Fgl1 Cas9-CKO Strategy

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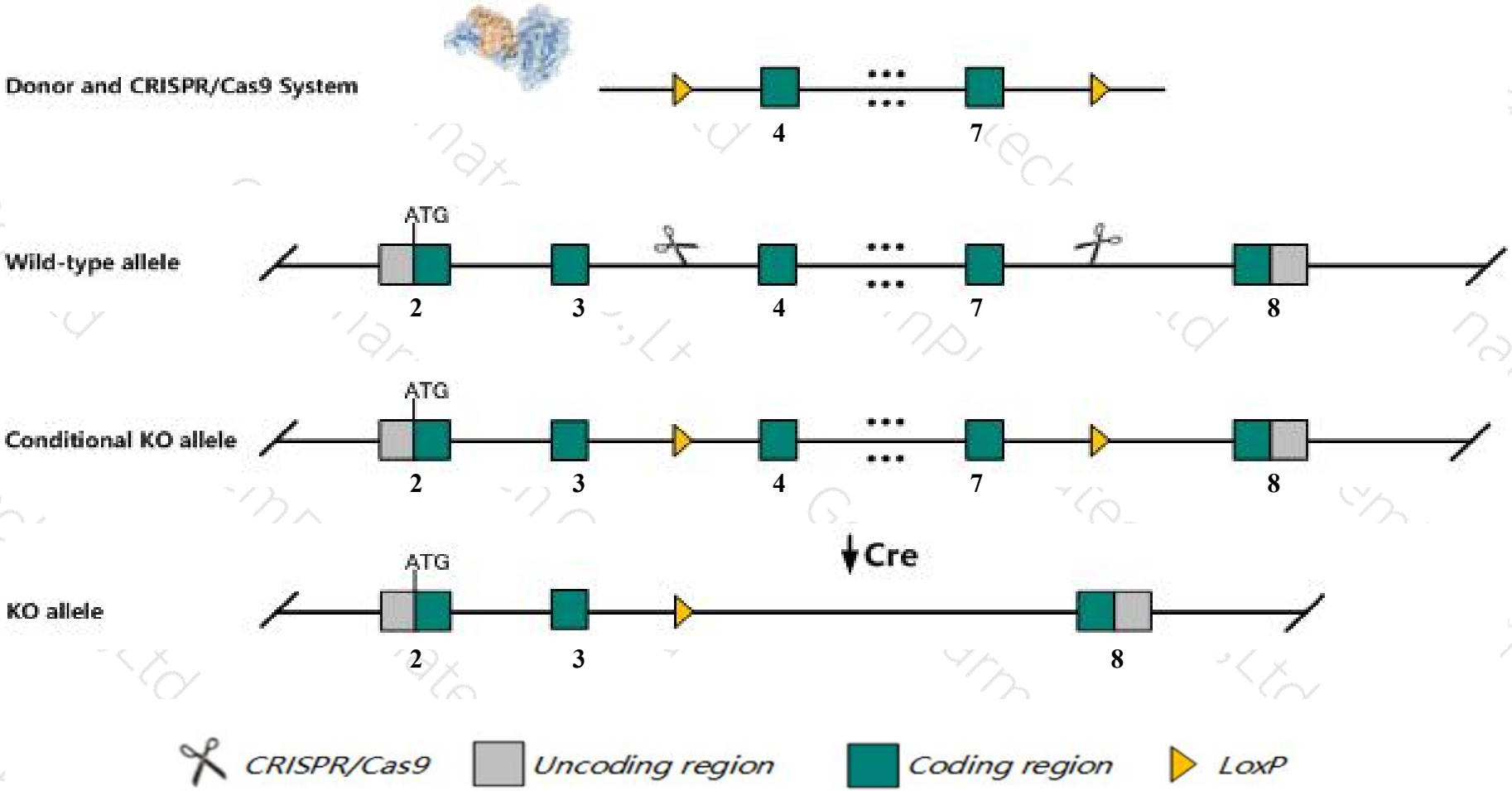
Project Overview

Project Name	***Fgl1***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Fgl1* gene. The schematic diagram is as follows:



Technical routes

- The *Fgl1* gene has 2 transcripts. According to the structure of *Fgl1* gene, exon4-exon7 of *Fgl1-201* (ENSMUST00000034003.4) transcript is recommended as the knockout region.The region contains 535bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Fgl1* 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 one null allele exhibit increased body weight, white fat and gluconeogenesis, decreased circulating cholesterol, free fatty acid level and respiratory quotient, hyperglycemia, and impaired glucose tolerance. Mice homozygous for a second null allele display normal appearance with age-related onset of dermatitis.

➢ The *Fgl1* gene is located on the Chr8. 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）

集萃药康 GemPharmatech

Fgl1 fibrinogen-like protein 1 [Mus musculus (house mouse)]

Gene ID: 234199, updated on 25-Mar-2019

Summary

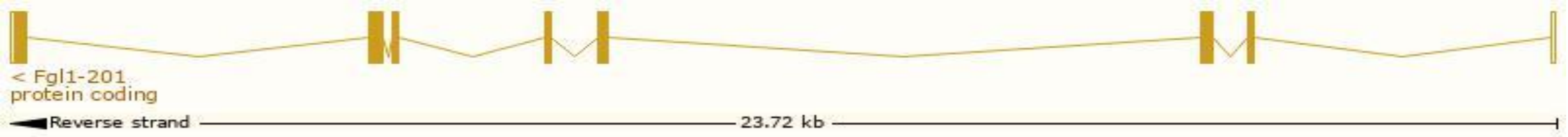
Official Symbol	Fgl1 provided by MGI
Official Full Name	fibrinogen-like protein 1 provided byMGI
Primary source	MGI:MGI:102795
See related	Ensembl:ENSMUSG00000031594
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Mfire1
Expression	Restricted expression toward liver E18 (RPKM 174.3)See more
Orthologs	human all

Transcript information（Ensembl）

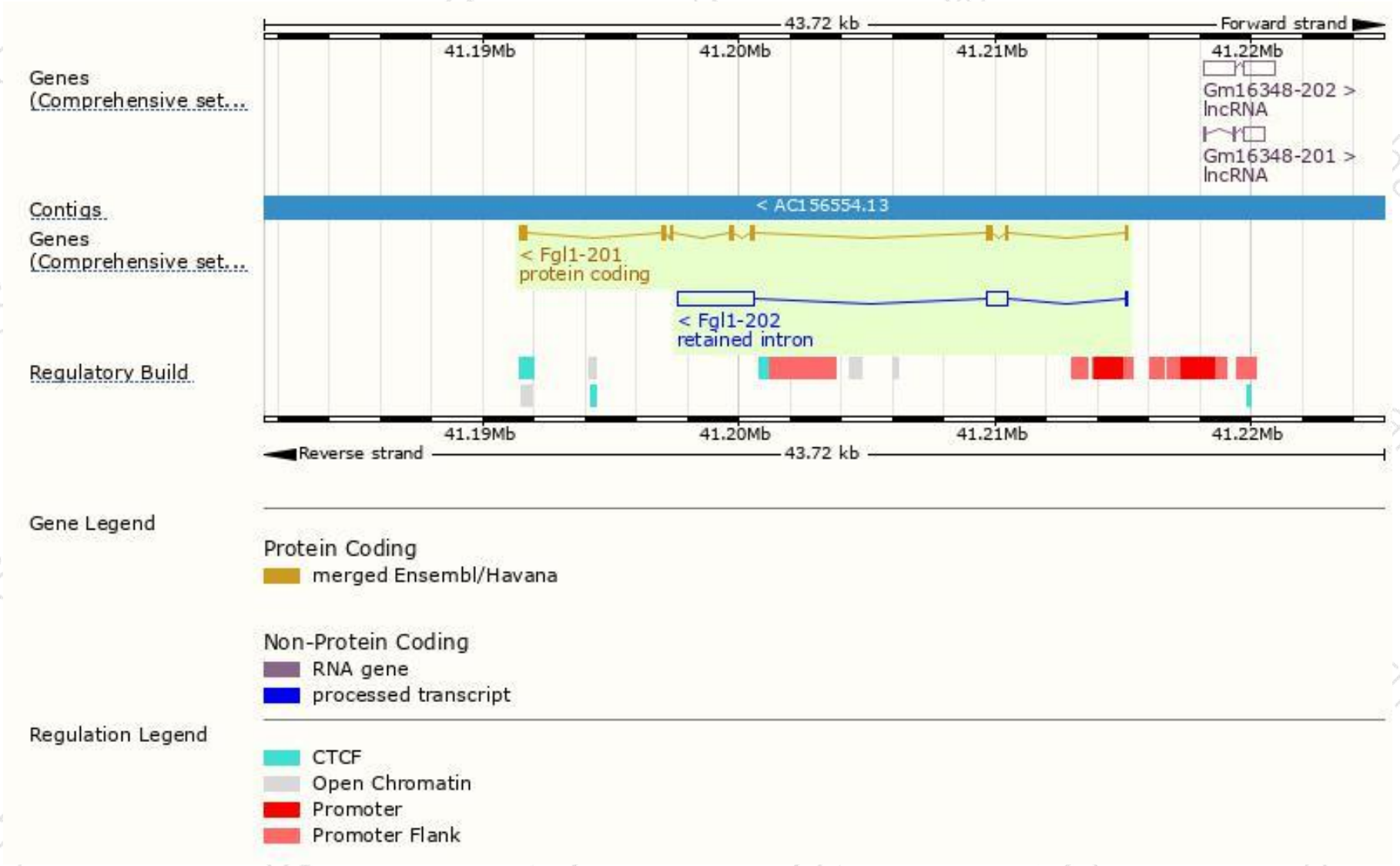
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Fgl1-201	ENSMUST00000034003.4	1120	314aa	Protein coding	CCDS22260	A0A0R4J0E1	TSL:1 GENCODE basic APPRIS P1
Fgl1-202	ENSMUST00000134510.1	3907	No protein	Retained intron	-	-	TSL:2

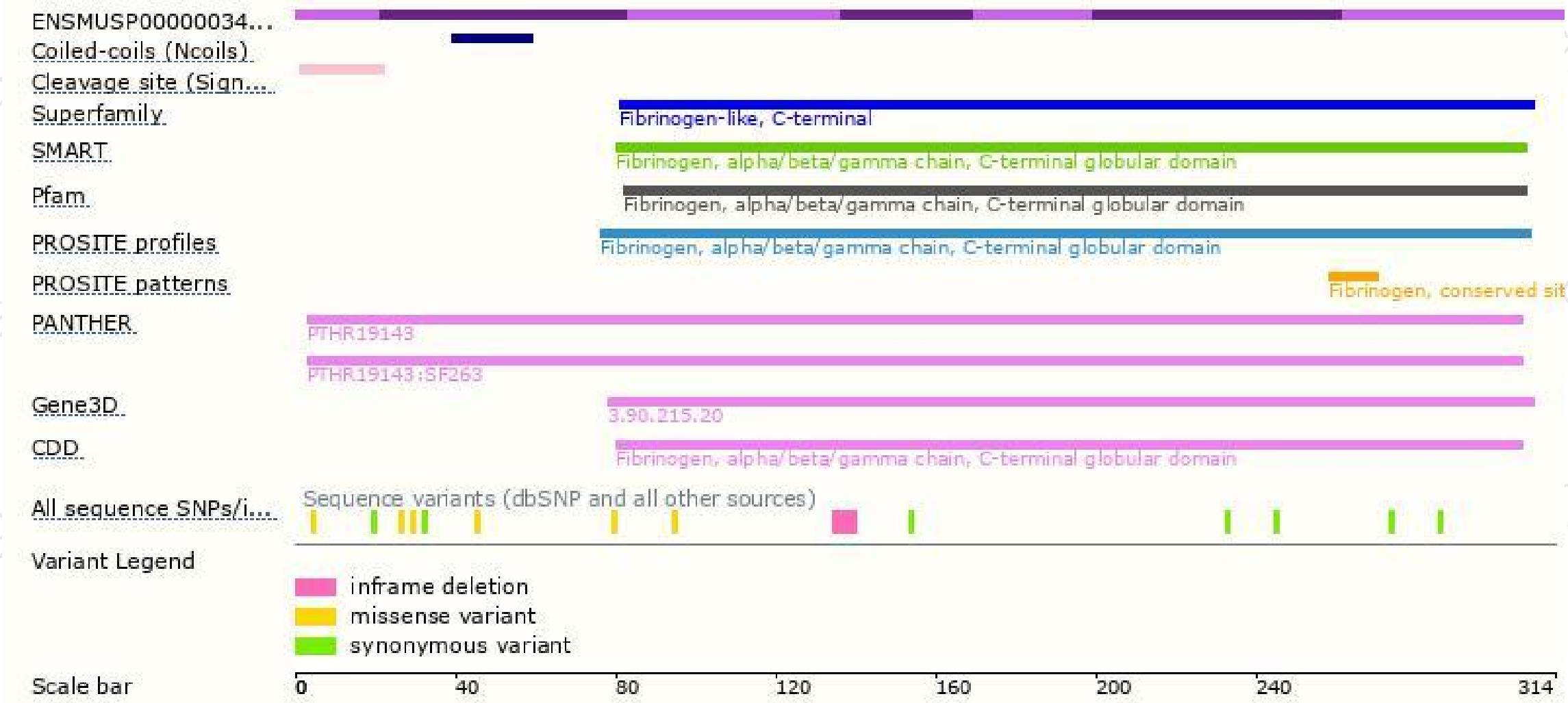
The strategy is based on the design of *Fgl1-201* transcript,The transcription is shown below



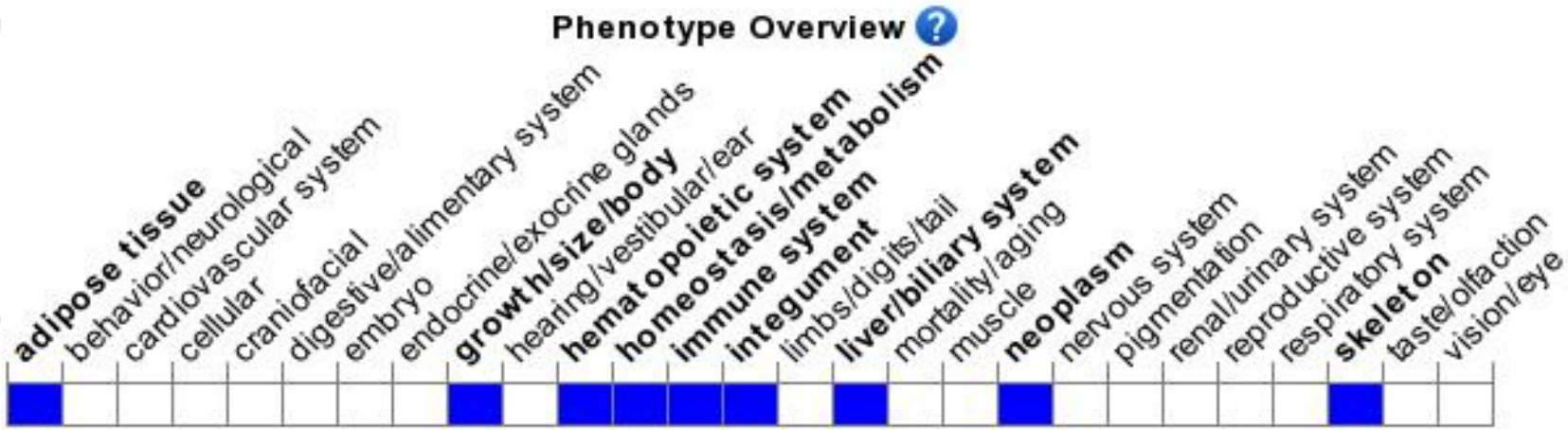
Genomic location distribution



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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