

Fgd3 Cas9-CKO Strategy

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Project Overview

Project Name

Fgd3

Project type

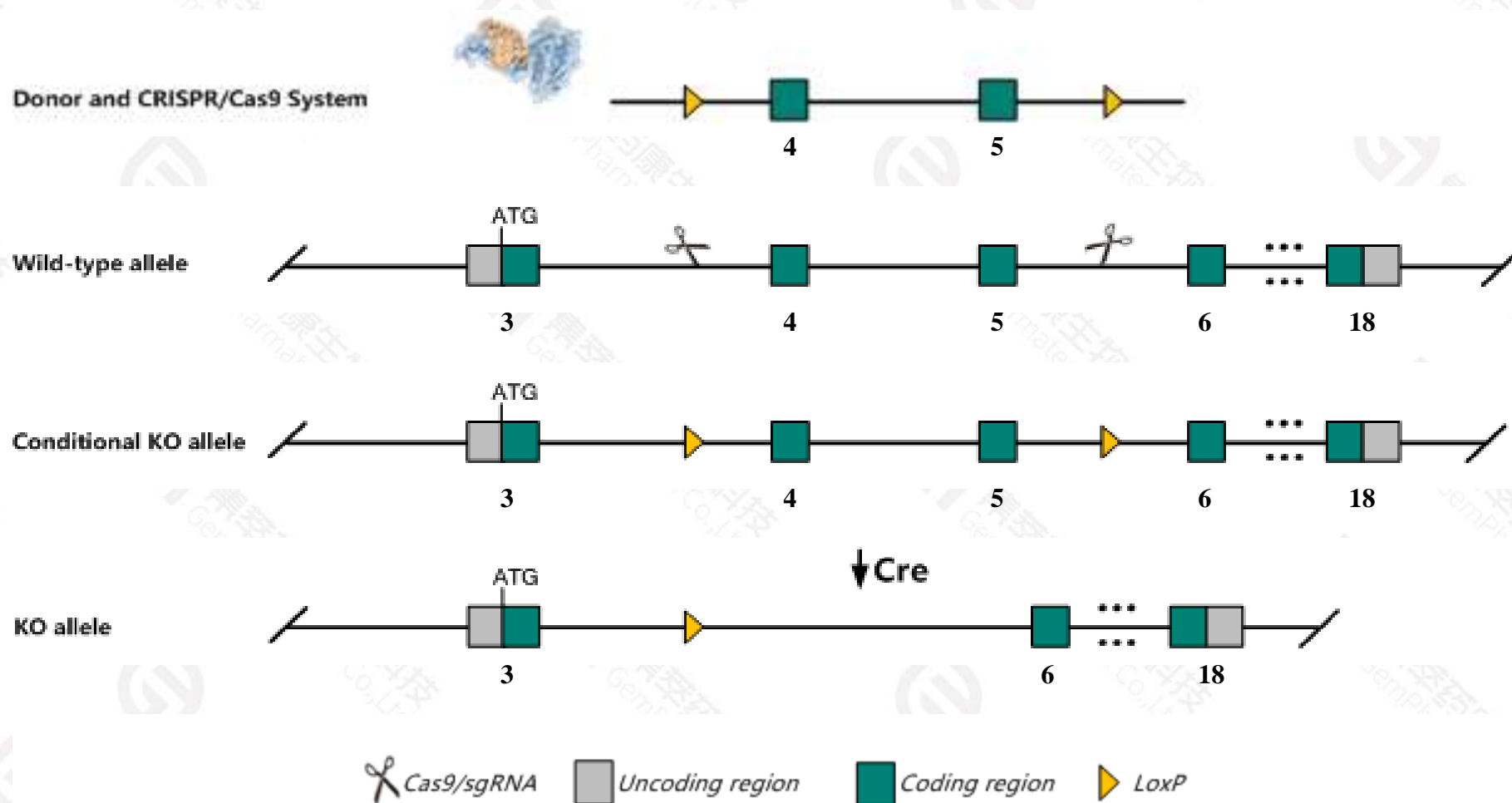
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fgd3* gene. The schematic diagram is as follows:



- The *Fgd3* gene has 3 transcripts. According to the structure of *Fgd3* gene, exon4-exon5 of *Fgd3*-203(ENSMUST00000110087.8) transcript is recommended as the knockout region. The region contains 227bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Fgd3* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was 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.

- The *Fgd3* gene is located on the Chr13. 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)

Fgd3 FYVE, RhoGEF and PH domain containing 3 [*Mus musculus* (house mouse)]

[Download Datasets](#)

Gene ID: 30938, updated on 14-Jan-2021

Summary



Official Symbol	Fgd3 provided by MGI
Official Full Name	FYVE, RhoGEF and PH domain containing 3 provided by MGI
Primary source	MGI:MGI:1353657
See related	Ensembl:ENSMUSG00000037946
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	ZFYVE; ZFYVE5; 5830461L01Rik
Expression	Broad expression in spleen adult (RPKM 7.4), thymus adult (RPKM 4.4) and 20 other tissues See more
Orthologs	human all

NEW

Try the new [Gene table](#)

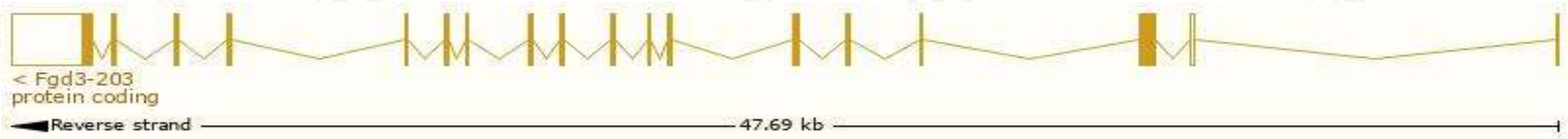
Try the new [Transcript table](#)

Transcript information (Ensembl)

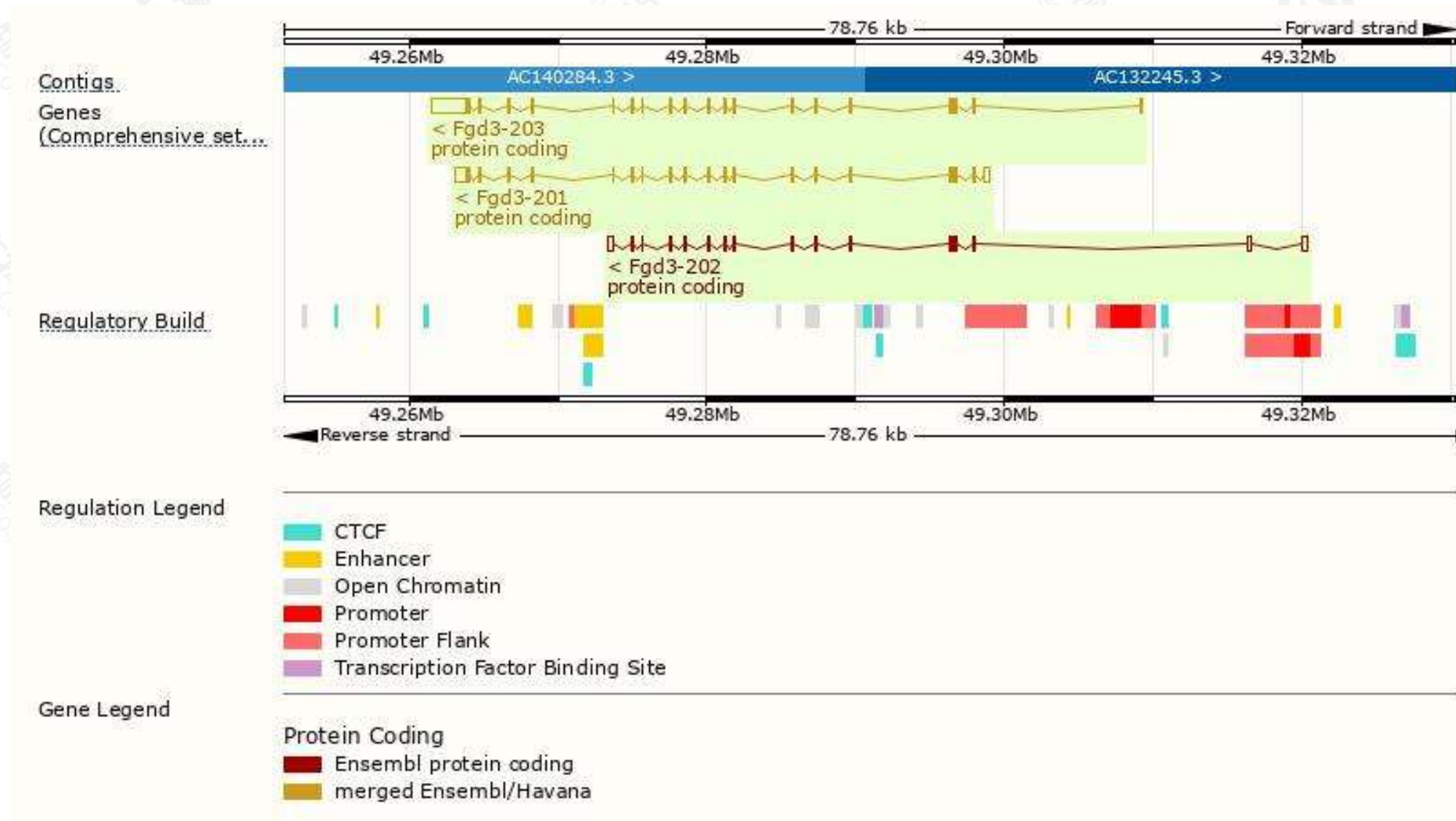
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fgd3-203	ENSMUST00000110087.8	4698	733aa	Protein coding	CCDS26499	Q3TNB8	TSL:1 GENCODE basic APPRIS P1
Fgd3-201	ENSMUST00000048716.10	3519	733aa	Protein coding	CCDS26499	Q3TNB8	TSL:1 GENCODE basic APPRIS P1
Fgd3-202	ENSMUST00000110086.1	2628	532aa	Protein coding	-	A0A0R4J1D9	TSL:1 GENCODE basic

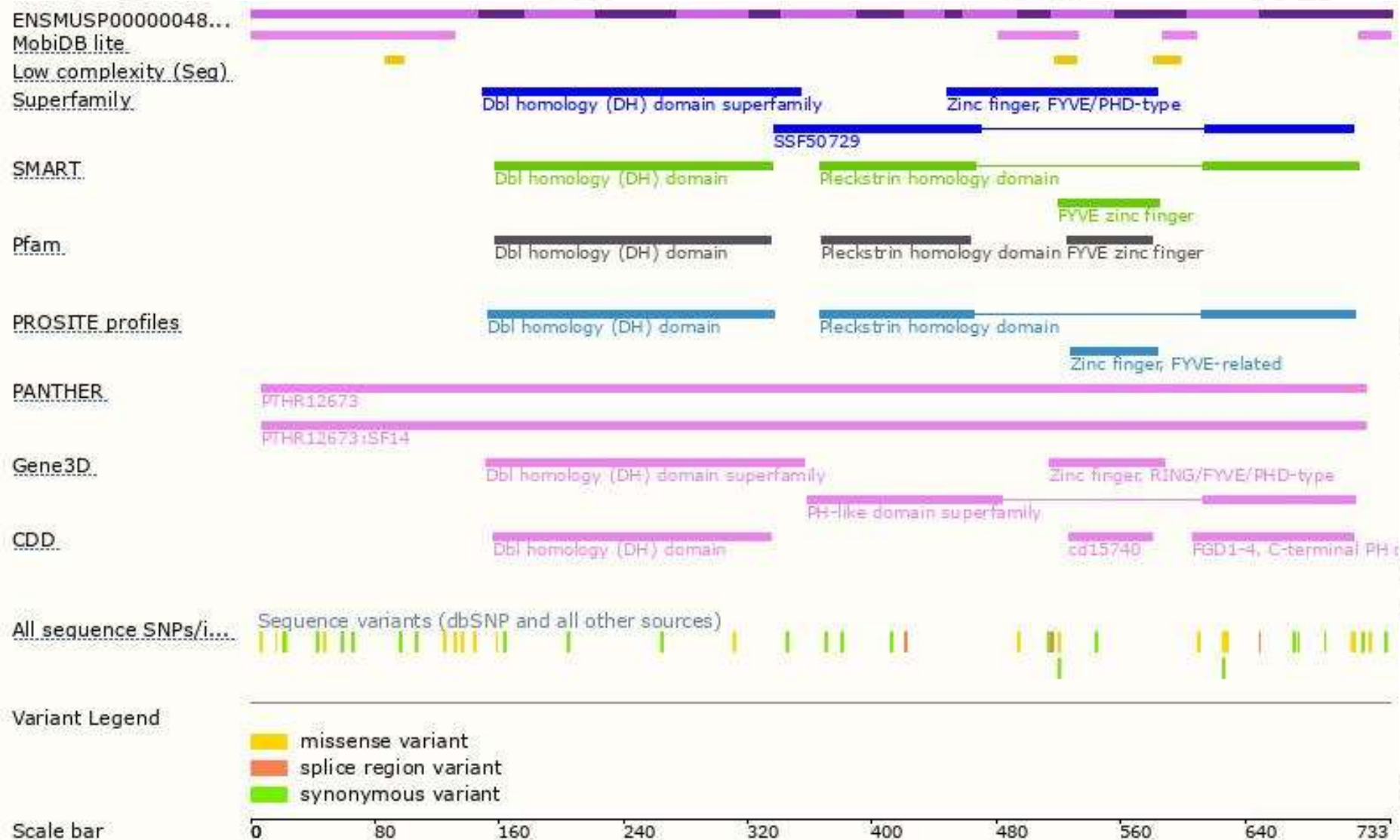
The strategy is based on the design of *Fgd3-203* transcript,the transcription is shown below:



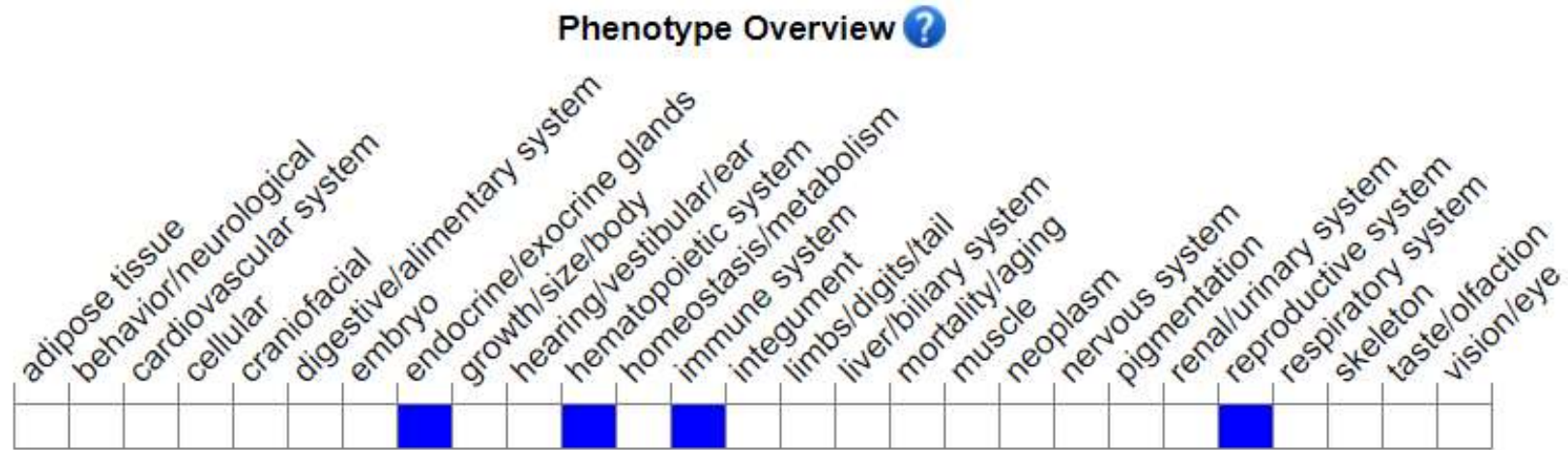
Genomic location distribution



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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