

Anks3 Cas9-CKO Strategy

Designer: Jing Jin

Reviewer: Xiaojing Li

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Project Overview

Project Name

Anks3

Project type

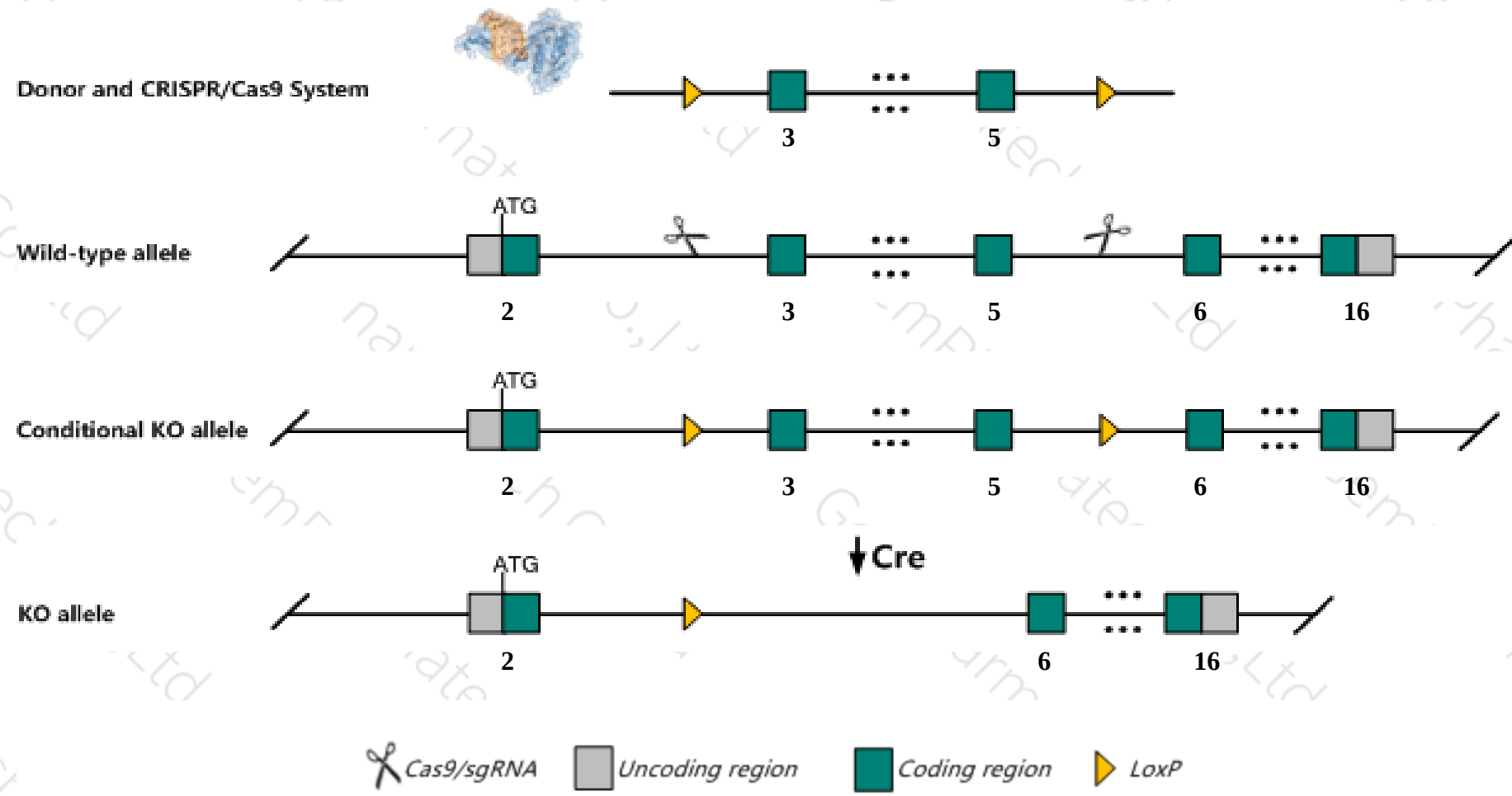
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Anks3* gene. The schematic diagram is as follows:



- The *Anks3* gene has 13 transcripts. According to the structure of *Anks3* gene, exon3-exon5 of *Anks3*-201(ENSMUST00000023157.5) transcript is recommended as the knockout region. The region contains 403bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Anks3* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was 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 *Anks3* gene is located on the Chr16. 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)

Anks3 ankyrin repeat and sterile alpha motif domain containing 3 [Mus musculus (house mouse)]

Gene ID: 72615, updated on 13-Mar-2020

Summary



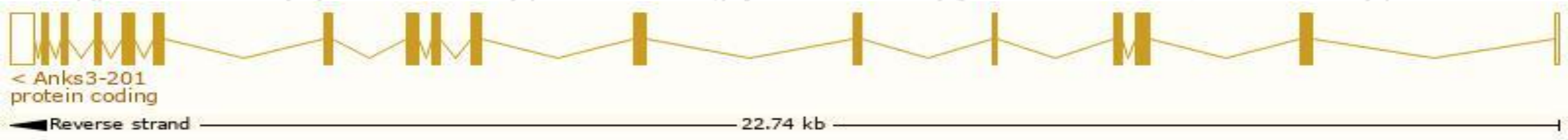
Official Symbol	Anks3 provided by MGI
Official Full Name	ankyrin repeat and sterile alpha motif domain containing 3 provided by MGI
Primary source	MGI:MGI:1919865
See related	Ensembl:ENSMUSG00000022515
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2700067D09Rik, C81345, mKIAA1977
Expression	Ubiquitous expression in CNS E14 (RPKM 12.6), CNS E18 (RPKM 12.3) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

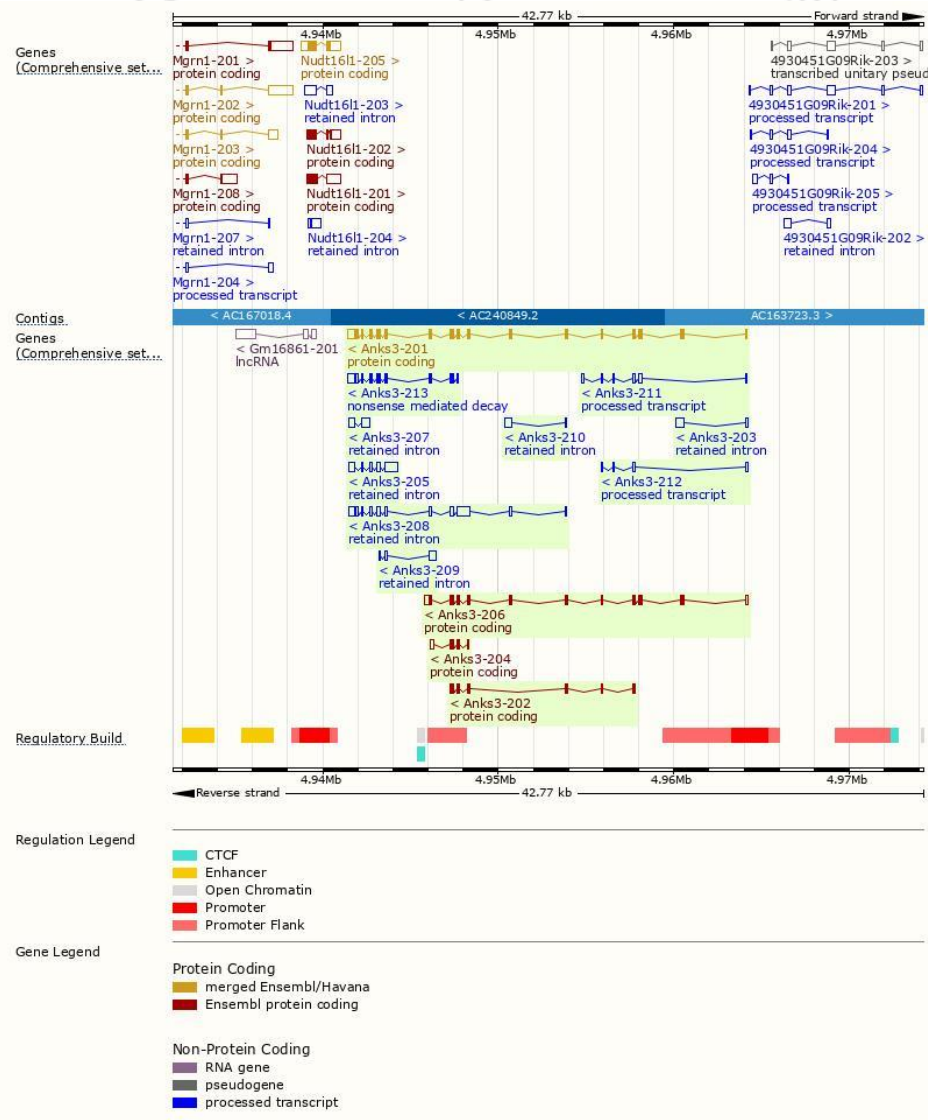
The gene has 13 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Anks3-201	ENSMUST00000023157.5	2398	655aa	Protein coding	CCDS27928	Q9CZK6	TSL:1 GENCODE basic APPRIS P1
Anks3-206	ENSMUST000000229765.1	1779	469aa	Protein coding	-	Q80XC9	GENCODE basic
Anks3-202	ENSMUST000000229017.1	739	246aa	Protein coding	-	A0A2R8VI44	CDS 5' and 3' incomplete
Anks3-204	ENSMUST000000229272.1	608	140aa	Protein coding	-	A0A2R8VKE4	CDS 5' incomplete
Anks3-213	ENSMUST000000231036.1	1289	266aa	Nonsense mediated decay	-	A0A2R8VHN6	CDS 5' incomplete
Anks3-211	ENSMUST000000230721.1	668	No protein	Processed transcript	-	-	
Anks3-212	ENSMUST000000230771.1	360	No protein	Processed transcript	-	-	
Anks3-208	ENSMUST000000230083.1	2144	No protein	Retained intron	-	-	
Anks3-205	ENSMUST000000229477.1	1372	No protein	Retained intron	-	-	
Anks3-207	ENSMUST000000229898.1	799	No protein	Retained intron	-	-	
Anks3-209	ENSMUST000000230466.1	592	No protein	Retained intron	-	-	
Anks3-203	ENSMUST000000229077.1	537	No protein	Retained intron	-	-	
Anks3-210	ENSMUST000000230493.1	476	No protein	Retained intron	-	-	

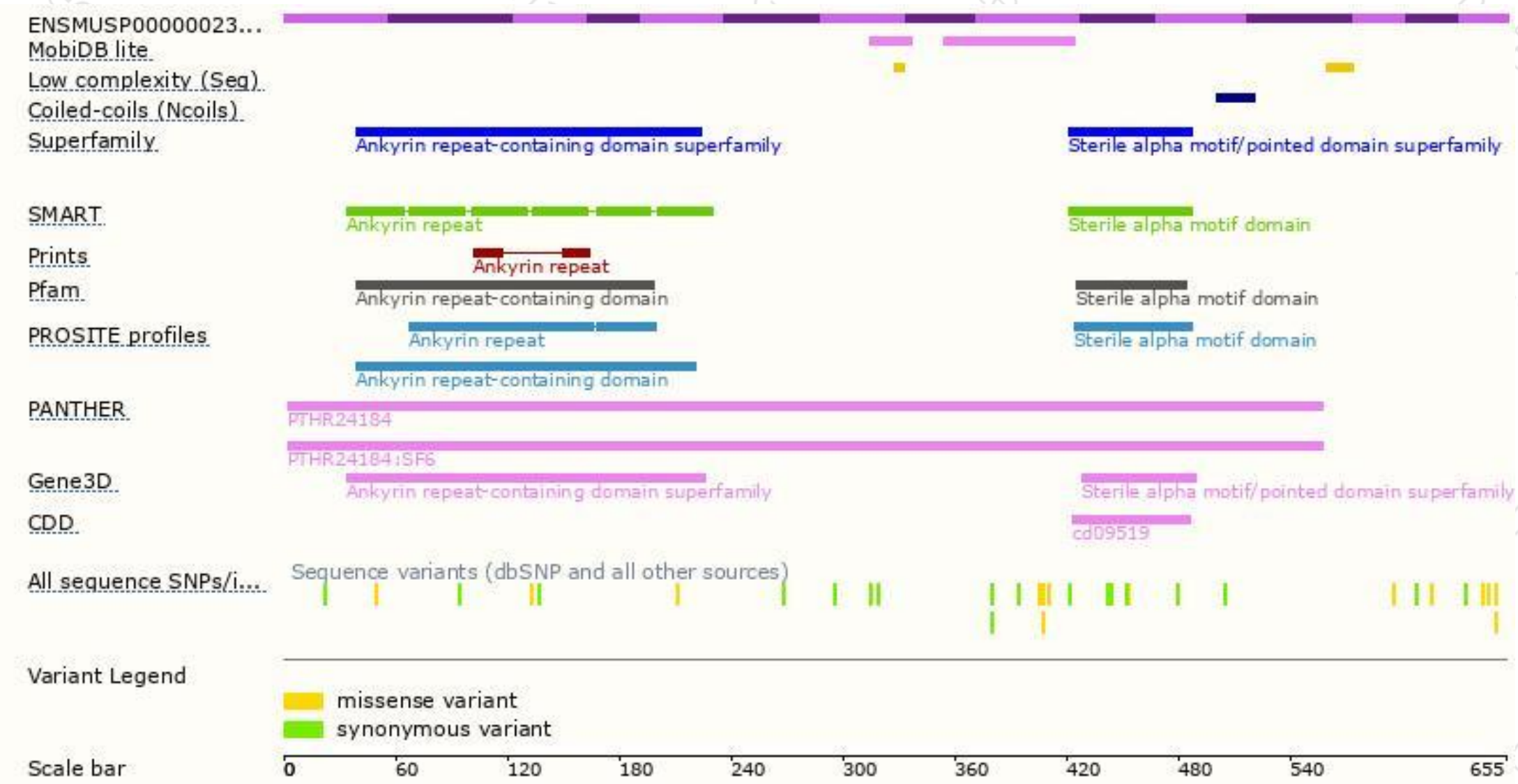
The strategy is based on the design of *Anks3-201* transcript,the transcription is shown below:



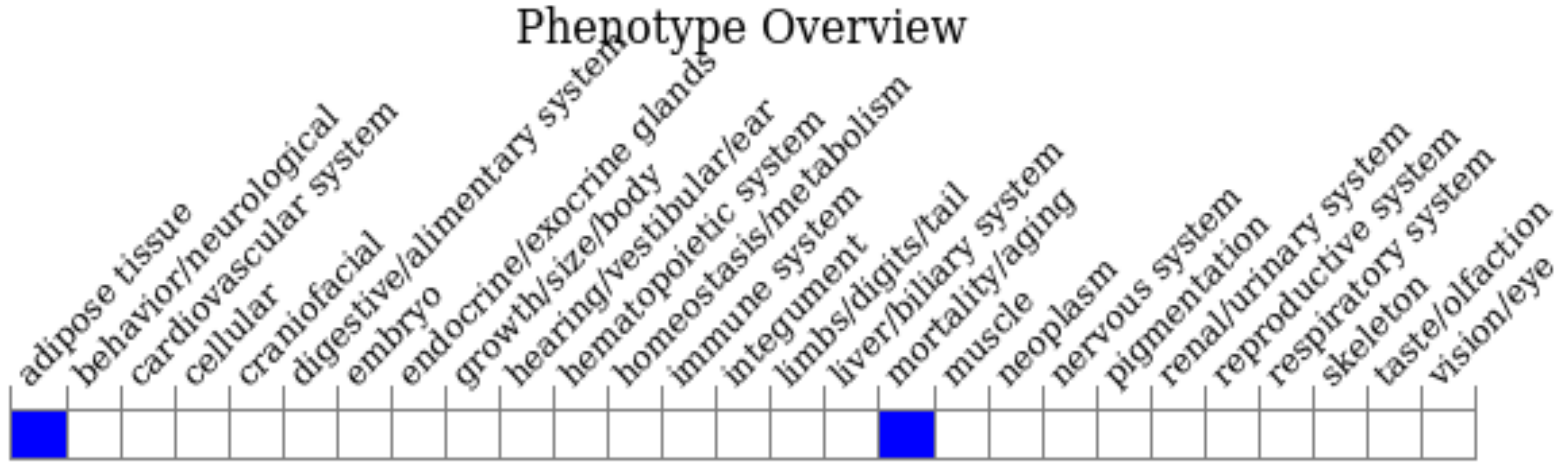
Genomic location distribution



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.

Tel: 025-5864 1534

