

***Cbx4* Cas9-KO Strategy**

Designer: Jinling Wang

Reviewer: Shilei Zhu

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Project Overview

Project Name

Cbx4

Project type

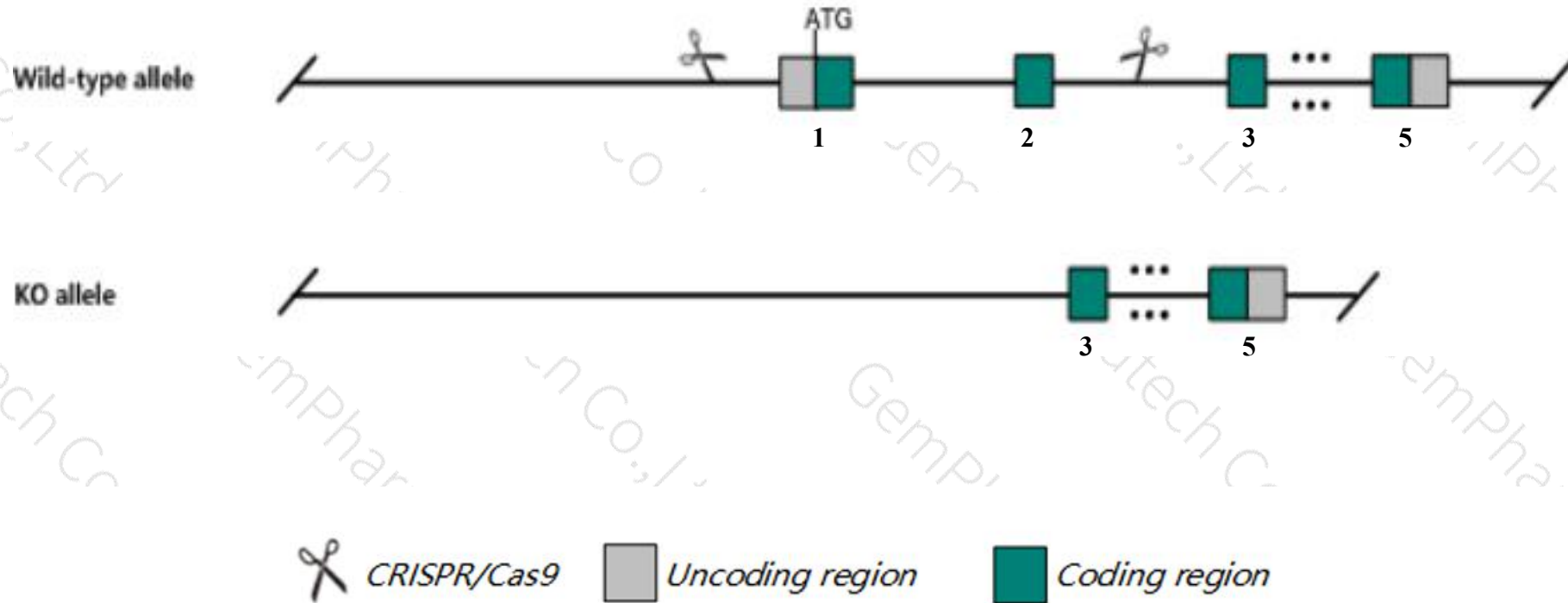
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cbx4* gene. The schematic diagram is as follows:



- The *Cbx4* gene has 2 transcripts. According to the structure of *Cbx4* gene, exon1-exon2 of *Cbx4-201* (ENSMUST00000026665.7) 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 *Cbx4* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, homozygous inactivation of this gene results in complete neonatal lethality and severe thymus hypoplasia as a result of reduced thymocyte proliferation.
- The *Cbx4* gene is located on the Chr11. 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)

Cbx4 chromobox 4 [Mus musculus (house mouse)]

Gene ID: 12418, updated on 13-Mar-2020

Summary



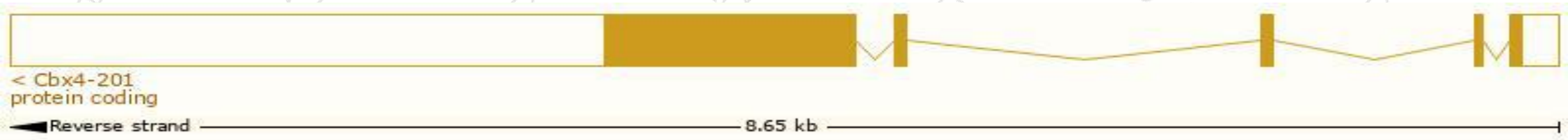
Official Symbol	Cbx4 provided by MGI
Official Full Name	chromobox 4 provided by MGI
Primary source	MGI:MGI:1195985
See related	Ensembl:ENSMUSG00000039989
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	MPc2, PC2
Expression	Broad expression in adrenal adult (RPKM 54.2), thymus adult (RPKM 19.2) and 22 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

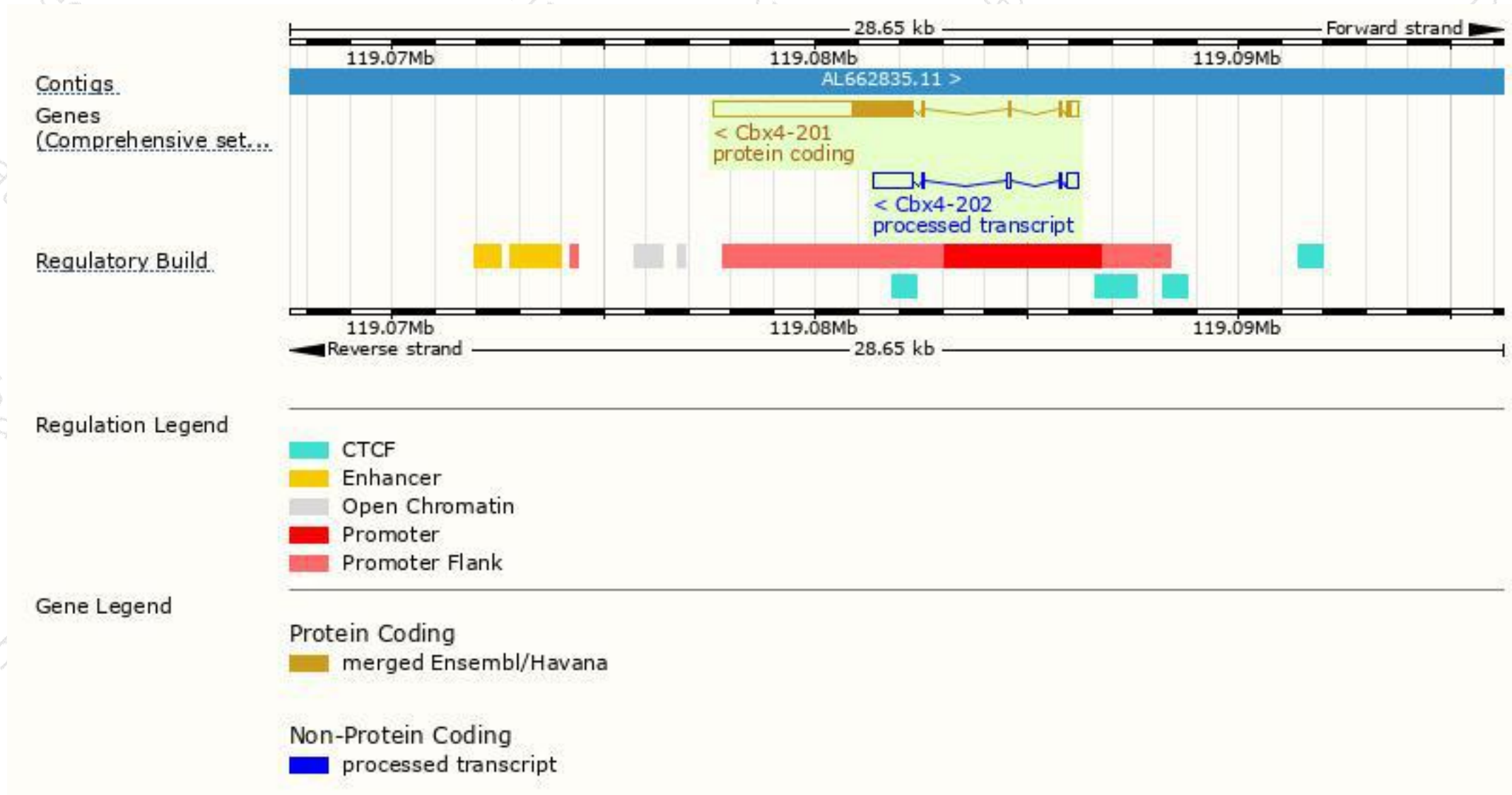
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cbx4-201	ENSMUST00000026665.7	5179	551aa	Protein coding	CCDS25710	O55187	TSL:1 GENCODE basic APPRIS P1
Cbx4-202	ENSMUST00000145058.1	1410	No protein	Processed transcript	-	-	TSL:1

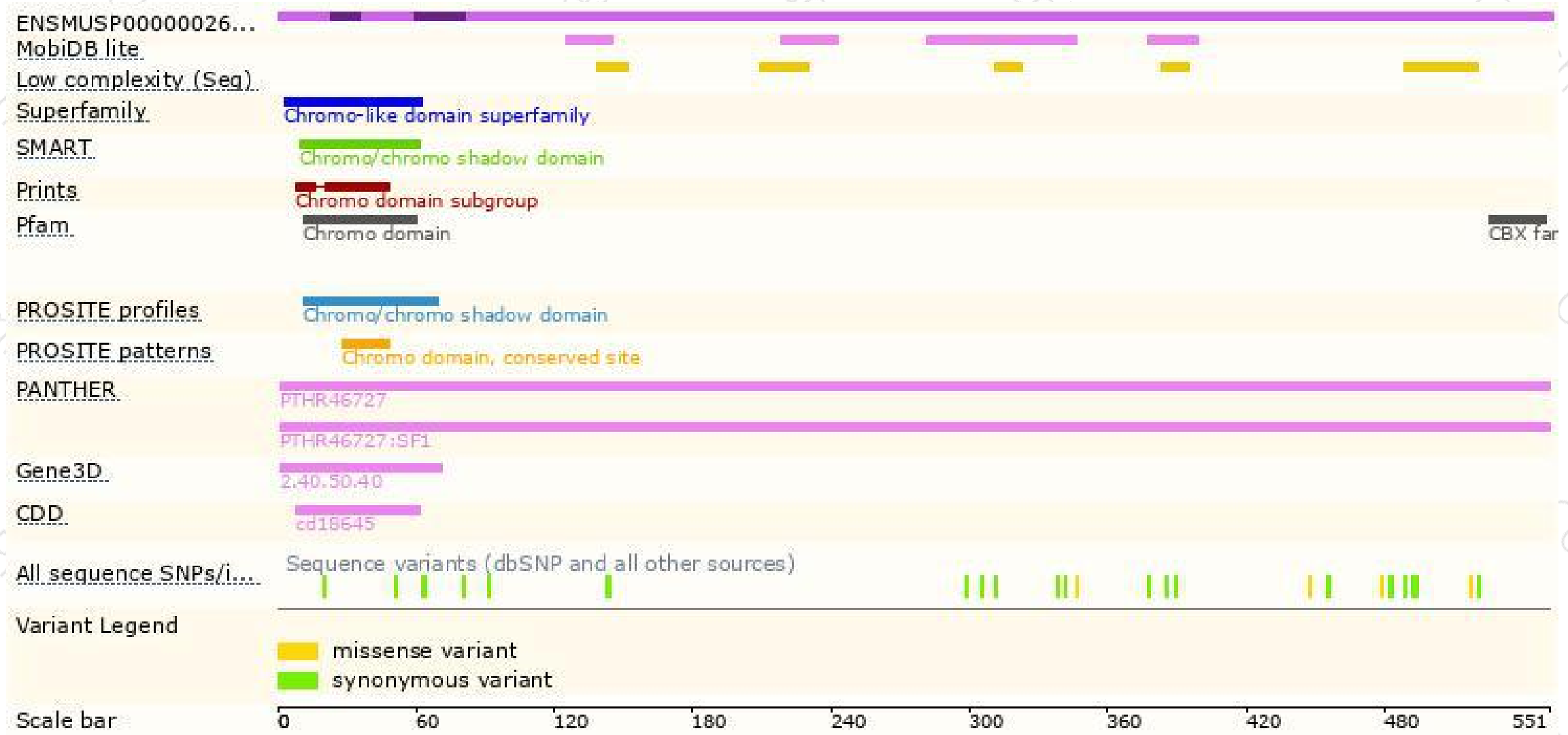
The strategy is based on the design of *Cbx4-201* transcript,the transcription is shown below:



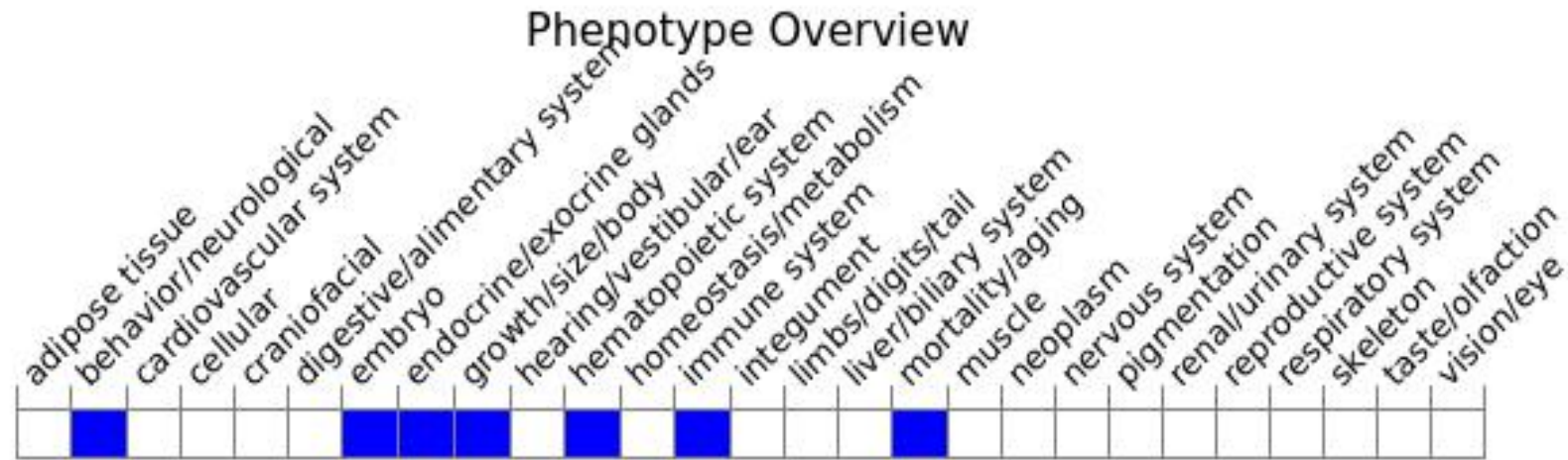
Genomic location distribution



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, homozygous inactivation of this gene results in complete neonatal lethality and severe thymus hypoplasia as a result of reduced thymocyte proliferation.

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

Tel: 400-9660890

