Serpinb9 Cas9-CKO Strategy

Designer: Daohua Xu
Reviewer: Huimin Su

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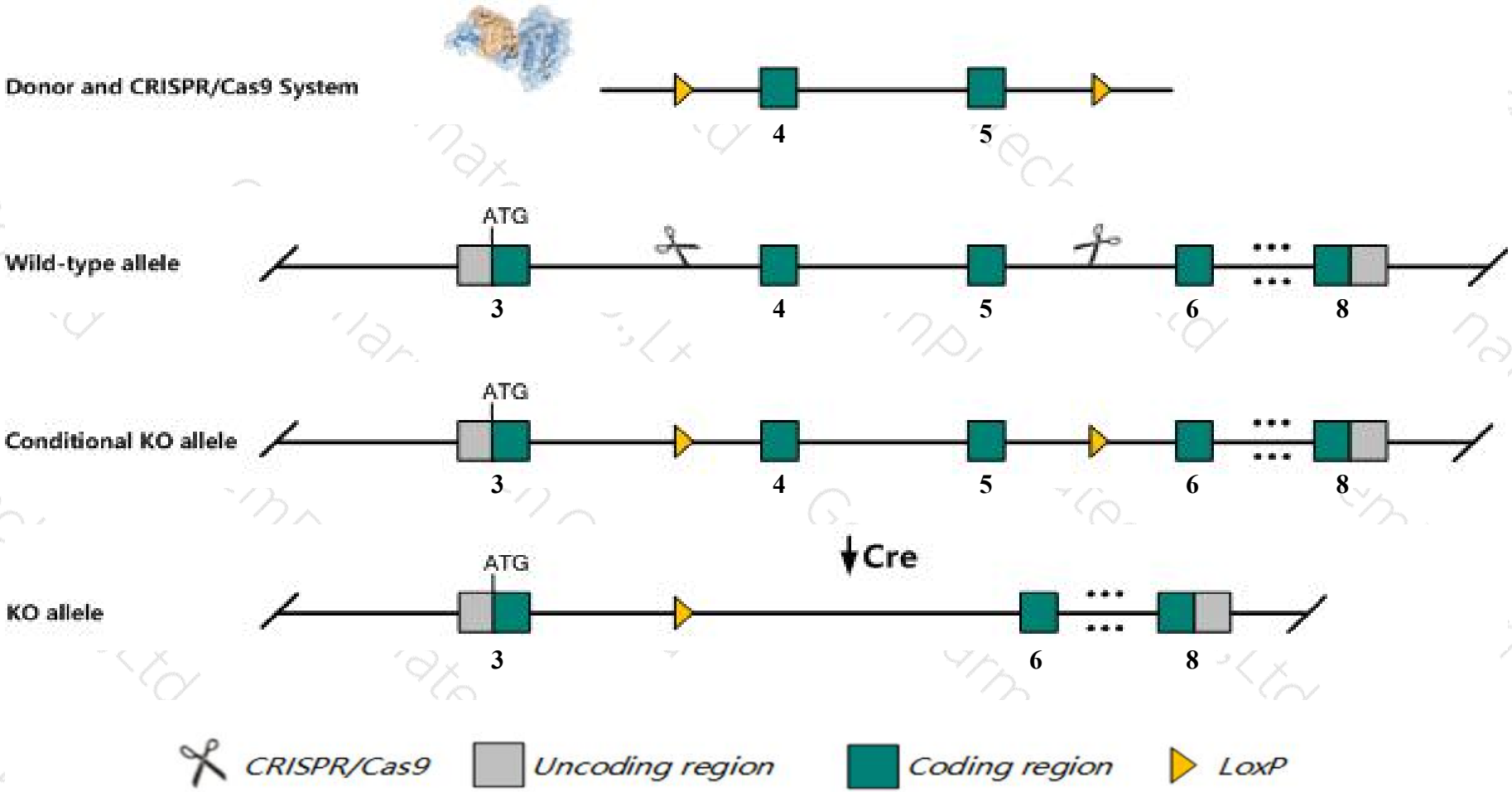
Project Overview

Project Name	***Serpinb9***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Serpinb9* gene. The schematic diagram is as follows:



Technical routes

- The *Serpinb9* gene has 2 transcripts. According to the structure of *Serpinb9* gene, exon4-exon5 of *Serpinb9-202* (ENSMUST00000063191.13) transcript is recommended as the knockout region.The region contains 256bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Serpinb9* 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

- According to the existing MGI data,Homozygous null mice show defective CTL immunity and clearance of LCMV. Following infection with LCMV or L. monocytogenes, mutant CTLs display a breakdown of cytotoxic granule integrity, increased cytoplasmic granzyme B, and reduced survival due to increased granzyme B-mediated apoptosis.

- The *Serpinb9* gene is located on the Chr13. 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）

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Serpinb9 serine (or cysteine) peptidase inhibitor, clade B, member 9 [Mus musculus (house mouse)]

Gene ID: 20723, updated on 31-Jan-2019

Summary

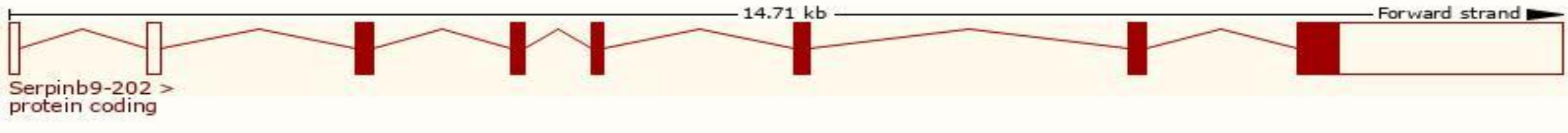
Official Symbol	Serpinb9 provided by MGI
Official Full Name	serine (or cysteine) peptidase inhibitor, clade B, member 9 provided byMGI
Primary source	MGI:MGI:106603
See related	Ensembl:ENSMUSG00000045827
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	BB283241, CAP-3, CAP3, PI-9, PI9, Spi6, ovalbumin
Expression	Broad expression in lung adult (RPKM 6.6), placenta adult (RPKM 6.0) and 21 other tissuesSee more

Transcript information（Ensembl）

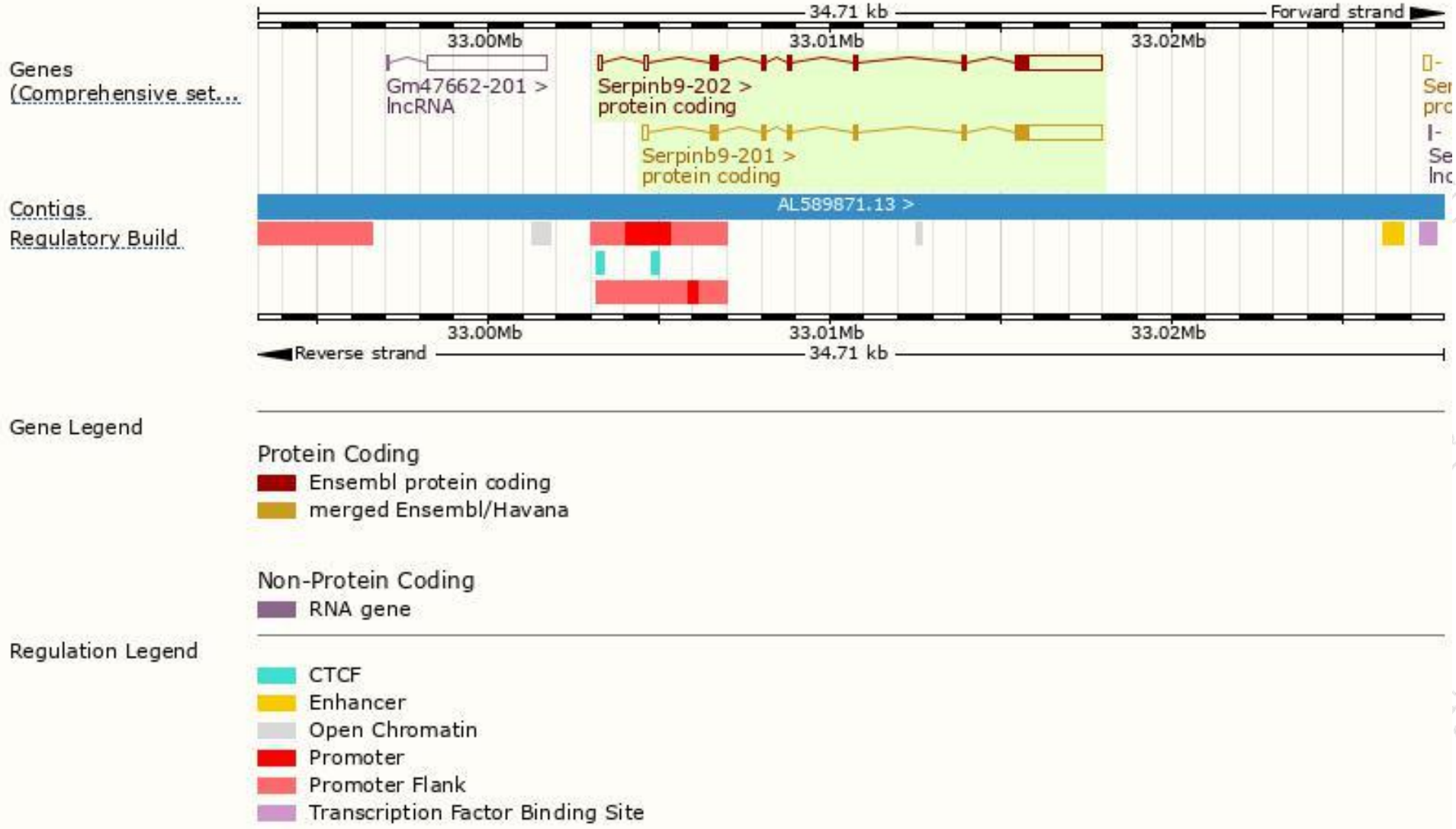
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Serpinb9-202	ENSMUST00000063191.13	3472	374aa	Protein coding	CCDS26431	O08797	TSL:5 GENCODE basic APPRIS P1
Serpinb9-201	ENSMUST00000006391.4	3397	374aa	Protein coding	CCDS26431	O08797	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Serpinb9-202* transcript,The transcription is shown below

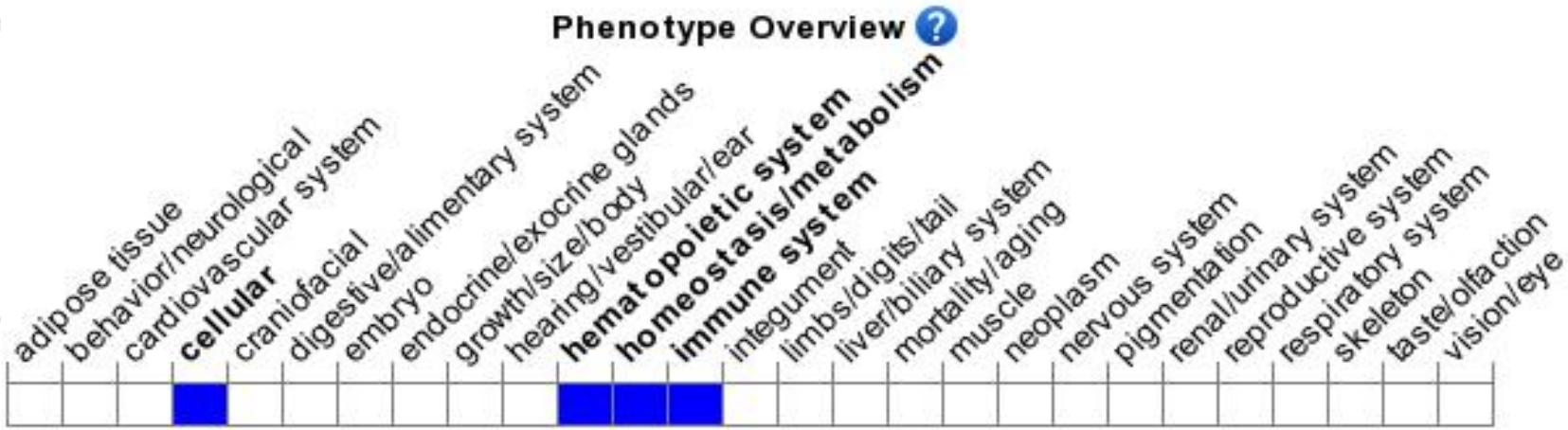


Genomic location distribution



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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集萃药康
GemPharmatech

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

Tel: 400-9660890

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GemPharmatech Co.,Ltd