

***Kat7* Cas9-CKO Strategy**

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Project Overview

Project Name

Kat7

Project type

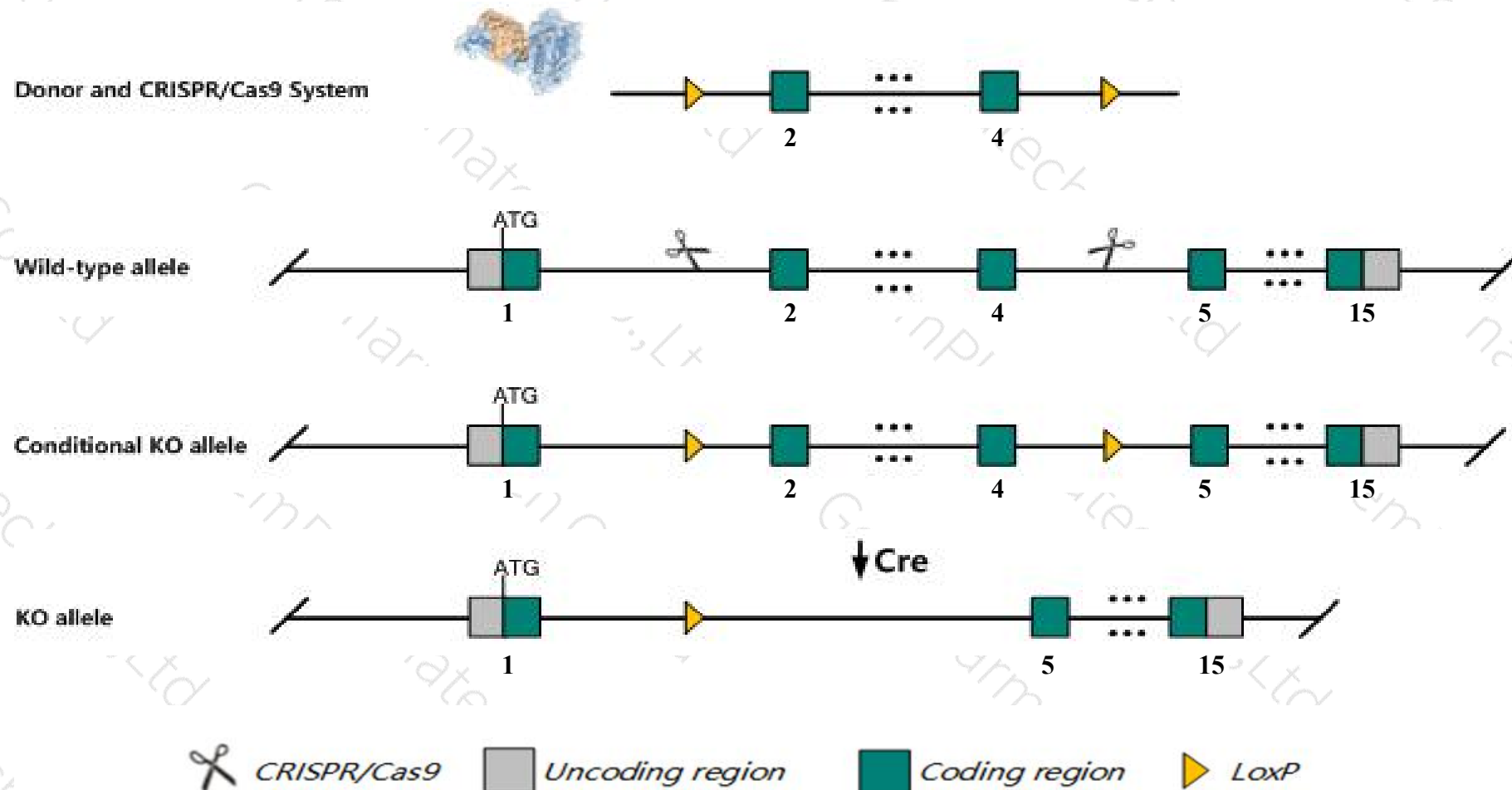
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Kat7* gene. The schematic diagram is as follows:



- The *Kat7* gene has 11 transcripts. According to the structure of *Kat7* gene, exon2-exon4 of *Kat7*-205 (ENSMUST00000107734.9) transcript is recommended as the knockout region. The region contains 565bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Kat7* 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.

- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit embryonic growth arrest, incomplete embryo turning, disorganized yolk sac vascular plexus, and increased apoptosis.
- The *Kat7* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Kat7 K(lysine) acetyltransferase 7 [*Mus musculus* (house mouse)]

Gene ID: 217127, updated on 10-Oct-2019

Summary

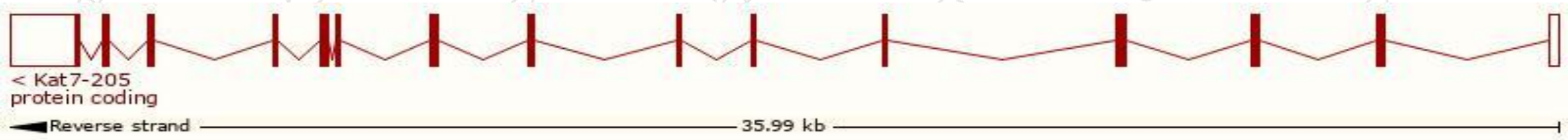
Official Symbol	Kat7 provided by MGI
Official Full Name	K(lysine) acetyltransferase 7 provided by MGI
Primary source	MGI:MG1:2182799
See related	Ensembl:ENSMUSG000000038909
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Hbo1; Hboa; Myst2
Expression	Ubiquitous expression in testis adult (RPKM 20.1), placenta adult (RPKM 13.7) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

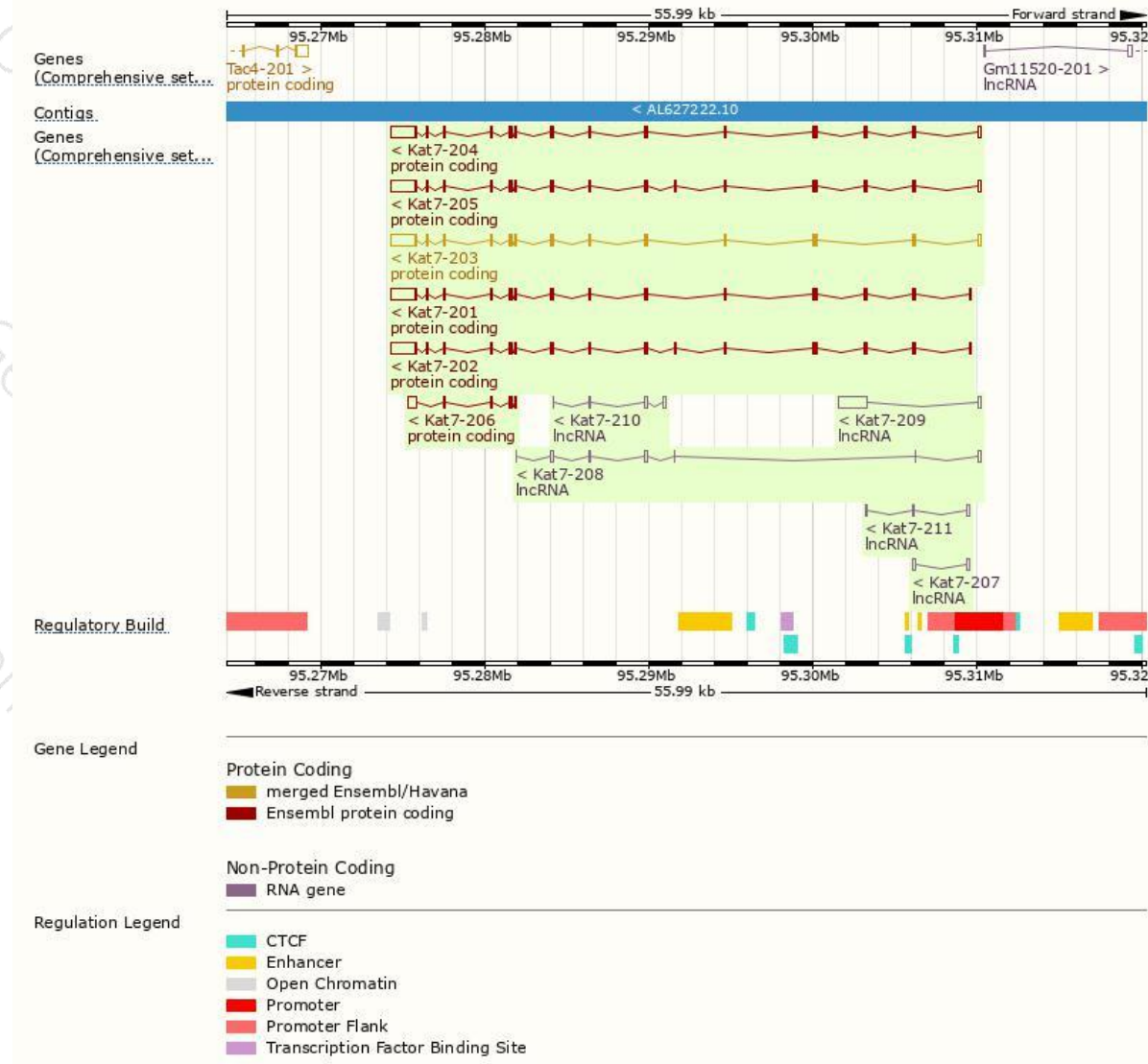
The gene has 11 transcripts,all transcripts are shown below:

Name ▲	Transcript ID ▲	bp ▲	Protein ▲	Biotype ▲	CCDS ▲	UniProt ▲	Flags ▲
Kat7-201	ENSMUST00000072621.11	3324	583aa	Protein coding	-	Q5SVQ0	TSL:5 GENCODE basic
Kat7-202	ENSMUST00000092766.11	3414	613aa	Protein coding	-	Q5SVQ0	TSL:5 GENCODE basic
Kat7-203	ENSMUST00000103159.9	3248	522aa	Protein coding	CCDS25275	Q5SVQ0	TSL:1 GENCODE basic
Kat7-204	ENSMUST00000107733.9	3470	581aa	Protein coding	CCDS56798	Q3TD41 Q5SVQ0	TSL:1 GENCODE basic APPRIS ALT1
Kat7-205	ENSMUST00000107734.9	3560	611aa	Protein coding	CCDS56799	Q1AJD0 Q5SVQ0	TSL:1 GENCODE basic APPRIS P4
Kat7-206	ENSMUST00000138671.1	1003	150aa	Protein coding	-	F6S4B9	CDS 5' incomplete TSL:3
Kat7-207	ENSMUST00000143171.1	305	No protein	lncRNA	-	-	TSL:3
Kat7-208	ENSMUST00000144456.7	657	No protein	lncRNA	-	-	TSL:5
Kat7-209	ENSMUST00000146365.1	1954	No protein	lncRNA	-	-	TSL:2
Kat7-210	ENSMUST00000149356.1	438	No protein	lncRNA	-	-	TSL:3
Kat7-211	ENSMUST00000154327.1	370	No protein	lncRNA	-	-	TSL:3

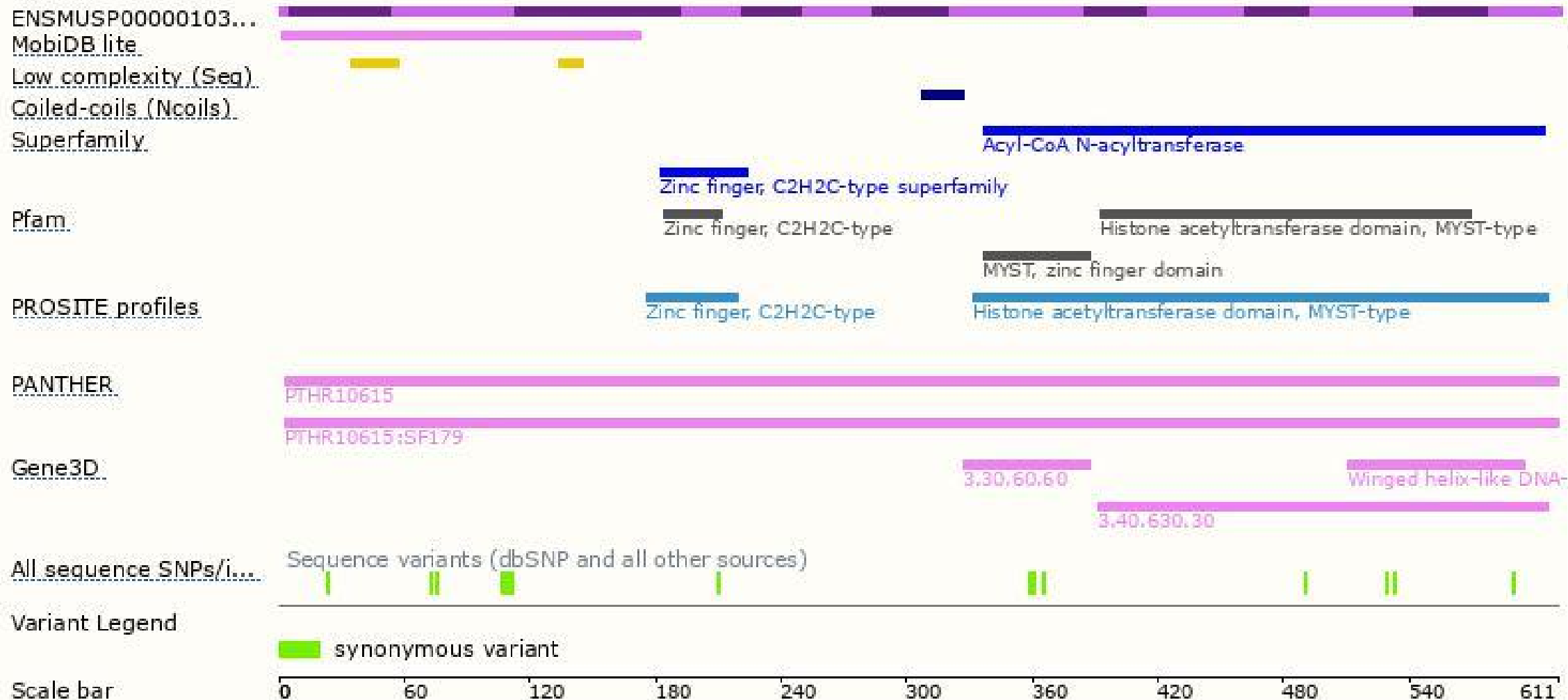
The strategy is based on the design of *Kat7-205* transcript,The transcription is shown below



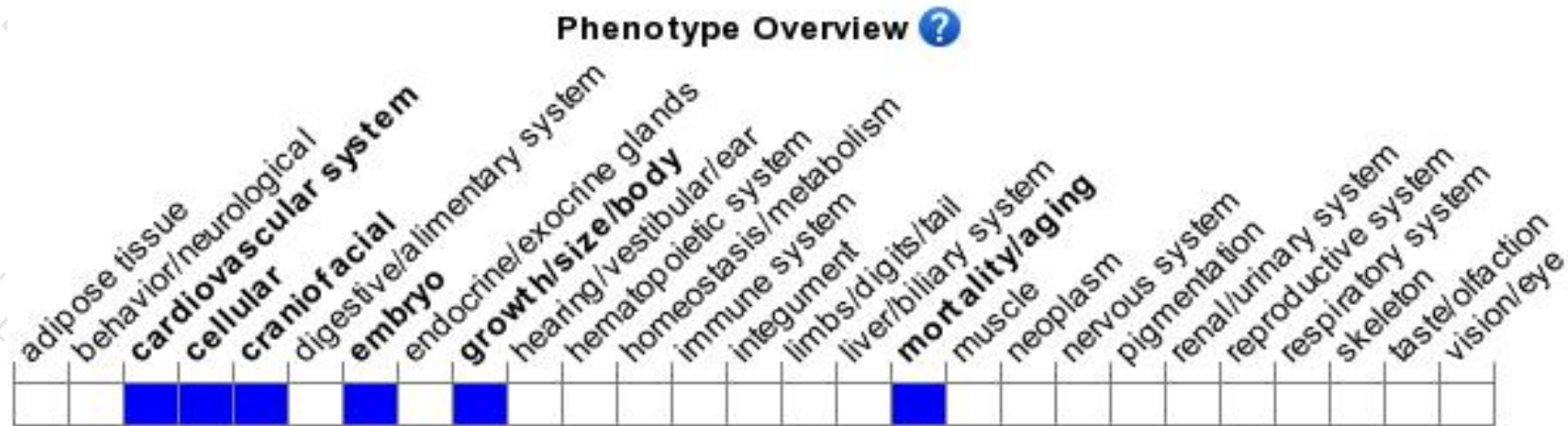
Genomic location distribution



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 homozygous for a knock-out allele exhibit embryonic growth arrest, incomplete embryo turning, disorganized yolk sac vascular plexus, and increased apoptosis.

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

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