Dnajb6 Cas9-CKO Strategy

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Design Date: 2019-9-16
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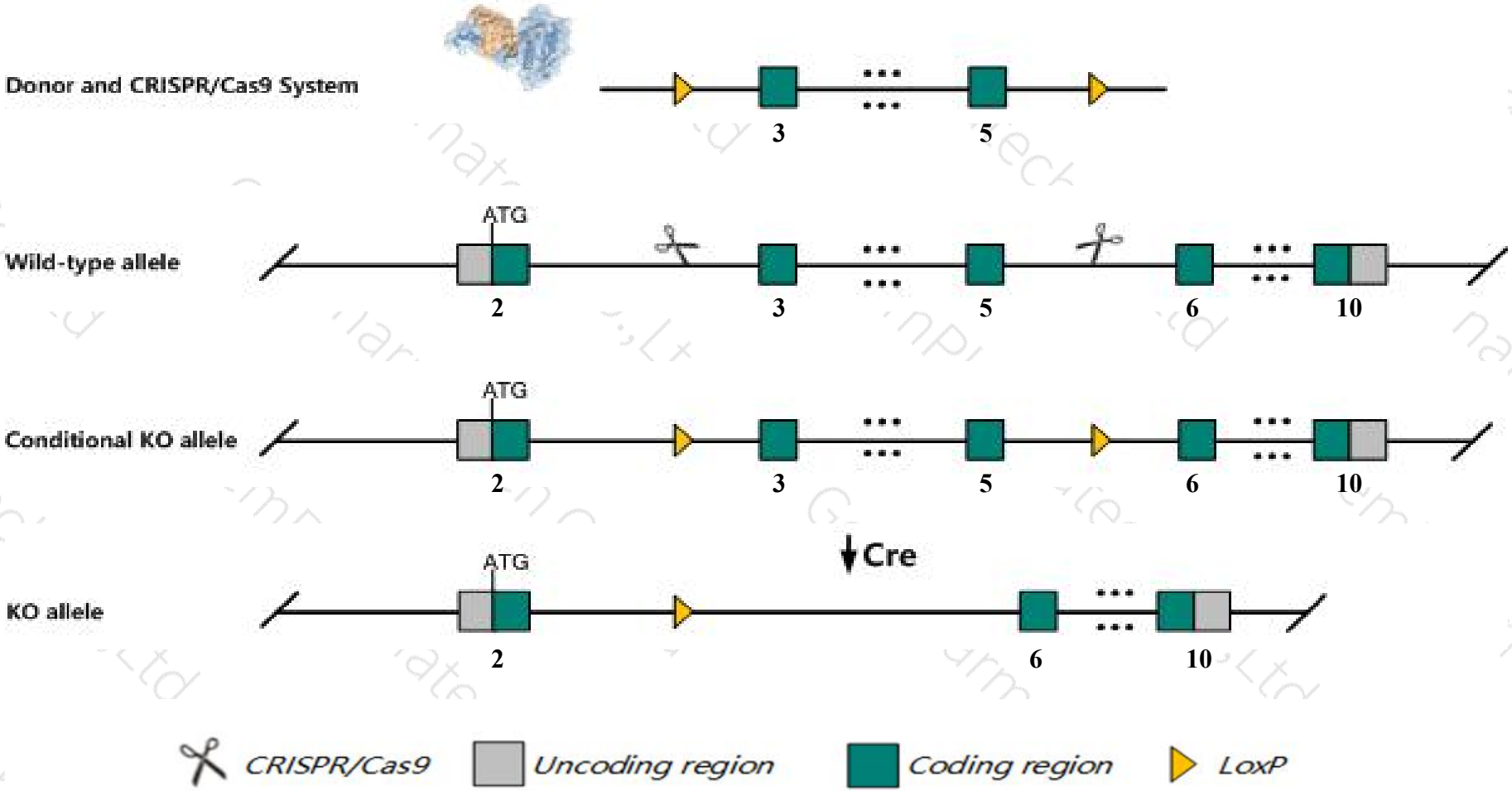
Project Overview

Project Name	***Dnajb6***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dnajb6* gene. The schematic diagram is as follows:



Technical routes

- The *Dnajb6* gene has 12 transcripts. According to the structure of *Dnajb6* gene, exon3-exon5 of *Dnajb6-201* (ENSMUST00000008733.14) transcript is recommended as the knockout region.The region contains 284bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Dnajb6* 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,Homozygous mutants died at mid-gestation due to a failure of chorioallantoic fusion at embryonic day 8.5, and thus preventing the formation of a mature placenta.

- The *Dnajb6* gene is located on the Chr5. 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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Dnajb6 DnaJ heat shock protein family (Hsp40) member B6 [Mus musculus (house mouse)]

Gene ID: 23950, updated on 31-Jan-2019

Summary

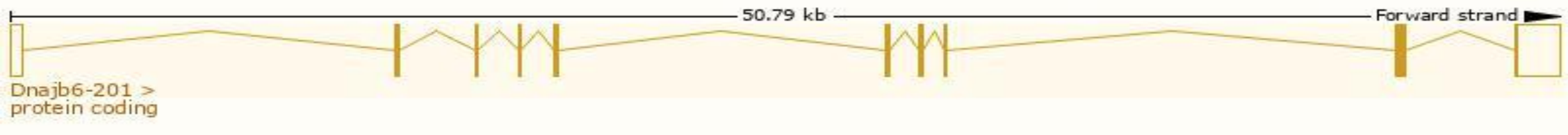
Official Symbol	Dnajb6 provided by MGI
Official Full Name	DnaJ heat shock protein family (Hsp40) member B6 provided byMGI
Primary source	MGI:MGI:1344381
See related	Ensembl:ENSMUSG00000029131
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	HSJ-2, Mrj, mDj4
Expression	Ubiquitous expression in testis adult (RPKM 42.9), CNS E18 (RPKM 23.9) and 26 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

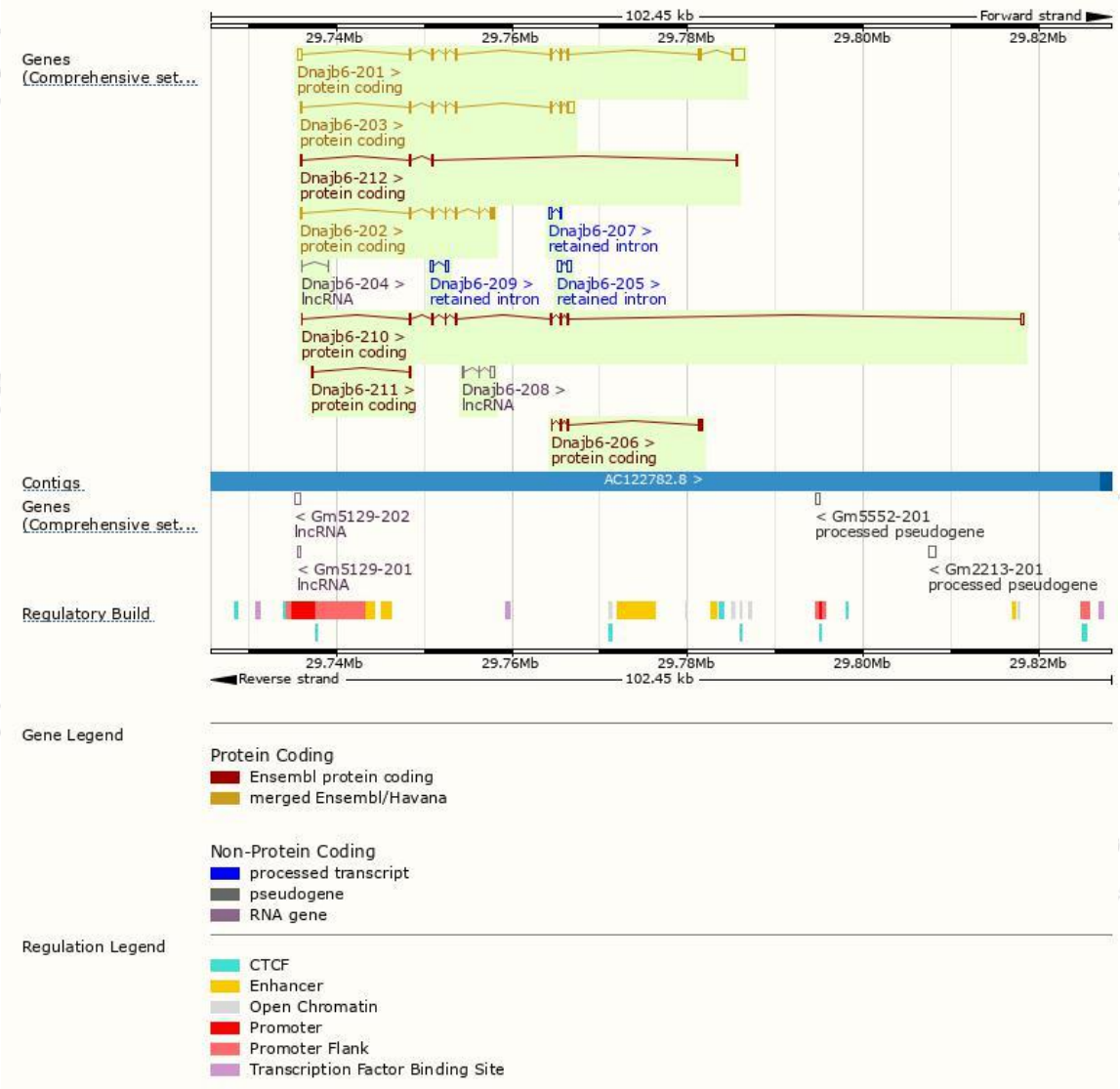
The gene has 12 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dnajb6-201	ENSMUST00000008733.14	2918	365aa	Protein coding	CCDS19151	O54946	TSL:1 GENCODE basic
Dnajb6-203	ENSMUST00000114839.7	1605	242aa	Protein coding	CCDS39043	O54946	TSL:1 GENCODE basic APPRIS P1
Dnajb6-202	ENSMUST00000012734.9	1024	261aa	Protein coding	CCDS19152	G3X8S5	TSL:1 GENCODE basic
Dnajb6-210	ENSMUST00000196528.4	1018	243aa	Protein coding	-	A0A0G2JER9	TSL:5 GENCODE basic
Dnajb6-206	ENSMUST00000140376.1	847	231aa	Protein coding	-	F6YRQ2	CDS 5' incomplete TSL:2
Dnajb6-212	ENSMUST00000198694.4	505	62aa	Protein coding	-	A0A0G2JEI3	TSL:3 GENCODE basic
Dnajb6-211	ENSMUST00000196785.1	218	22aa	Protein coding	-	A0A0G2JGN9	CDS 3' incomplete TSL:3
Dnajb6-205	ENSMUST00000139126.1	821	No protein	Retained intron	-	-	TSL:2
Dnajb6-209	ENSMUST00000151976.1	668	No protein	Retained intron	-	-	TSL:2
Dnajb6-207	ENSMUST00000149396.1	472	No protein	Retained intron	-	-	TSL:1
Dnajb6-208	ENSMUST00000149553.1	770	No protein	lncRNA	-	-	TSL:2
Dnajb6-204	ENSMUST00000127753.1	123	No protein	lncRNA	-	-	TSL:5

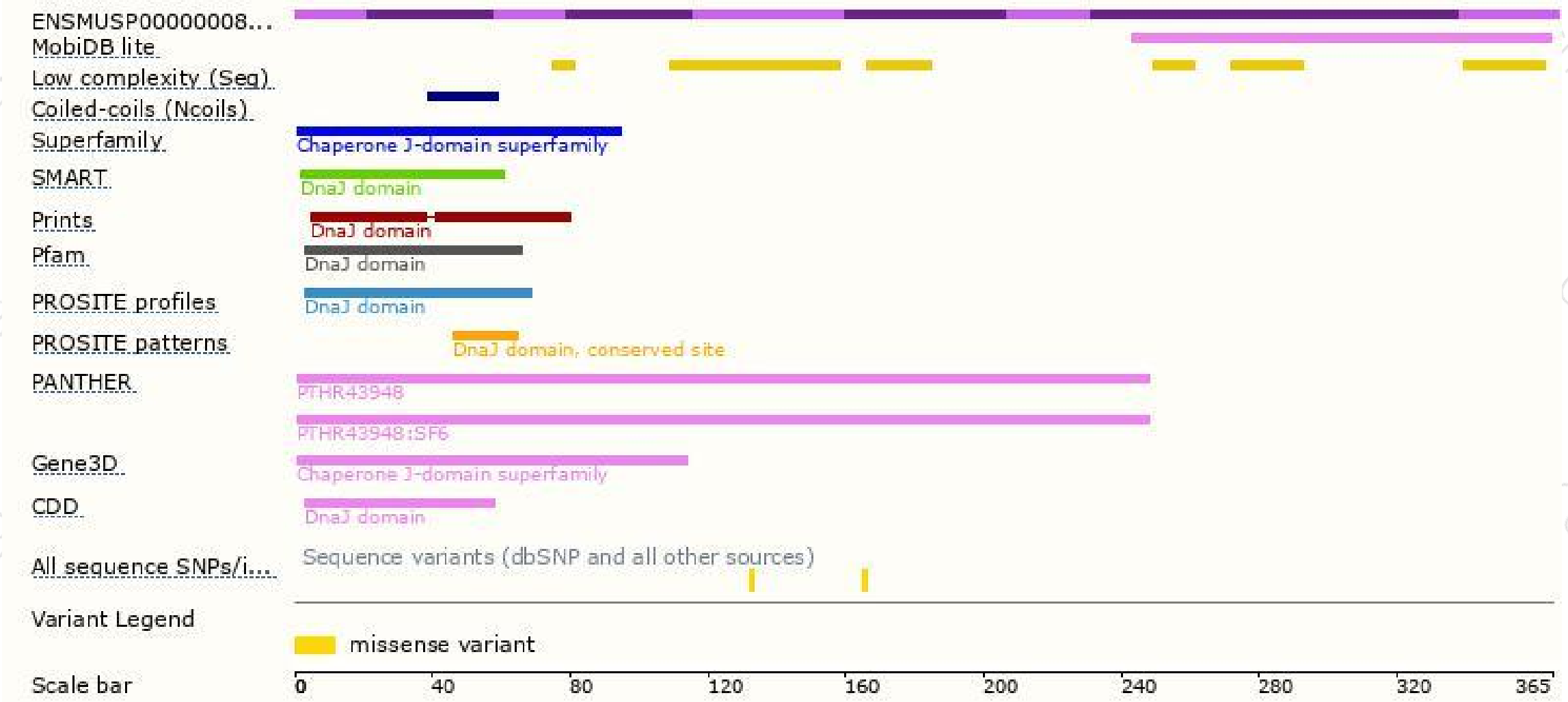
The strategy is based on the design of *Dnajb6-201* transcript,The transcription is shown below



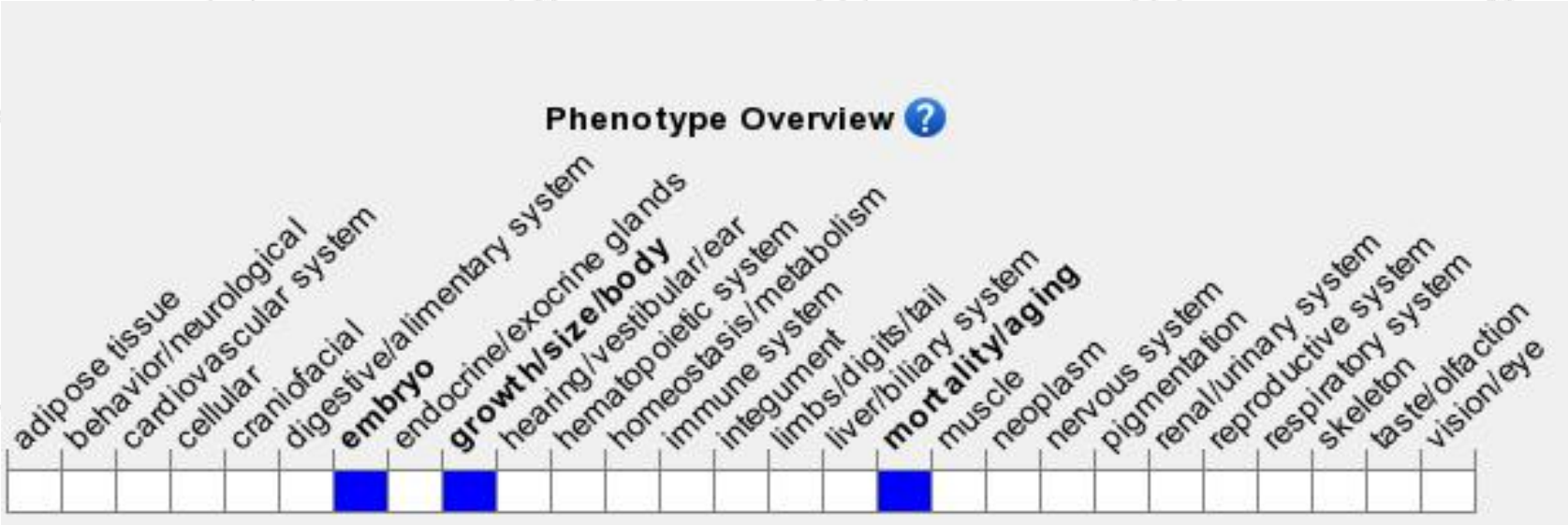
Genomic location distribution



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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