

Fkbp8 Cas9-CKO Strategy

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Project Overview

Project Name

Fkbp8

Project type

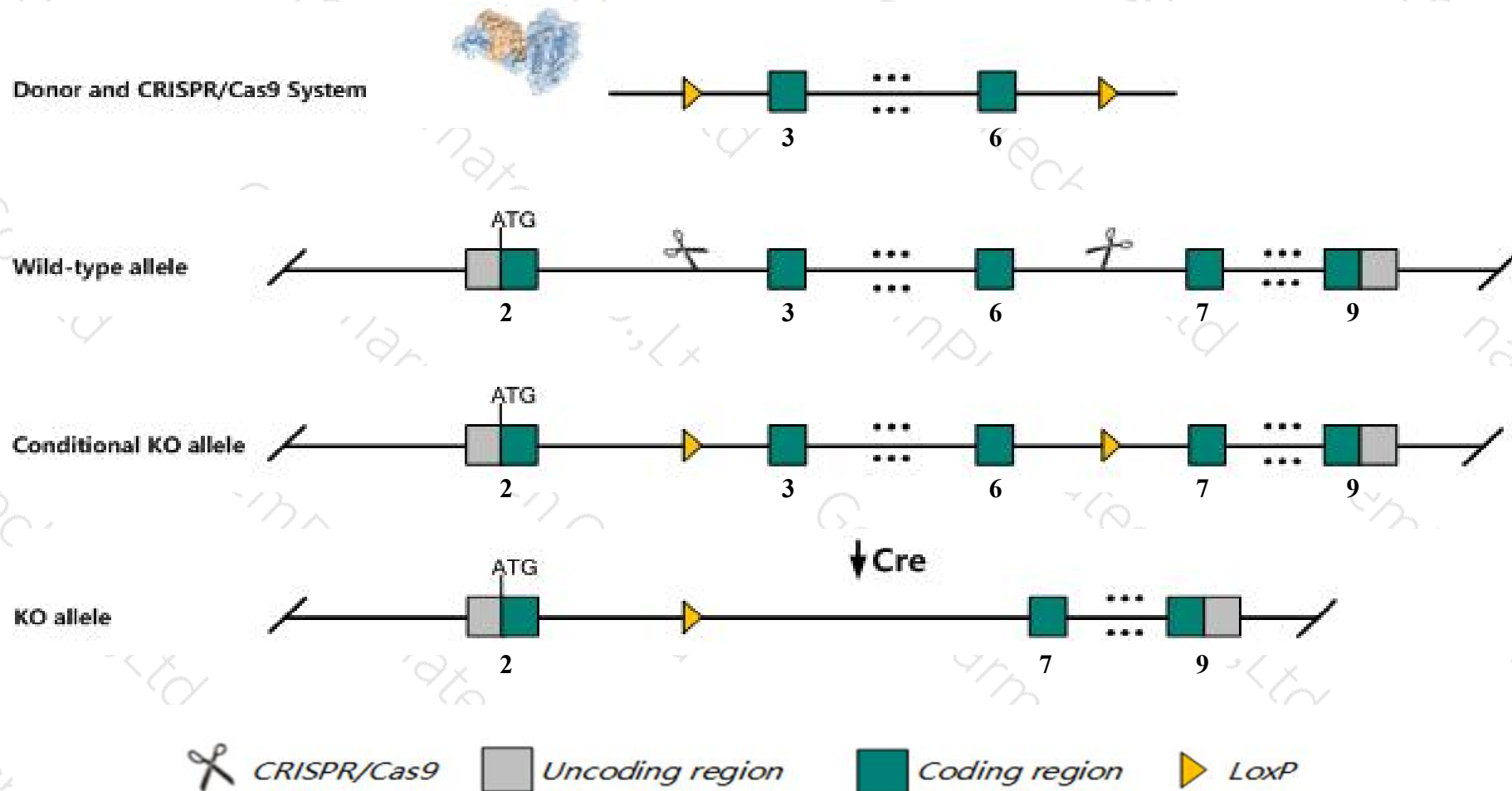
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fkbp8* gene. The schematic diagram is as follows:



- The *Fkbp8* gene has 11 transcripts. According to the structure of *Fkbp8* gene, exon3-exon6 of *Fkbp8*-204 (ENSMUST00000119698.7) transcript is recommended as the knockout region. The region contains 653bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Fkbp8* 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 *Kxd1* and *Ell* gene, this strategy may influence the regulatory function of the N-terminal of *Kxd1* and *Ell* gene.
- Transcript *Fkbp8*-208&210 may not be affected. And the influence on *Fkbp8*-203 is unknown.
- According to the existing MGI data, Homozygous null mice display embryonic lethality, ventralization of neural cell fates, caudal neural tube dilation, and small eyes.
- The *Fkbp8* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Fkbp8 FK506 binding protein 8 [Mus musculus (house mouse)]

Gene ID: 14232, updated on 31-Jan-2019

Summary



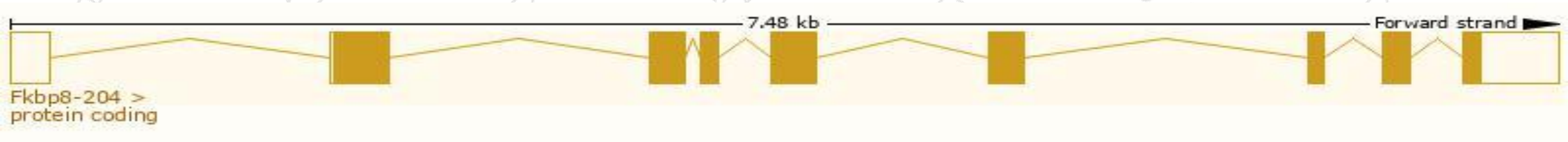
Official Symbol	Fkbp8 provided by MGI
Official Full Name	FK506 binding protein 8 provided by MGI
Primary source	MGI:MGI:1341070
See related	Ensembl:ENSMUSG00000019428
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	38kDa, FKBP-38, FKBP-8, FKBPR38, Fkbp38, mFKBP38
Expression	Ubiquitous expression in adrenal adult (RPKM 130.6), colon adult (RPKM 114.3) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

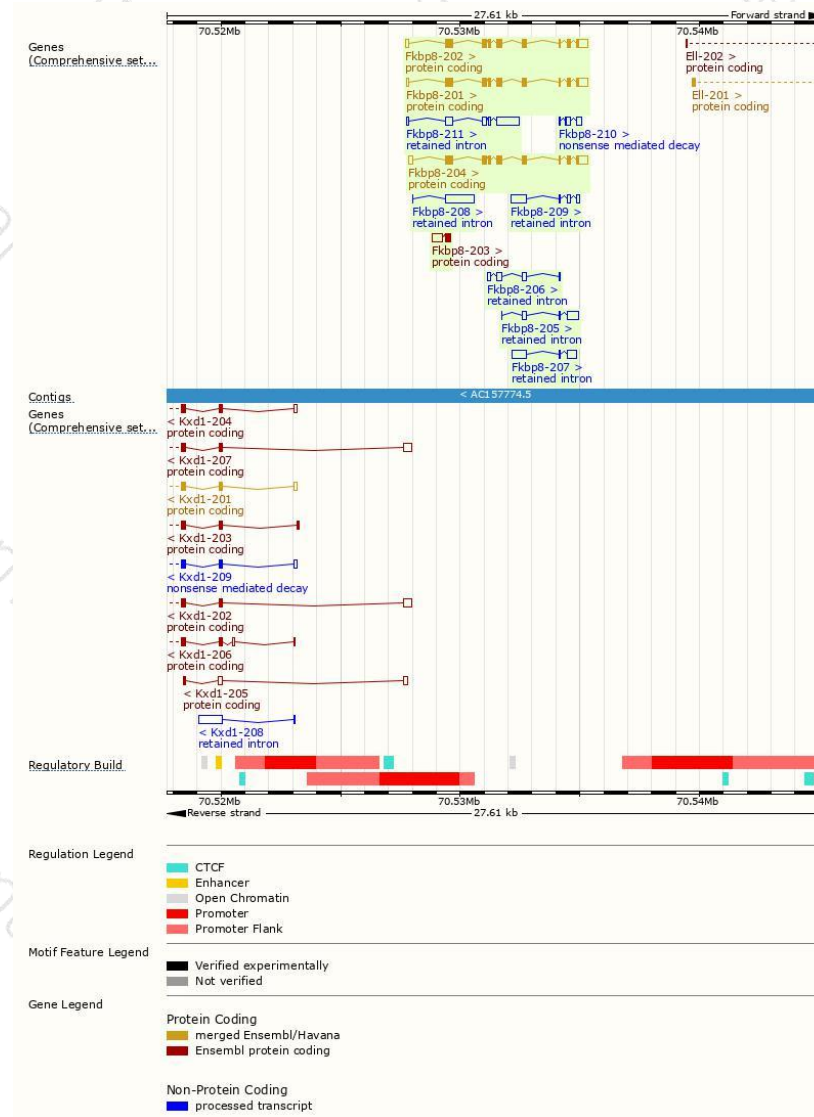
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fkbp8-204	ENSMUST00000119698.7	1799	403aa	Protein coding	CCDS52575	O35465	TSL:1 GENCODE basic APPRIS P4
Fkbp8-202	ENSMUST00000119353.8	1720	402aa	Protein coding	CCDS52576	O35465	TSL:1 GENCODE basic APPRIS ALT2
Fkbp8-201	ENSMUST00000075491.13	1698	403aa	Protein coding	CCDS52575	O35465	TSL:1 GENCODE basic APPRIS P4
Fkbp8-203	ENSMUST00000119425.1	644	56aa	Protein coding	-	D3Z597	CDS 3' incomplete TSL:3
Fkbp8-210	ENSMUST00000134893.1	496	36aa	Nonsense mediated decay	-	F6WP10	CDS 5' incomplete TSL:3
Fkbp8-211	ENSMUST00000144766.1	1551	No protein	Retained intron	-	-	TSL:1
Fkbp8-208	ENSMUST00000128513.1	1235	No protein	Retained intron	-	-	TSL:1
Fkbp8-207	ENSMUST00000126613.1	1029	No protein	Retained intron	-	-	TSL:1
Fkbp8-209	ENSMUST00000134299.7	944	No protein	Retained intron	-	-	TSL:2
Fkbp8-205	ENSMUST00000123052.7	734	No protein	Retained intron	-	-	TSL:2
Fkbp8-206	ENSMUST00000125741.7	599	No protein	Retained intron	-	-	TSL:5

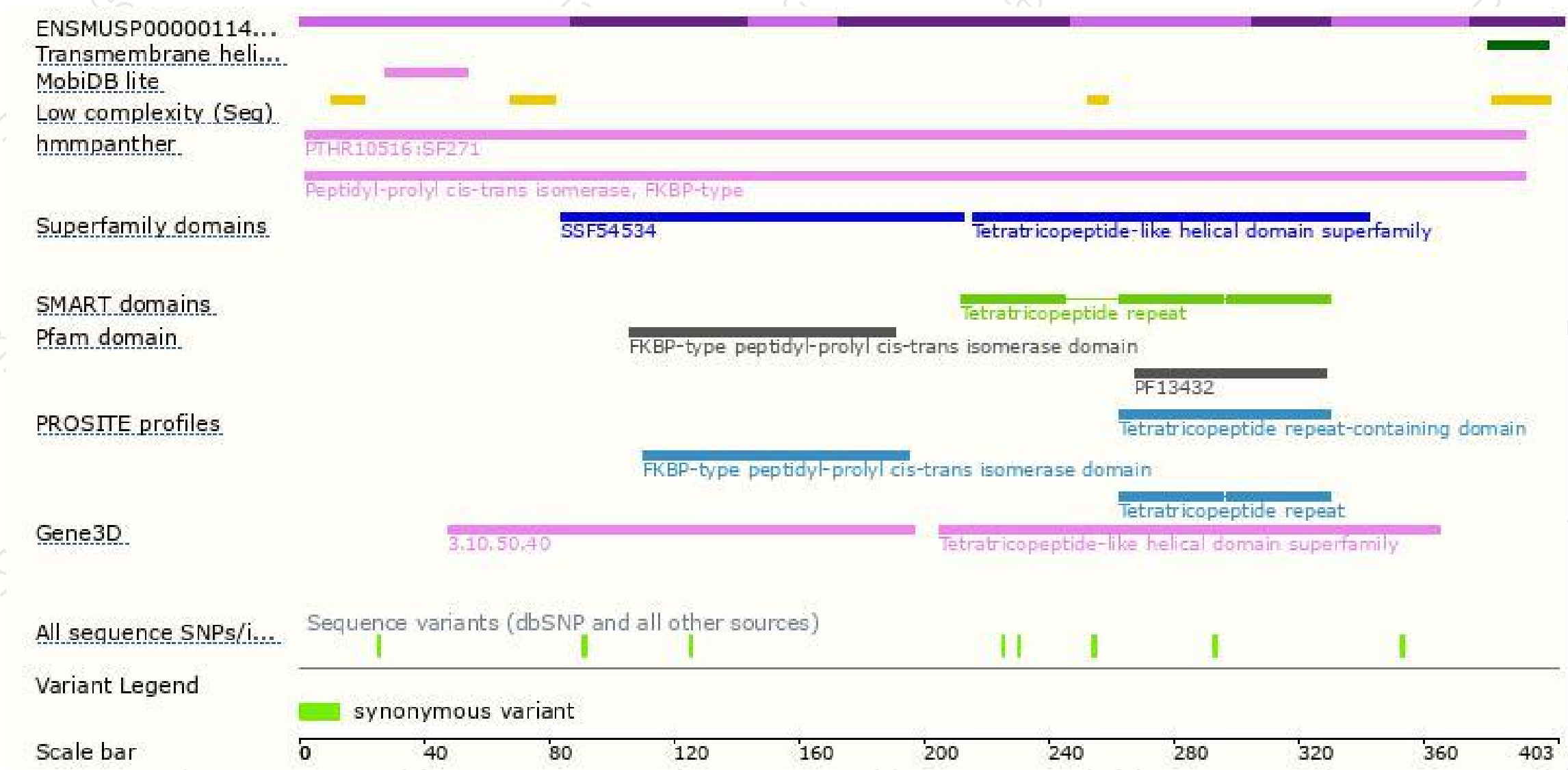
The strategy is based on the design of *Fkbp8-204* transcript,The transcription is shown below



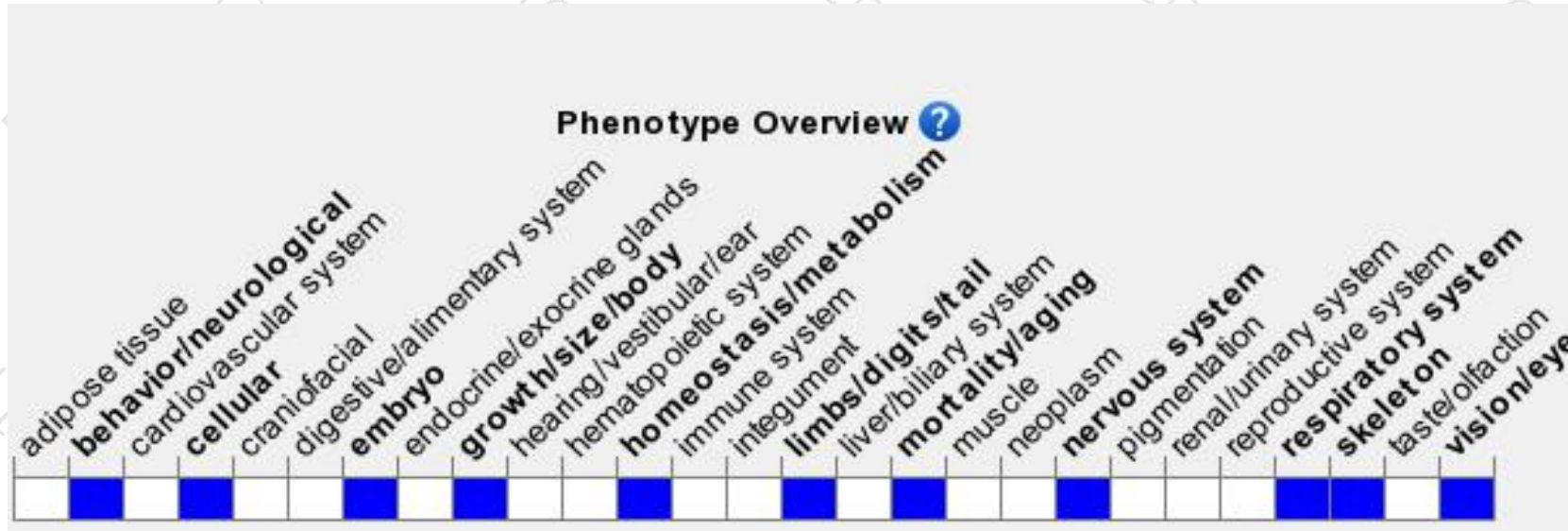
Genomic location distribution



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, Homozygous null mice display embryonic lethality, ventralization of neural cell fates, caudal neural tube dilation, and small eyes.

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

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