Card10 Cas9-CKO Strategy

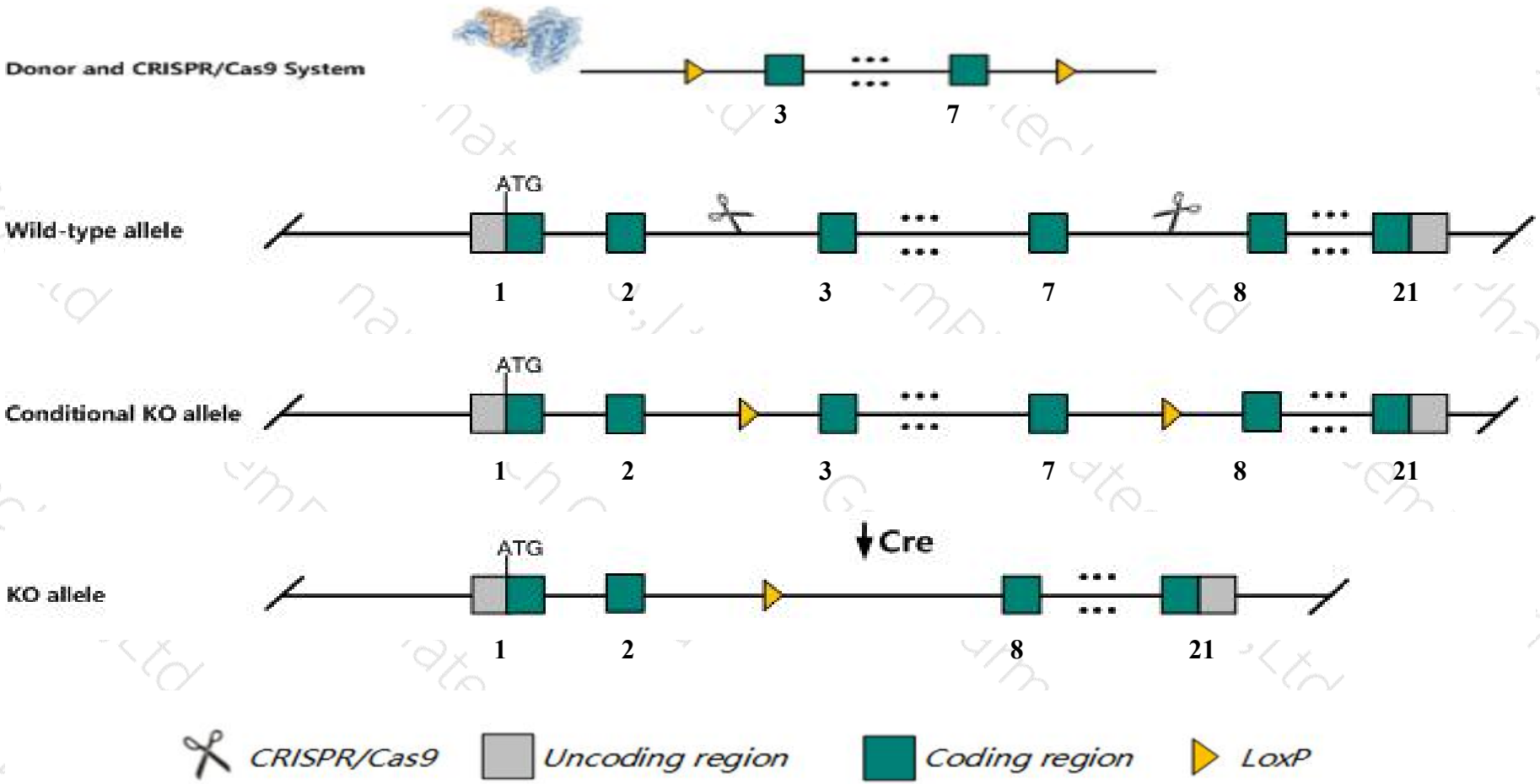
Designer:

Project Overview

Project Name	***Card10***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Card10* gene. The schematic diagram is as follows:



Technical routes

- The *Card10* gene has 3 transcripts. According to the structure of *Card10* gene, exon3-exon7 of *Card10-202* (ENSMUST00000164826.7) transcript is recommended as the knockout region.The region contains 938bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Card10* gene. The brief process is as follows:gRNA was transcribed in vitro, donor was constructed.Cas9, gRNA 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,Mice homozygous for a null allele exhibit partial penetrance of anencephaly and subsequent perinatal lethality of anencephalic embryos.

- The *Card10* gene is located on the Chr15. 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 gene transcription and translation processes, all risks cannot be predicted under existing information.

Gene information （NCBI）

集萃药康 GemPharmatech

Card10 caspase recruitment domain family, member 10 [Mus musculus (house mouse)]

Gene ID: 105844, updated on 19-Mar-2019

Summary

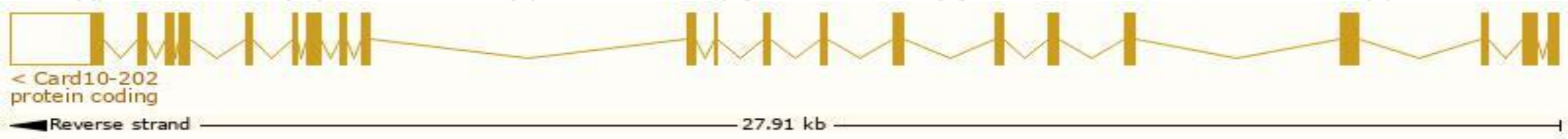
Official Symbol	Card10 provided by MGI
Official Full Name	caspase recruitment domain family, member 10 provided by MGI
Primary source	MGI:MGI:2146012
See related	Ensembl:ENSMUSG00000033170
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI449026, Bimp1, Carma3
Expression	Broad expression in kidney adult (RPKM 36.1), lung adult (RPKM 32.9) and 22 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

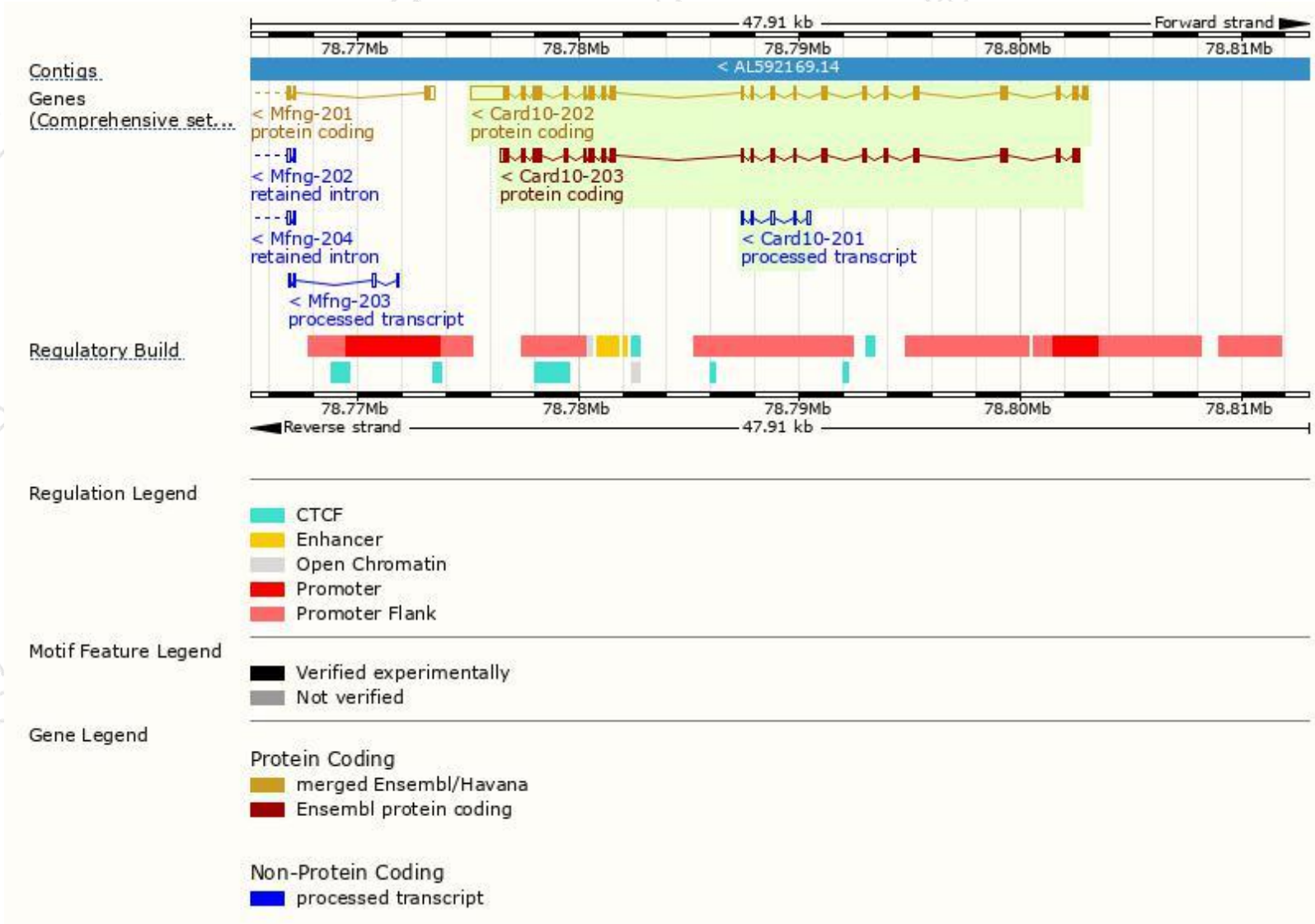
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Card10-202	ENSMUST00000164826.7	4726	1070aa	Protein coding	CCDS27623	E9PUV9	TSL:1 GENCODE basic APPRIS P2
Card10-203	ENSMUST00000170584.1	3220	1021aa	Protein coding	-	P58660	TSL:5 GENCODE basic APPRIS ALT2
Card10-201	ENSMUST00000071115.3	529	No protein	Processed transcript	-	-	TSL:3

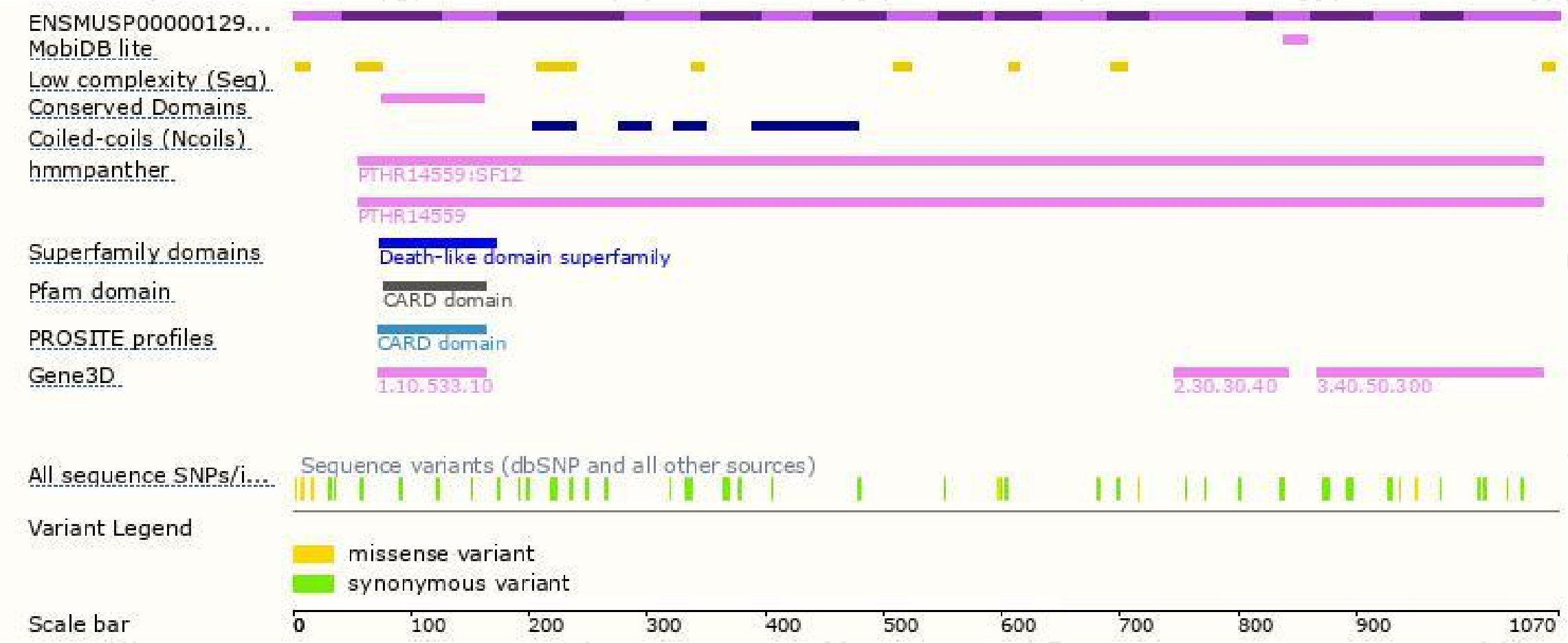
The strategy is based on the design of *Card10-202* transcript,The transcription is shown below



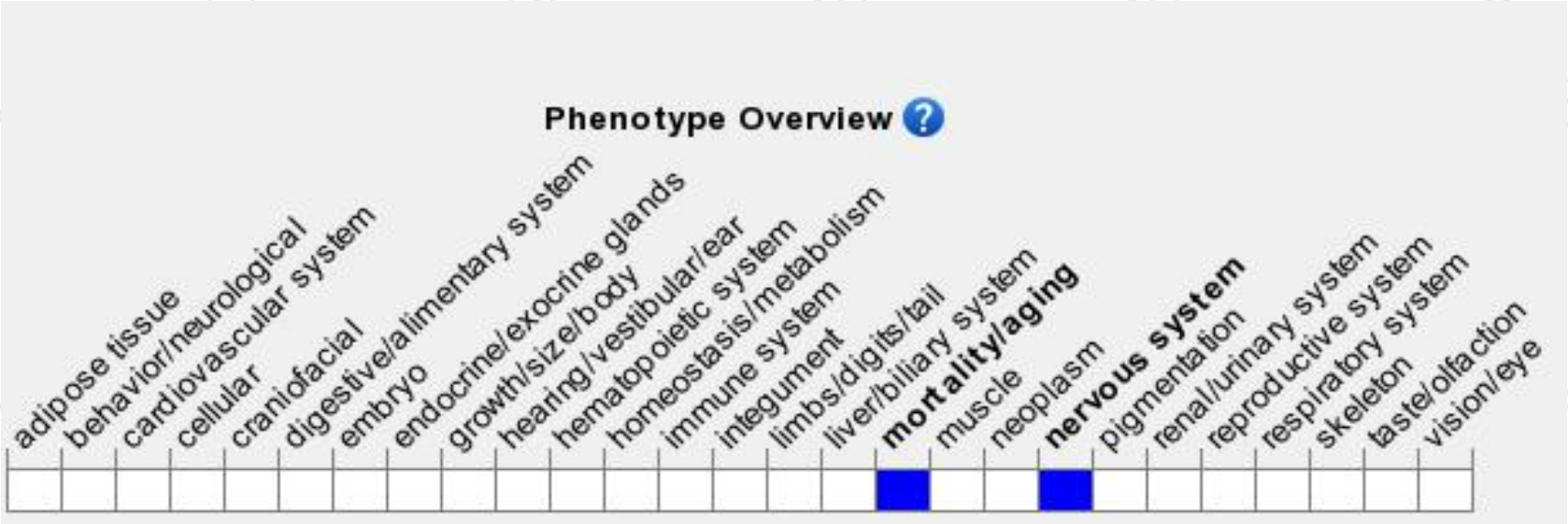
Genomic location distribution



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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