

Phf13 Cas9-CKO Strategy

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Project Overview

Project Name

Phf13

Project type

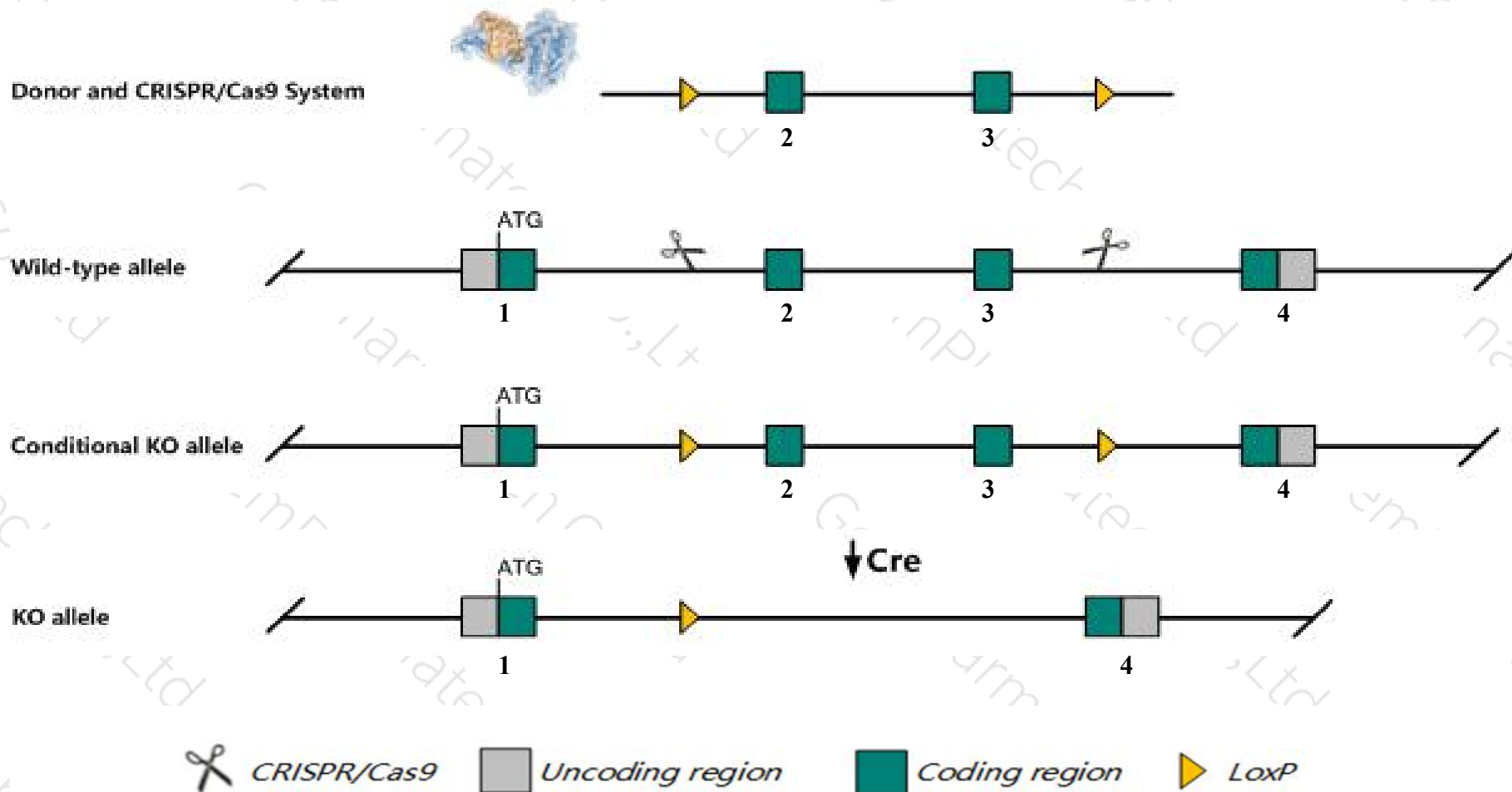
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Phf13* gene. The schematic diagram is as follows:



Technical routes

- The *Phf13* gene has 1 transcript. According to the structure of *Phf13* gene, exon2-exon3 of *Phf13-201* (ENSMUST00000055688.9) transcript is recommended as the knockout region. The region contains 625bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Phf13* gene. The brief process is as follows: gRNA was transcribed in vitro, donor was constructed. Cas9, gRNA 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, Mice homozygous for a gene trap allele exhibit reduced male fertility over time associated with impaired spermatogonial stem cell differentiation and male germ cell apoptosis.
- The floxed region is near to the N-terminal of *Thap3* gene, this strategy may influence the regulatory function of the N-terminal of *Thap3* gene.
- The *Phf13* gene is located on the Chr4. 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)

Phf13 PHD finger protein 13 [*Mus musculus* (house mouse)]

Gene ID: 230936, updated on 12-Aug-2019

Summary

Official Symbol	Phf13 provided by MGI
Official Full Name	PHD finger protein 13 provided by MGI
Primary source	MGI:MGI:2446217
See related	Ensembl:ENSMUSG000000047777
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	Phf5; SPOC1; BC029632
Expression	Ubiquitous expression in testis adult (RPKM 19.0), ovary adult (RPKM 18.2) and 27 other tissues See more
Orthologs	human all

Genomic context

Location: 4; 4 E2

See Phf13 in [Genome Data Viewer](#)

Exon count: 5

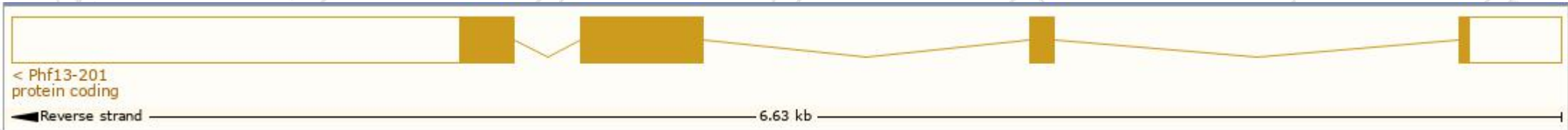
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	4	NC_000070.6 (151989631..151996179, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	4	NC_000070.5 (151363740..151370288, complement)

Transcript information (Ensembl)

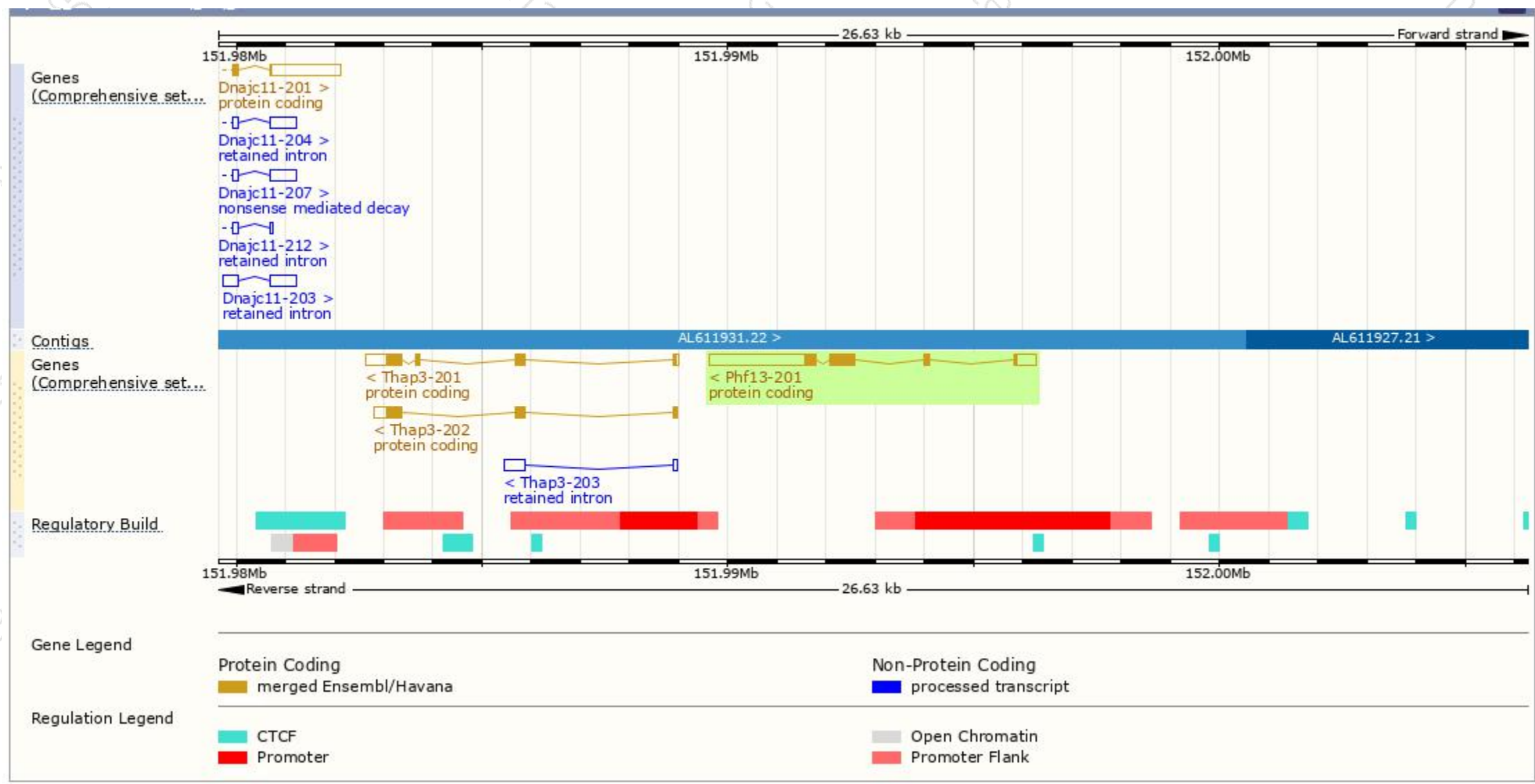
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Phf13-201	ENSMUST00000055688.9	3205	296aa	Protein coding	CCDS51388	Q3V230 Q8K2W6	TSL:1 Gencode basic APPRIS P1

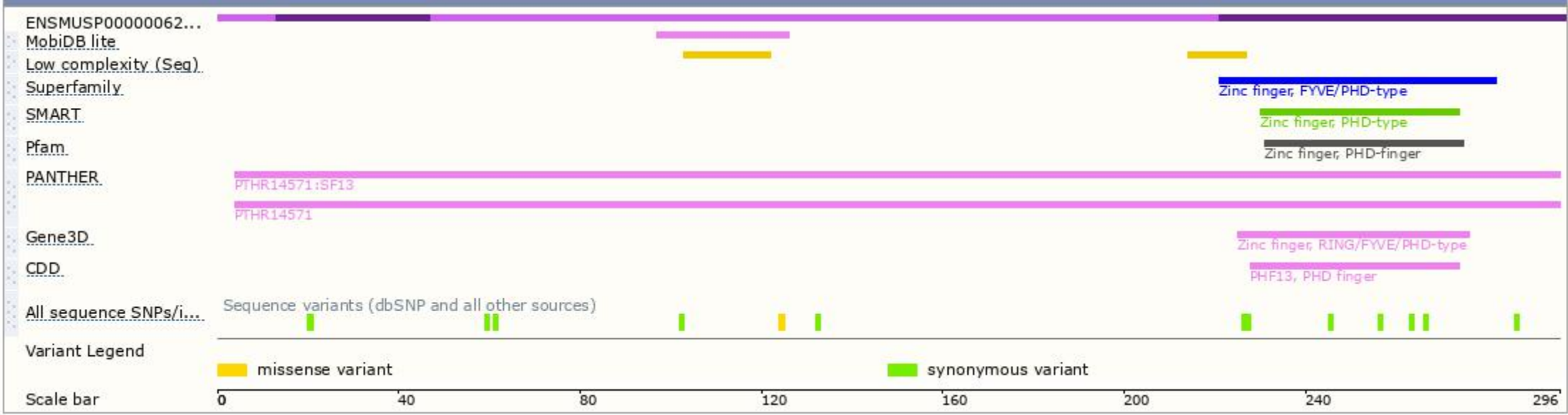
The strategy is based on the design of *Phf13-201* transcript, The transcription is shown below



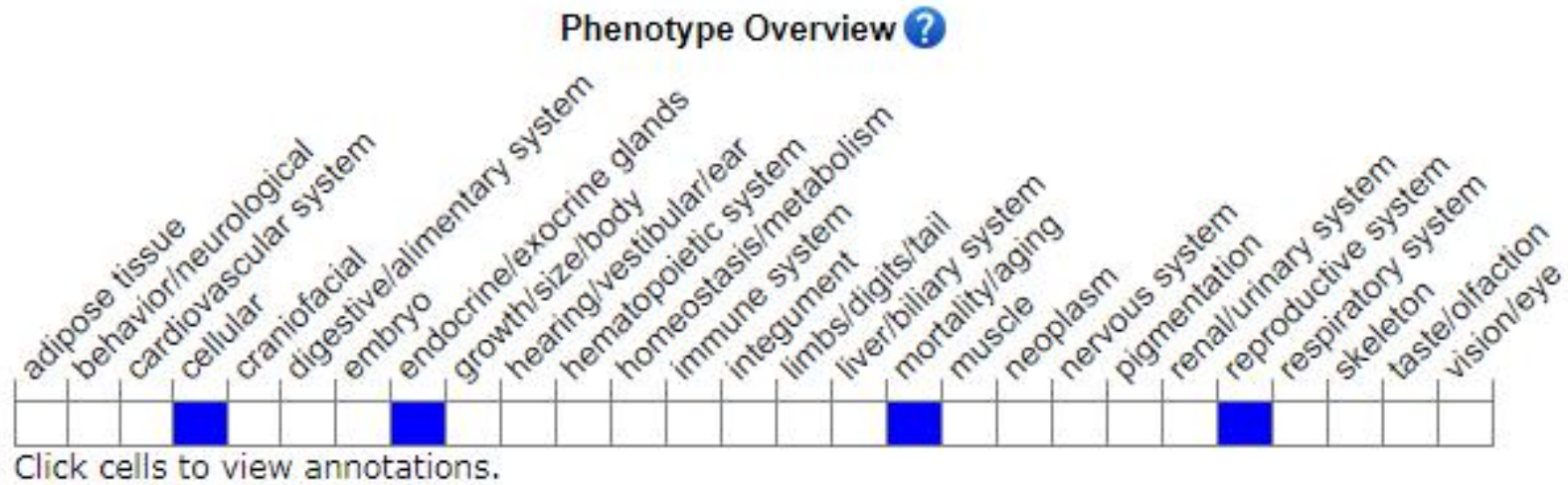
Genomic location distribution



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/>).

Mice homozygous for a gene trap allele exhibit reduced male fertility over time associated with impaired spermatogonial stem cell differentiation and male germ cell apoptosis.

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

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