

Ikbke Cas9-CKO Strategy

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Project Overview

Project Name

Ikbke

Project type

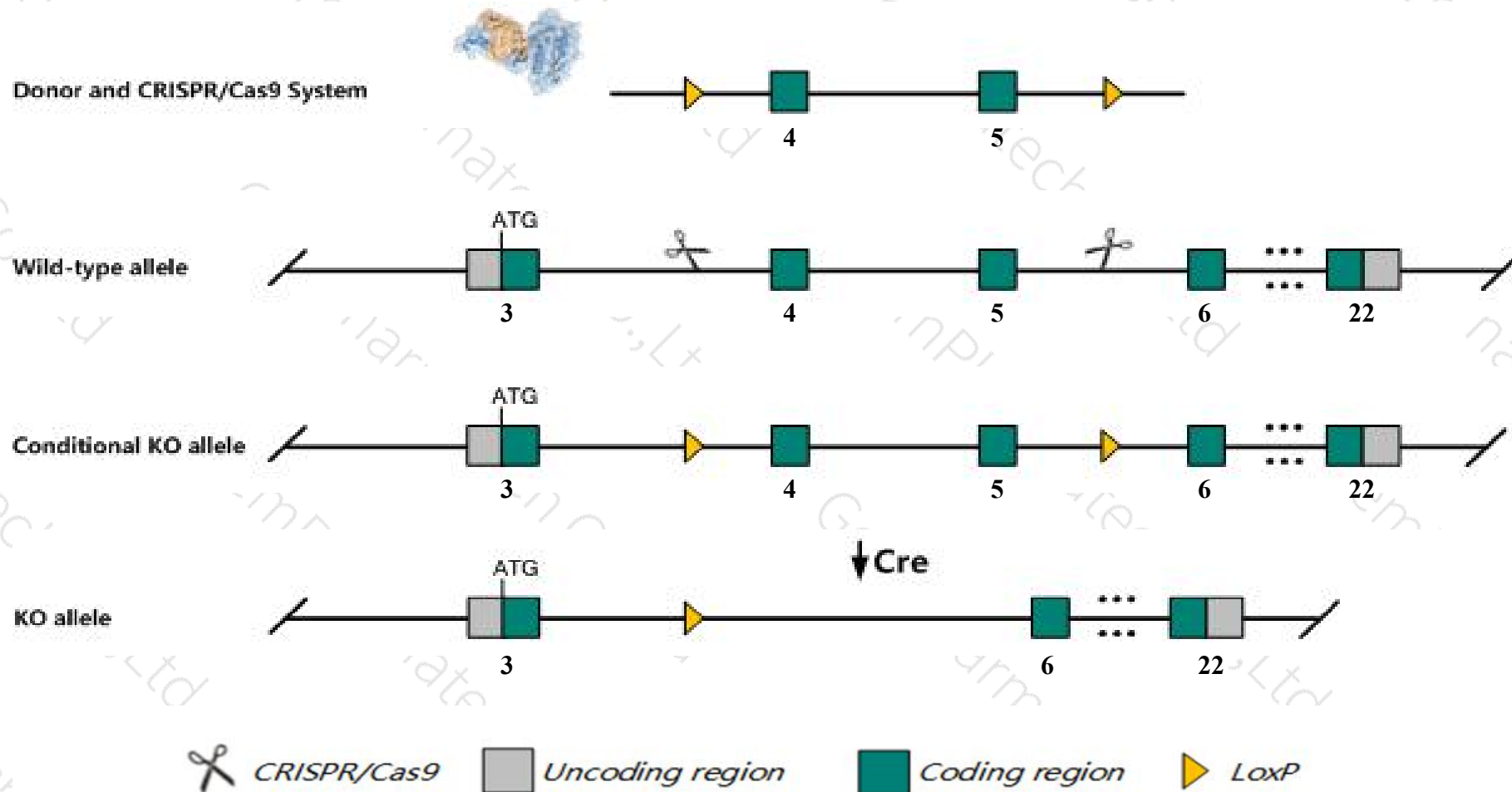
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

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



- The *Ikbke* gene has 7 transcripts. According to the structure of *Ikbke* gene, exon4-exon5 of *Ikbke*-201 (ENSMUST00000062108.9) transcript is recommended as the knockout region. The region contains 271bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ikbke* 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, Homozygous null mice are viable and fertile.
- The *Ikbke* gene is located on the Chr1. 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)

Ikbke inhibitor of kappaB kinase epsilon [Mus musculus (house mouse)]

Gene ID: 56489, updated on 19-Mar-2019

Summary



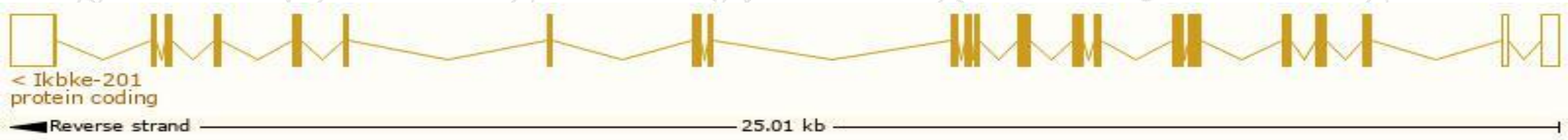
Official Symbol	Ikbke provided by MGI
Official Full Name	inhibitor of kappaB kinase epsilon provided by MGI
Primary source	MGI:MGI:1929612
See related	Ensembl:ENSMUSG00000042349
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AW558201, IKK-E, IKK-i, IKKepsilon, Ikki
Expression	Broad expression in thymus adult (RPKM 20.8), large intestine adult (RPKM 16.0) and 18 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

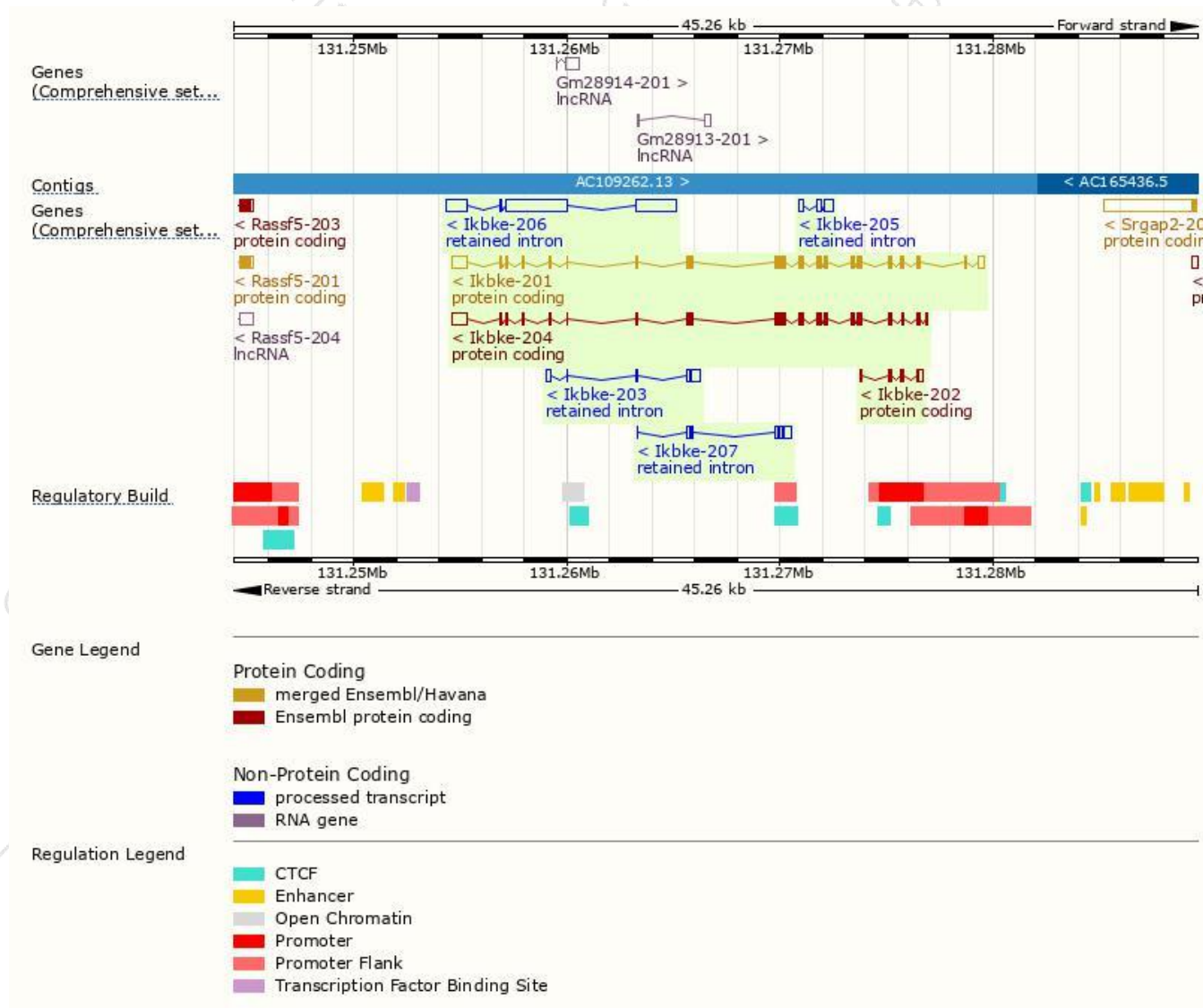
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ikbke-201	ENSMUST00000062108.9	3251	717aa	Protein coding	CCDS15269	Q9R0T8	TSL:1 GENCODE basic APPRIS P1
Ikbke-204	ENSMUST00000161764.7	2867	693aa	Protein coding	-	E9PYL6	TSL:1 GENCODE basic
Ikbke-202	ENSMUST00000159195.1	549	130aa	Protein coding	-	E0CY50	CDS 3' incomplete TSL:3
Ikbke-206	ENSMUST00000162437.1	5856	No protein	Retained intron	-	-	TSL:5
Ikbke-203	ENSMUST00000160748.7	911	No protein	Retained intron	-	-	TSL:1
Ikbke-205	ENSMUST00000162285.1	797	No protein	Retained intron	-	-	TSL:5
Ikbke-207	ENSMUST00000163029.1	741	No protein	Retained intron	-	-	TSL:5

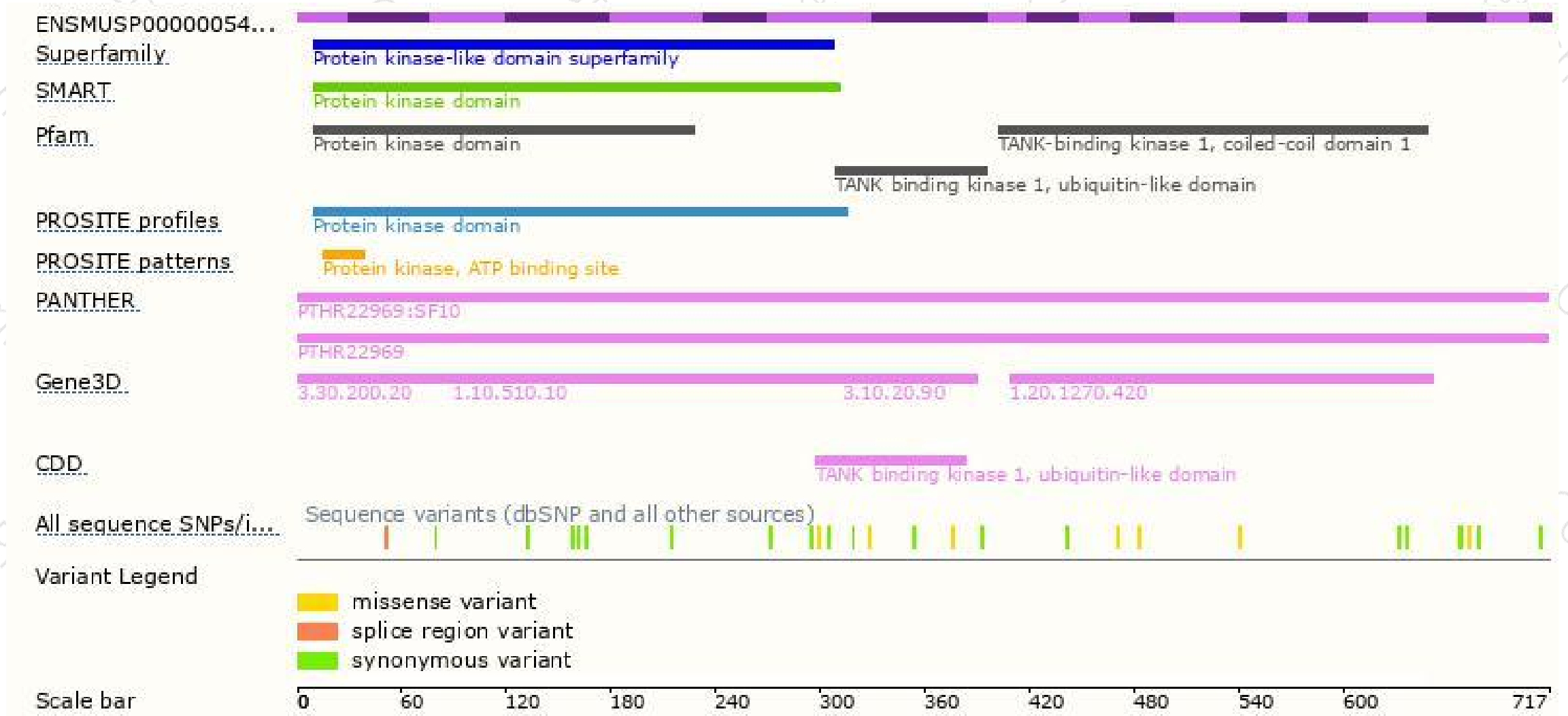
The strategy is based on the design of *Ikbke-201* transcript,The transcription is shown below



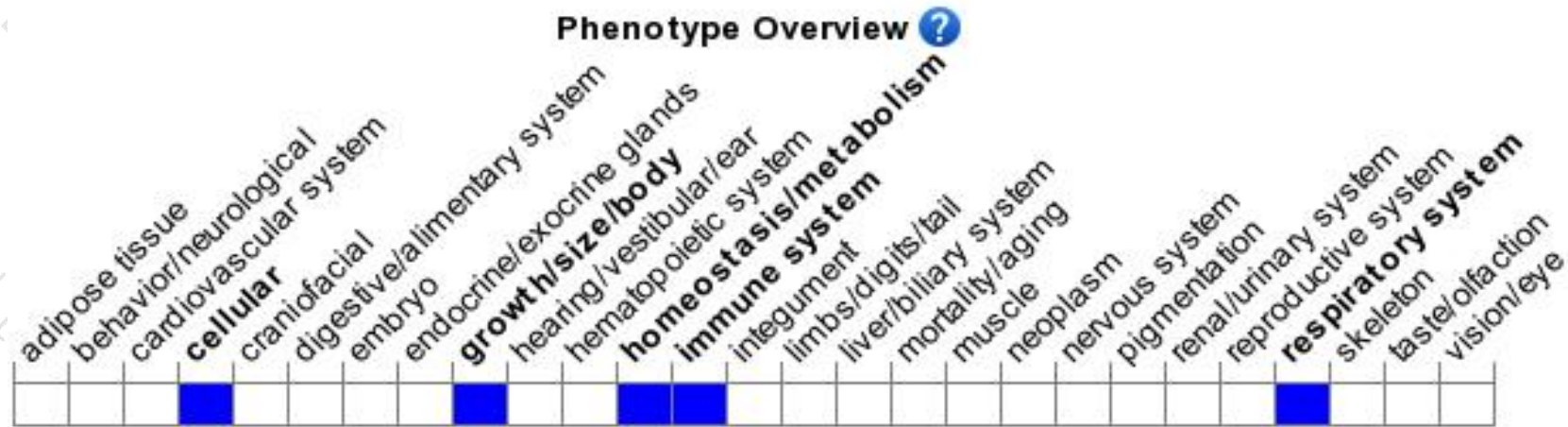
Genomic location distribution



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/>).

According to the existing MGI data, Homozygous null mice are viable and fertile.

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

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