Scin Cas9-KO Strategy

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Reviewer: Xiaojing Li

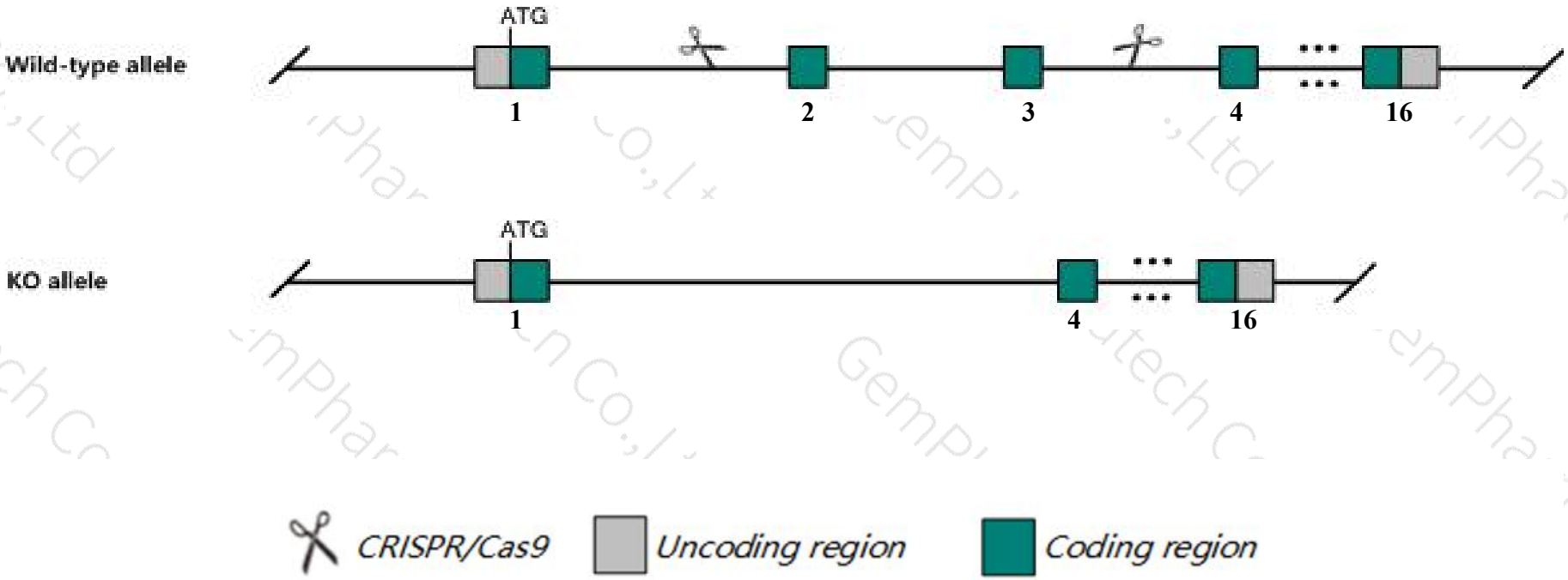
Design Date: 2020-2-11

Project Overview

Project Name	***Scin***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

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



Technical routes

➢ The *Scin* gene has 2 transcripts. According to the structure of *Scin* gene, exon2-exon3 of *Scin-201* (ENSMUST00000002640.5) transcript is recommended as the knockout region.The region contains 317bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Scin* gene. The brief process is as follows: CRISPR/Cas9 system w

Notice

- According to the existing MGI data,Mice homozygous for a conditional allele knocked-out in osteoclasts exhibit impaired osteoclast differentiation and reduced peridontal disease-mediated bone loss.

- The *Scin* gene is located on the Chr12. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information（NCBI）

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Scin scinderin [Mus musculus (house mouse)]

Gene ID: 20259, updated on 31-Jan-2019

Summary

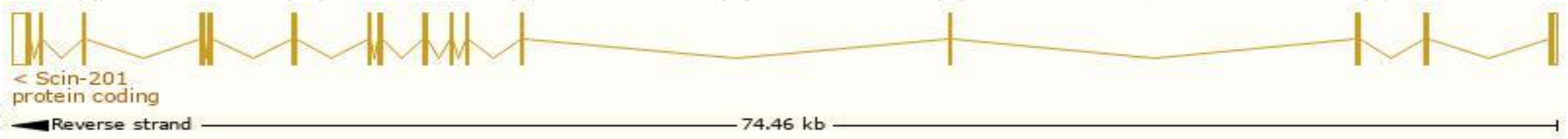
Official Symbol	Scin provided by MGI
Official Full Name	scinderin provided by MGI
Primary source	MGI:MGI:1306794
See related	Ensembl:ENSMUSG00000002565
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AW545522, adseverin
Expression	Biased expression in colon adult (RPKM 56.3), large intestine adult (RPKM 22.6) and 4 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

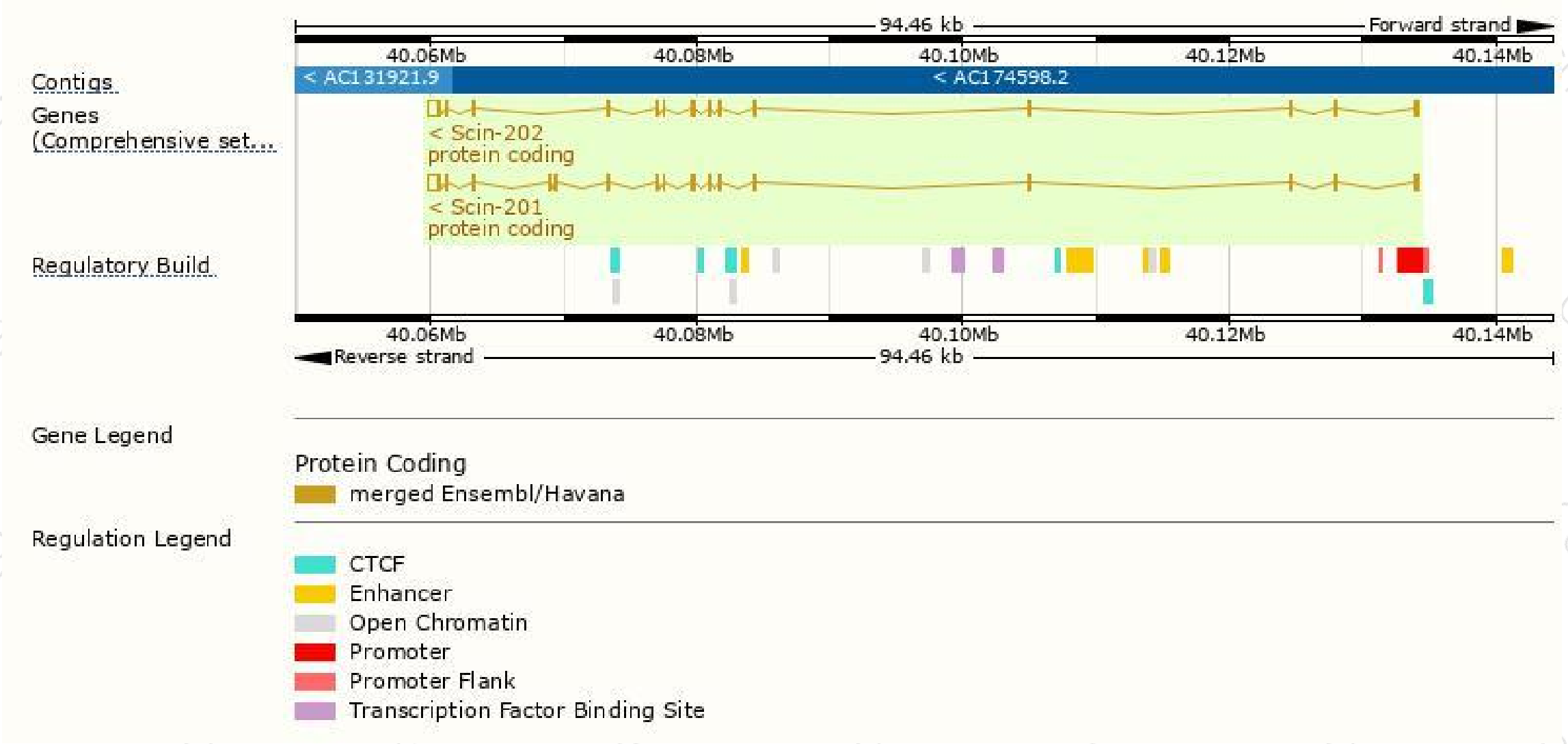
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Scin-201	ENSMUST00000002640.5	2995	715aa	Protein coding	CCDS49055	Q60604	TSL:1 GENCODE basic APPRIS P1
Scin-202	ENSMUST00000078481.13	2654	615aa	Protein coding	CCDS25891	Q60604	TSL:1 GENCODE basic

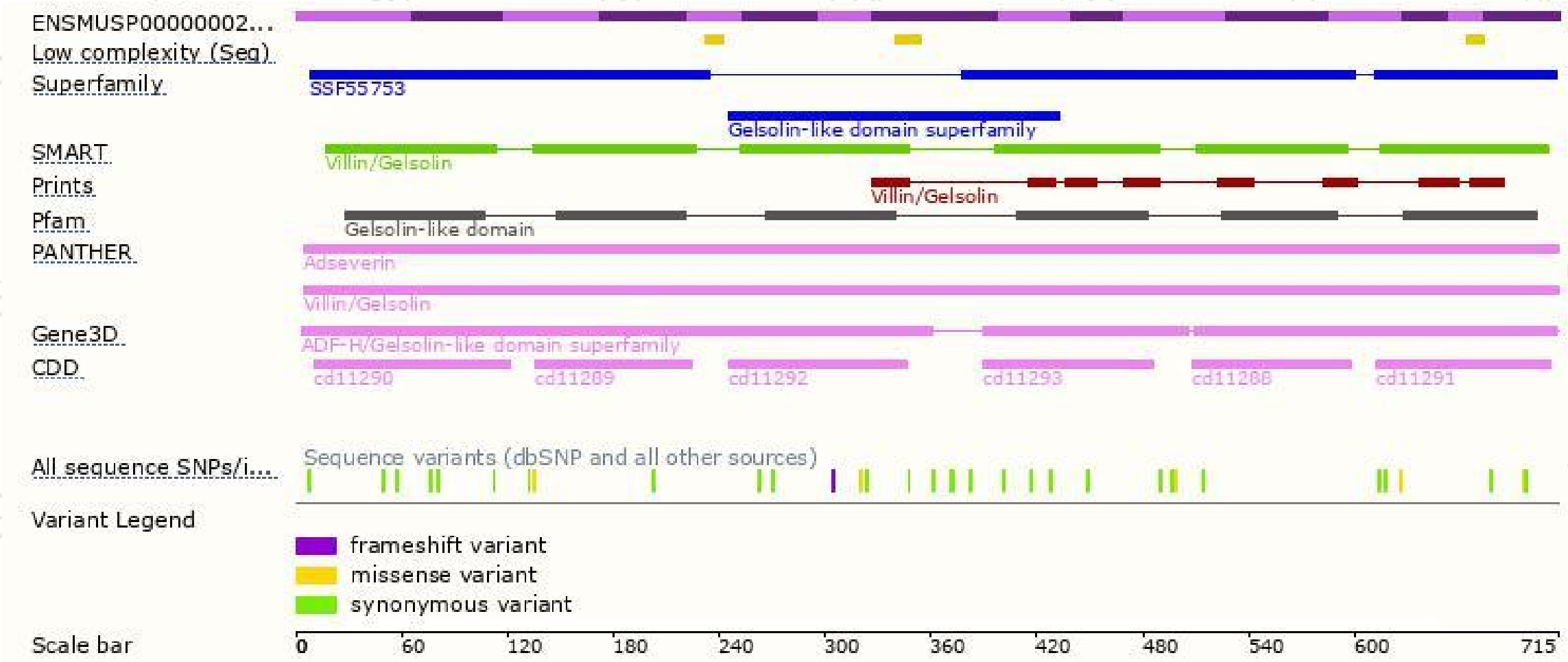
The strategy is based on the design of *Scin-201* transcript,The transcription is shown below



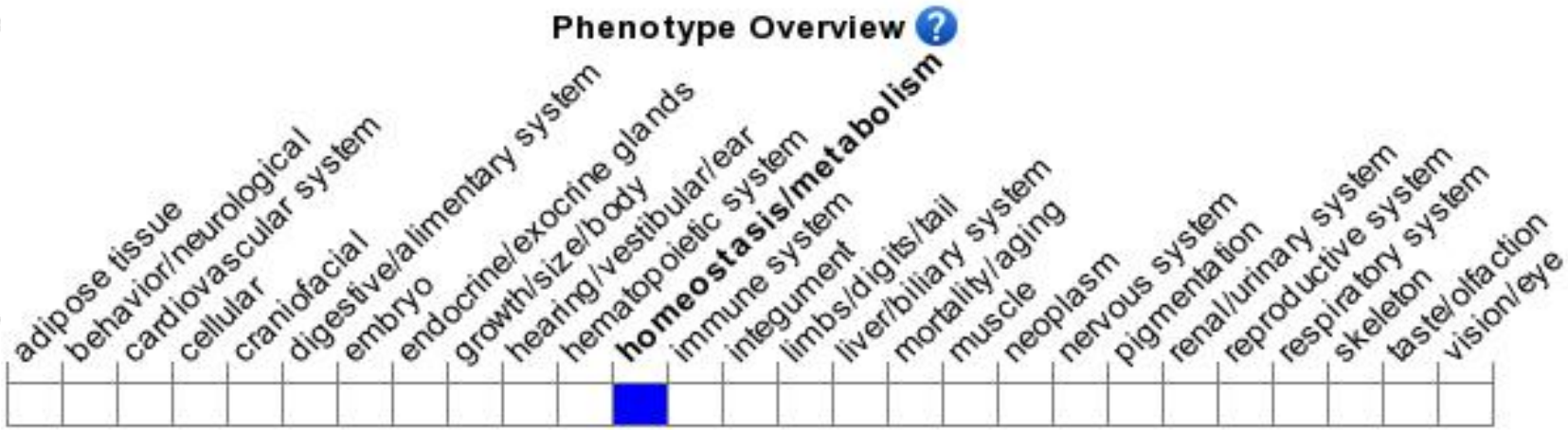
Genomic location distribution



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,Mice homozygous for a conditional allele knocked-out in osteoclasts exhibit impaired osteoclast differentiation and reduced peridontal disease-mediated bone loss.

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

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