

***Col26a1* Cas9-CKO Strategy**

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Design Date: 2020-8-26

Project Overview

Project Name

Col26a1

Project type

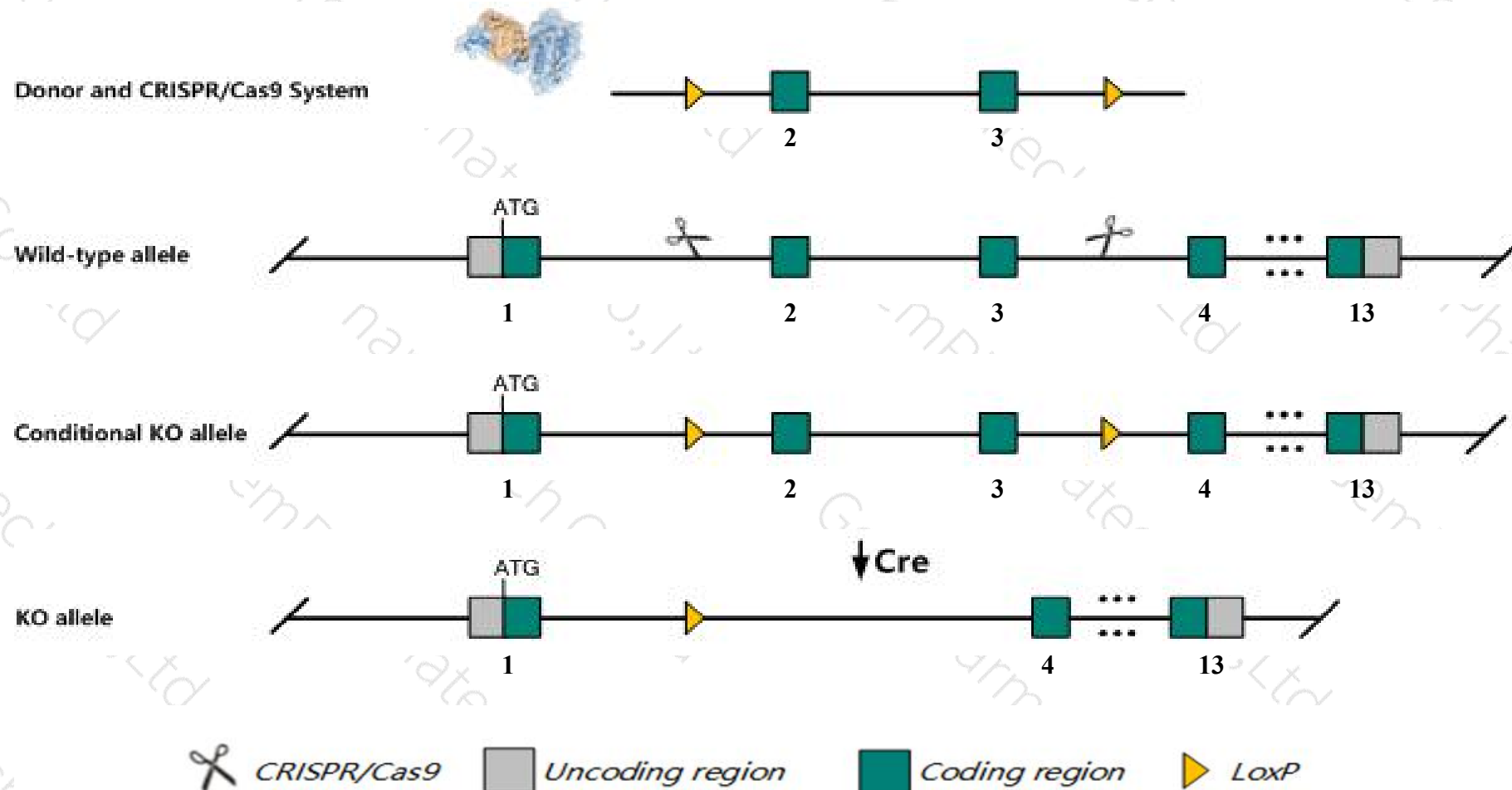
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Col26a1* gene. The schematic diagram is as follows:



Technical routes

- The *Col26a1* gene has 11 transcripts. According to the structure of *Col26a1* gene, exon2-exon3 of *Col26a1-201*(ENSMUST00000057497.12) transcript is recommended as the knockout region. The region contains 227bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Col26a1* 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.

- The *Col26a1* 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)

Col26a1 collagen, type XXVI, alpha 1 [Mus musculus (house mouse)]

Gene ID: 140709, updated on 13-Mar-2020

Summary



Official Symbol Col26a1 provided by [MGI](#)

Official Full Name collagen, type XXVI, alpha 1 provided by [MGI](#)

Primary source [MGI:MGI:2155345](#)

See related [Ensembl:ENSMUSG00000004415](#)

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 9430032K24Rik, BC002218, Col26a, Emid2, Emu2

Expression Biased expression in limb E14.5 (RPKM 44.2), CNS E11.5 (RPKM 18.4) and 6 other tissues [See more](#)

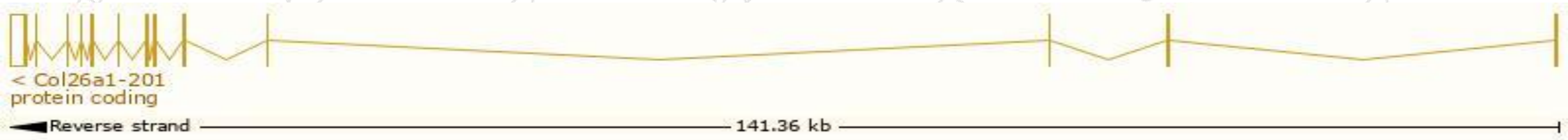
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

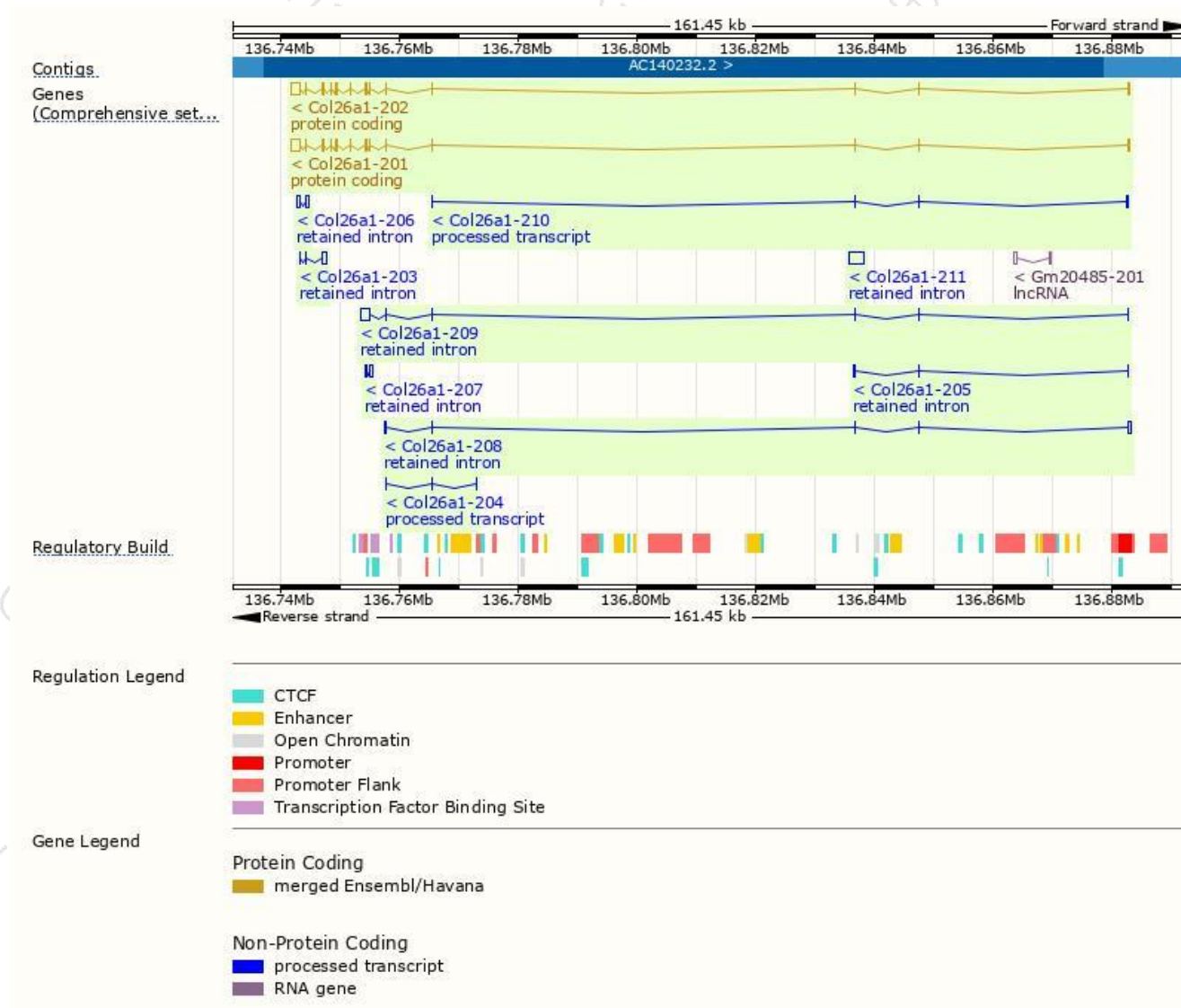
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Col26a1-202	ENSMUST00000111103.1	2781	438aa	Protein coding	CCDS84976	Q91VF6	TSL:1 GENCODE basic APPRIS ALT1
Col26a1-201	ENSMUST00000057497.12	2724	440aa	Protein coding	CCDS19755	Q91VF6	TSL:1 GENCODE basic APPRIS P3
Col26a1-210	ENSMUST00000173496.7	426	No protein	Processed transcript	-	-	TSL:5
Col26a1-204	ENSMUST00000126311.1	280	No protein	Processed transcript	-	-	TSL:3
Col26a1-211	ENSMUST00000196053.1	2502	No protein	Retained intron	-	-	TSL:NA
Col26a1-209	ENSMUST00000156962.8	1988	No protein	Retained intron	-	-	TSL:1
Col26a1-208	ENSMUST00000153127.7	949	No protein	Retained intron	-	-	TSL:5
Col26a1-203	ENSMUST00000125061.1	899	No protein	Retained intron	-	-	TSL:2
Col26a1-206	ENSMUST00000141744.1	839	No protein	Retained intron	-	-	TSL:2
Col26a1-207	ENSMUST00000147083.1	578	No protein	Retained intron	-	-	TSL:2
Col26a1-205	ENSMUST00000140245.2	368	No protein	Retained intron	-	-	TSL:2

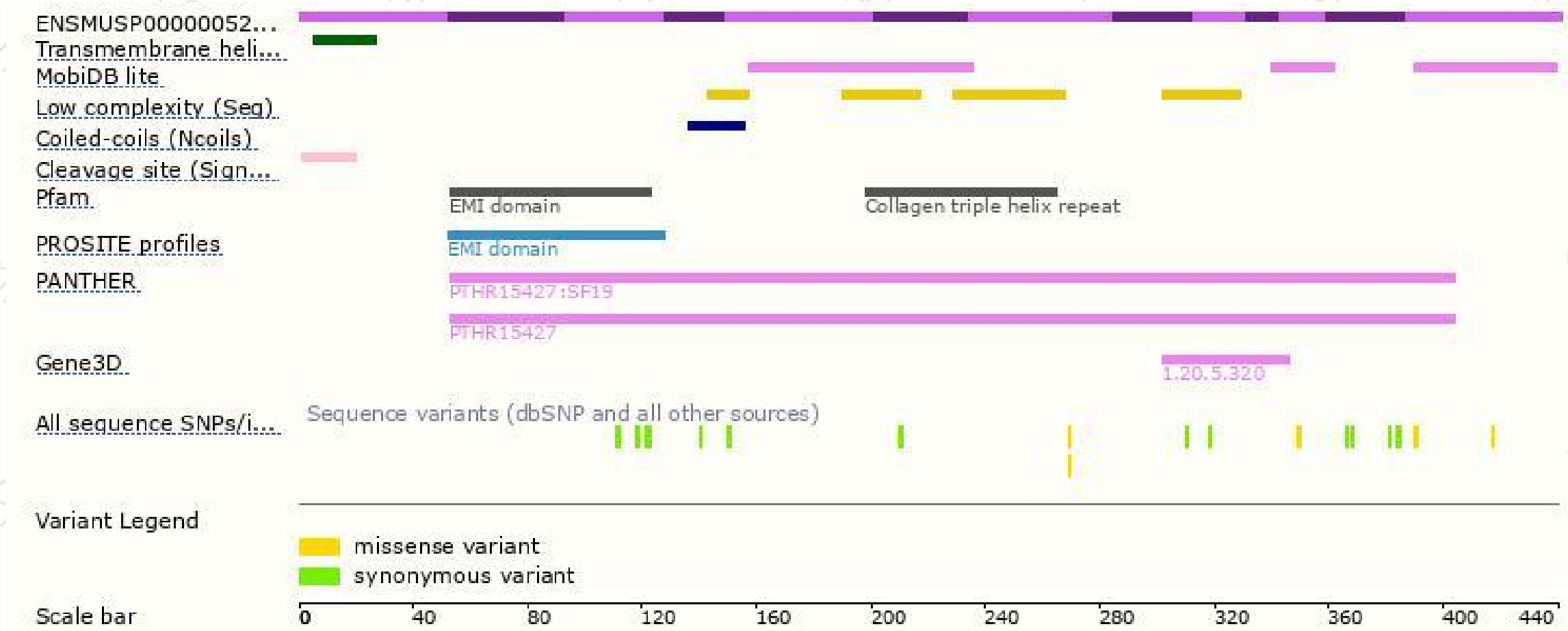
The strategy is based on the design of *Col26a1-201* transcript,the transcription is shown below:



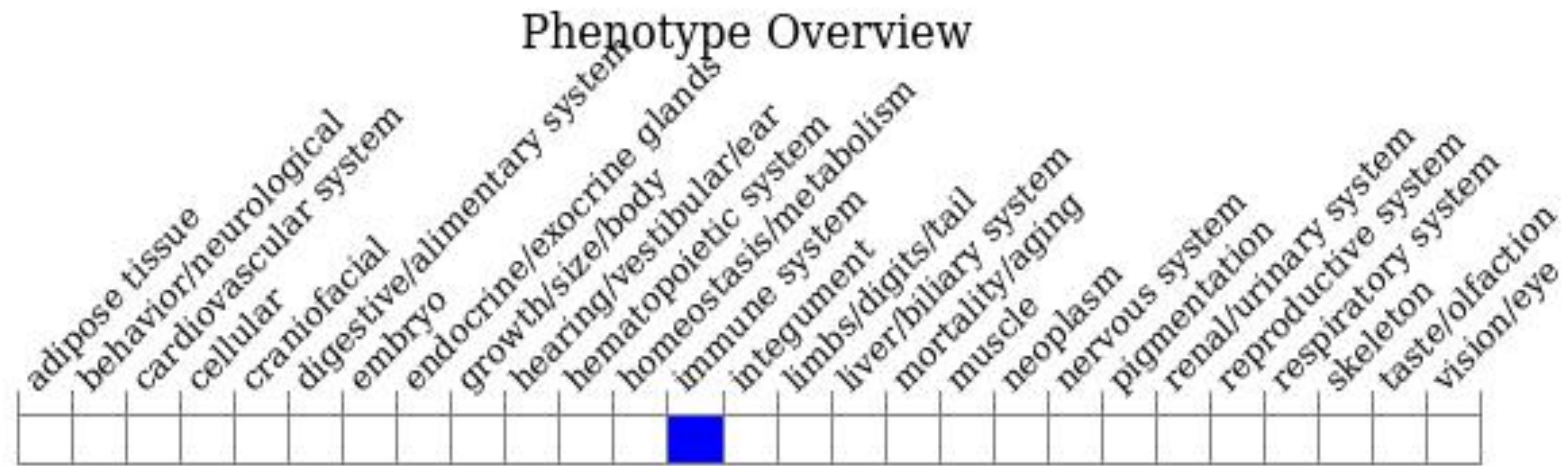
Genomic location distribution



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/>).

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

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