

***Trub1* Cas9-CKO Strategy**

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Reviewer:

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Design Date:

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Project Overview

Project Name

Trub1

Project type

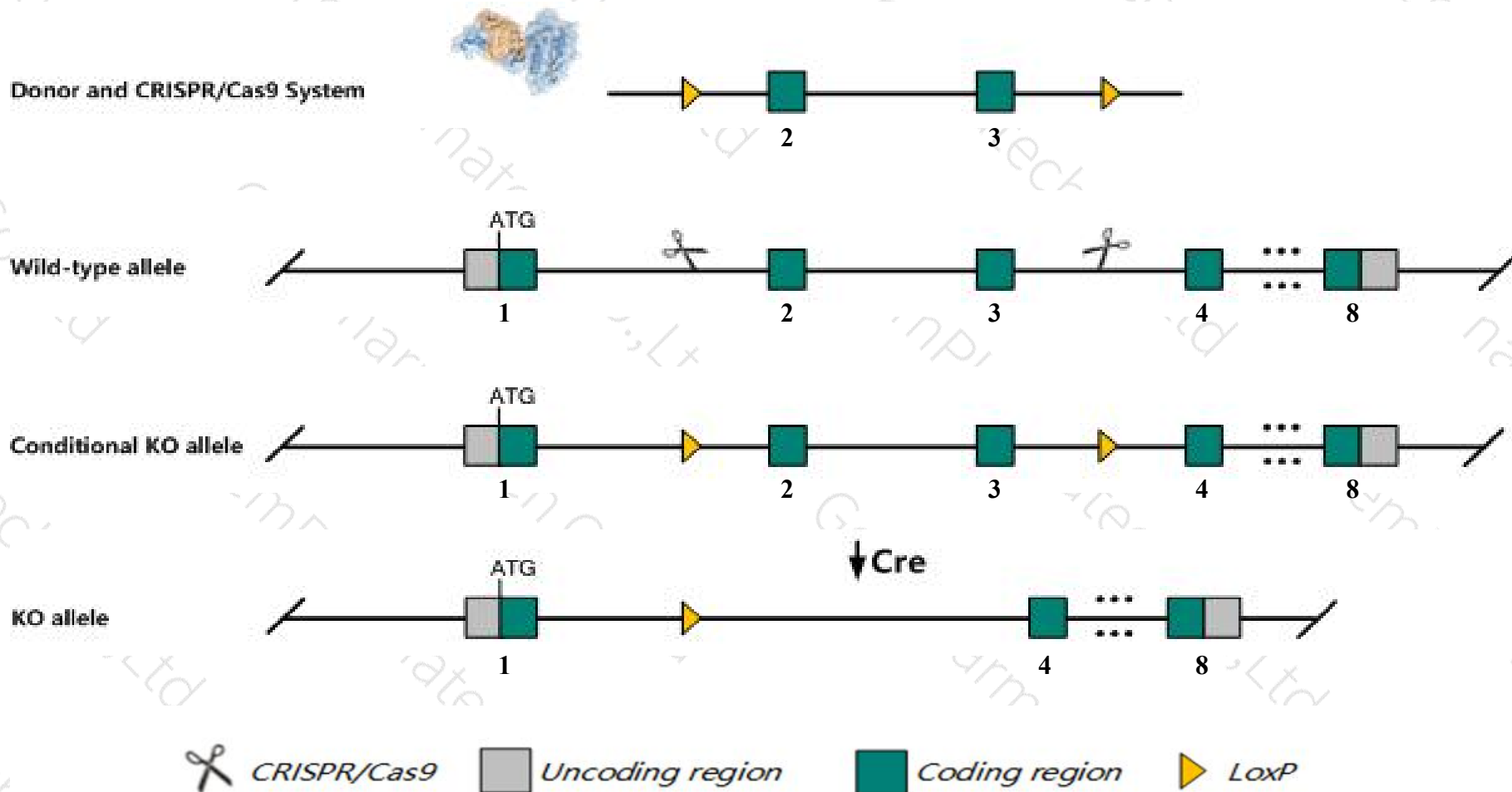
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Trub1* gene. The schematic diagram is as follows:



Technical routes

- The *Trub1* gene has 4 transcripts. According to the structure of *Trub1* gene, exon2-exon3 of *Trub1*-202 (ENSMUST00000026073.13) transcript is recommended as the knockout region. The region contains 155bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Trub1* 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

- The *Trub1* gene is located on the Chr19. 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)

Trub1 TruB pseudouridine (psi) synthase family member 1 [Mus musculus (house mouse)]

Gene ID: 72133, updated on 31-Jan-2019

Summary



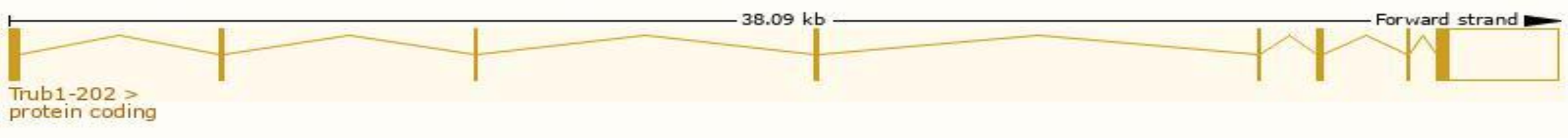
Official Symbol	Trub1 provided by MGI
Official Full Name	TruB pseudouridine (psi) synthase family member 1 provided by MGI
Primary source	MGI:MGI:1919383
See related	Ensembl:ENSMUSG00000025086
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2610009I02Rik, 9030425C13Rik, AI448235, BB118943, C76870
Expression	Ubiquitous expression in limb E14.5 (RPKM 6.4), CNS E18 (RPKM 5.2) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

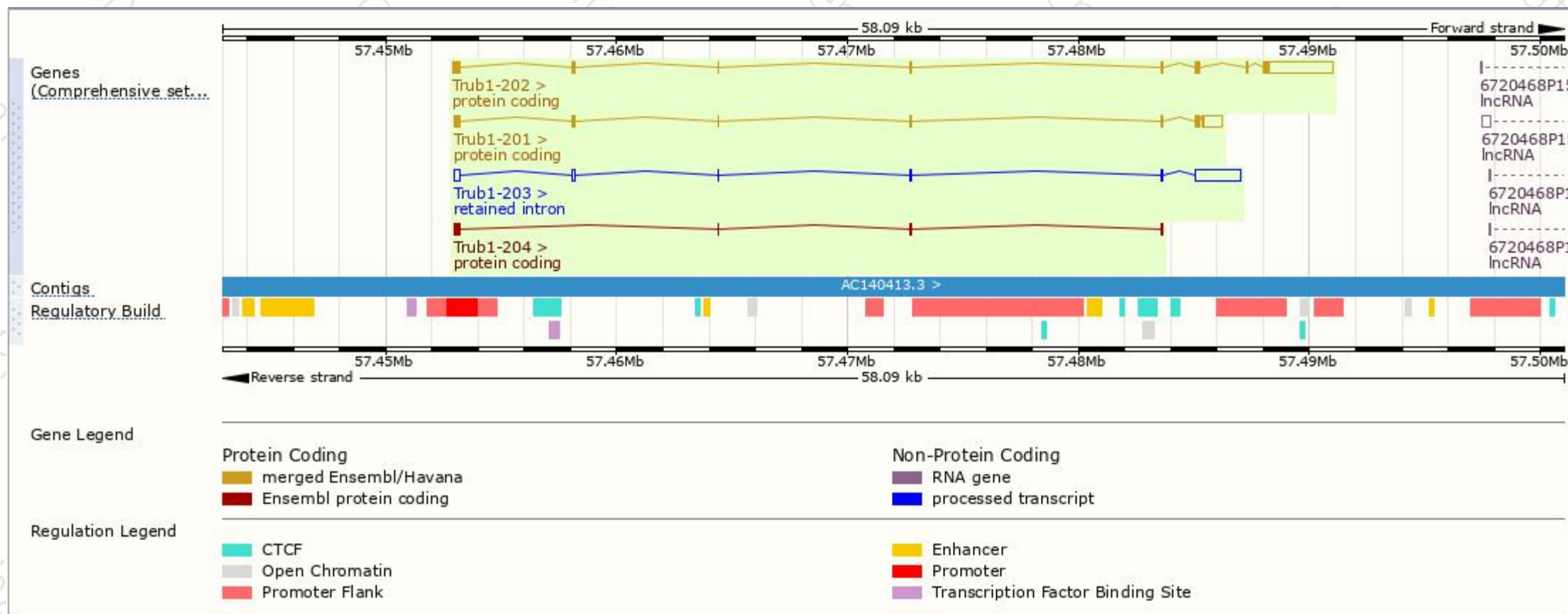
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Trub1-202	ENSMUST00000026073.13	3789	338aa	Protein coding	CCDS29926	Q8C0D0	TSL:1 GENCODE basic APPRIS P1
Trub1-201	ENSMUST00000026072.4	1564	247aa	Protein coding	CCDS29927	Q8C0D0	TSL:1 GENCODE basic
Trub1-204	ENSMUST00000238107.1	424	141aa	Protein coding	-	-	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete
Trub1-203	ENSMUST00000237166.1	2513	No protein	Retained intron	-	-	

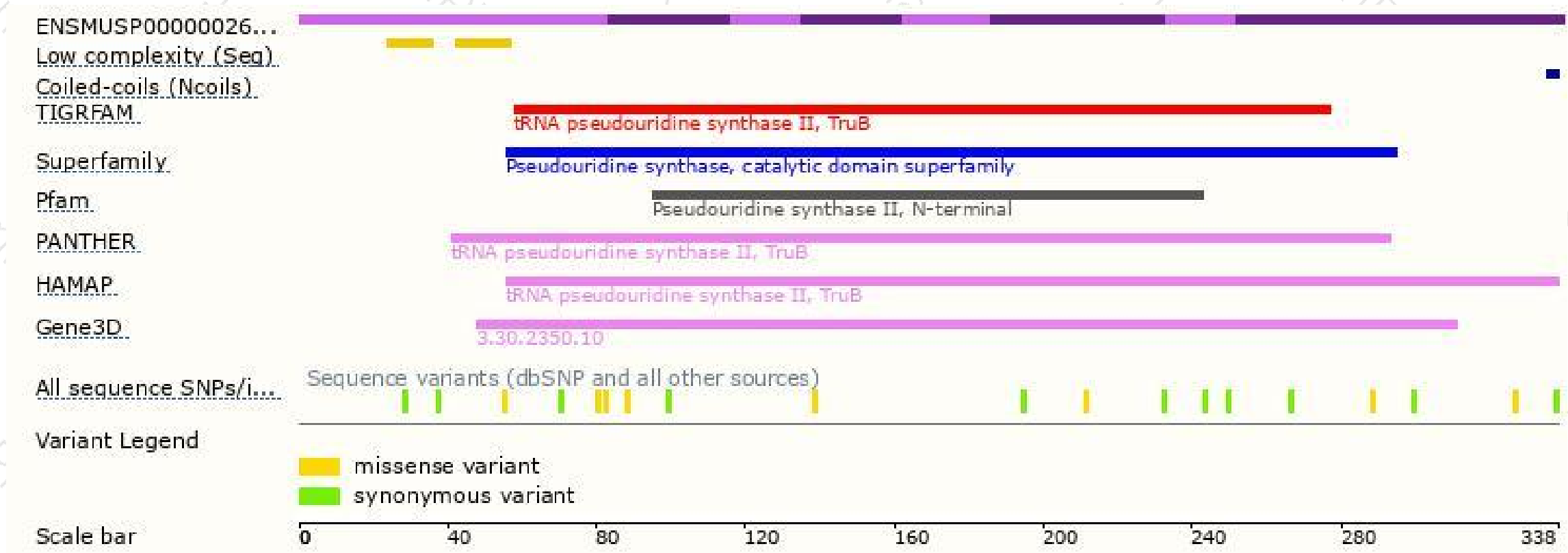
The strategy is based on the design of *Trub1-202* transcript,The transcription is shown below



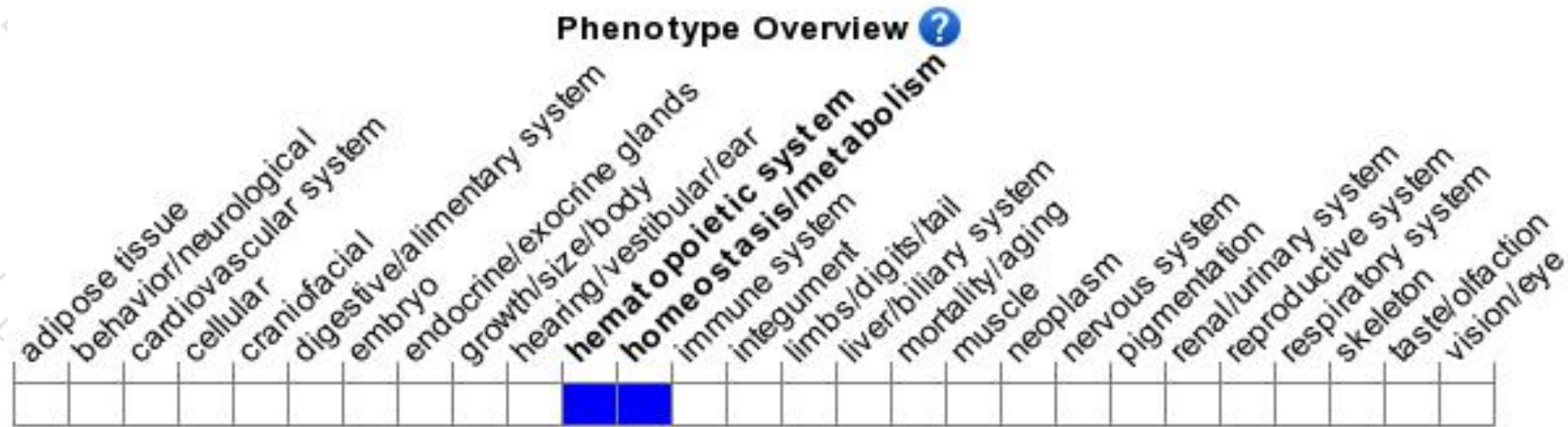
Genomic location distribution



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/>).

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

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