

Rps6kb1 Cas9-CKO Strategy

Designer:

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Project Overview

Project Name

Rps6kb1

Project type

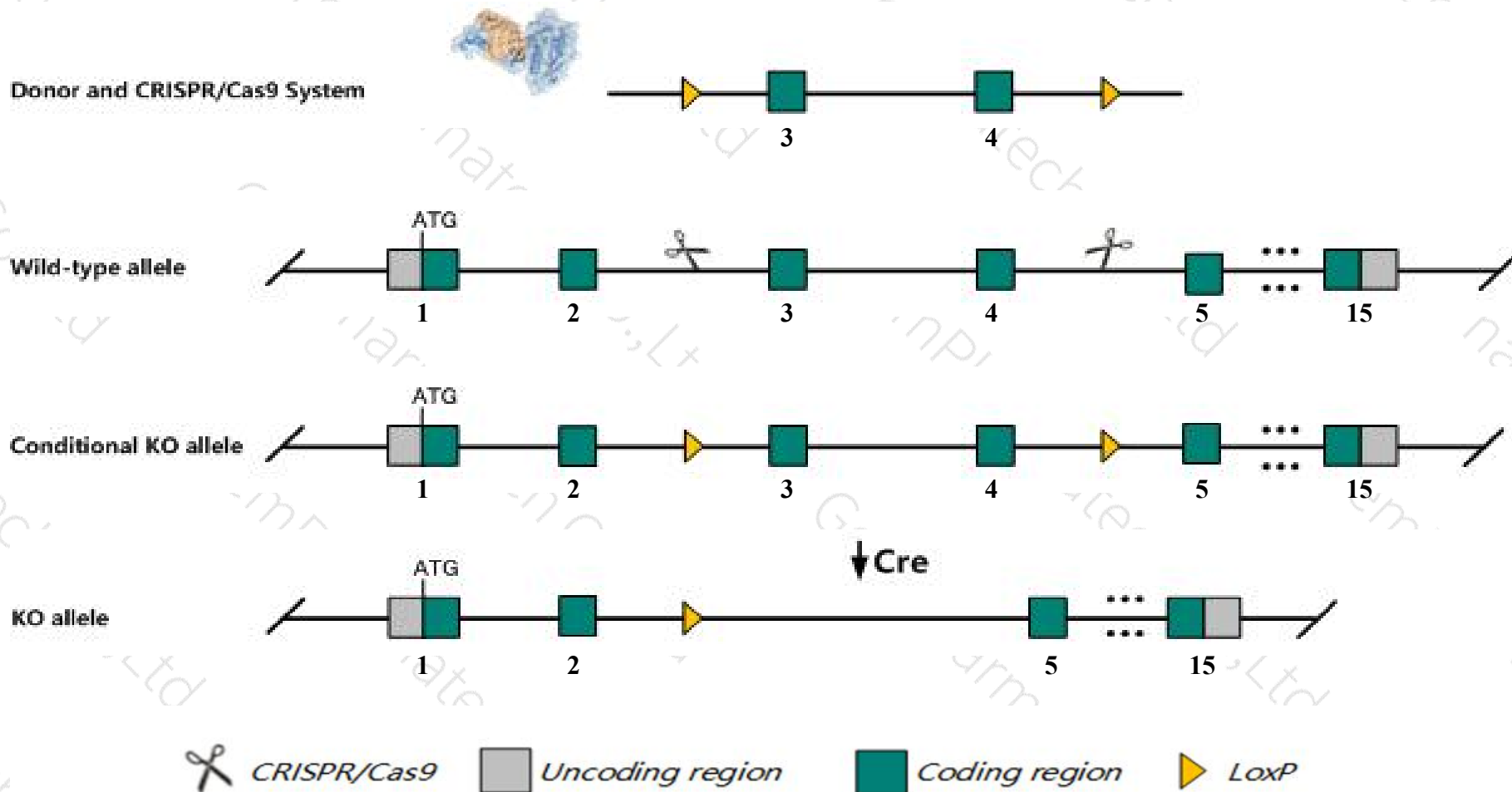
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rps6kb1* gene. The schematic diagram is as follows:



- The *Rps6kb1* gene has 7 transcripts. According to the structure of *Rps6kb1* gene, exon3-exon4 of *Rps6kb1*-207 (ENSMUST00000154617.7) transcript is recommended as the knockout region. The region contains 190bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Rps6kb1* 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, Homozygotes for a targeted null mutation exhibit reduced prenatal growth, glucose intolerance, and hypoinsulinemia associated with diminished pancreatic beta cell size.
- The *Rps6kb1* 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)

Rps6kb1 ribosomal protein S6 kinase, polypeptide 1 [Mus musculus (house mouse)]

Gene ID: 72508, updated on 9-Apr-2019

Summary



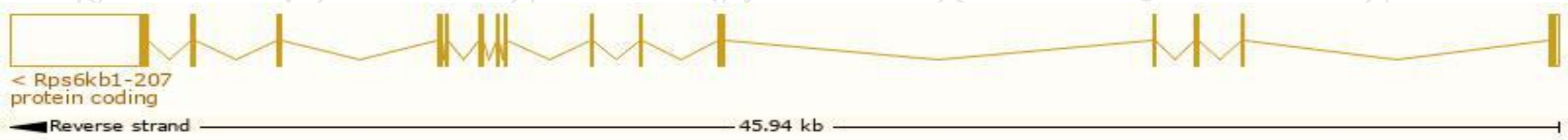
Official Symbol	Rps6kb1 provided by MGI
Official Full Name	ribosomal protein S6 kinase, polypeptide 1 provided by MGI
Primary source	MGI:MGI:1270849
See related	Ensembl:ENSMUSG00000020516
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2610318I15Rik, AA959758, AI256796, AI314060, P70S6K1, S6K, S6K-beta-1, S6K1, p70 S6K-alpha, p70 S6KA, p70-S6K 1, p70/85s6k, p70s6k
Expression	Ubiquitous expression in CNS E11.5 (RPKM 5.0), limb E14.5 (RPKM 4.8) and 26 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

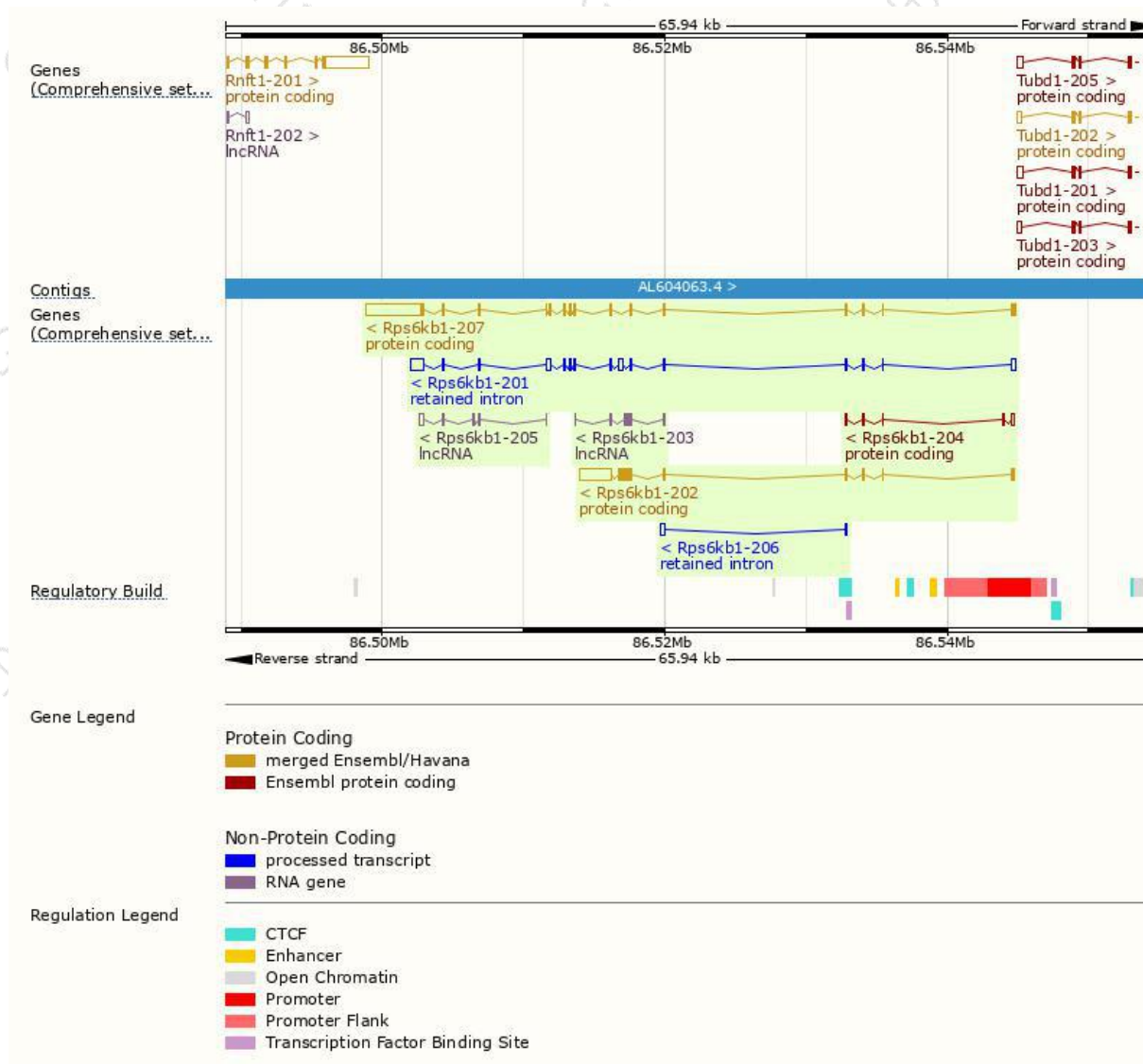
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rps6kb1-207	ENSMUST00000154617.7	5531	525aa	Protein coding	CCDS48875	Q8BSK8	TSL:1 GENCODE basic APPRIS P1
Rps6kb1-202	ENSMUST00000058286.8	3250	316aa	Protein coding	CCDS25201	Q8C3J7	TSL:1 GENCODE basic
Rps6kb1-204	ENSMUST00000138810.2	555	74aa	Protein coding	-	Q5SWG2	CDS 3' incomplete TSL:3
Rps6kb1-201	ENSMUST00000020824.14	2771	No protein	Retained intron	-	-	TSL:5
Rps6kb1-206	ENSMUST00000151748.1	465	No protein	Retained intron	-	-	TSL:3
Rps6kb1-205	ENSMUST00000149392.1	754	No protein	lncRNA	-	-	TSL:5
Rps6kb1-203	ENSMUST00000131194.1	469	No protein	lncRNA	-	-	TSL:5

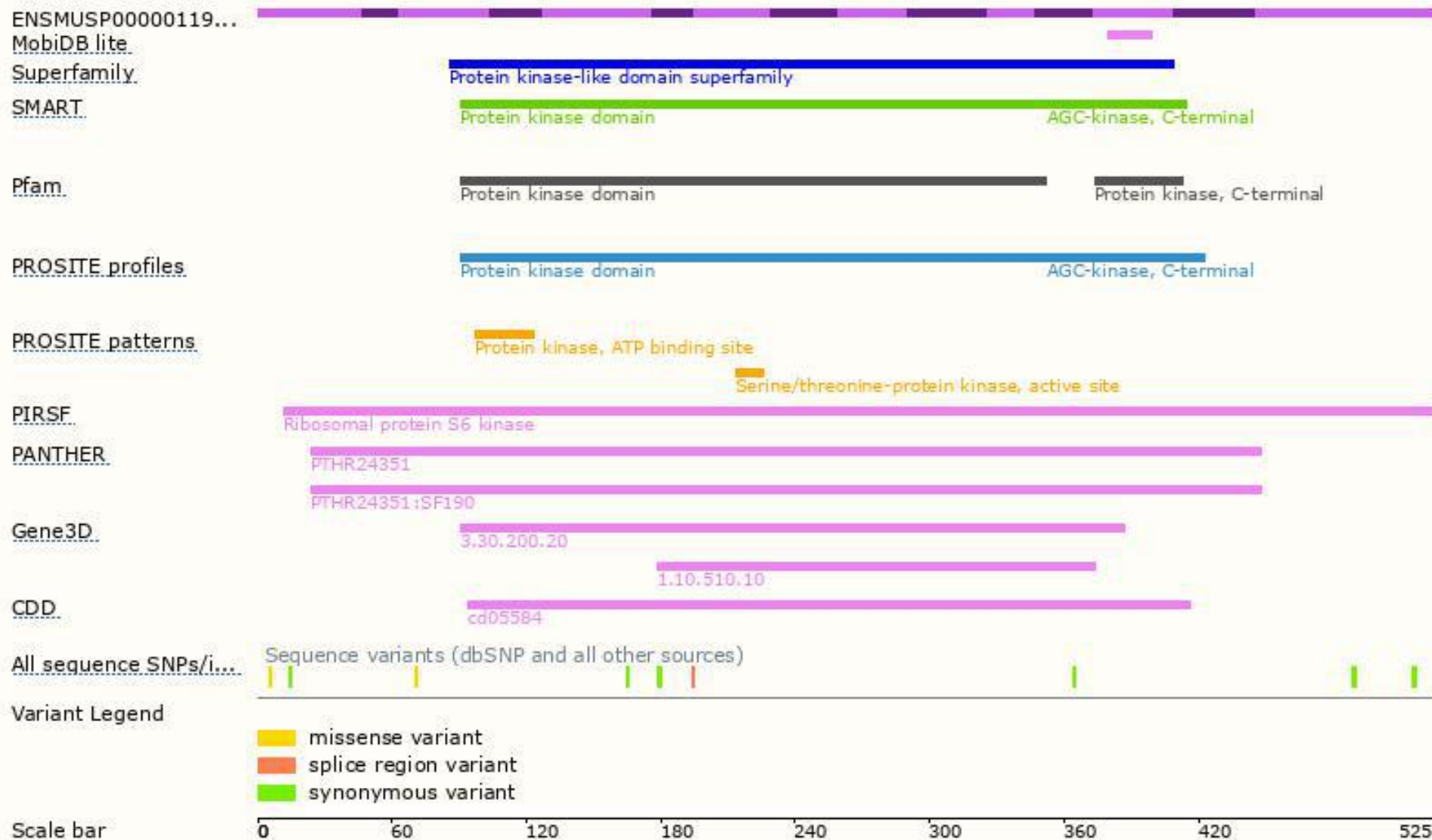
The strategy is based on the design of *Rps6kb1-207* transcript,The transcription is shown below



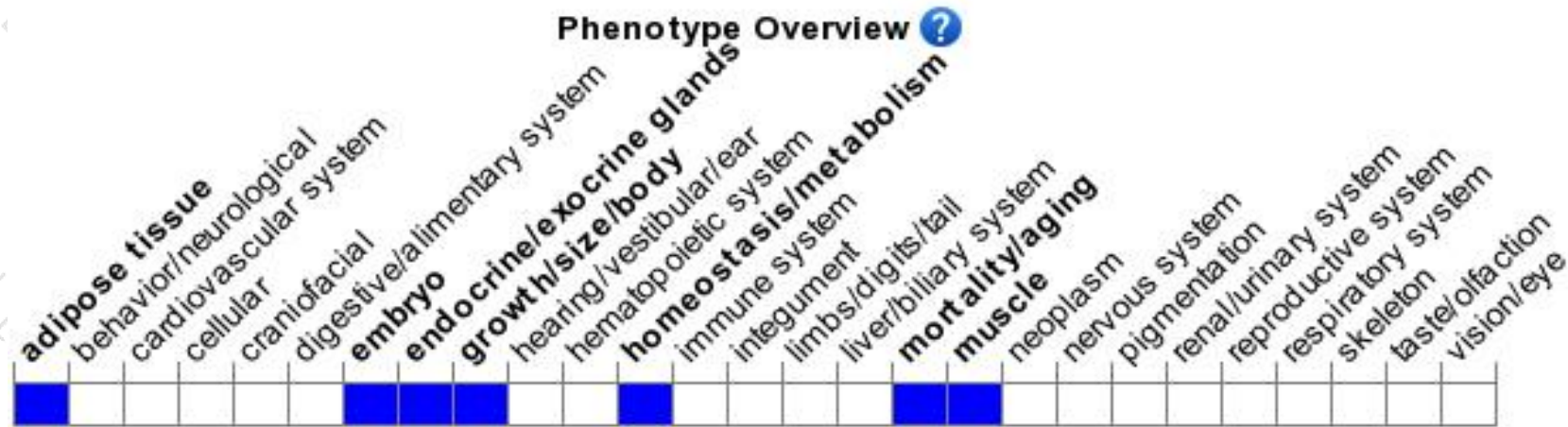
Genomic location distribution



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/>).

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

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