Slc27a4 Cas9-CKO Strategy

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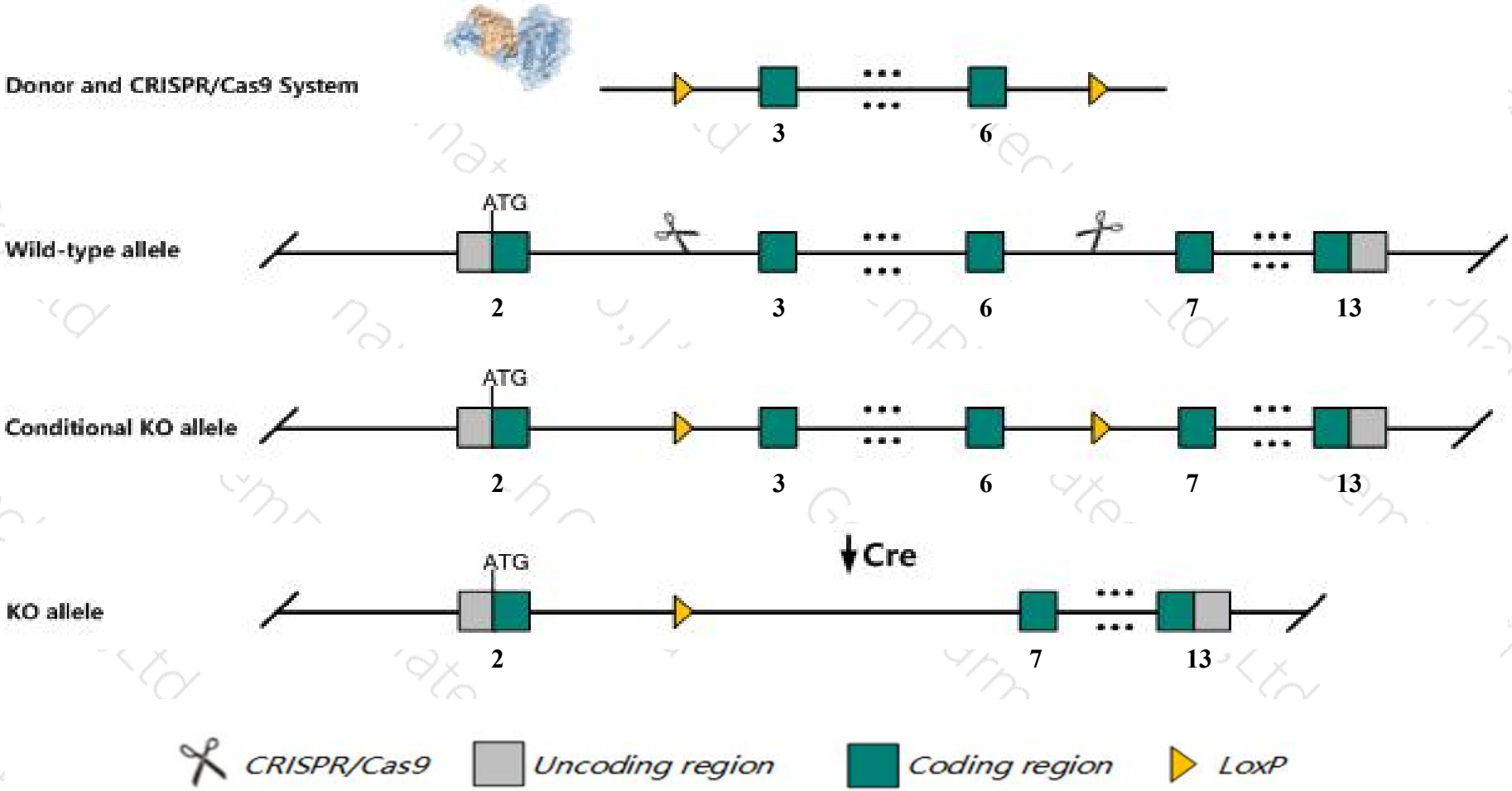
Project Overview

Project Name	***Slc27a4***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc27a4* gene. The schematic diagram is as follows:



Technical routes

- The *Slc27a4* gene has 2 transcripts. According to the structure of *Slc27a4* gene, exon3-exon6 of *Slc27a4-201* (ENSMUST00000080065.2) transcript is recommended as the knockout region.The region contains 716bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Slc27a4* 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 mutant mice are not viable. While mice of one mutant line die during early development, mice of other mutant lines die at birth exhibiting abnormal skin.
- The *Slc27a4* gene is located on the Chr2. 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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Slc27a4 solute carrier family 27 (fatty acid transporter), member 4 [Mus musculus (house mouse)]

Gene ID: 26569, updated on 13-Mar-2020

Summary

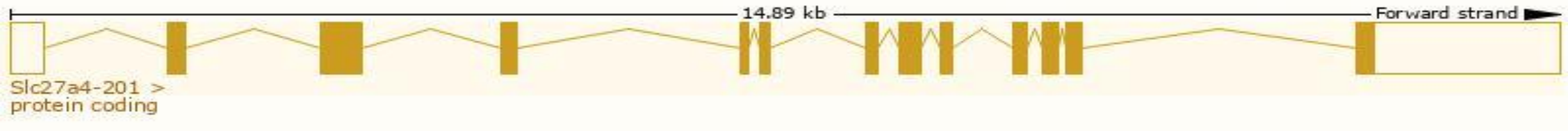
Official Symbol	Slc27a4 provided by MGI
Official Full Name	solute carrier family 27 (fatty acid transporter), member 4 provided by MGI
Primary source	MGI:MGI:1347347
See related	Ensembl:ENSMUSG00000059316
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	BB144259, FATP4
Expression	Biased expression in duodenum adult (RPKM 297.3), small intestine adult (RPKM 226.2) and 14 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

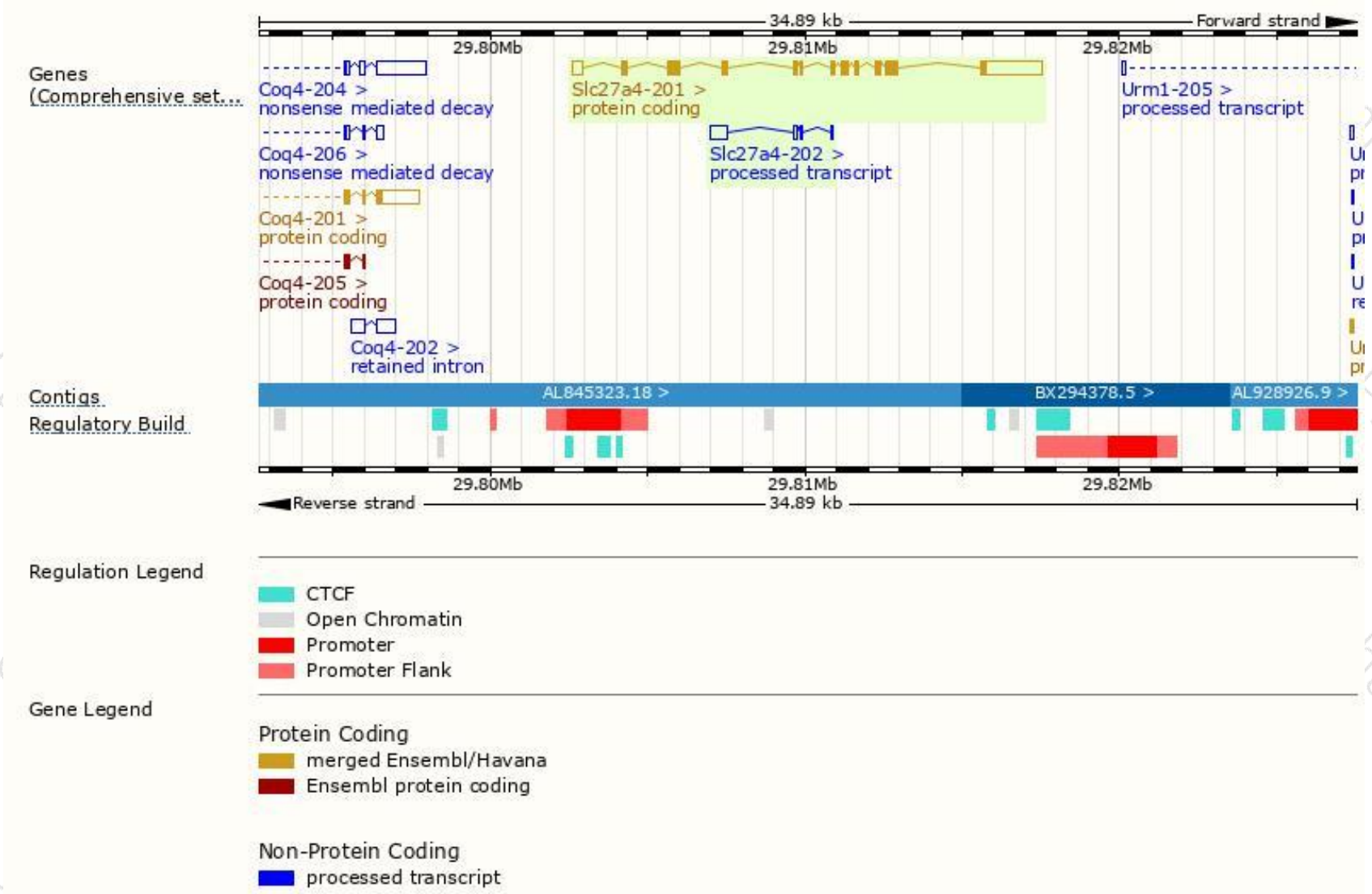
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc27a4-201	ENSMUST00000080065.2	4054	643aa	Protein coding	CCDS15858	Q91VE0	TSL:1 GENCODE basic APPRIS P1
Slc27a4-202	ENSMUST00000136444.1	722	No protein	Processed transcript	-	-	TSL:5

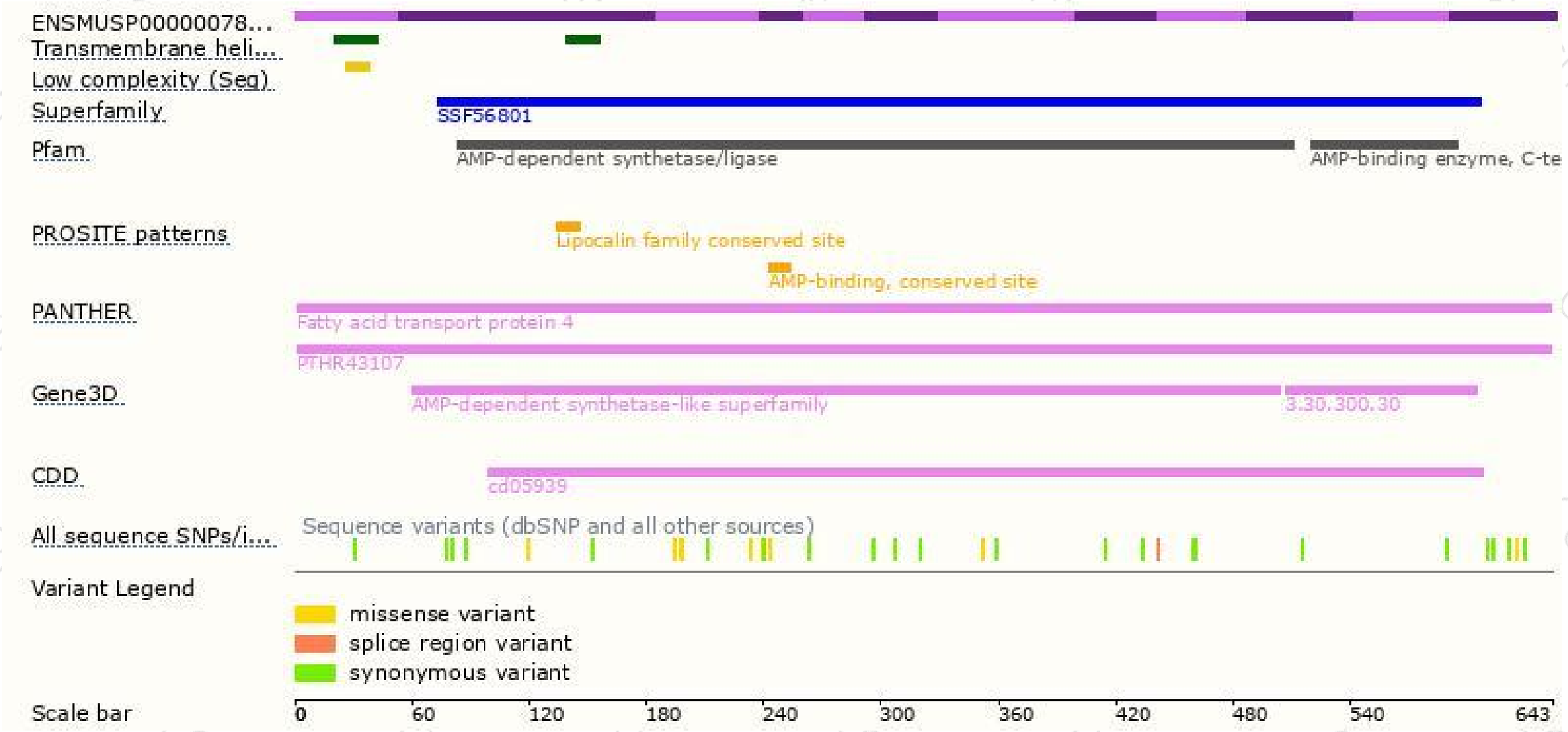
The strategy is based on the design of *Slc27a4-201* transcript,The transcription is shown below



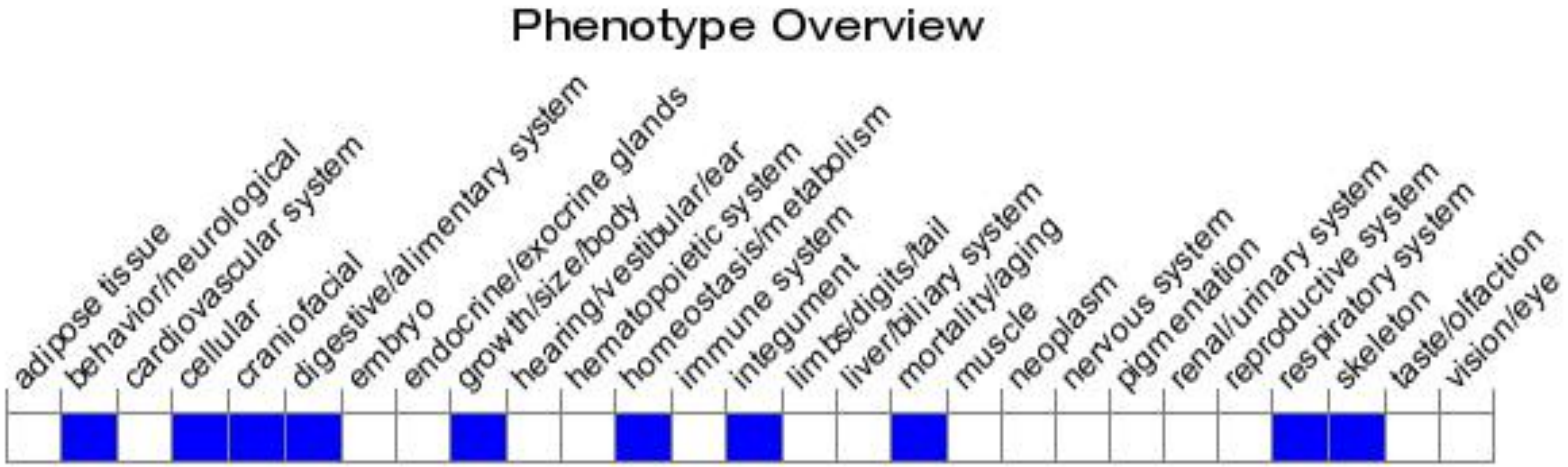
Genomic location distribution



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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