Colec11 Cas9-KO Strategy

Designer: Daohua Xu
Reviewer: Huimin Su

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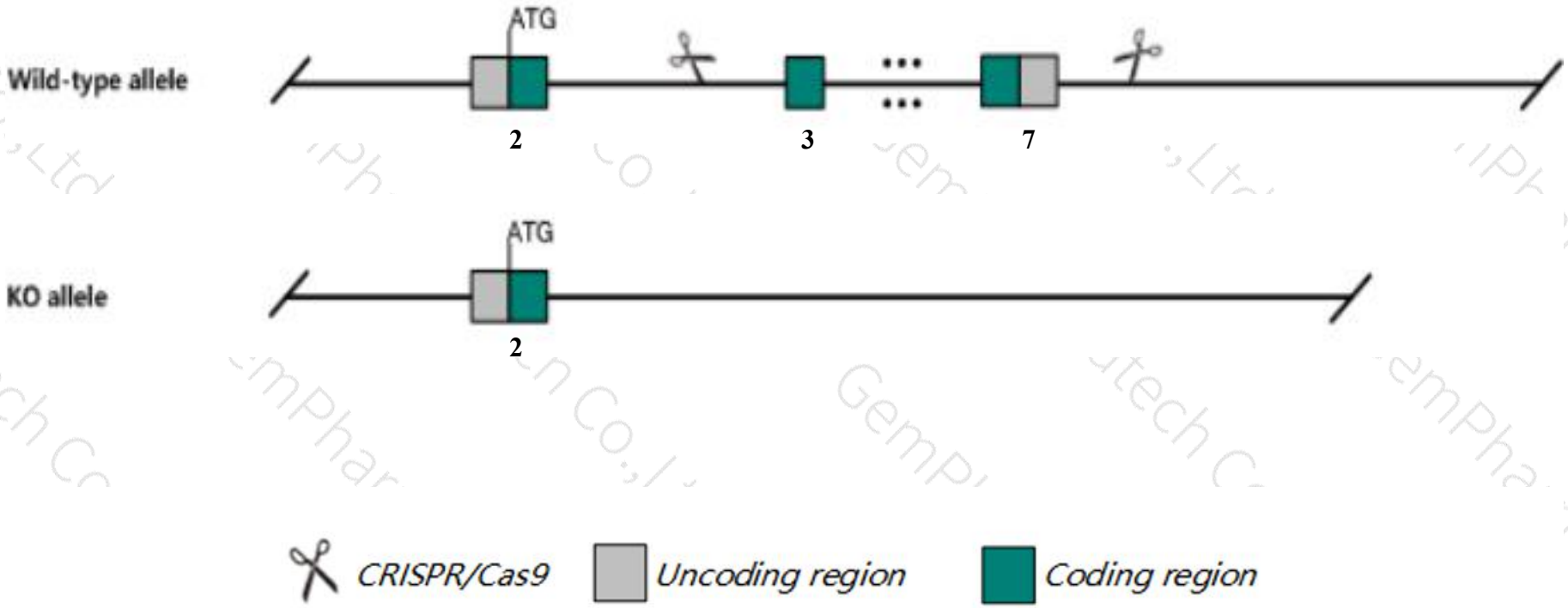
Project Overview

Project Name	***Colec11***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Colec11* gene. The schematic diagram is as follows:



Technical routes

➢ The *Colec11* gene has 3 transcripts. According to the structure of *Colec11* gene, exon3-exon7 of *Colec11-201* (ENSMUST00000036136.8) transcript is recommended as the knockout region.The region contains 686bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Colec11* gene. The brief process is as follows: CRISPR/Cas9 syste

Notice

- According to the existing MGI data， Mice homozygous for a knockout allele exhibit decreased susceptibility to kidney reperfusion injury.

- The *Colec11* gene is located on the Chr12. 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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Colec11 collectin sub-family member 11 [*Mus musculus* (house mouse)]

Gene ID: 71693, updated on 13-Mar-2020

Summary

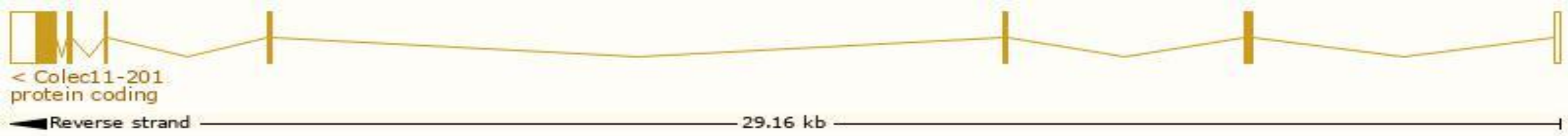
Official Symbol	Colec11 provided by MGI
Official Full Name	collectin sub-family member 11 provided by MGI
Primary source	MGI:MGI:1918943
See related	Ensembl:ENSMUSG00000036655
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	CL-K1
Summary	This gene encodes a member of the collectin family of C-type lectins that possess collagen-like sequences and carbohydrate recognition domains. Collectins are secreted proteins that play important roles in the innate immune system by binding to carbohydrate antigens on microorganisms, facilitating their recognition and removal. The encoded protein binds to multiple sugars with a preference for fucose and mannose. Mutations in the human gene are a cause of 3MC syndrome-2. Alternative splicing results in multiple transcript variants encoding different isoforms. [provided by RefSeq, Sep 2015]
Expression	Biased expression in liver adult (RPKM 12.7), liver E18 (RPKM 9.2) and 11 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

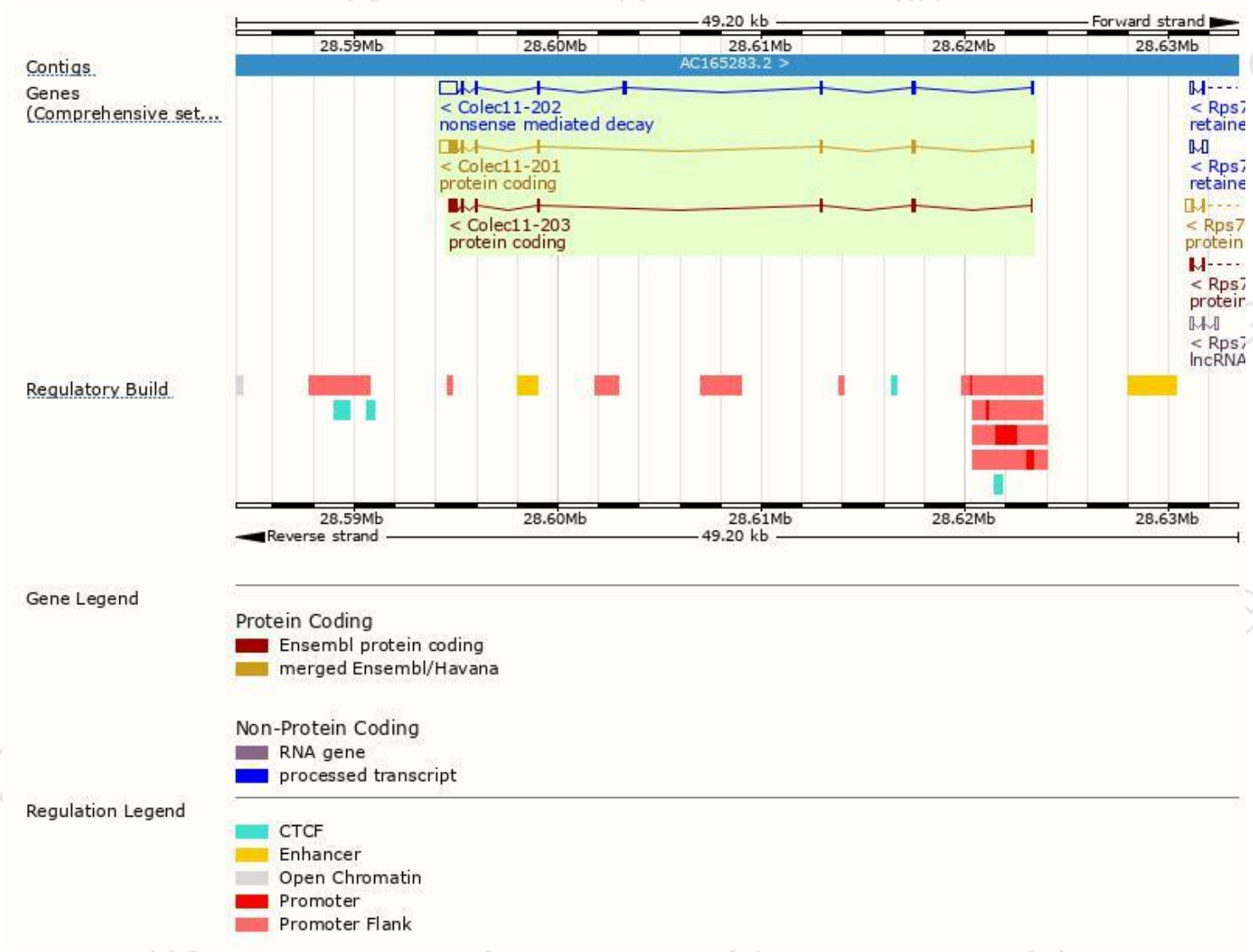
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Colec11-201	ENSMUST00000036136.8	1423	272aa	Protein coding	CCDS36426	A0A0R4J0M6	TSL:1 GENCODE basic APPRIS P1
Colec11-203	ENSMUST00000220836.1	887	278aa	Protein coding	-	A0A1Y7VKG6	TSL:1 GENCODE basic
Colec11-202	ENSMUST00000220655.1	1603	91aa	Nonsense mediated decay	-	A0A1Y7VLI6	TSL:5

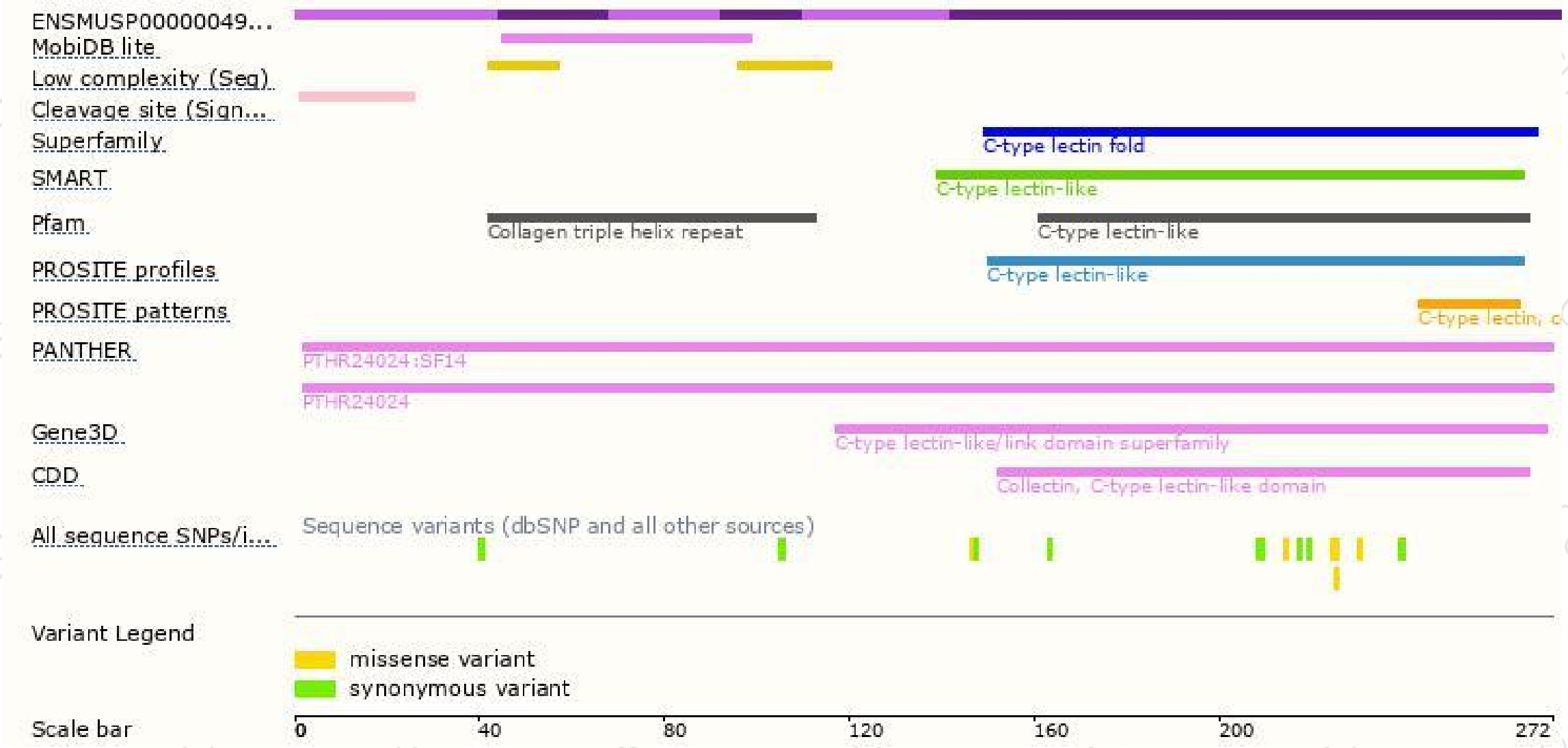
The strategy is based on the design of *Colec11-201* transcript,The transcription is shown below



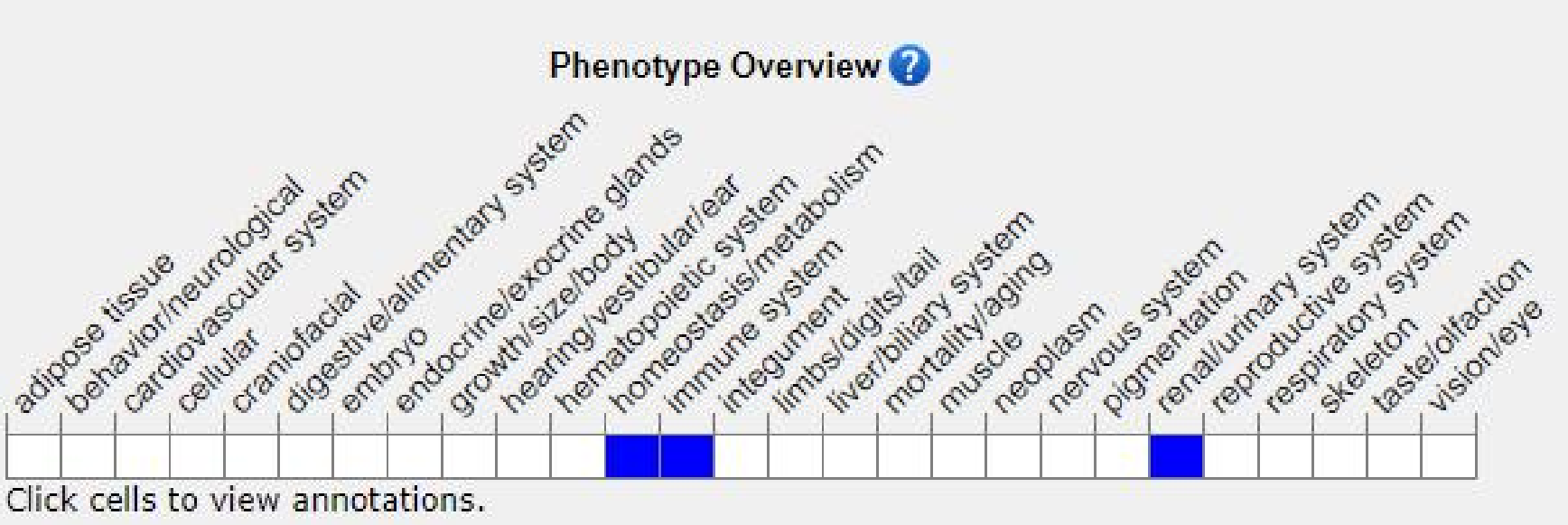
Genomic location distribution



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/).

According to the existing MGI data,Mice homozygous for a knockout allele exhibit decreased susceptibility to kidney reperfusion injury.

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GemPharmatech

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

Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd