

Trhr Cas9-KO Strategy

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Project Overview

Project Name

Trhr

Project type

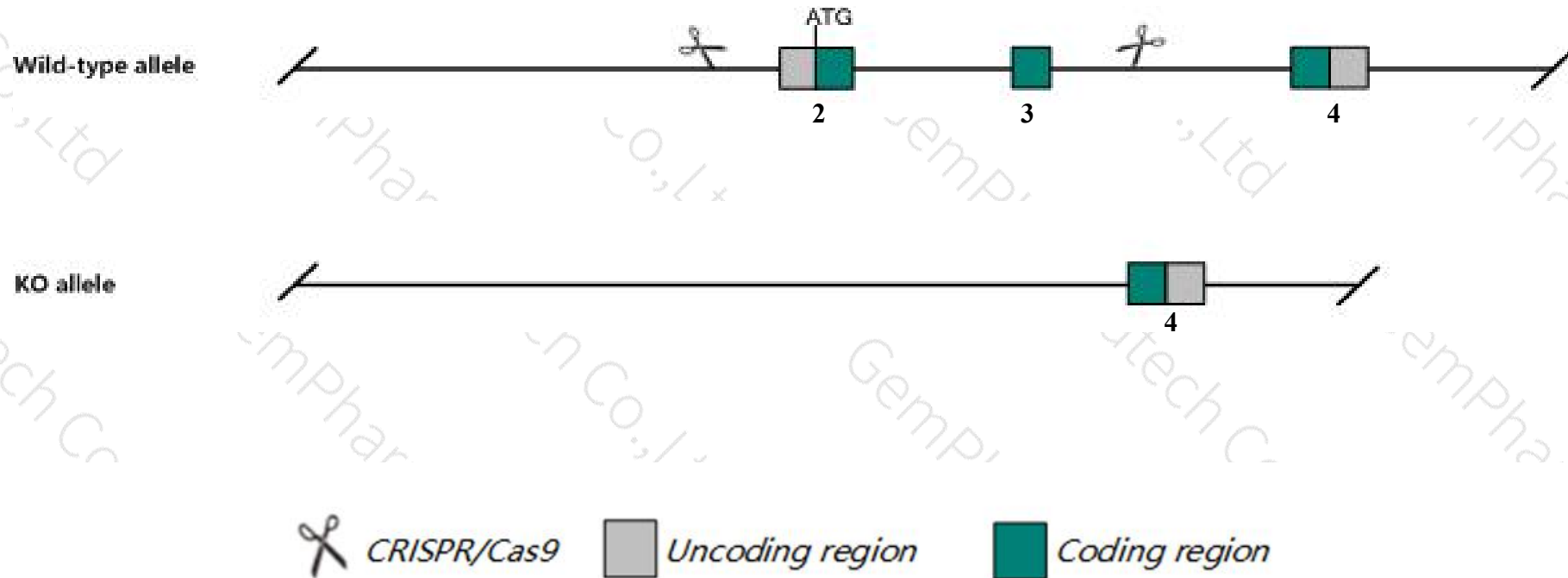
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Trhr* gene has 4 transcripts. According to the structure of *Trhr* gene, exon2-exon3 of *Trhr-201* (ENSMUST00000038856.13) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Trhr* gene. The brief process is as follows: CRISPR/Cas9 system w

- According to the existing MGI data, Homozygous null mice are fertile and display decreased thyroxine, triiodothyronine, and prolactin levels.
- The *Trhr* gene is located on the Chr15. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Trhr thyrotropin releasing hormone receptor [Mus musculus (house mouse)]

Gene ID: 22045, updated on 31-Jan-2019

Summary



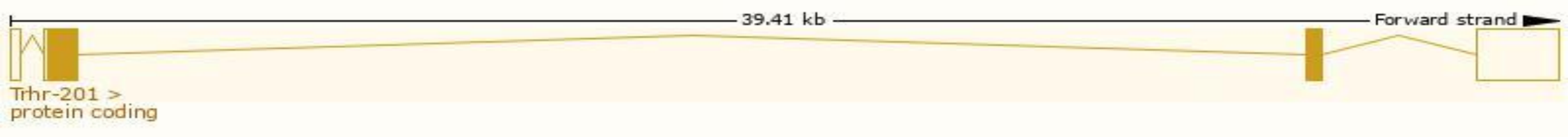
Official Symbol	Trhr provided by MGI
Official Full Name	thyrotropin releasing hormone receptor provided by MGI
Primary source	MGI:MGI:98824
See related	Ensembl:ENSMUSG00000038760
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	TRH-R1
Expression	Low expression observed in reference dataset See more
Orthologs	human all

Transcript information (Ensembl)

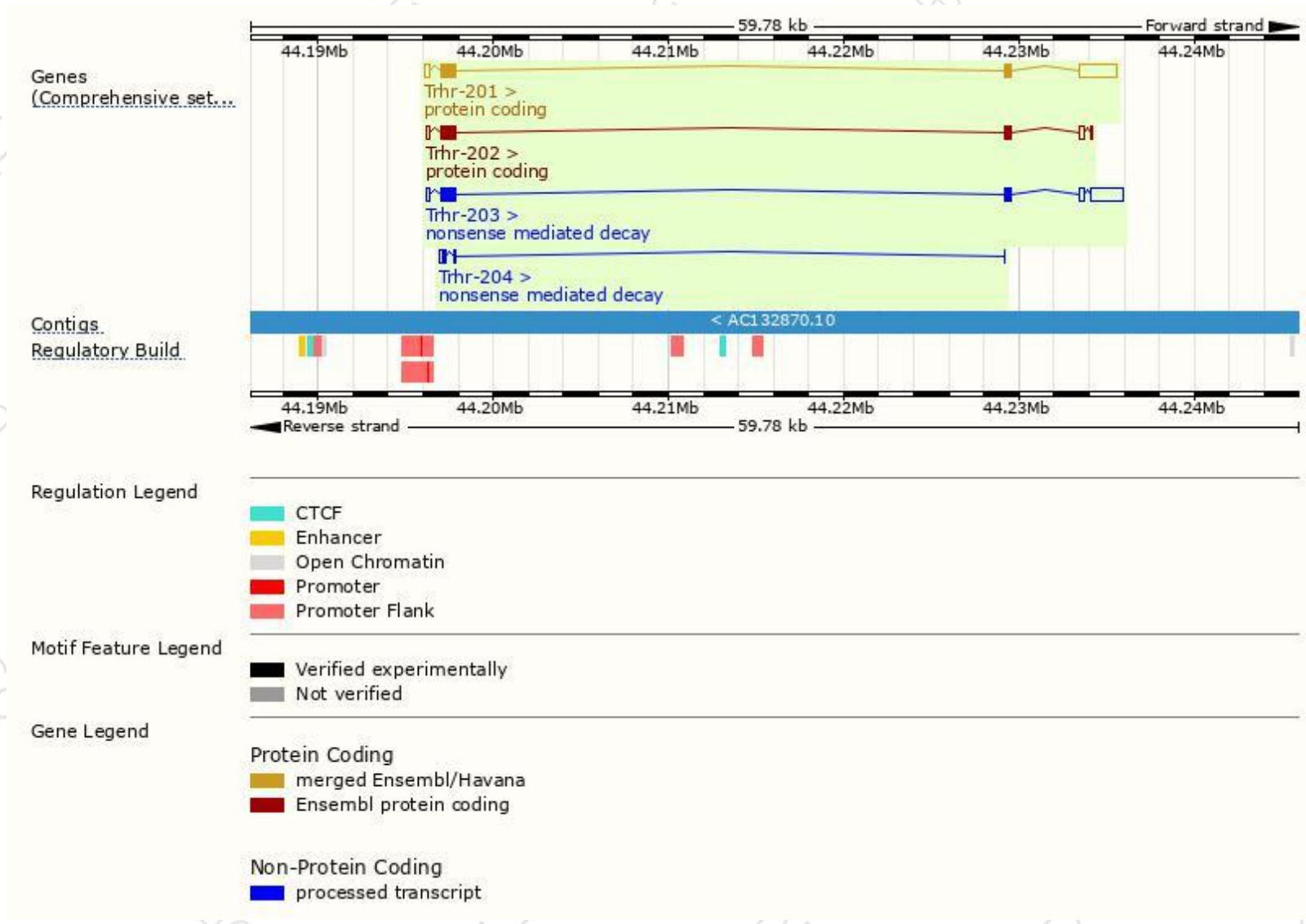
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Trhr-201	ENSMUST00000038856.13	3608	393aa	Protein coding	CCDS37068	P21761 Q32MS1	TSL:1 GENCODE basic APPRIS P1
Trhr-202	ENSMUST00000110289.3	1745	393aa	Protein coding	CCDS37068	P21761 Q32MS1	TSL:2 GENCODE basic APPRIS P1
Trhr-203	ENSMUST00000226626.1	3494	393aa	Nonsense mediated decay	-	P21761 Q32MS1	
Trhr-204	ENSMUST00000227505.1	468	83aa	Nonsense mediated decay	-	A0A2I3BQM9	

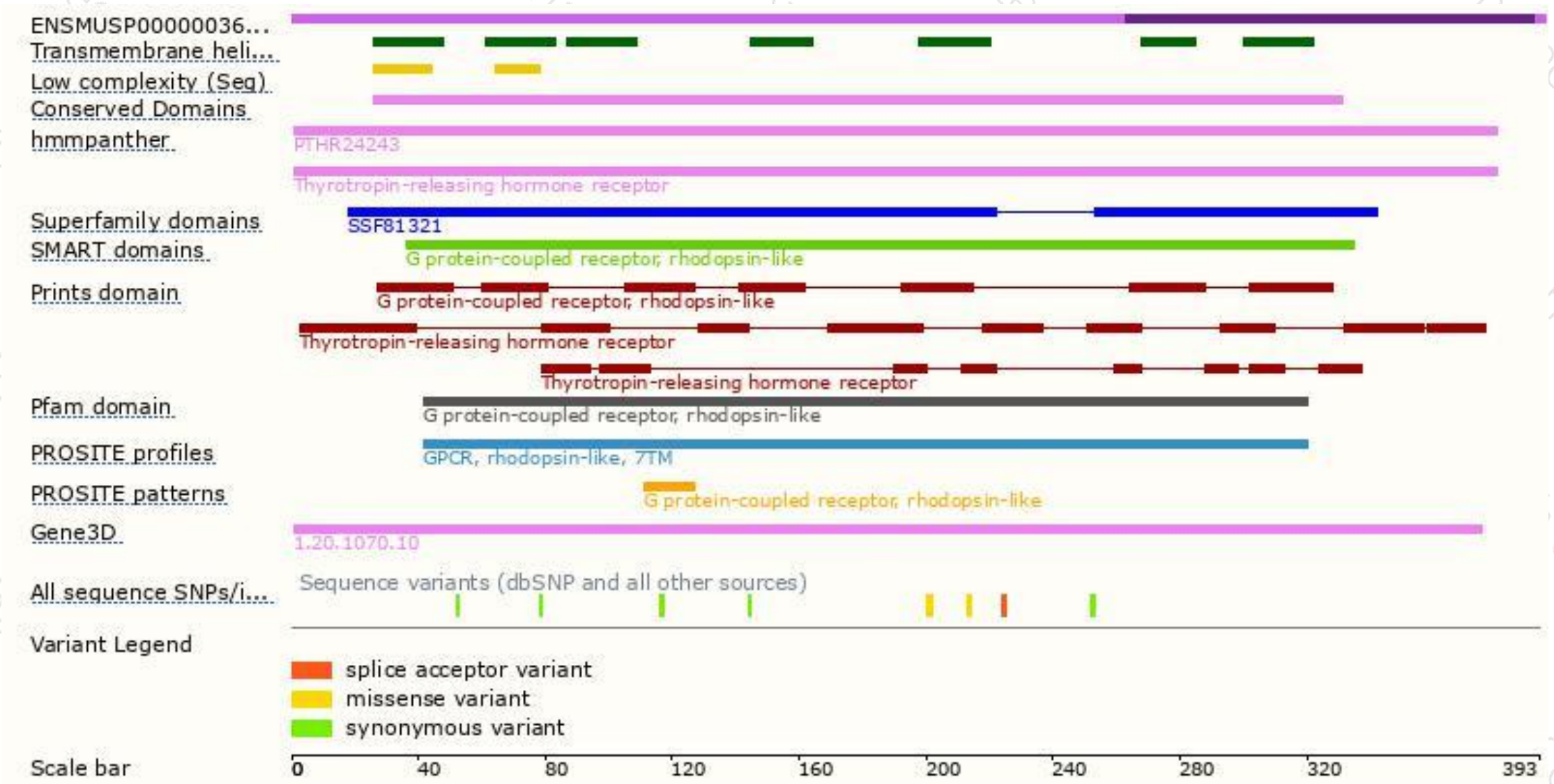
The strategy is based on the design of *Trhr-201* transcript,The transcription is shown below



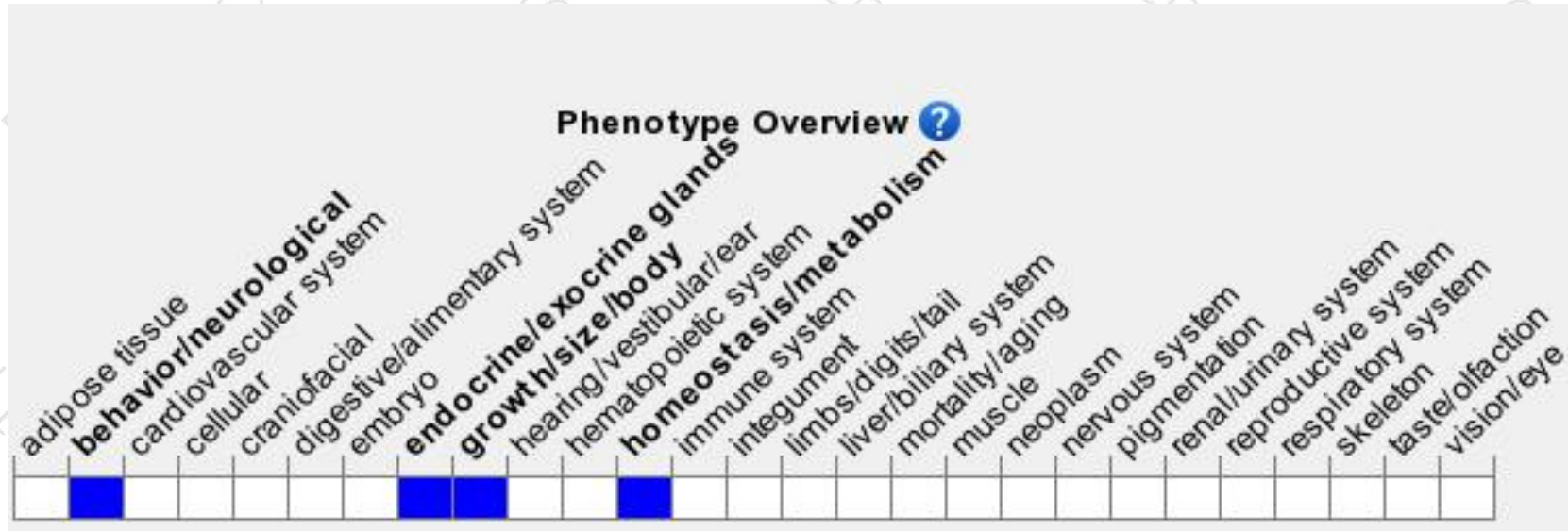
Genomic location distribution



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, Homozygous null mice are fertile and display decreased thyroxine, triiodothyronine, and prolactin levels.

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

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