

***Adams10* Cas9-CKO Strategy**

Designer: Xueting Zhang

Reviewer: Yanhua Shen

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Project Overview

Project Name

Adamts10

Project type

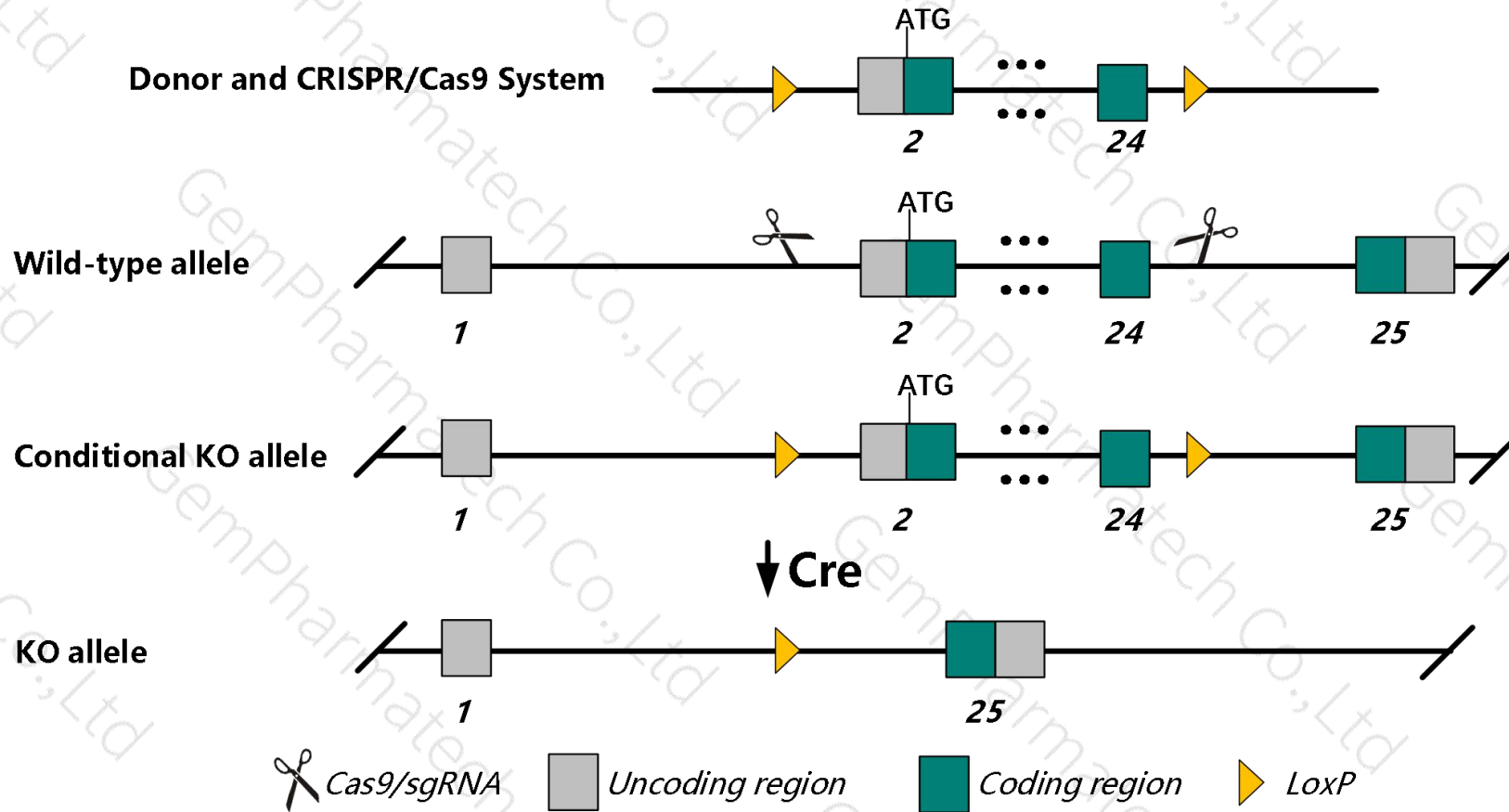
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Adamts10* gene. The schematic diagram is as follows:



- The *Adamts10* gene has 15 transcripts. According to the structure of *Adamts10* gene, exon2-exon24 of *Adamts10-201* (ENSMUST00000087623.12) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Adamts10* 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 floxed region is near to the N-terminal of *Myo1f* gene, this strategy may influence the regulatory function of the N-terminal of *Myo1f* gene.
- The *Adamts10* gene is located on the Chr17. 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)



Adamts10 a disintegrin-like and metallopeptidase (reprolysin type) with thrombospondin type 1 motif, 10 [*Mus musculus* (house mouse)]

Gene ID: 224697, updated on 27-Aug-2019

Summary

- Official Symbol** Adamts10 provided by MGI
- Official Full Name** a disintegrin-like and metallopeptidase (reprolysin type) with thrombospondin type 1 motif, 10 provided by MGI
- Primary source** MGI:MGI:2449112
- See related** Ensembl:ENSMUSG00000024299
- Gene type** protein coding
- RefSeq status** REVIEWED
- Organism** Mus musculus
- Lineage** Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
- Also known as** Znmp; AW045948; Adam-ts10; Adamts-10; 9430006O18
- Summary** This gene encodes a member of "a disintegrin and metalloproteinase with thrombospondin motifs" (ADAMTS) family of multi-domain matrix-associated metalloendopeptidases that have diverse roles in tissue morphogenesis and pathophysiological remodeling, in inflammation and in vascular biology. The encoded preproprotein undergoes proteolytic processing to generate a functional, zinc-dependent metallopeptidase enzyme. [provided by RefSeq, Jul 2016]
- Expression** Broad expression in ovary adult (RPKM 71.3), lung adult (RPKM 70.3) and 24 other tissues See more
- Orthologs** human all

Genomic context

Location: 17; 17 B1 See Adamts10 in Genome Data Viewer

Exon count: 26

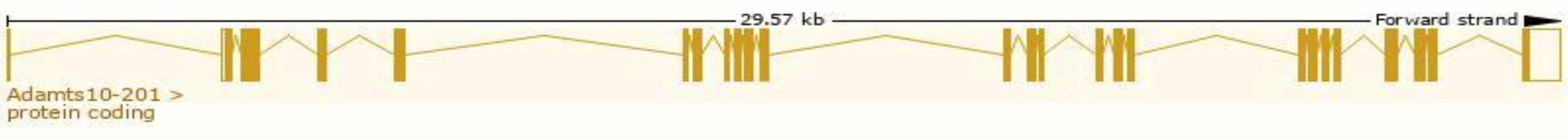
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	17	NC_000083.6 (33523646..33553782)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	17	NC_000083.5 (33661169..33690421)

Transcript information (Ensembl)

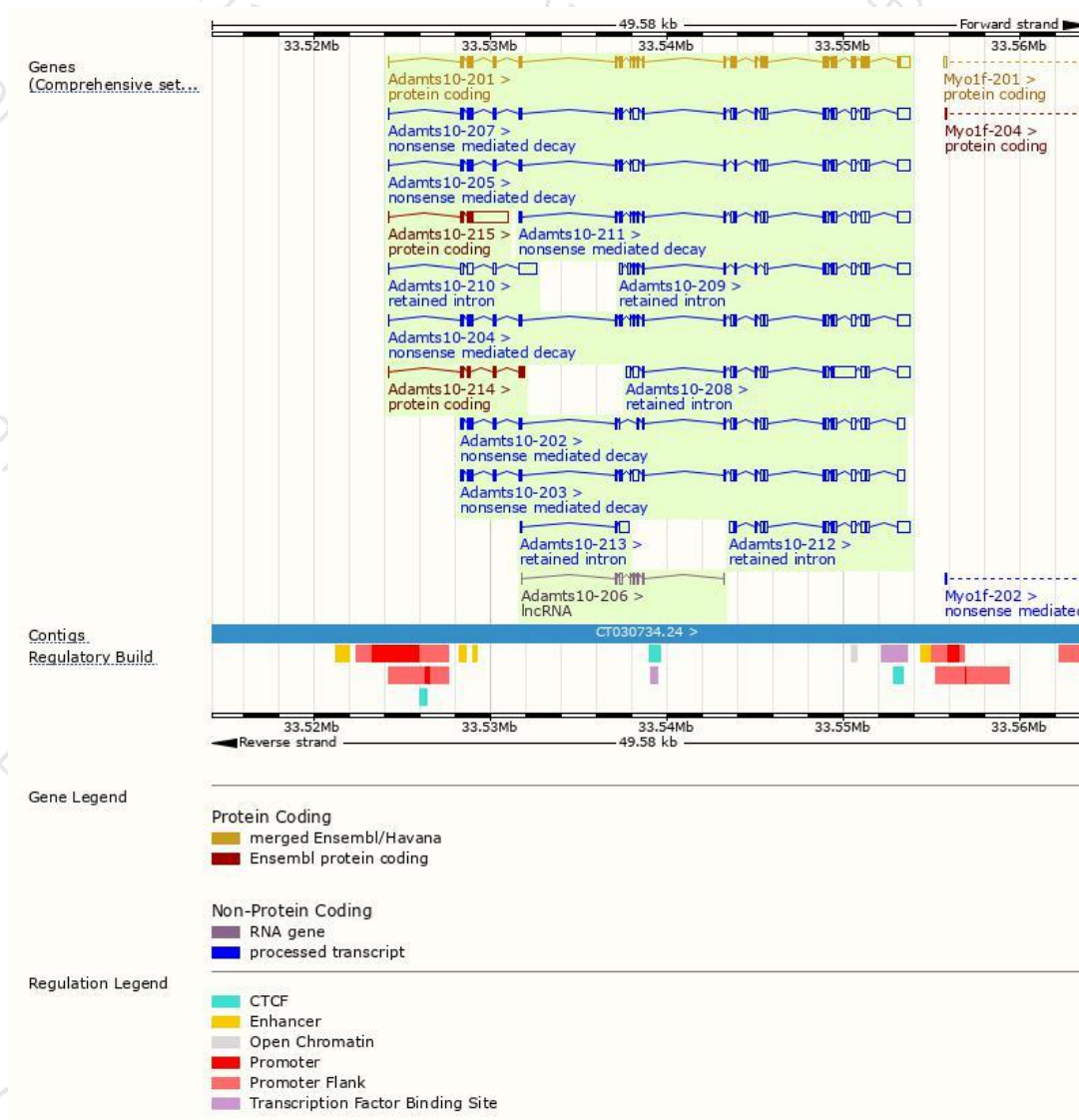
The gene has 15 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Adamts10-201	ENSMUST00000087623.12	4043	1104aa	Protein coding	CCDS37566	P58459	TSL:5 GENCODE basic APPRIS P1
Adamts10-215	ENSMUST00000234715.1	2533	147aa	Protein coding	-	-	GENCODE basic
Adamts10-214	ENSMUST00000234497.1	884	215aa	Protein coding	-	-	GENCODE basic
Adamts10-207	ENSMUST00000173931.7	4121	323aa	Nonsense mediated decay	-	G3UZ08	TSL:2
Adamts10-204	ENSMUST00000173030.7	4009	323aa	Nonsense mediated decay	-	G3UZ08	TSL:1
Adamts10-205	ENSMUST00000173241.7	3982	323aa	Nonsense mediated decay	-	G3UZ08	TSL:2
Adamts10-203	ENSMUST00000173013.7	3733	323aa	Nonsense mediated decay	-	G3UZ08	TSL:2
Adamts10-202	ENSMUST00000172922.7	3385	347aa	Nonsense mediated decay	-	G3UY03	TSL:1
Adamts10-211	ENSMUST00000174348.7	3249	275aa	Nonsense mediated decay	-	G3UXX0	CDS 5' incomplete TSL:1
Adamts10-208	ENSMUST00000173972.7	3967	No protein	Retained intron	-	-	TSL:2
Adamts10-209	ENSMUST00000174104.7	2779	No protein	Retained intron	-	-	TSL:1
Adamts10-212	ENSMUST00000174666.1	2422	No protein	Retained intron	-	-	TSL:1
Adamts10-210	ENSMUST00000174170.2	1798	No protein	Retained intron	-	-	TSL:1
Adamts10-213	ENSMUST00000234108.1	752	No protein	Retained intron	-	-	
Adamts10-206	ENSMUST00000173813.7	737	No protein	lncRNA	-	-	TSL:5

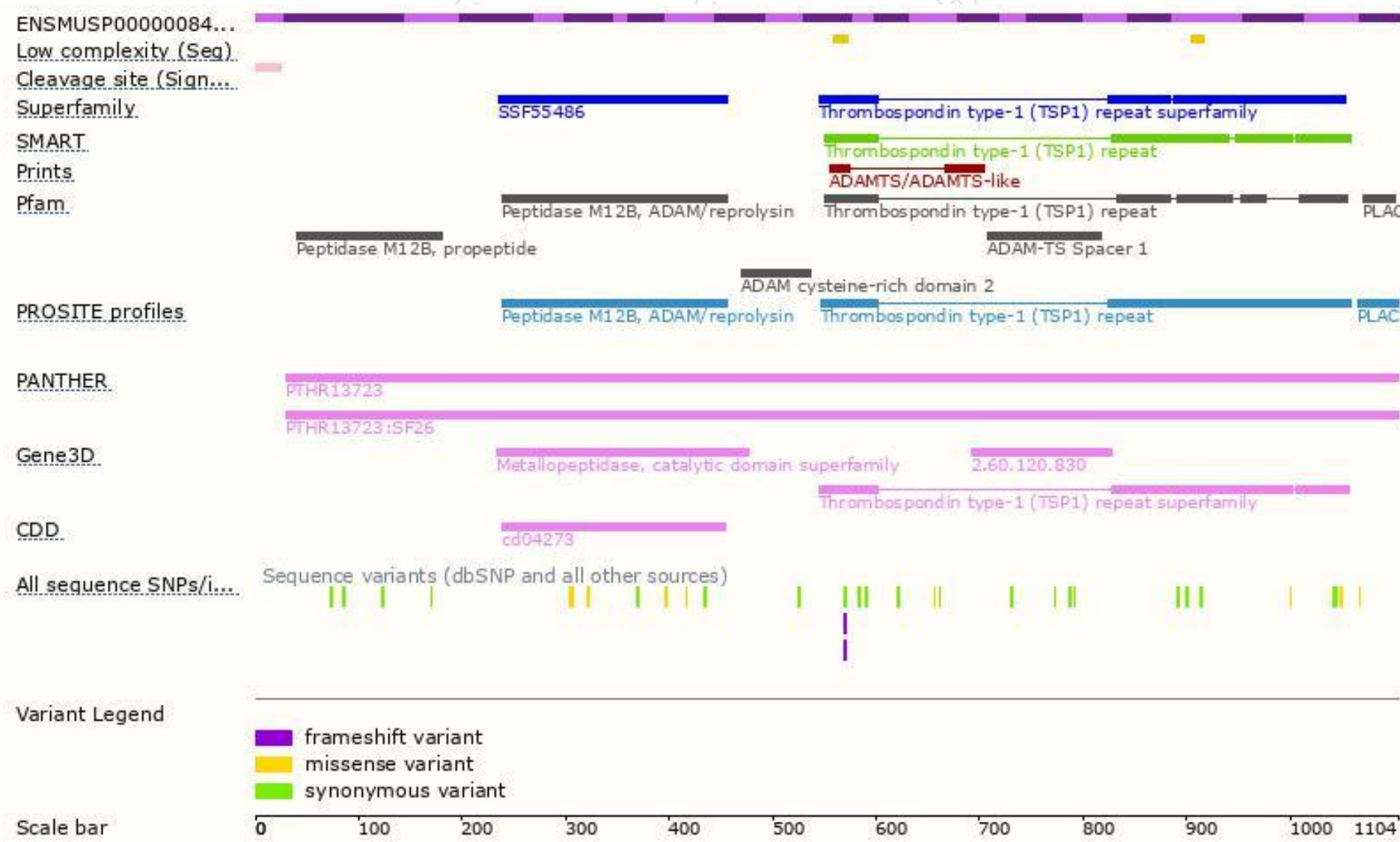
The strategy is based on the design of *Adamts10-201* transcript,The transcription is shown below



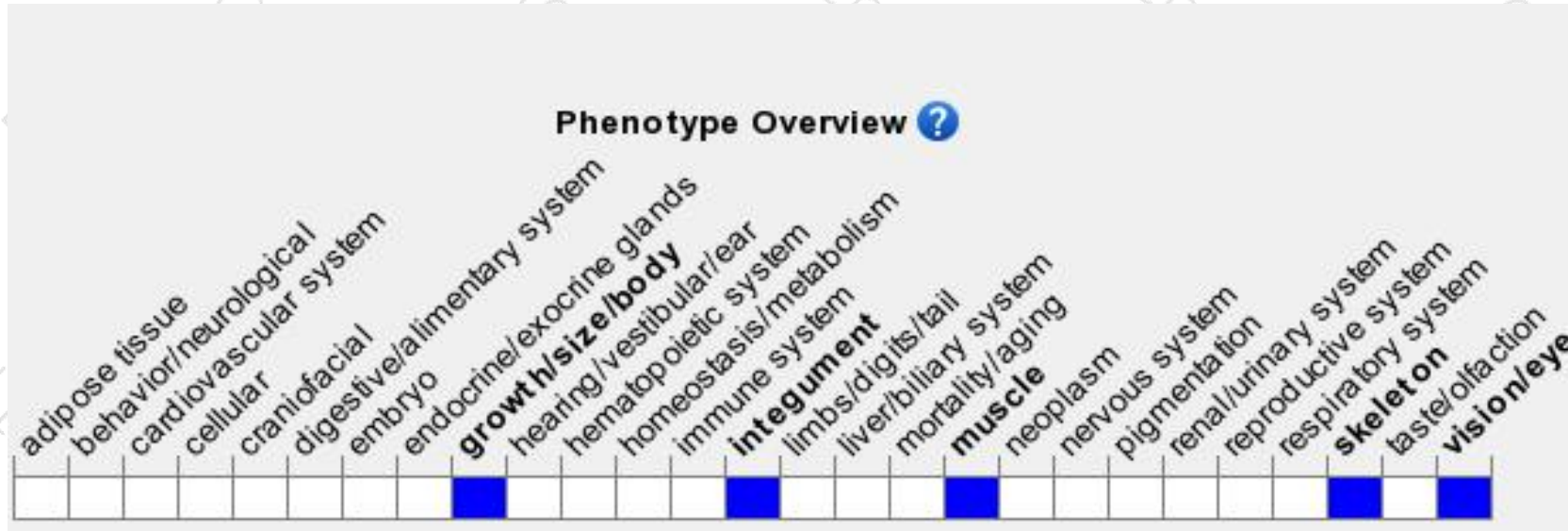
Genomic location distribution



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.

Tel: 400-9660890

