

Spock3 Cas9-CKO Strategy

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Reviewer:

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Design Date:

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Project Overview

Project Name

Spock3

Project type

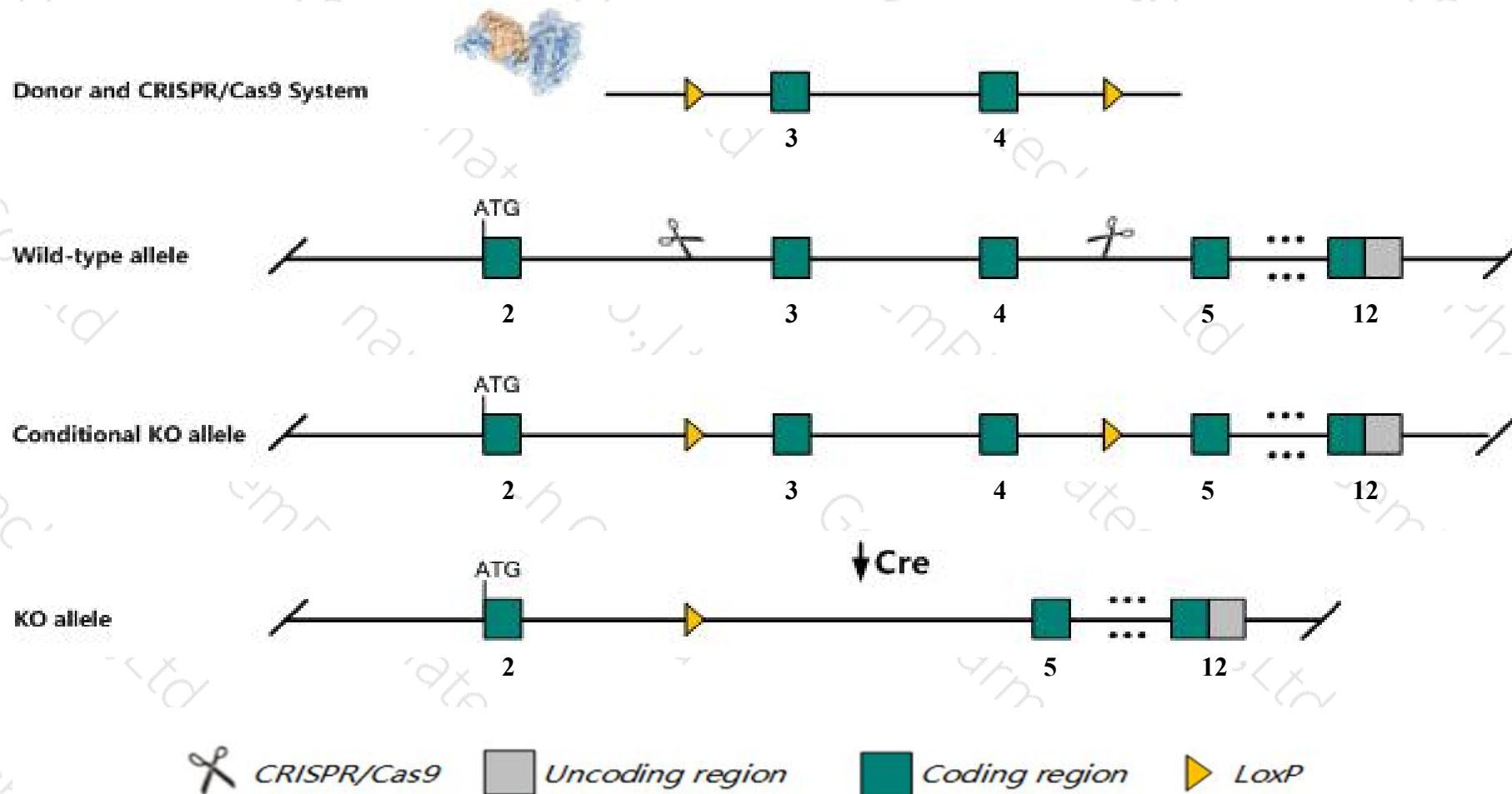
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Spock3* gene. The schematic diagram is as follows:



Technical routes

- The *Spock3* gene has 6 transcripts. According to the structure of *Spock3* gene, exon3-exon4 of *Spock3-204* (ENSMUST00000119068.7) transcript is recommended as the knockout region. The region contains 55bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Spock3* 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.

- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit no obvious morphological or behavioral abnormalities.
- The *Spock3* gene is located on the Chr8. 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)

Spock3 sparc/osteonectin, cwcv and kazal-like domains proteoglycan 3 [Mus musculus (house mouse)]

Gene ID: 72902, updated on 31-Jan-2019

Summary



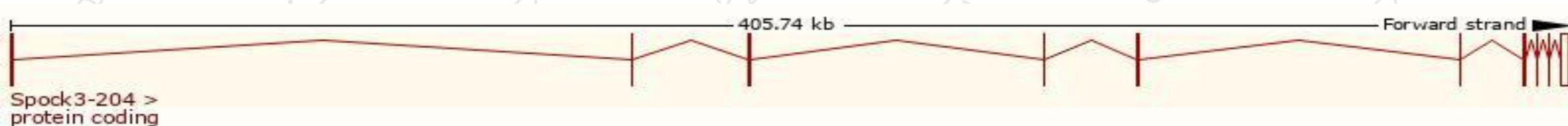
Official Symbol	Spock3 provided by MGI
Official Full Name	sparc/osteonectin, cwcv and kazal-like domains proteoglycan 3 provided by MGI
Primary source	MGI:MGI:1920152
See related	Ensembl:ENSMUSG00000054162
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2900045C01Rik, AI428471, mKIAA4039
Expression	Biased expression in cerebellum adult (RPKM 13.8), cortex adult (RPKM 11.3) and 7 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

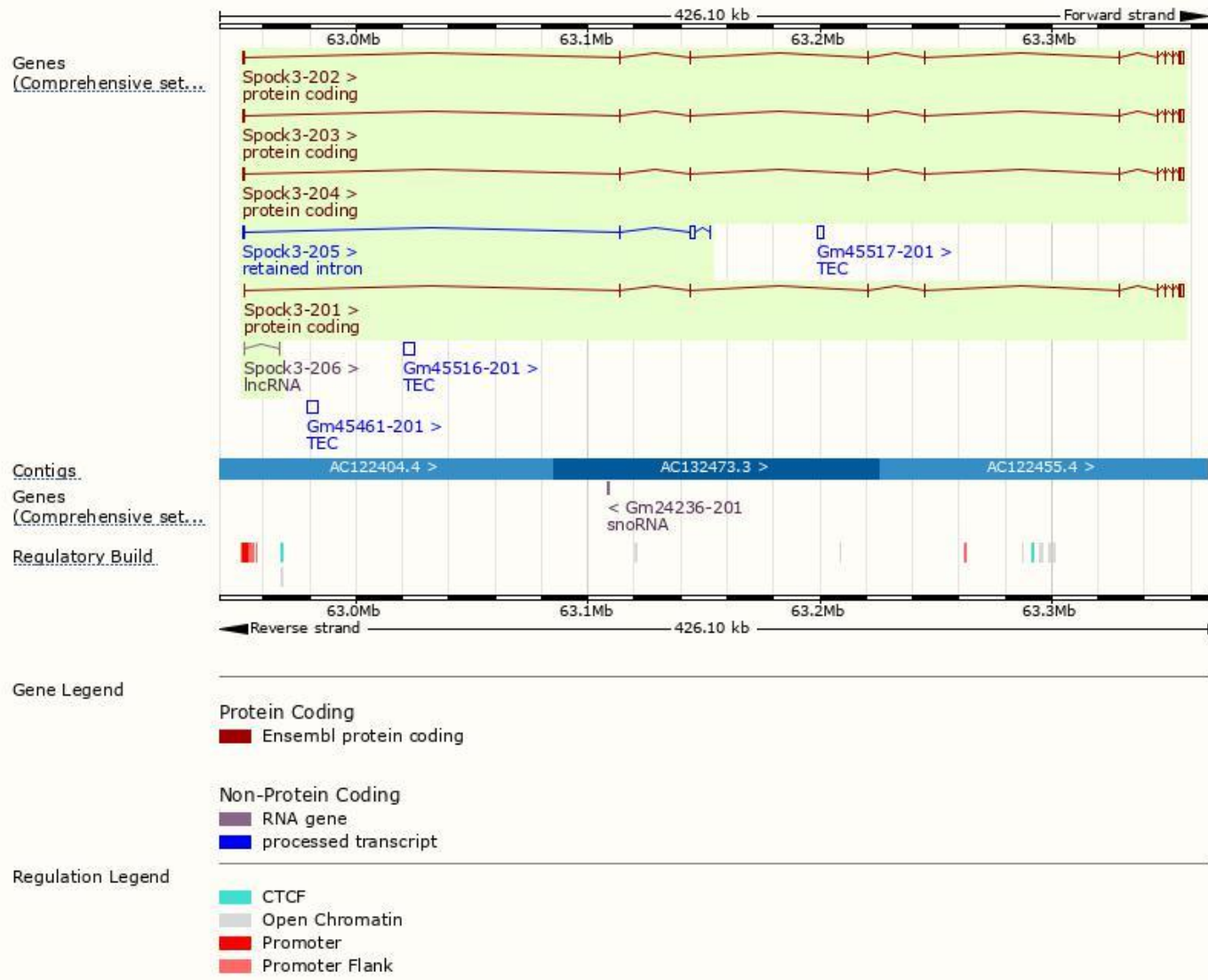
The gene has 6 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Spock3-204	ENSMUST00000119068.7	3201	436aa	Protein coding	CCDS22326	Q8BKV0	TSL:5 GENCODE basic APPRIS P3
Spock3-202	ENSMUST00000117377.7	3066	433aa	Protein coding	CCDS57622	Q8BKV0	TSL:1 GENCODE basic APPRIS ALT2
Spock3-201	ENSMUST00000093480.5	3024	436aa	Protein coding	CCDS22326	Q8BKV0	TSL:5 GENCODE basic APPRIS P3
Spock3-203	ENSMUST00000118003.7	2860	436aa	Protein coding	CCDS22326	Q8BKV0	TSL:5 GENCODE basic APPRIS P3
Spock3-205	ENSMUST00000138398.7	2800	No protein	Retained intron	-	-	TSL:5
Spock3-206	ENSMUST00000141513.1	343	No protein	lncRNA	-	-	TSL:3

The strategy is based on the design of *Spock3-204* transcript, The transcription is shown below



Genomic location distribution



Protein domain



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

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