Slc34a2 Cas9-CKO Strategy

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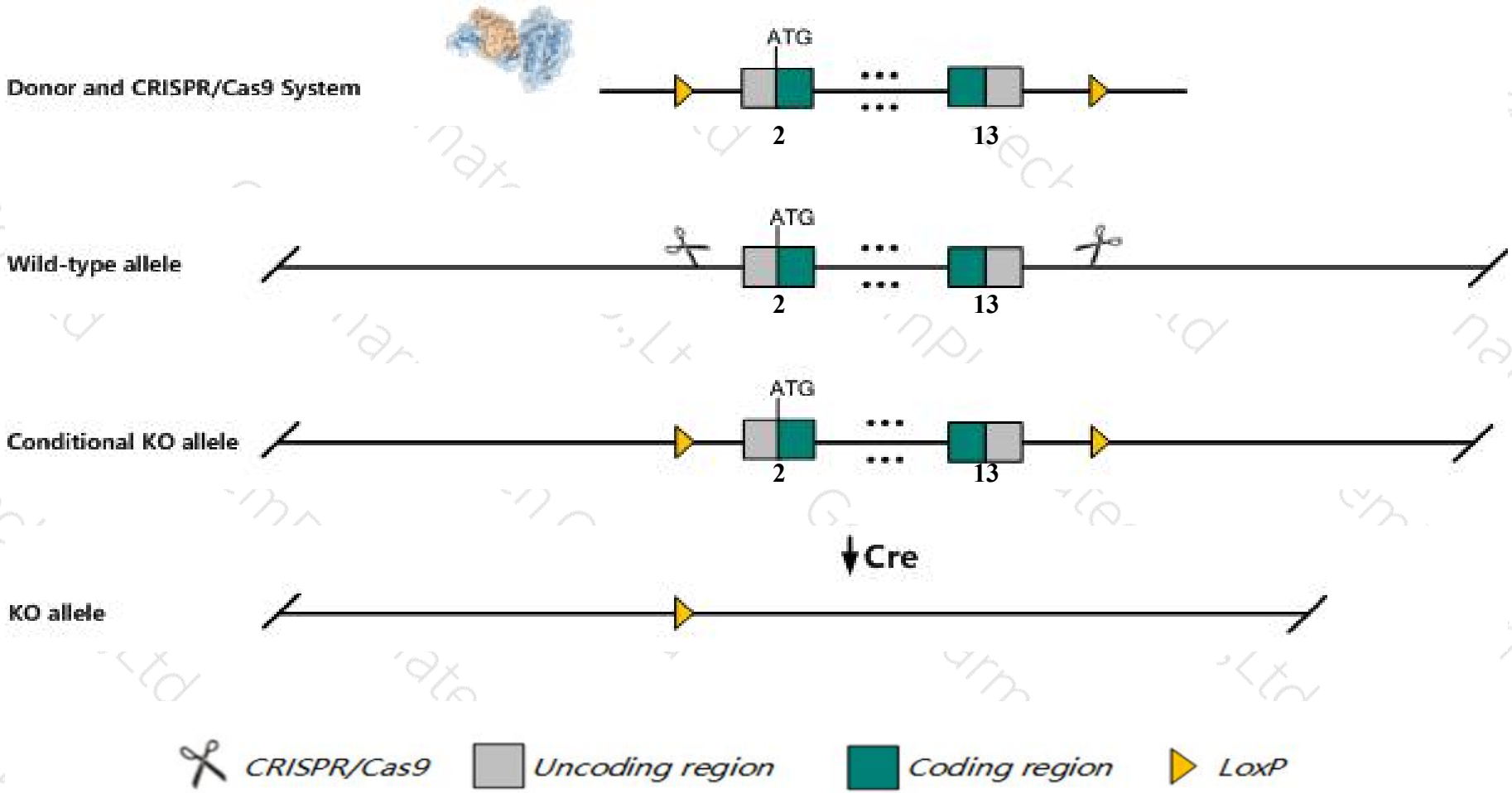
Project Overview

Project Name	***Slc34a2***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Slc34a2* gene. The schematic diagram is as follows:



Technical routes

- The *Slc34a2* gene has 3 transcripts. According to the structure of *Slc34a2* gene, exon2-exon13 of *Slc34a2-201* (ENSMUST00000094787.7) transcript is recommended as the knockout region.The region contains all of the coding sequence.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Slc34a2* 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 null mice display embryonic lethality, embryonic growth arrest, failure of embryo turning and somitogenesis, impaired placental development and impaired yolk sac vascular remodeling.

- The *Slc34a2* gene is located on the Chr5. 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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Slc34a2 solute carrier family 34 (sodium phosphate), member 2 [*Mus musculus* (house mouse)]

Gene ID: 20531, updated on 12-Aug-2019

Summary

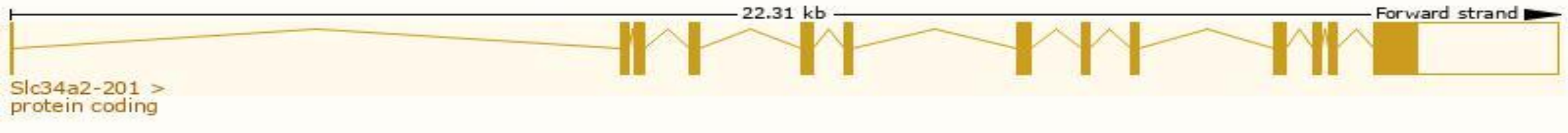
Official Symbol	Slc34a2 provided by MGI
Official Full Name	solute carrier family 34 (sodium phosphate), member 2 provided by MGI
Primary source	MGI:MGI:1342284
See related	Ensembl:ENSMUSG00000029188
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Npt2b; NaPi-2b; AA536683; D5Ertd227e
Expression	Biased expression in lung adult (RPKM 498.2), large intestine adult (RPKM 142.1) and 1 other tissue See more
Orthologs	human all

Transcript information（Ensembl）

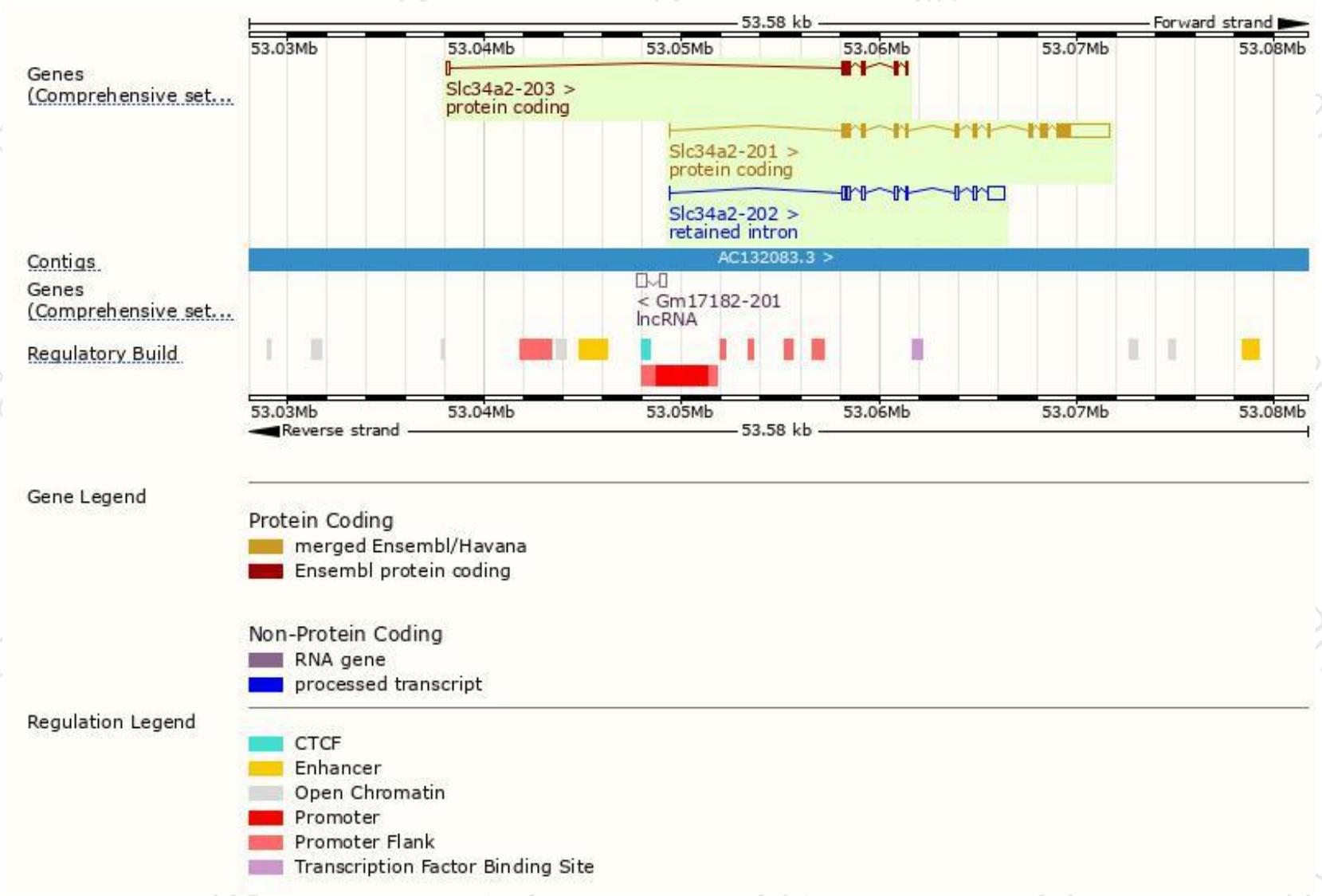
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Slc34a2-201	ENSMUST00000094787.7	4176	697aa	Protein coding	CCDS19291	Q9DBP0	TSL:1 GENCODE basic APPRIS P1
Slc34a2-203	ENSMUST00000170523.7	717	186aa	Protein coding	-	E9QAX5	CDS 3' incomplete TSL:3
Slc34a2-202	ENSMUST00000147243.3	1778	No protein	Retained intron	-	-	TSL:1

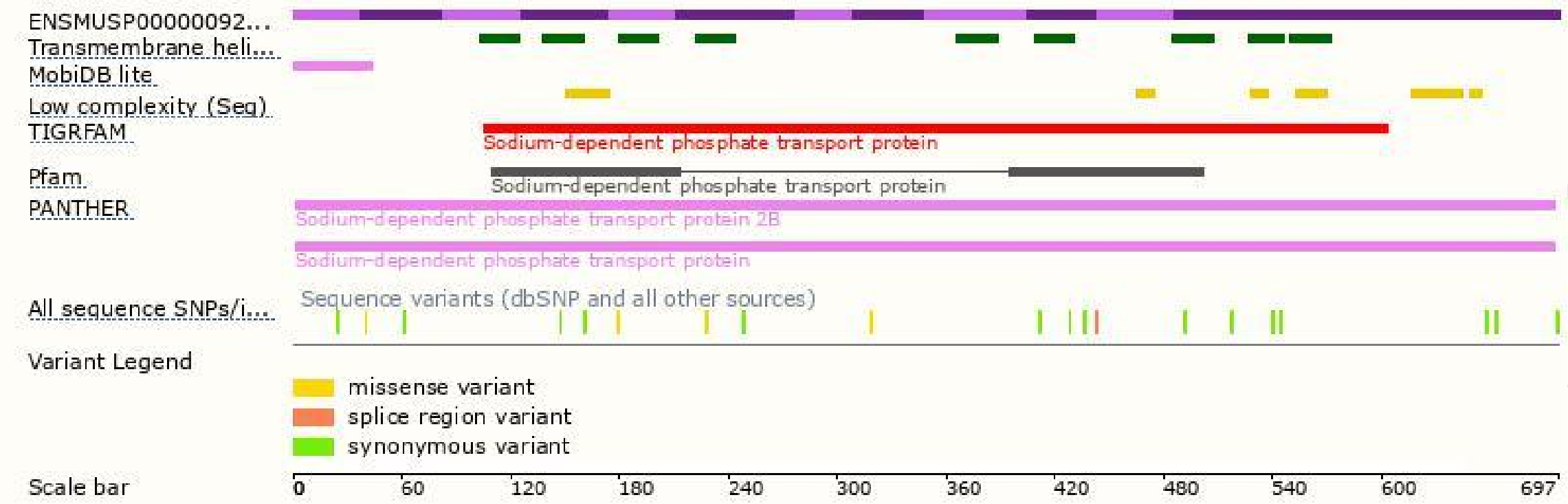
The strategy is based on the design of *Slc34a2-201* transcript,The transcription is shown below



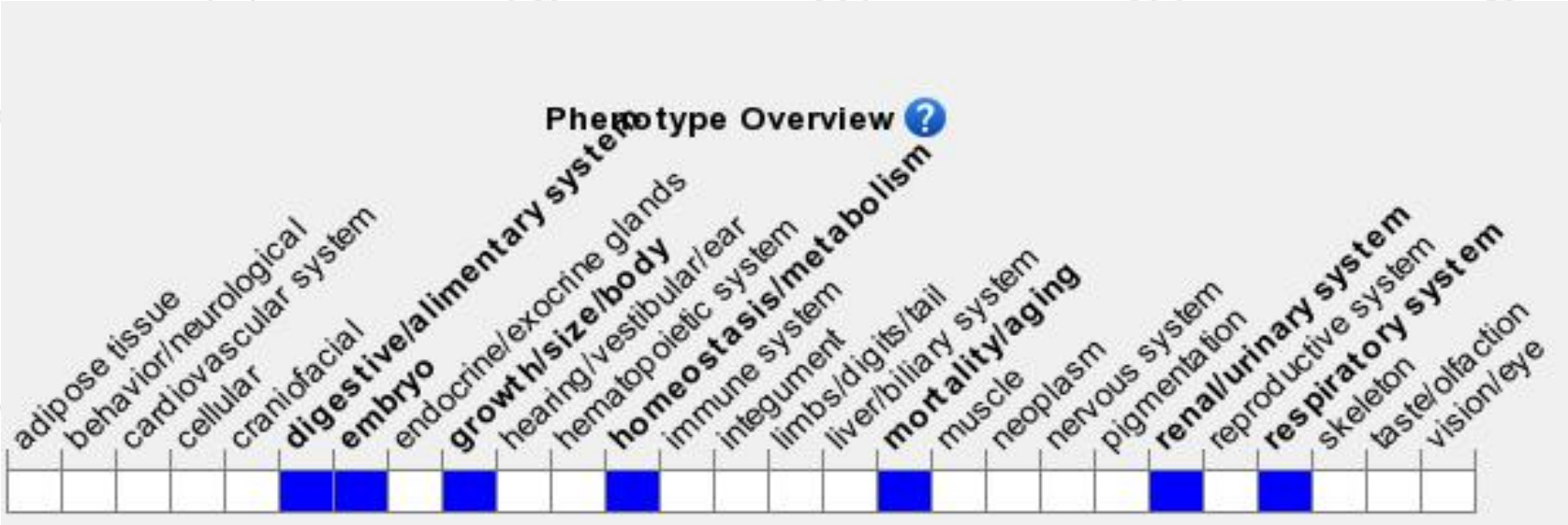
Genomic location distribution



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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