

Tapbpl Cas9-CKO Strategy

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Project Overview

Project Name

Tapbpl

Project type

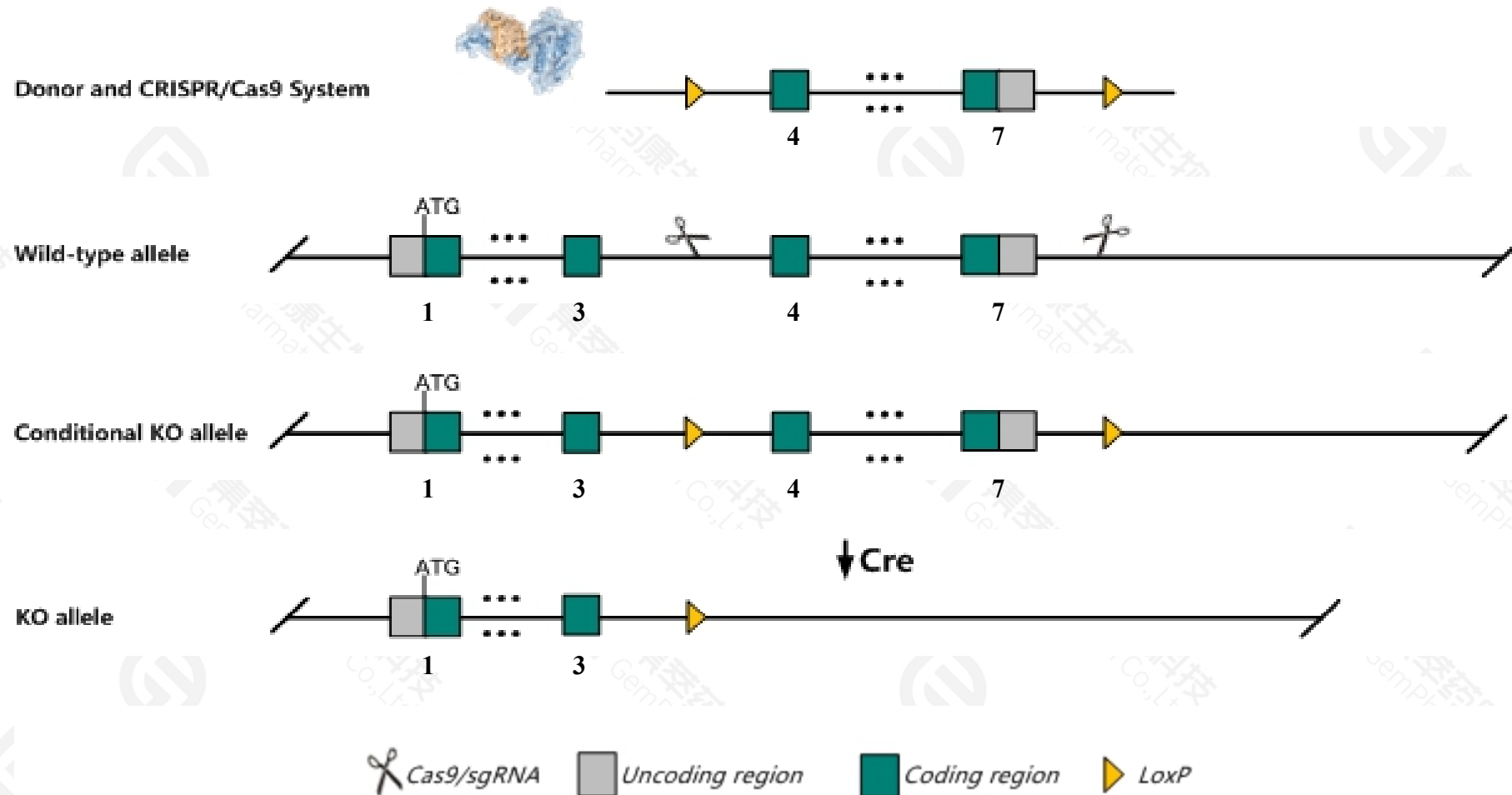
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Tapbp1* gene. The schematic diagram is as follows:



Technical routes

- The *Tapbpl* gene has 1 transcript. According to the structure of *Tapbpl* gene, exon4-exon7 of *Tapbpl*-201(ENSMUST00000043422.7) transcript is recommended as the knockout region. The region contains 776bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Tapbpl* 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 *Tapbp1* gene is located on the Chr6. 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.
- The flox region is in the intron of the *Vamp1* gene, which may affect the regulation of this gene.
- 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)

Tapbpl TAP binding protein-like [Mus musculus (house mouse)]

Gene ID: 213233, updated on 13-Mar-2020

Summary



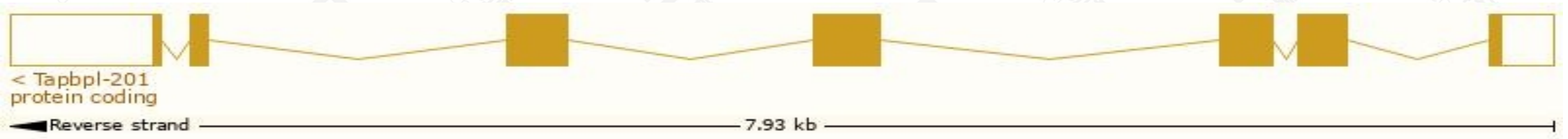
Official Symbol	Tapbpl provided by MGI
Official Full Name	TAP binding protein-like provided by MGI
Primary source	MGI:MGI:2384853
See related	Ensembl:ENSMUSG00000038213
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	BC017613, TAPBPL-R, Tapbplr
Expression	Broad expression in thymus adult (RPKM 16.5), large intestine adult (RPKM 16.3) and 23 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

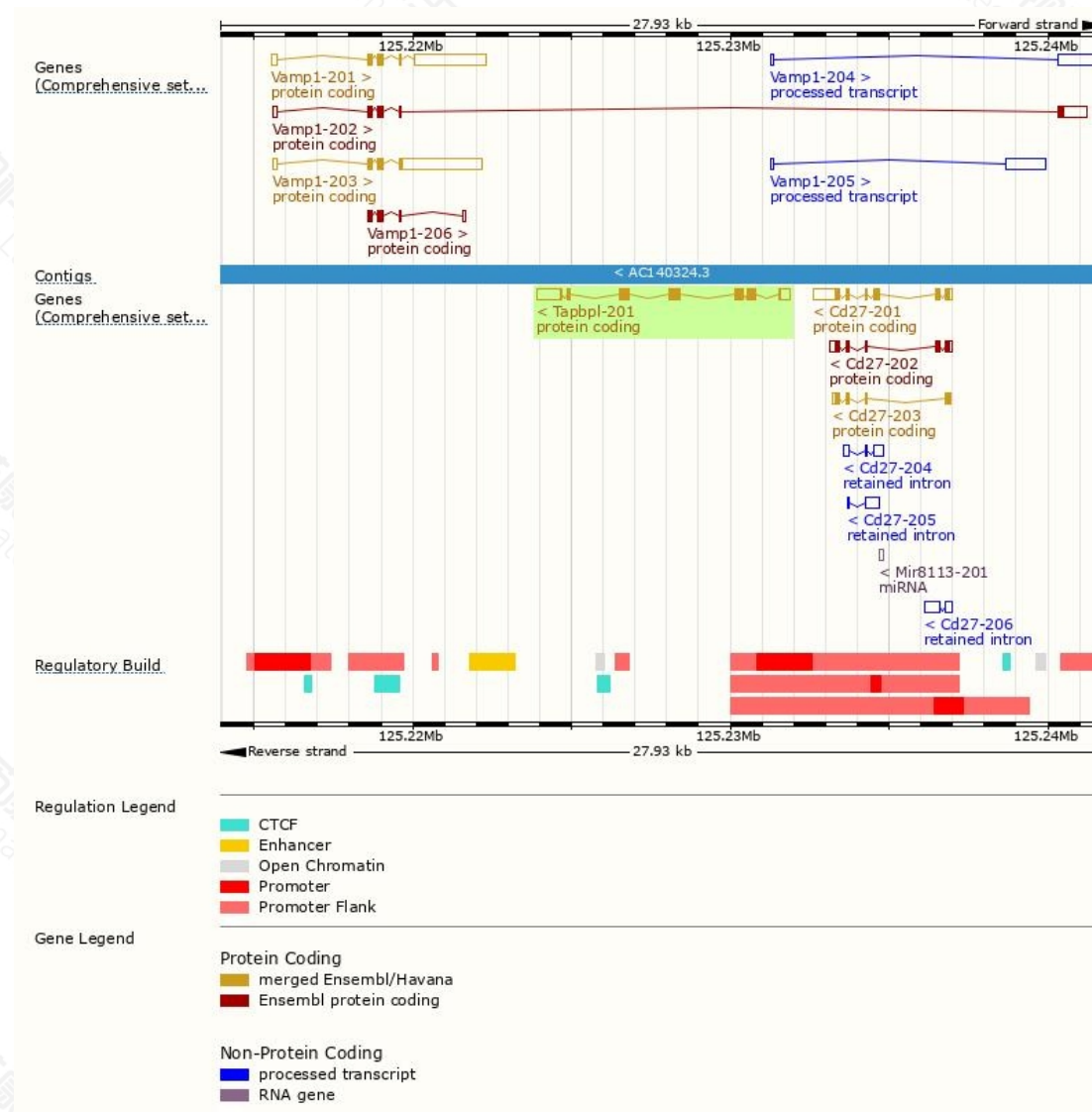
The gene has 1 transcript,and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Tapbpl-201	ENSMUST00000043422.7	2352	451aa	Protein coding	CCDS20547	Q8VD31	TSL:1 GENCODE basic APPRIS P1

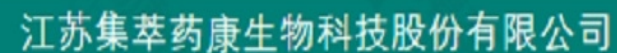
The strategy is based on the design of *Tapbpl-201* transcript,the transcription is shown below:



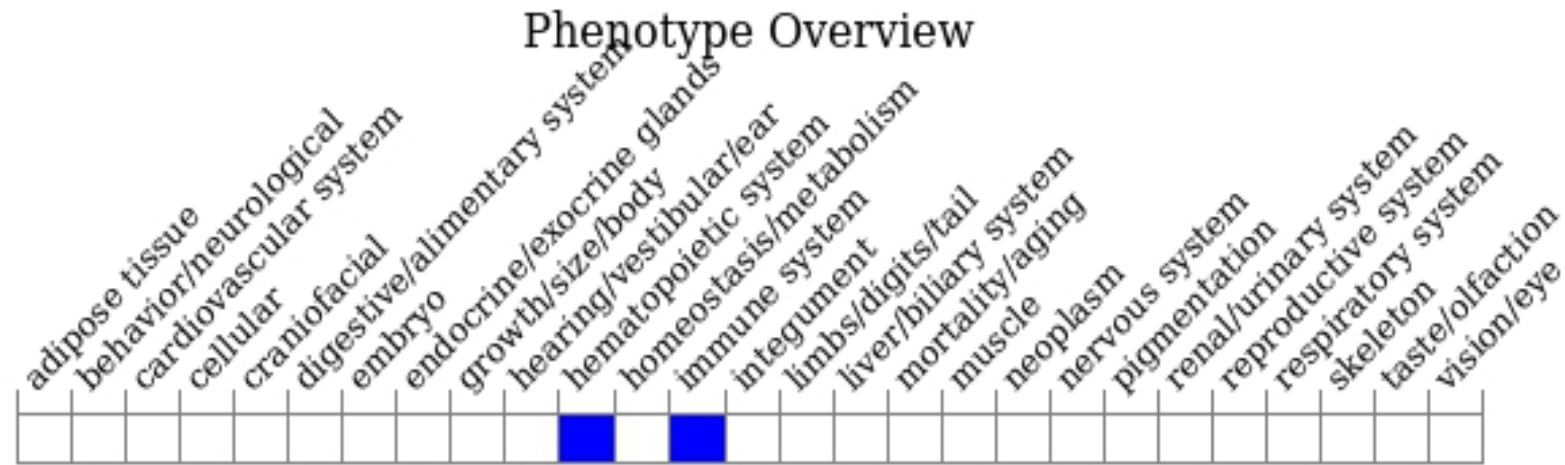
Genomic location distribution



集萃药康
GemPharmatech



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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