

Ids Cas9-KO Strategy

Designer:

Huan Wang

Reviewer:

Huan Fan

Design Date:

2020-3-6

Project Overview

Project Name

Ids

Project type

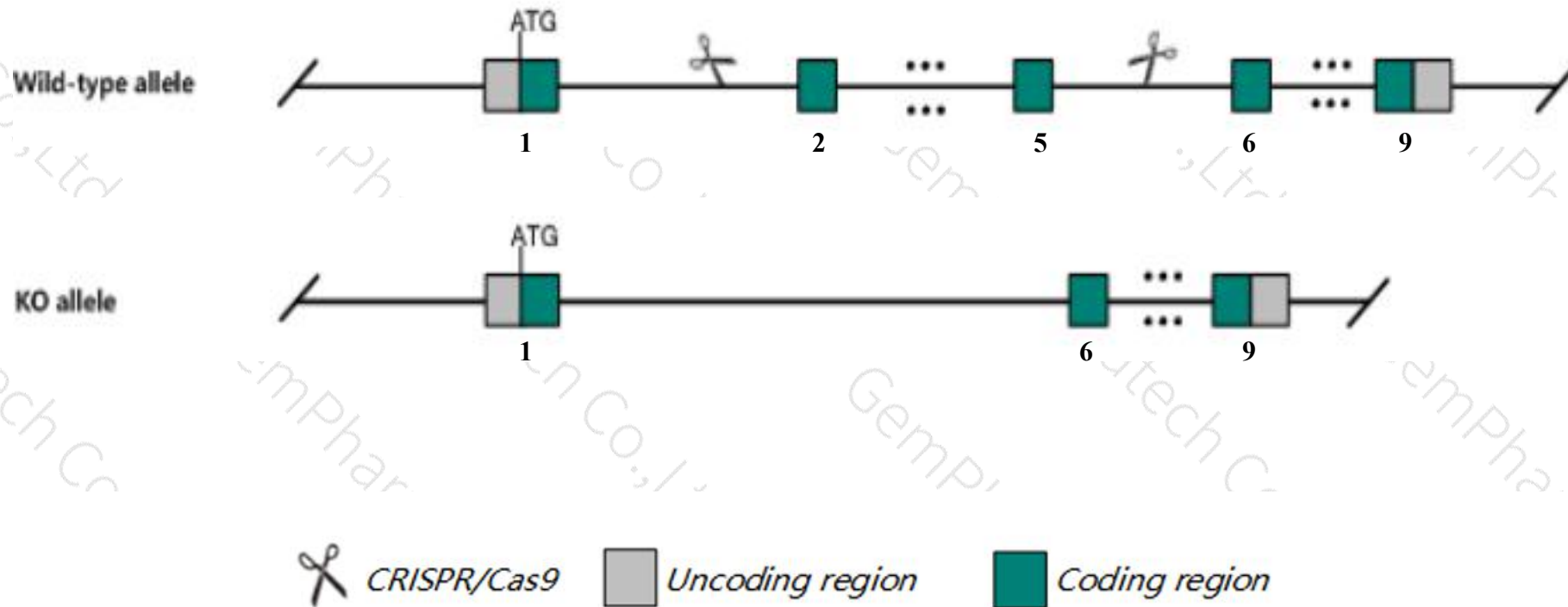
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Ids* gene has 2 transcripts. According to the structure of *Ids* gene, exon2-exon5 of *Ids-201* (ENSMUST00000101509.8) transcript is recommended as the knockout region. The region contains 605bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ids* gene. The brief process is as follows: CRISPR/Cas9 system we

- According to the existing MGI data, Mice with homozygous disruption of this gene display lysosomal accumulation of glycosaminoglycans in multiple tissues, premature death, impaired locomotor activity, joint swelling, and skeletal defects.
- The *Ids* gene is located on the ChrX. 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)

Ids iduronate 2-sulfatase [Mus musculus (house mouse)]

Gene ID: 15931, updated on 23-Feb-2019

Summary



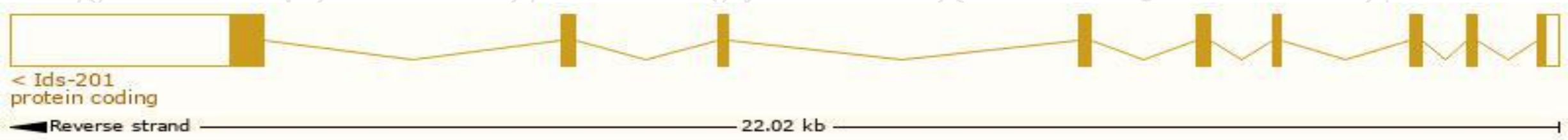
Official Symbol	Ids provided by MGI
Official Full Name	iduronate 2-sulfatase provided by MGI
Primary source	MGI:MGI:96417
See related	Ensembl:ENSMUSG00000035847
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AW214631
Expression	Broad expression in cortex adult (RPKM 56.7), frontal lobe adult (RPKM 54.0) and 20 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

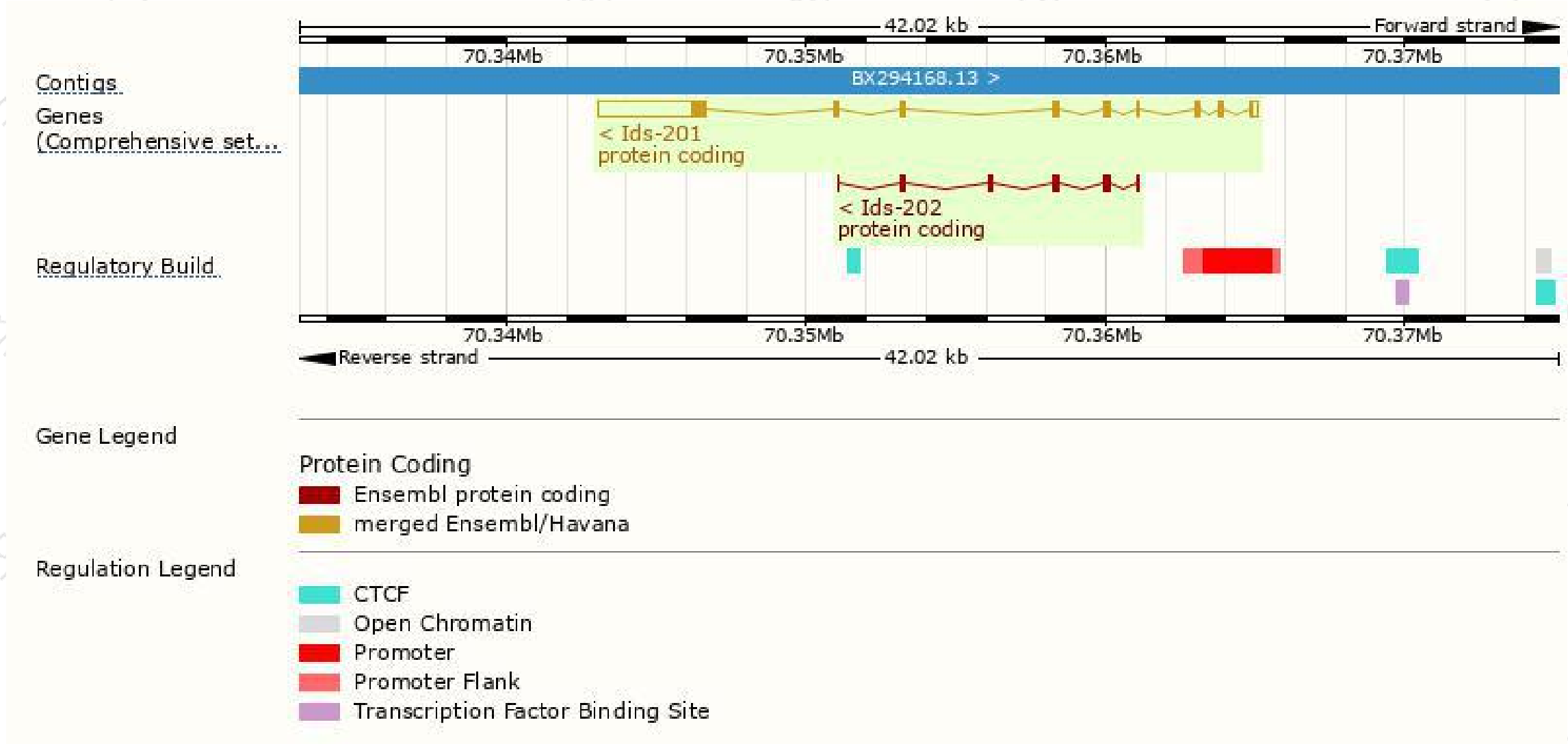
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ids-201	ENSMUST00000101509.8	4972	552aa	Protein coding	CCDS40996	Q08890	TSL:1 GENCODE basic APPRIS P1
Ids-202	ENSMUST00000130519.1	708	236aa	Protein coding	-	F6X9C5	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:5

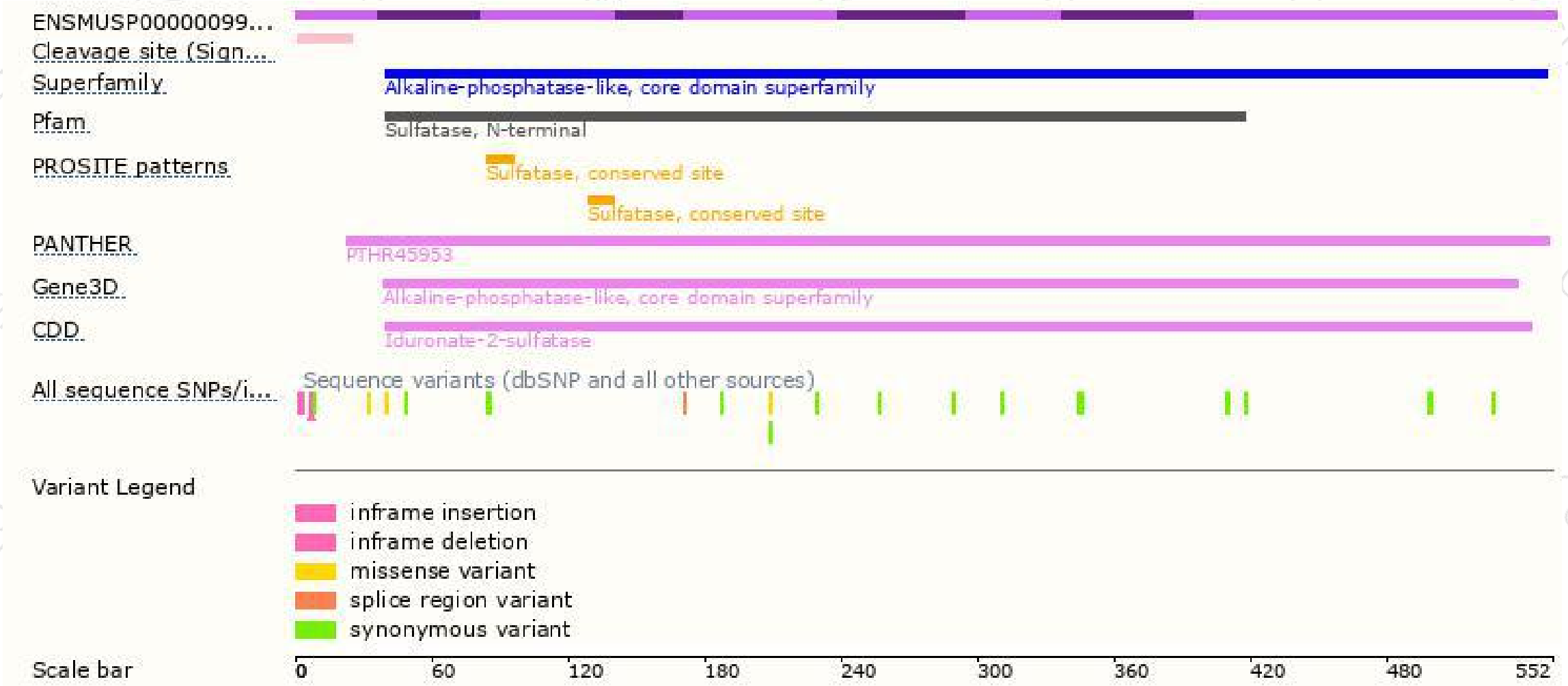
The strategy is based on the design of *Ids-201* transcript,The transcription is shown below



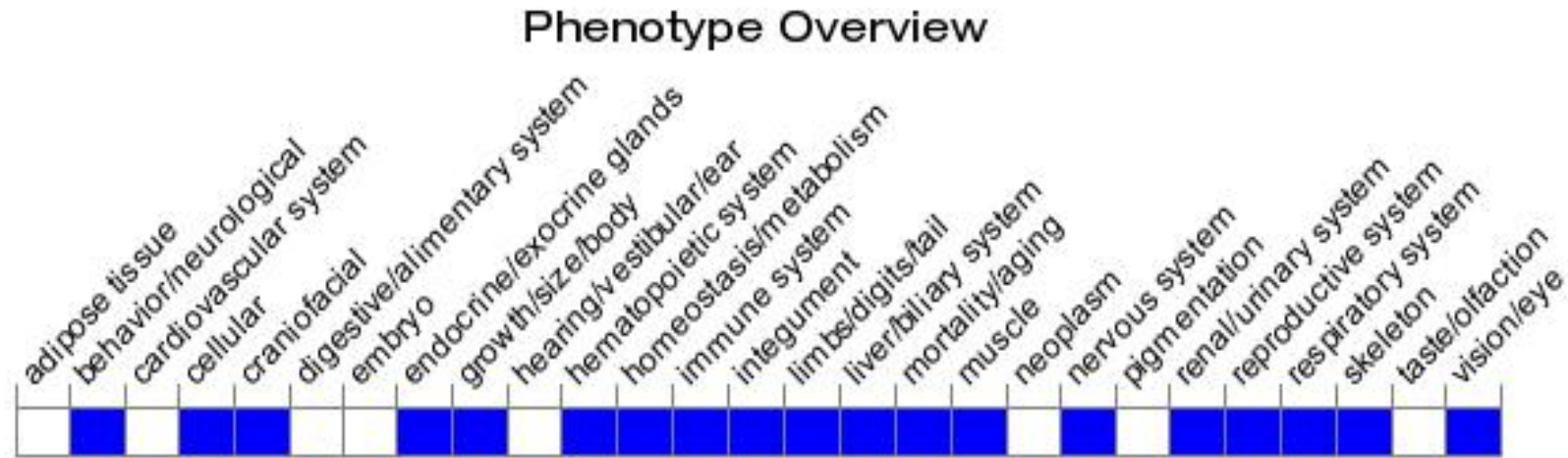
Genomic location distribution



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 with homozygous disruption of this gene display lysosomal accumulation of glycosaminoglycans in multiple tissues, premature death, impaired locomotor activity, joint swelling, and skeletal defects.

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

Tel: 400-9660890

