

Edc4 Cas9-CKO Strategy

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Project Overview

Project Name

Edc4

Project type

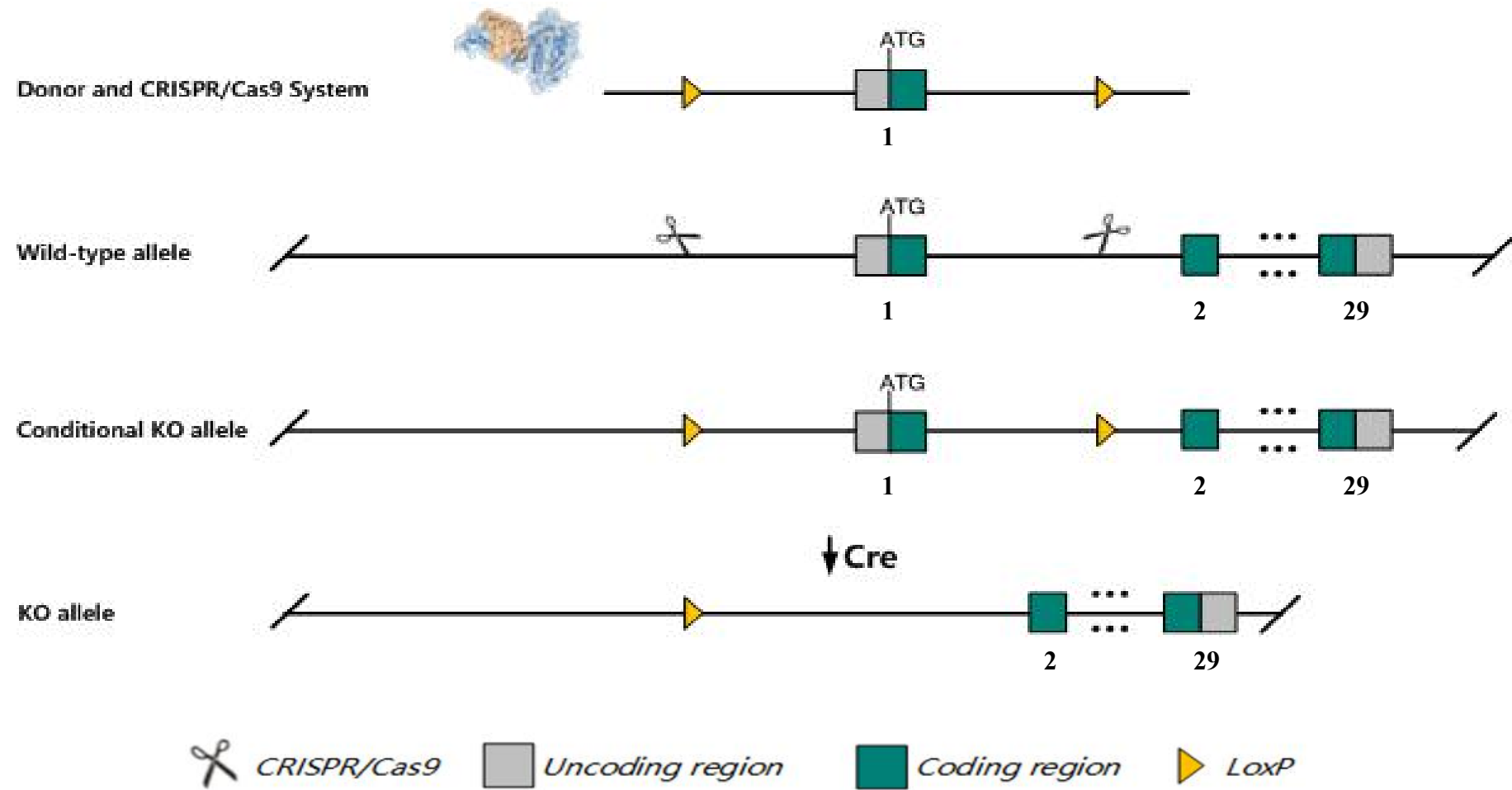
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Edc4* gene. The schematic diagram is as follows:



The *Edc4* gene has 7 transcripts. According to the structure of *Edc4* gene, exon1 of *Edc4-201*(ENSMUST00000040254.15) 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 *Edc4* 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 *Edc4* gene is located on the Chr8. 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.

Edc4 enhancer of mRNA decapping 4 [Mus musculus (house mouse)]

Gene ID: 234699, updated on 13-Mar-2020

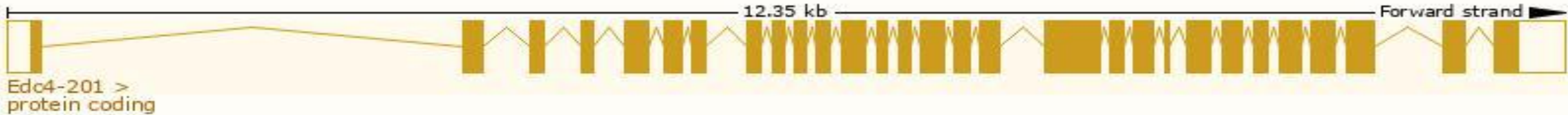
Summary**Official Symbol** Edc4 provided by [MGI](#)**Official Full Name** enhancer of mRNA decapping 4 provided by [MGI](#)**Primary source** [MGI:MGI:2446249](#)**See related** [Ensembl:ENSMUSG00000036270](#)**Gene type** protein coding**RefSeq status** REVIEWED**Organism** [Mus musculus](#)**Lineage** Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus**Also known as** BC022641**Summary** The protein encoded by this gene is thought to promote mRNA decay, and is known to interact with several mRNA decapping proteins. In humans, decreased expression of this gene prevents the accumulation of mRNA decapping proteins to mRNA processing bodies (P-body). Alternative splicing results in multiple protein isoforms. [provided by RefSeq, Jul 2014]**Expression** Ubiquitous expression in thymus adult (RPKM 38.7), ovary adult (RPKM 33.6) and 28 other tissues [See more](#)**Orthologs** [human](#) [all](#)

Transcript information Ensembl

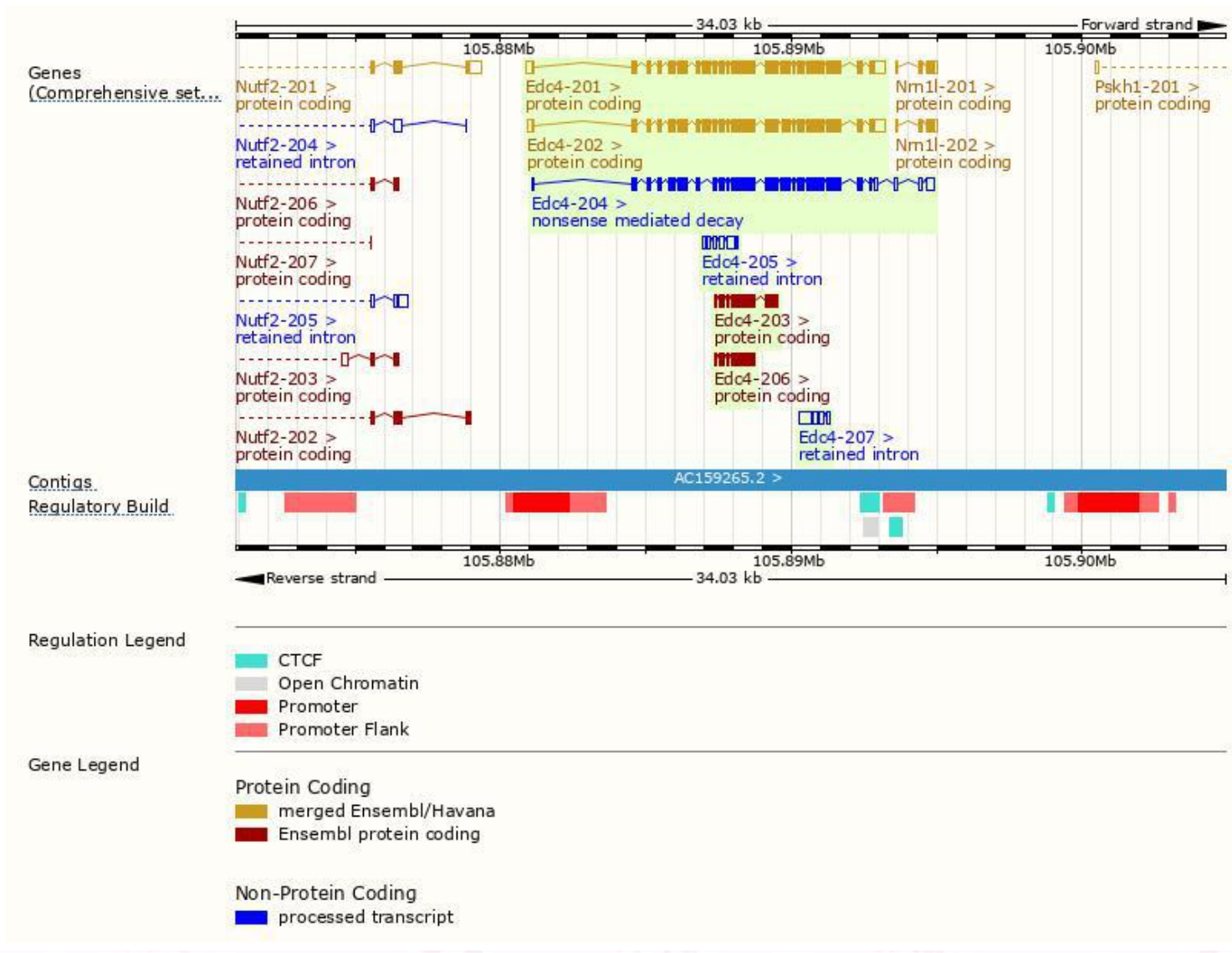
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Edc4-201	ENSMUST00000040254.15	4780	1406aa	Protein coding	CCDS80923	G5E896	TSL:1 GENCODE basic APPRIS ALT2
Edc4-202	ENSMUST00000119261.7	4645	1390aa	Protein coding	CCDS52662	A0A0R4J1Q0	TSL:1 GENCODE basic APPRIS P3
Edc4-203	ENSMUST00000132680.7	1280	427aa	Protein coding	-	F6ZJ27	CDS 5' and 3' incomplete TSL:5
Edc4-206	ENSMUST00000145618.1	795	265aa	Protein coding	-	F6V5I7	CDS 5' and 3' incomplete TSL:5
Edc4-204	ENSMUST00000136048.7	4560	1318aa	Nonsense mediated decay	-	D6RE33	TSL:5
Edc4-207	ENSMUST00000156357.1	802	No protein	Retained intron	-	-	TSL:2
Edc4-205	ENSMUST00000139154.1	738	No protein	Retained intron	-	-	TSL:3

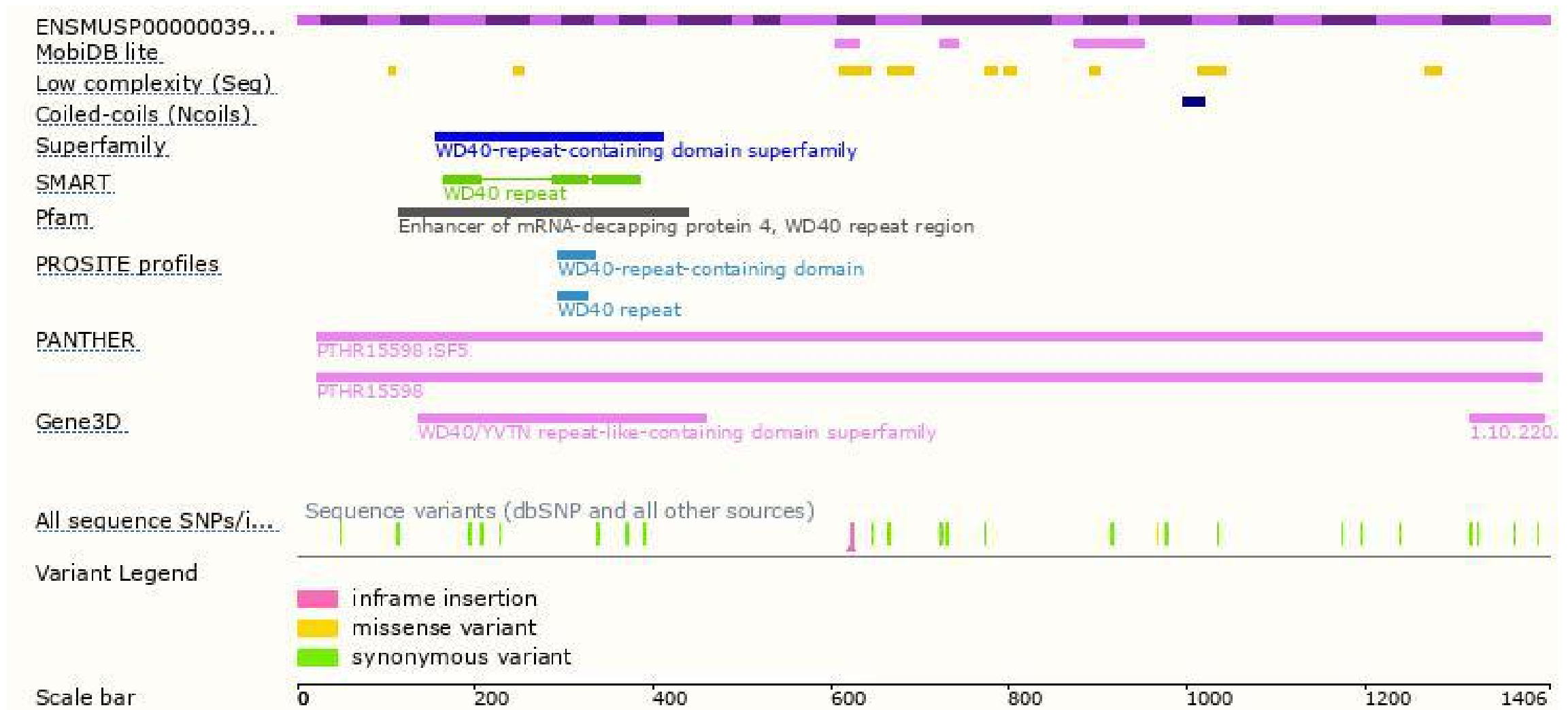
The strategy is based on the design of *Edc4-201* transcript,the transcription is shown below:



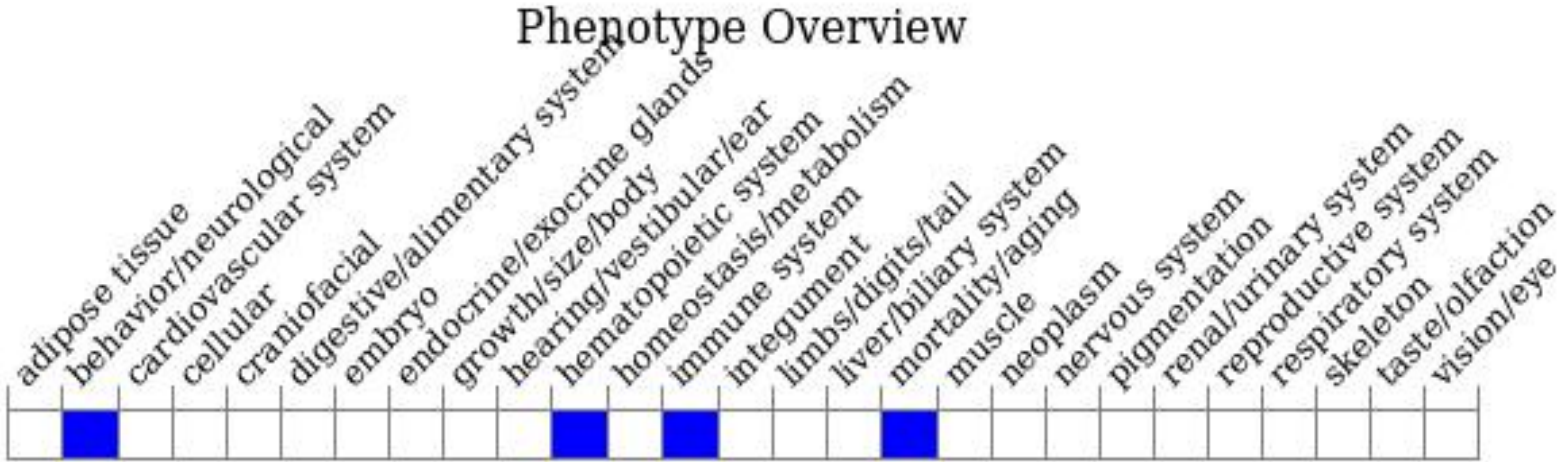
Genomic location distribution



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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