

Serpinb2 Cas9-KO Strategy

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Reviewer:

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Design Date:

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Project Overview

Project Name

Serpinb2

Project type

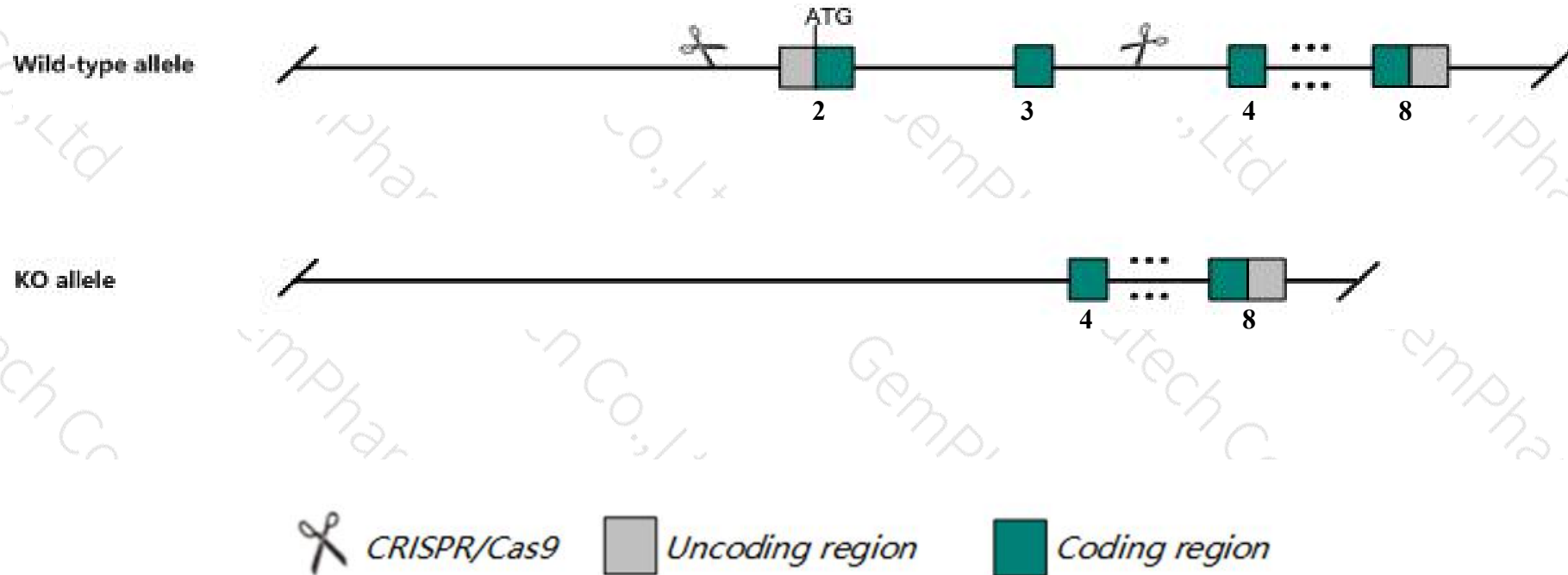
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Serpinb2* gene. The schematic diagram is as follows:



- The *Serpinb2* gene has 4 transcripts. According to the structure of *Serpinb2* gene, exon2-exon3 of *Serpinb2-202* (ENSMUST00000064916.8) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Serpinb2* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous inactivation of this gene leads to a slight to mild reduction in platelet, lymphocyte, neutrophil, and monocyte cell number.
- The *Serpinb2* gene is located on the Chr1. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

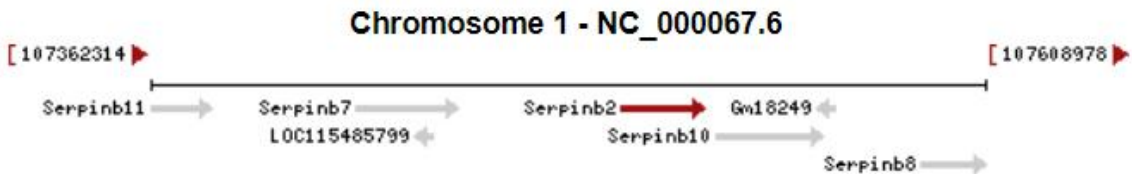
Gene information (NCBI)

Serpinb2 serine (or cysteine) peptidase inhibitor, clade B, member 2 [*Mus musculus* (house mouse)]

Gene ID: 18788, updated on 21-Aug-2019

Summary

Official Symbol	Serpinb2 provided by MGI
Official Full Name	serine (or cysteine) peptidase inhibitor, clade B, member 2 provided by MGI
Primary source	MGI:MGI:97609
See related	Ensembl:ENSMUSG000000062345
Gene type	protein coding
RefSeq status	VALIDATED
Organism	<i>Mus musculus</i>
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	PAI-2; Planh2; ovalbumin
Expression	Biased expression in liver E14 (RPKM 1.2), liver E14.5 (RPKM 1.0) and 14 other tissues See more
Orthologs	human all



Transcript information (Ensembl)

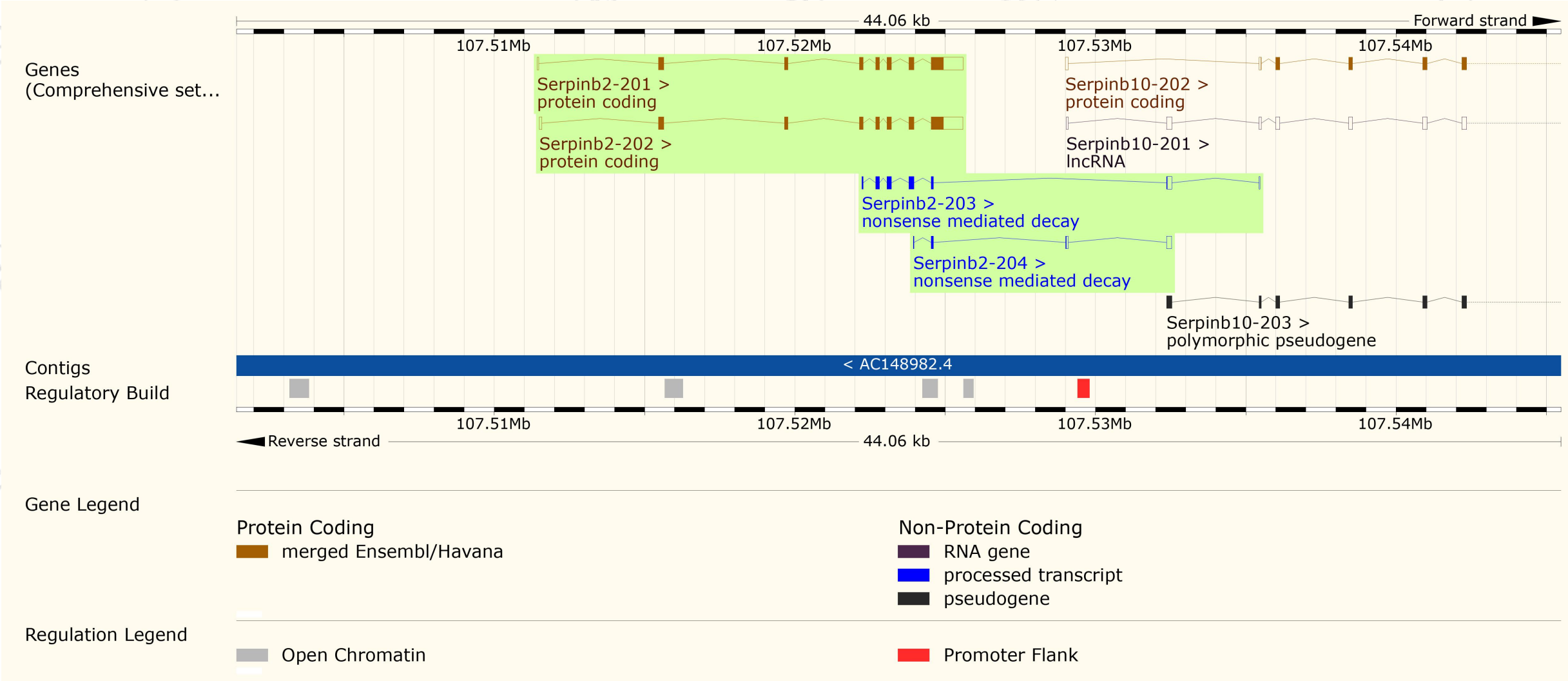
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Serpinb2-202	ENSMUST000000064916.8	1996	415aa	ENSMUSP000000065277.2	Protein coding	CCDS15219	P12388 Q542A3	TSL:1 GENCODE basic APPRIS P1
Serpinb2-201	ENSMUST000000009356.10	1970	415aa	ENSMUSP000000009356.4	Protein coding	CCDS15219	P12388 Q542A3	TSL:1 GENCODE basic APPRIS P1
Serpinb2-203	ENSMUST00000143832.7	757	189aa	ENSMUSP00000114751.1	Nonsense mediated decay	-	F6ZEV0	CDS 5' incomplete TSL:5
Serpinb2-204	ENSMUST00000146597.1	347	35aa	ENSMUSP00000119795.1	Nonsense mediated decay	-	F6QN99	CDS 5' incomplete TSL:5

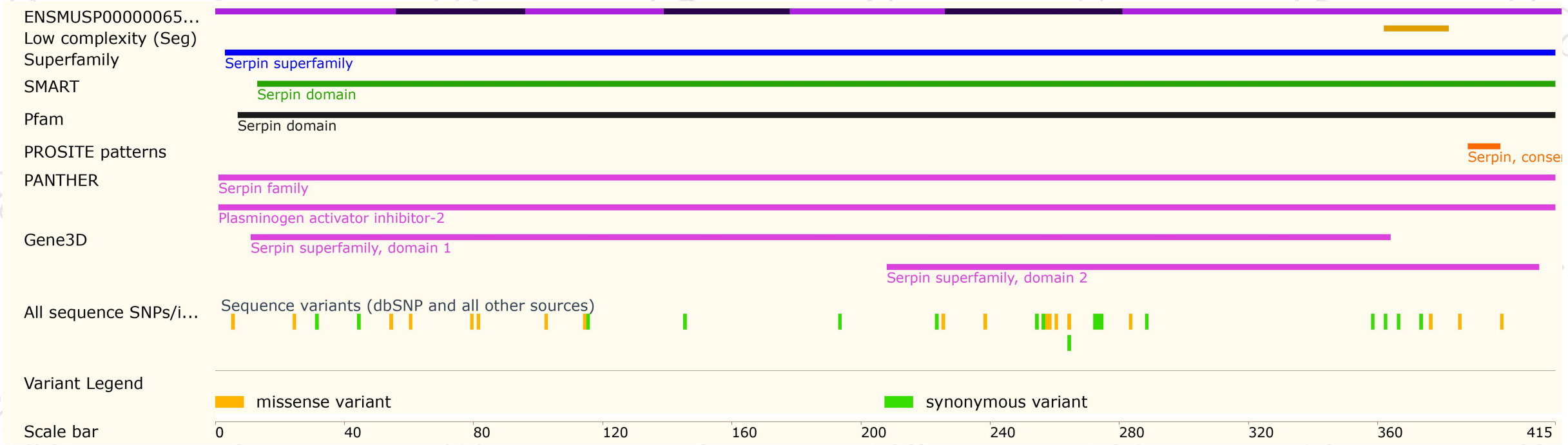
The strategy is based on the design of *Serpinb2-202* transcript,The transcription is shown below



Genomic location distribution

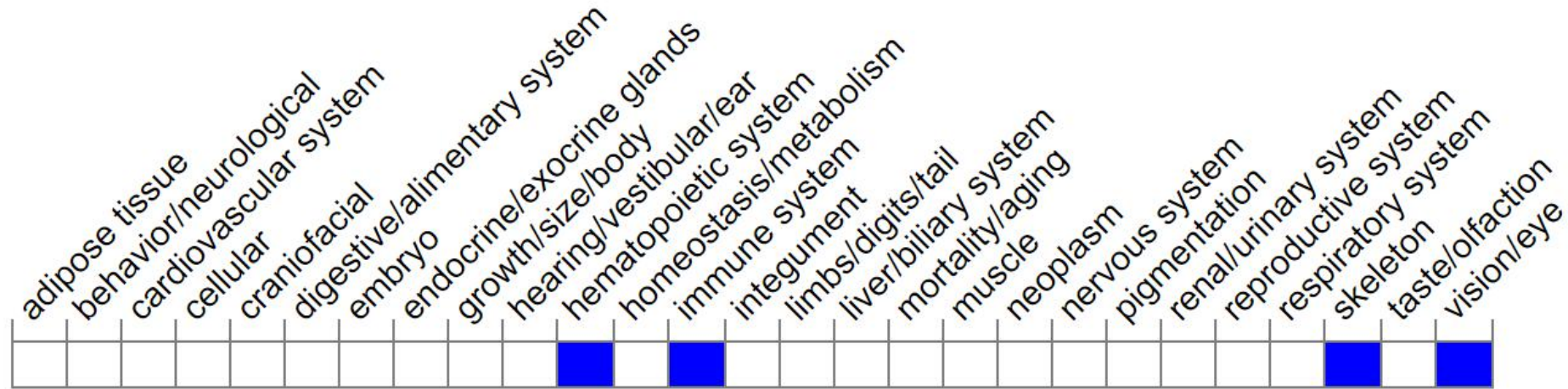


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview ?



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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