Slc30a7 Cas9-CKO Strategy

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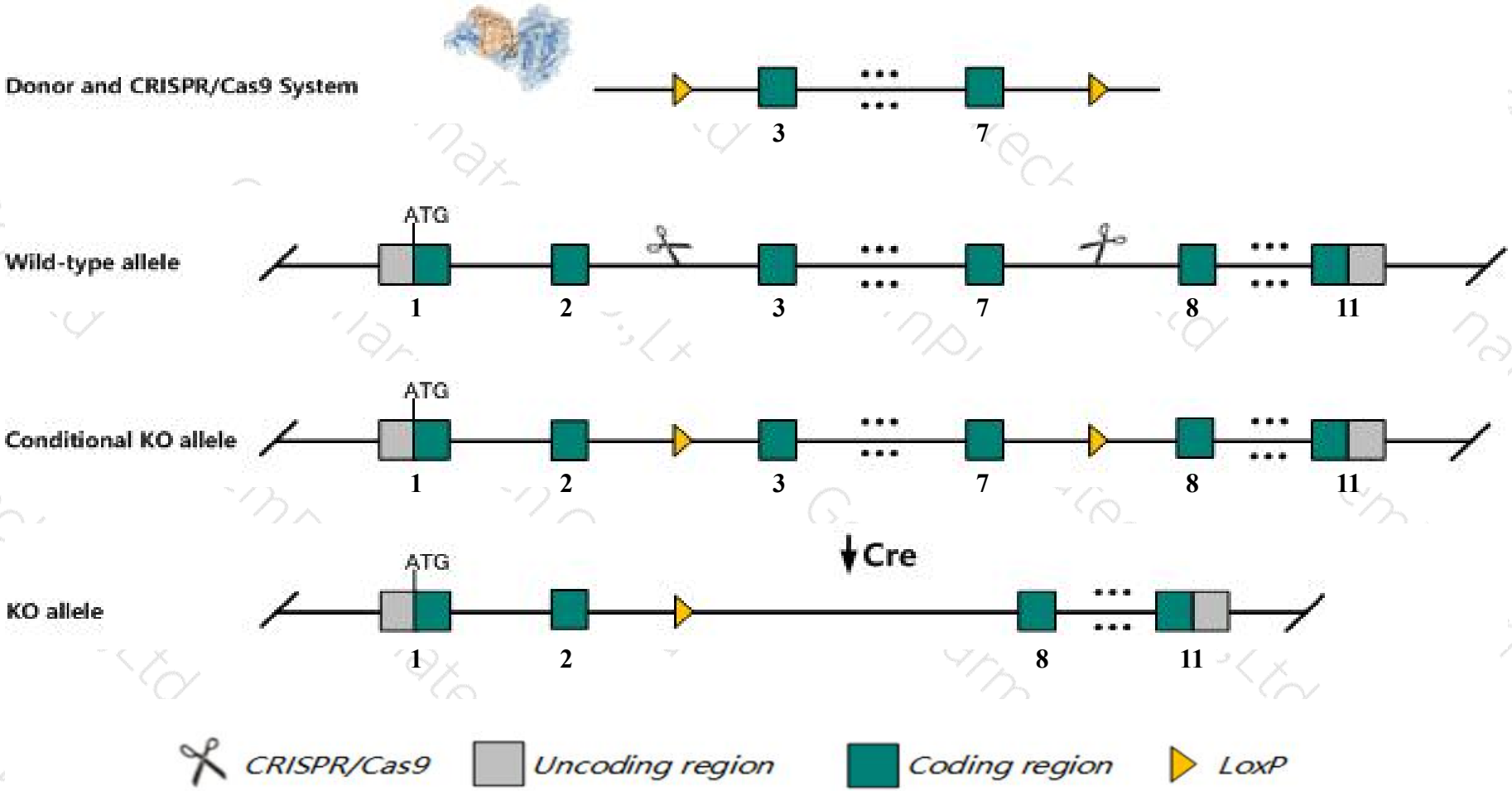
Project Overview

Project Name	***Slc30a7***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc30a7* gene. The schematic diagram is as follows:



Technical routes

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- The *Slc30a7* gene has 4 transcripts. According to the structure of *Slc30a7* gene, exon3-exon7 of *Slc30a7-201* (ENSMUST00000067485.3) transcript is recommended as the knockout region.The region contains 530bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Slc30a7* 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,Mice homozygous for a gene trapped allele exhibit a low body zinc status, reduced food intake and poor body weight gain, and are lean due to a significant reduction in body fat accumulation; however, no signs of hair growth abnormalities or dermatitis are observed.

- The *Slc30a7* gene is located on the Chr3. 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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Slc30a7 solute carrier family 30 (zinc transporter), member 7 [Mus musculus (house mouse)]

Gene ID: 66500, updated on 5-Mar-2019

Summary

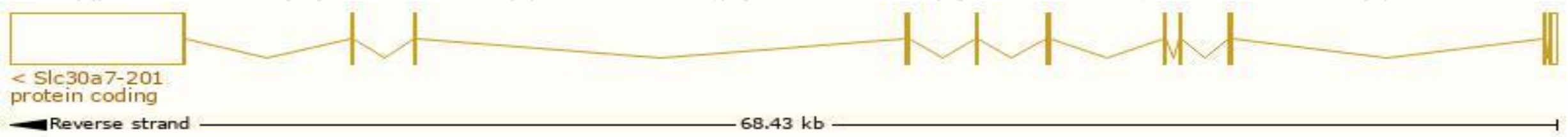
Official Symbol	Slc30a7 provided by MGI
Official Full Name	solute carrier family 30 (zinc transporter), member 7 provided by MGI
Primary source	MGI:MGI:1913750
See related	Ensembl:ENSMUSG00000054414
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1810059J10Rik, 2610034N15Rik, 4833428C12Rik, AI467242, ZnT-7, ZnT7, Zntl2
Expression	Ubiquitous expression in placenta adult (RPKM 7.4), limb E14.5 (RPKM 5.4) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

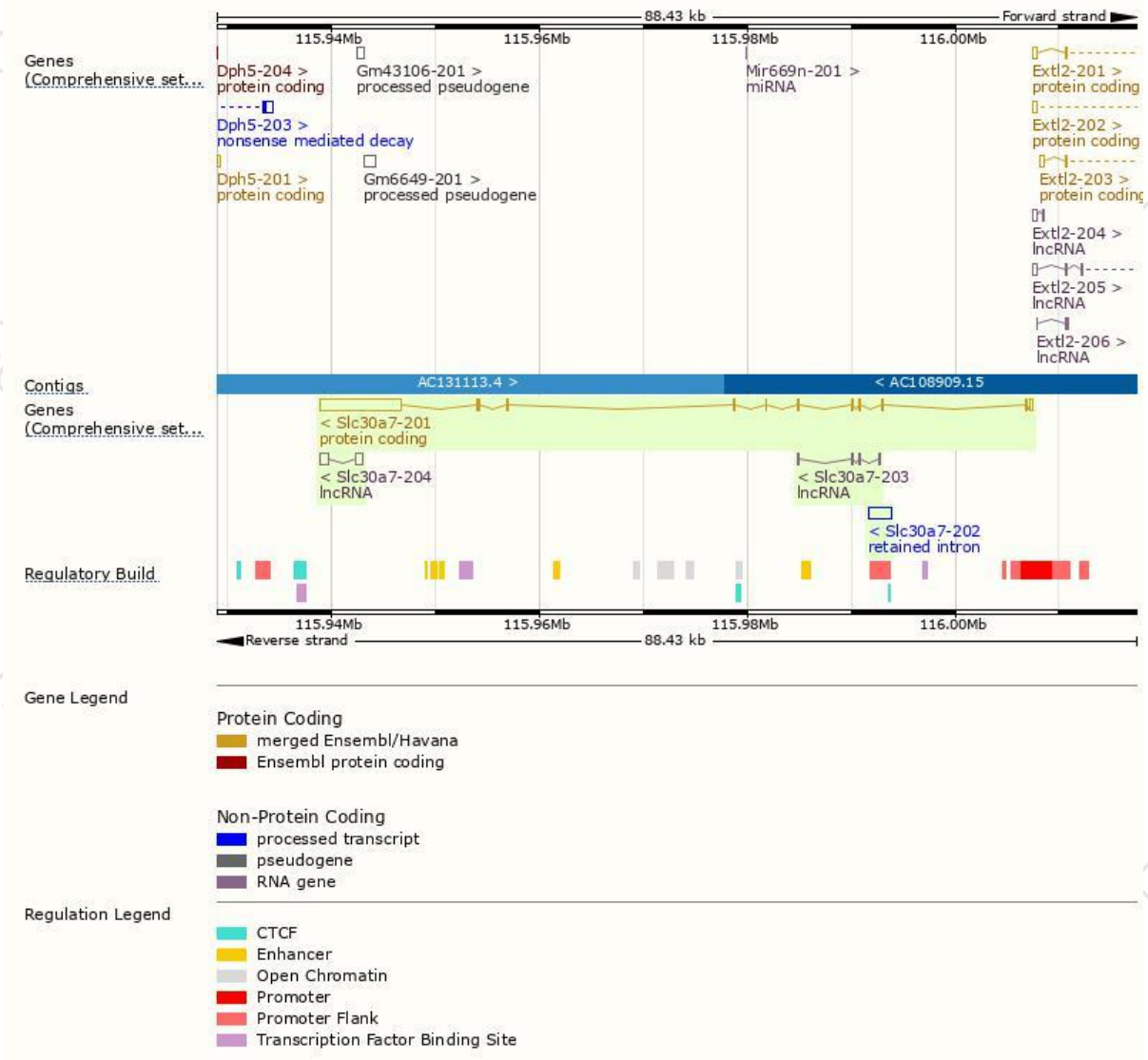
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc30a7-201	ENSMUST00000067485.3	9020	378aa	Protein coding	CCDS17783	Q9JKN1	TSL:1 GENCODE basic APPRIS P1
Slc30a7-202	ENSMUST00000197333.1	2210	No protein	Retained intron	-	-	TSL:NA
Slc30a7-204	ENSMUST00000198571.1	1326	No protein	lncRNA	-	-	TSL:1
Slc30a7-203	ENSMUST00000197847.1	359	No protein	lncRNA	-	-	TSL:3

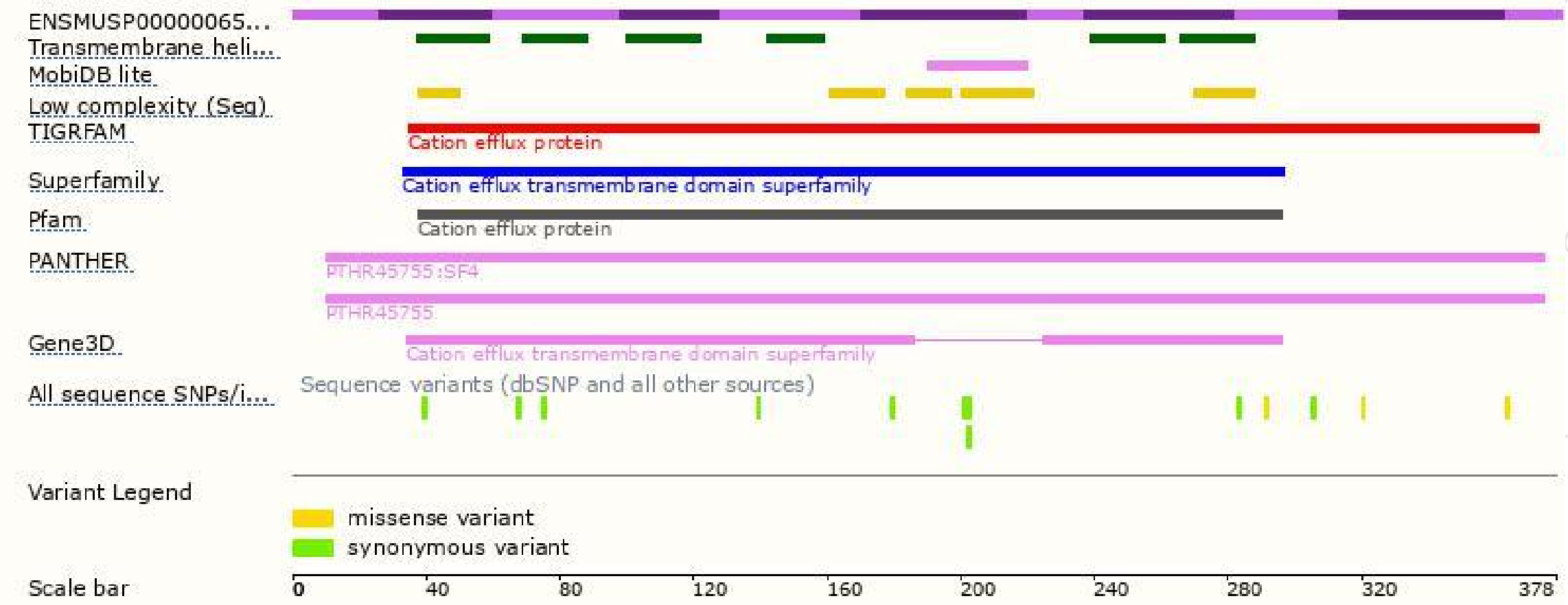
The strategy is based on the design of *Slc30a7-201* transcript,The transcription is shown below



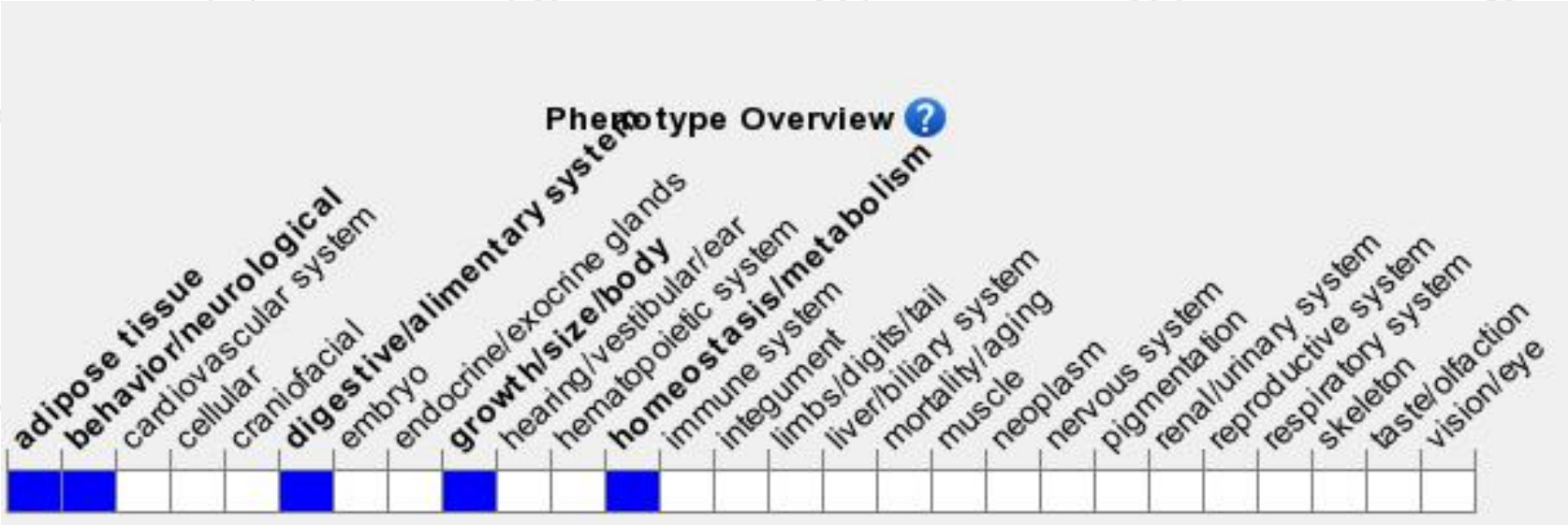
Genomic location distribution



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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