Serpinb10 Cas9-CKO Strategy

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Overview

Target Gene Name

- Serpinb10
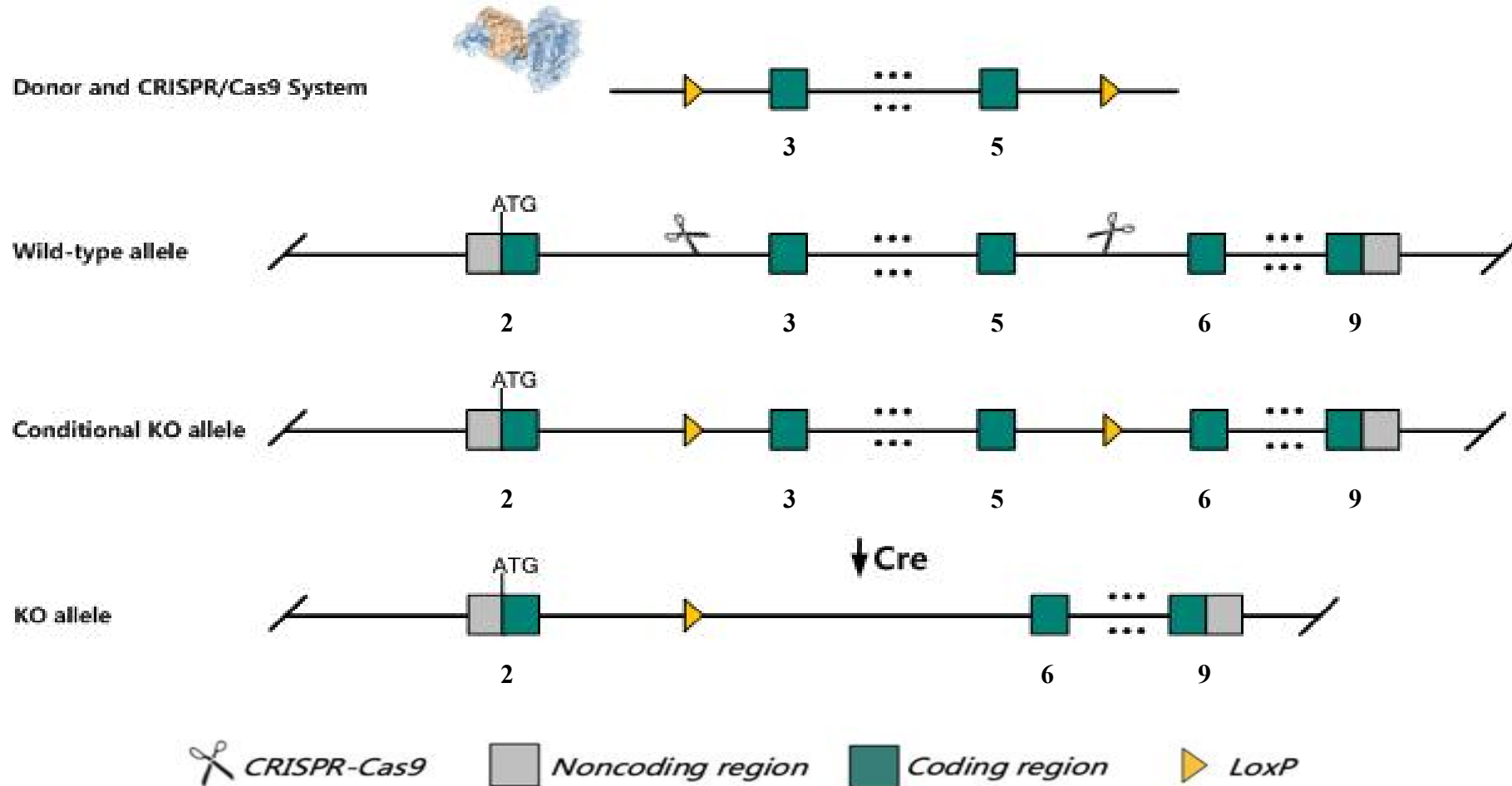
Project Type

- Cas9-CKO

Genetic Background

- C57BL/6JGpt

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Strain Strategy

Schematic representation of CRISPR-Cas9 engineering used to edit the *Serpinb10* gene.

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Technical Information

- The *Serpinb10* gene has 5 transcripts. According to the structure of *Serpinb10* gene, exon3-exon5 of *Serpinb10*-XM_006529597.4 transcript is recommended as the knockout region. The region contains 322bp coding sequence. Knocking out the region will result in disruption of protein function.

- In this project we use CRISPR-Cas9 technology to modify *Serpinb10* 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 on-target amplicon sequencing. A stable F1-generation mouse strain was obtained by mating positive F0-generation mice with C57BL/6JGpt mice and confirmation of the desired mutant allele was carried out by PCR and on-target amplicon sequencing.

- 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.

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Gene Information

Serpinb10   serine (or cysteine) peptidase inhibitor, clade B (ovalbumin), member 10 [*Mus musculus* (house mouse)]

Gene ID: 241197, updated on 5-Mar-2024

⬇ Download Datasets

▲ Summary   ⊼ ?

Official Symbol	Serpinb10 provided by MGI
Official Full Name	serine (or cysteine) peptidase inhibitor, clade B (ovalbumin), member 10 provided by MGI
Primary source	MGI:MGI:2138648
See related	Ensembl:ENSMUSG00000092572 AllianceGenome:MGI:2138648
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	9830131G07; Serpinb10-ps
Summary	Predicted to enable serine-type endopeptidase inhibitor activity. Predicted to be involved in negative regulation of endopeptidase activity. Predicted to be active in extracellular space. Is expressed in several structures, including esophagus; liver lobe; oral epithelium; and skin. Orthologous to human SERPINB10 (serpin family B member 10). [provided by Alliance of Genome Resources, Apr 2022]
Expression	Low expression observed in reference dataset See more
Orthologs	human all

NEW Try the new Gene table
        Try the new Transcript table

Source: https://www.ncbi.nlm.nih.gov/

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Transcript Information

The gene has 5 transcripts,all transcripts are shown below:

Gene ID	Gene symbol	Transcript	Length (nt)	Protein	Length (aa)	Protein name	Isofo...
241197	Serpinb10	XM_006529597.4	2845	XP_006529660.1	382	serpin B10	X1
241197	Serpinb10	XM_006529598.4	2669	XP_006529661.1	345	serpin B10	X2
241197	Serpinb10	XM_006529599.1	1821	XP_006529662.1	268	serpin B10	X3
241197	Serpinb10	NM_198028.3	3490	NP_932145.3	357	serpin B10	1
241197	Serpinb10	NM_001160307.1	3314	NP_001153779.1	320	serpin B10	2

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Transcript Information

The strategy is based on the design of *Serpinb10*-XM_006529597.4 transcript, the transcription is shown below:

1. XM_006529597.4 → XP_006529660.1 serpin B10 isoform X1

Conserved Domains (1) summary

	cl38926 Location:1 → 277	serpin; SERine Proteinase INhibitors (serpin) family

Important Information

- *Serpinb10* is located on Chr1. If the knockout mice are crossed with other mouse strains to obtain double homozygous mutant offspring, please avoid the situation that the second gene is 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 the existing technology level.