

Dnajb9 Cas9-KO Strategy

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Project Overview

Project Name

Dnajb9

Project type

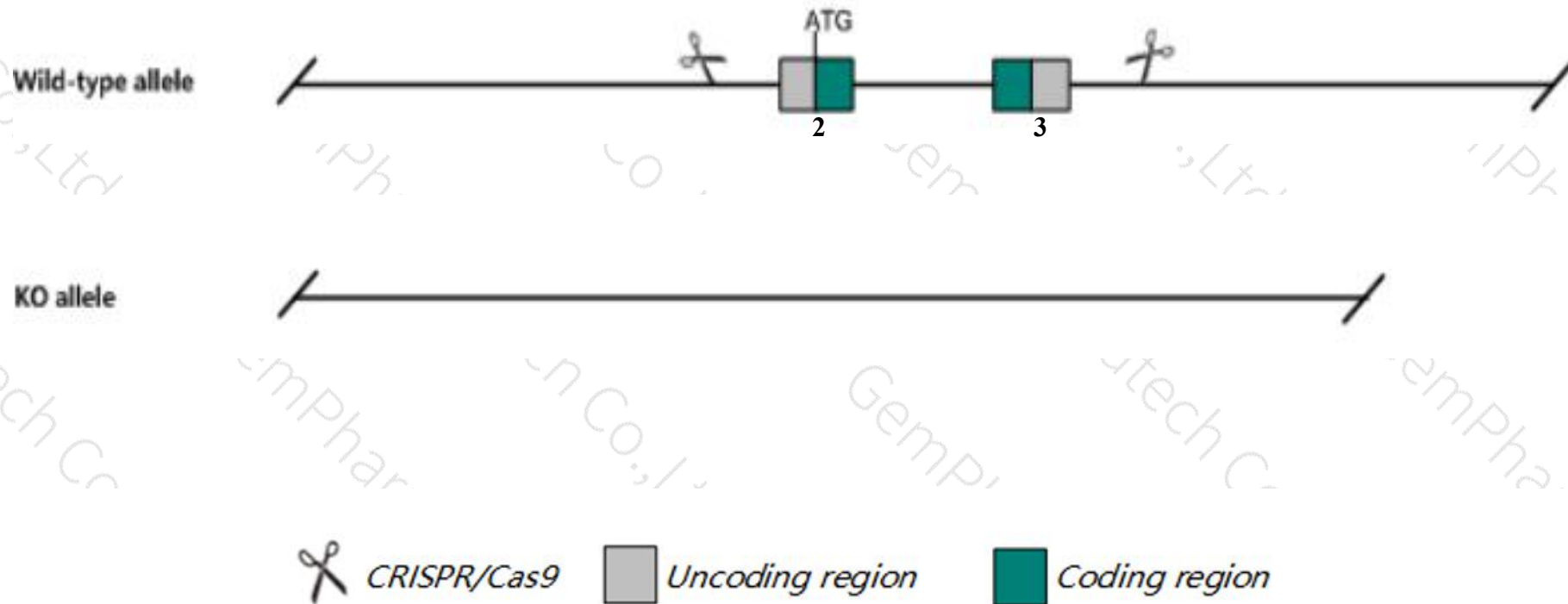
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dnajb9* gene. The schematic diagram is as follows:



- The *Dnajb9* gene has 2 transcripts. According to the structure of *Dnajb9* gene, exon2-exon3 of *Dnajb9*-201(ENSMUST00000015049.4) transcript is recommended as the knockout region. The region contains all of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Dnajb9* gene. The brief process is as follows: CRISPR/Cas9 system 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.

- According to the existing MGI data, mice homozygous for a hypomorphic allele show perinatal death, reduced birth size and liver glycogen levels, and hypoglycemia. Surviving adults show elevated ER stress in MEFs, lung, kidney, salivary gland and in pancreas, associated with beta cell loss, hypoinsulinemia, and glucose intolerance.
- The flox region is about 1.8kb away from the 5th end of the Mir5627 gene, which may affect the regulation of this gene.
- The flox region is about 2.4kb away from the 5th end of the Gm7370 gene, which may affect the regulation of this gene.
- The *Dnajb9* gene is located on the Chr12. 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)

Dnajb9 DnaJ heat shock protein family (Hsp40) member B9 [Mus musculus (house mouse)]

Gene ID: 27362, updated on 13-Mar-2020

Summary



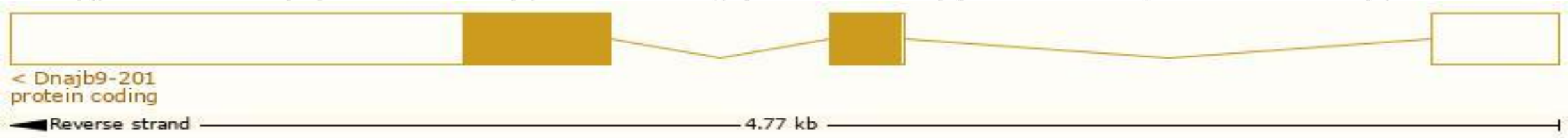
Official Symbol	Dnajb9 provided by MGI
Official Full Name	DnaJ heat shock protein family (Hsp40) member B9 provided by MGI
Primary source	MGI:MGI:1351618
See related	Ensembl:ENSMUSG00000014905
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AA408011, AA673251, AA673481, AW556981, ERdj4, Mdg1, mDj7
Expression	Ubiquitous expression in placenta adult (RPKM 14.5), testis adult (RPKM 10.5) and 24 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

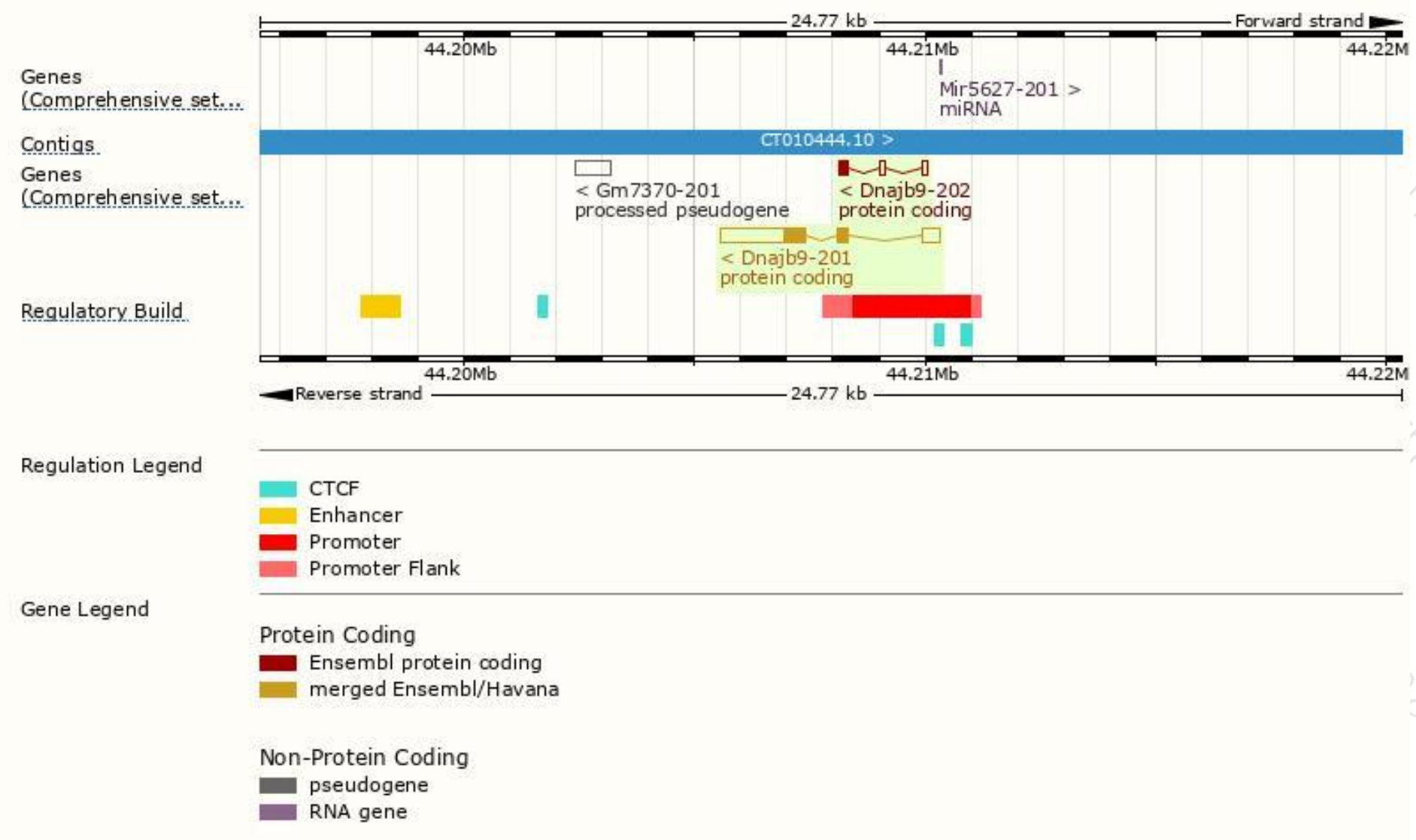
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dnajb9-201	ENSMUST00000015049.4	2461	222aa	Protein coding	CCDS25897	Q9QYI6	TSL:1 GENCODE basic APPRIS P1
Dnajb9-202	ENSMUST00000220421.1	383	52aa	Protein coding	-	A0A1W2P8C3	CDS 3' incomplete TSL:2

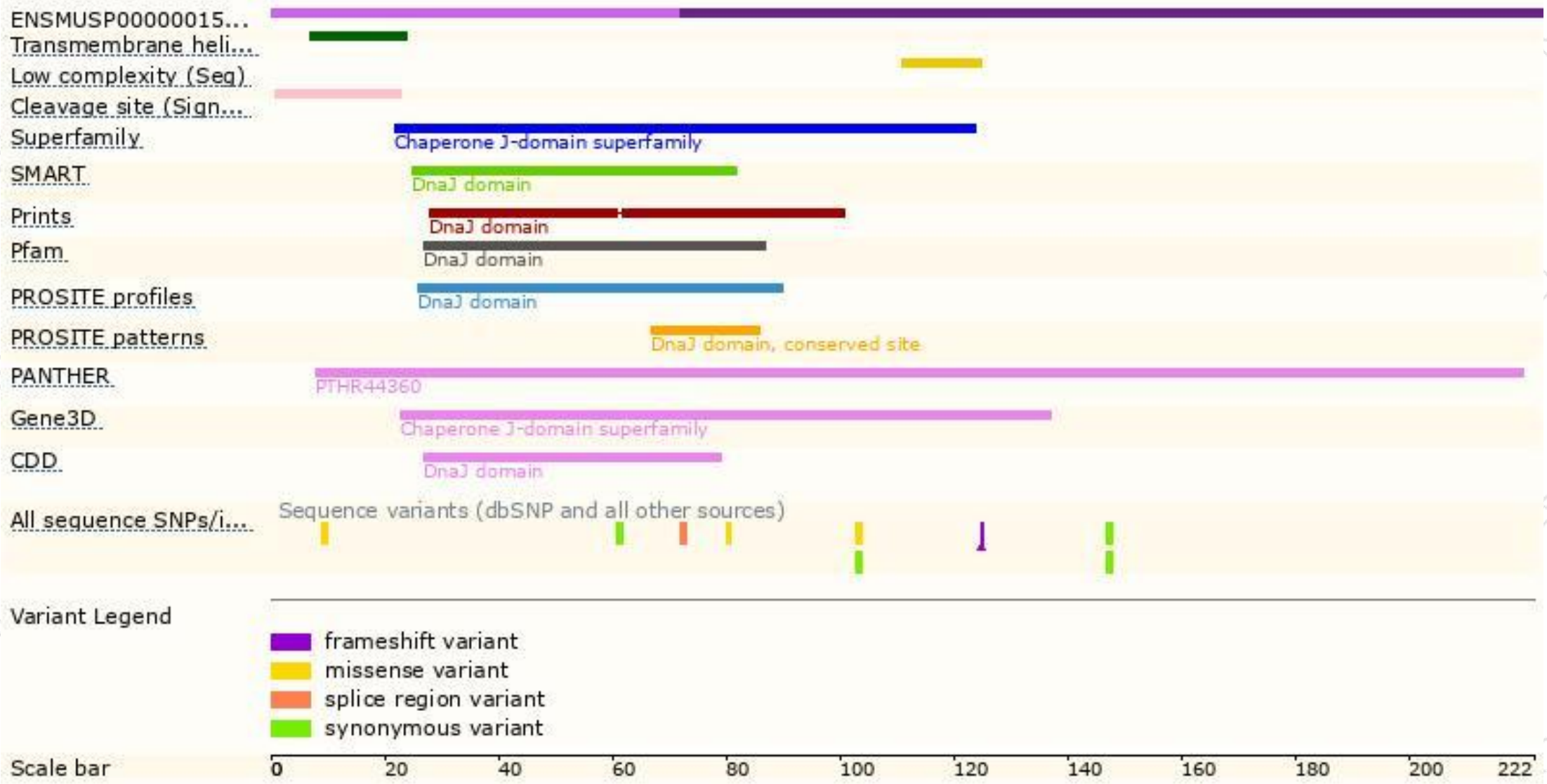
The strategy is based on the design of *Dnajb9-201* transcript,the transcription is shown below:



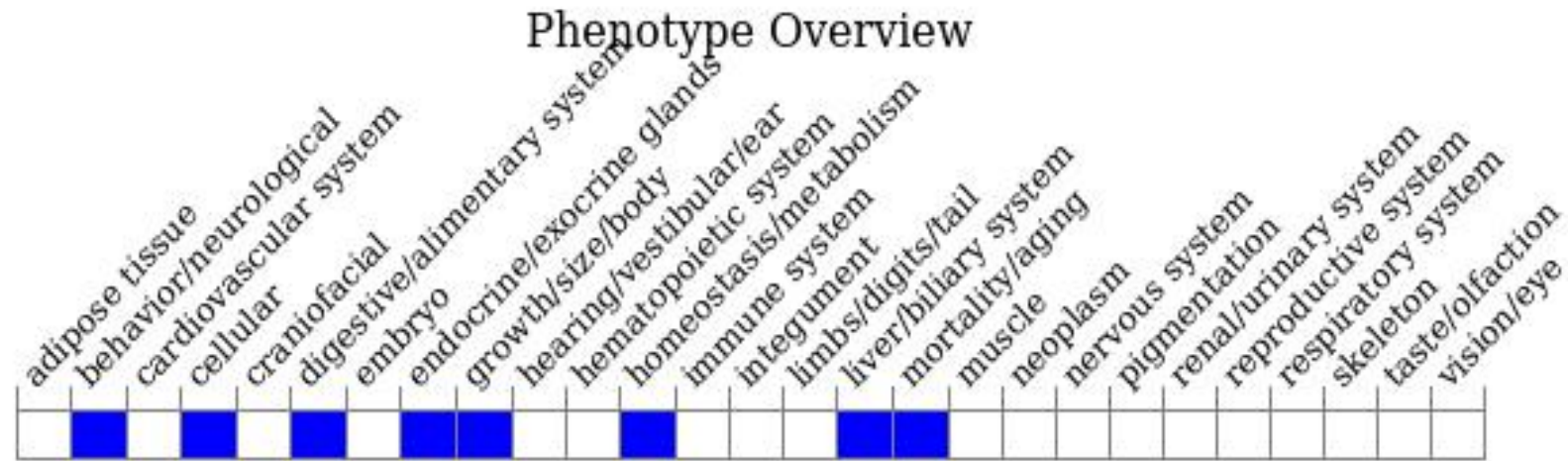
Genomic location distribution



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 hypomorphic allele show perinatal death, reduced birth size and liver glycogen levels, and hypoglycemia. Surviving adults show elevated ER stress in MEFs, lung, kidney, salivary gland and in pancreas, associated with beta cell loss, hypoinsulinemia, and glucose intolerance.

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

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