Klkb1 Cas9-CKO Strategy

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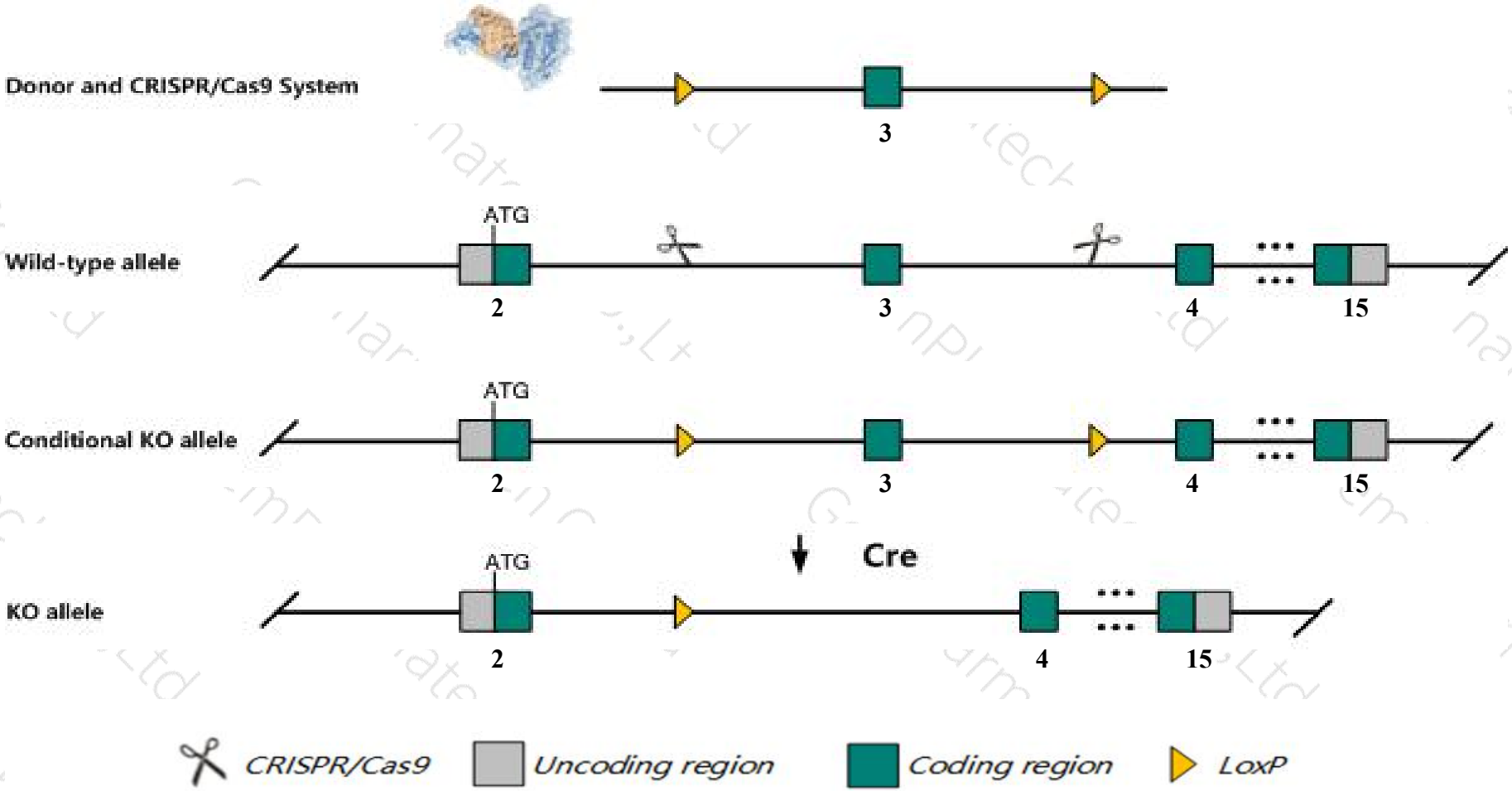
Project Overview

Project Name	***Klkb1***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Klkb1* gene. The schematic diagram is as follows:



Technical routes

- The *Klkb1* gene has 1 transcript. According to the structure of *Klkb1* gene, exon3 of *Klkb1-201* (ENSMUST00000026907.5) transcript is recommended as the knockout region.The region contains 163bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Klkb1* 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 inactivation of this gene leads to reduced hematoma expansion in streptozotocin-induced diabetic mice subjected to autologous blood injection, and prolonged activated partial thromboplastin time.

➢ The *Klkb1* gene is located on the Chr8. 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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Klkb1 kallikrein B, plasma 1 [Mus musculus (house mouse)]

Gene ID: 16621, updated on 31-Jan-2019

Summary

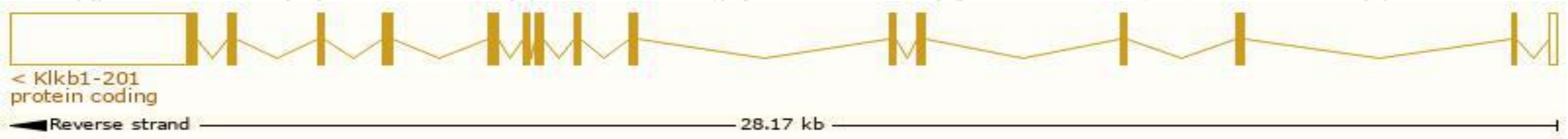
Official Symbol	Klkb1 provided by MGI
Official Full Name	kallikrein B, plasma 1 provided byMGI
Primary source	MGI:MGI:102849
See related	Ensembl:ENSMUSG00000109764
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	APS, Kal-3, Kal3, Klk3, PSA
Summary	This gene encodes a member of the kallikrein subfamily of serine proteases that are involved in diverse physiological functions such as skin desquamation, tooth enamel formation, seminal liquefaction, synaptic neural plasticity and brain function. The encoded preproprotein undergoes proteolytic processing to generate a disulfide-linked heterodimeric enzyme comprised of heavy and light chains. A complete deletion of the encoded protein prevents occlusive thrombus formation in mice with a minimal role in provoked bleeding. [provided by RefSeq, May 2016]
Expression	Biased expression in liver adult (RPKM 26.3), liver E18 (RPKM 18.5) and 2 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

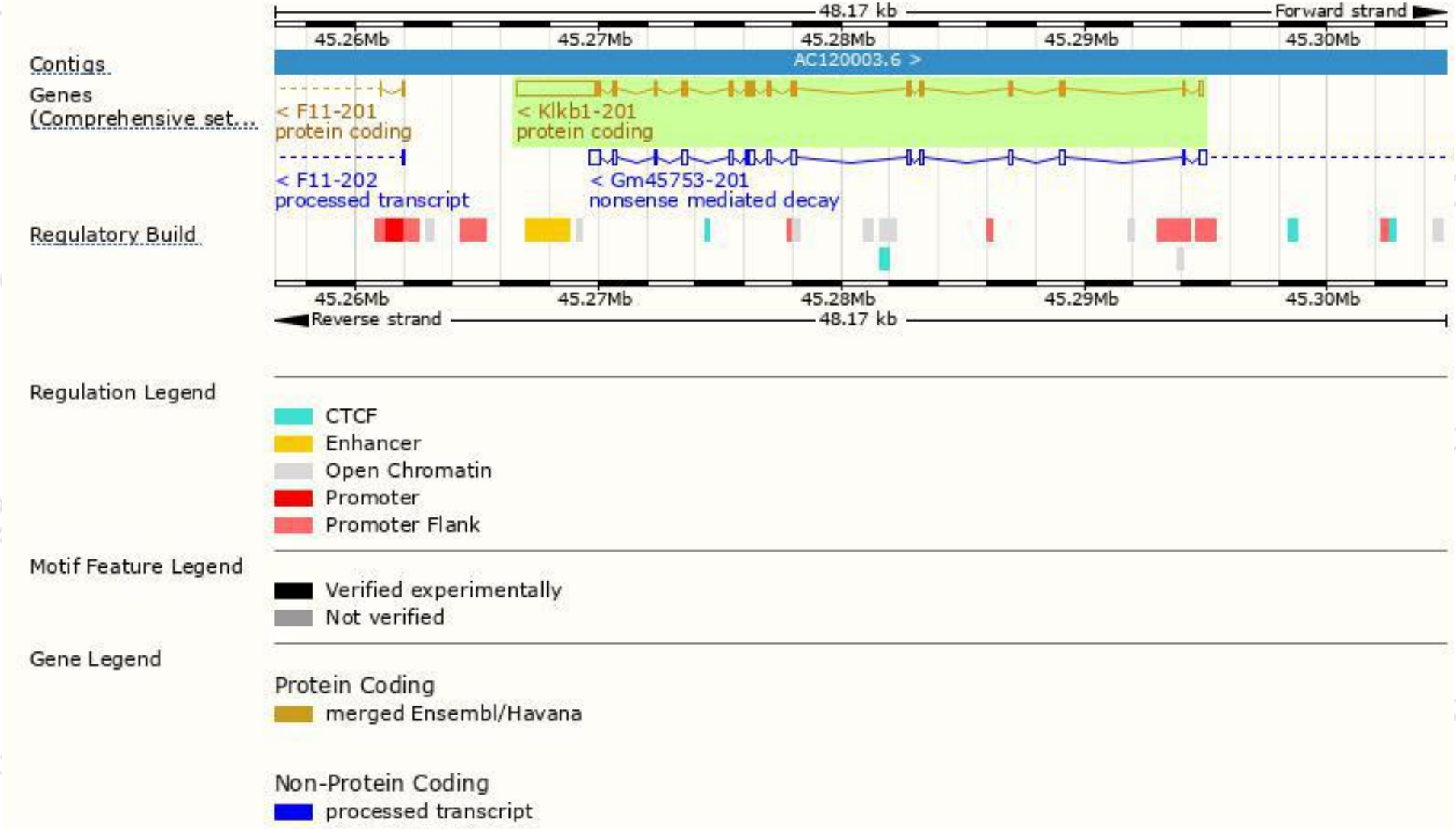
The gene has 1 transcript,and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Klkb1-201	ENSMUST00000026907.5	5249	638aa	Protein coding	CCDS22275	H9H9R5 P26262	TSL:1 GENCODE basic APPRIS P1

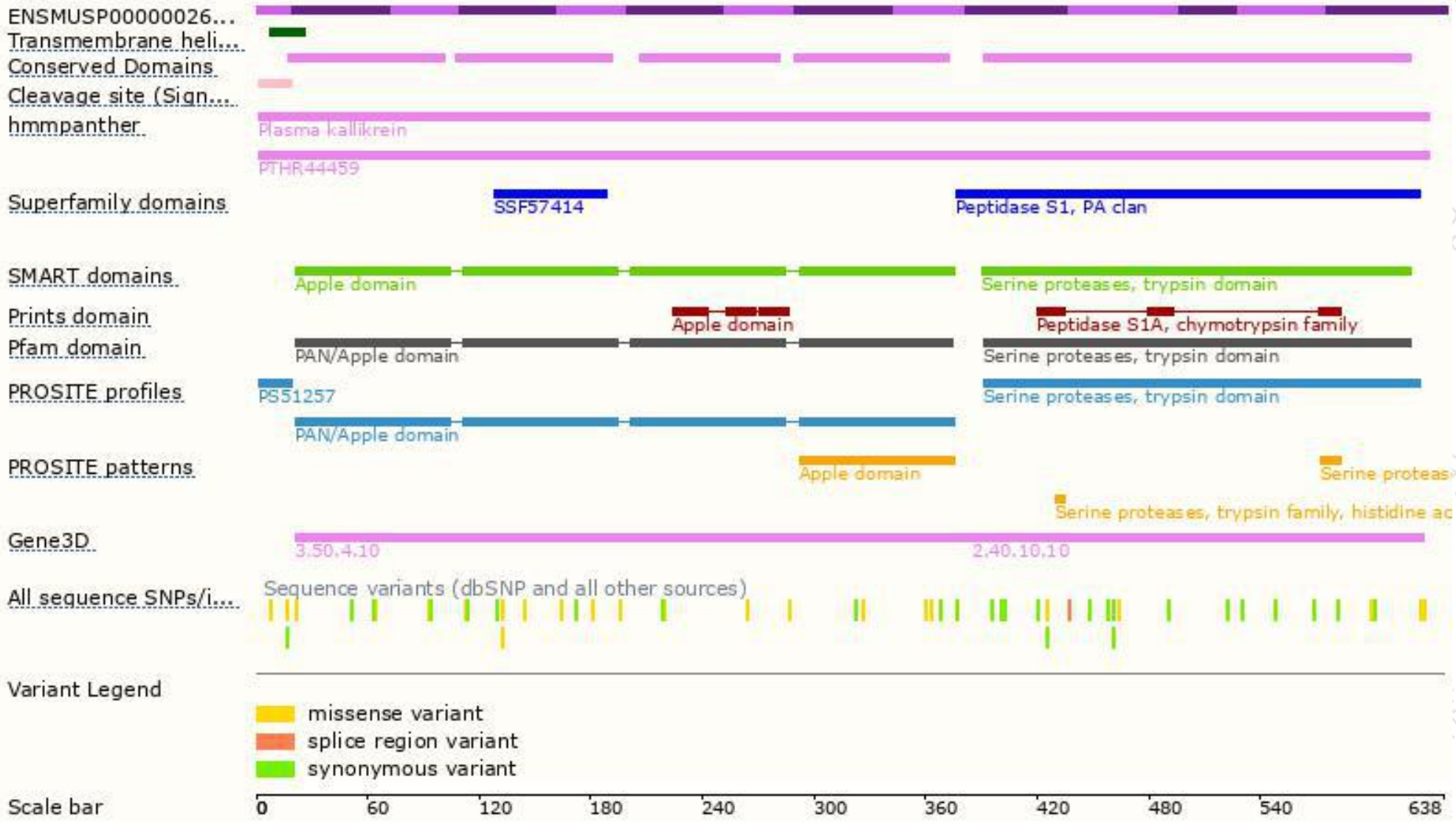
The strategy is based on the design of *Klkb1-201* transcript,The transcription is shown below



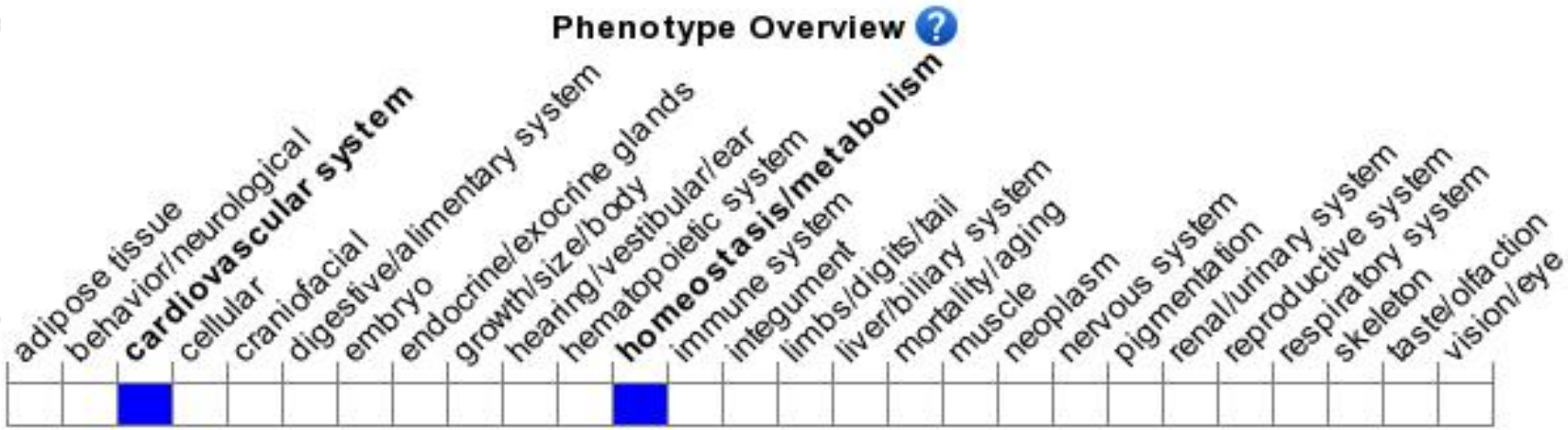
Genomic location distribution



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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