Klf13 Cas9-CKO Strategy

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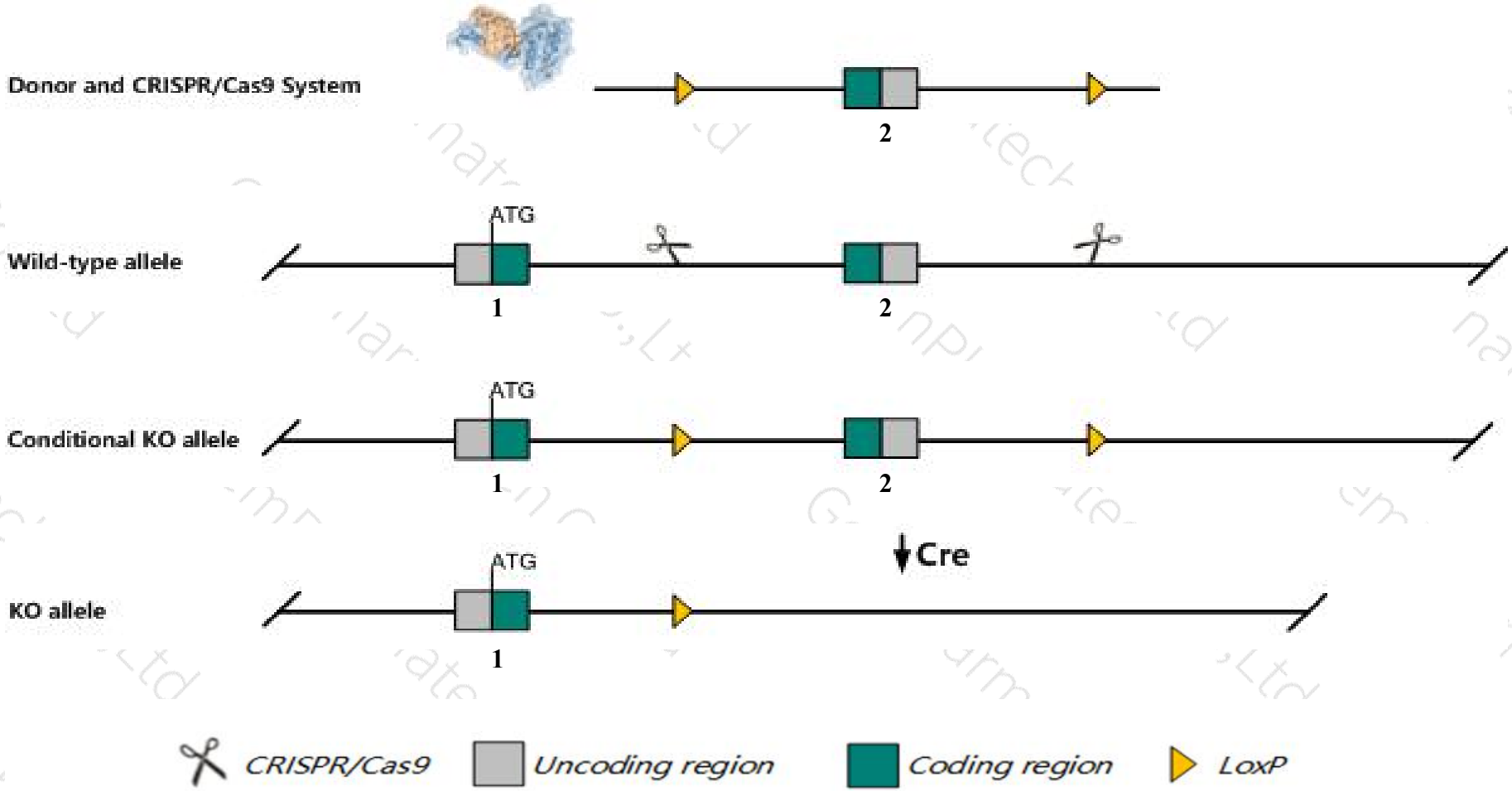
Project Overview

Project Name	***Klf13***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Klf13* gene. The schematic diagram is as follows:



Technical routes

- The *Klf13* gene has 4 transcripts. According to the structure of *Klf13* gene, exon2 of *Klf13-201* (ENSMUST00000063694.9) transcript is recommended as the knockout region.The region contains key coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Klf13* 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,Mice homozygous for a disruption in this gene are grossly normal. Prolonged thymocyte survival leads to an enlarged thymus and spleen. Mice homozygous for a different allele exhibit splenomegaly and abnormal erythropoiesis.

➢This strategy may affect the 5-terminal regulation of *Gm27252*.

➢ The *Klf13* gene is located on the Chr7. 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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Klf13 Kruppel-like factor 13 [Mus musculus (house mouse)]

Gene ID: 50794, updated on 31-Jan-2019

Summary

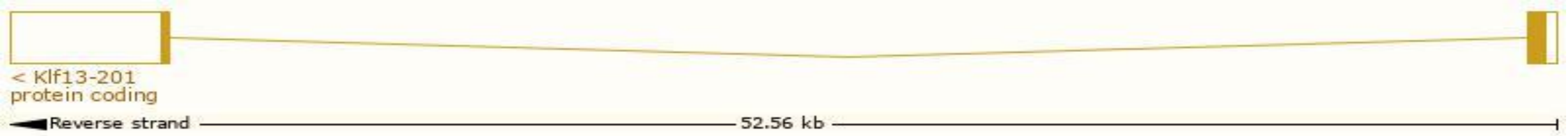
Official Symbol	Klf13 provided by MGI
Official Full Name	Kruppel-like factor 13 provided byMGI
Primary source	MGI:MGI:1354948
See related	Ensembl:ENSMUSG00000052040
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	0610043C13Rik, 9430029L20Rik, Bteb3, FKLF-2, FKLF2, NSLP1, RFLAT-1, RFLAT1
Expression	Broad expression in thymus adult (RPKM 63.8), lung adult (RPKM 36.5) and 24 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

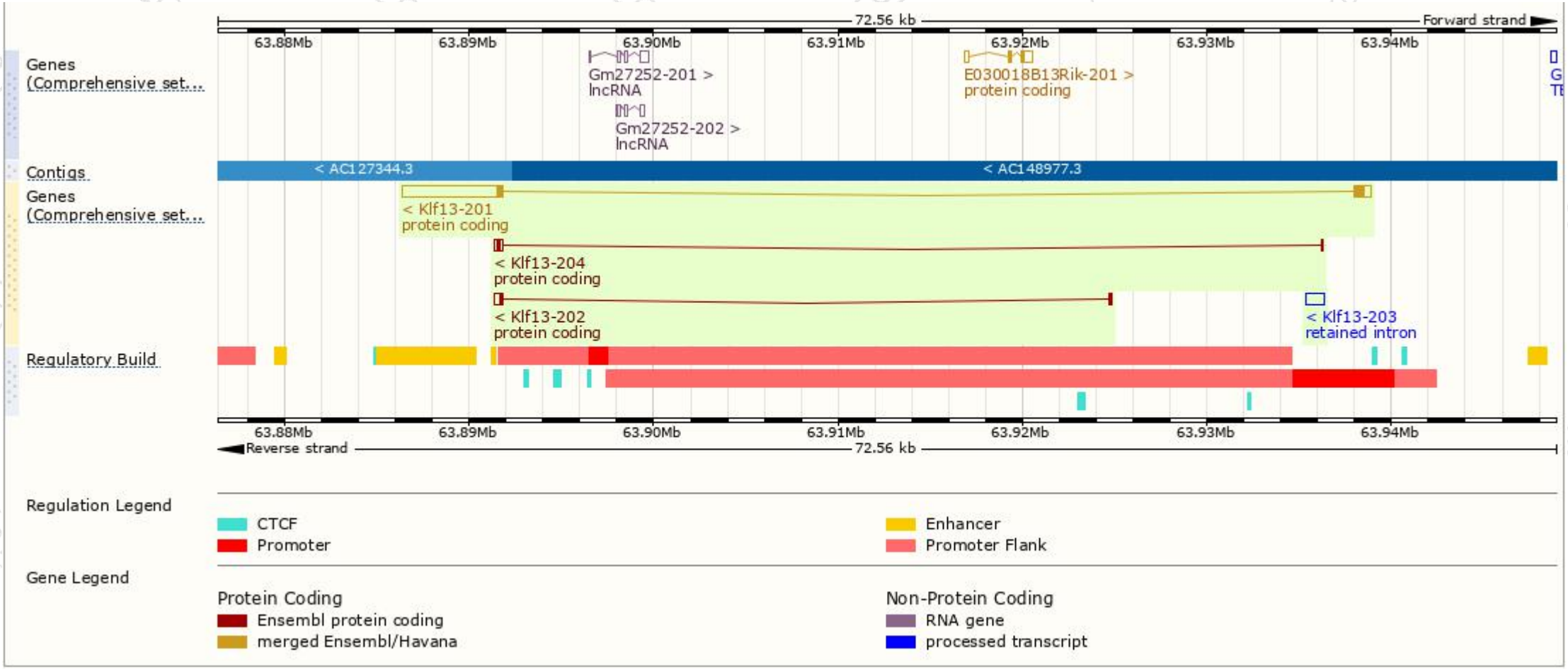
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Klf13-201	ENSMUST00000063694.9	6396	289aa	Protein coding	CCDS21331	Q9JJZ6	TSL:1 GENCODE basic APPRIS P1
Klf13-202	ENSMUST00000183817.1	599	82aa	Protein coding	-	V9GX95	TSL:1 GENCODE basic
Klf13-204	ENSMUST00000185175.1	487	52aa	Protein coding	-	A0A087WQX4	TSL:2 GENCODE basic
Klf13-203	ENSMUST00000183907.1	934	No protein	Retained intron	-	-	TSL:NA

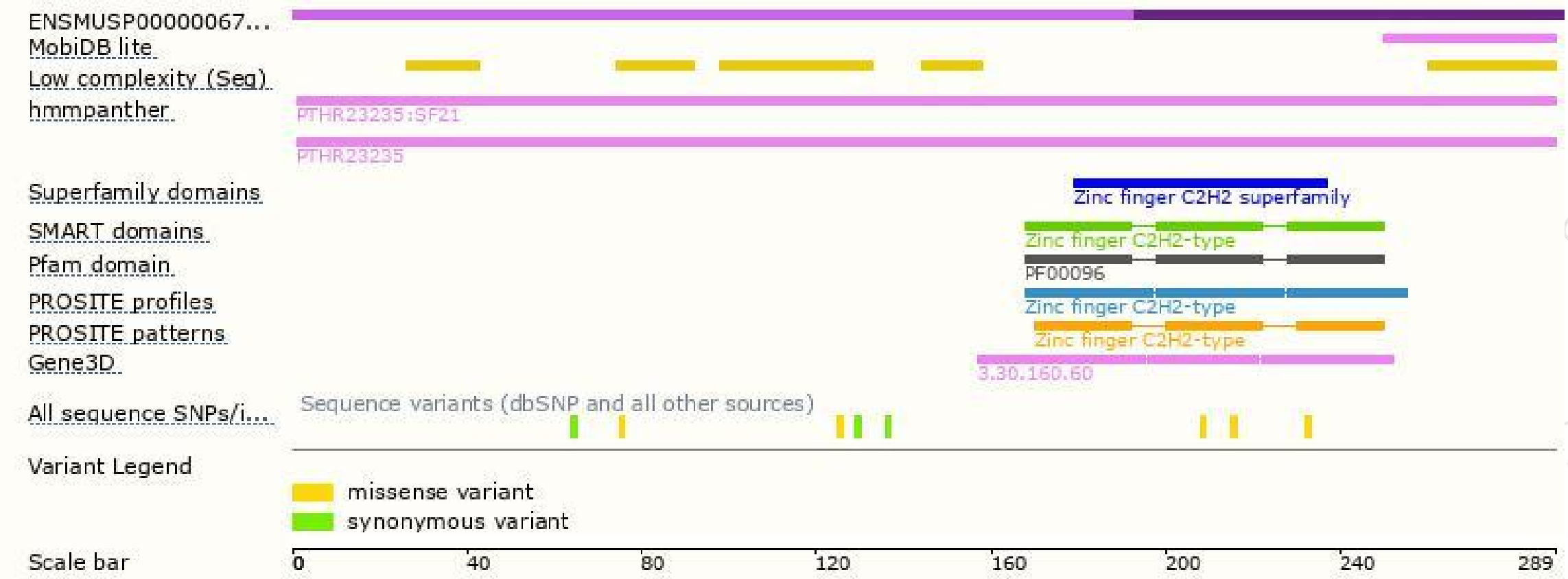
The strategy is based on the design of *Klf13-201* transcript,The transcription is shown below



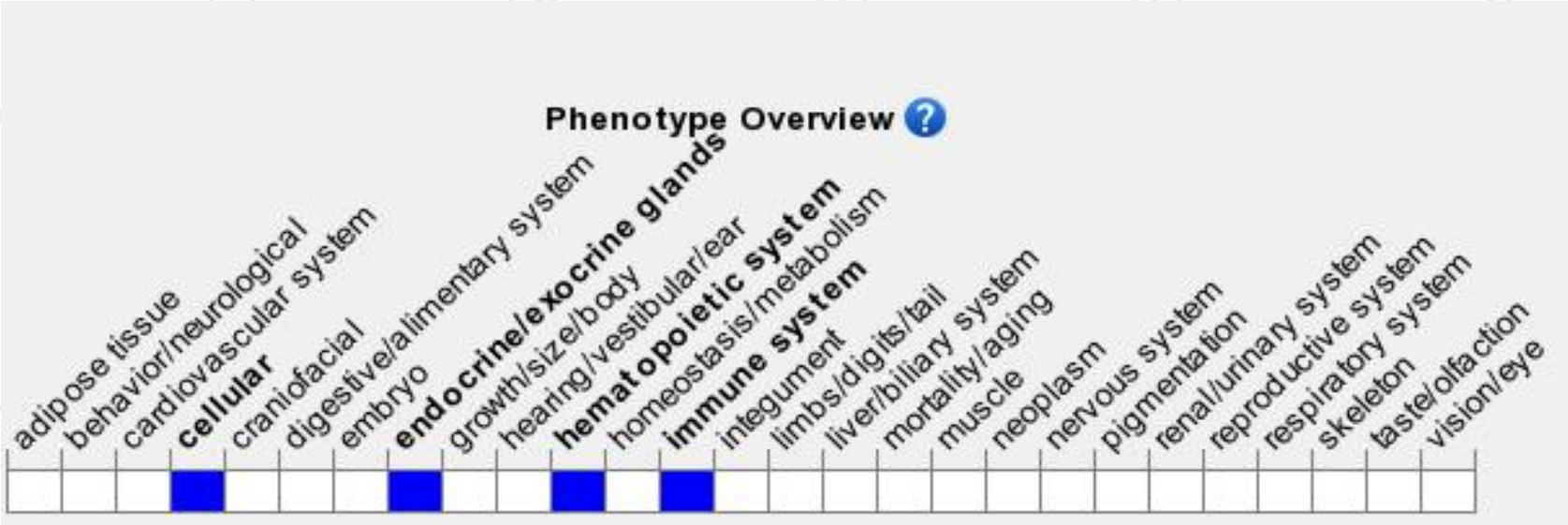
Genomic location distribution



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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