Ptgis Cas9-KO Strategy

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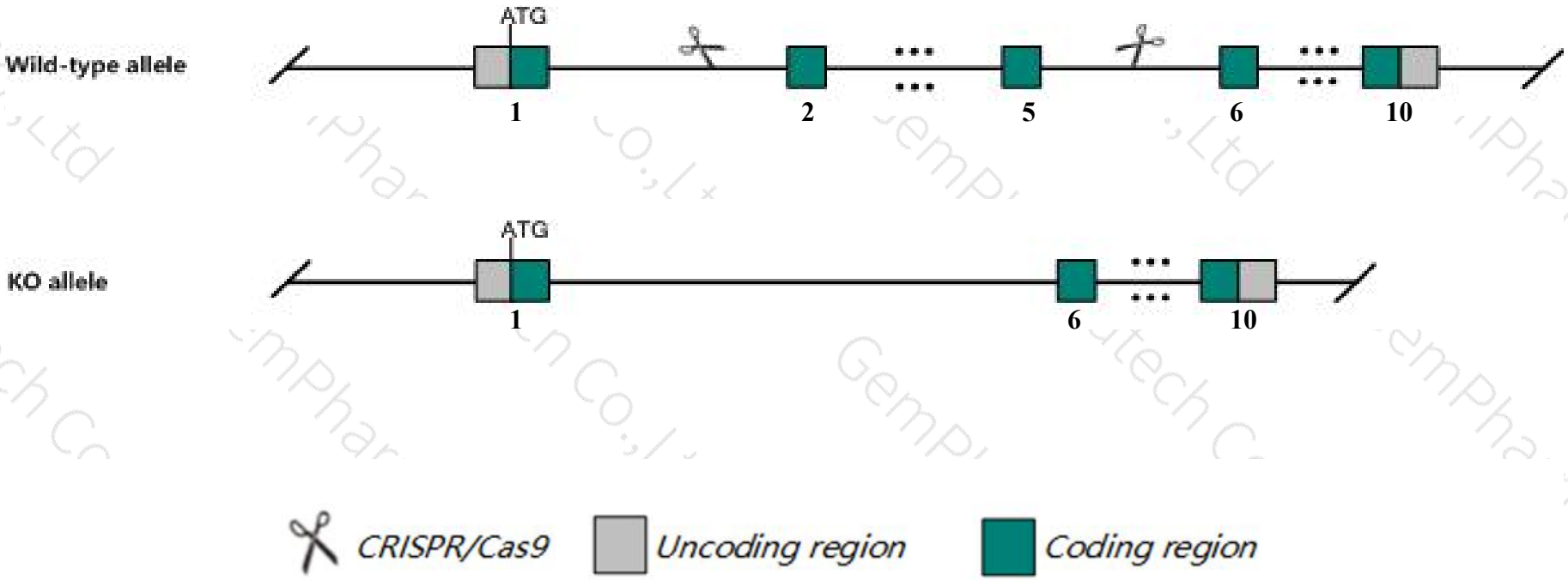
Project Overview

Project Name	***Ptgis***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

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



Technical routes

➢ The *Ptgis* gene has 3 transcripts. According to the structure of *Ptgis* gene, exon2-exon5 of *Ptgis-201* (ENSMUST00000018113.7) transcript is recommended as the knockout region.The region contains 599bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Ptgis* gene. The brief process is as follows: CRISPR/Cas9 system v

Notice

- According to the existing MGI data,Homozygous mutation of this gene results in increased blood urea nitrogen and creatinine levels, thickening of the aorta with age, mildly increased blood pressure, and kidney abnormalities including cysts, fibrosis, necrosis, and renal vascular congestion.

- The *Ptgis* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information（NCBI）

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Ptgis prostaglandin I2 (prostacyclin) synthase [*Mus musculus* (house mouse)]

Gene ID: 19223, updated on 12-Aug-2019

Summary

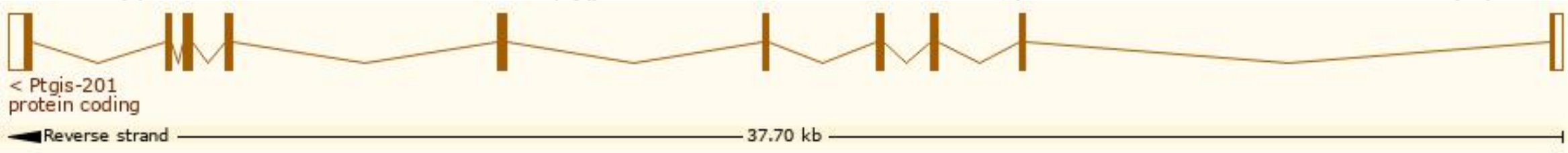
Official Symbol	Ptgis provided by MGI
Official Full Name	prostaglandin I2 (prostacyclin) synthase provided by MGI
Primary source	MGI:MGI:1097156
See related	Ensembl:ENSMUSG00000017969
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Cyp8; Pgis; Cyp8a1
Expression	Broad expression in lung adult (RPKM 56.6), ovary adult (RPKM 52.9) and 16 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

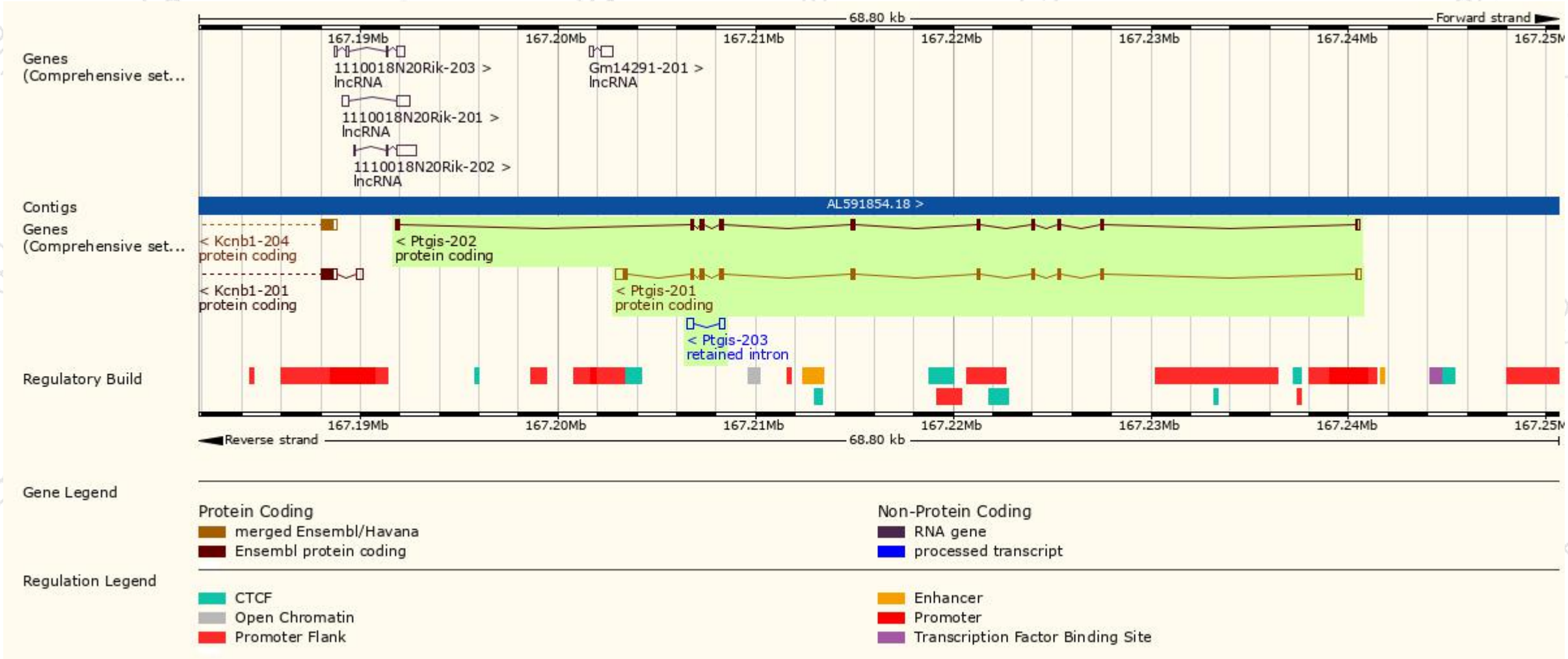
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ptgis-203	ENSMUST00000136271.1	600	No protein	Retained intron	-	-	TSL:3
Ptgis-201	ENSMUST00000018113.7	2107	501aa	Protein coding	CCDS17097	O35074	TSL:1 GENCODE basic APPRIS P1
Ptgis-202	ENSMUST00000088041.10	1711	509aa	Protein coding	-	Q8BXC0	TSL:1 GENCODE basic

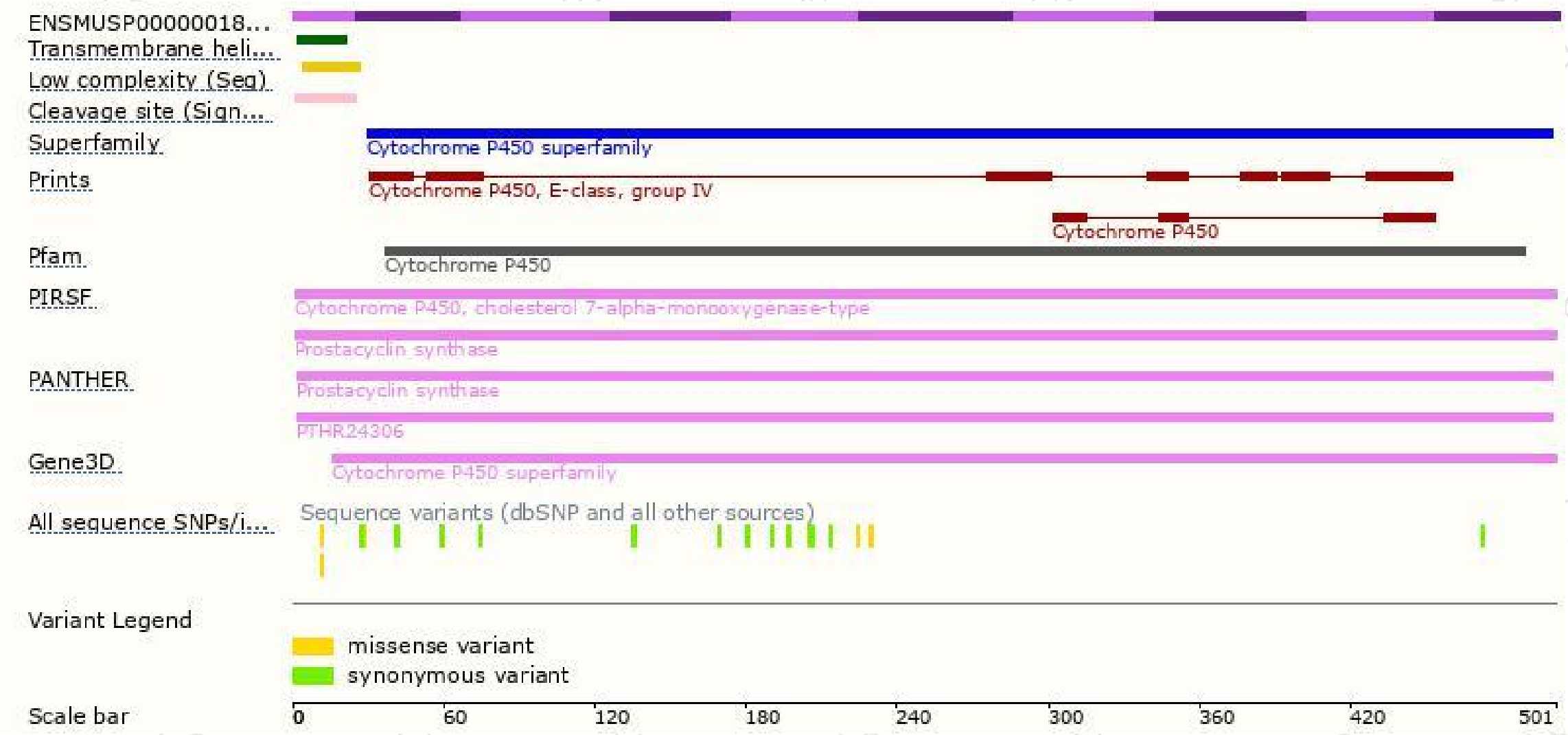
The strategy is based on the design of *Ptgis-201* transcript, the transcription is shown below:



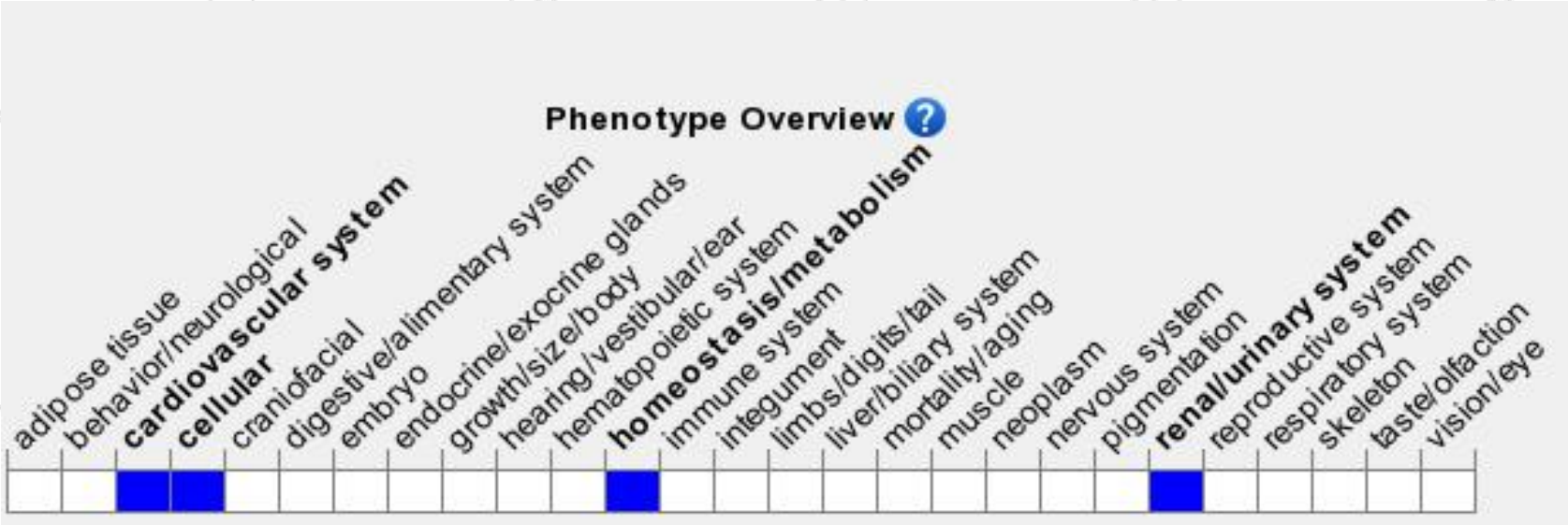
Genomic location distribution



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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