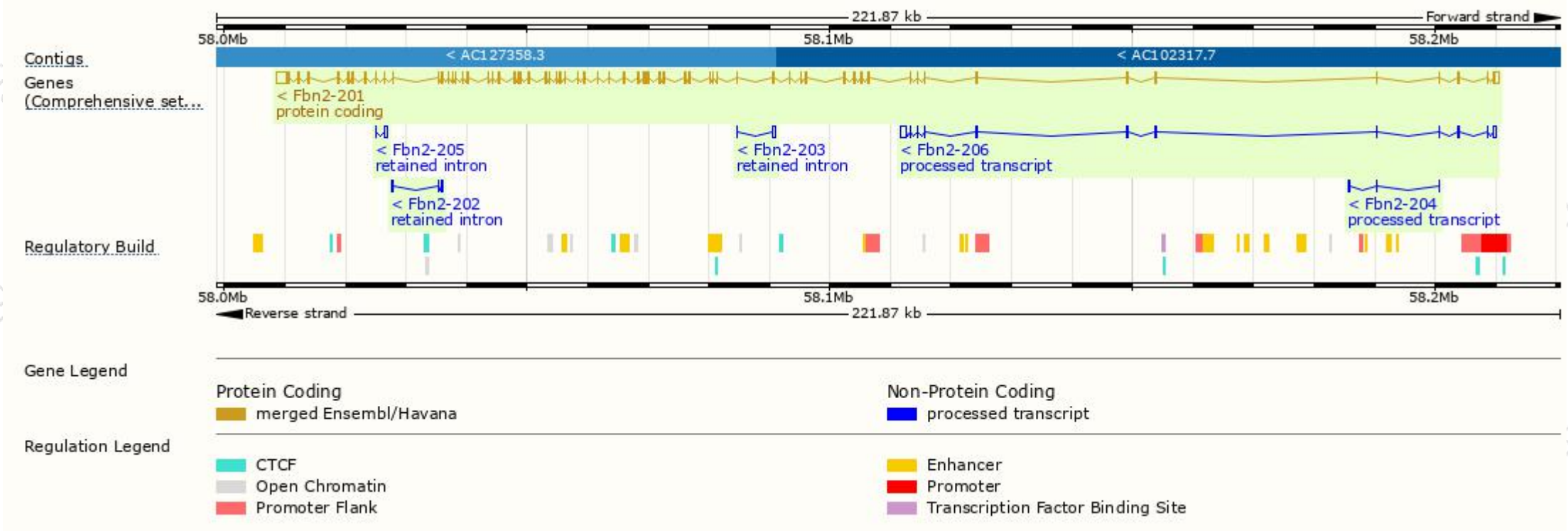
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Fbn2-201	ENSMUST00000025497.7	11041	2907aa	ENSMUSP00000025497.5	Protein coding	CCDS37827	Q61555	TSL:5 GENCODE basic APPRIS P1
Fbn2-202	ENSMUST00000235281.1	681	No protein	-	Retained intron	-	-	-
Fbn2-205	ENSMUST00000236932.1	600	No protein	-	Retained intron	-	-	-
Fbn2-203	ENSMUST00000235417.1	489	No protein	-	Retained intron	-	-	-
Fbn2-206	ENSMUST00000237293.1	2553	No protein	-	lncRNA	-	-	-
Fbn2-204	ENSMUST00000235779.1	566	No protein	-	lncRNA	-	-	-

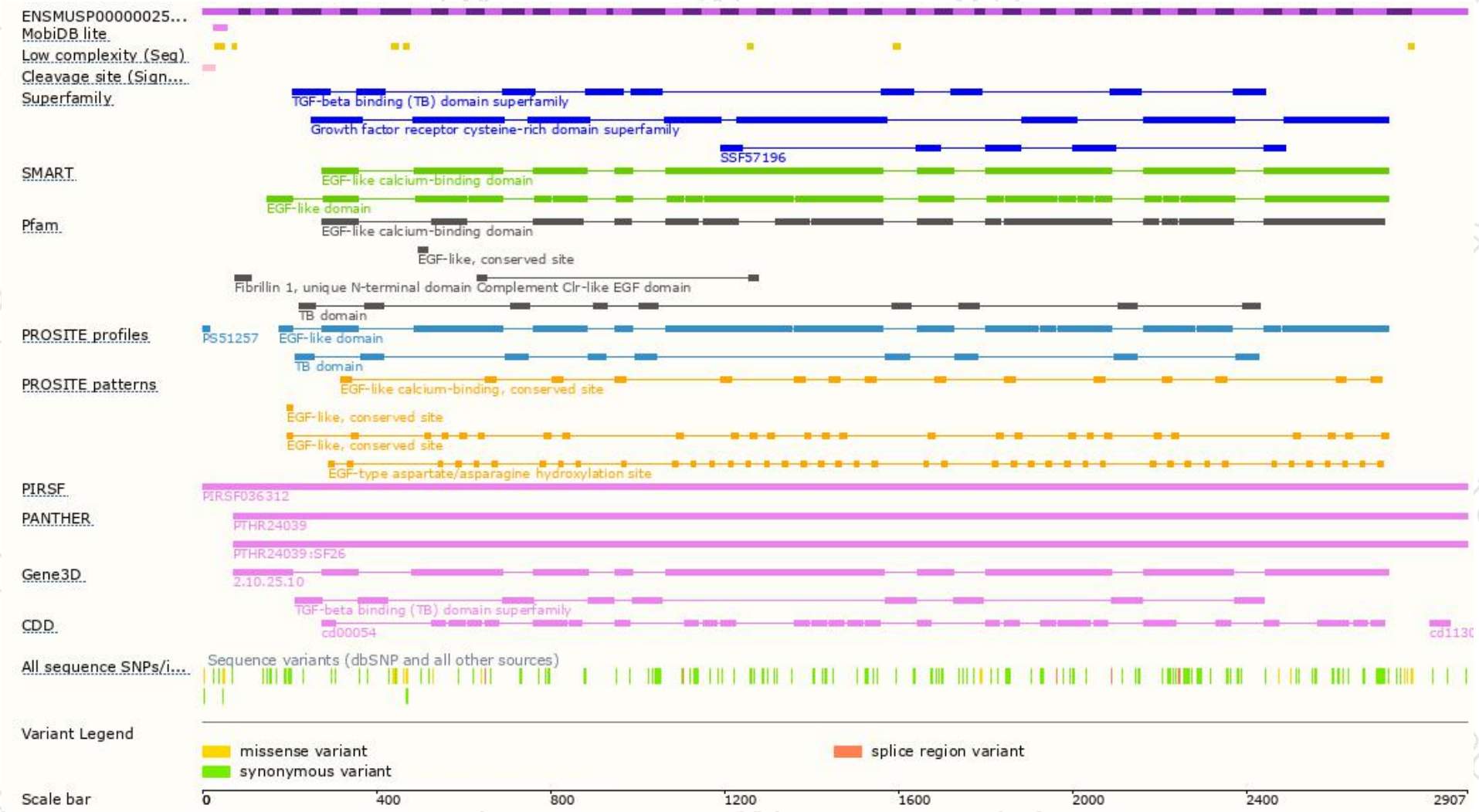
The strategy is based on the design of *Fbn2-201* transcript,The transcription is shown below



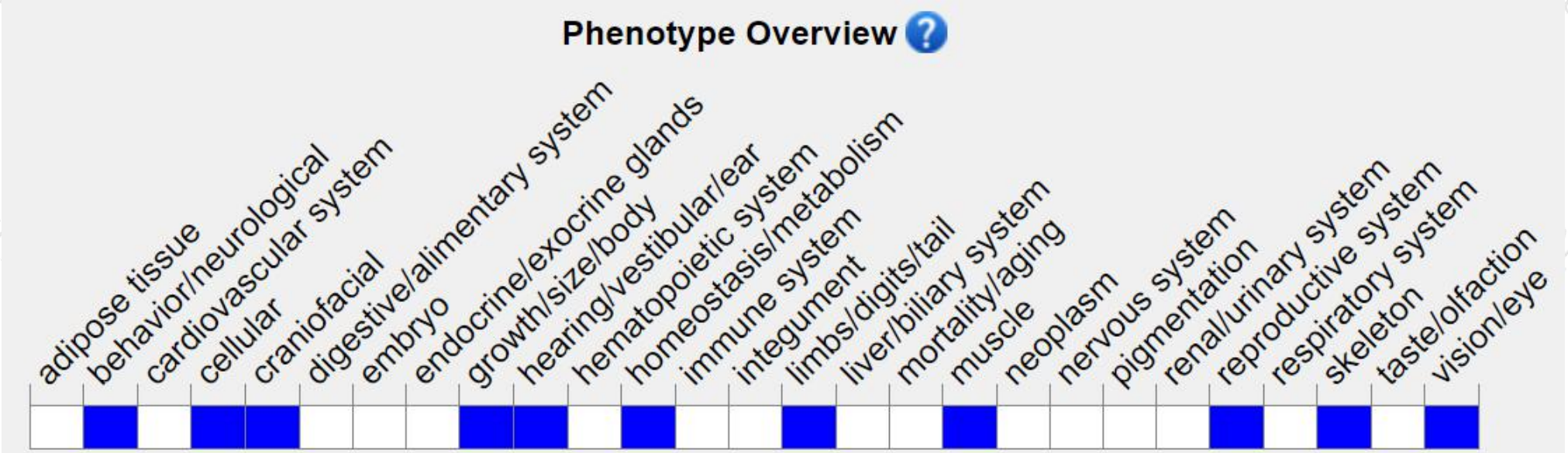
Genomic location distribution



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/).

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

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