

***Ssbp2* Cas9-KO Strategy**

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Project Overview

Project Name

Ssbp2

Project type

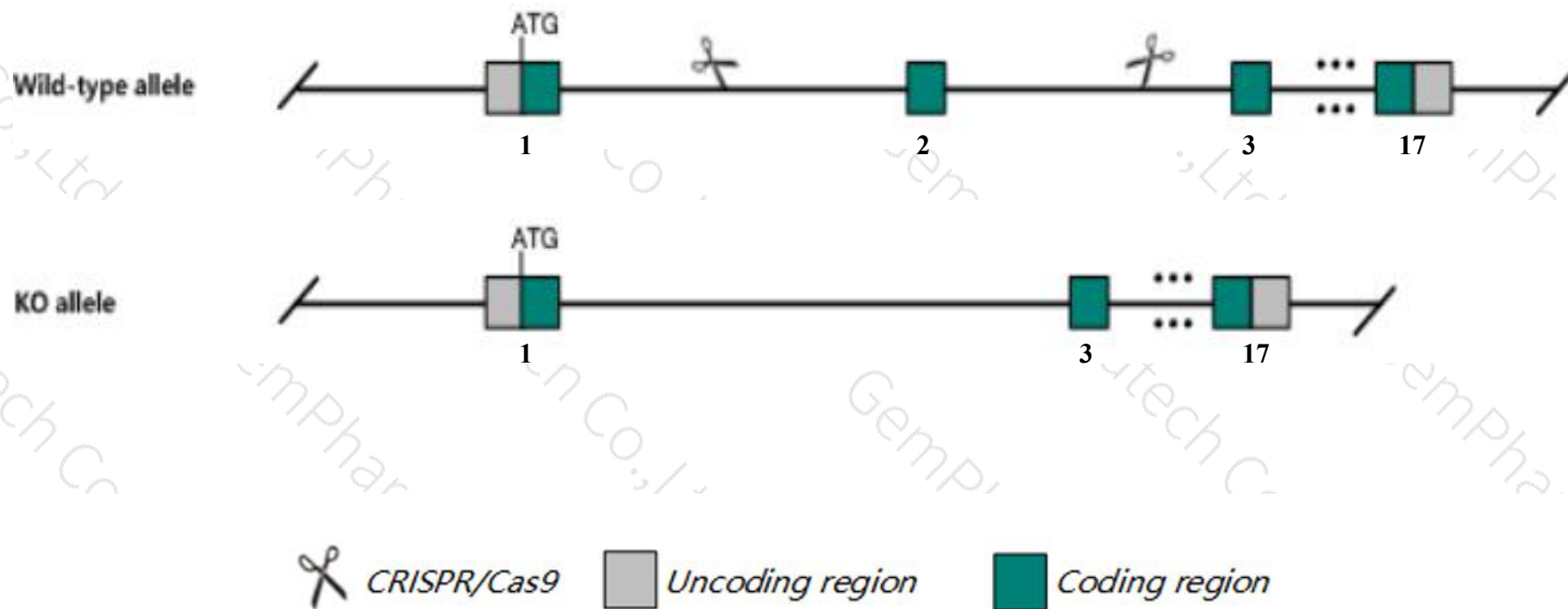
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ssbp2* gene. The schematic diagram is as follows:



- The *Ssbp2* gene has 10 transcripts. According to the structure of *Ssbp2* gene, exon2 of *Ssbp2*-201(ENSMUST00000004094.14) transcript is recommended as the knockout region. The region contains 73bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ssbp2* gene. The brief process is as follows: CRISPR/Cas9 system 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.

- According to the existing MGI data, mice exhibit some perinatal lethality and premature death associated with increased incidence of lymphoma and carcinoma.
- The *Ssbp2* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Ssbp2 single-stranded DNA binding protein 2 [Mus musculus (house mouse)]

Gene ID: 66970, updated on 13-Mar-2020

Summary



Official Symbol	Ssbp2 provided by MGI
Official Full Name	single-stranded DNA binding protein 2 provided by MGI
Primary source	MGI:MGI:1914220
See related	Ensembl:ENSMUSG00000003992
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	1500004K09Rik, 2310079I02Rik, 9330163K02Rik, A830008M03Rik, AU067692, AW558684, Hspc116, SSDP2
Expression	Broad expression in CNS E18 (RPKM 14.2), whole brain E14.5 (RPKM 8.6) and 18 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

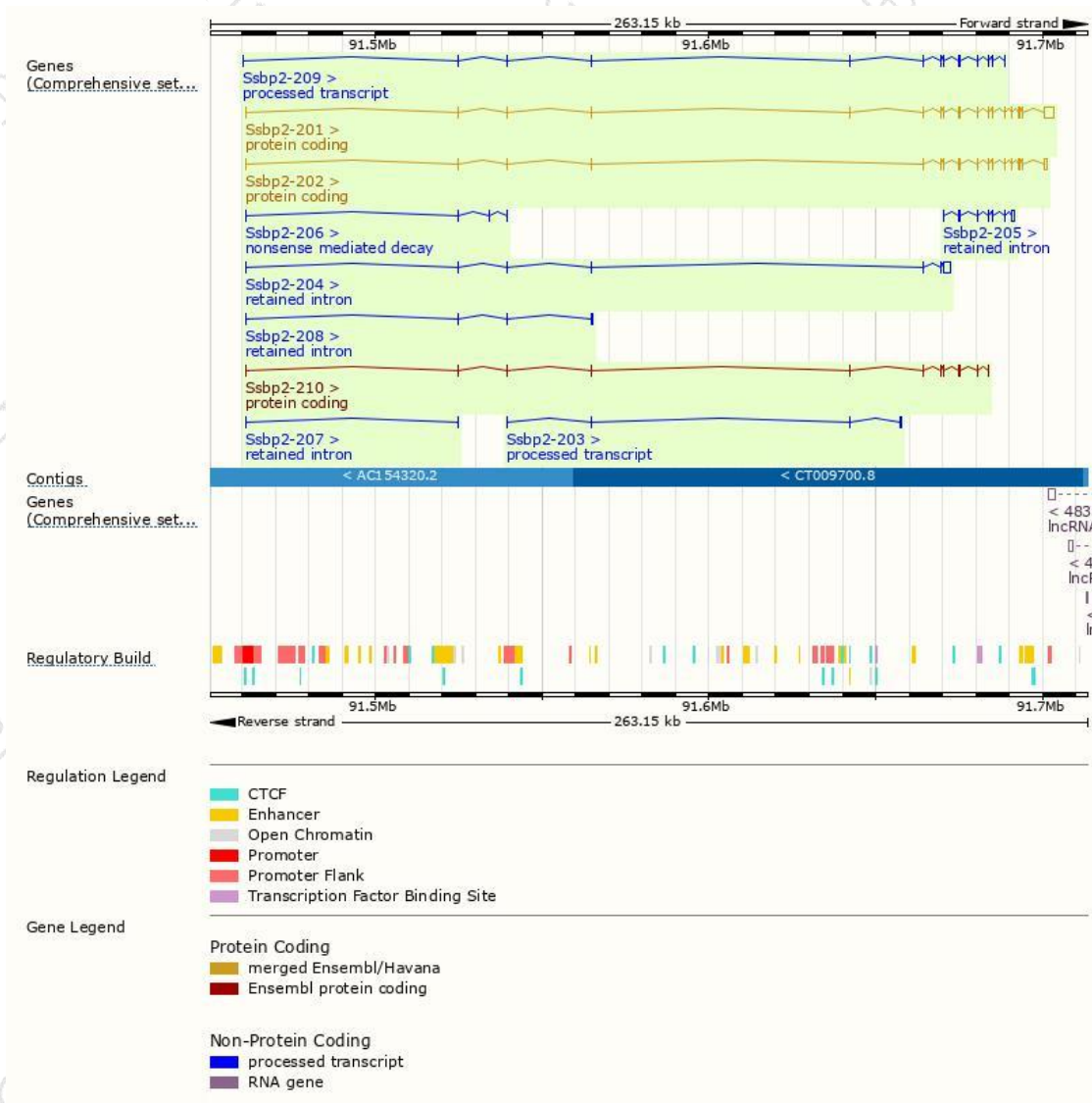
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ssbp2-201	ENSMUST00000004094.14	3957	361aa	Protein coding	CCDS26677	Q540I3 Q9CYZ8	TSL:1 GENCODE basic APPRIS P4
Ssbp2-202	ENSMUST000000042122.14	1633	331aa	Protein coding	CCDS26676	Q9CYZ8	TSL:1 GENCODE basic APPRIS ALT1
Ssbp2-210	ENSMUST00000231481.1	750	244aa	Protein coding	-	A0A338P6Q9	CDS 3' incomplete
Ssbp2-206	ENSMUST00000138488.1	475	49aa	Nonsense mediated decay	-	D6RG78	TSL:3
Ssbp2-209	ENSMUST00000156547.7	914	No protein	Processed transcript	-	-	TSL:3
Ssbp2-203	ENSMUST00000133984.1	687	No protein	Processed transcript	-	-	TSL:3
Ssbp2-204	ENSMUST00000137493.7	2451	No protein	Retained intron	-	-	TSL:1
Ssbp2-205	ENSMUST00000137658.1	880	No protein	Retained intron	-	-	TSL:5
Ssbp2-208	ENSMUST00000144659.1	822	No protein	Retained intron	-	-	TSL:1
Ssbp2-207	ENSMUST00000141381.1	350	No protein	Retained intron	-	-	TSL:3

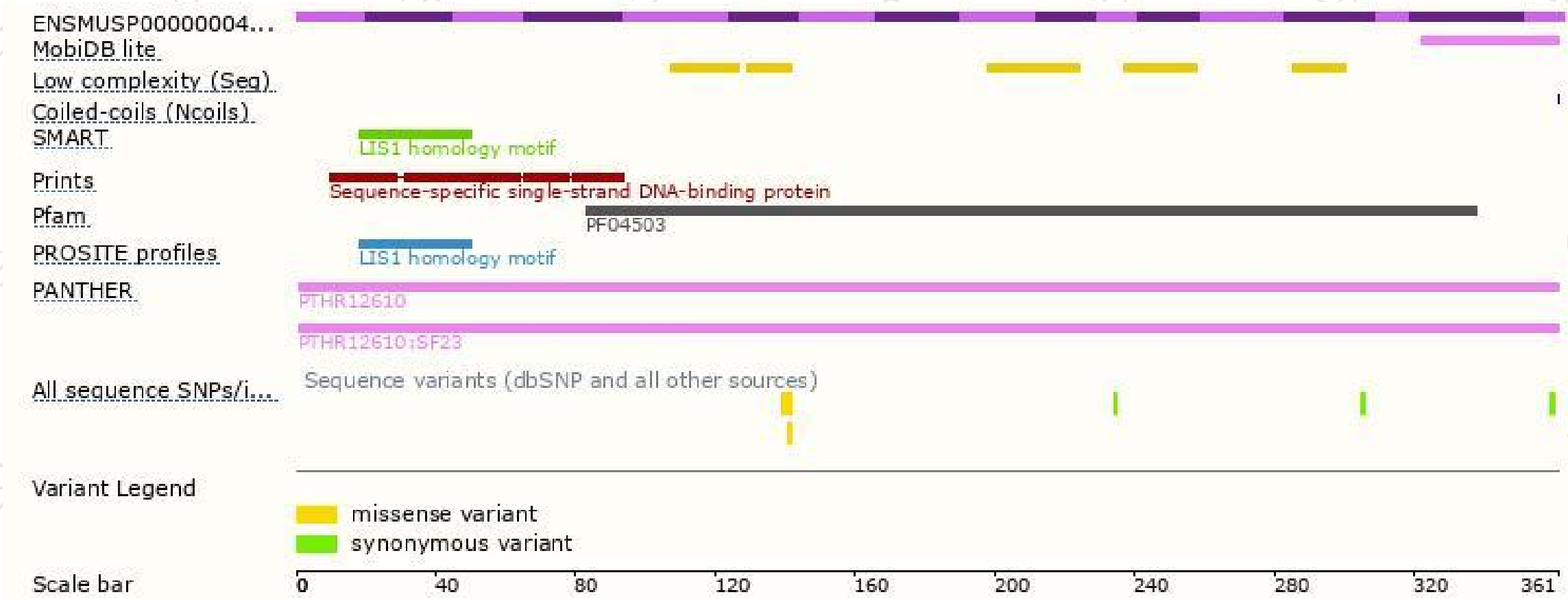
The strategy is based on the design of *Ssbp2-201* transcript,the transcription is shown below:



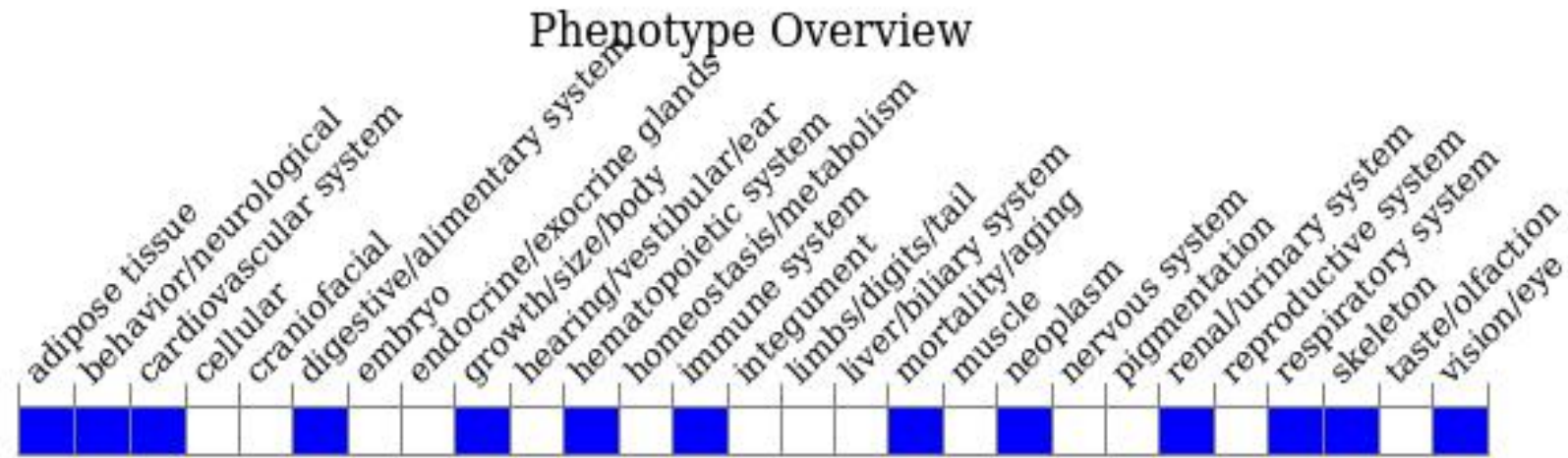
Genomic location distribution



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/>).

According to the existing MGI data, mice exhibit some perinatal lethality and premature death associated with increased incidence of lymphoma and carcinoma.

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

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