Plekho1 Cas9-KO Strategy

Designer: Daohua Xu
Reviewer: Huimin Su

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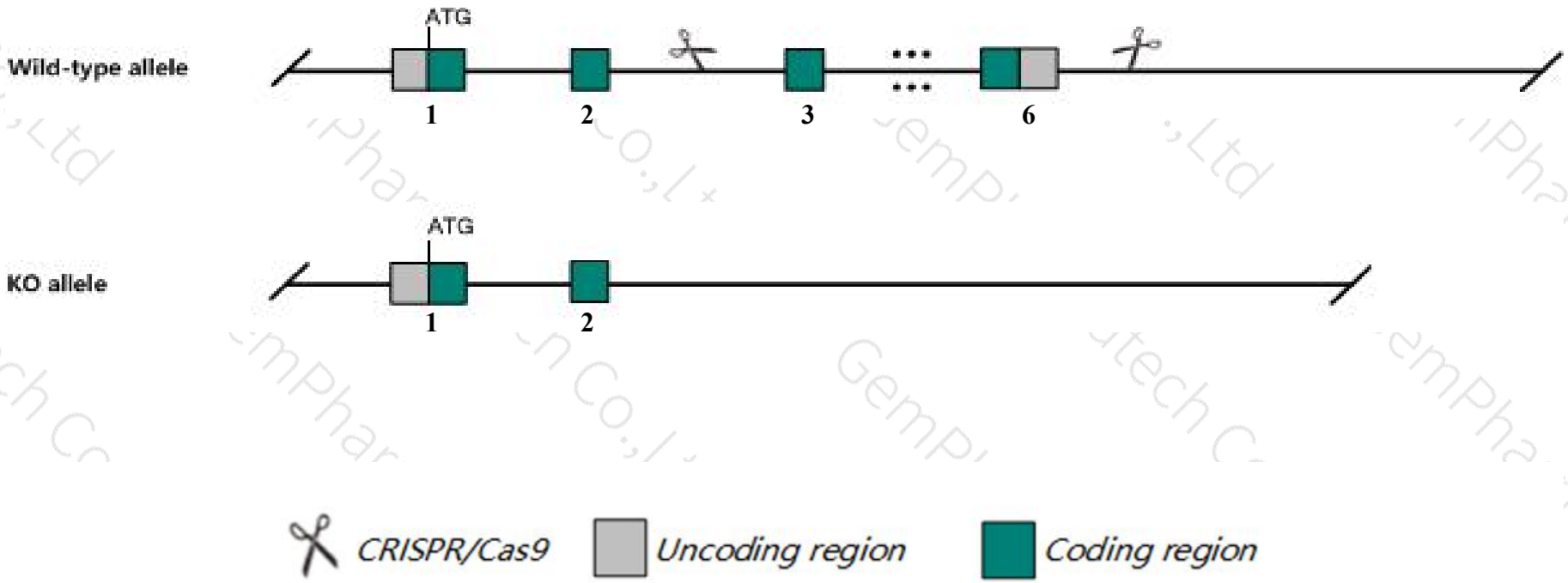
Project Overview

Project Name	***Plekho1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Plekho1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Plekho1* gene has 5 transcripts. According to the structure of *Plekho1* gene, exon3-exon6 of *Plekho1-201* (ENSMUST00000015889.9) transcript is recommended as the knockout region.The region contains most 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 *Plekho1* gene. The brief process is as follows: CRISPR/Cas9 syste

Notice

➢ According to the existing MGI data,Mice homozygous for a null allele exhibit age-dependent increase in bone volume and increased osteoblast activity.

➢ The *Plekho1* gene is located on the Chr3. 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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Plekho1 pleckstrin homology domain containing, family O member 1 [Mus musculus (house mouse)]

Gene ID: 67220, updated on 17-Feb-2019

Summary

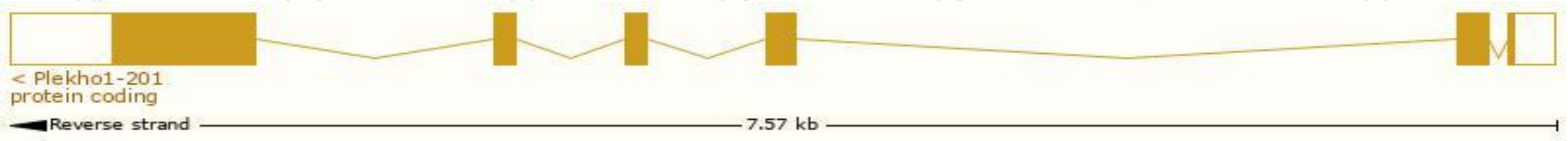
Official Symbol	Plekho1 provided by MGI
Official Full Name	pleckstrin homology domain containing, family O member 1 provided by MGI
Primary source	MGI:MGI:1914470
See related	Ensembl:ENSMUSG00000015745
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2810052M02Rik, CKIP-1, Ckip1, JZA-20, Jza2
Expression	Ubiquitous expression in bladder adult (RPKM 51.0), CNS E11.5 (RPKM 47.2) and 27 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

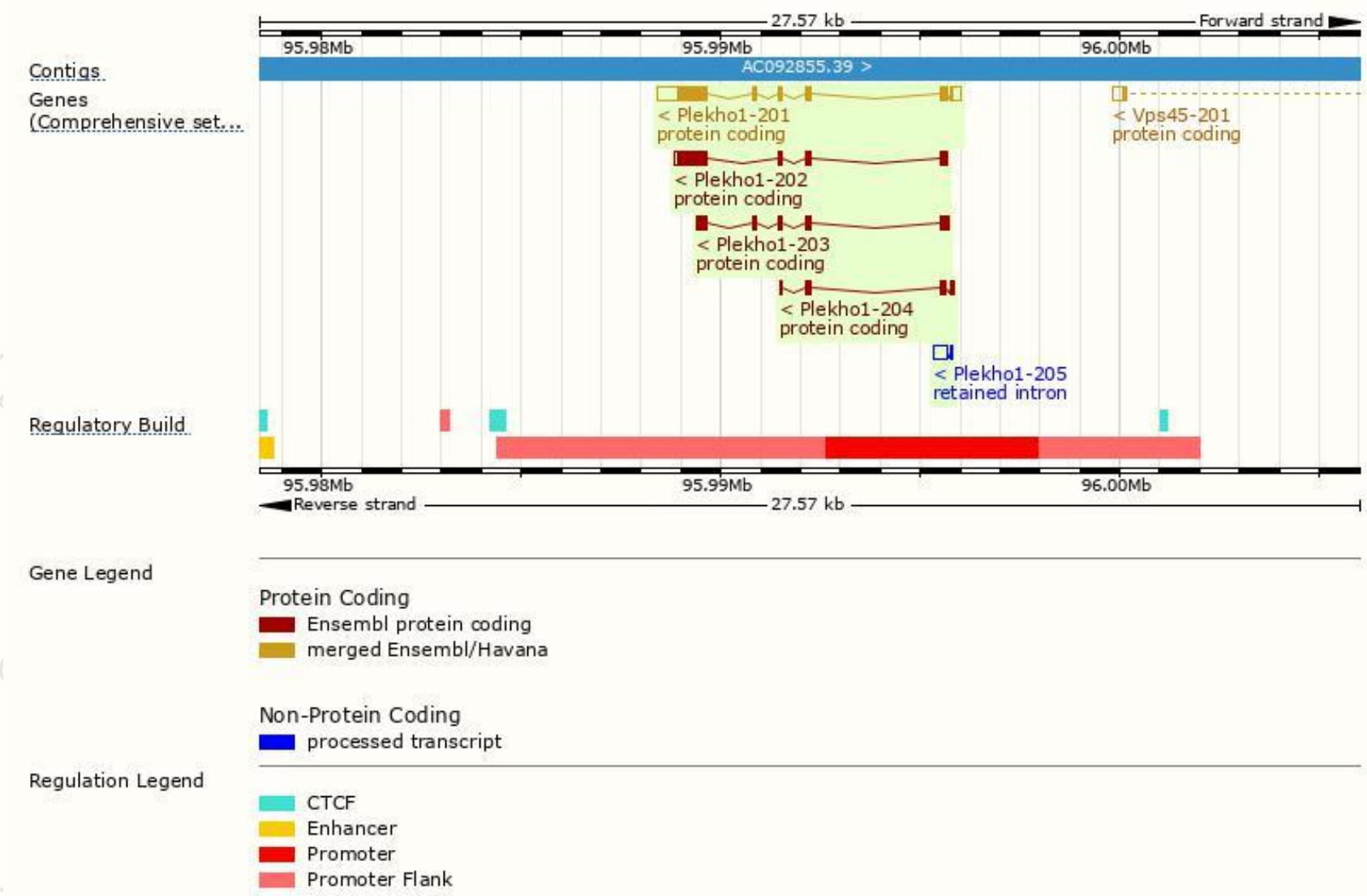
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Plekho1-201	ENSMUST00000015889.9	1931	408aa	Protein coding	CCDS17627	Q9JIY0	TSL:1 GENCODE basic APPRIS P1
Plekho1-202	ENSMUST00000123006.7	1208	365aa	Protein coding	-	F6XQM2	CDS 5' incomplete TSL:5
Plekho1-203	ENSMUST00000130043.7	788	262aa	Protein coding	-	F6VV25	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:2
Plekho1-204	ENSMUST00000143485.1	441	124aa	Protein coding	-	D3YVD1	CDS 3' incomplete TSL:3
Plekho1-205	ENSMUST00000157043.1	362	No protein	Retained intron	-	-	TSL:2

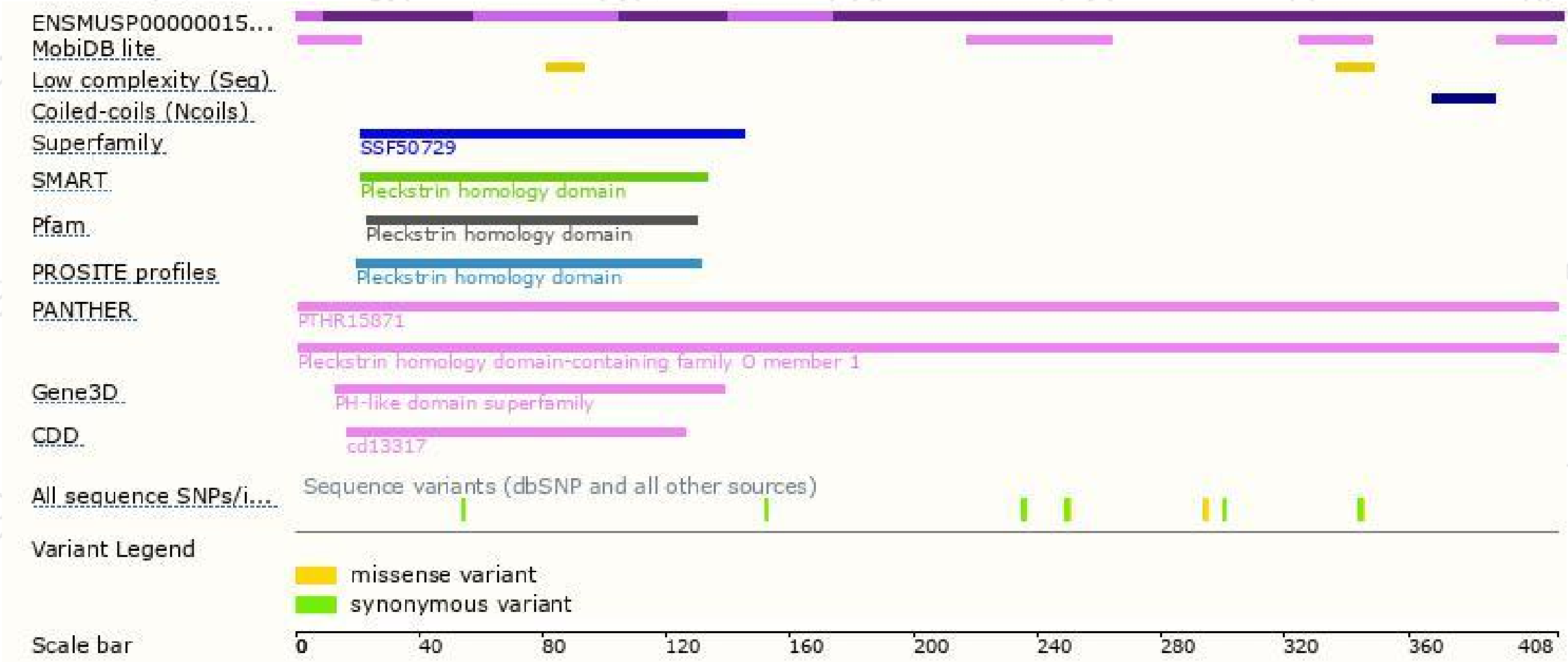
The strategy is based on the design of *Plekho1-201* transcript,The transcription is shown below



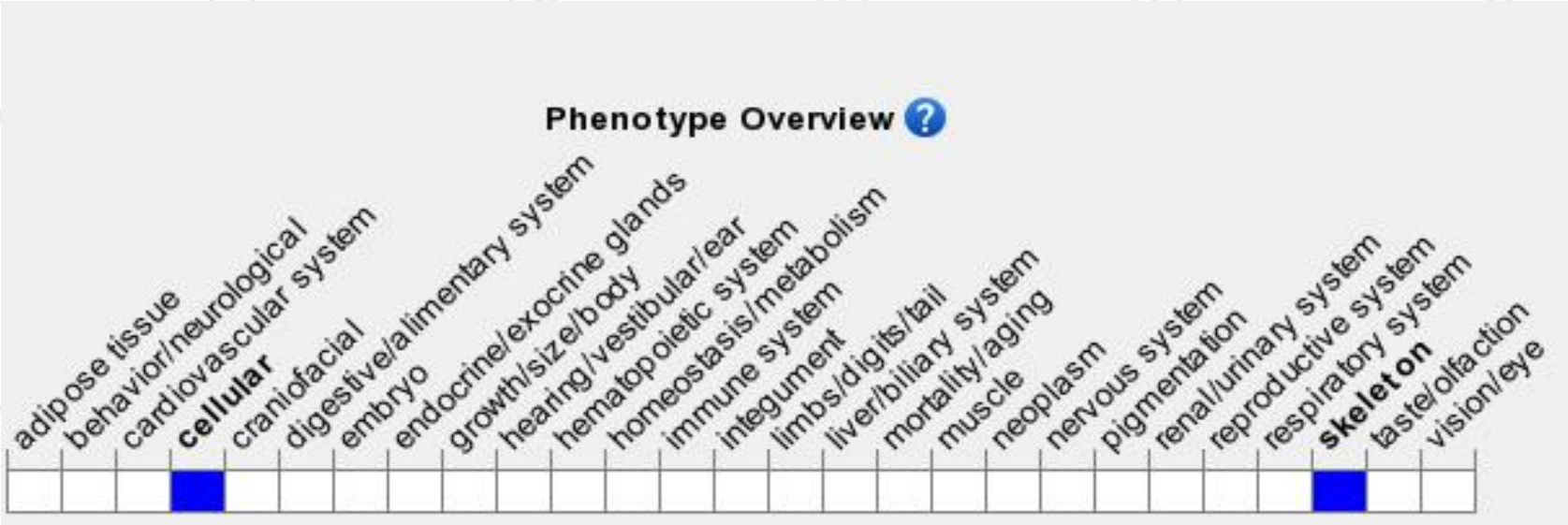
Genomic location distribution



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 null allele exhibit age-dependent increase in bone volume and increased osteoblast activity.

集萃药康
GemPharmatech

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

Tel: 400-9660890

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