

***Klk14* Cas9-CKO Strategy**

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Project Overview

Project Name

Klk14

Project type

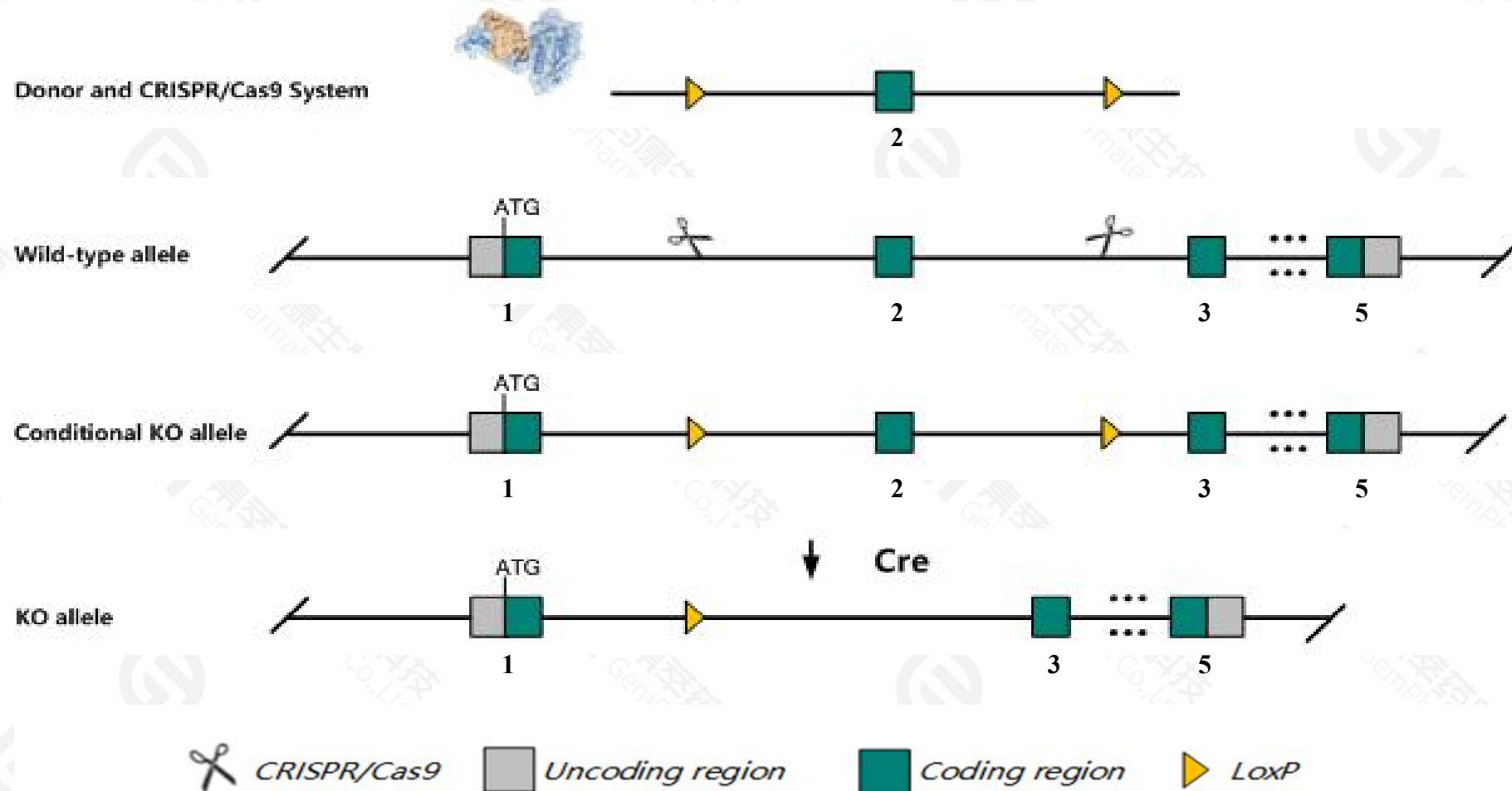
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Klk14* gene. The schematic diagram is as follows:



- The *Klk14* gene has 1 transcript. According to the structure of *Klk14* gene, exon2 of *Klk14-201*(ENSMUST00000056329.7) transcript is recommended as the knockout region. The region contains 169bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Klk14* 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 *Klk14* gene is located on the Chr7. 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)

Klk14 kallikrein related-peptidase 14 [Mus musculus (house mouse)]

Gene ID: 317653, updated on 17-Dec-2020

Summary



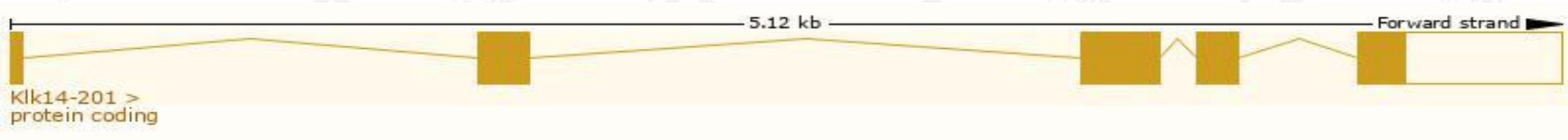
Official Symbol	Klk14 provided by MGI
Official Full Name	kallikrein related-peptidase 14 provided by MGI
Primary source	MGI:MGI:2447564
See related	Ensembl:ENSMUSG00000044737
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	GK14
Summary	This gene encodes a member of the kallikrein subfamily of serine proteases that have diverse physiological functions such as regulation of blood pressure and desquamation. The encoded protein is a precursor that undergoes proteolytic cleavage of the activation peptide to generate the functional enzyme. The encoded enzyme was found to activate the complement pathway by cleavage of C3 to release C3a anaphylotoxin. This gene is one of the several glandular kallikrein genes located in a cluster on chromosome 7. [provided by RefSeq, Aug 2015]
Expression	Biased expression in lung adult (RPKM 8.1) and stomach adult (RPKM 3.5) See more
Orthologs	human all

Transcript information (Ensembl)

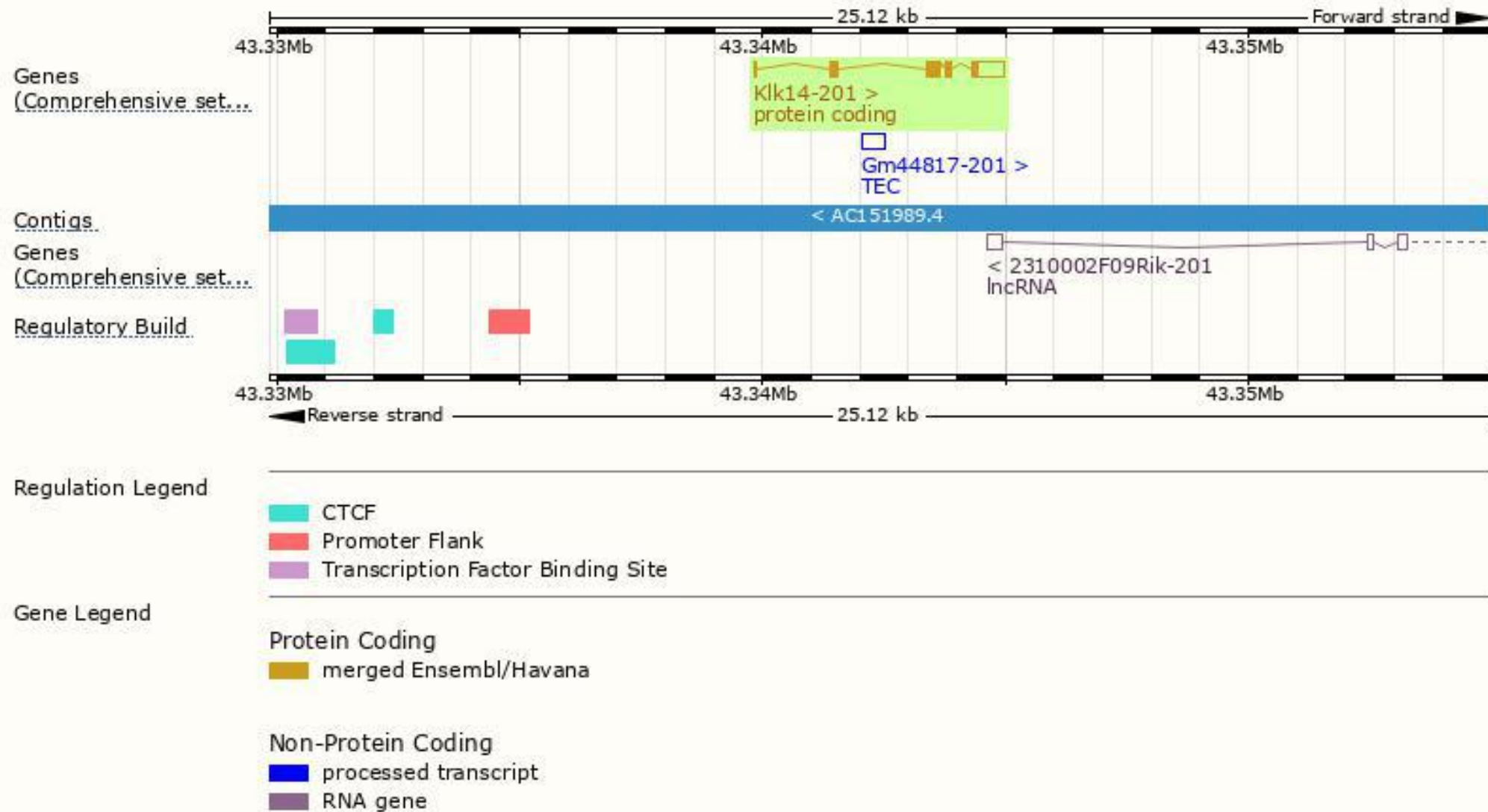
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Klk14-201	ENSMUST00000056329.7	1271	250aa	Protein coding	CCDS21180		TSL:1 , GENCODE basic , APPRIS P1 ,

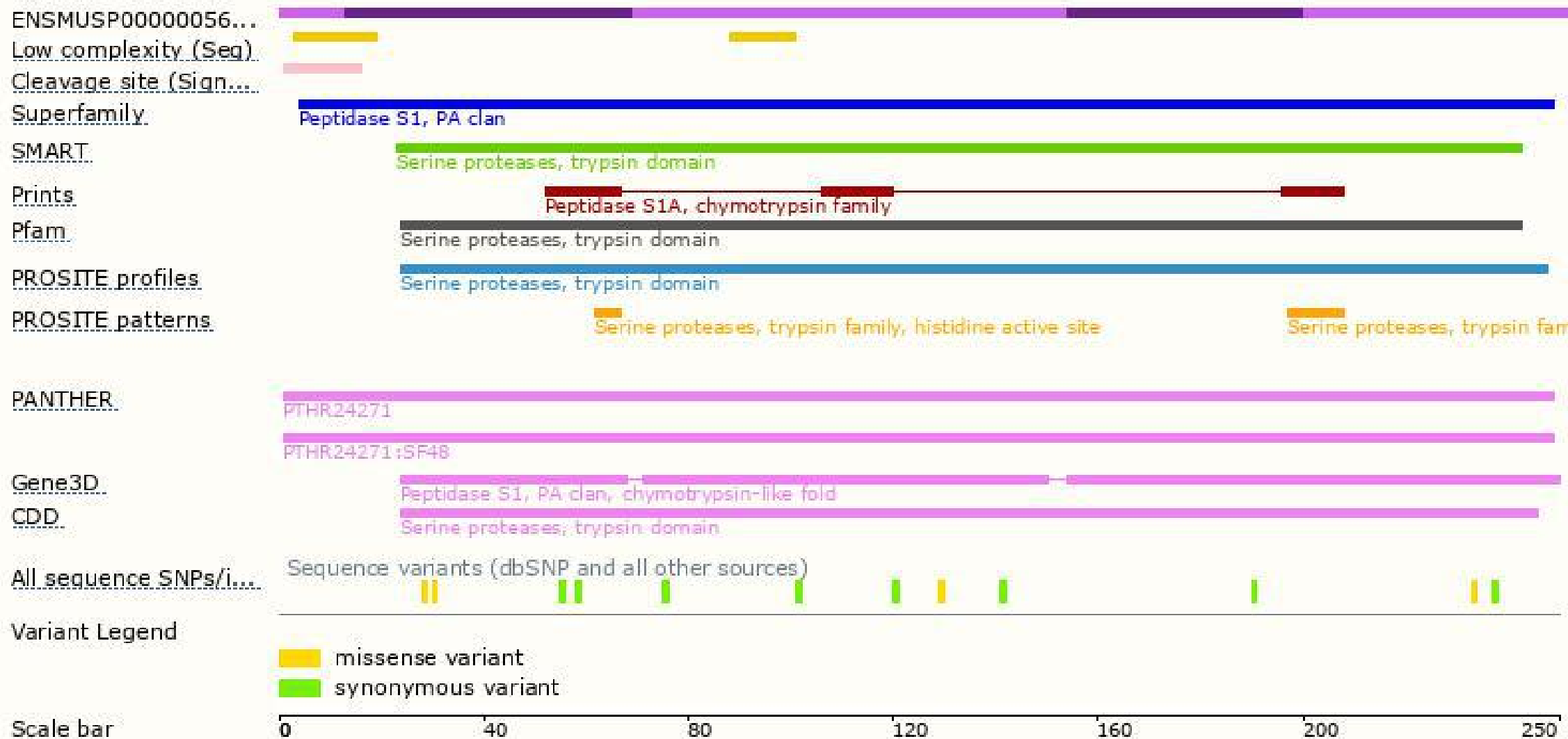
The strategy is based on the design of *Klk14-201* transcript, the transcription is shown below:



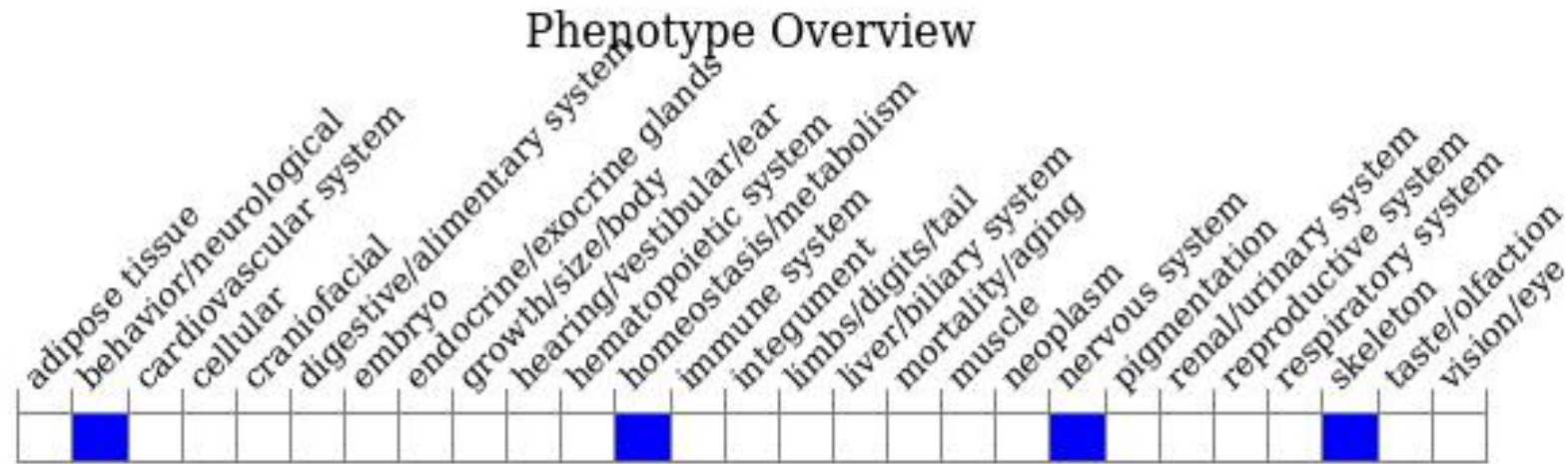
Genomic location distribution



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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