Klk5 Cas9-CKO Strategy

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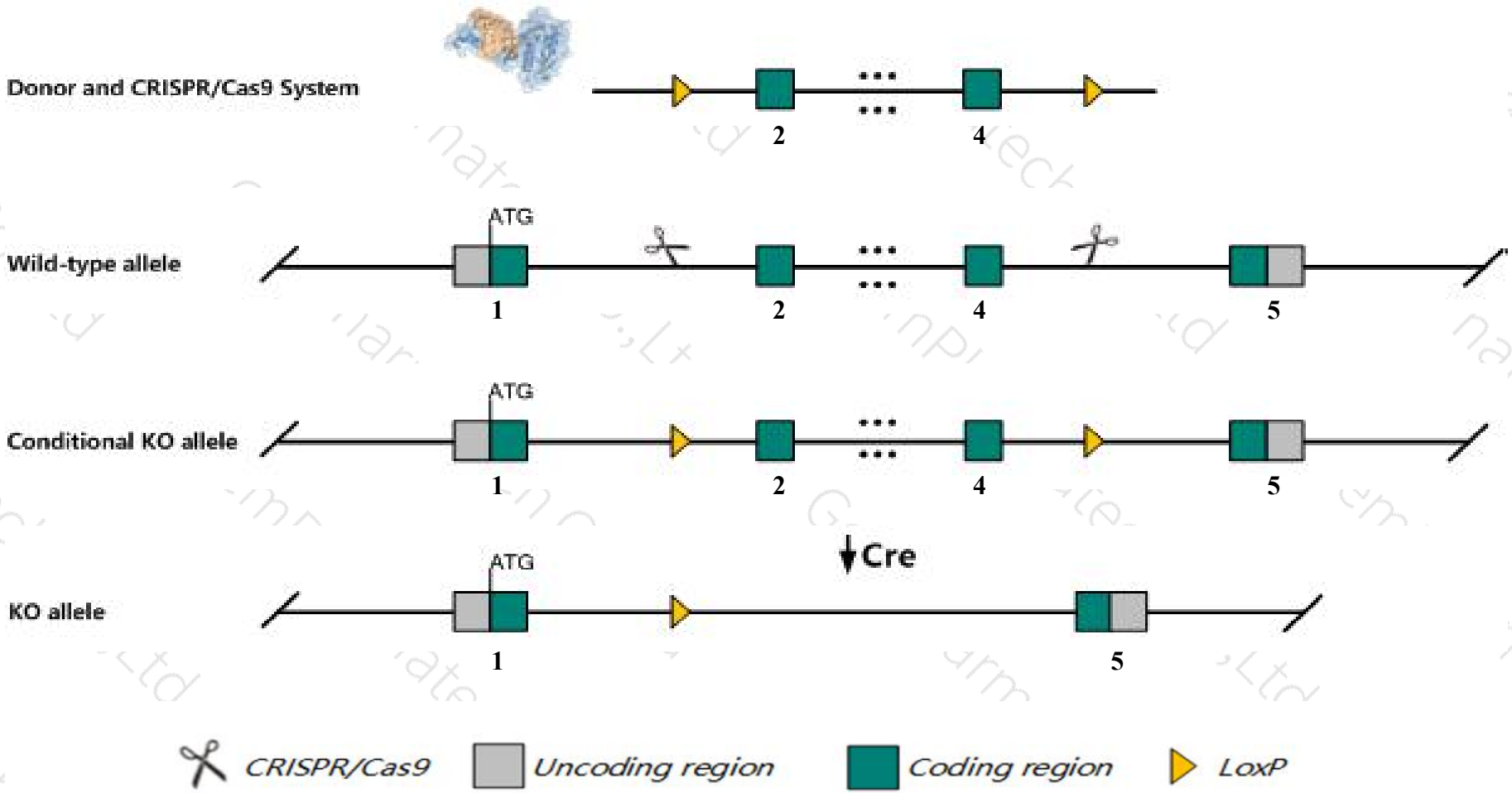
Project Overview

Project Name	***Klk5***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Klk5* gene. The schematic diagram is as follows:



Technical routes

- The *Klk5* gene has 2 transcripts. According to the structure of *Klk5* gene, exon2-exon4 of *Klk5-201* (ENSMUST00000048444.6) transcript is recommended as the knockout region.The region contains 656bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Klk5* 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.

Notice

- The *Klk5* 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.

- Transcript 202 CDS 3' incomplete the influences is unknown.

- 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）

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Klk5 kallikrein related-peptidase 5 [Mus musculus (house mouse)]

Gene ID: 68668, updated on 31-Jan-2019

Summary

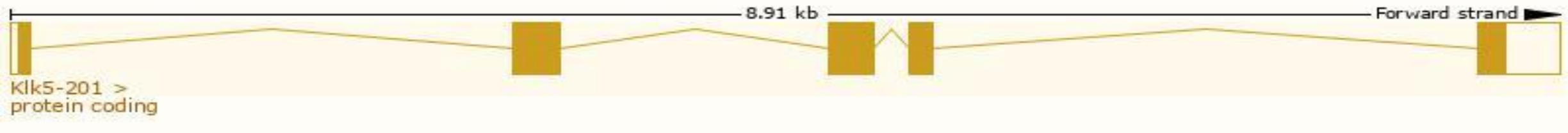
Official Symbol	Klk5 provided by MGI
Official Full Name	kallikrein related-peptidase 5 provided by MGI
Primary source	MGI:MGI:1915918
See related	Ensembl:ENSMUSG00000074155
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1110030O19Rik
Expression	Restricted expression toward stomach adult (RPKM 13.7)See more
Orthologs	human all

Transcript information（Ensembl）

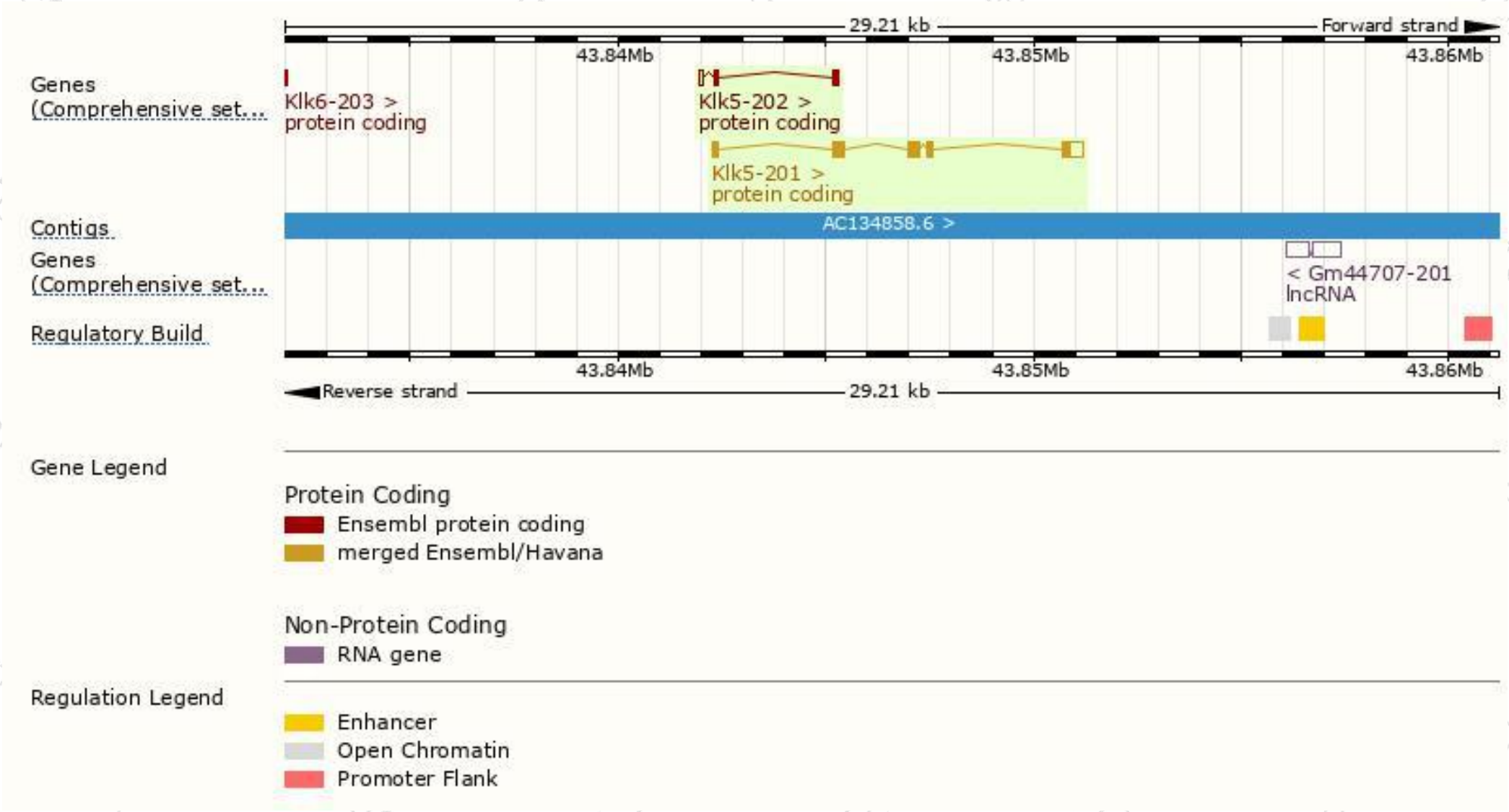
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Klk5-201	ENSMUST00000048444.6	1239	293aa	Protein coding	CCDS21185	Q9D140	TSL:1 GENCODE basic APPRIS P1
Klk5-202	ENSMUST00000205919.1	316	69aa	Protein coding	-	A0A0U1RNP0	CDS 3' incomplete TSL:3

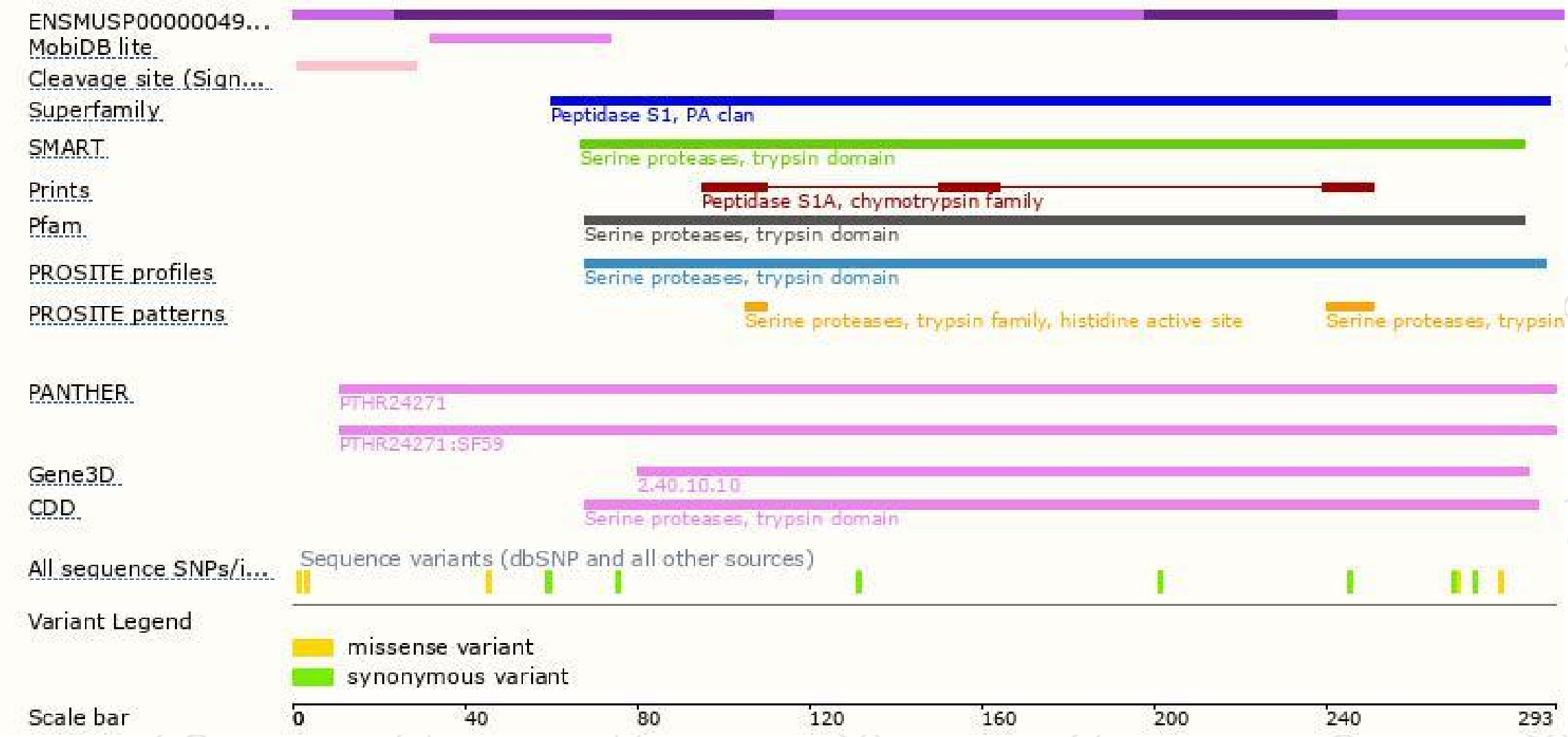
The strategy is based on the design of *Klk5-201* transcript,The transcription is shown below



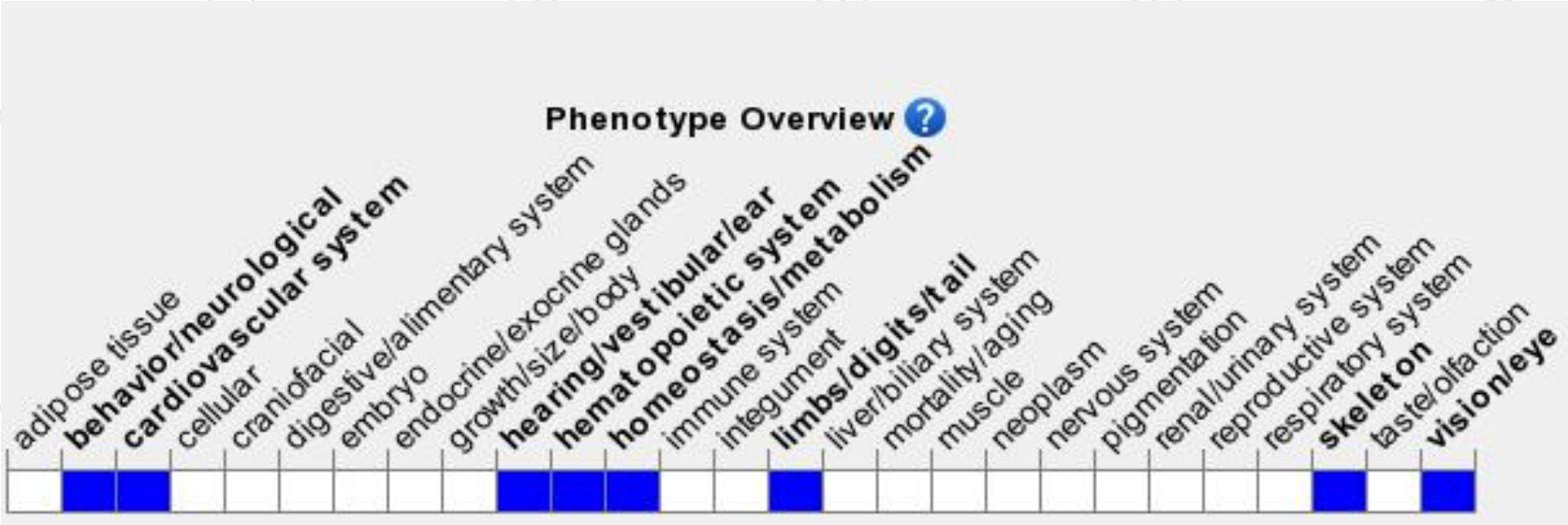
Genomic location distribution



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/).

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

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