

Atf6b Cas9-CKO Strategy

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Project Overview

Project Name

Atf6b

Project type

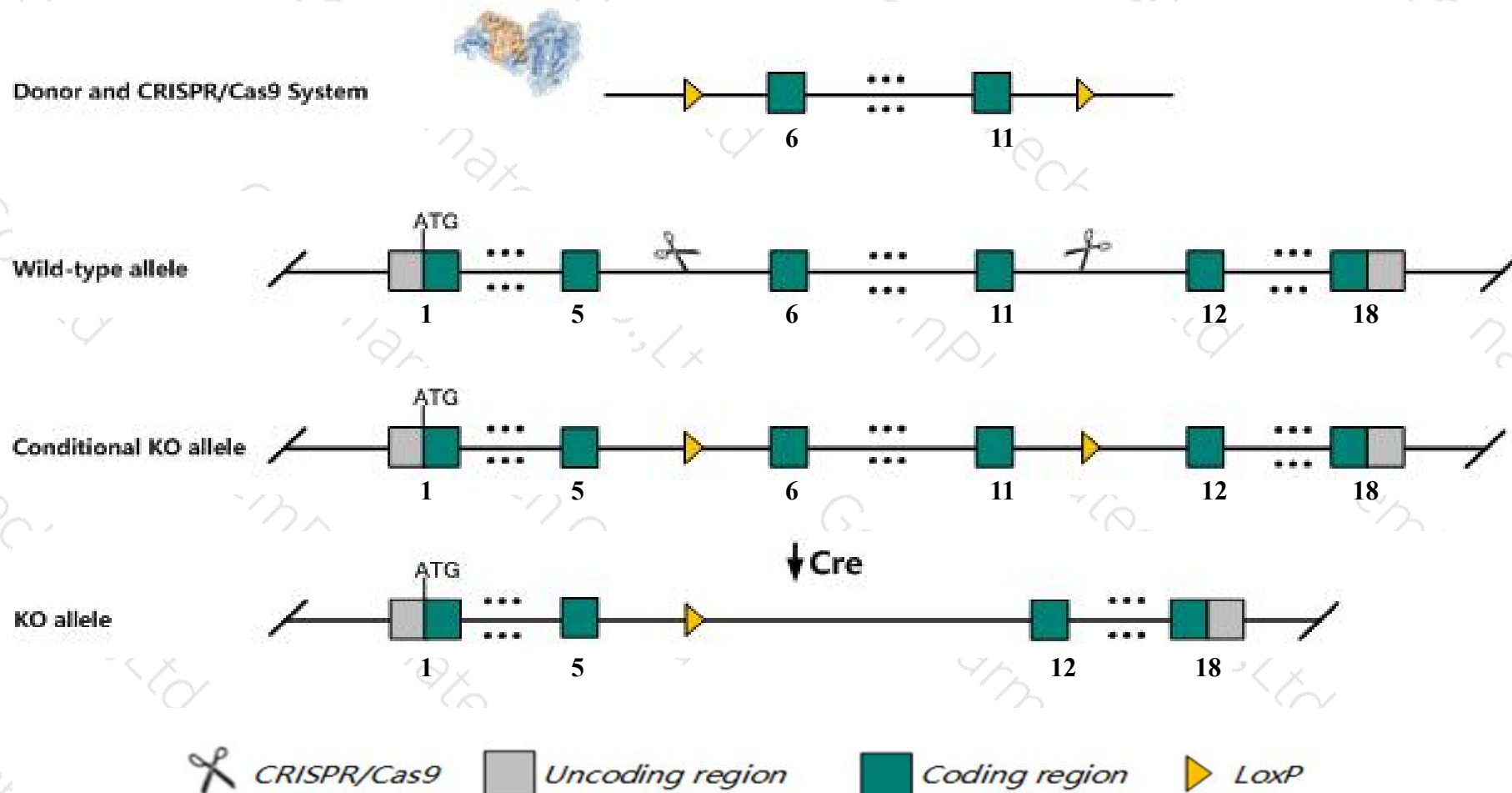
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Atf6b* gene. The schematic diagram is as follows:



- The *Atf6b* gene has 5 transcripts. According to the structure of *Atf6b* gene, exon6-exon11 of *Atf6b-201* (ENSMUST00000015605.14) transcript is recommended as the knockout region. The region contains 766bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Atf6b* 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.

- According to the existing MGI data, Mice homozygous for a null allele exhibit increased cellular sensitivity to thapsigargin and tunicamycin.
- The N-terminal of *Atf6b* gene will remain several amino acids, it may remain the partial function of *Atf6b* gene.
- The *Atf6b* gene is located on the Chr17. 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)

Atf6b activating transcription factor 6 beta [*Mus musculus* (house mouse)]

Gene ID: 12915, updated on 22-Oct-2019

Summary

- Official Symbol

Atf6b provided by MGI
- Official Full Name

activating transcription factor 6 beta provided by MGI
- Primary source

MGI:MGI:105121
- See related

Ensembl:ENSMUSG00000015461
- 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

Creb1; Creb-rp; AA617266; ATF6beta
- Expression

Ubiquitous expression in ovary adult (RPKM 51.3), adrenal adult (RPKM 50.7) and 28 other tissues [See more](#)
- Orthologs

[human](#) [all](#)

Genomic context

Location: 17 B1; 17 18.22 cM

See Atf6b in [Genome Data Viewer](#)

Exon count: 18

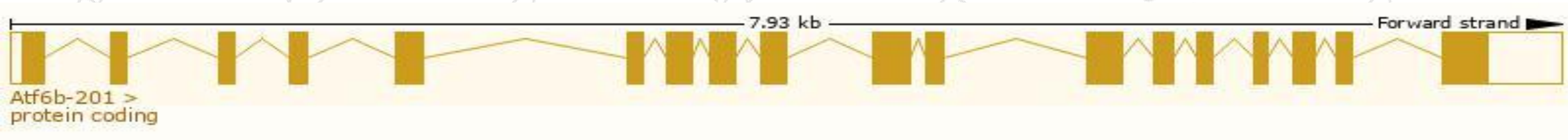
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	17	NC_000083.6 (34647146..34655074)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	17	NC_000083.5 (34784125..34792017)

Transcript information (Ensembl)

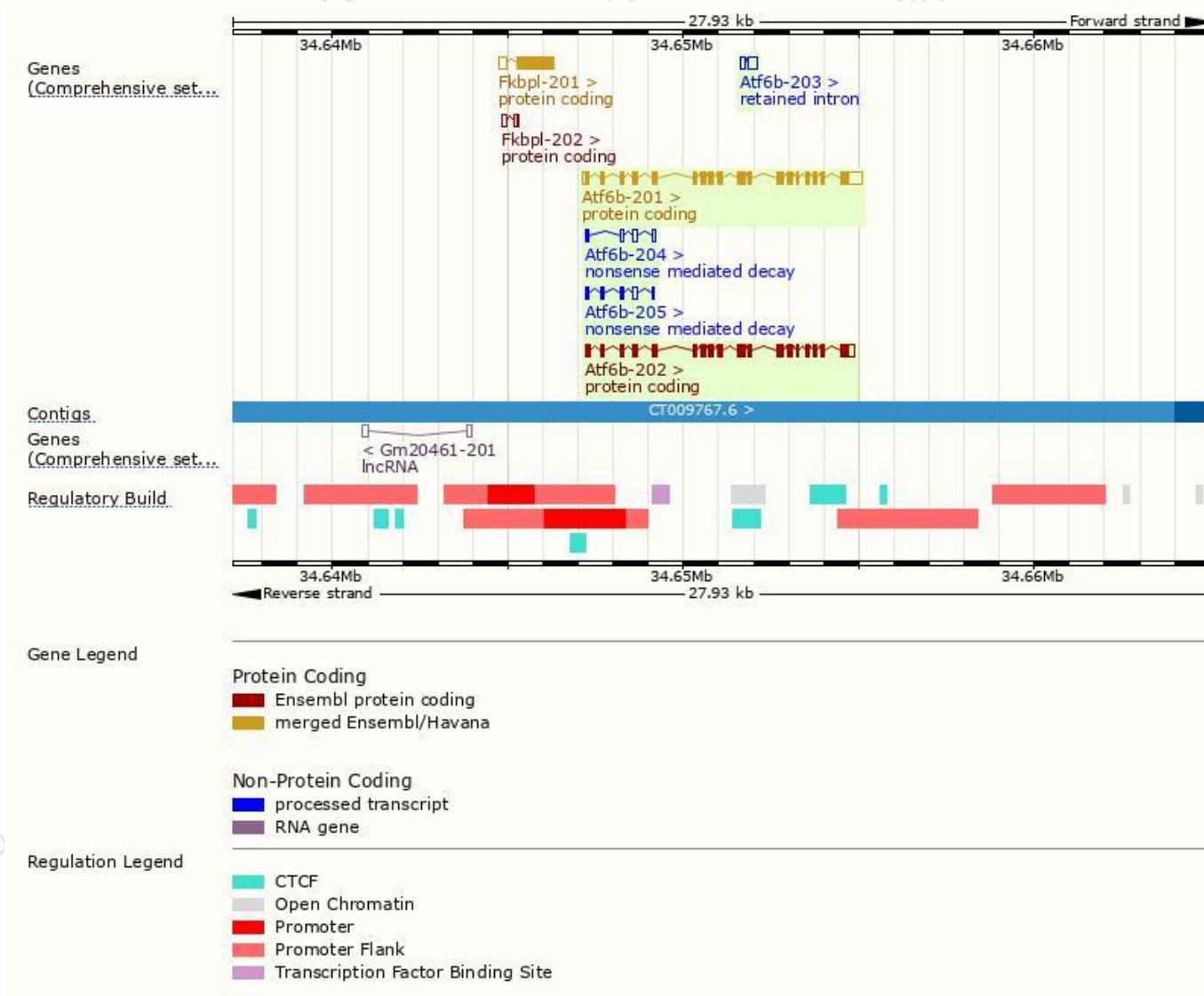
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Atf6b-201	ENSMUST00000015605.14	2566	706aa	Protein coding	CCDS28655	A0A0A0MQ69	TSL:1 GENCODE basic APPRIS P2
Atf6b-202	ENSMUST00000173984.1	2315	709aa	Protein coding	-	G3UX19	TSL:5 GENCODE basic APPRIS ALT2
Atf6b-205	ENSMUST00000174614.7	386	72aa	Nonsense mediated decay	-	G3UXQ6	TSL:3
Atf6b-204	ENSMUST00000174519.1	372	35aa	Nonsense mediated decay	-	G3UX56	TSL:3
Atf6b-203	ENSMUST00000174156.1	395	No protein	Retained intron	-	-	TSL:3

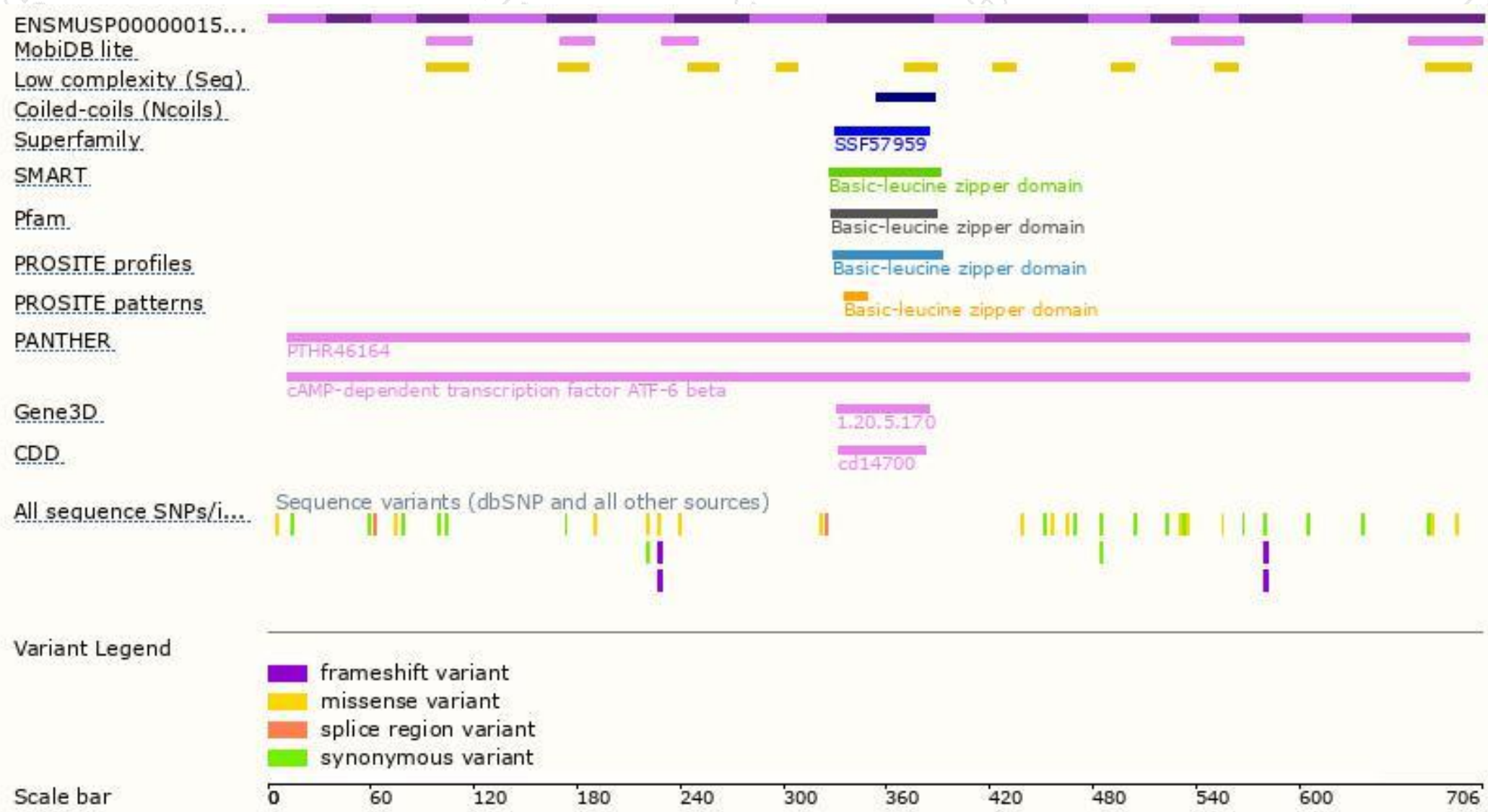
The strategy is based on the design of *Atf6b-201* transcript,The transcription is shown below



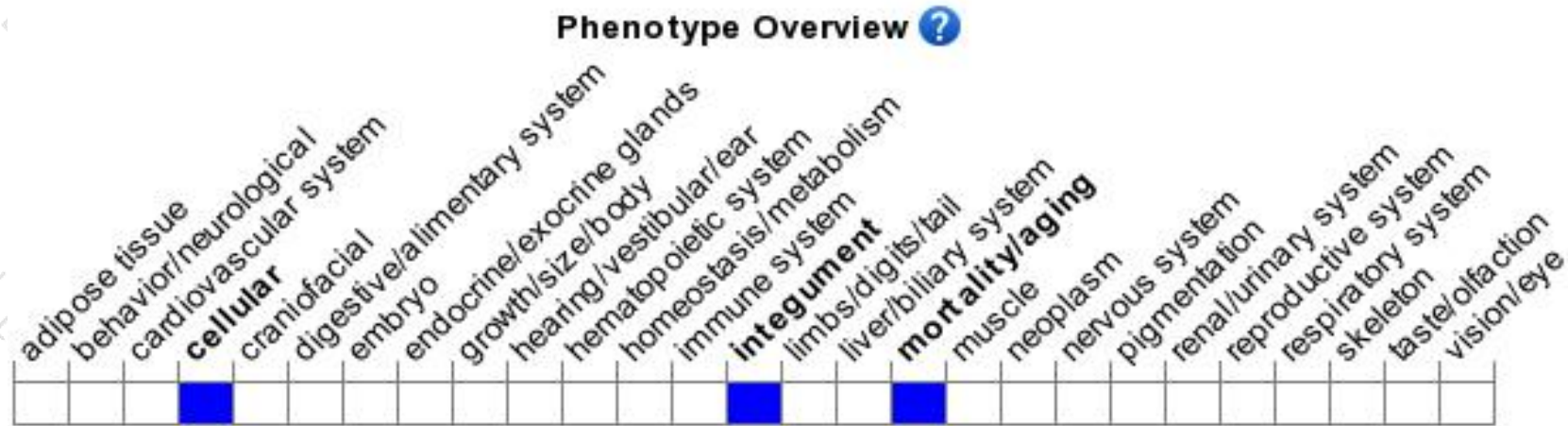
Genomic location distribution



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, Mice homozygous for a null allele exhibit increased cellular sensitivity to thapsigargin and tunicamycin.

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

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