Slc4a11 Cas9-CKO Strategy

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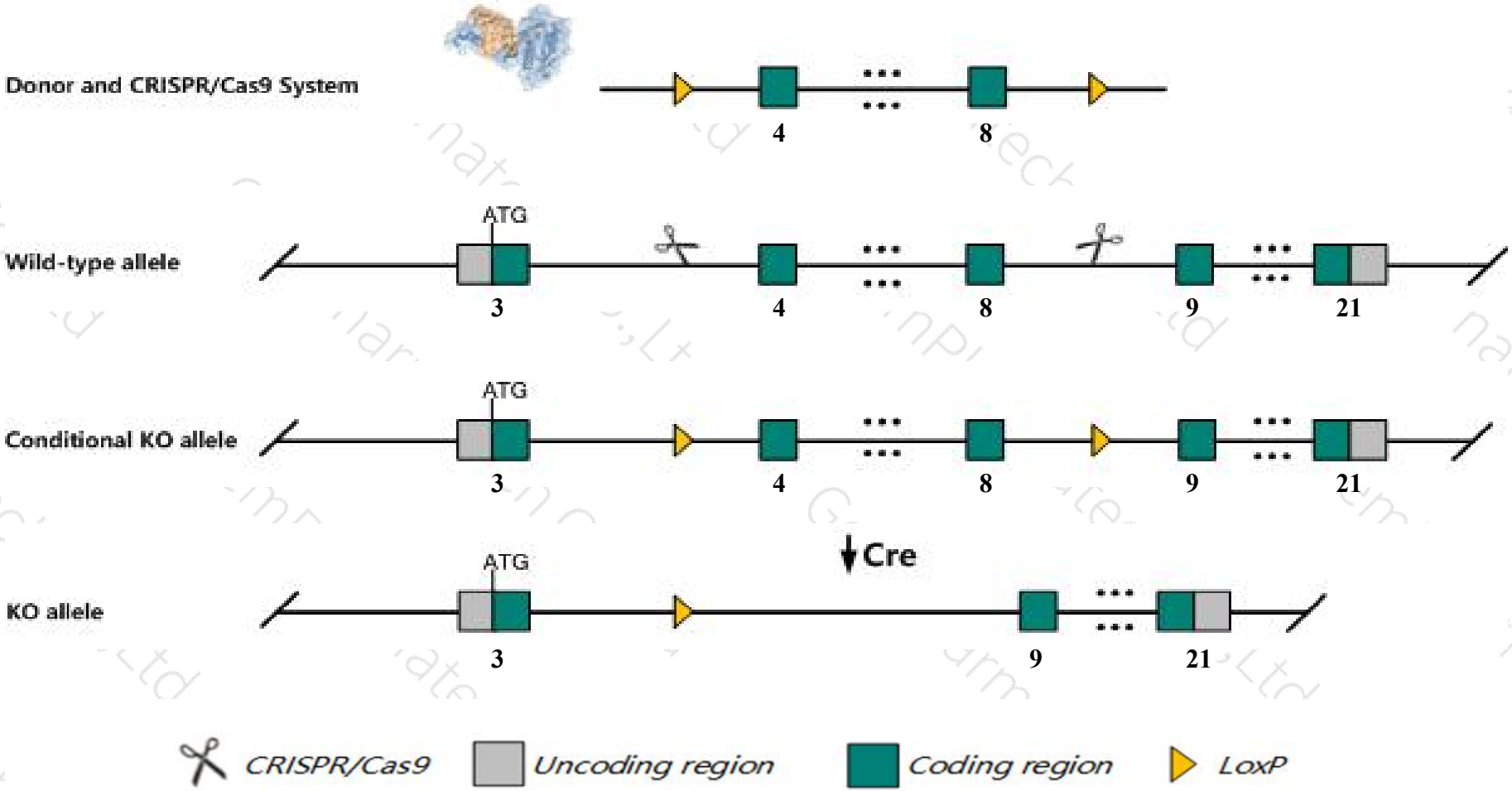
Project Overview

Project Name	***Slc4a11***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc4a11* gene. The schematic diagram is as follows:



Technical routes

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- The *Slc4a11* gene has 5 transcripts. According to the structure of *Slc4a11* gene, exon4-exon8 of *Slc4a11-201* (ENSMUST00000099362.10) transcript is recommended as the knockout region.The region contains 653bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Slc4a11* 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 show a collapsed vestibular labyrinth, reduced brainstem auditory potentials, and altered corneal epithelium. Mice homozygous for a reporter allele show corneal endothelial dystrophy, polyuria, natriuresis, urinehypoosmolarity and impaired hearing.

- Transcript *Slc4a11*-205 may not be affected.

- The *Slc4a11* 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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Slc4a11 solute carrier family 4, sodium bicarbonate transporter-like, member 11 [Mus musculus (house mouse)]

Gene ID: 269356, updated on 31-Jan-2019

Summary

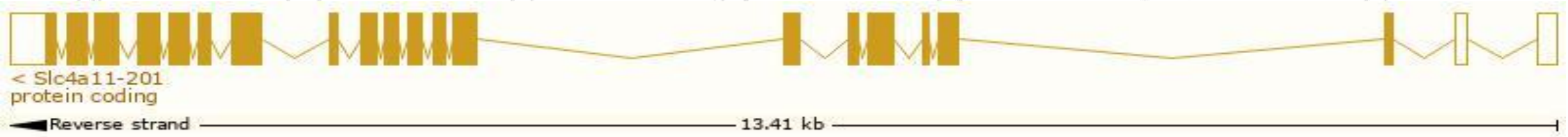
Official Symbol	Slc4a11 provided by MGI
Official Full Name	solute carrier family 4, sodium bicarbonate transporter-like, member 11 provided by MGI
Primary source	MGI:MGI:2138987
See related	Ensembl:ENSMUSG00000074796
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI503023, BTR1, NaBC1
Expression	Biased expression in kidney adult (RPKM 12.8), ovary adult (RPKM 4.0) and 11 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

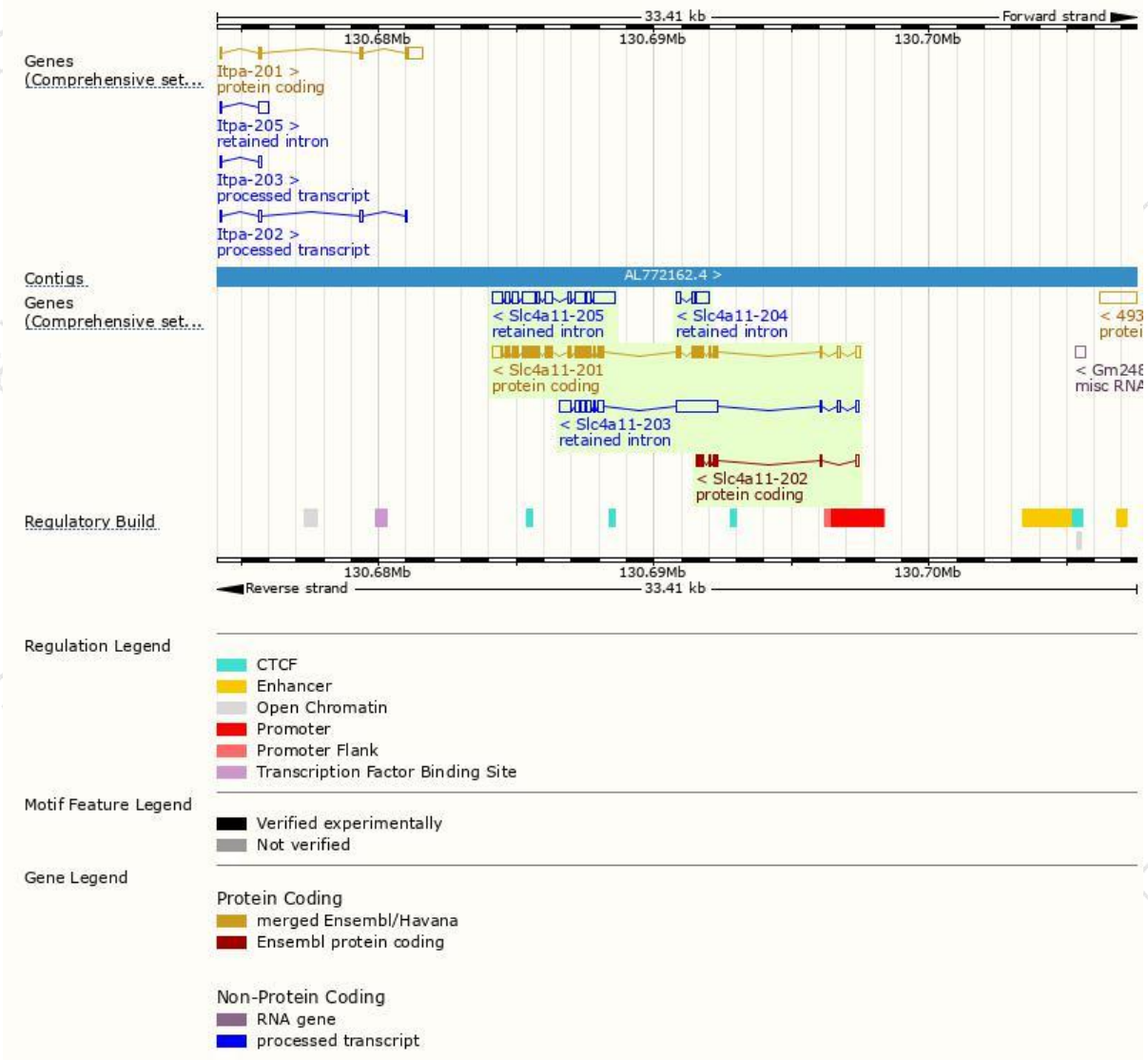
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc4a11-201	ENSMUST00000099362.10	3196	862aa	Protein coding	CCDS38244	A2AJN7	TSL:1 GENCODE basic APPRIS P1
Slc4a11-202	ENSMUST00000127397.2	621	164aa	Protein coding	-	A2AJN8	CDS 3' incomplete TSL:3
Slc4a11-205	ENSMUST00000144945.7	2861	No protein	Retained intron	-	-	TSL:2
Slc4a11-203	ENSMUST00000134647.7	2832	No protein	Retained intron	-	-	TSL:5
Slc4a11-204	ENSMUST00000138028.1	640	No protein	Retained intron	-	-	TSL:3

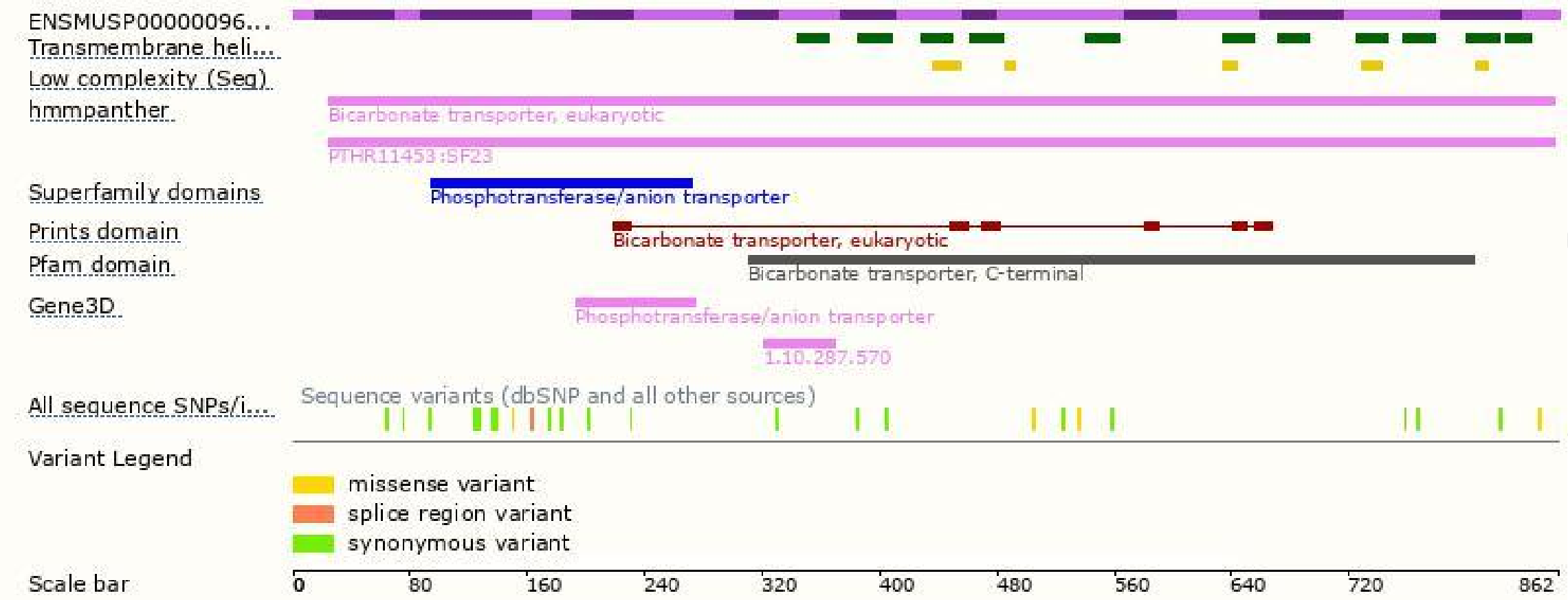
The strategy is based on the design of *Slc4a11-201* transcript,The transcription is shown below



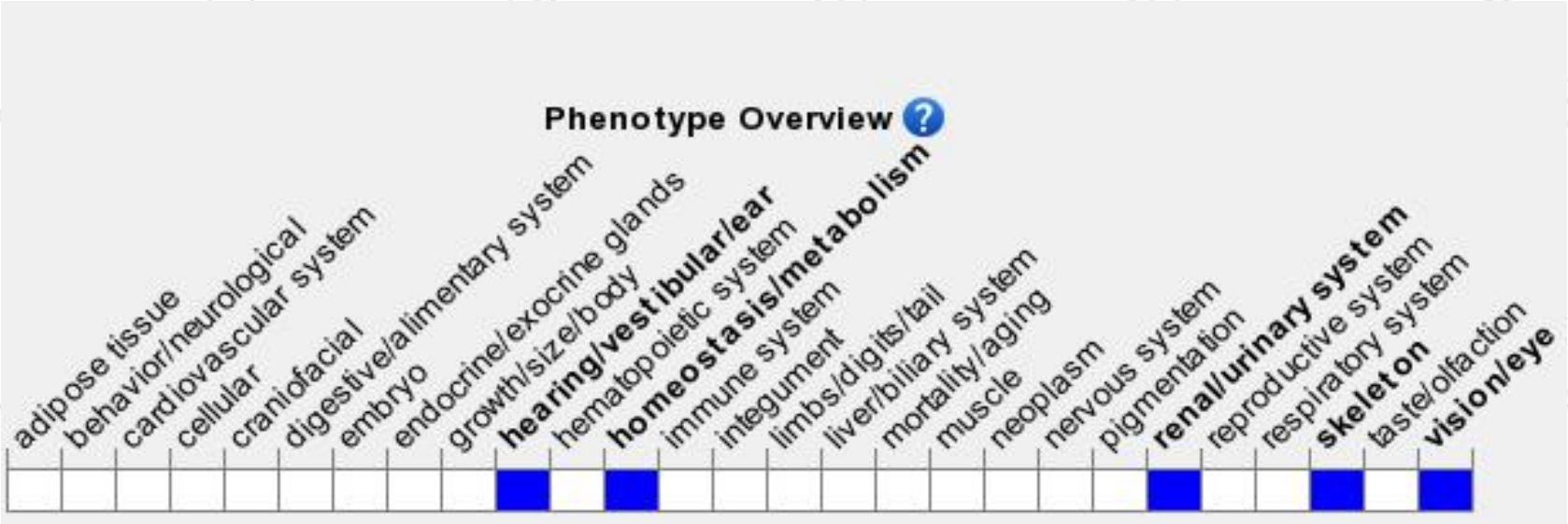
Genomic location distribution



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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