

Wasl Cas9-CKO Strategy

Designer:

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Project Overview

Project Name

Wasl

Project type

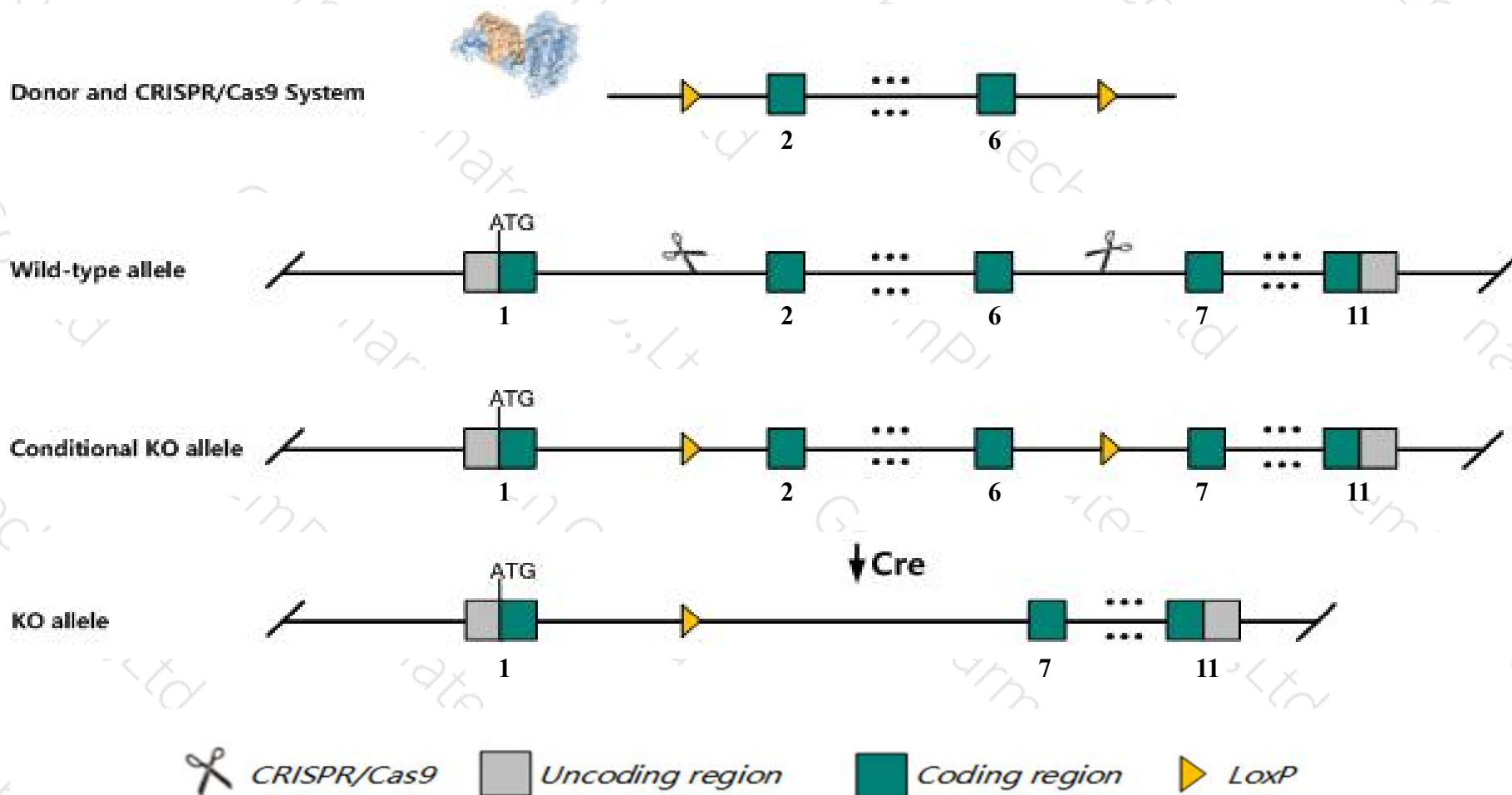
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



Technical routes

- The *Wasl* gene has 4 transcripts. According to the structure of *Wasl* gene, exon2-exon6 of *Wasl-201* (ENSMUST00000031695.14) transcript is recommended as the knockout region. The region contains 512bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Wasl* 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.

- According to the existing MGI data, Homozygous mutants exhibit developmental retardation, fail to undergo turning, show abnormal differentiation of intra- and extra-embryonal mesoderm, and die around midgestation.
- The *Wasl* gene is located on the Chr6. 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)

Wasl Wiskott-Aldrich syndrome-like (human) [Mus musculus (house mouse)]

Gene ID: 73178, updated on 24-Feb-2019

Summary



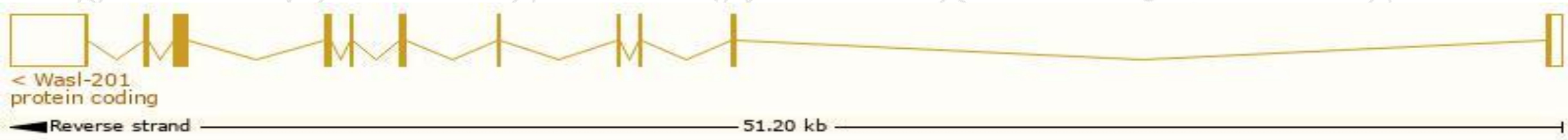
Official Symbol	Wasl provided by MGI
Official Full Name	Wiskott-Aldrich syndrome-like (human) provided by MGI
Primary source	MGI:MGI:1920428
See related	Ensembl:ENSMUSG00000029684
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2900021I12Rik, 3110031I02Rik, N-WASP
Expression	Ubiquitous expression in bladder adult (RPKM 16.7), adrenal adult (RPKM 13.4) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

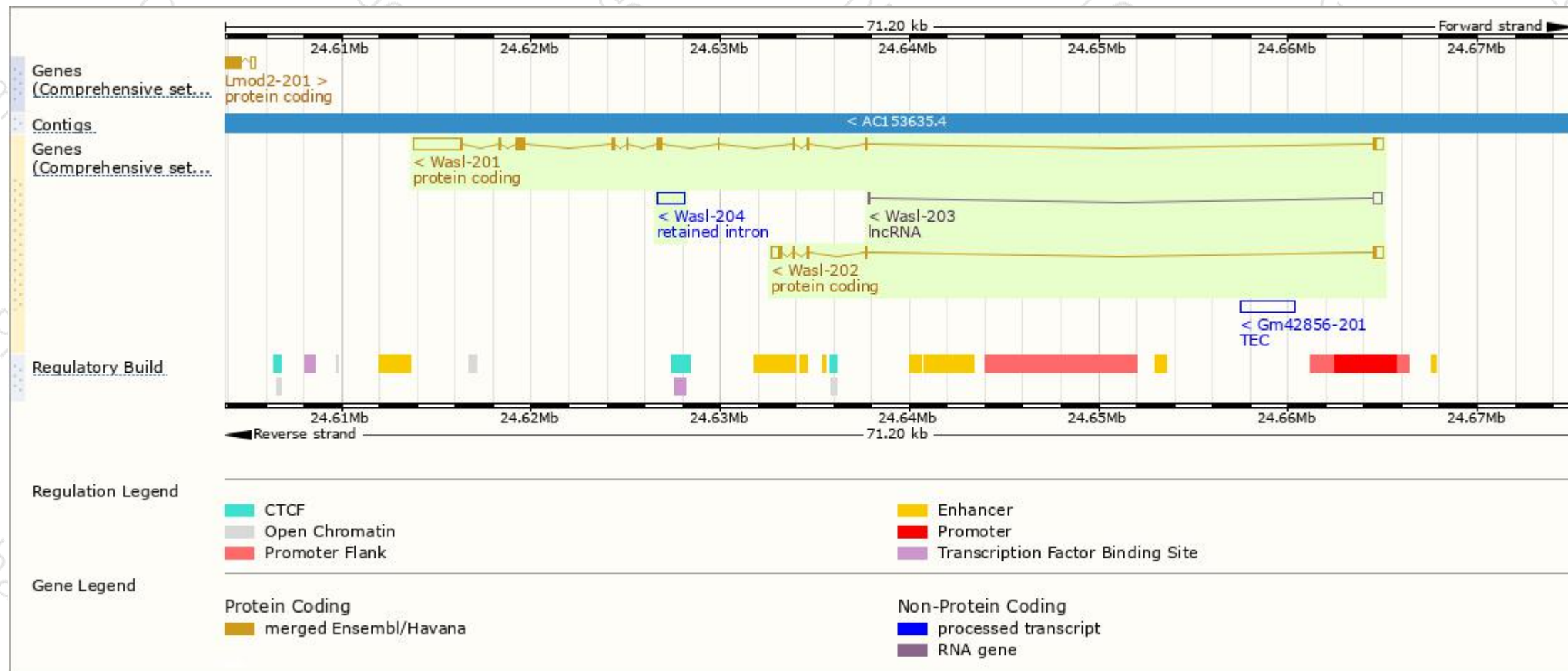
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Wasl-201	ENSMUST000000031695.14	4352	501aa	Protein coding	CCDS19945	Q3TXX8 Q91YD9	TSL:1 GENCODE basic APPRIS P1
Wasl-202	ENSMUST000000041737.7	1298	193aa	Protein coding	CCDS51727	Q9CXQ9	TSL:1 GENCODE basic
Wasl-204	ENSMUST00000201867.1	1411	No protein	Retained intron	-	-	TSL:NA
Wasl-203	ENSMUST00000173399.1	448	No protein	lncRNA	-	-	TSL:3

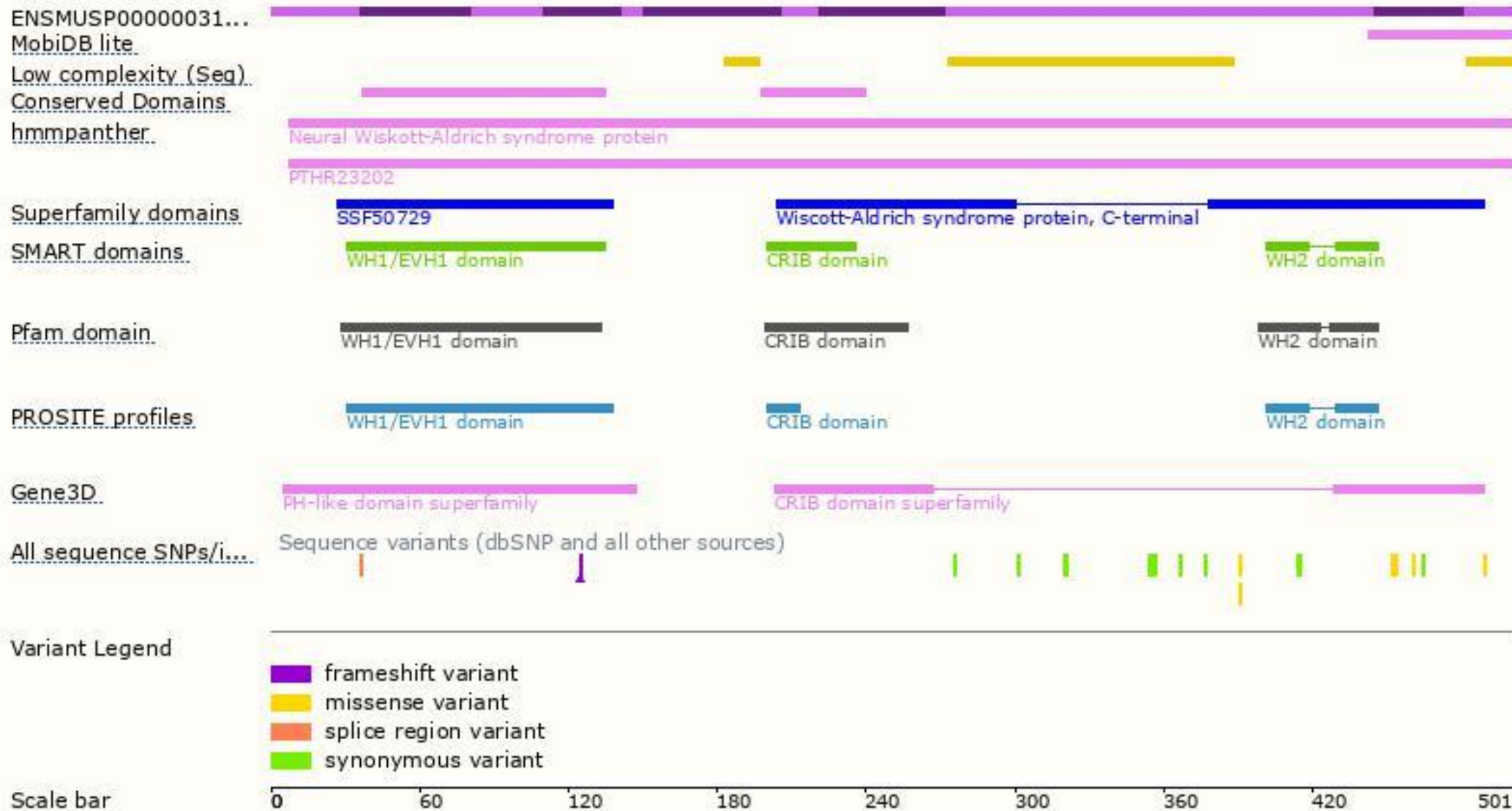
The strategy is based on the design of *Wasl-201* transcript,The transcription is shown below



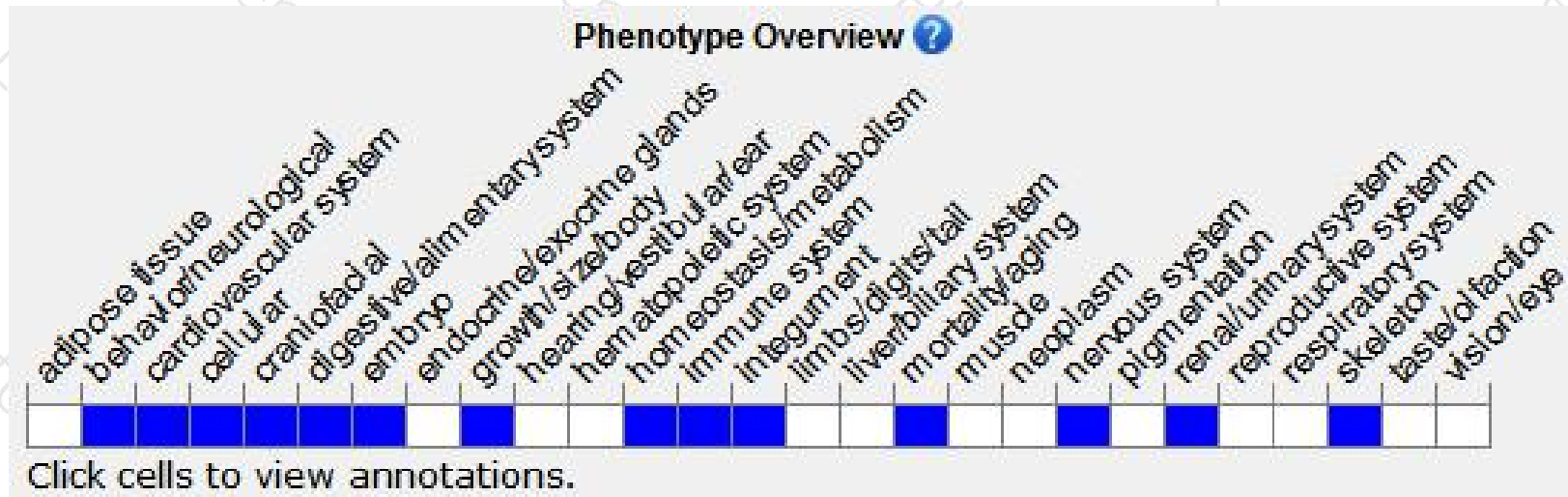
Genomic location distribution



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 mutants exhibit developmental retardation, fail to undergo turning, show abnormal differentiation of intra- and extra-embryonal mesoderm, and die around midgestation.

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

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