

Zc3h13 Cas9-CKO Strategy

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Project Overview

Project Name

Zc3h13

Project type

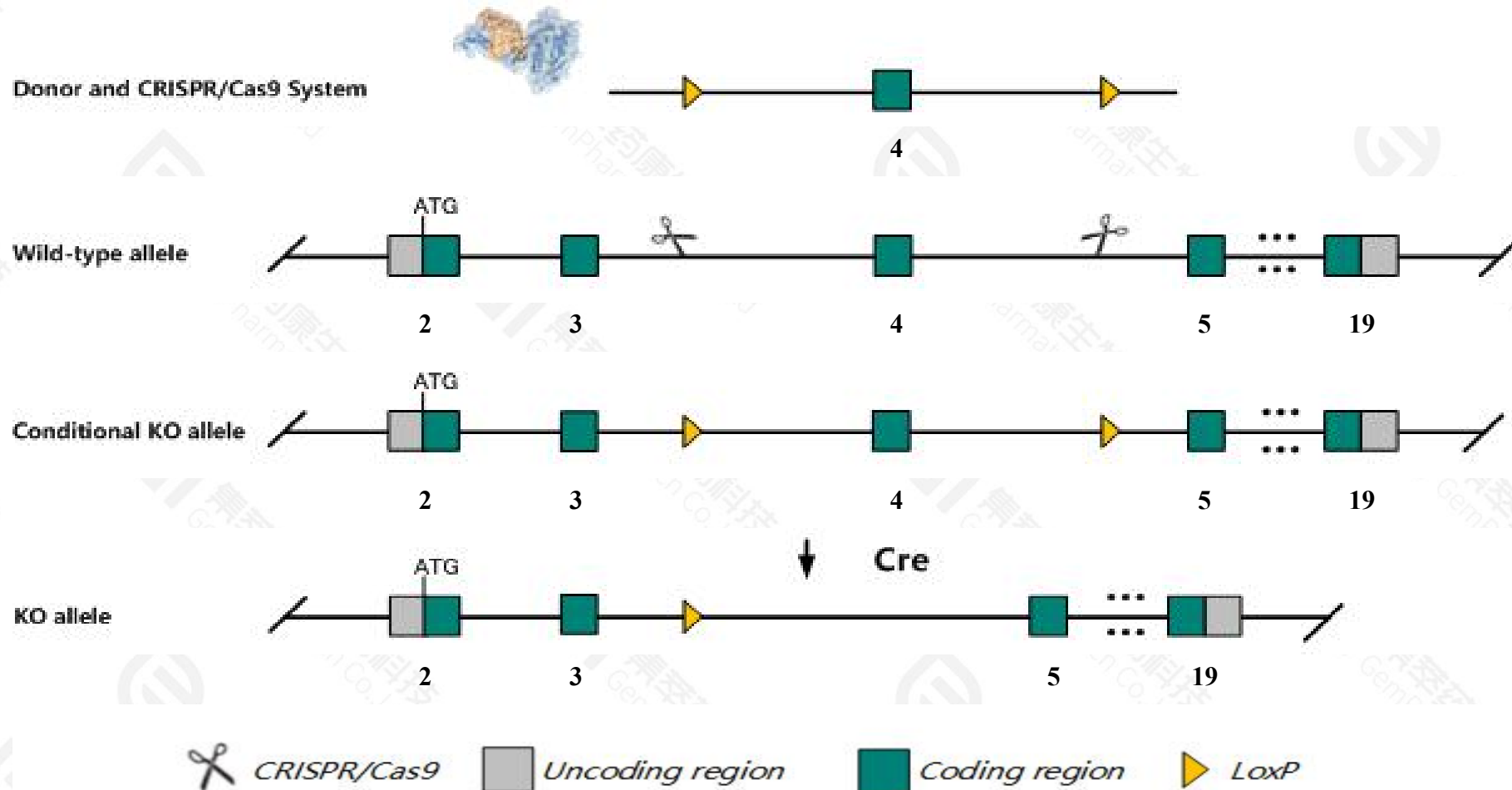
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Zc3h13* gene. The schematic diagram is as follows:



- The *Zc3h13* gene has 4 transcripts. According to the structure of *Zc3h13* gene, exon4 of *Zc3h13*-201(ENSMUST00000022577.6) transcript is recommended as the knockout region. The region contains 112bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Zc3h13* 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 *Zc3h13* gene is located on the Chr14. 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)

Zc3h13 zinc finger CCCH type containing 13 [Mus musculus (house mouse)]

Gene ID: 67302, updated on 26-Sep-2020

Summary



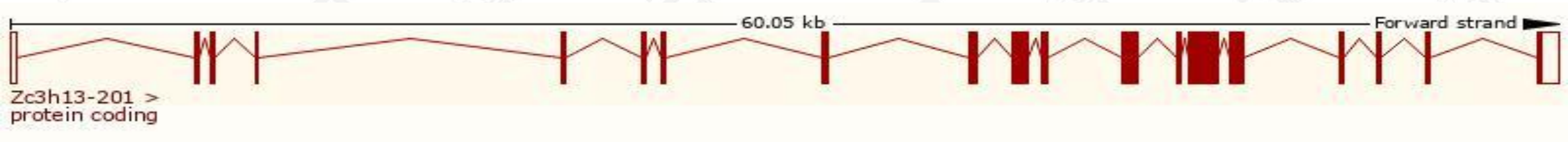
Official Symbol	Zc3h13 provided by MGI
Official Full Name	zinc finger CCCH type containing 13 provided by MGI
Primary source	MGI:MGI:1914552
See related	Ensembl:ENSMUSG00000022000
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2600010B19Rik, 3110050K21Rik, 4930570G11Rik, C87618
Expression	Ubiquitous expression in CNS E11.5 (RPKM 8.3), frontal lobe adult (RPKM 5.8) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

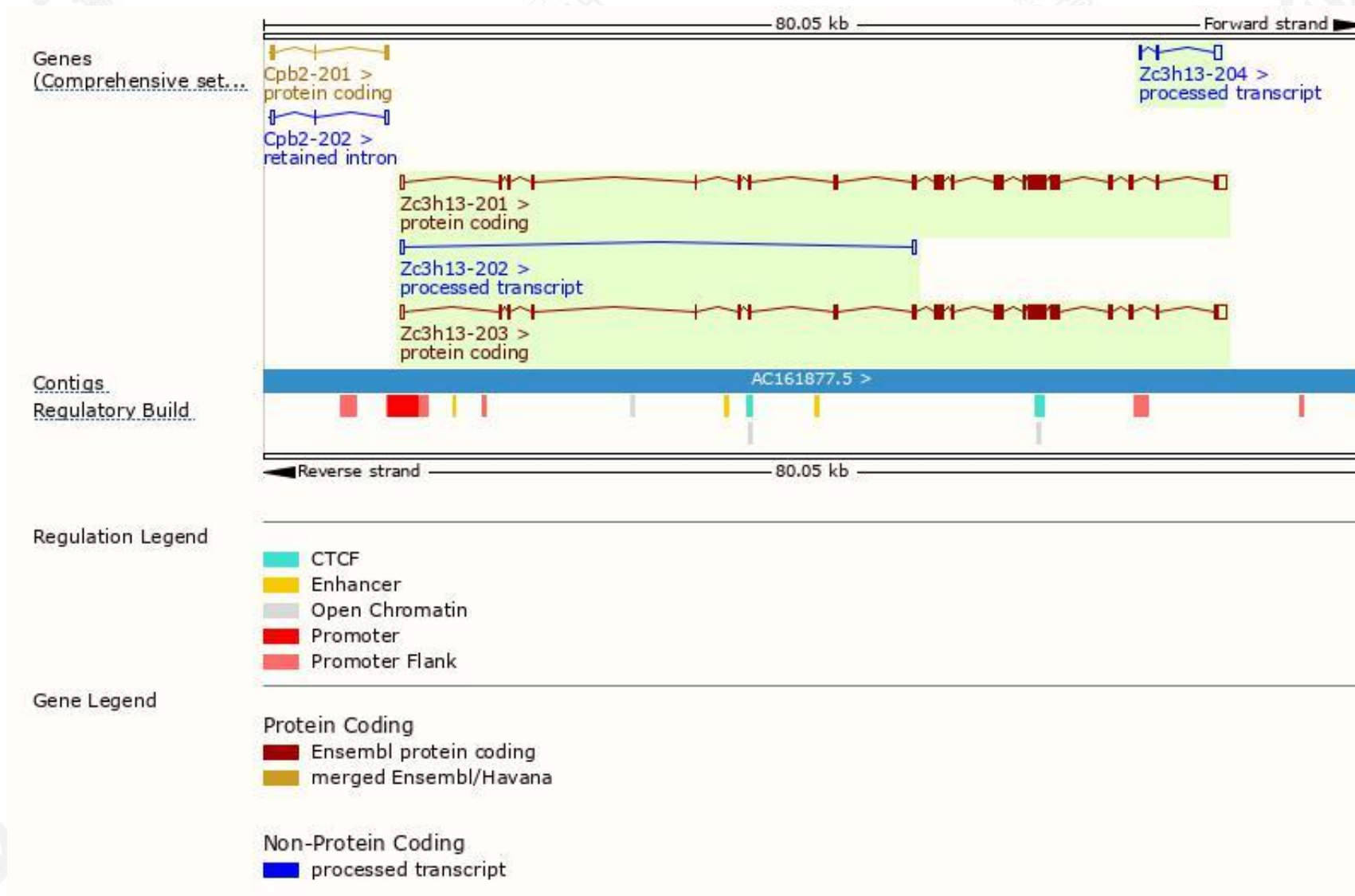
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Zc3h13-201	ENSMUST00000022577.6	6151	1729aa	Protein coding	CCDS27278		TSL:5 , GENCODE basic , APPRIS P2 ,
Zc3h13-203	ENSMUST000000227049.2	6144	1730aa	Protein coding	-		GENCODE basic , APPRIS ALT2 ,
Zc3h13-204	ENSMUST000000228470.2	730	No protein	Processed transcript	-		
Zc3h13-202	ENSMUST000000226417.2	534	No protein	Processed transcript	-		

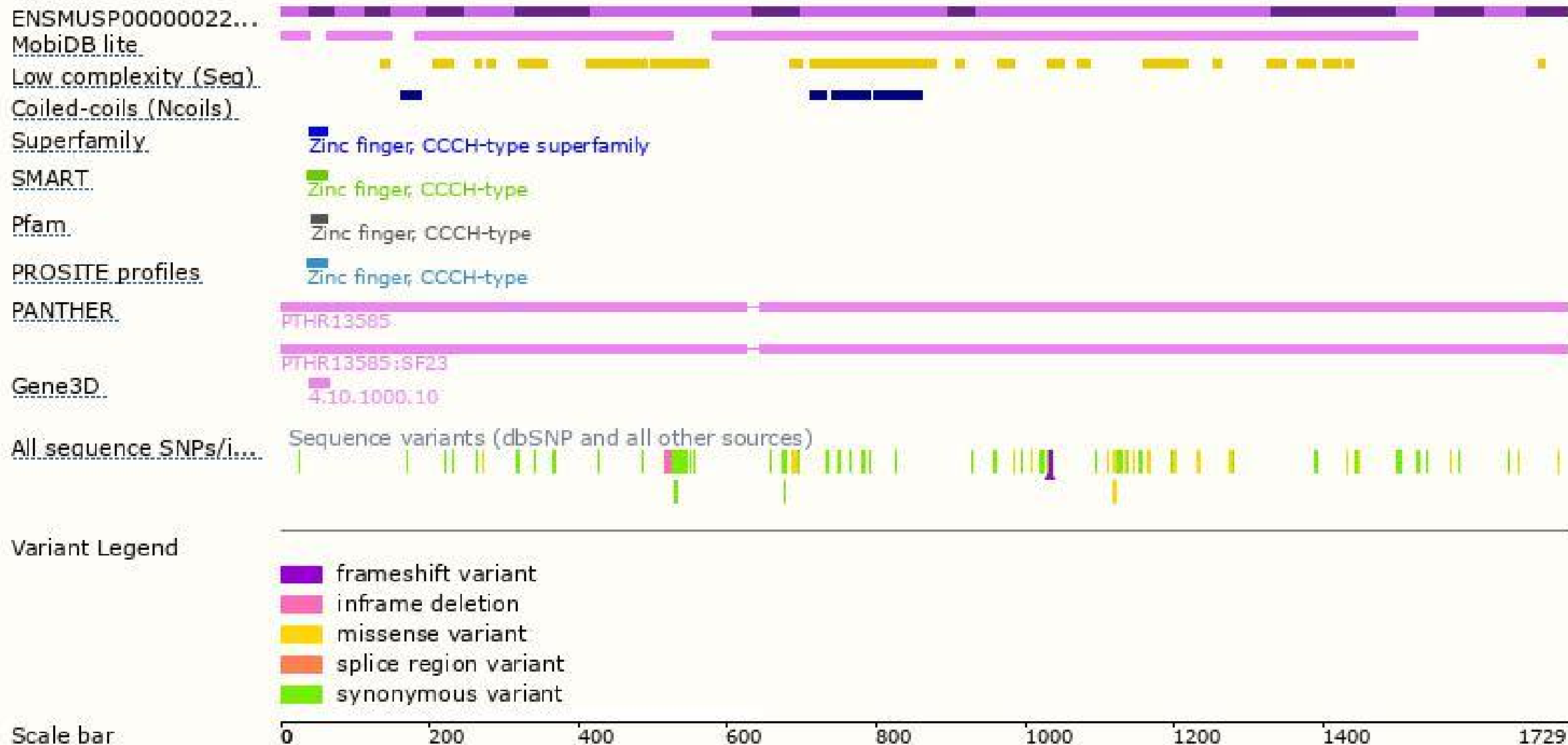
The strategy is based on the design of *Zc3h13-201* transcript,the transcription is shown below:



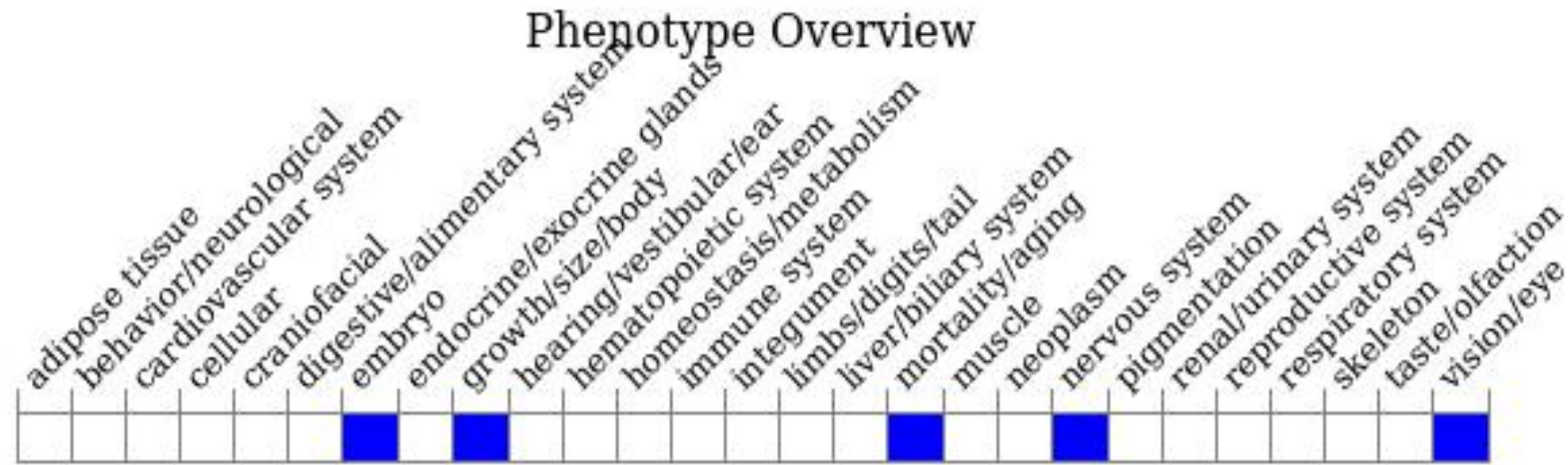
Genomic location distribution



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.
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