Galntl5 Cas9-CKO Strategy

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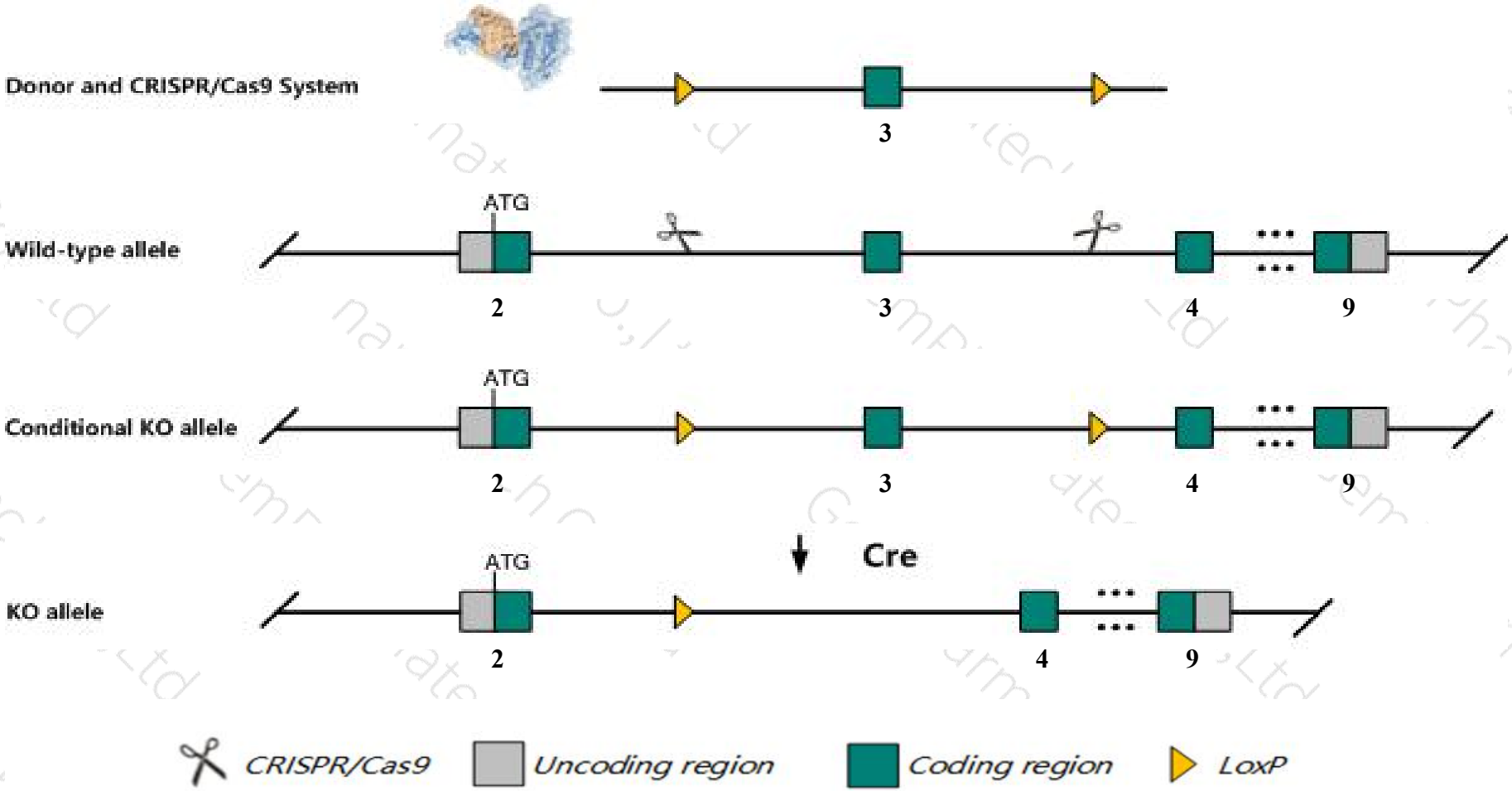
Project Overview

Project Name	***Galntl5***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Galntl5* gene. The schematic diagram is as follows:



Technical routes

- The *Galntl5* gene has 2 transcripts. According to the structure of *Galntl5* gene, exon3 of *Galntl5-201* (ENSMUST00000030778.8) transcript is recommended as the knockout region.The region contains 118bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Galntl5* 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

- According to the existing MGI data,male heterozygous mice for this allele were infertile due to decreased sperm motility.
- Some amino acids will remain at the N-terminus and some functions may be retained.
- The flox region is about 1 kb away from the 5th end of the *Gm26356*-201 gene, and its effect is unknown.
- The *Galntl5* gene is located on the Chr5. 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）

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Galntl5 UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase-like 5 [Mus musculus (house mouse)]

Gene ID: 67909, updated on 26-Mar-2020

Summary

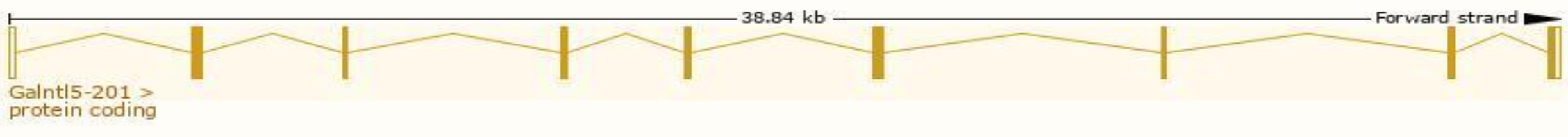
Official Symbol	Galntl5 provided by MGI
Official Full Name	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase-like 5 provided by MGI
Primary source	MGI:MGI:1915159
See related	Ensembl:ENSMUSG00000028938
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1700021B12Rik, Galnt15
Expression	Restricted expression toward testis adult (RPKM 63.9)See more
Orthologs	human all

Transcript information（Ensembl）

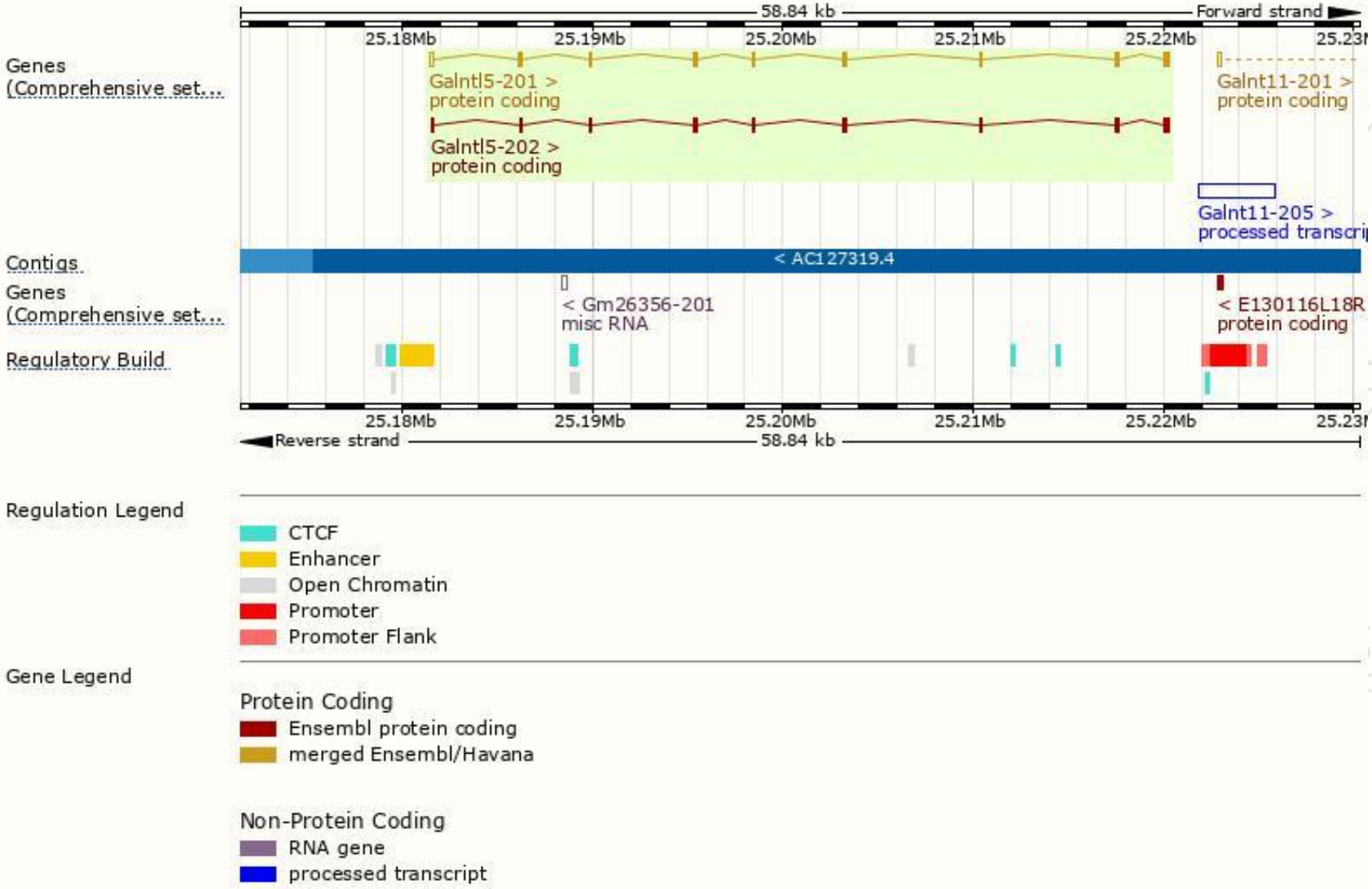
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Galntl5-201	ENSMUST00000030778.8	1627	431aa	Protein coding	CCDS19132	Q9D4M9	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 P2
Galntl5-202	ENSMUST00000114965.1	1458	398aa	Protein coding	-	D3Z533	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 ALT2

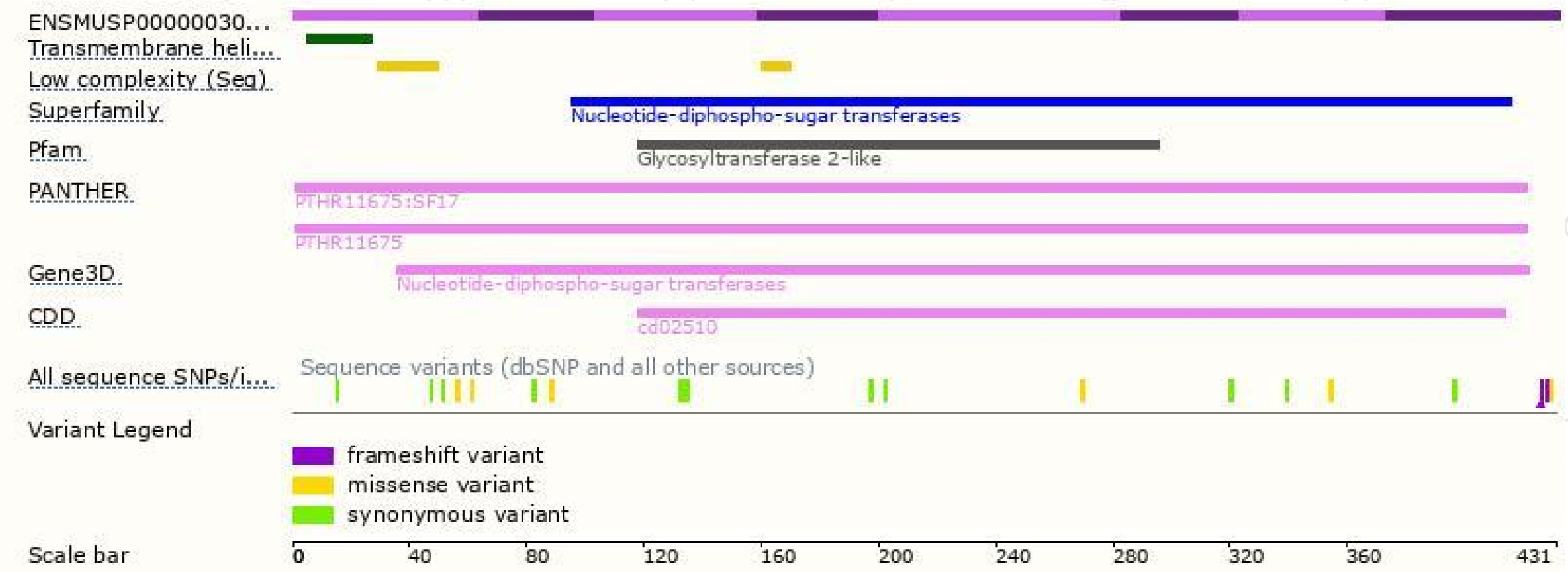
The strategy is based on the design of *Galntl5-201* transcript,The transcription is shown below



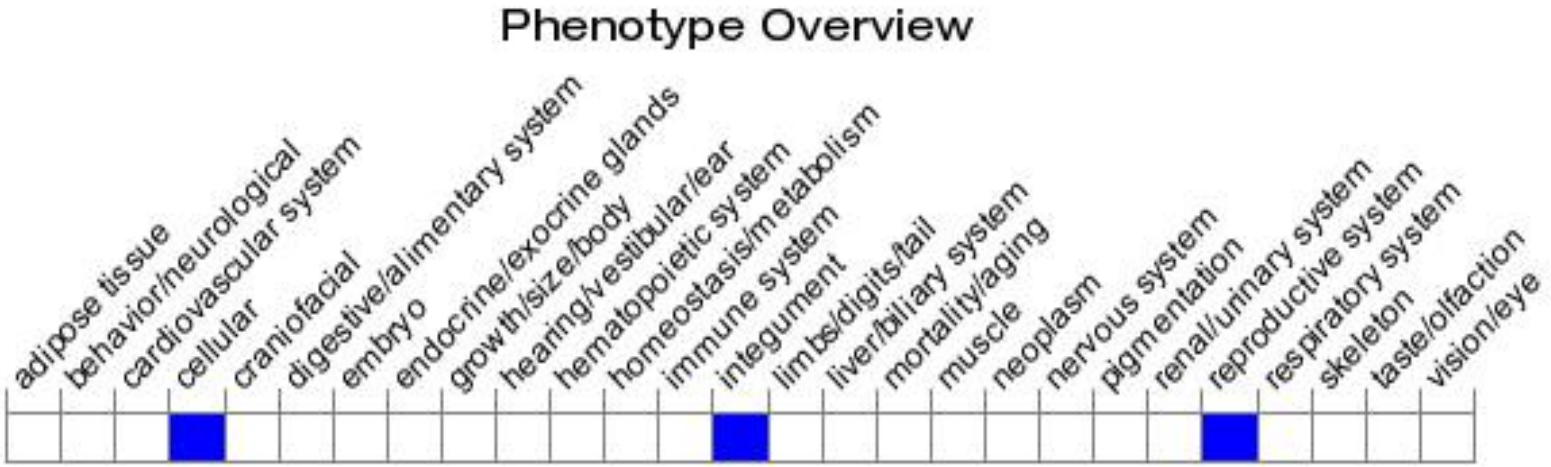
Genomic location distribution



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/).

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

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