Fcho2 Cas9-CKO Strategy

Designer:

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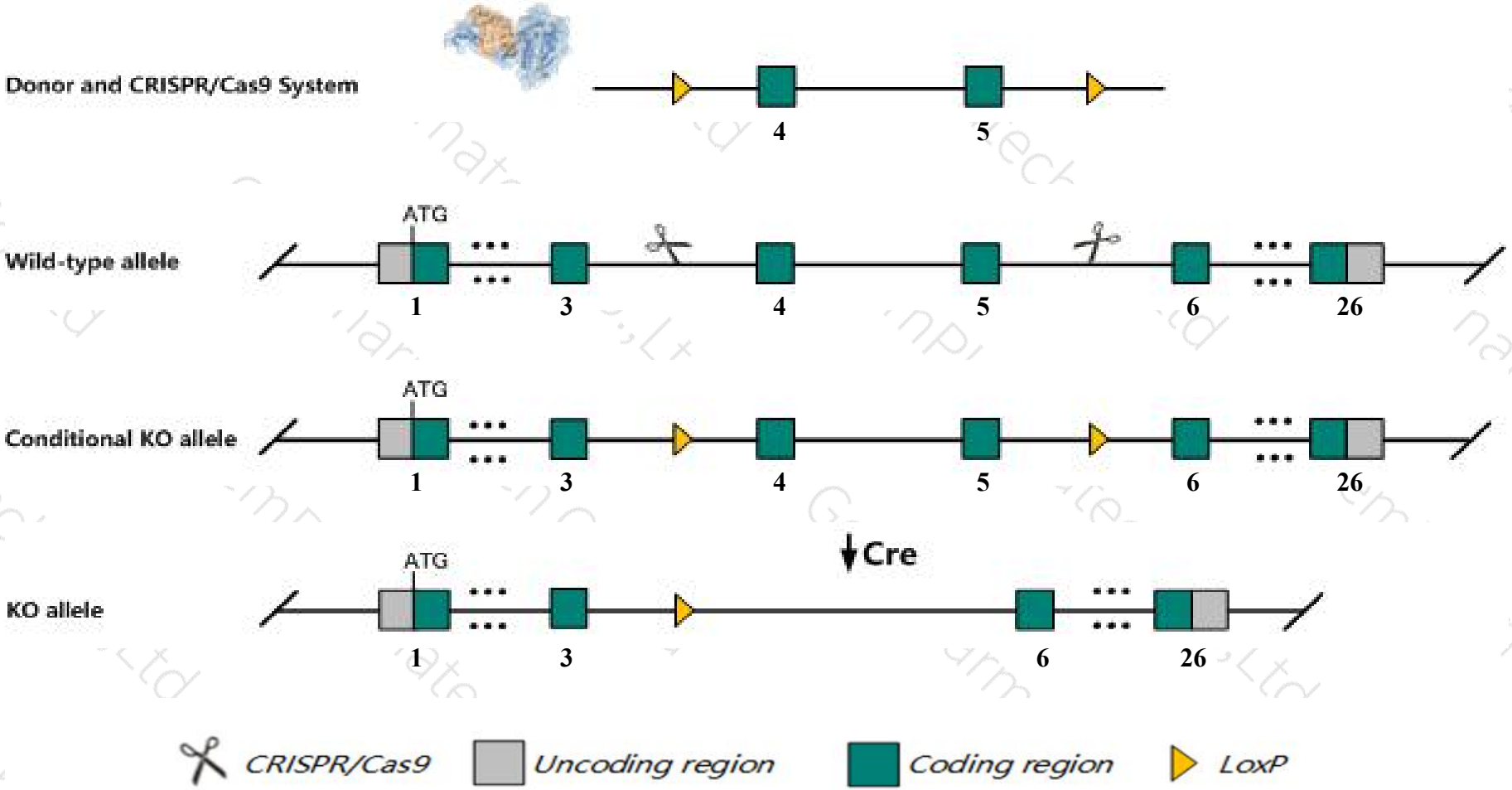
Project Overview

Project Name	***Fcho2***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fcho2* gene. The schematic diagram is as follows:



Technical routes

- The *Fcho2* gene has 12 transcripts. According to the structure of *Fcho2* gene, exon4-exon5 of *Fcho2-201* (ENSMUST00000040340.15) transcript is recommended as the knockout region.The region contains 295bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Fcho2* 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 *Fcho2* gene is located on the Chr13. 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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Fcho2 FCH domain only 2 [Mus musculus (house mouse)]

Gene ID: 218503, updated on 31-Jan-2019

Summary

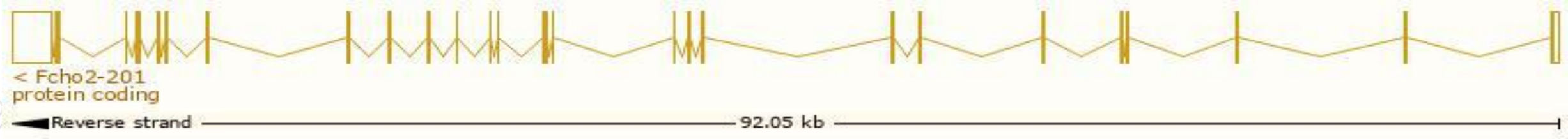
Official Symbol	Fcho2 provided by MGI
Official Full Name	FCH domain only 2 provided by MGI
Primary source	MGI:MGI:3505790
See related	Ensembl:ENSMUSG00000041685
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	5832424M12Rik, AA387320
Expression	Ubiquitous expression in bladder adult (RPKM 10.4), placenta adult (RPKM 8.8) and 28 other tissues See more
Orthologs	human all

Transcript information Ensembl

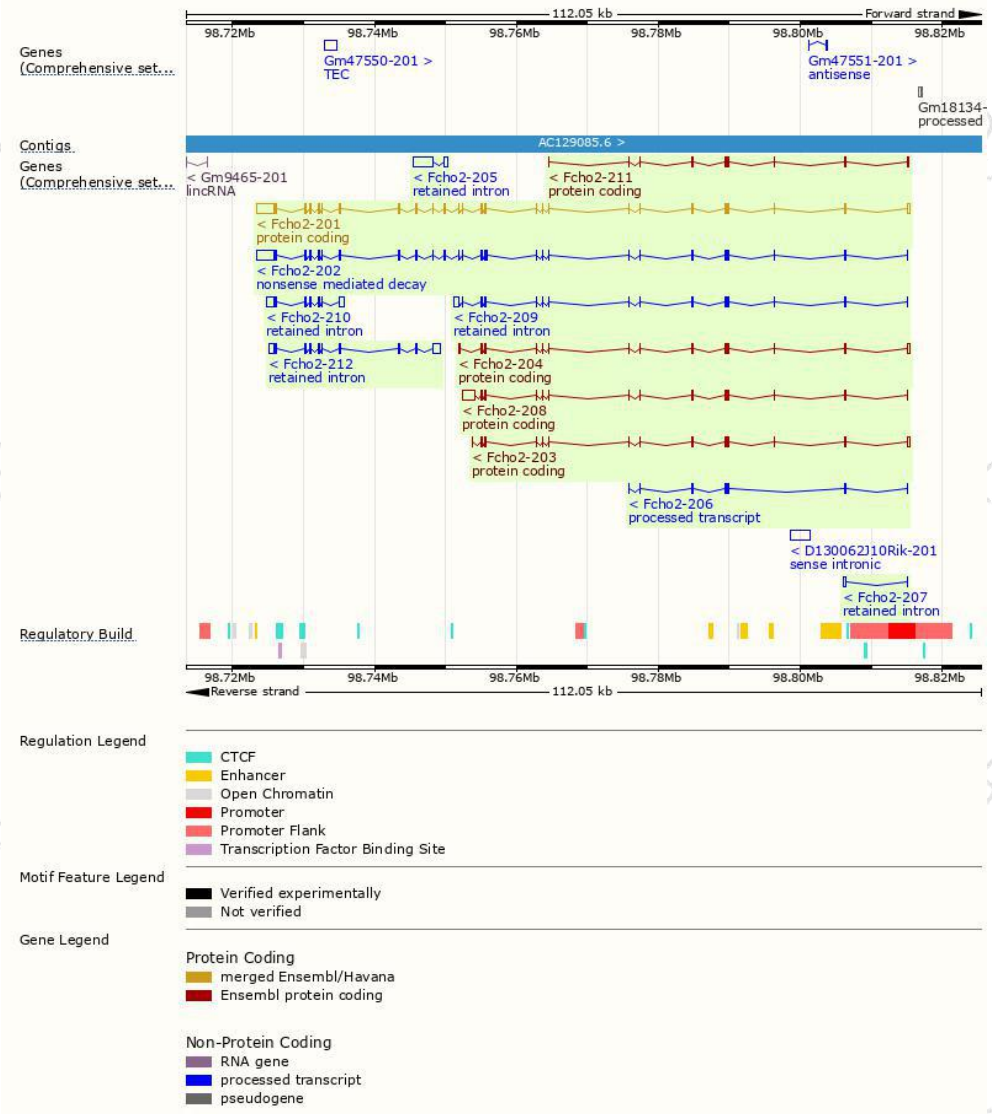
The gene has 12 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fcho2-201	ENSMUST00000040340.15	5122	809aa	Protein coding	CCDS56897	Q3UQN2	TSL:1 GENCODE basic APPRIS P1
Fcho2-208	ENSMUST00000224992.1	2964	395aa	Protein coding	-	A0A286YDL7	GENCODE basic
Fcho2-204	ENSMUST00000179563.7	1586	414aa	Protein coding	-	J3QPQ1	TSL:5 GENCODE basic
Fcho2-203	ENSMUST00000109403.1	1523	394aa	Protein coding	-	Q3UQN2	TSL:5 GENCODE basic
Fcho2-211	ENSMUST00000225840.1	944	281aa	Protein coding	-	A0A286YCL2	CDS 3' incomplete
Fcho2-202	ENSMUST00000099277.11	4979	356aa	Nonsense mediated decay	-	F6RG68	TSL:5
Fcho2-206	ENSMUST00000224231.1	744	No protein	Processed transcript	-	-	
Fcho2-205	ENSMUST00000223634.1	3221	No protein	Retained intron	-	-	
Fcho2-212	ENSMUST00000225945.1	2764	No protein	Retained intron	-	-	
Fcho2-210	ENSMUST00000225318.1	2437	No protein	Retained intron	-	-	
Fcho2-209	ENSMUST00000225094.1	1927	No protein	Retained intron	-	-	
Fcho2-207	ENSMUST00000224416.1	407	No protein	Retained intron	-	-	

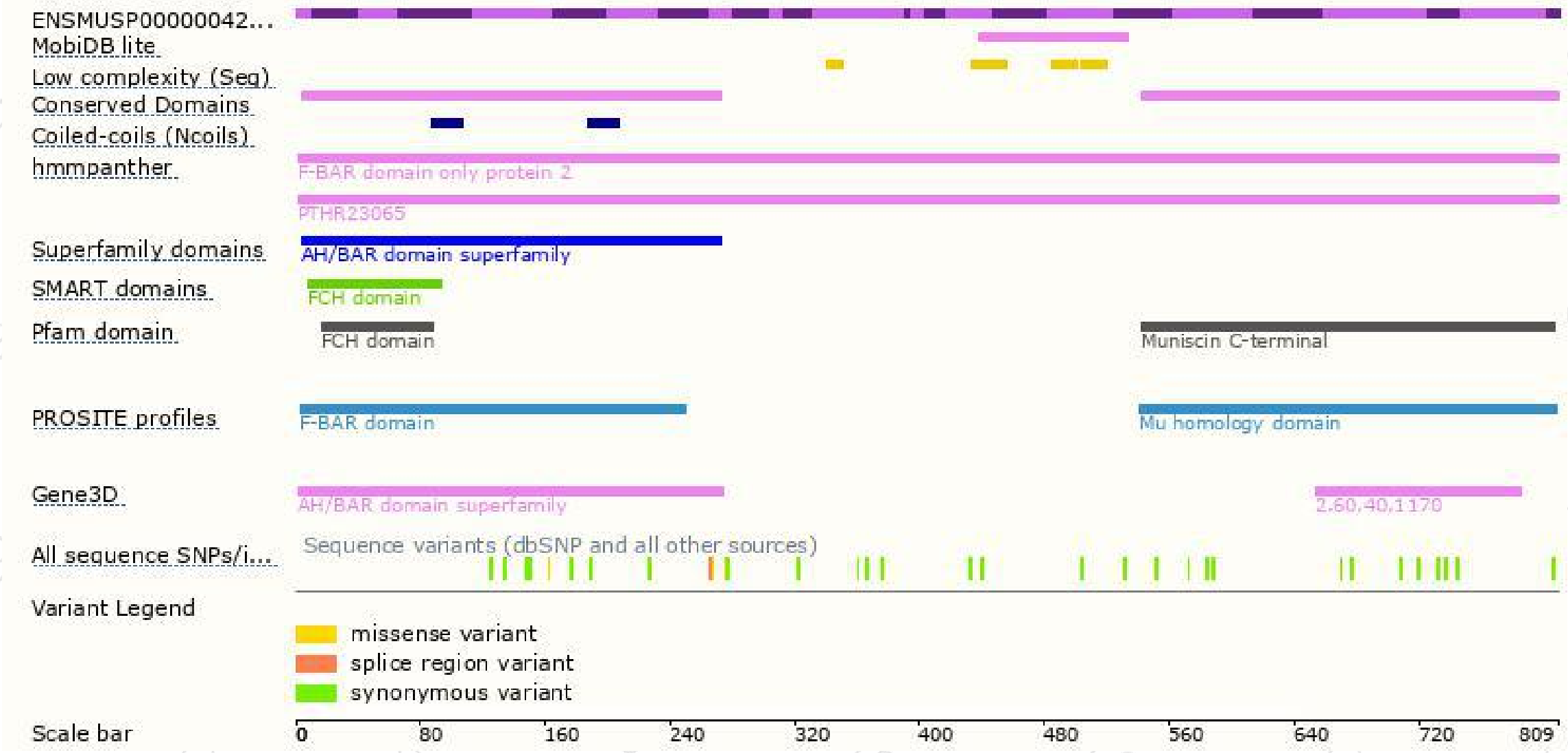
The strategy is based on the design of *Fcho2-201* transcript,The transcription is shown below



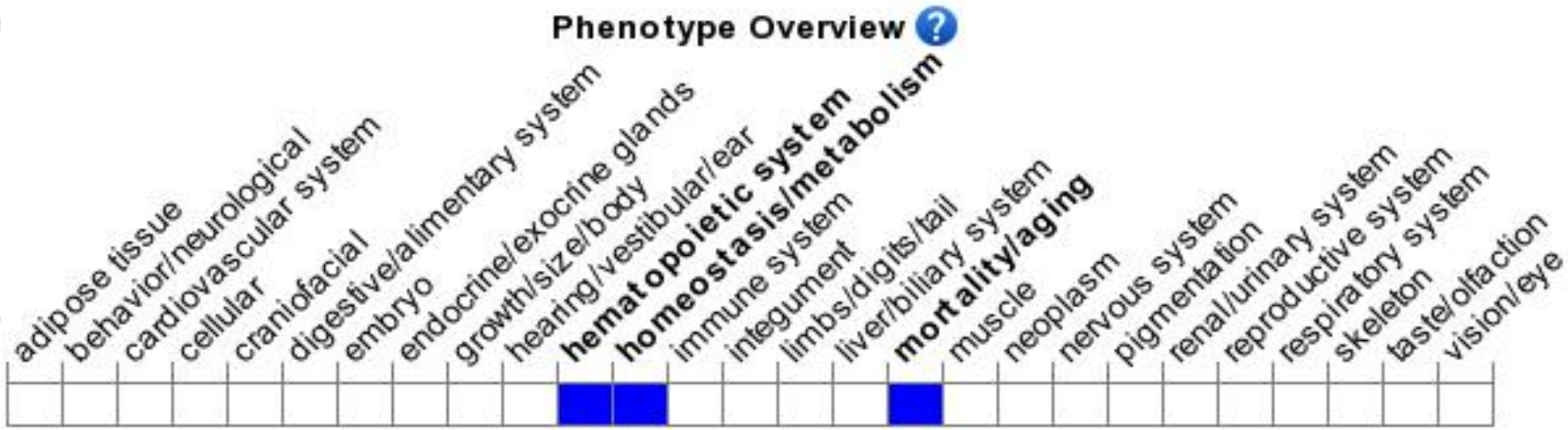
Genomic location distribution



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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