Tns2 Cas9-KO *Strategy*

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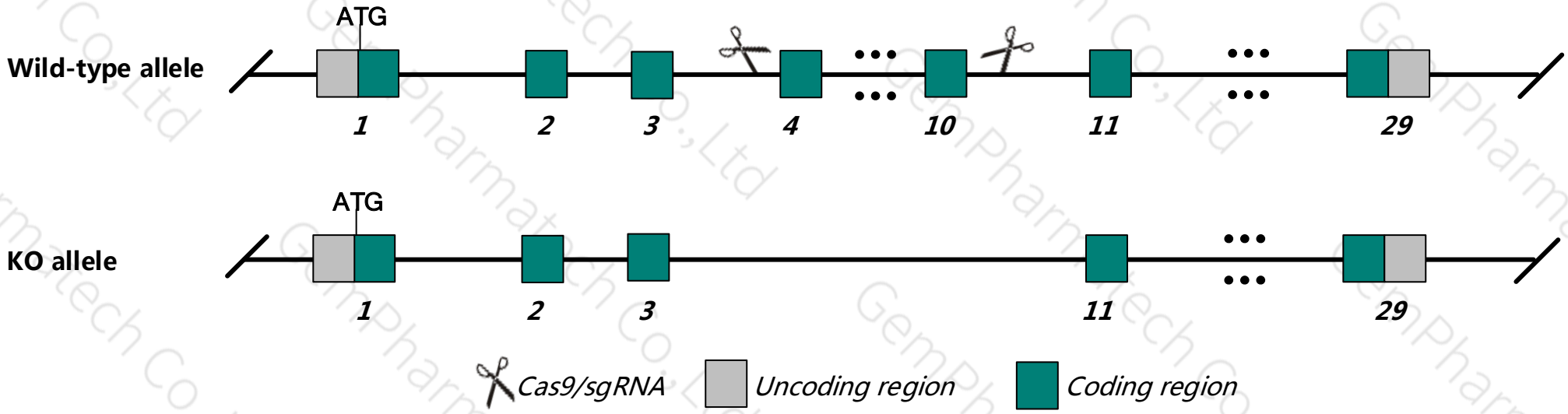
Project Overview

Project Name	*Tns2*
Project type	Cas9-KO
Animal background	C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tns2* gene. The schematic diagram is as follows:



Technical routes

- The Tns2 gene has 9 transcripts.According to the structure of *Tns2* gene, exon4-exon10 of *Tns2*-202 transcript is recommended as the knockout region.The region contains the 539bp coding seqence.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Tns2* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA 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.

Notice

- According to the existing MGI data,Affected mice homozygous for a spontaneous deletion show reduced female fertility, increased blood urea nitrogen, low hematocrit, proteinuria, hypoproteinemia, hypercholesterolemia, small kidneys with a yellowish granular surface, glomerular lesions and premature death; some develop systemic edema.

- The *Tns2* gene is located on the Chr15. 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 gene transcription and translation processes, all risks cannot be predicted under existing information.

Gene information （NCBI）

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Tns2 tensin 2 [*Mus musculus* (house mouse)]

Gene ID: 209039, updated on 31-Jan-2019

Summary

Official Symbol	Tns2 provided by MGI
Official Full Name	tensin 2 provided by MGI
Primary source	MGI:MGI:2387586
See related	Ensembl:ENSMUSG00000037003
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	nep; nph; Tenc1; C1-ten
Expression	Broad expression in lung adult (RPKM 60.8), subcutaneous fat pad adult (RPKM 26.0) and 17 other tissues See more
Orthologs	human all

Genomic context

Location: 15 F2; 15 57.29 cM

See Tns2 in Genome Data Viewer

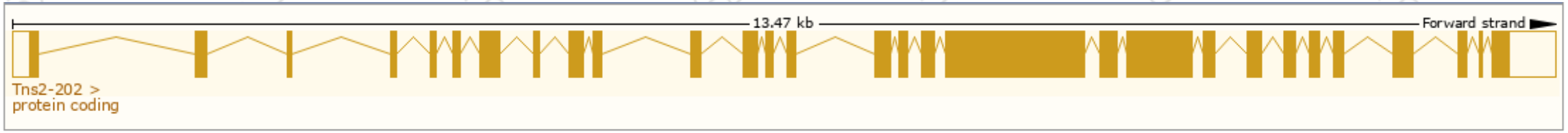
Exon count: 31

Transcript information（Ensembl）

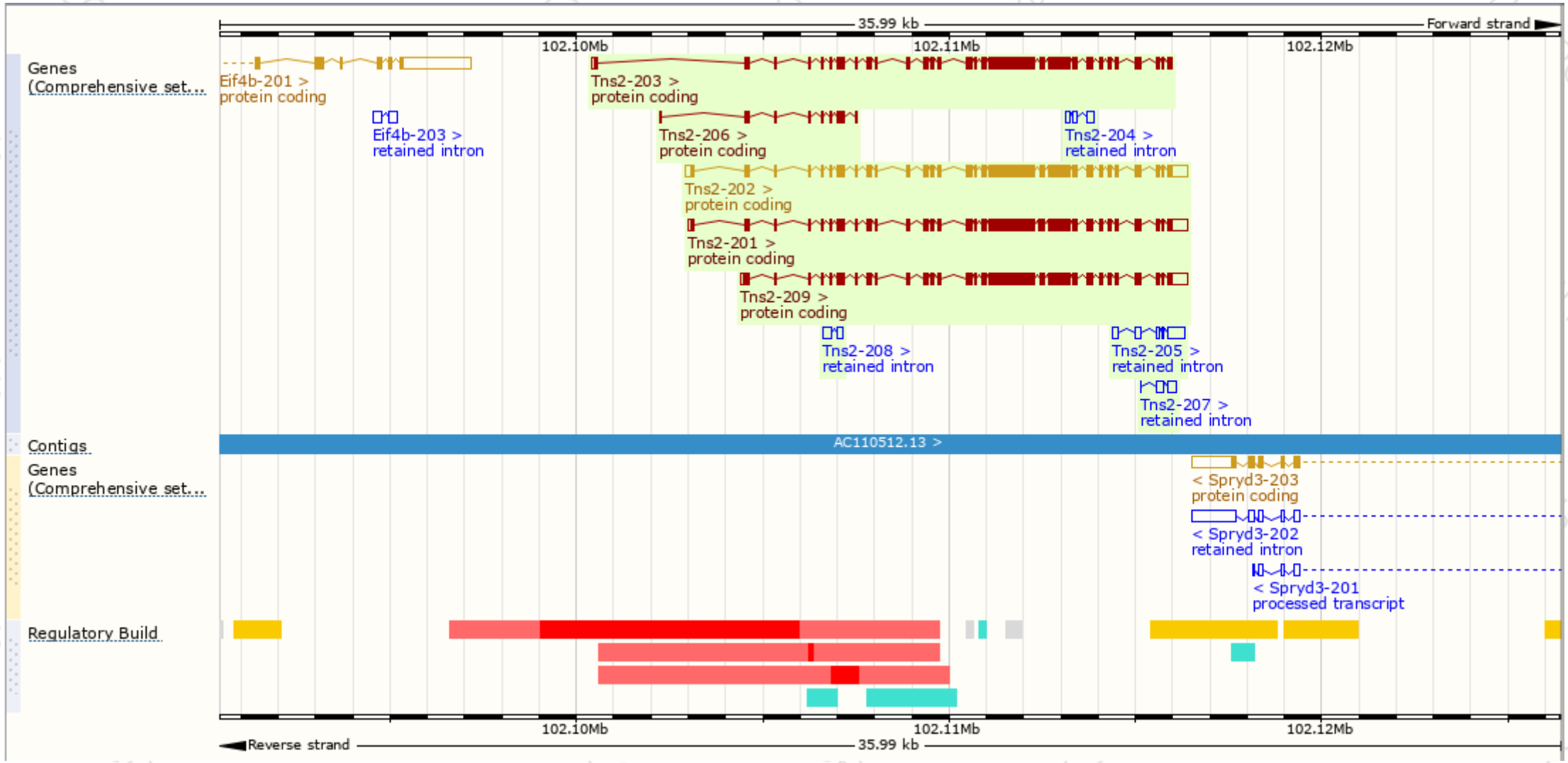
The gene has 9 transcripts, and all transcripts are shown below ：

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tns2-202	ENSMUST00000169627.8	4761	1400aa	Protein coding	CCDS37224	Q8CGB6	TSL:1 GENCODE basic APPRIS P2
Tns2-201	ENSMUST00000046144.9	4718	1407aa	Protein coding	-	Q8CGB6	TSL:5 GENCODE basic APPRIS ALT2
Tns2-209	ENSMUST00000230474.1	4637	1392aa	Protein coding	-	A0A2R8VHQ0	GENCODE basic APPRIS ALT2
Tns2-203	ENSMUST00000228958.1	4268	1400aa	Protein coding	-	Q8CGB6	CDS 3' incomplete
Tns2-206	ENSMUST00000229592.1	544	168aa	Protein coding	-	A0A2R8W6Z5	CDS 3' incomplete
Tns2-205	ENSMUST00000229097.1	870	No protein	Retained intron	-	-	-
Tns2-207	ENSMUST00000229800.1	468	No protein	Retained intron	-	-	-
Tns2-208	ENSMUST00000229908.1	365	No protein	Retained intron	-	-	-
Tns2-204	ENSMUST00000229035.1	359	No protein	Retained intron	-	-	-

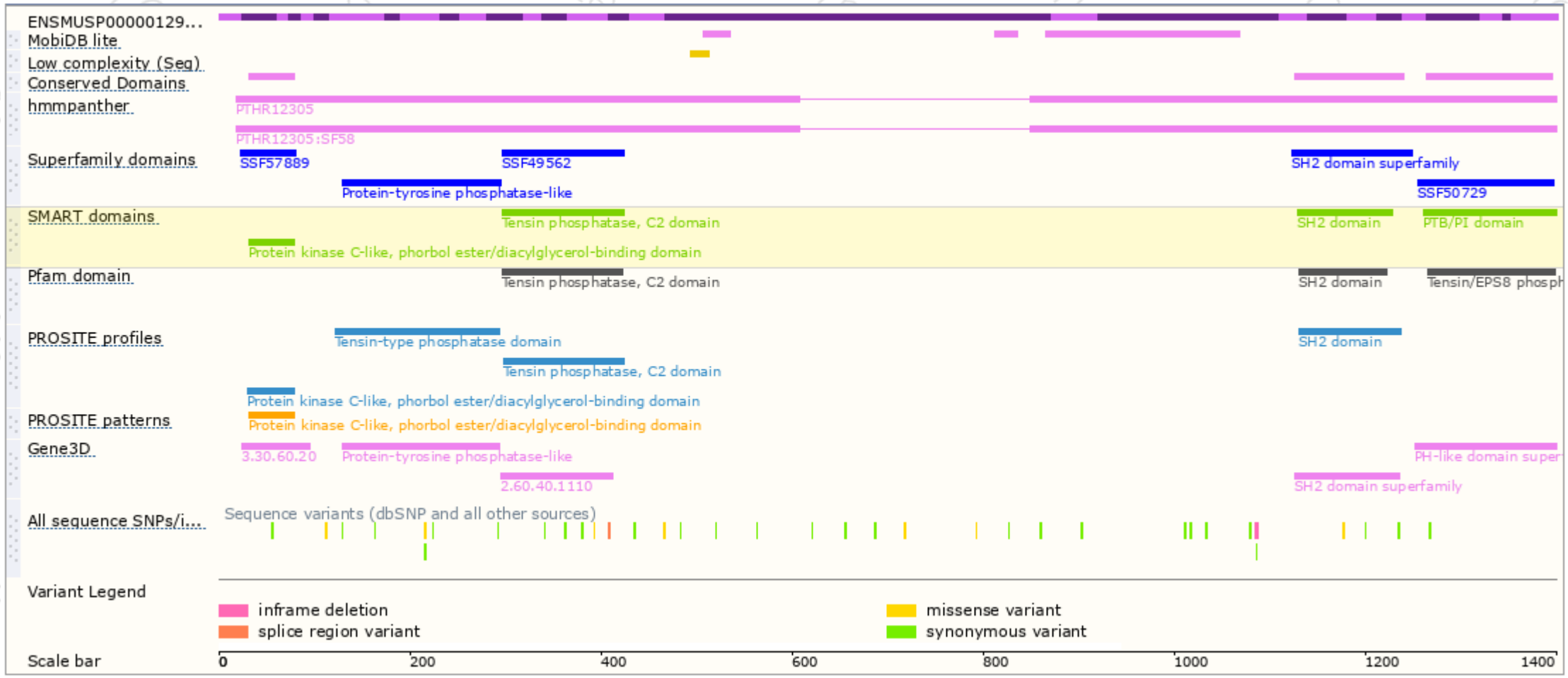
The strategy is based on the design of *Tns2*-202 transcript,The transcription is shown below



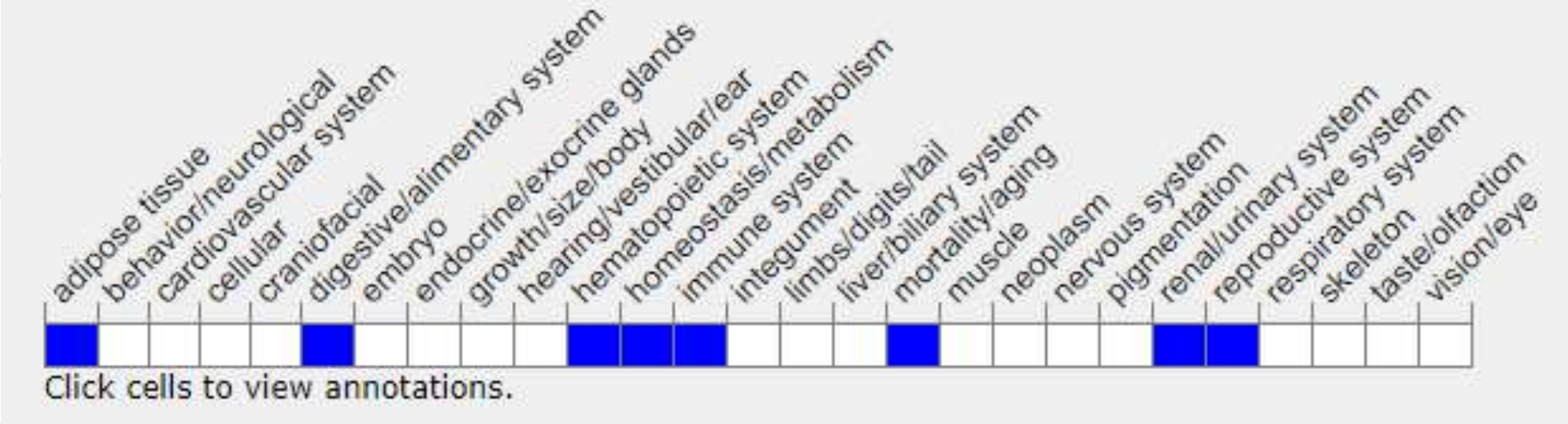
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



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If you have any questions, you are welcome to inquire.

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