

Ago2 Cas9-CKO Strategy

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Project Overview

Project Name

Ago2

Project type

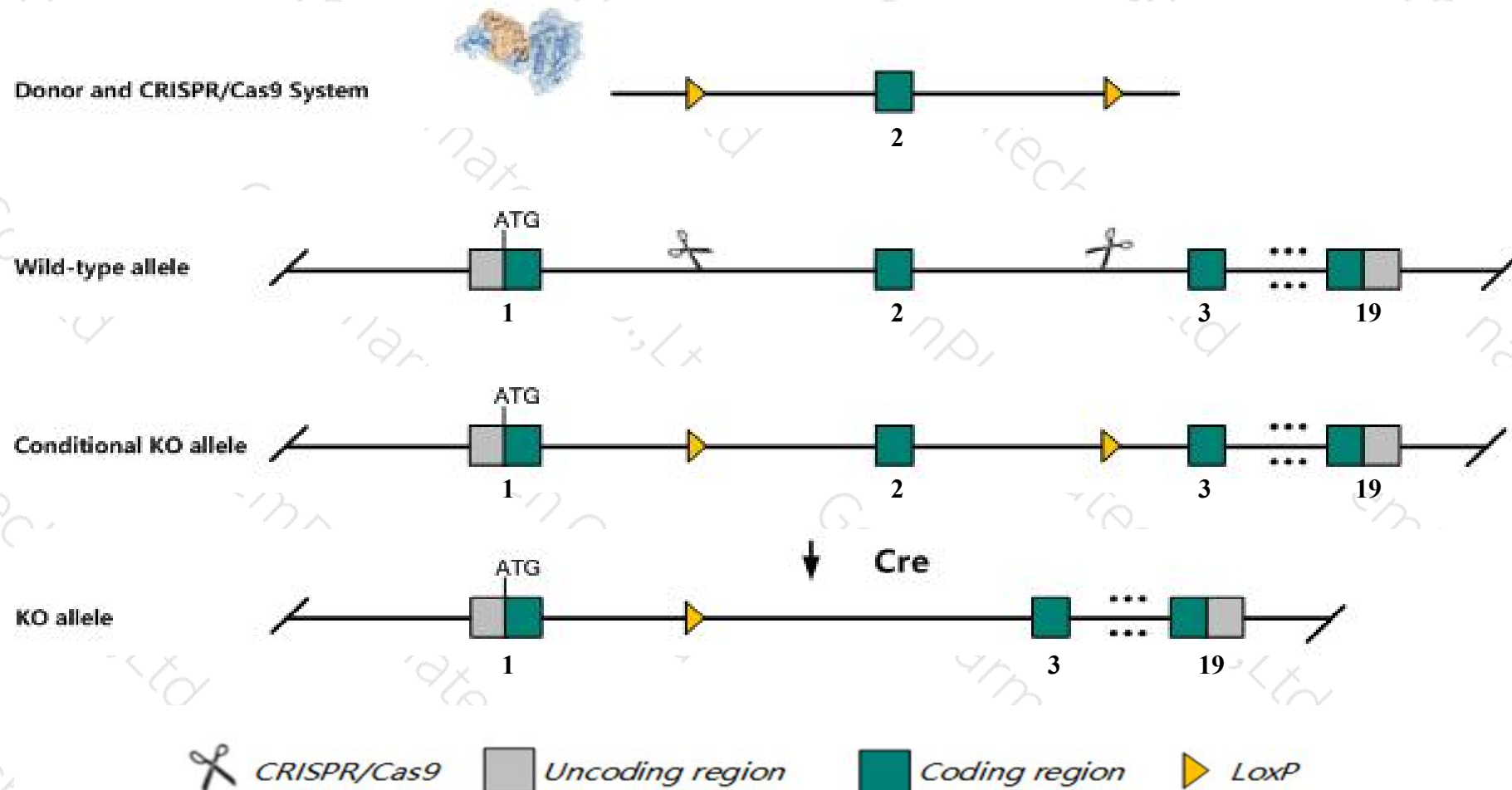
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ago2* gene. The schematic diagram is as follows:



- The *Ago2* gene has 3 transcripts. According to the structure of *Ago2* gene, exon2 of *Ago2-201* (ENSMUST00000044113.11) transcript is recommended as the knockout region. The region contains 196bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ago2* 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 null mice display embryonic lethality with neural tube defects, abnormal forebrain patterning, enlarged hearts, pericardial swelling, delayed development, and defects in the yolk sac and placenta.
- The *Ago2* gene is located on the Chr15. 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)

Ago2 argonaute RISC catalytic subunit 2 [Mus musculus (house mouse)]

Gene ID: 239528, updated on 19-Feb-2019

Summary



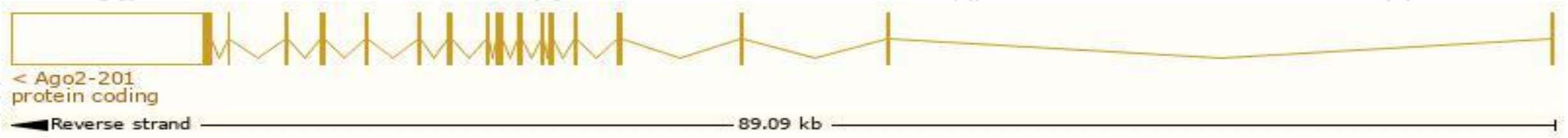
Official Symbol	Ago2 provided by MGI
Official Full Name	argonaute RISC catalytic subunit 2 provided by MGI
Primary source	MGI:MGI:2446632
See related	Ensembl:ENSMUSG00000036698
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1110029L17Rik, 2310051F07Rik, AI225898, AL022874, AW546247, Eif2c2, Gerp95, Gm10365, mKIAA4215
Expression	Ubiquitous expression in thymus adult (RPKM 19.6), spleen adult (RPKM 13.3) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

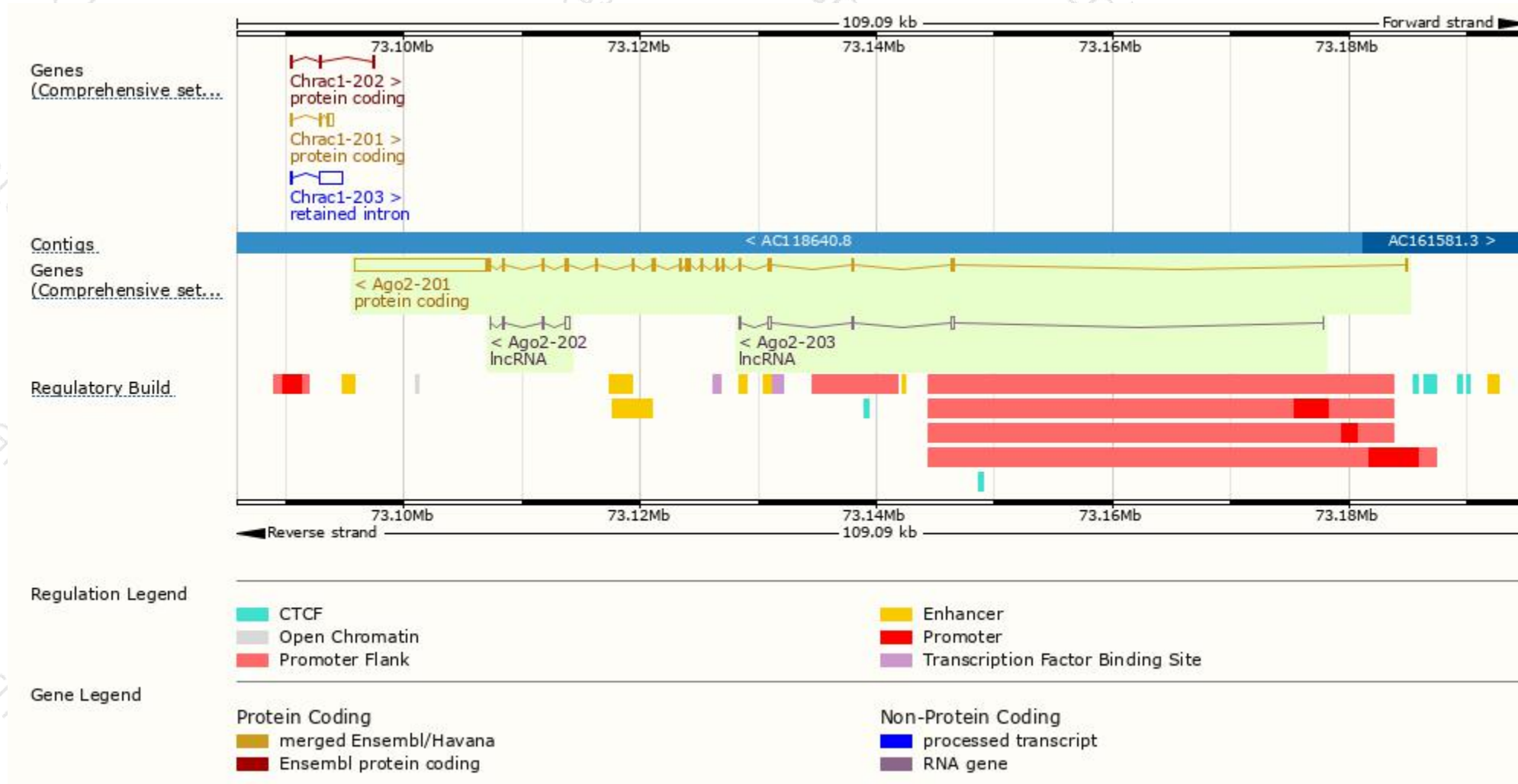
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ago2-201	ENSMUST00000044113.11	13800	860aa	Protein coding	CCDS37098	Q8CJG0	TSL:1 GENCODE basic APPRIS P1
Ago2-203	ENSMUST00000230464.1	617	No protein	Processed transcript	-	-	
Ago2-202	ENSMUST00000230158.1	616	No protein	Processed transcript	-	-	

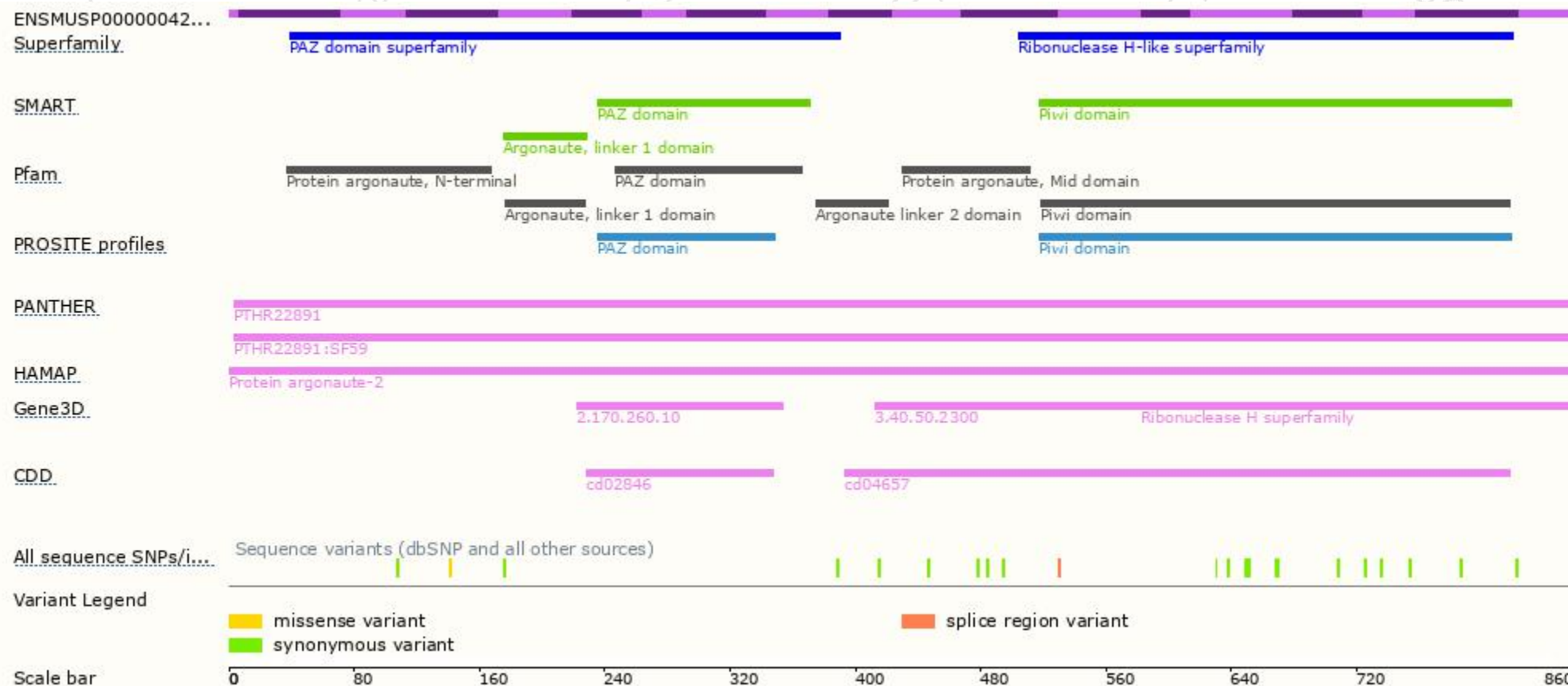
The strategy is based on the design of *Ago2-201* transcript,The transcription is shown below



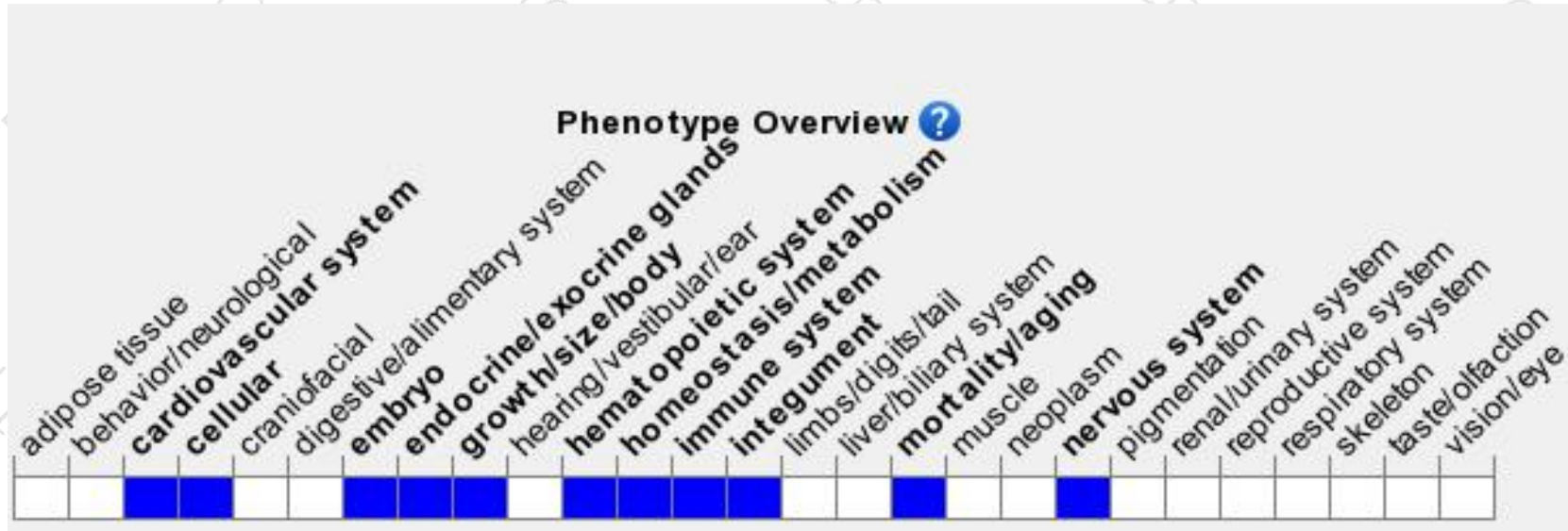
Genomic location distribution



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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