

Txndc5 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Txndc5

Project type

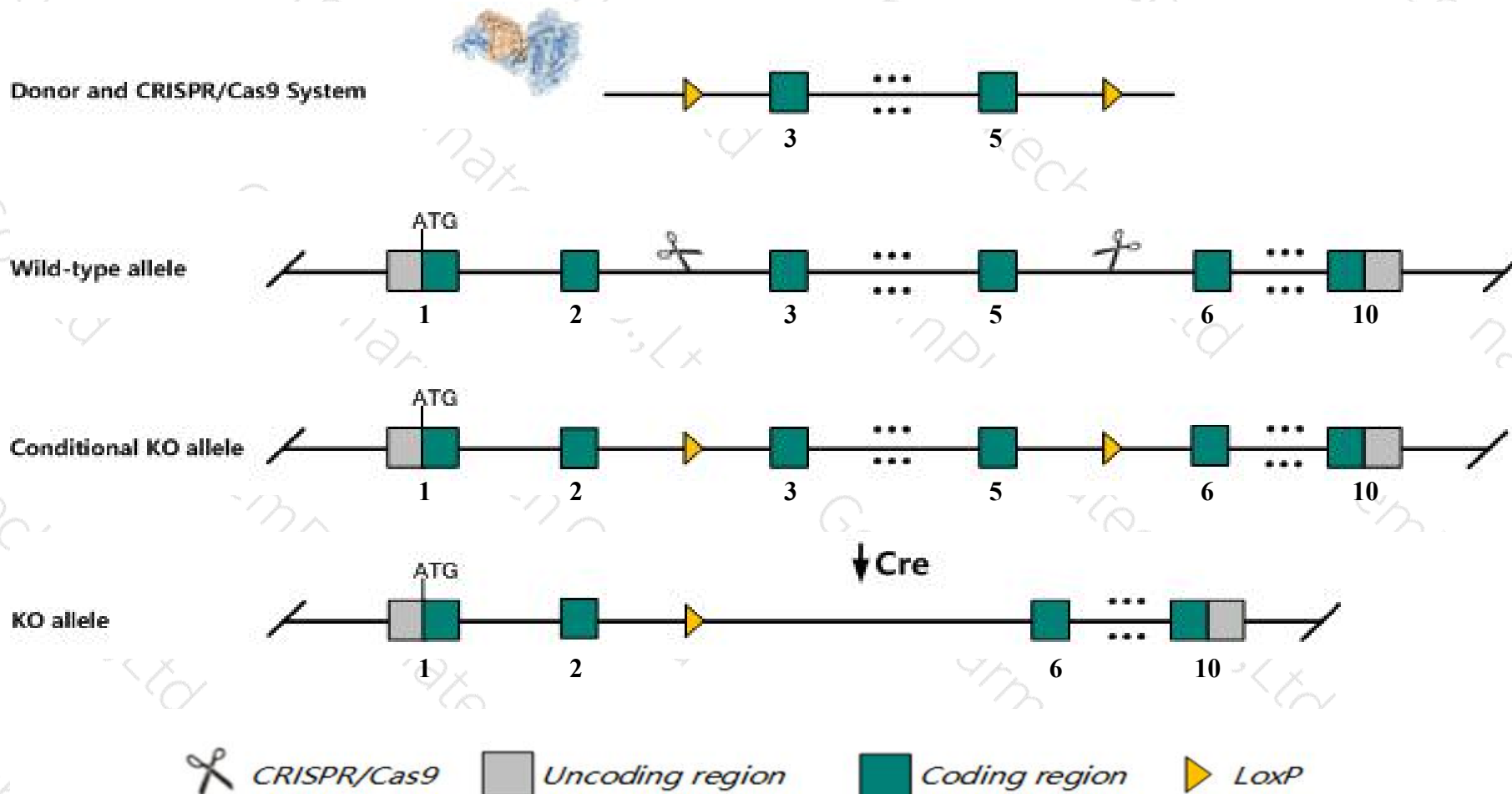
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Txndc5* gene. The schematic diagram is as follows:



- The *Txndc5* gene has 4 transcripts. According to the structure of *Txndc5* gene, exon3-exon5 of *Txndc5*-201 (ENSMUST00000035988.15) transcript is recommended as the knockout region. The region contains 319bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Txndc5* 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 *Txndc5* 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.
- Some amino acids will remain at the N-terminus and some functions may be retained.
- 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)

Txndc5 thioredoxin domain containing 5 [Mus musculus (house mouse)]

Gene ID: 105245, updated on 31-Jan-2019

Summary



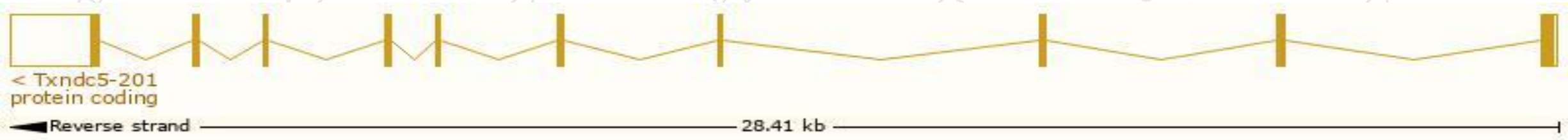
Official Symbol	Txndc5 provided by MGI
Official Full Name	thioredoxin domain containing 5 provided by MGI
Primary source	MGI:MGI:2145316
See related	Ensembl:ENSMUSG00000038991
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AL022641, ERp46, PC-TRP
Expression	Ubiquitous expression in colon adult (RPKM 145.4), adrenal adult (RPKM 131.5) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

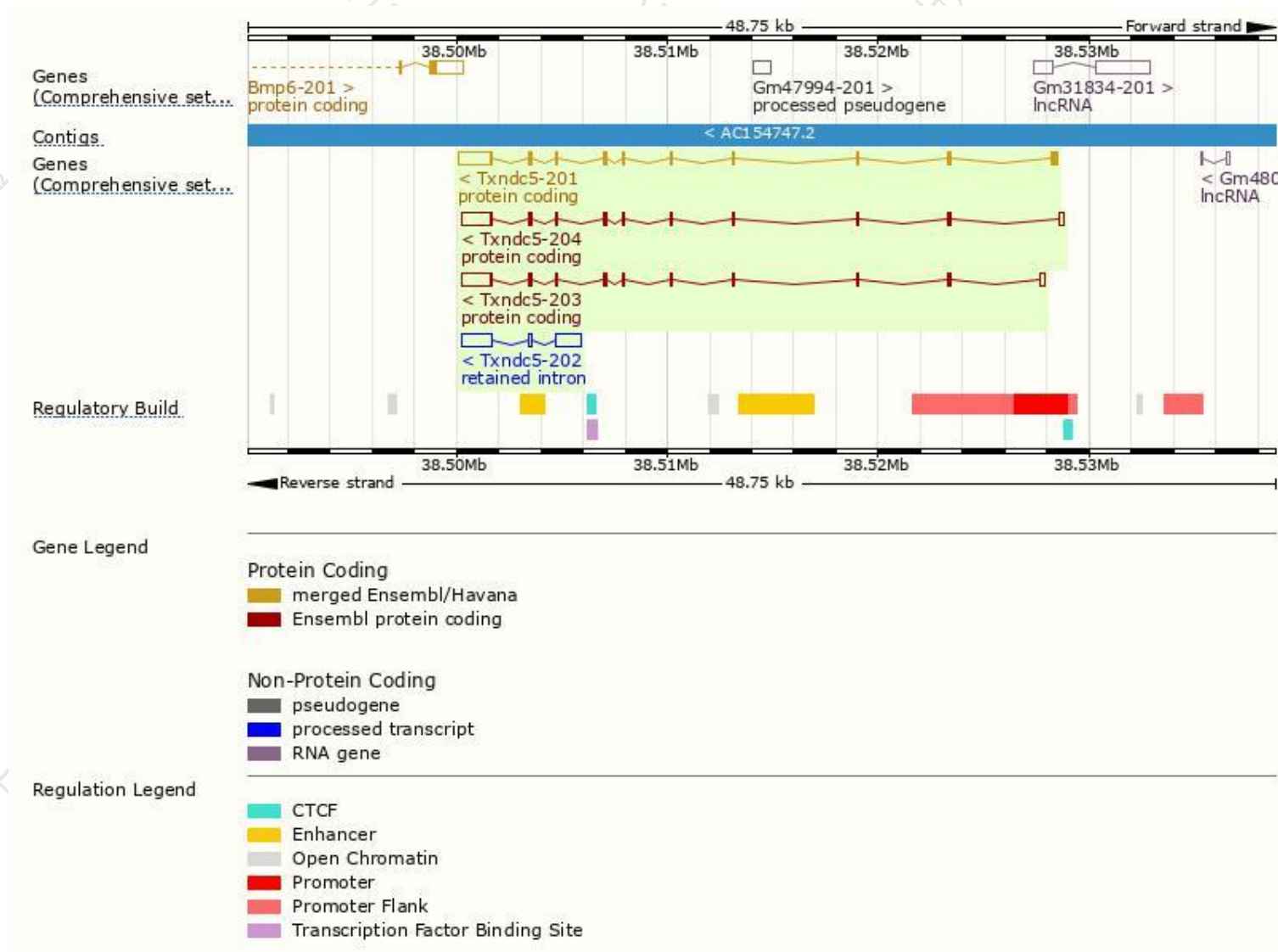
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Txndc5-201	ENSMUST00000035988.15	2843	417aa	Protein coding	CCDS26463	Q3TEE8 Q91W90	TSL:1 GENCODE basic APPRIS P3
Txndc5-204	ENSMUST00000162075.7	2619	323aa	Protein coding	CCDS79178	A0A0R4J1Y7	TSL:1 GENCODE basic
Txndc5-203	ENSMUST00000160653.1	2586	344aa	Protein coding	CCDS79179	E9PXX7	TSL:1 GENCODE basic APPRIS ALT2
Txndc5-202	ENSMUST00000160046.1	2781	No protein	Retained intron	-	-	TSL:2

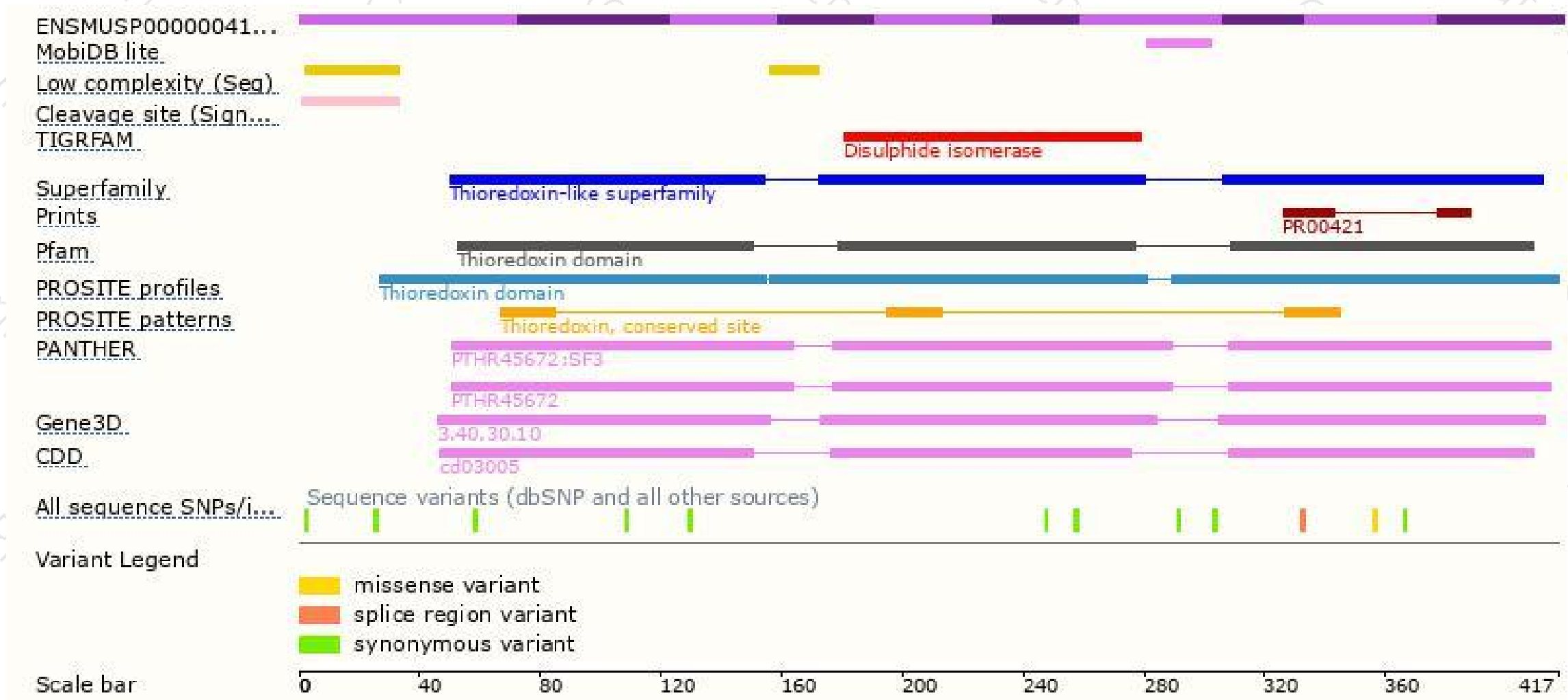
The strategy is based on the design of *Txndc5-201* transcript,The transcription is shown below



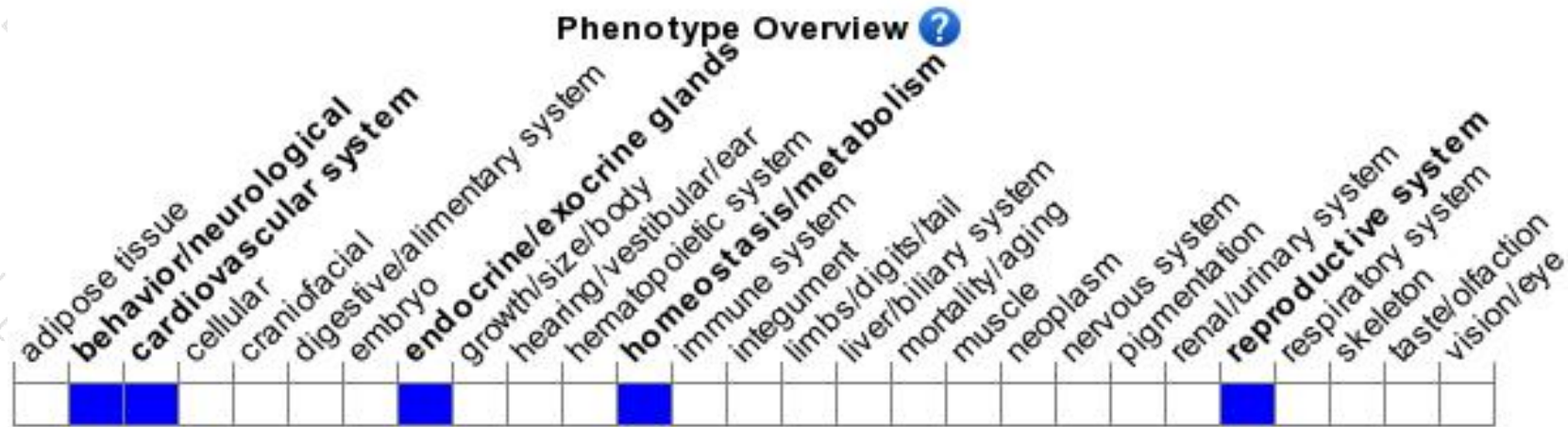
Genomic location distribution



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/>).

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

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