Stk17b Cas9-CKO Strategy

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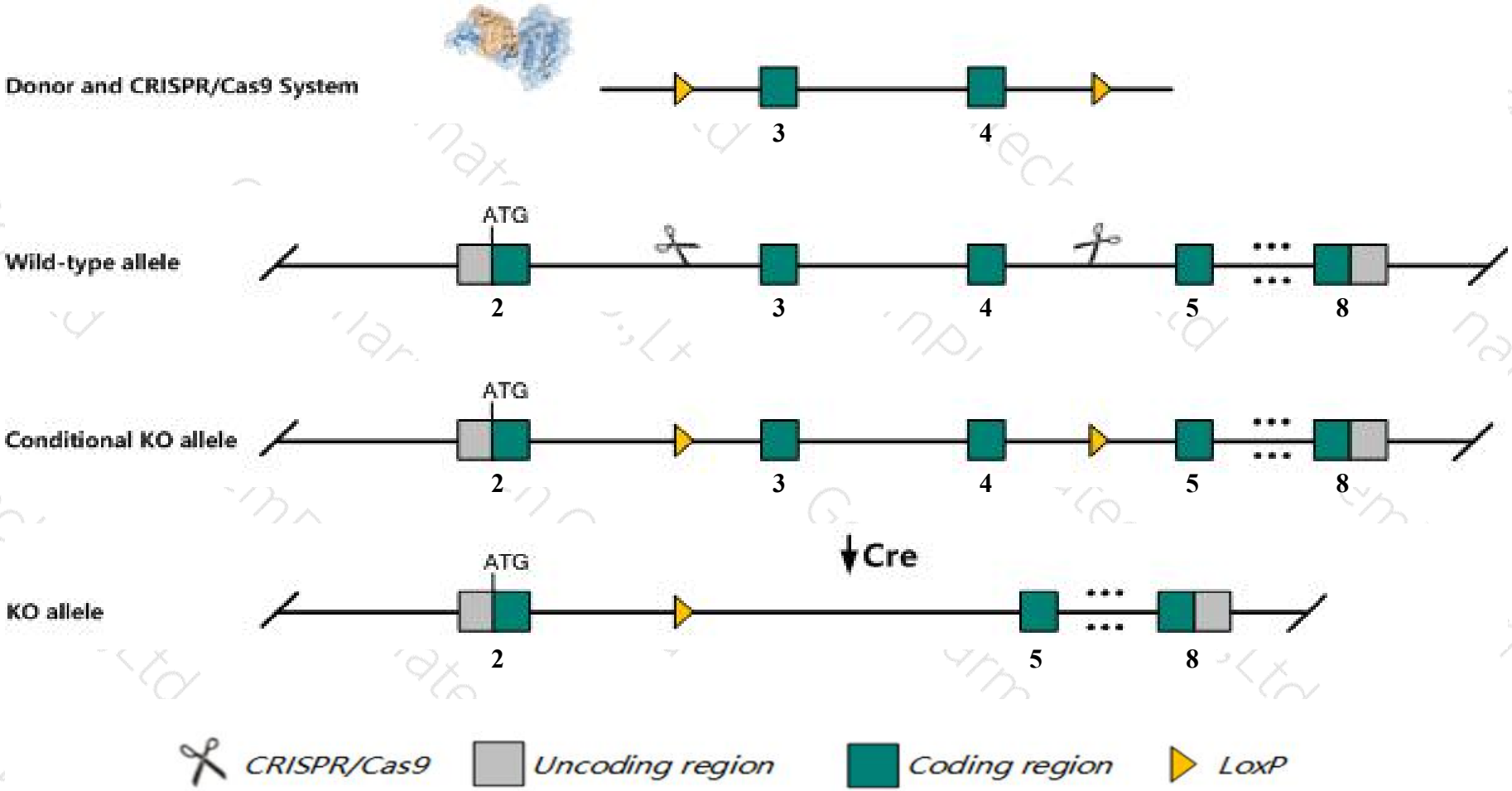
Project Overview

Project Name	***Stk17b***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Stk17b* gene. The schematic diagram is as follows:



Technical routes

- The *Stk17b* gene has 3 transcripts. According to the structure of *Stk17b* gene, exon3-exon4 of *Stk17b-201* (ENSMUST00000027263.13) transcript is recommended as the knockout region.The region contains 358bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Stk17b* 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 null mice display abnormal T cell numbers, increased T cell proliferation, abnormal cytokine physiology, and decreased susceptibility to experimental autoimmune encephalomyelitis.

- The *Stk17b* gene is located on the Chr1. 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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Stk17b serine/threonine kinase 17b (apoptosis-inducing) [Mus musculus (house mouse)]

Gene ID: 98267, updated on 31-Jan-2019

Summary

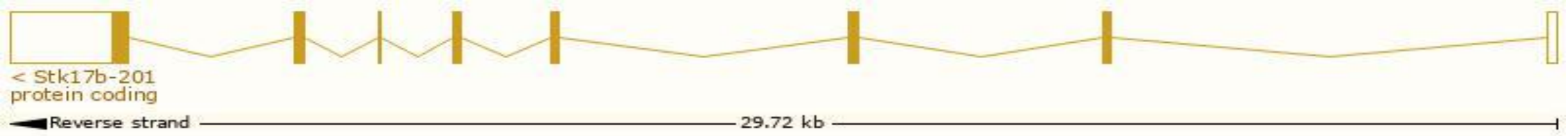
Official Symbol	Stk17b provided by MGI
Official Full Name	serine/threonine kinase 17b (apoptosis-inducing) provided by MGI
Primary source	MGI:MGI:2138162
See related	Ensembl:ENSMUSG00000026094
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	3110009A03Rik, AI120141, Drak2
Expression	Ubiquitous expression in spleen adult (RPKM 11.6), thymus adult (RPKM 7.9) and 26 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

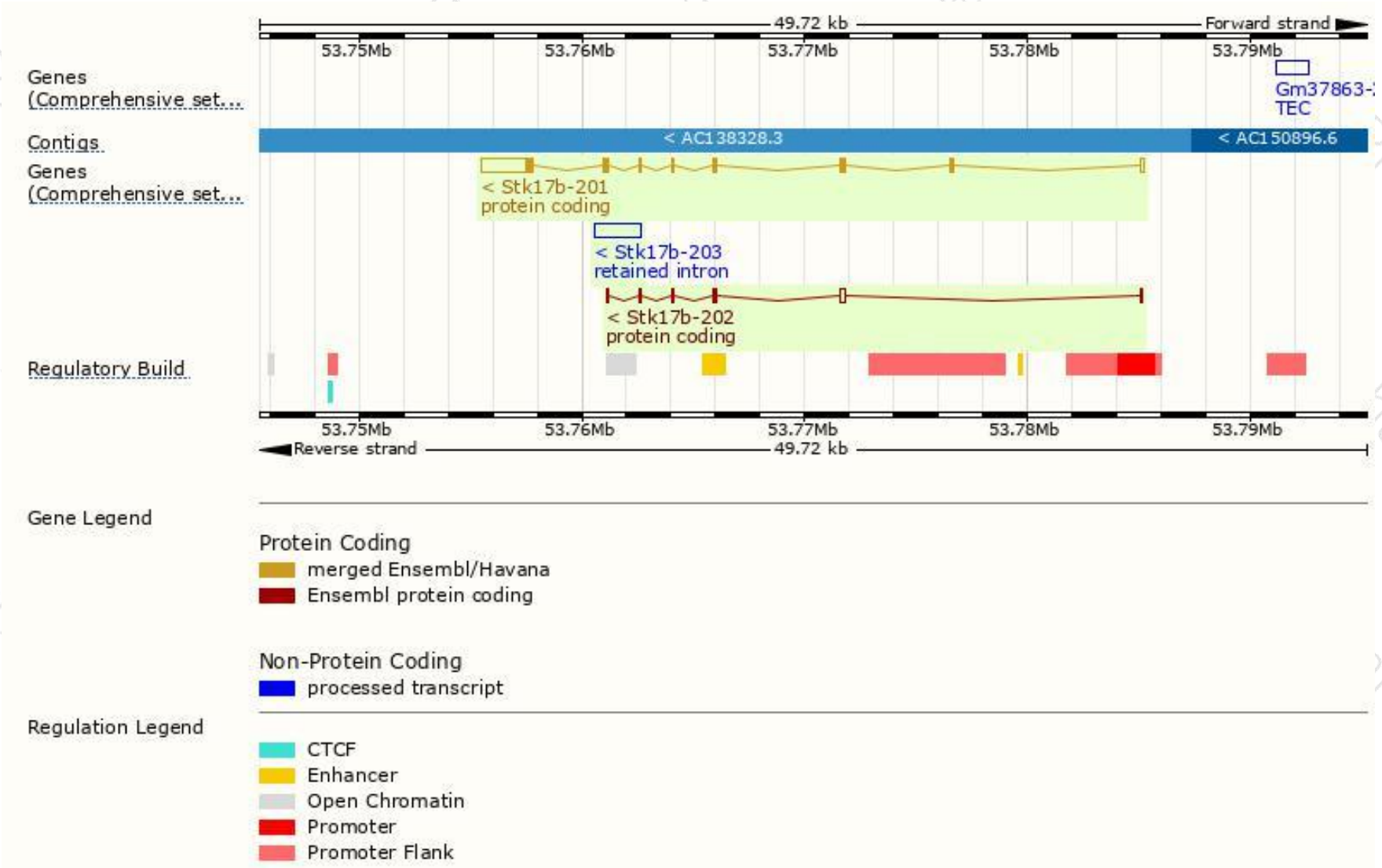
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Stk17b-201	ENSMUST00000027263.13	3293	372aa	Protein coding	CCDS14955	Q8BG48	TSL:1 GENCODE basic APPRIS P1
Stk17b-202	ENSMUST00000185920.1	631	95aa	Protein coding	-	A0A087WPR0	CDS 3' incomplete TSL:5
Stk17b-203	ENSMUST00000187066.1	2121	No protein	Retained intron	-	-	TSL:NA

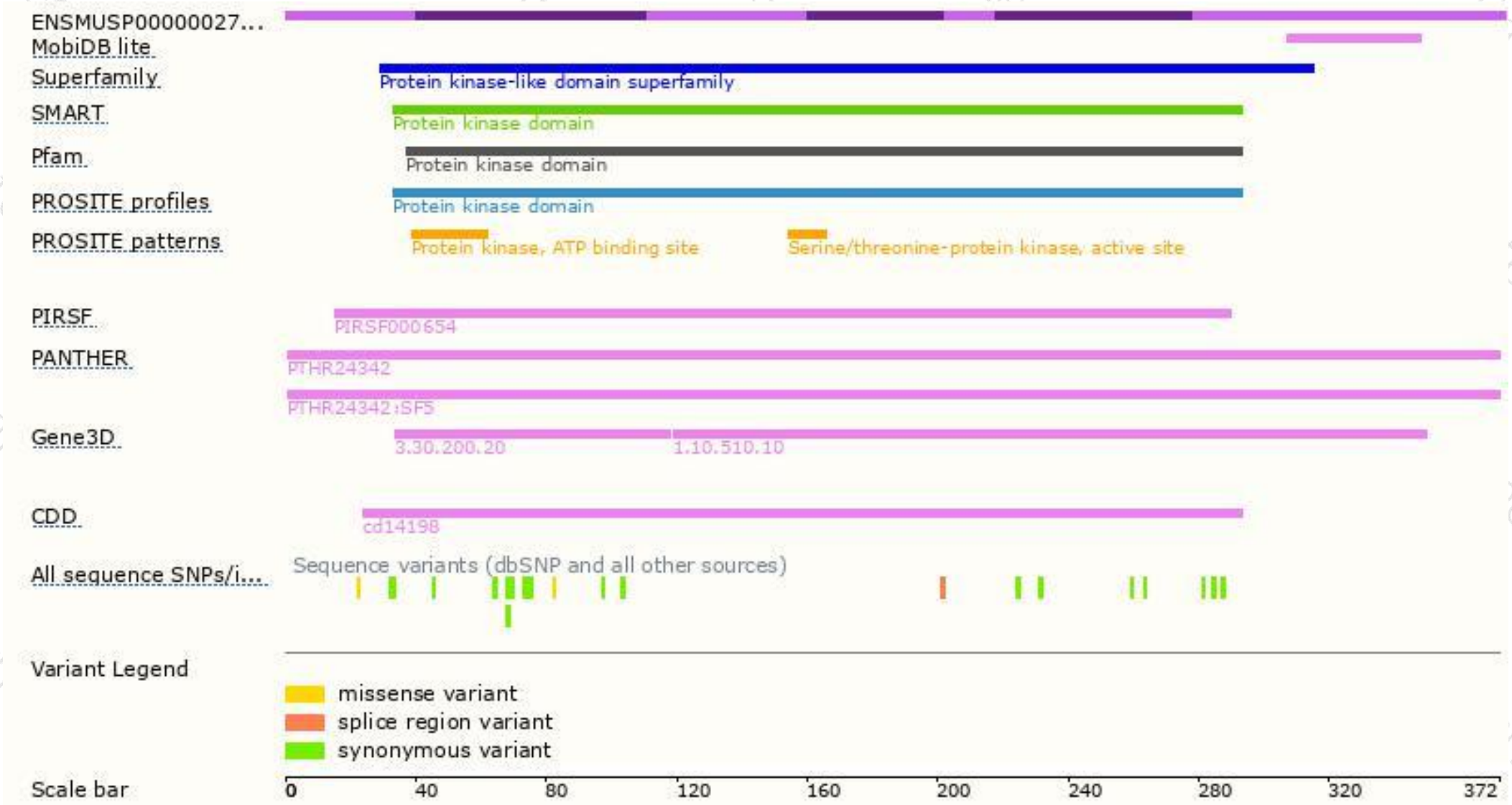
The strategy is based on the design of *Stk17b-201* transcript,The transcription is shown below



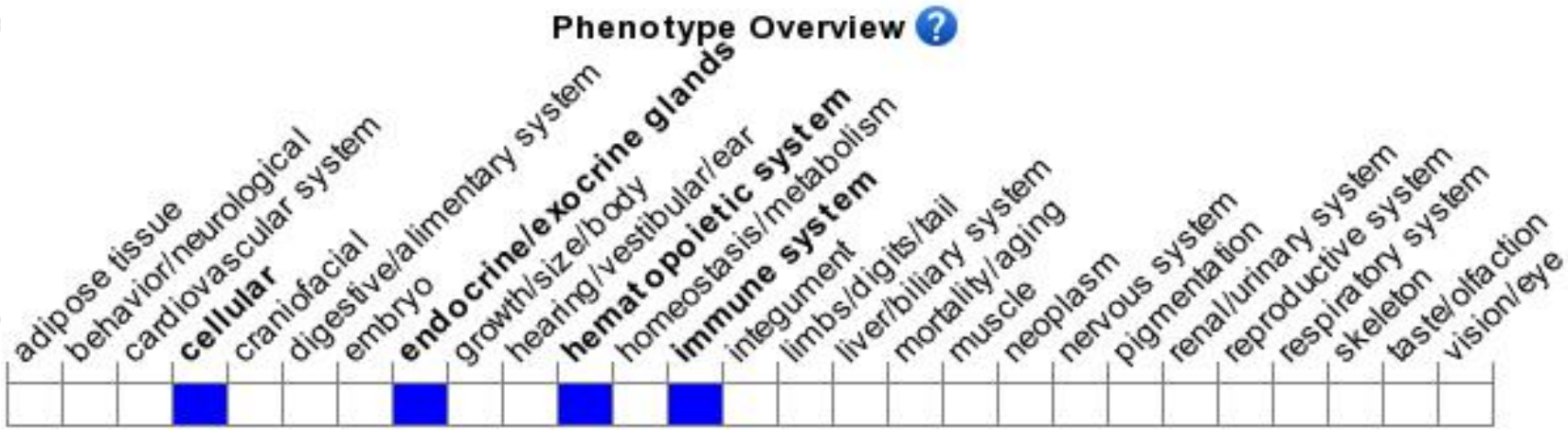
Genomic location distribution



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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