B3gat3 Cas9-CKO Strategy

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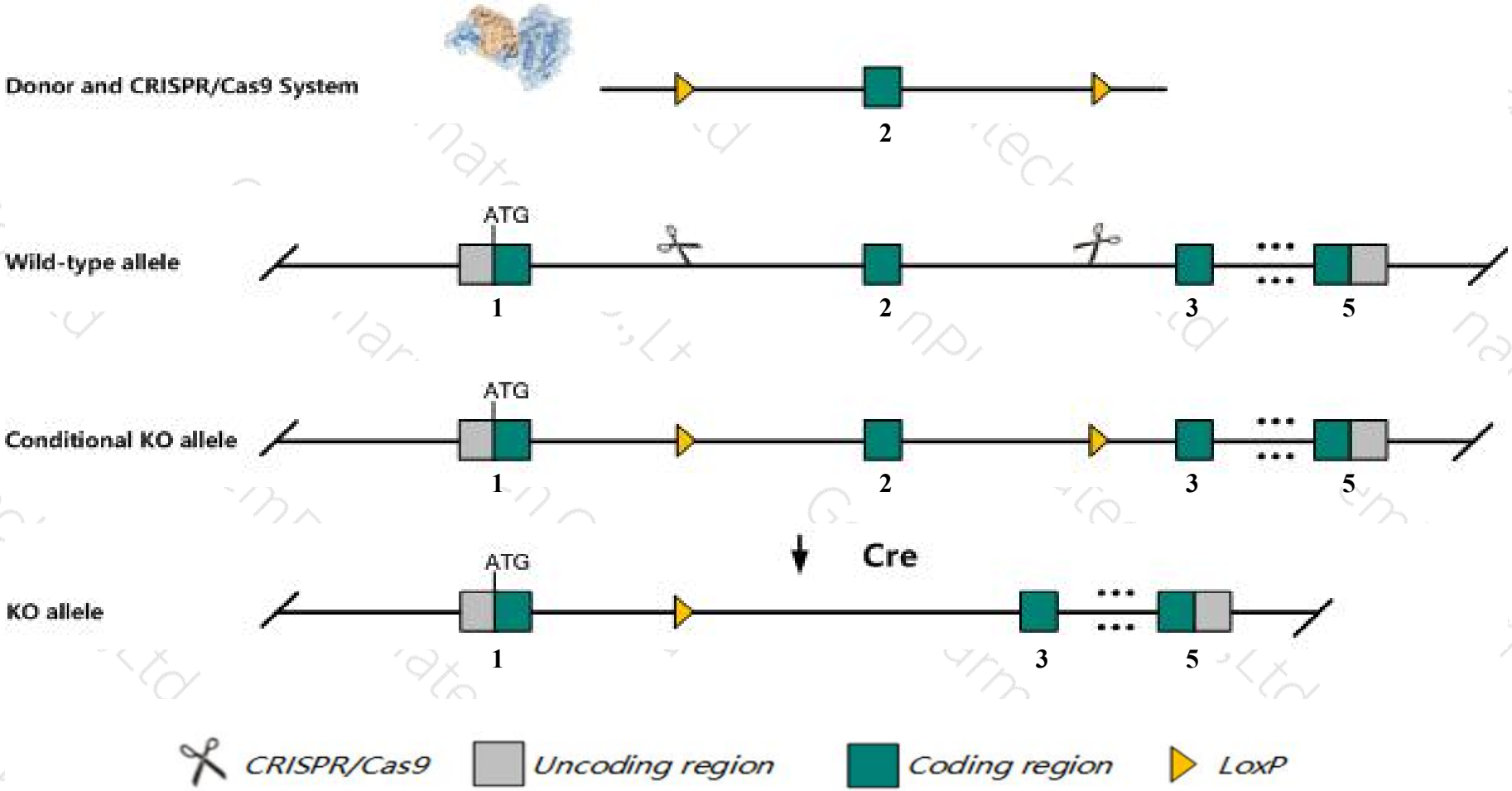
Project Overview

Project Name	***B3gat3***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *B3gat3* gene. The schematic diagram is as follows:



Technical routes

- The *B3gat3* gene has 3 transcripts. According to the structure of *B3gat3* gene, exon2 of *B3gat3-201* (ENSMUST00000096243.6) transcript is recommended as the knockout region.The region contains 175bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *B3gat3* 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,Homozygous mutants die prenatally before the 8-cell stage due to failed cytokinesis, and show reduction of the synthesis of chondroitin sulfate and heparan sulfate glycosaminoglycans.

➢ The *B3gat3* gene is located on the Chr19. 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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B3gat3 beta-1,3-glucuronyltransferase 3 (glucuronosyltransferase I) [*Mus musculus* (house mouse)]

Gene ID: 72727, updated on 12-Aug-2019

Summary

Official Symbol	B3gat3 provided by MGI
Official Full Name	beta-1,3-glucuronyltransferase 3 (glucuronosyltransferase I) provided by MGI
Primary source	MGI:MGI:1919977
See related	Ensembl:ENSMUSG00000071649
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	2810405M13Rik
Expression	Ubiquitous expression in adrenal adult (RPKM 58.2), cerebellum adult (RPKM 55.6) and 28 other tissues See more
Orthologs	human all

Genomic context

Location: 19; 19 A

See B3gat3 in Genome Data Viewer

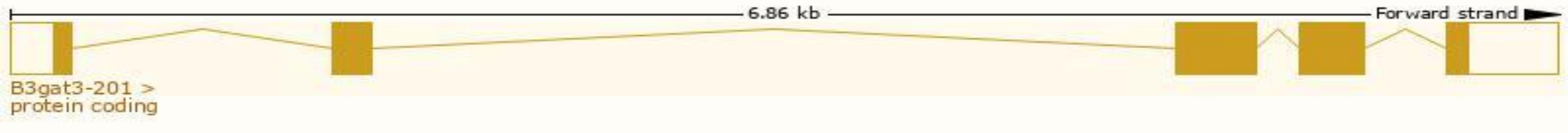
Exon count: 5

Transcript information（Ensembl）

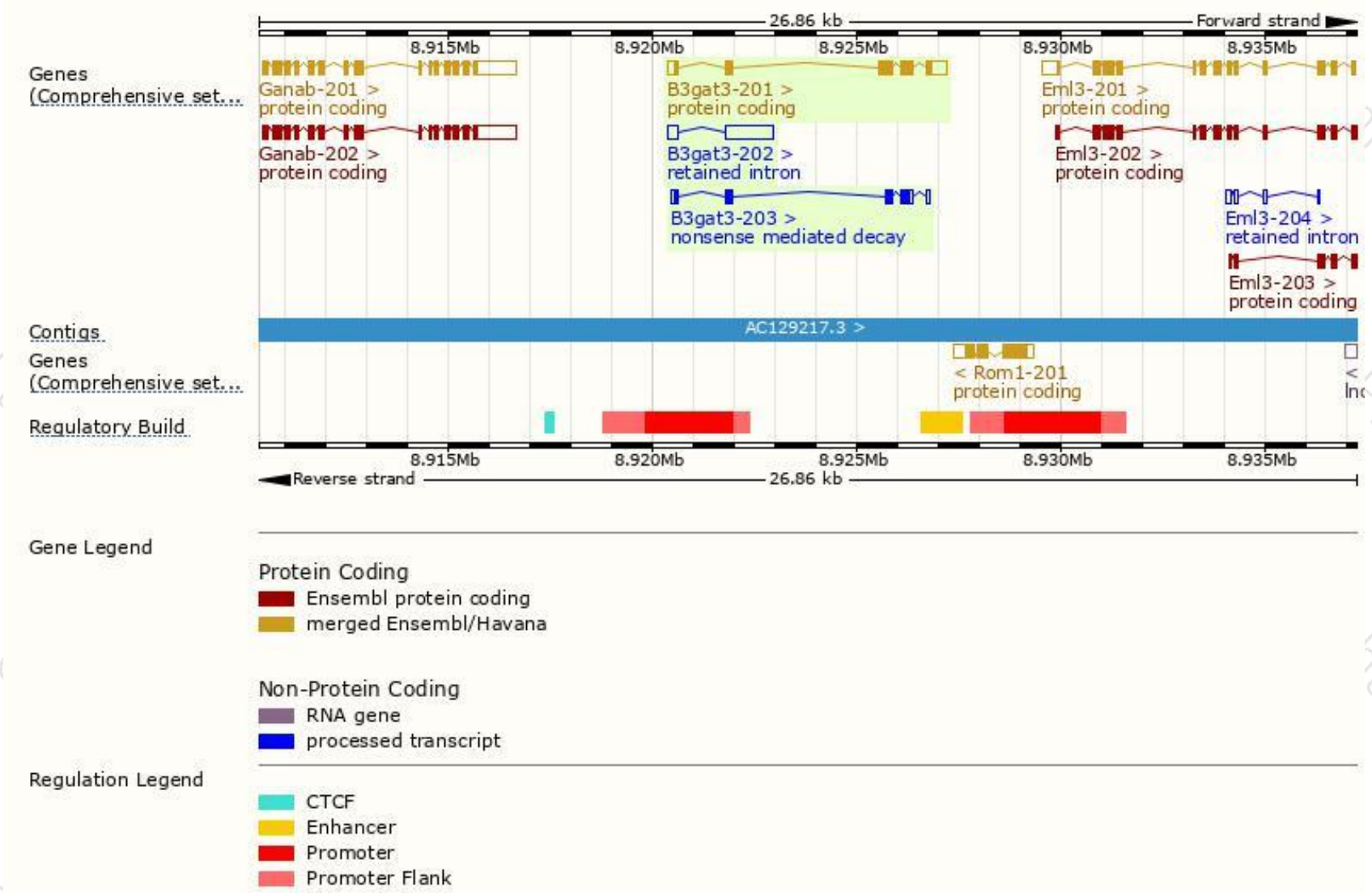
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
B3gat3-201	ENSMUST00000096243.6	1603	335aa	Protein coding	CCDS29558	P58158	TSL:1 GENCODE basic APPRIS P1
B3gat3-203	ENSMUST00000237071.1	909	229aa	Nonsense mediated decay	-	-	
B3gat3-202	ENSMUST00000235193.1	1414	No protein	Retained intron	-	-	

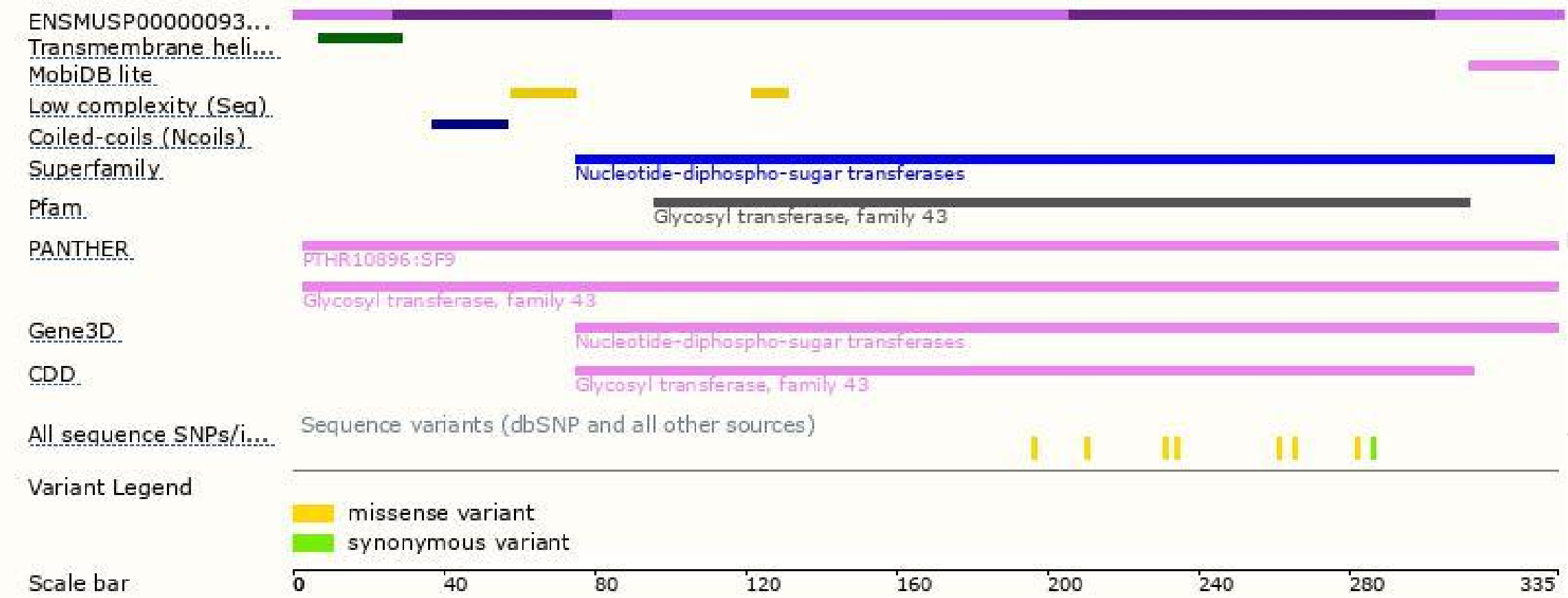
The strategy is based on the design of *B3gat3-201* transcript,The transcription is shown below



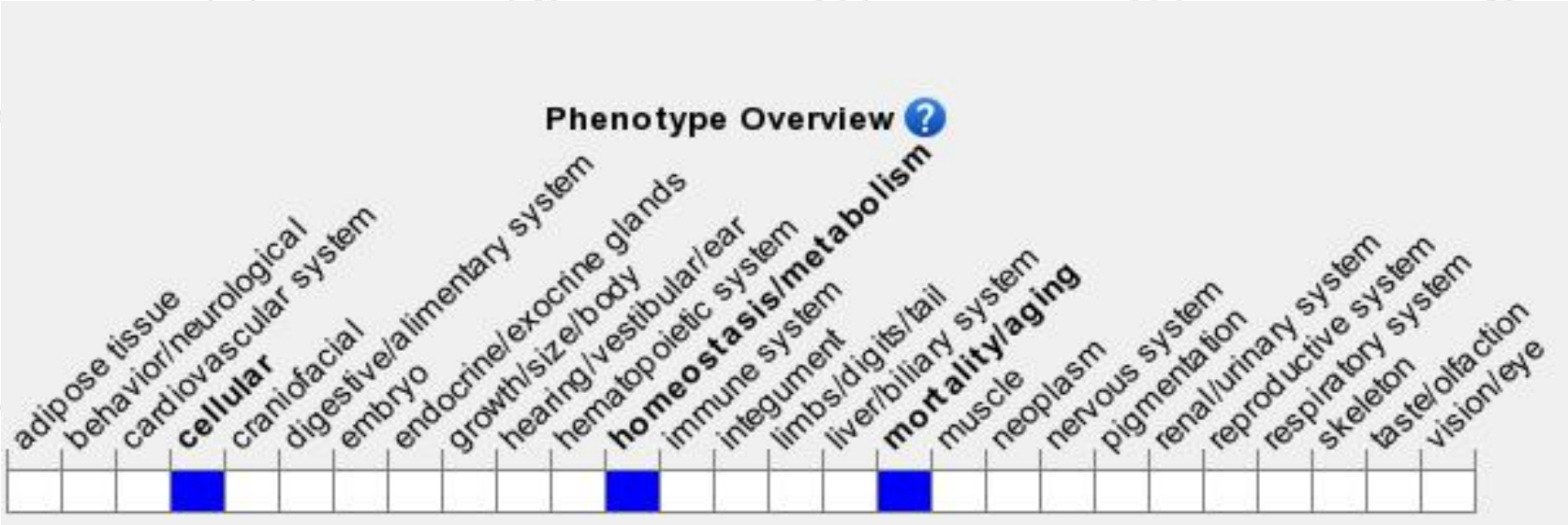
Genomic location distribution



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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