

Vegfc Cas9-CKO Strategy

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Reviewer:

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Design Date:

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Project Overview

Project Name

Vegfc

Project type

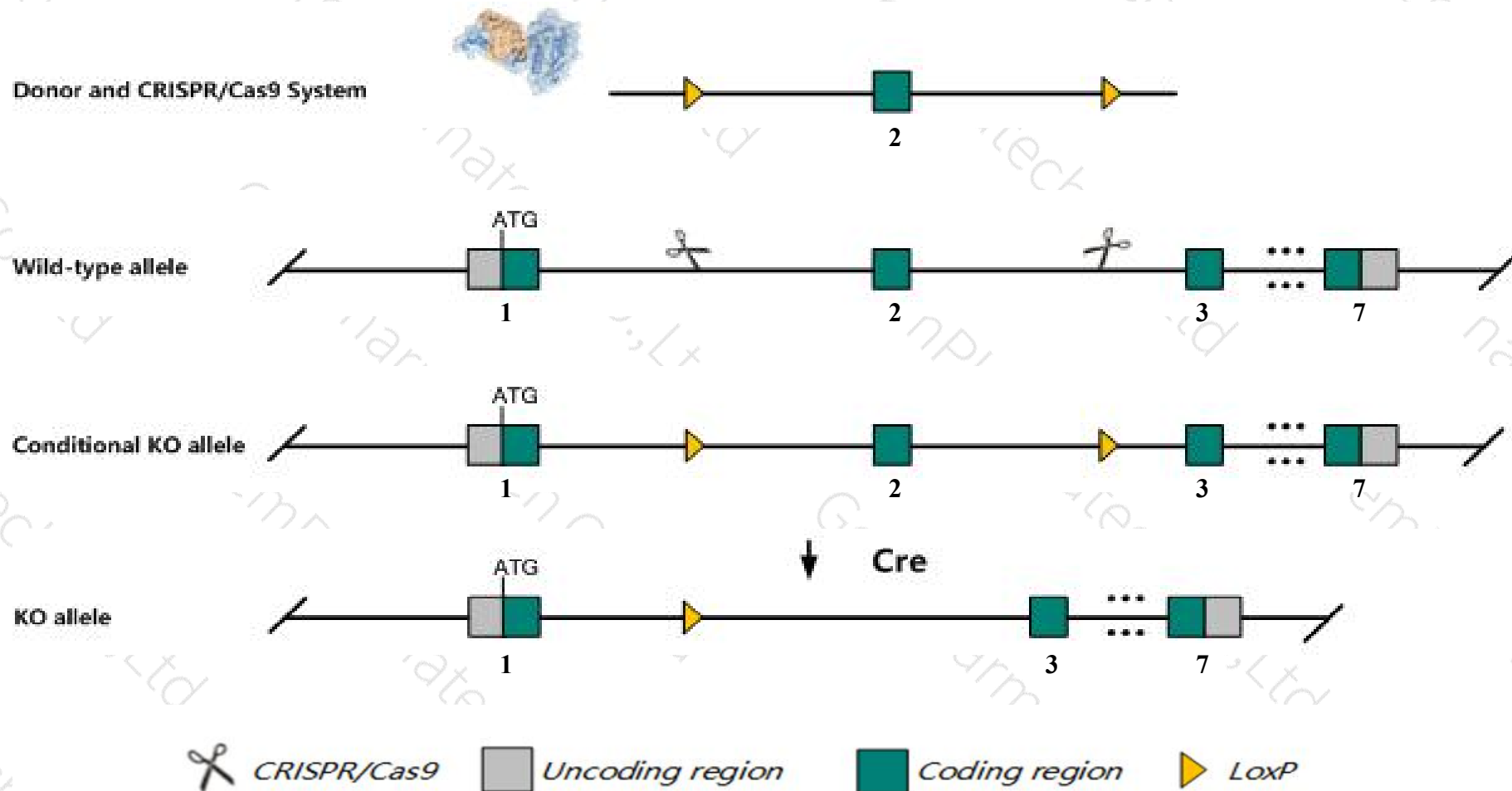
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



Technical routes

- The *Vegfc* gene has 3 transcripts. According to the structure of *Vegfc* gene, exon2 of *Vegfc-201* (ENSMUST00000033919.5) transcript is recommended as the knockout region. The region contains 202bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Vegfc* 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.

- According to the existing MGI data, Mutation of this gene affects the development of the lymphatic system. Homozygous inactivation is embryonic lethal.
- The *Vegfc* 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)

Vegfc vascular endothelial growth factor C [Mus musculus (house mouse)]

Gene ID: 22341, updated on 19-Feb-2019

Summary



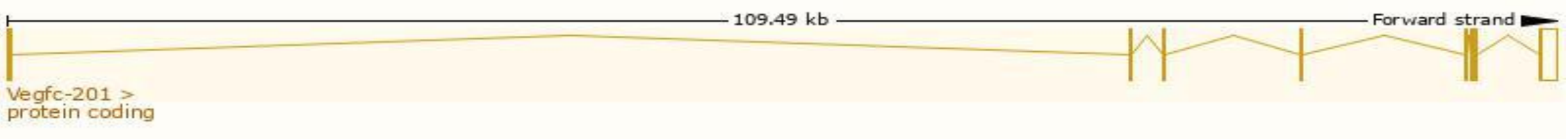
Official Symbol	Vegfc provided by MGI
Official Full Name	vascular endothelial growth factor C provided by MGI
Primary source	MGI:MGI:109124
See related	Ensembl:ENSMUSG000000031520
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AW228853, VEGF-C
Expression	Ubiquitous expression in limb E14.5 (RPKM 4.7), bladder adult (RPKM 4.0) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

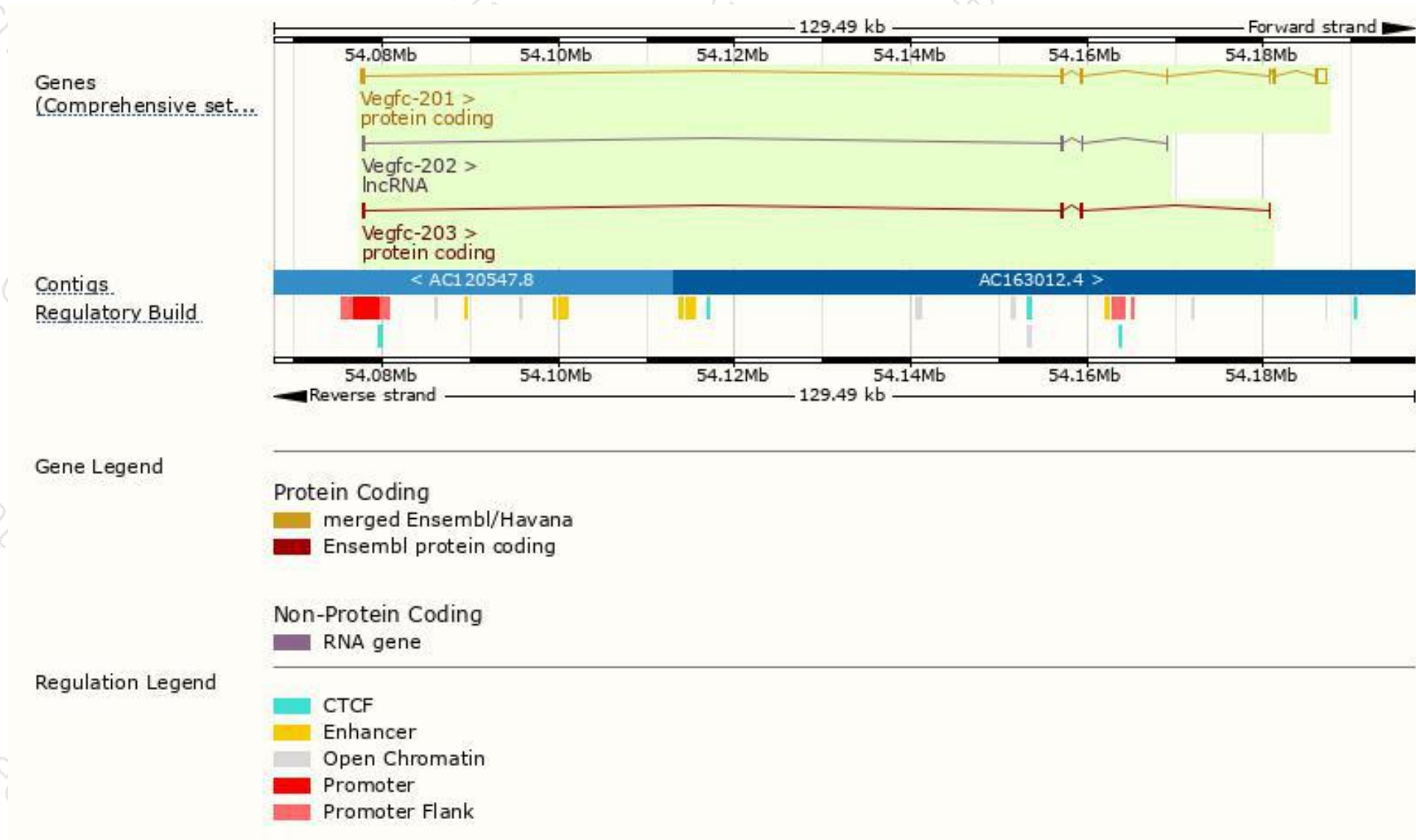
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Vegfc-201	ENSMUST00000033919.5	2449	415aa	Protein coding	CCDS22306	P97953	TSL:1 GENCODE basic APPRIS P1
Vegfc-203	ENSMUST00000210831.1	555	184aa	Protein coding	-	P97953	TSL:1 GENCODE basic
Vegfc-202	ENSMUST00000209703.1	501	No protein	lncRNA	-	-	TSL:5

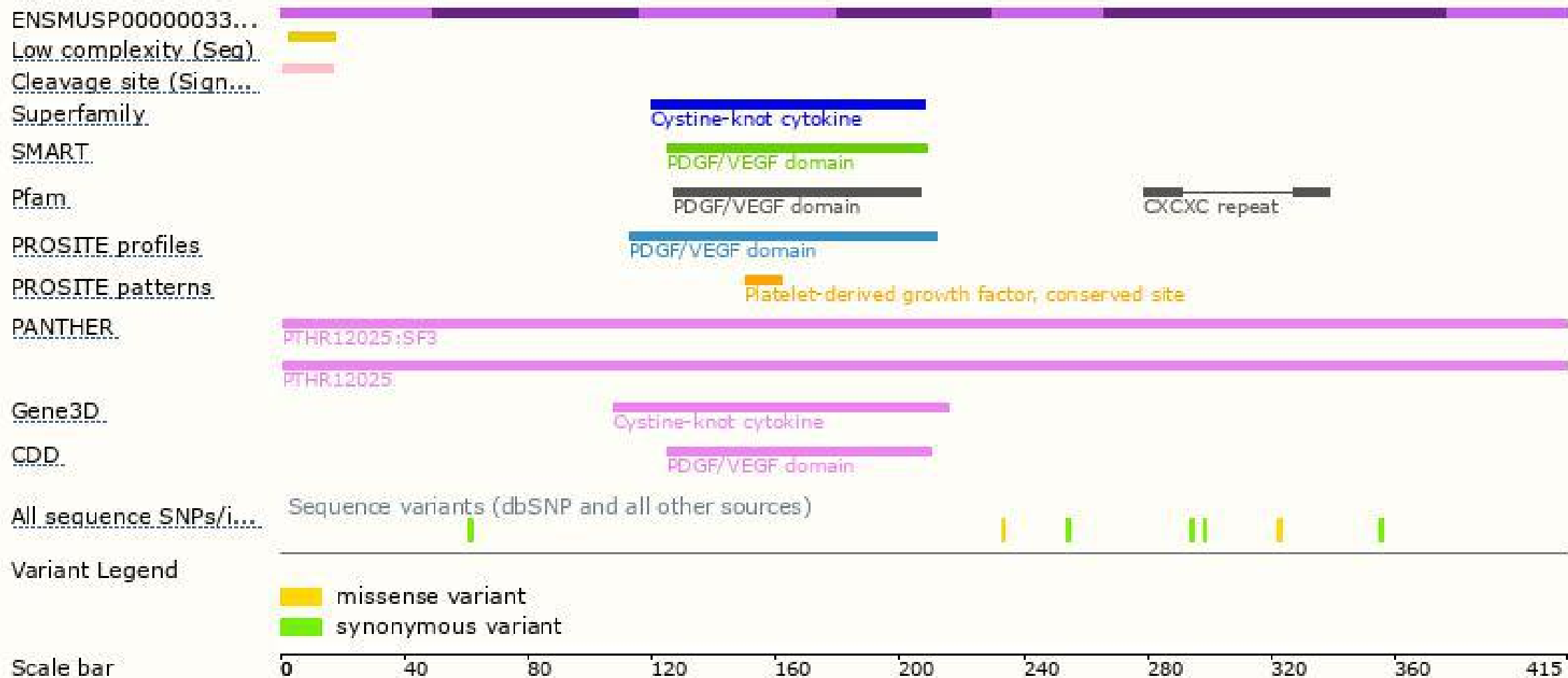
The strategy is based on the design of *Vegfc-201* transcript,The transcription is shown below



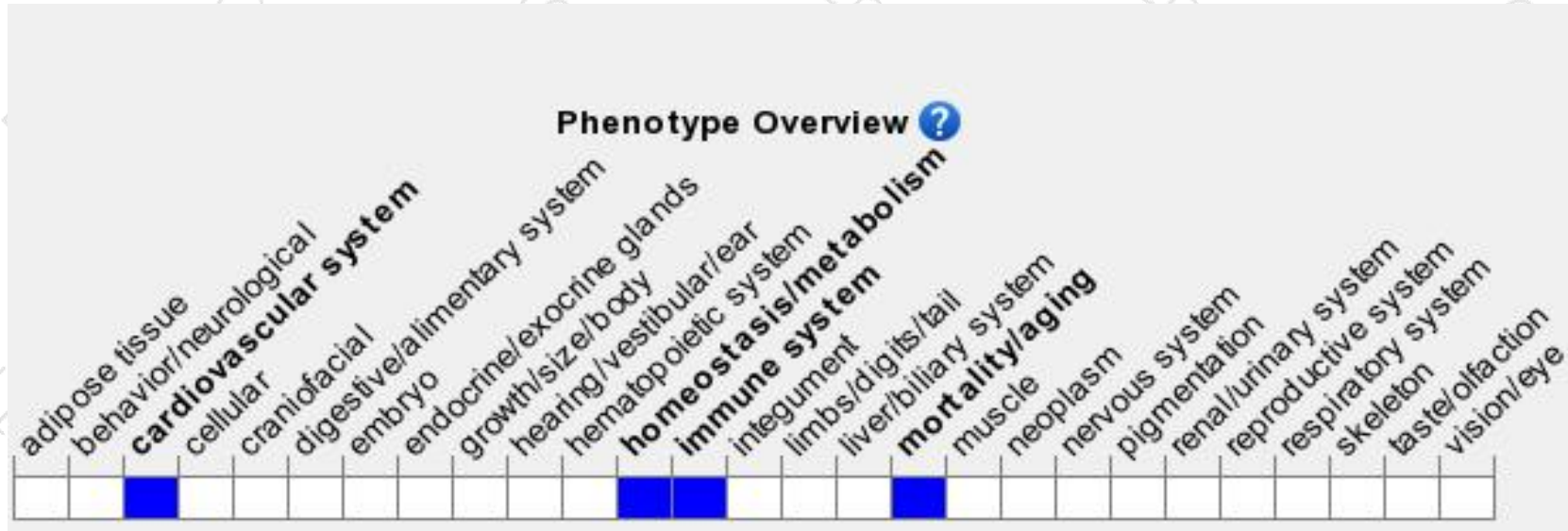
Genomic location distribution



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/>).

According to the existing MGI data, Mutation of this gene affects the development of the lymphatic system. Homozygous inactivation is embryonic lethal.

If you have any questions, you are welcome to inquire.

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