Slc30a2 Cas9-CKO Strategy

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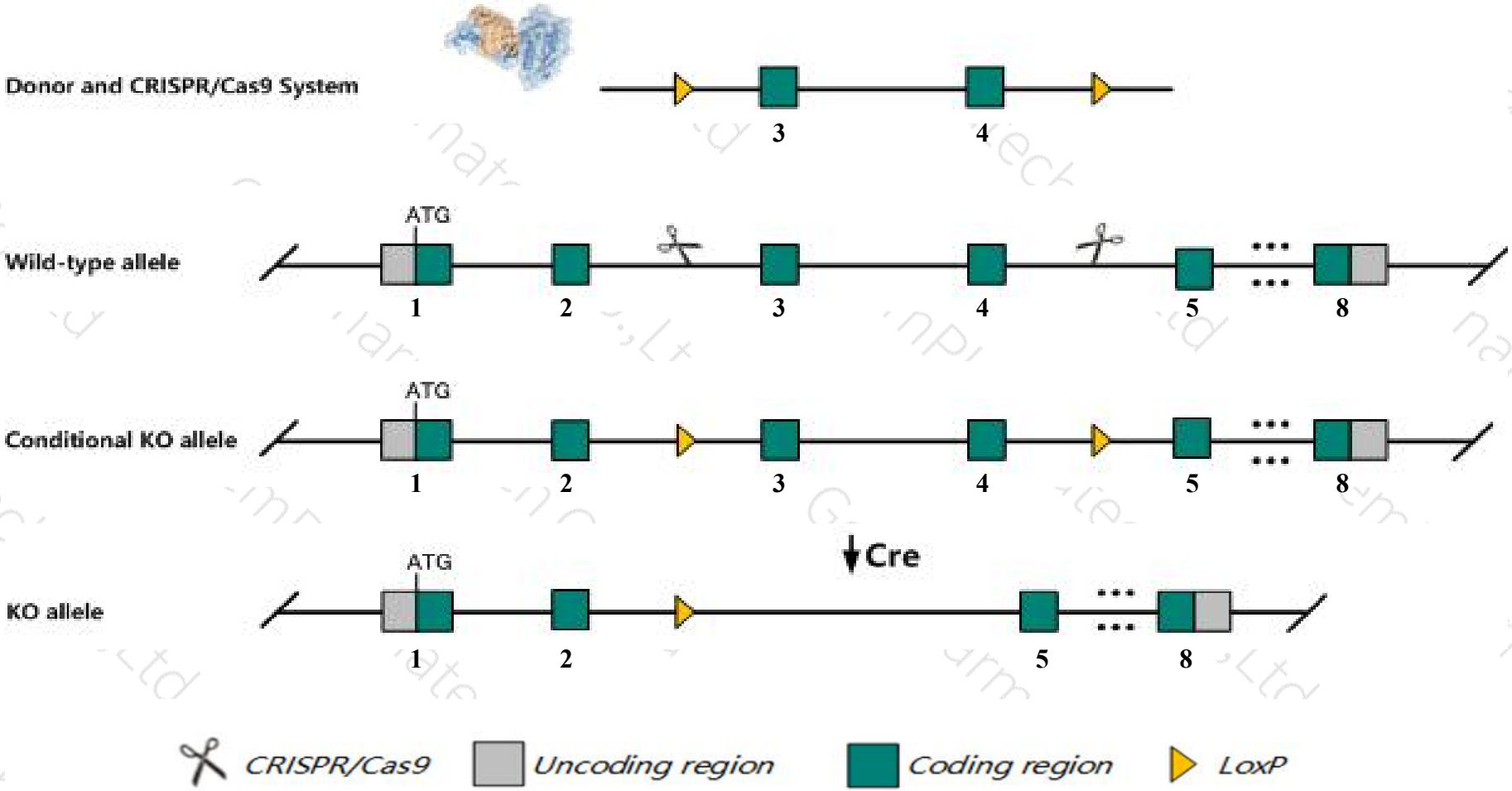
Project Overview

Project Name	***Slc30a2***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc30a2* gene. The schematic diagram is as follows:



Technical routes

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- The *Slc30a2* gene has 4 transcripts. According to the structure of *Slc30a2* gene, exon3-exon4 of *Slc30a2-204* (ENSMUST00000105874.8) transcript is recommended as the knockout region.The region contains 301bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Slc30a2* 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 knock-out allele exhibit abnormal mammary gland development during lactation, abnormal zinc levels in the mammary gland and milk, impaired lactation and decreased litter survival.

- The *Slc30a2* gene is located on the Chr4. 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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Slc30a2 solute carrier family 30 (zinc transporter), member 2 [Mus musculus (house mouse)]

Gene ID: 230810, updated on 31-Jan-2019

Summary

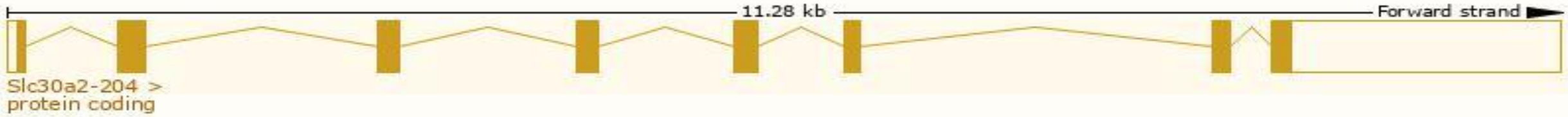
Official Symbol	Slc30a2 provided by MGI
Official Full Name	solute carrier family 30 (zinc transporter), member 2 provided by MGI
Primary source	MGI:MGI:106637
See related	Ensembl:ENSMUSG00000028836
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	ZnT-2, Znt2
Expression	Biased expression in duodenum adult (RPKM 14.6), adrenal adult (RPKM 13.5) and 10 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

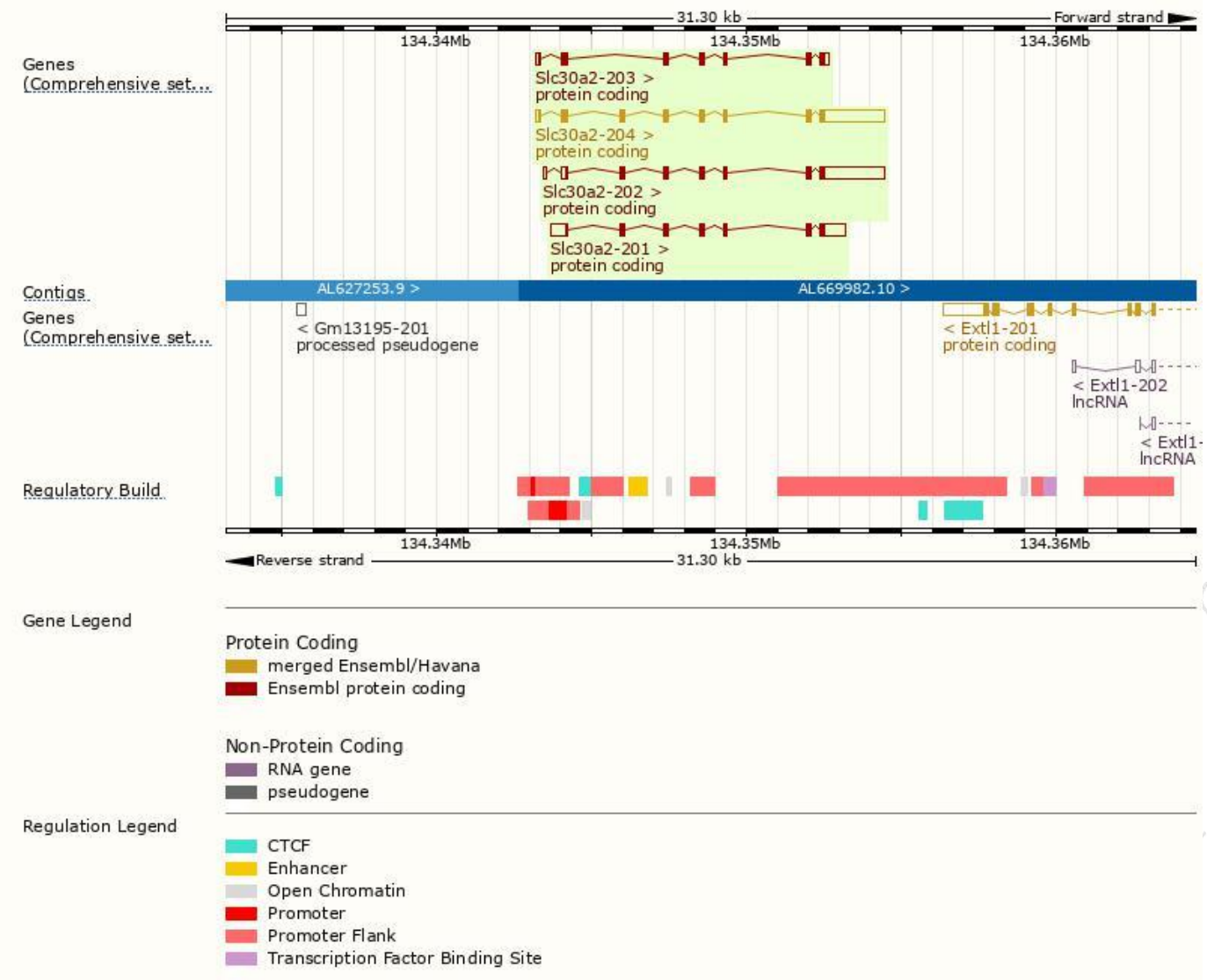
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc30a2-204	ENSMUST00000105874.8	3153	371aa	Protein coding	CCDS38915	Q2HJ10	TSL:1 GENCODE basic APPRIS P2
Slc30a2-202	ENSMUST00000105872.7	3102	291aa	Protein coding	-	D3Z5N1	TSL:1 GENCODE basic APPRIS ALT2
Slc30a2-201	ENSMUST00000081094.5	2023	291aa	Protein coding	-	D3Z5N1	TSL:1 GENCODE basic APPRIS ALT2
Slc30a2-203	ENSMUST00000105873.7	1224	322aa	Protein coding	-	D3Z5N0	TSL:5 GENCODE basic

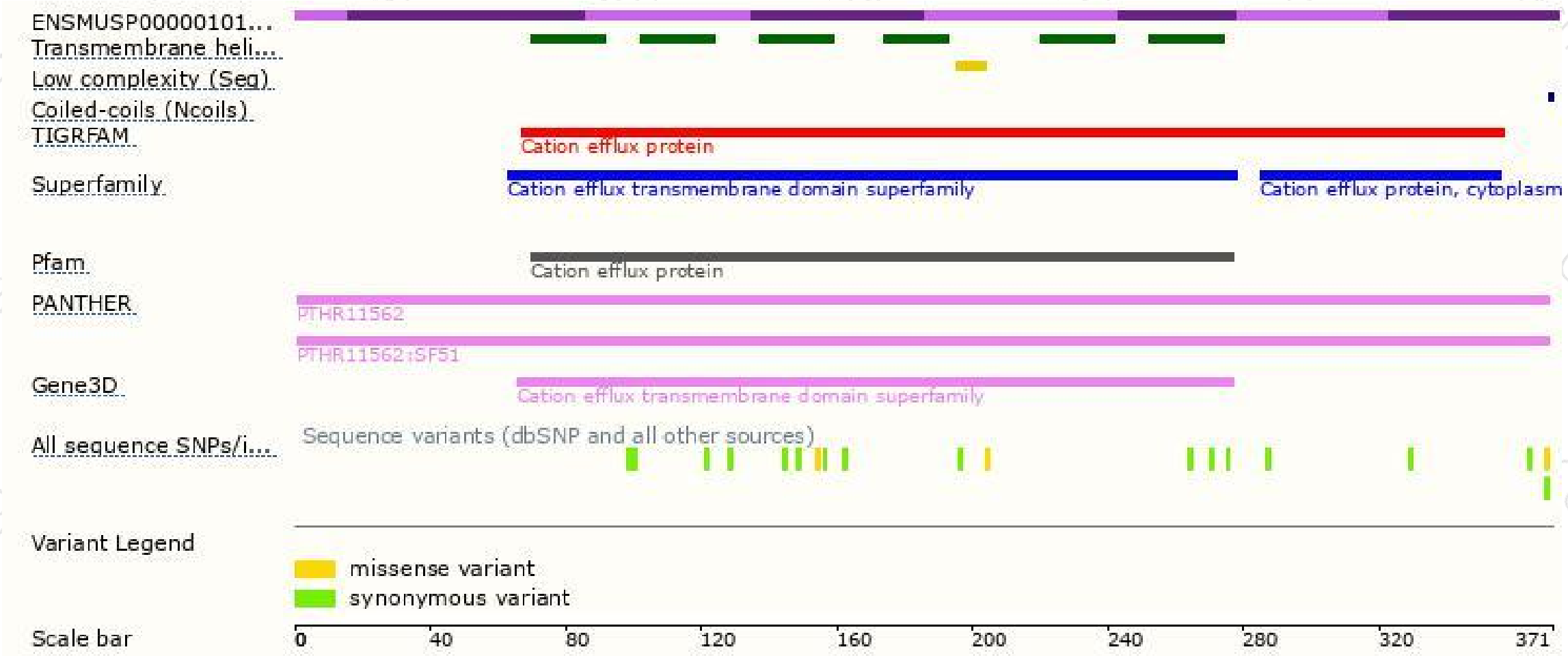
The strategy is based on the design of *Slc30a2-204* transcript,The transcription is shown below



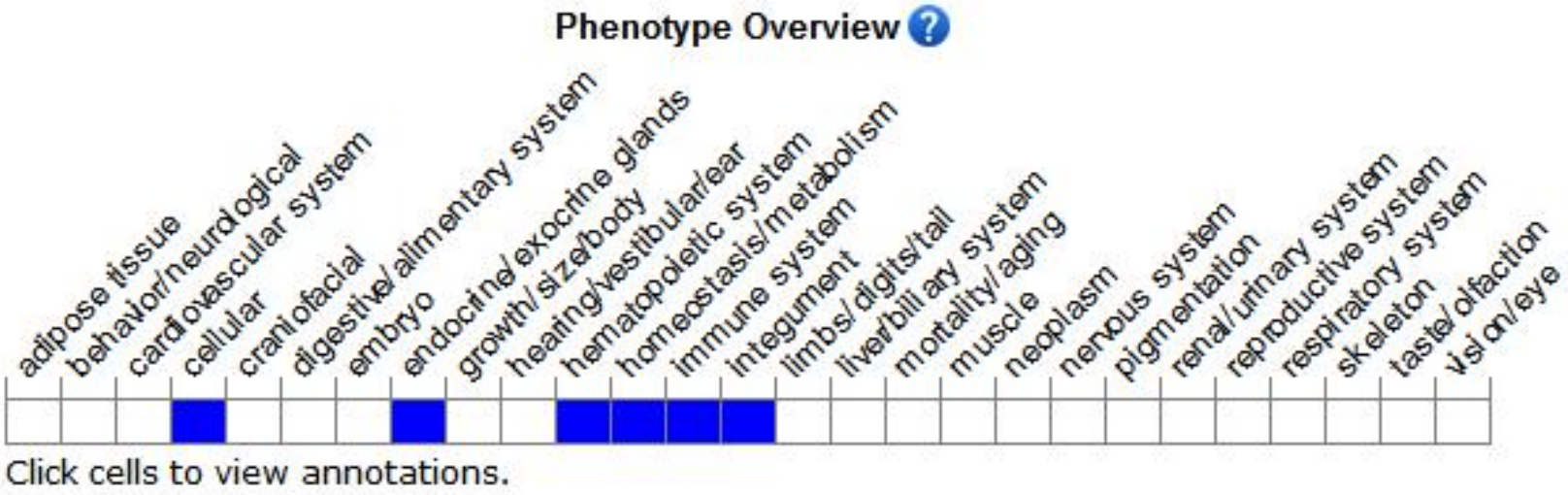
Genomic location distribution



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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