

***Galnt14* Cas9-CKO Strategy**

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Reviewer:

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Project Overview

Project Name

Galnt14

Project type

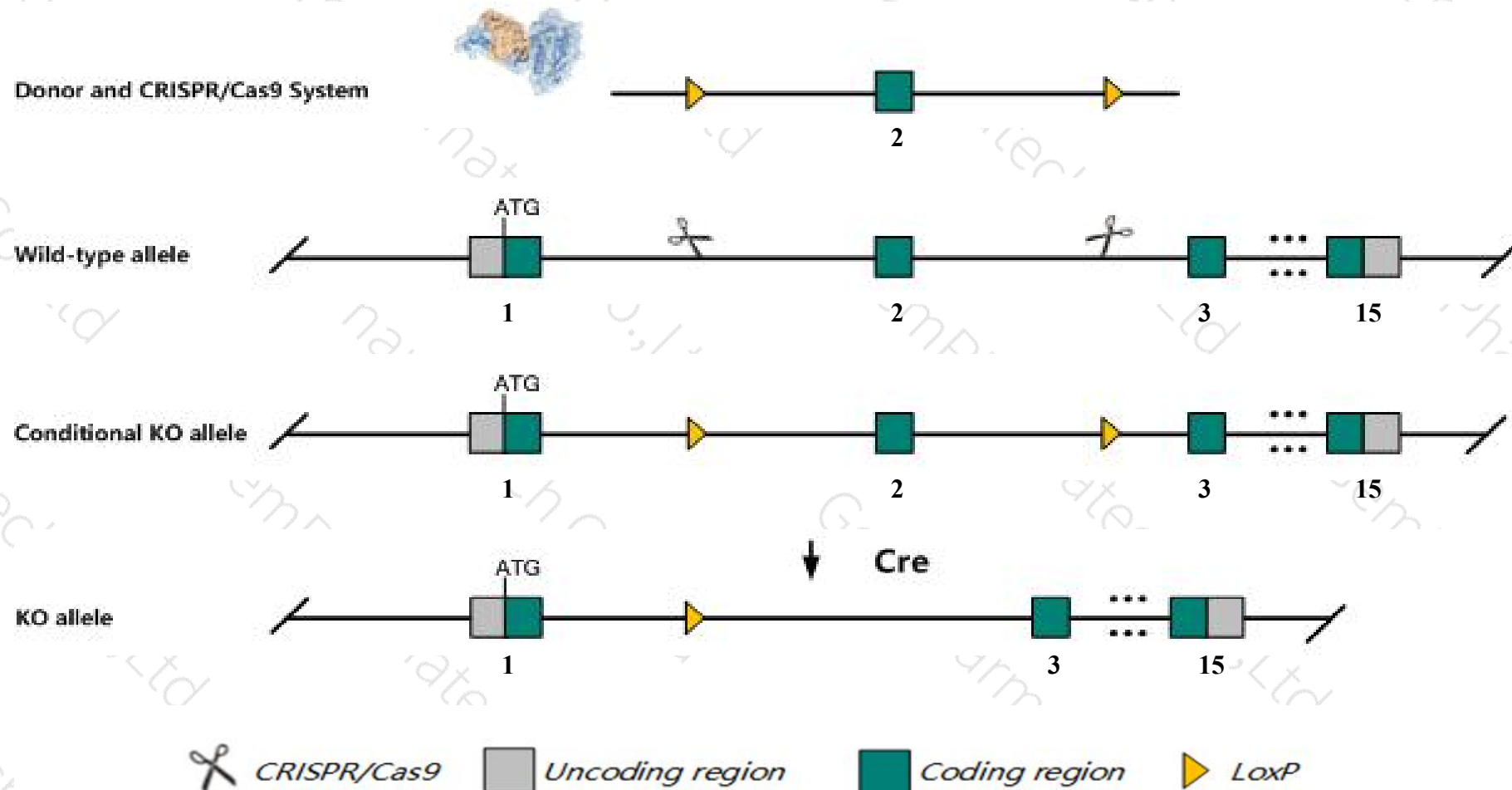
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Galnt14* gene. The schematic diagram is as follows:



- The *Galnt14* gene has 5 transcripts. According to the structure of *Galnt14* gene, exon2 of *Galnt14-201* (ENSMUST00000024858.11) transcript is recommended as the knockout region. The region contains 170bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Galnt14* 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, homozygous mutant mice exhibit enhanced motor coordination during inverted screen testing when compared with controls.
- Transcript *Galnt14*-204 may not be affected.
- The *Galnt14* 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)

Galnt14 polypeptide N-acetylgalactosaminyltransferase 14 [Mus musculus (house mouse)]

Gene ID: 71685, updated on 13-Mar-2020

Summary



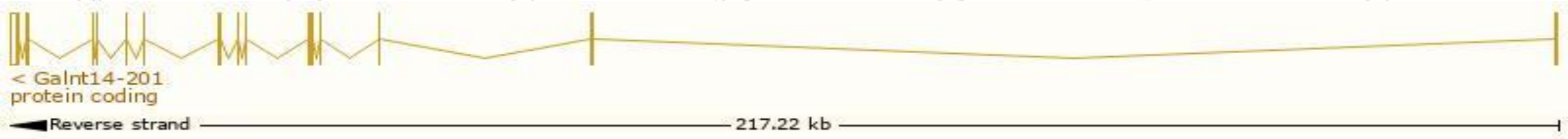
Official Symbol	Galnt14 provided by MGI
Official Full Name	polypeptide N-acetylgalactosaminyltransferase 14 provided by MGI
Primary source	MGI:MGI:1918935
See related	Ensembl:ENSMUSG00000024064
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	0610033M06Rik
Expression	Biased expression in kidney adult (RPKM 4.0), CNS E18 (RPKM 1.7) and 10 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

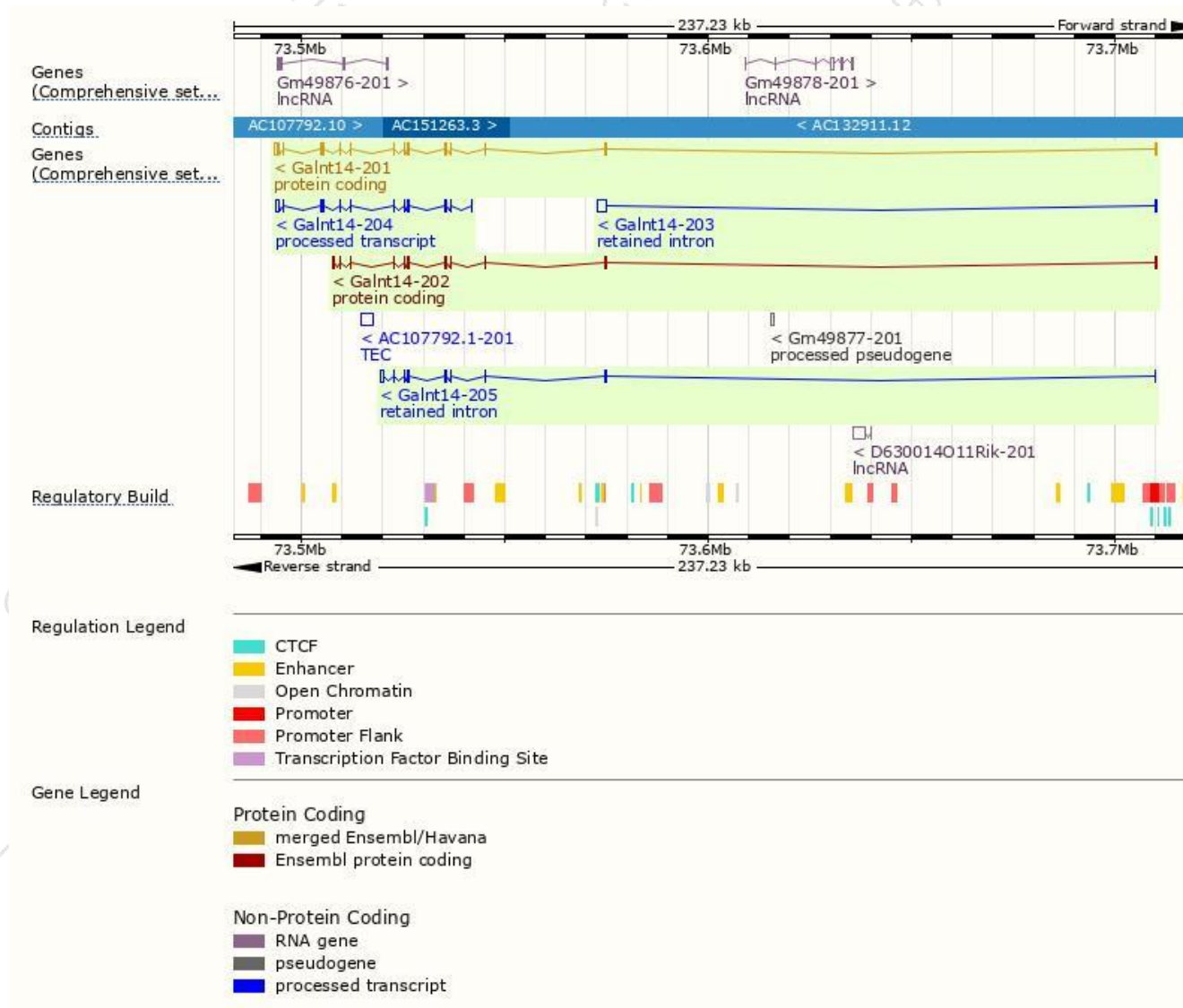
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Galnt14-201	ENSMUST0000024858.1	2990	550aa	Protein coding	CCDS28965	Q08EC9	TSL:1 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS P1
Galnt14-202	ENSMUST00000112591.2	1843	429aa	Protein coding	-	Q8BVG5	TSL:1 GENCODE basic
Galnt14-204	ENSMUST00000232785.1	1840	No protein	Processed transcript	-	-	
Galnt14-203	ENSMUST00000146565.1	2713	No protein	Retained intron	-	-	TSL:1
Galnt14-205	ENSMUST00000233326.1	1321	No protein	Retained intron	-	-	

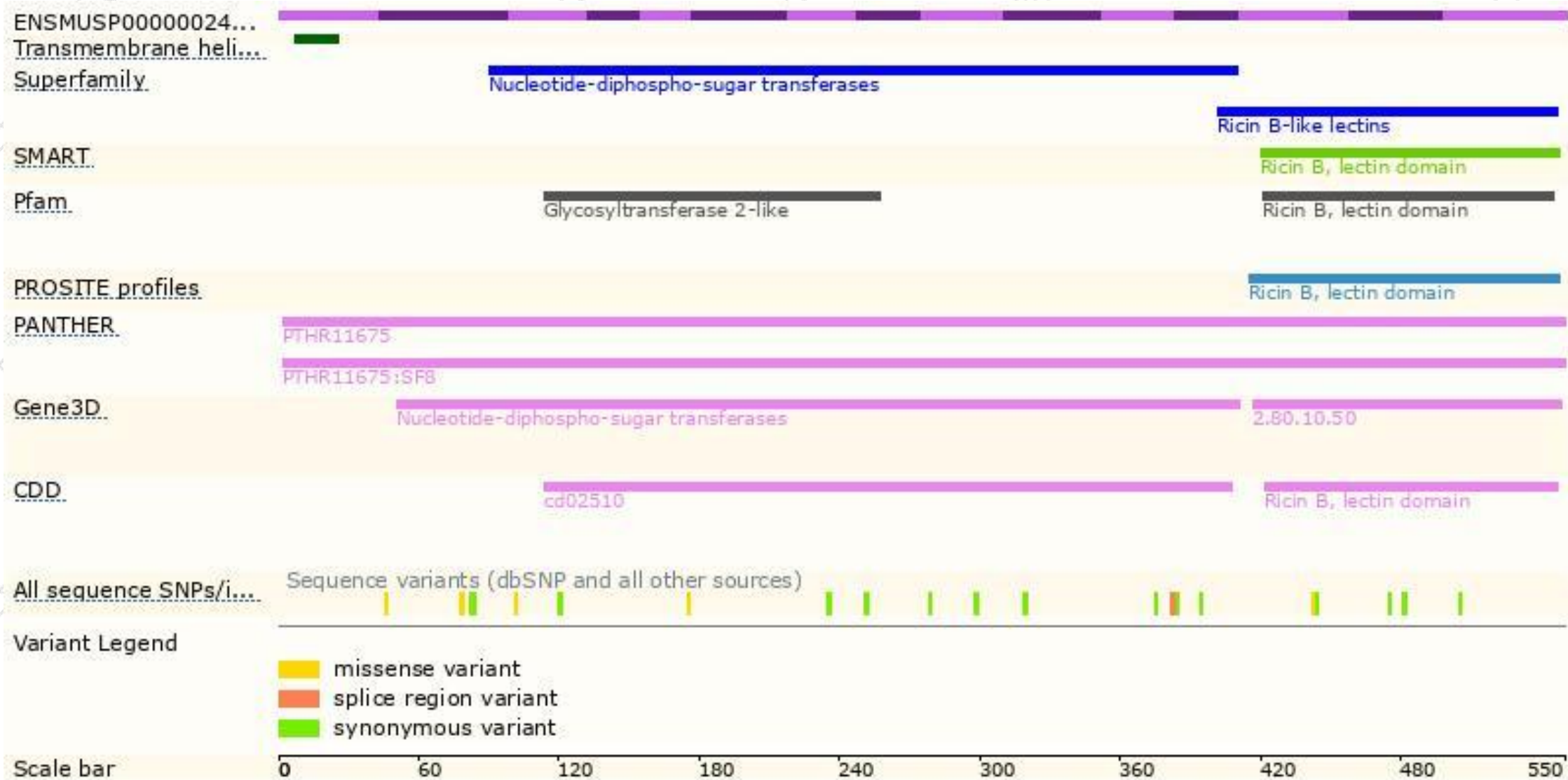
The strategy is based on the design of *Galnt14-201* transcript,The transcription is shown below



Genomic location distribution

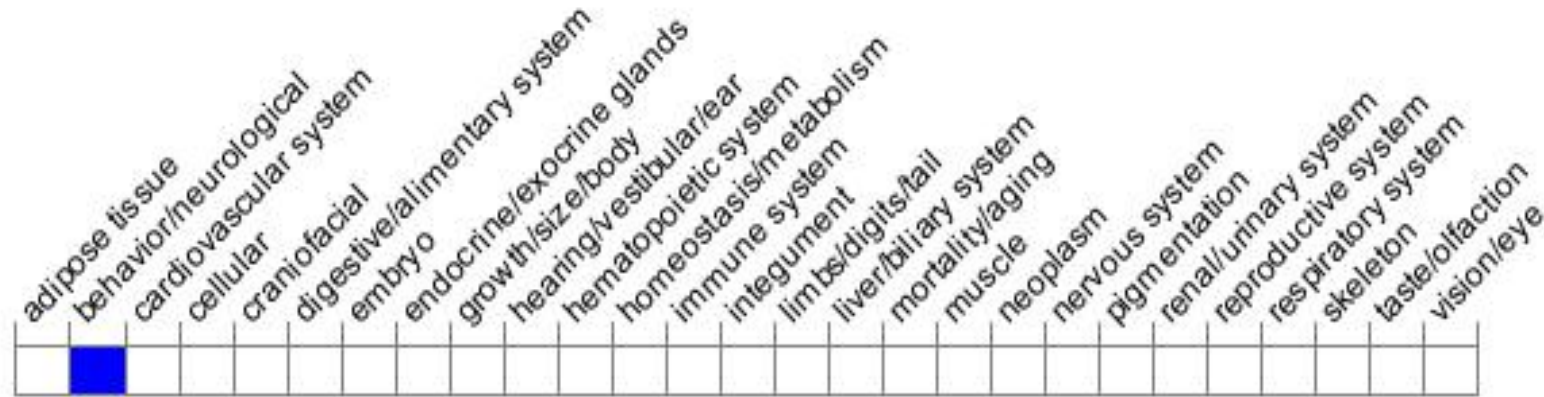


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview



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 mutant mice exhibit enhanced motor coordination during inverted screen testing when compared with controls.

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

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