

***Hsd17b11* Cas9-KO Strategy**

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Project Overview

Project Name

Hsd17b11

Project type

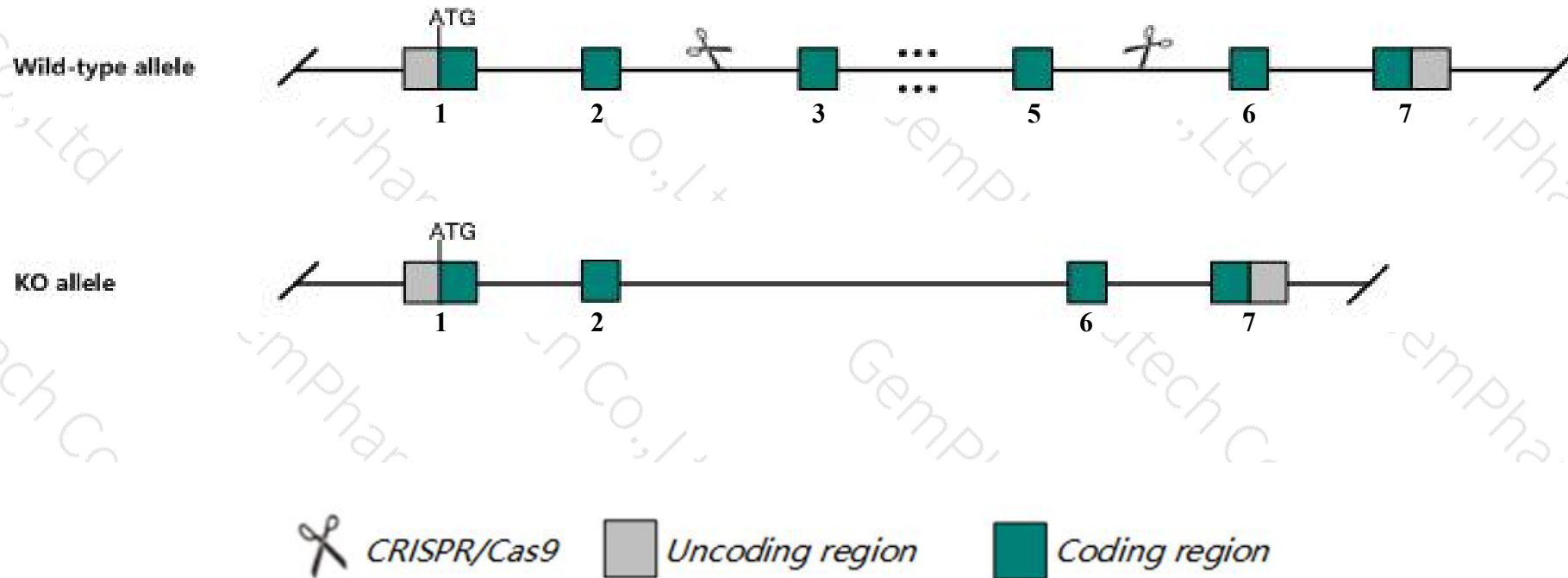
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Hsd17b11* gene. The schematic diagram is as follows:



- The *Hsd17b11* gene has 2 transcripts. According to the structure of *Hsd17b11* gene, exon3-exon5 of *Hsd17b11-201* (ENSMUST00000031251.15) transcript is recommended as the knockout region. The region contains 377bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Hsd17b11* gene. The brief process is as follows: gRNA was transcribed in vitro. Cas9 and gRNA 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.

- According to the existing MGI data, Homozygous mutant mice exhibit an increased mean serum IgG2a response to ovalbumin challenge and an increased mean percentage of immature B cells in bone marrow.
- The *Hsd17b11* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Hsd17b11 hydroxysteroid (17-beta) dehydrogenase 11 [*Mus musculus* (house mouse)]

Gene ID: 114664, updated on 12-Aug-2019

Summary

Official Symbol Hsd17b11 provided by [MGI](#)
Official Full Name hydroxysteroid (17-beta) dehydrogenase 11 provided by [MGI](#)
Primary source [MGI:MGI:2149821](#)
See related [Ensembl:ENSMUSG00000029311](#)
Gene type protein coding
RefSeq status PROVISIONAL
Organism [Mus musculus](#)
Lineage Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as SDR2; Dhhrs8; Pan1b; retSDR2
Expression Ubiquitous expression in large intestine adult (RPKM 49.0), duodenum adult (RPKM 48.7) and 27 other tissues [See more](#)
Orthologs [human](#) [all](#)

Genomic context

Location: 5; 5 E5

See Hsd17b11 in [Genome Data Viewer](#)

Exon count: 7

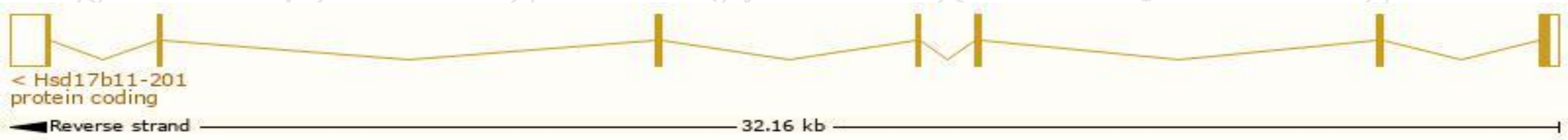
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	5	NC_000071.6 (103989765..104021796, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	5	NC_000071.5 (104418784..104450815, complement)

Transcript information (Ensembl)

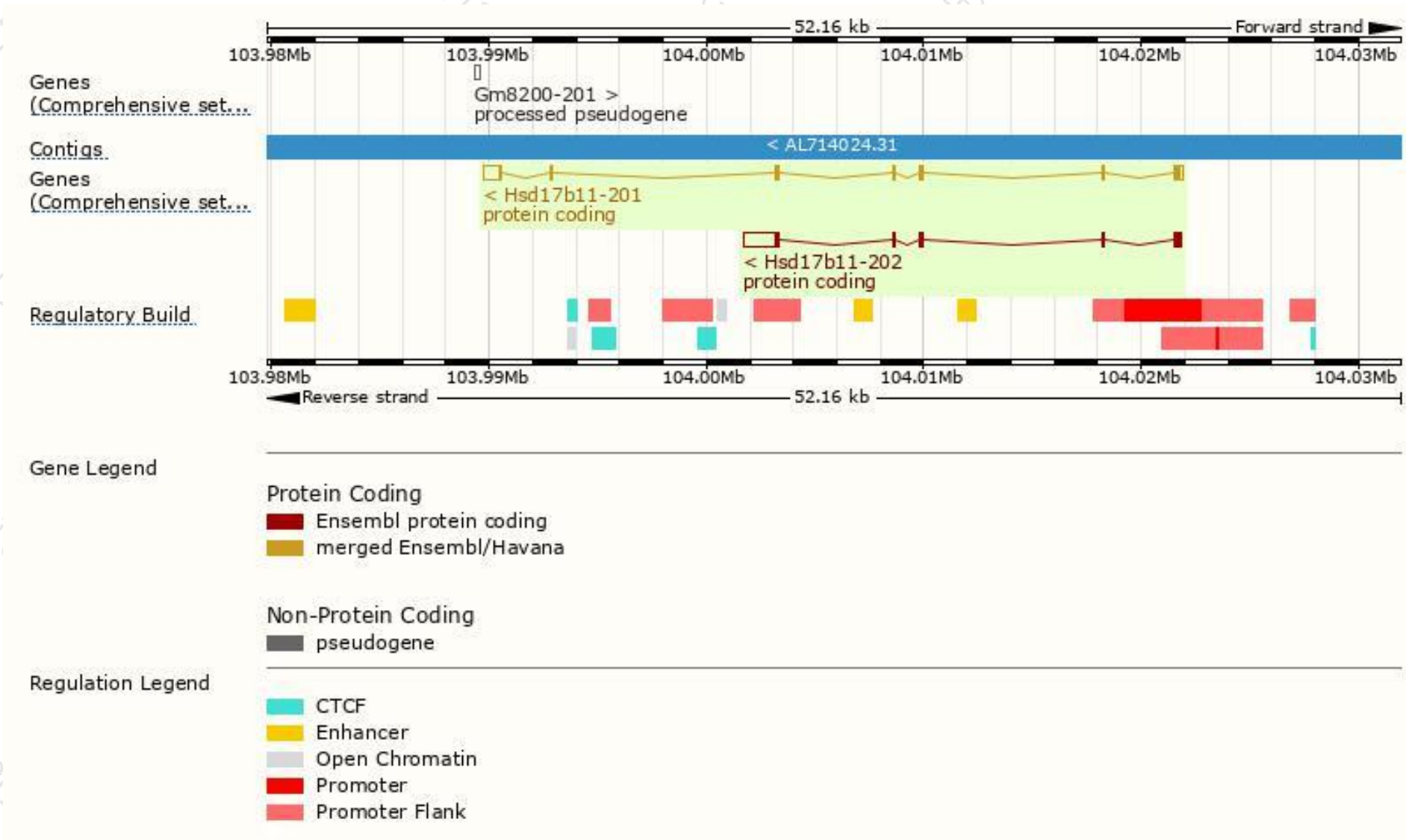
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Hsd17b11-201	ENSMUST00000031251.15	1825	298aa	Protein coding	CCDS19481	Q9EQ06	TSL:1 GENCODE basic APPRIS P2
Hsd17b11-202	ENSMUST00000119025.1	2234	232aa	Protein coding	-	Q9EQ06	TSL:1 GENCODE basic APPRIS ALT2

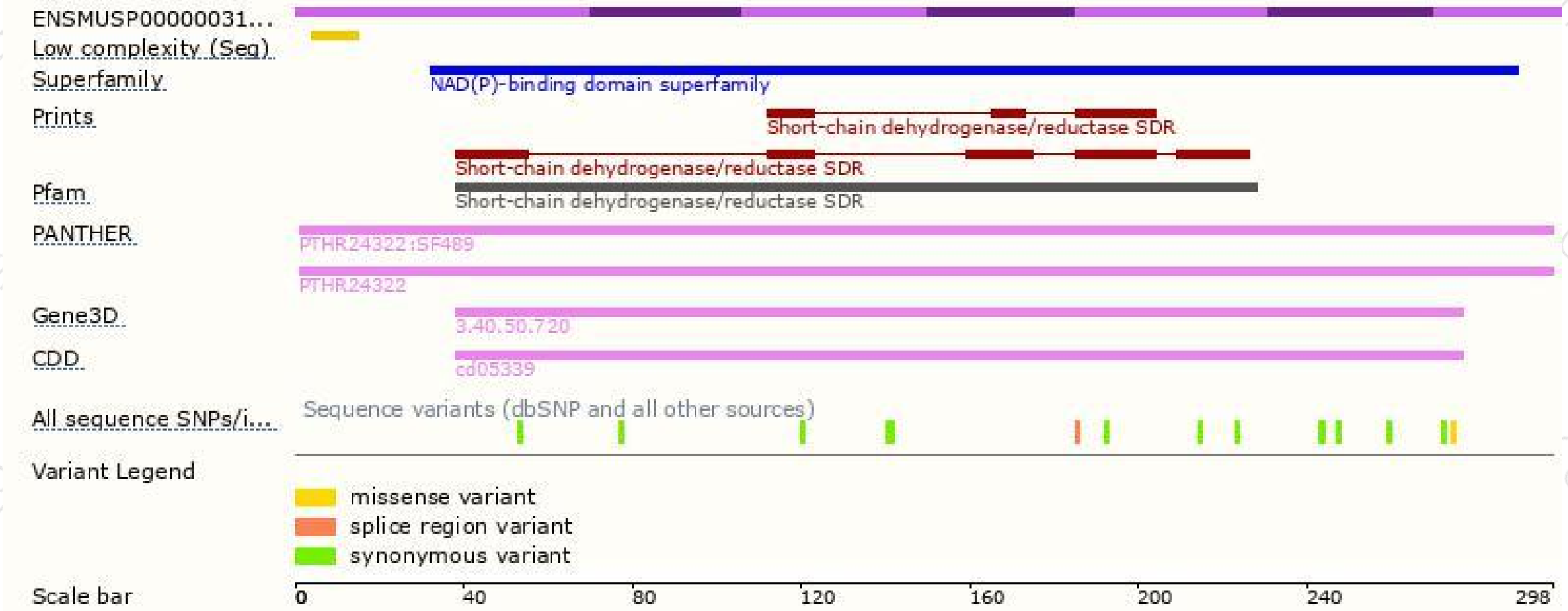
The strategy is based on the design of *Hsd17b11-201* transcript,The transcription is shown below



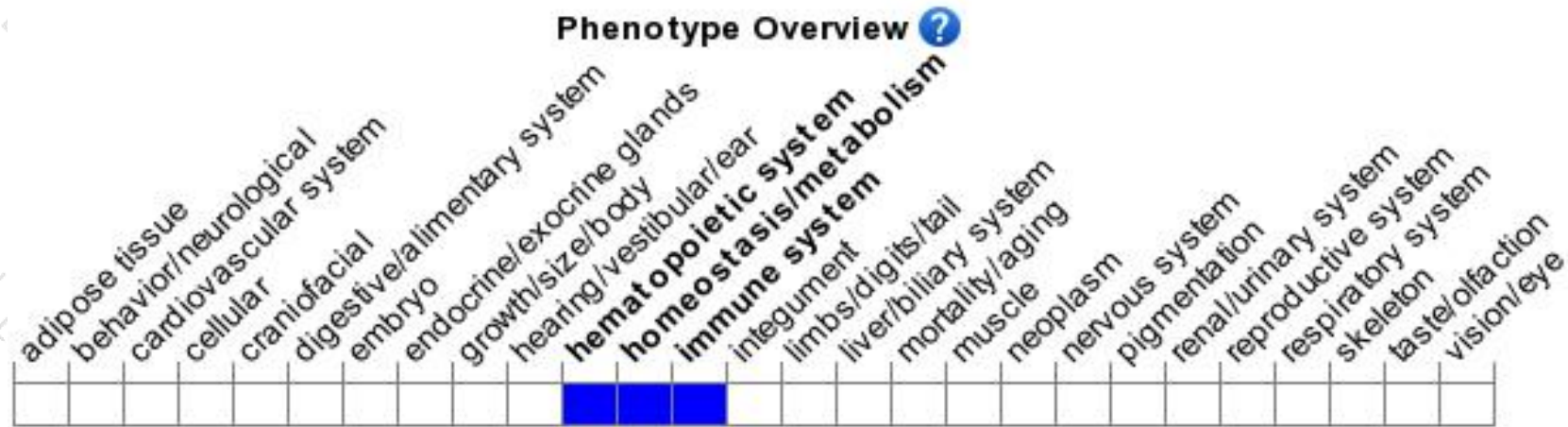
Genomic location distribution



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, Homozygous mutant mice exhibit an increased mean serum IgG2a response to ovalbumin challenge and an increased mean percentage of immature B cells in bone marrow.

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

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