

***Hsd17b11* Cas9-CKO Strategy**

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Project Overview

Project Name

Hsd17b11

Project type

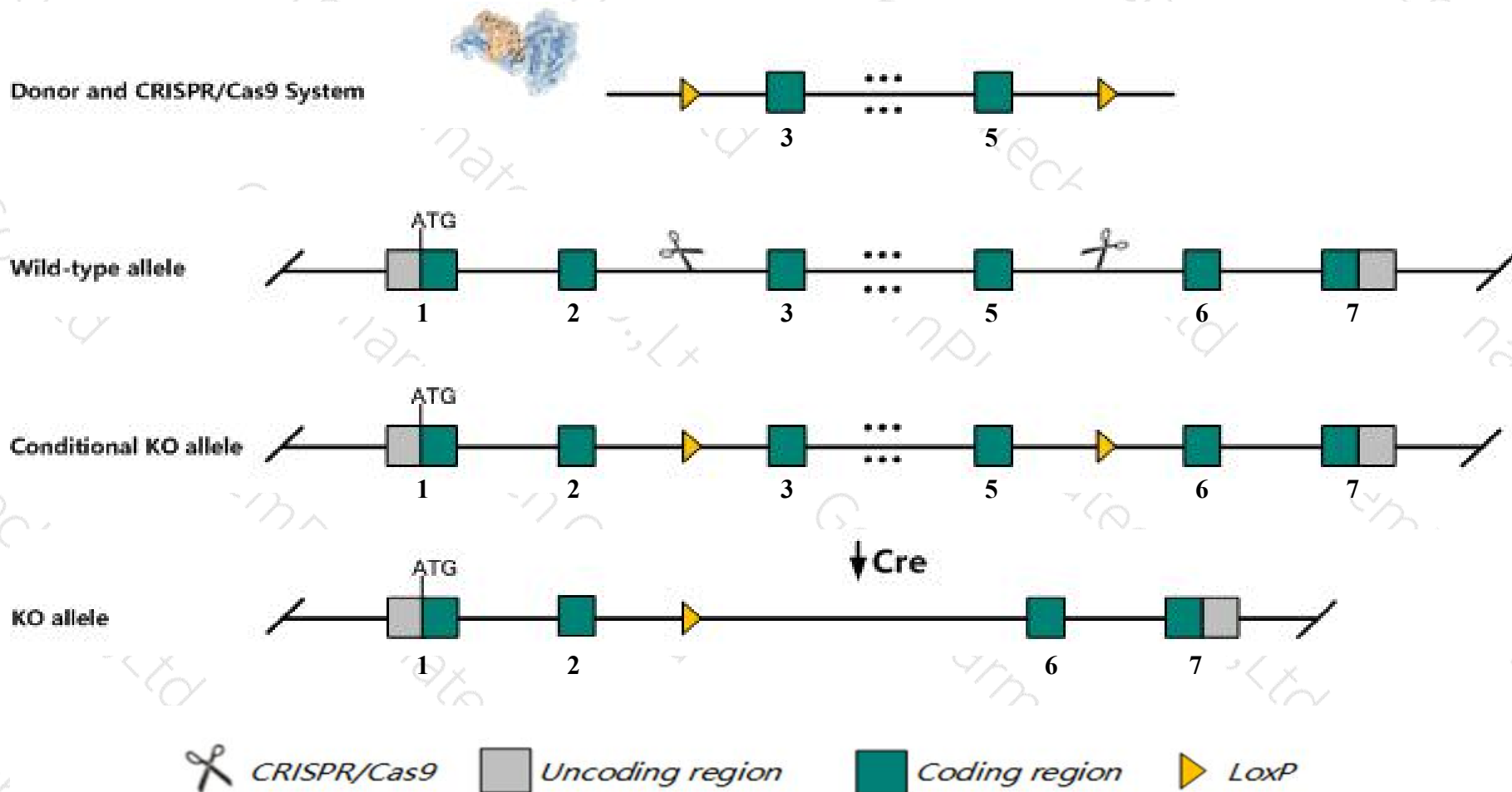
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional 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, donor was constructed. Cas9, gRNA 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.

- 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological 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

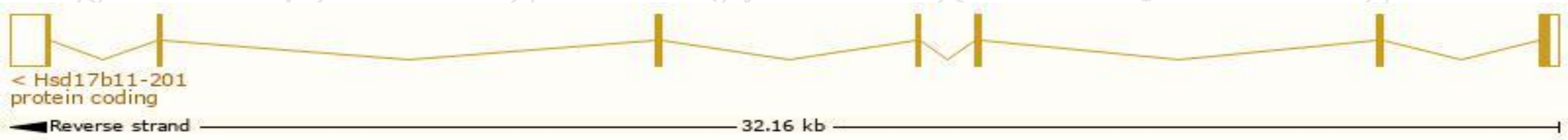
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	5	NC_000071.6 (103989765..104021796, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	5	NC_000071.5 (104418784..104450815, complement)

Transcript information (Ensembl)

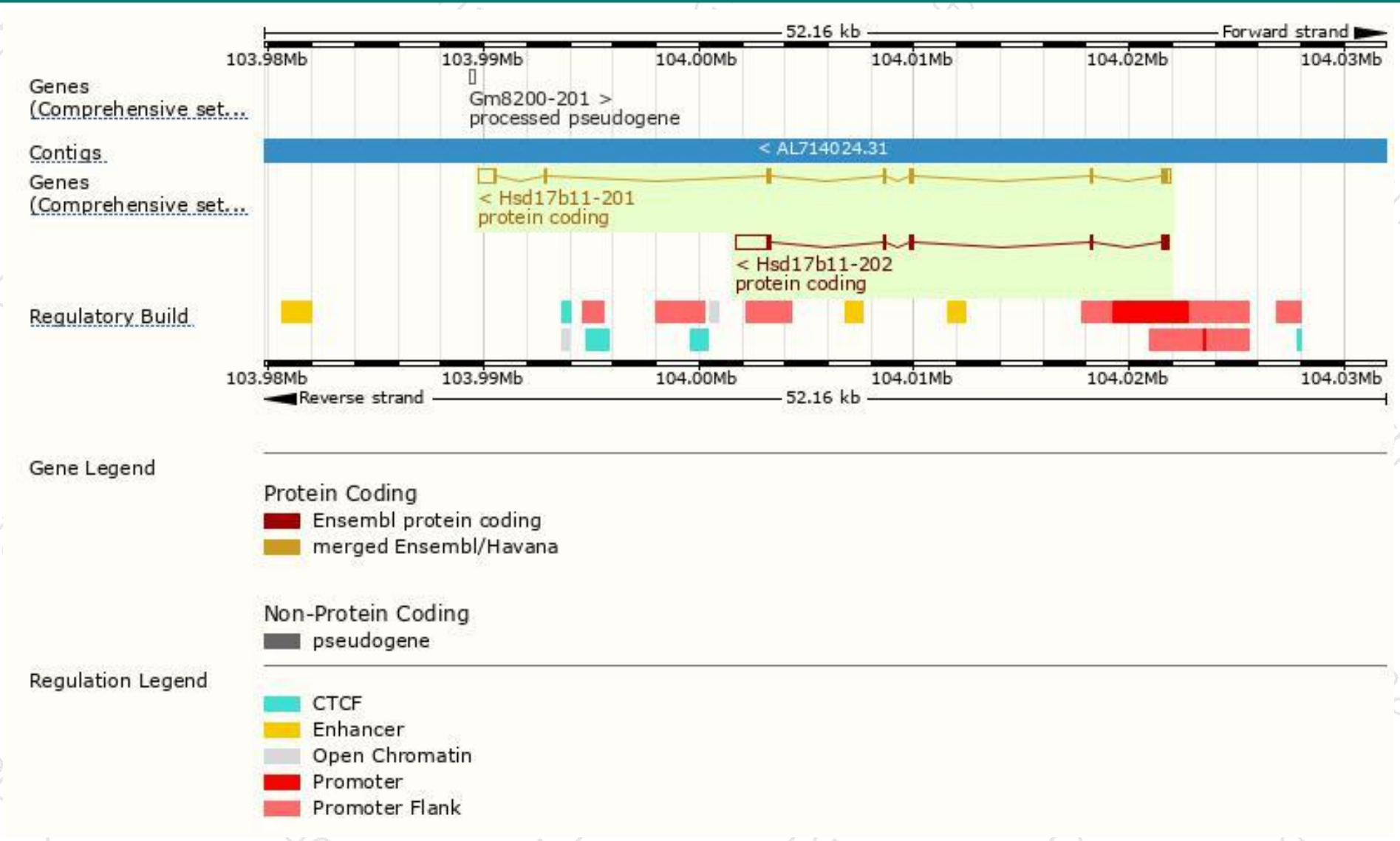
The gene has 2 transcripts,all transcripts are shown below:

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

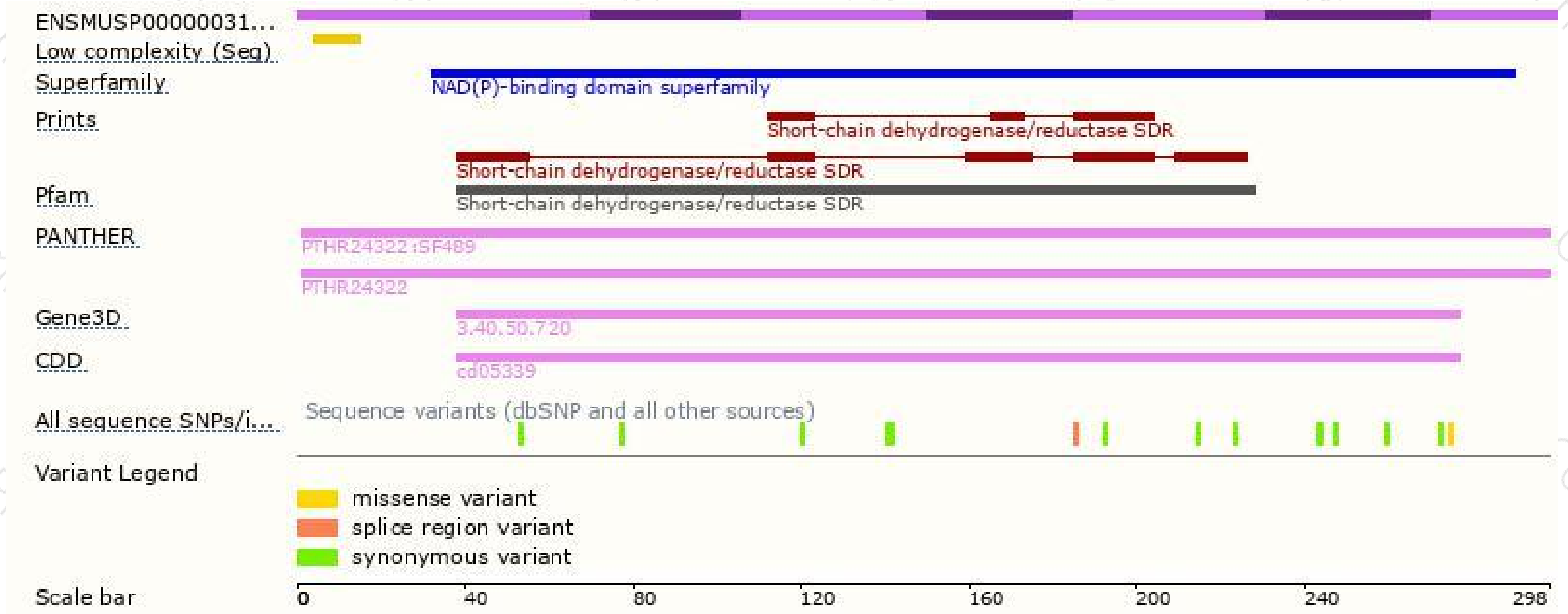
The strategy is based on the design of *Hsd17b11-201* transcript,The transcription is shown below



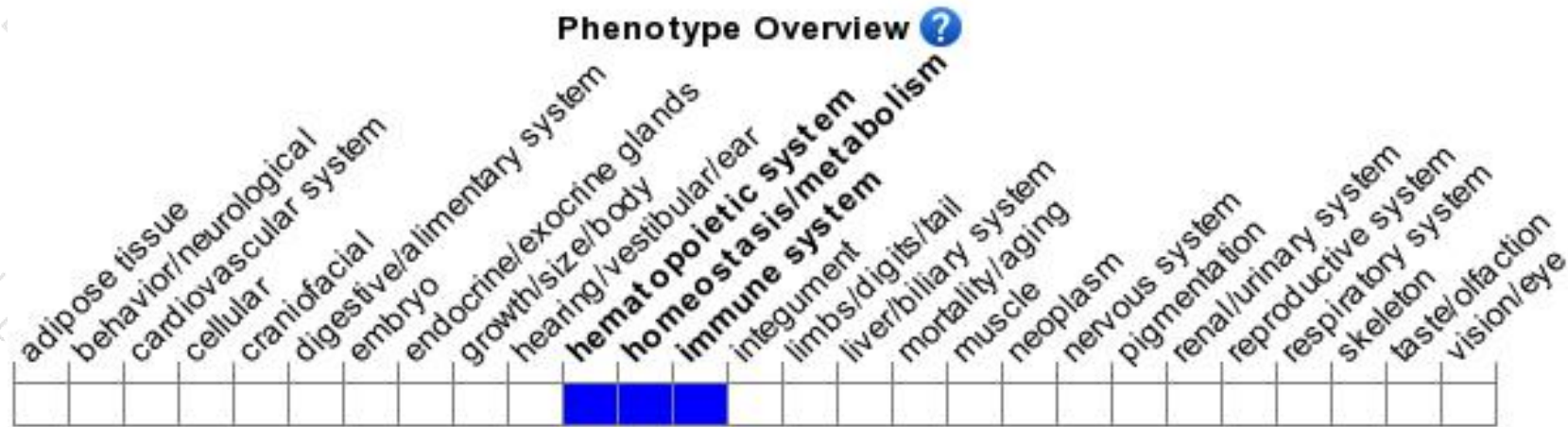
Genomic location distribution



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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