Cilp Cas9-KO Strategy

Designer: Yanhua Shen

Reviewer: Jia Yu

Design Date: 2021-11-22

Project Overview

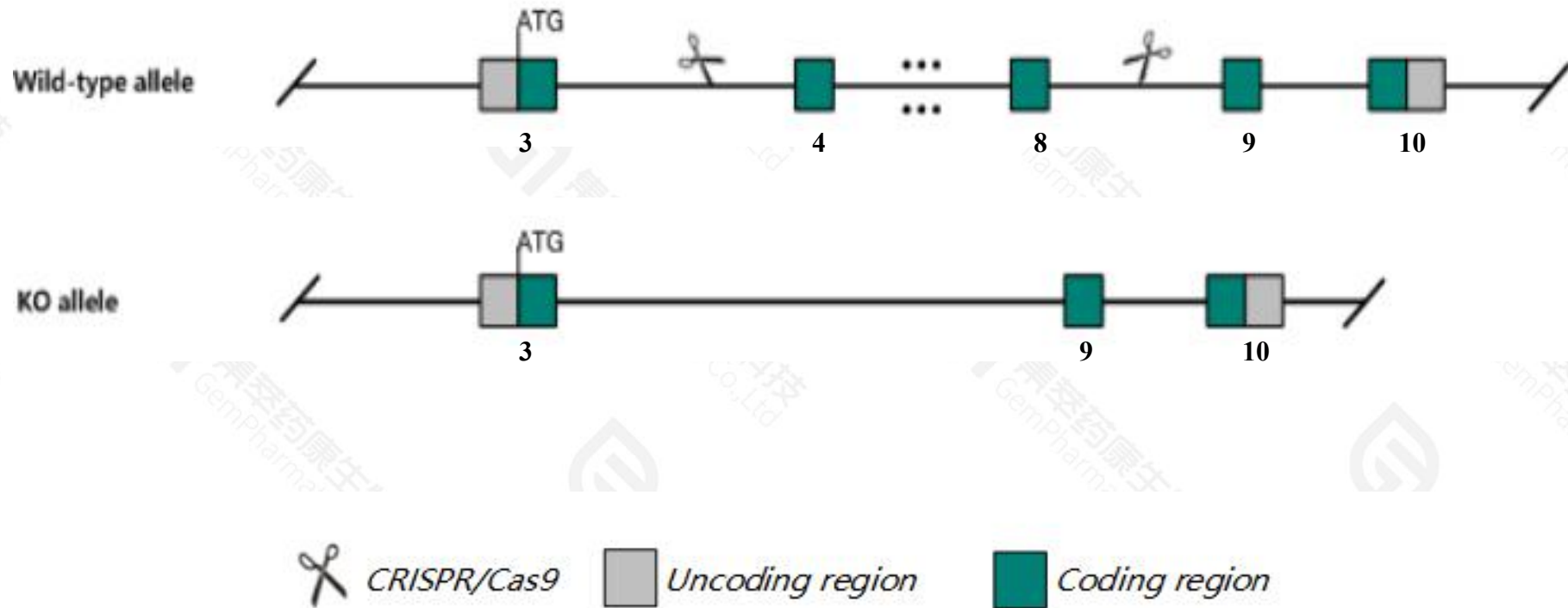|	
Project Name	*Cilp*
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

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

Technical routes

➤ The *Cilp* gene has 2 transcripts. According to the structure of *Cilp* gene, exon4-exon8 of *Cilp-201*(ENSMUST00000048762.8) transcript is recommended as the knockout region.The region contains 967bp coding sequence. Knock out the region will result in disruption of protein function.

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

Notice

➤ The *Cilp* gene is located on the Chr9. 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）

Cilp cartilage intermediate layer protein, nucleotide pyrophosphohydrolase [Mus musculus (house mouse)]

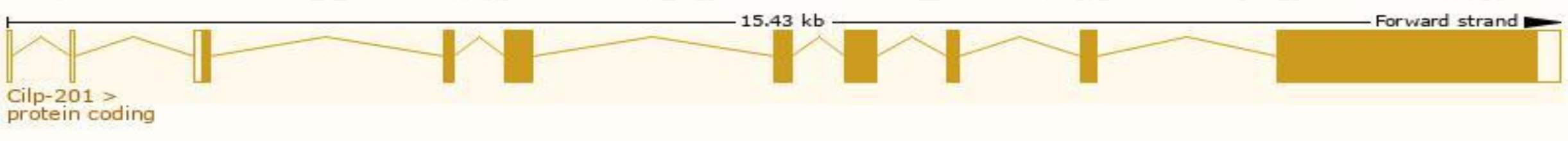Gene ID: 214425, updated on 25-Sep-2020

Summary

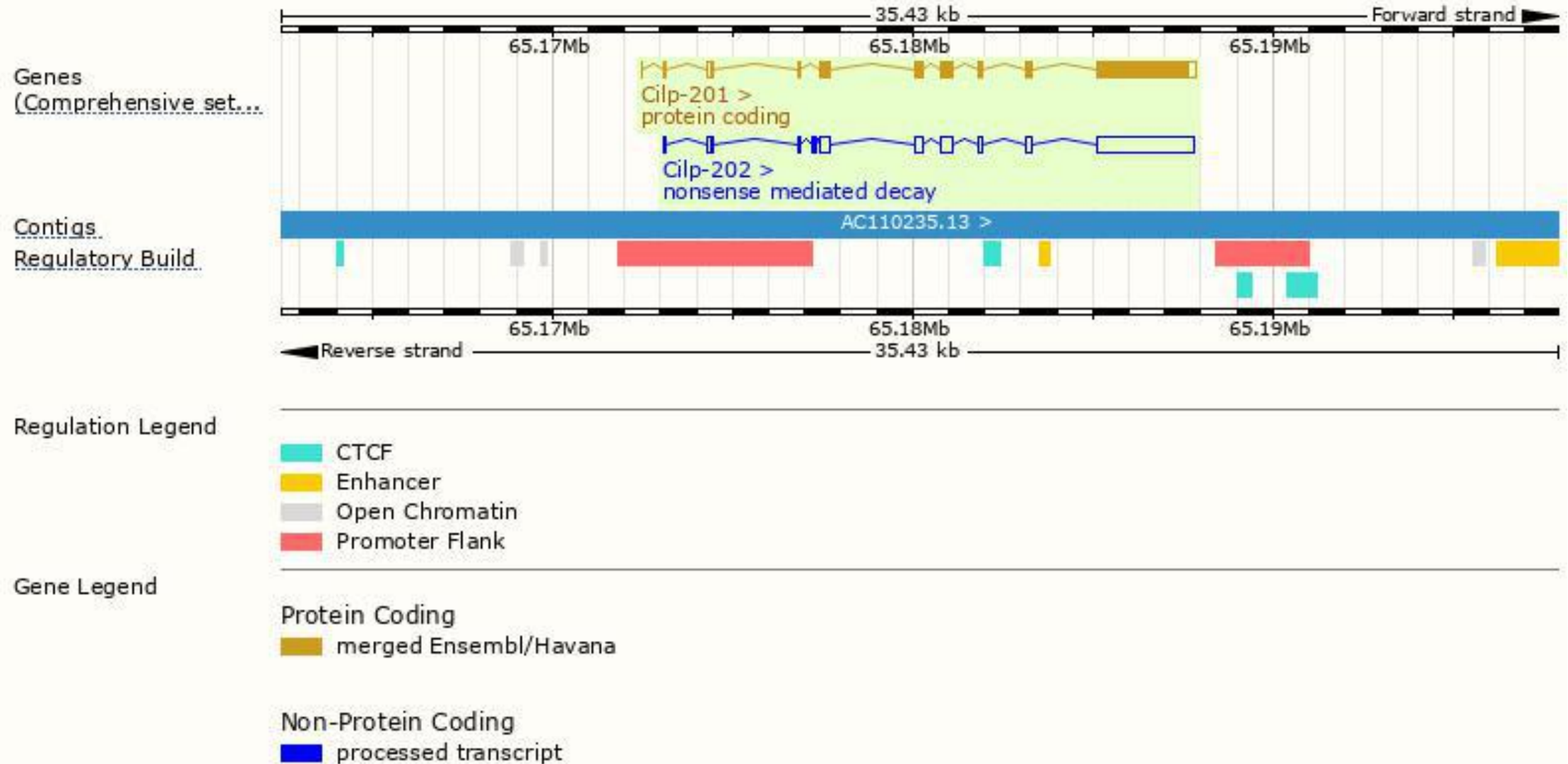|	
Official Symbol	Cilp provided by MGI
Official Full Name	cartilage intermediate layer protein, nucleotide pyrophosphohydrolase provided by MGI
Primary source	MGI:MGI:2444507
See related	Ensembl:ENSMUSG00000042254
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	9830114D16, C130036G17Rik, CILP-1
Expression	Broad expression in genital fat pad adult (RPKM 10.5), subcutaneous fat pad adult (RPKM 8.2) and 16 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
Cilp-201	ENSMUST00000048762.8	4153	1250aa	Protein coding	CCDS23287		TSL:1 , GENCODE basic , APPRIS P1 ,
Cilp-202	ENSMUST00000141382.2	4128	74aa	Nonsense mediated decay	-		TSL:5 ,

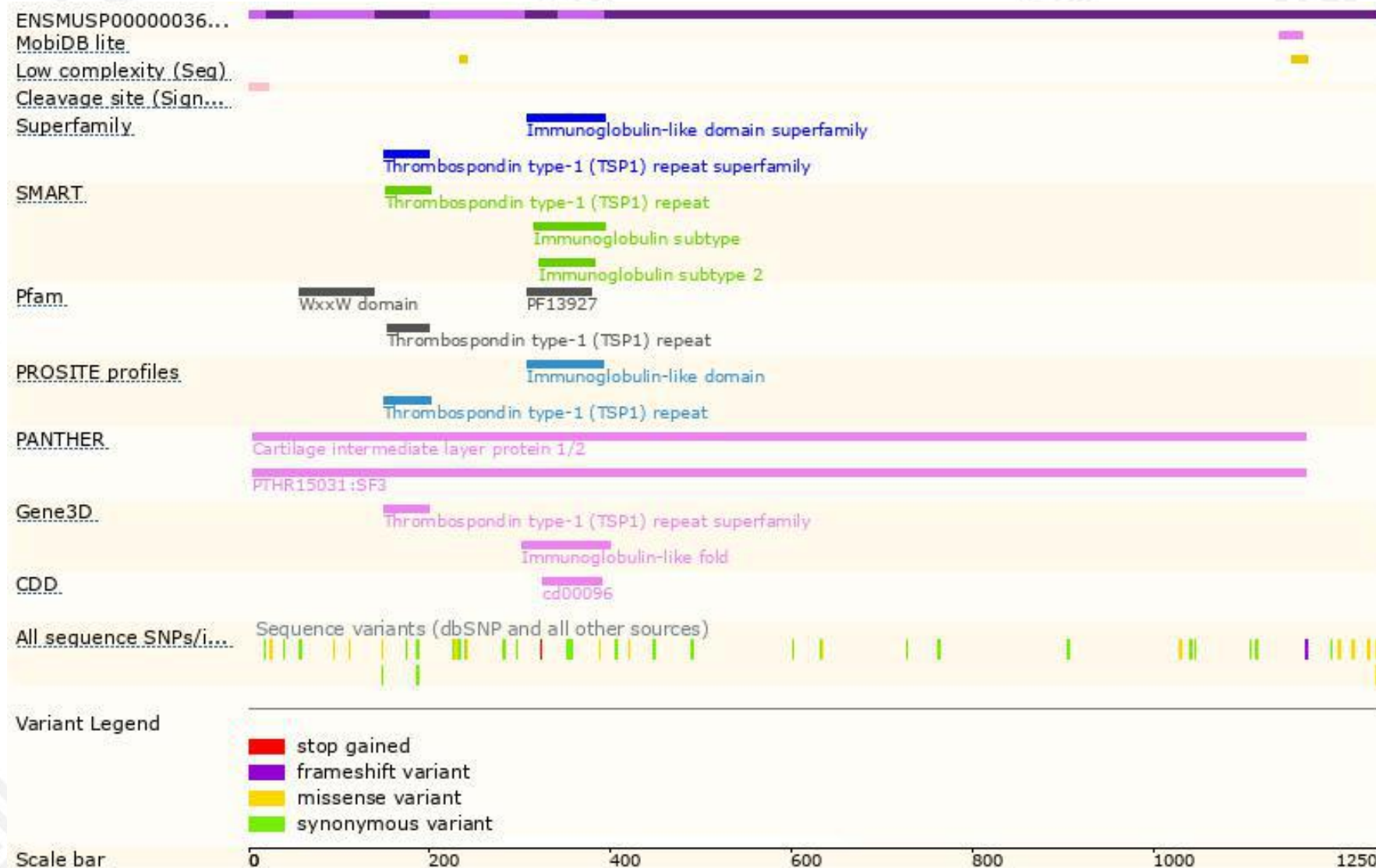The strategy is based on the design of *Cilp-201* transcript,the transcription is shown below:
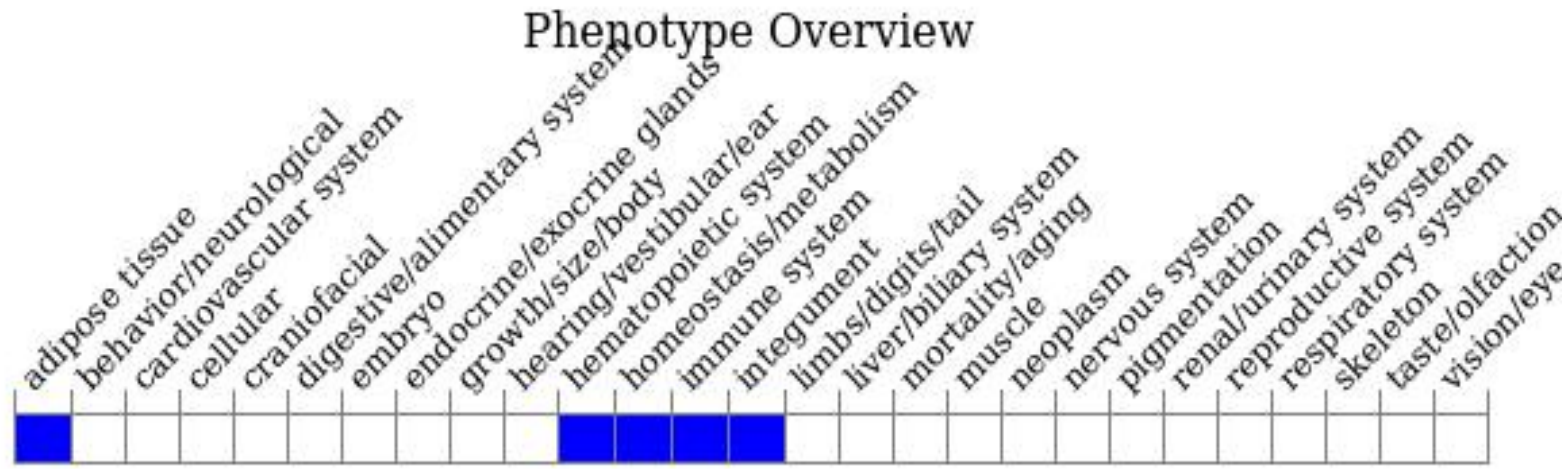
Genomic location distribution

Protein domain

ENSMUSP00000036...	
MobiDB lite	
Low complexity (Seg)	
Cleavage site (Sign...	
Superfamily	Immunoglobulin-like domain superfamily
	Thrombospondin type-1 (TSP1) repeat superfamily
SMART	Thrombospondin type-1 (TSP1) repeat
	Immunoglobulin subtype
	Immunoglobulin subtype 2
Pfam	WxxW domain PF13927
	Thrombospondin type-1 (TSP1) repeat
PROSITE profiles	Immunoglobulin-like domain
	Thrombospondin type-1 (TSP1) repeat
PANTHER	Cartilage intermediate layer protein 1/2
	PTHR15031:SF3
Gene3D	Thrombospondin type-1 (TSP1) repeat superfamily
	Immunoglobulin-like fold
CDD	cd00096
All sequence SNPs/i...	Sequence variants (dbSNP and all other sources)
Variant Legend	

Variant Legend
- stop gained
- frameshift variant
- missense variant
- synonymous variant

Scale bar: 0   200   400   600   800   1000   1250

江苏集萃药康生物科技股份有限公司   GemPharmatech Co., Ltd.   400-9660890

Mouse phenotype description(MGI)

Phenotype Overview

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.
Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd