

Sox4 Cas9-KO Strategy

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Project Overview

Project Name

Sox4

Project type

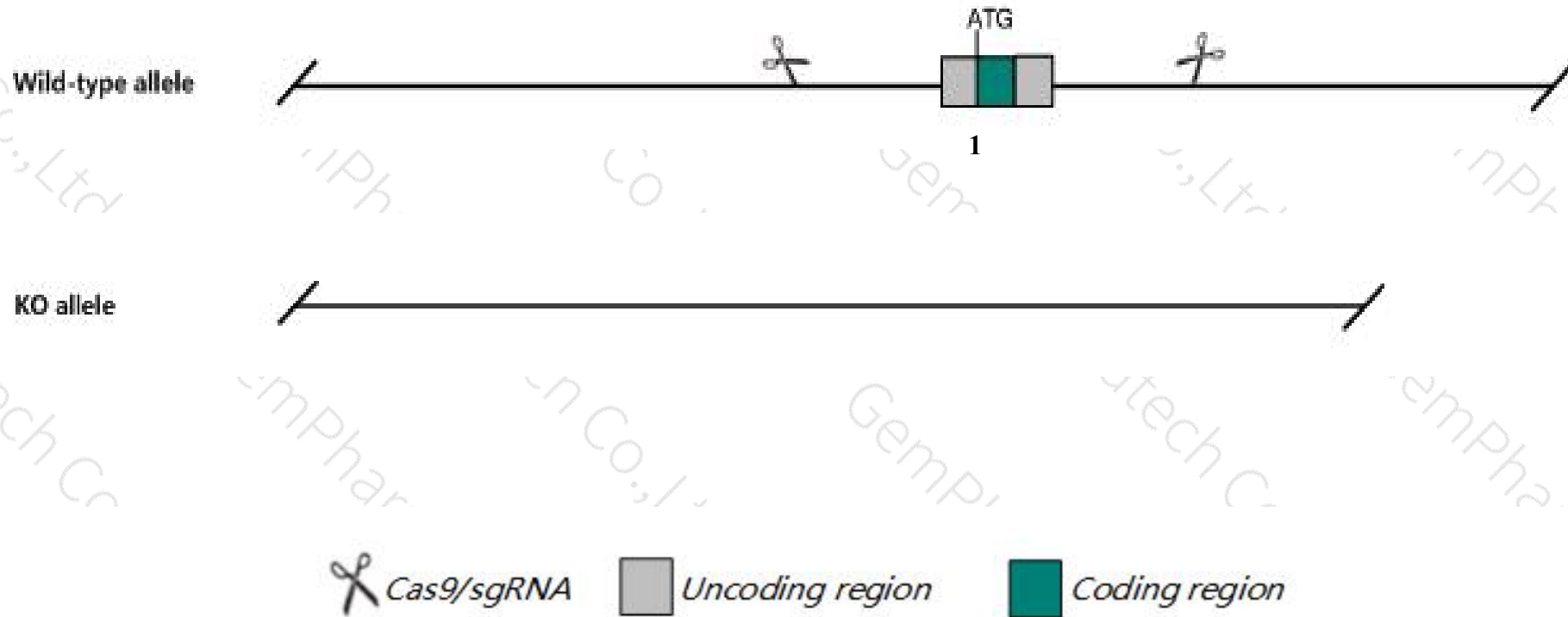
Cas9-KO

Strain background

C57BL/6J

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Sox4* gene. The schematic diagram is as follows:



- The *Sox4* gene has 1 transcript. According to the structure of *Sox4* gene, exon1 of *Sox4-201* (ENSMUST00000067230.5) transcript is recommended as the knockout region. The region contains all of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Sox4* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

- According to the existing MGI data, Homozygous targeted null mutants die at embryonic day 14 due to circulatory failure and showing impaired development of the semilunar valves and the muscular ventricular septum. Null fetal liver cells are unable to develop into B-cells in chimeric mice.
- The *Sox4* gene is located on the Chr13. 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 gene transcription and translation processes, all risks cannot be predicted under existing information.

Gene information (NCBI)

Sox4 SRY (sex determining region Y)-box 4 [Mus musculus (house mouse)]

Gene ID: 20677, updated on 19-Mar-2019

Summary



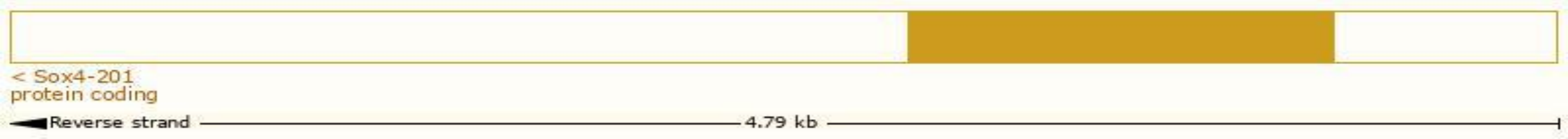
Official Symbol	Sox4 provided by MGI
Official Full Name	SRY (sex determining region Y)-box 4 provided by MGI
Primary source	MGI:MGI:98366
See related	Ensembl:ENSMUSG00000076431
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AA682046, Sox-4
Orthologs	human all

Transcript information (Ensembl)

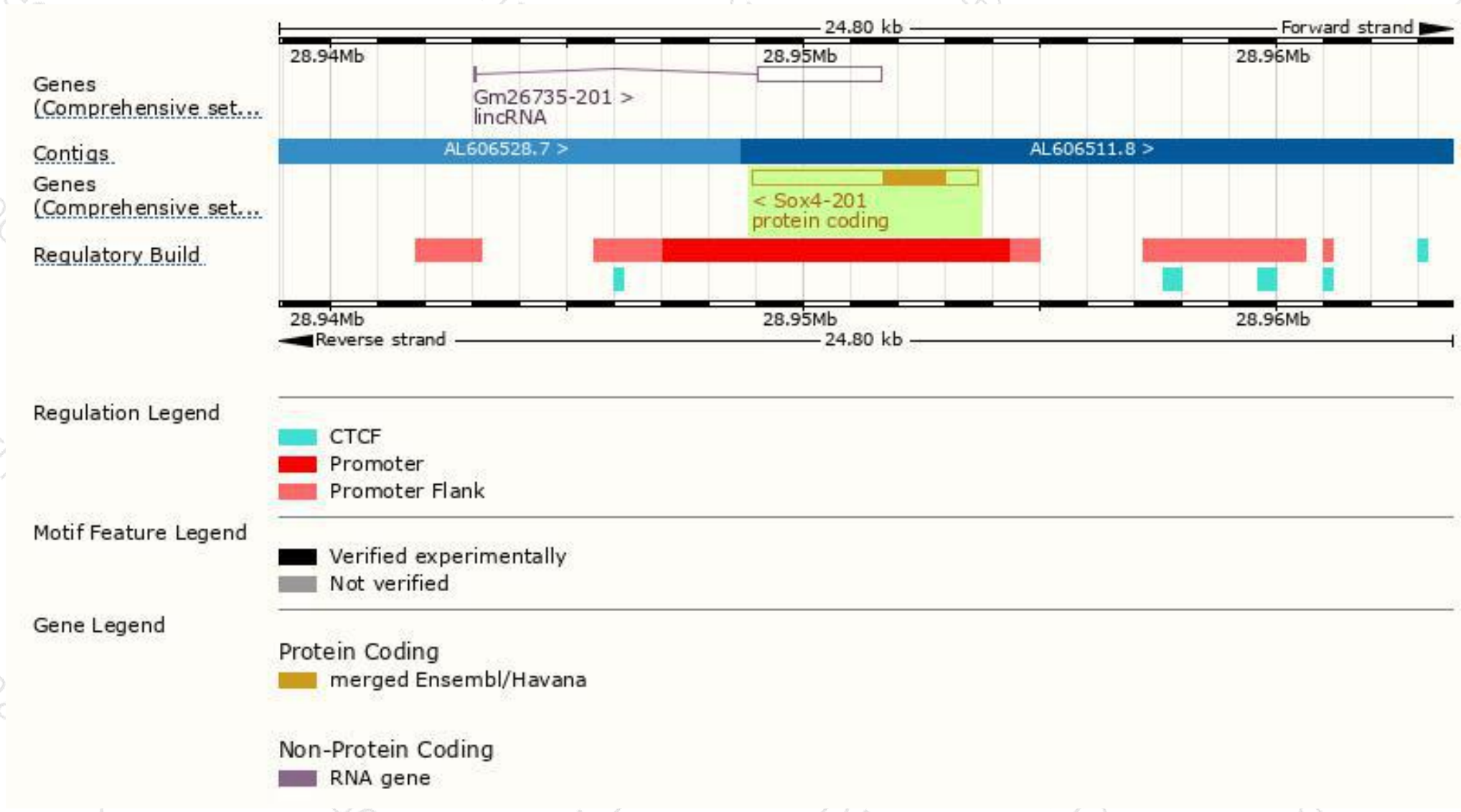
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Sox4-201	ENSMUST00000067230.5	4795	440aa	Protein coding	CCDS26411	Q06831	TSL:NA GENCODE basic APPRIS P1

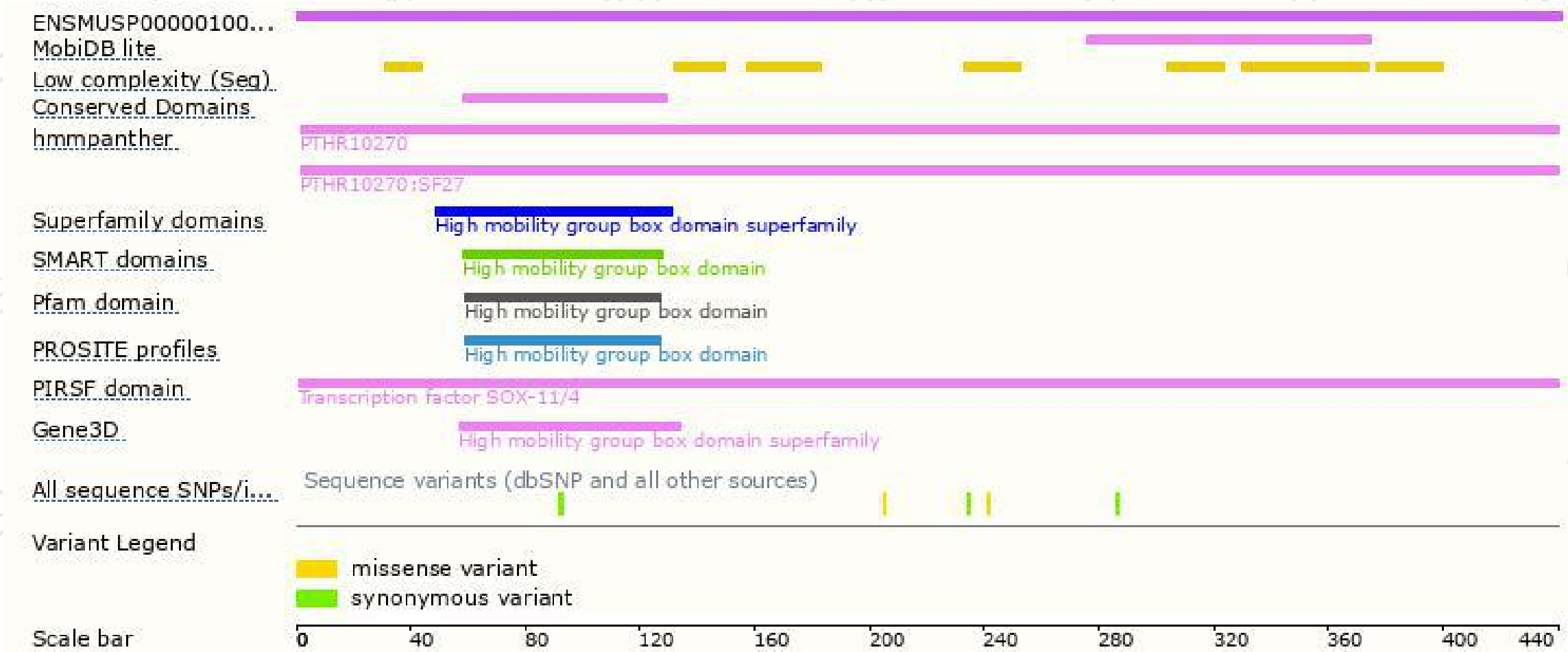
The strategy is based on the design of *Sox4-201* transcript, The transcription is shown below



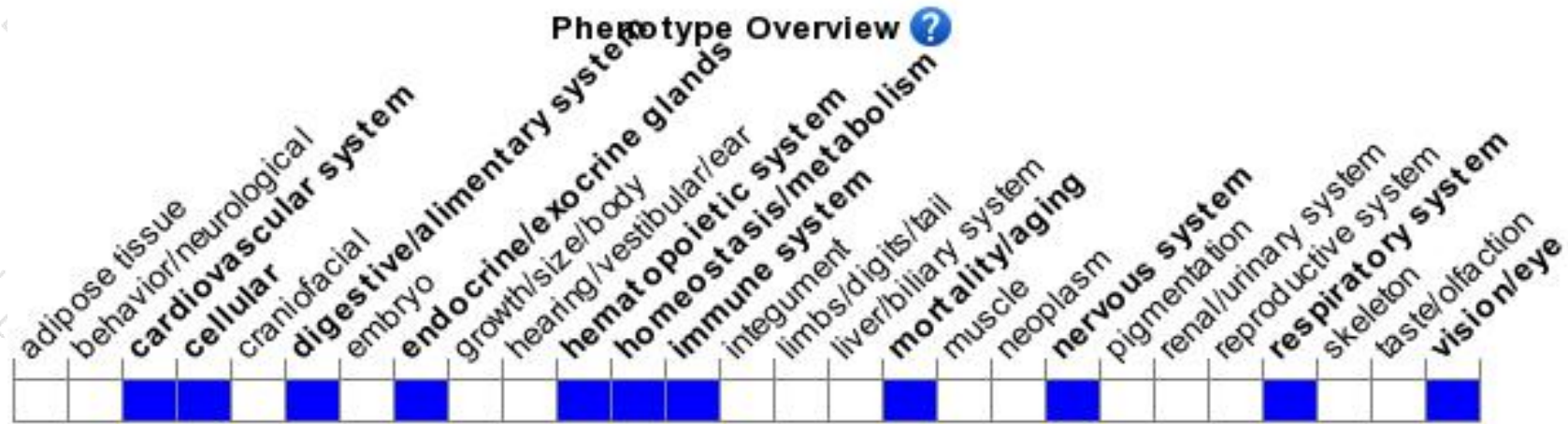
Genomic location distribution



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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