Spock2 Cas9-CKO Strategy

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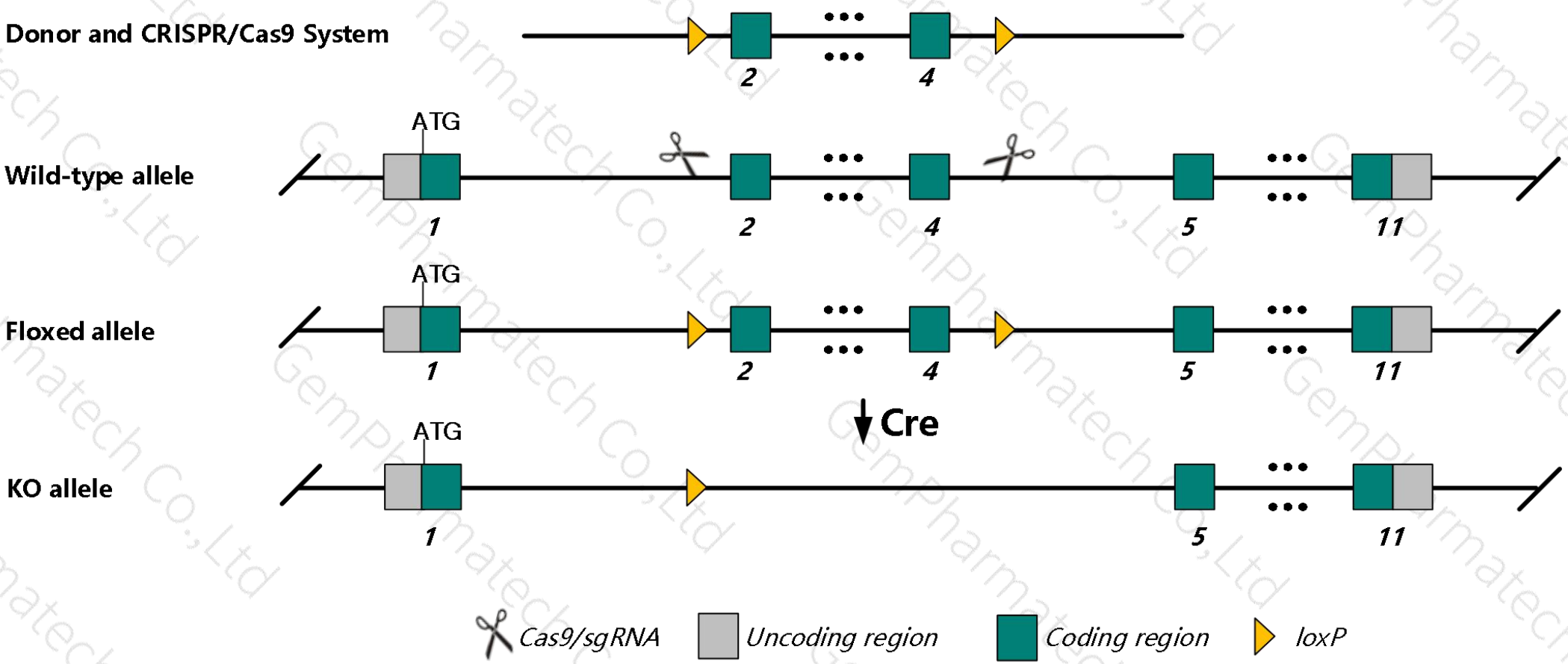
Project Overview

Project Name	***Spock2***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Spock2* gene. The schematic diagram is as follows:



Technical routes

- The *Spock2* gene has 3 transcripts. According to the structure of *Spock2* gene, exon2-exon4 of *Spock2-201* (ENSMUST00000121820.8) transcript is recommended as the knockout region.The region contains 170bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Spock2* 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

➢ The *Spock2* gene is located on the Chr10. 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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Spock2 sparc/osteonectin, cwcv and kazal-like domains proteoglycan 2 [*Mus musculus* (house mouse)]

Gene ID: 94214, updated on 13-Mar-2020

Summary

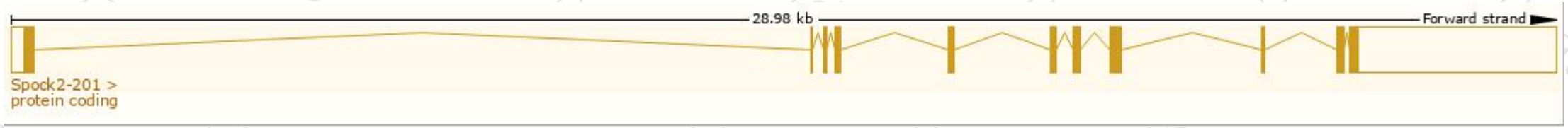
Official Symbol	Spock2 provided by MGI
Official Full Name	sparc/osteonectin, cwcv and kazal-like domains proteoglycan 2 provided by MGI
Primary source	MGI:MGI:1891351
See related	Ensembl:ENSMUSG00000058297
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Gcap26; AA407235; mKIAA0275
Expression	Biased expression in cerebellum adult (RPKM 116.0), cortex adult (RPKM 84.9) and 12 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

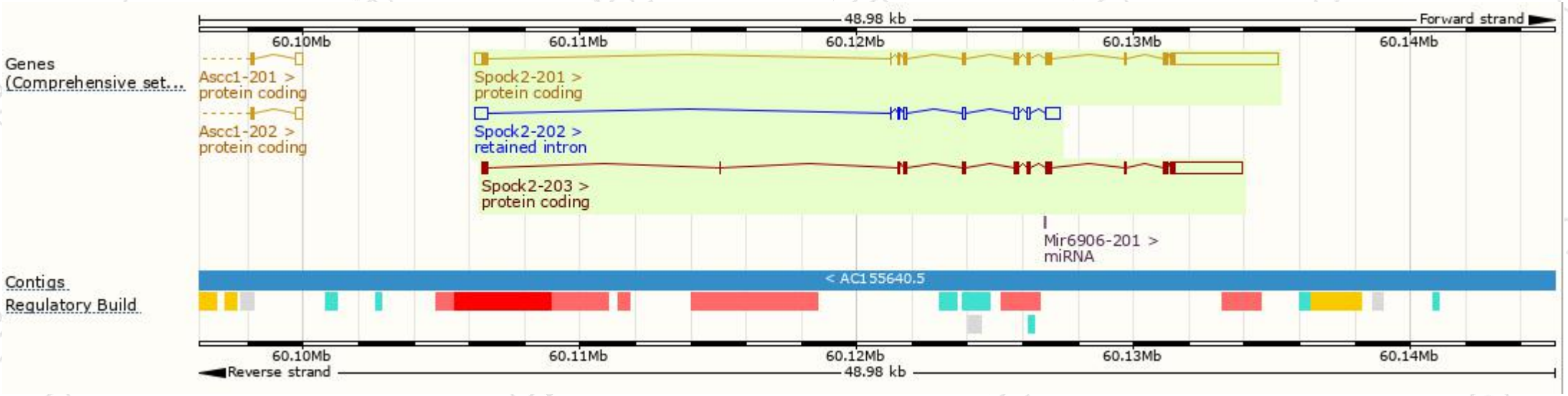
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Spock2-201	ENSMUST00000121820.8	5238	423aa	Protein coding	CCDS35910	Q9ER58	TSL:1 GENCODE basic APPRIS P2
Spock2-203	ENSMUST00000165024.2	3699	423aa	Protein coding	-	F6SLR4	TSL:5 GENCODE basic APPRIS ALT2
Spock2-202	ENSMUST00000138976.2	1460	No protein	Retained intron	-	-	TSL:1

The strategy is based on the design of *Spock2-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain

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

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