

Spocd1 Cas9-CKO Strategy

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Project Overview

Project Name

Spocd1

Project type

Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

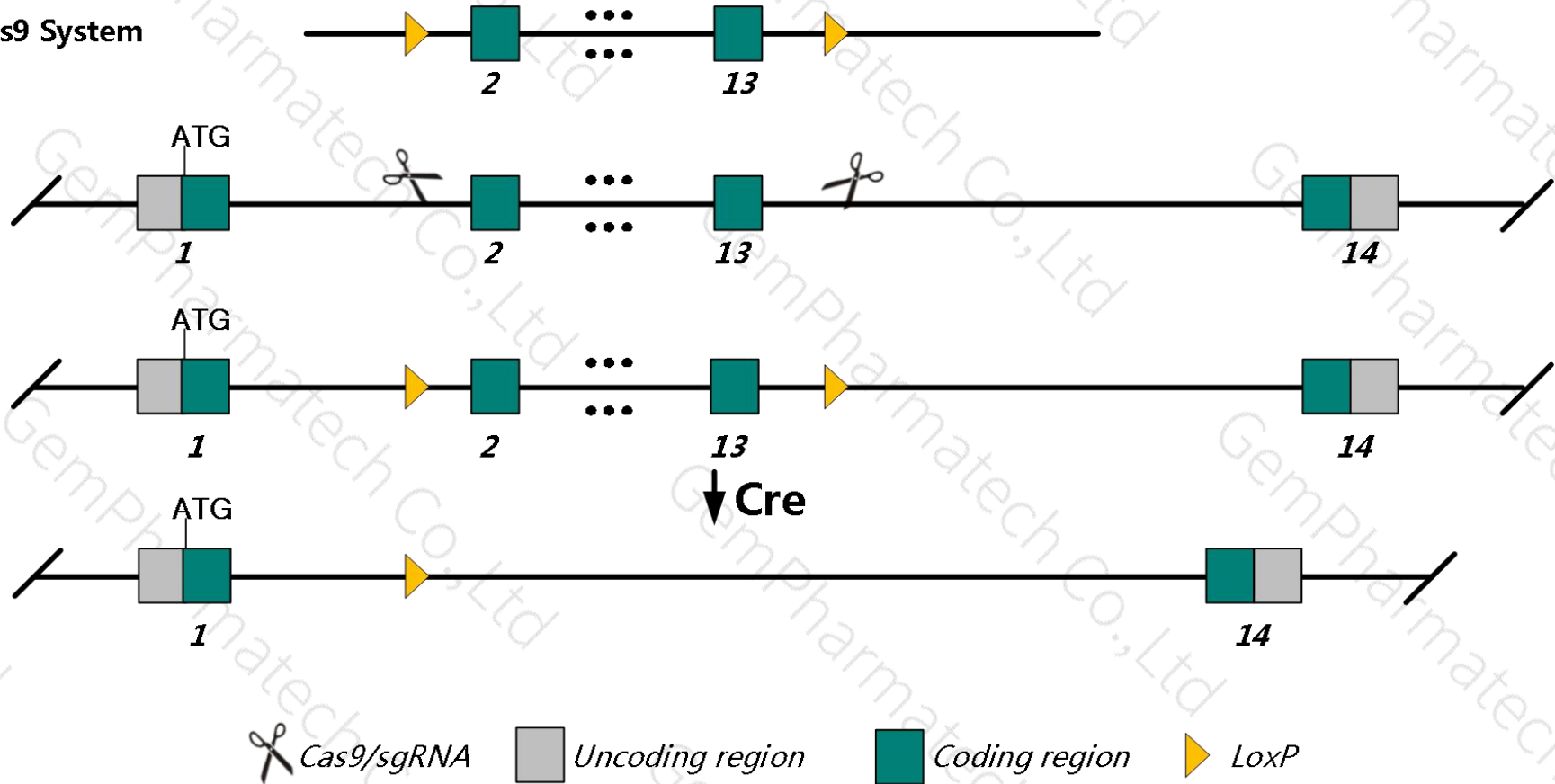
This model will use CRISPR/Cas9 technology to edit the *Spocd1* gene. The schematic diagram is as follows:

Donor and CRISPR/Cas9 System

Wild-type allele

Conditional KO allele

KO allele



- The *Spocd1* gene has 2 transcripts. According to the structure of *Spocd1* gene, exon2-exon13 of *Spocd1*-201 (ENSMUST00000084263.5) transcript is recommended as the knockout region. The region contains 1396bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Spocd1* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues or cell types.

- The *Spocd1* gene is located on the Chr4. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Spocd1 SPOC domain containing 1 [*Mus musculus* (house mouse)]

Gene ID: 622480, updated on 26-Jun-2020

Summary

Official Symbol	Spocd1 provided by MGI
Official Full Name	SPOC domain containing 1 provided by MGI
Primary source	MGI:MGI:3652045
See related	Ensembl:ENSMUSG000000028784
Gene type	protein coding
RefSeq status	MODEL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Expression	Biased expression in testis adult (RPKM 2.7), ovary adult (RPKM 1.5) and 2 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

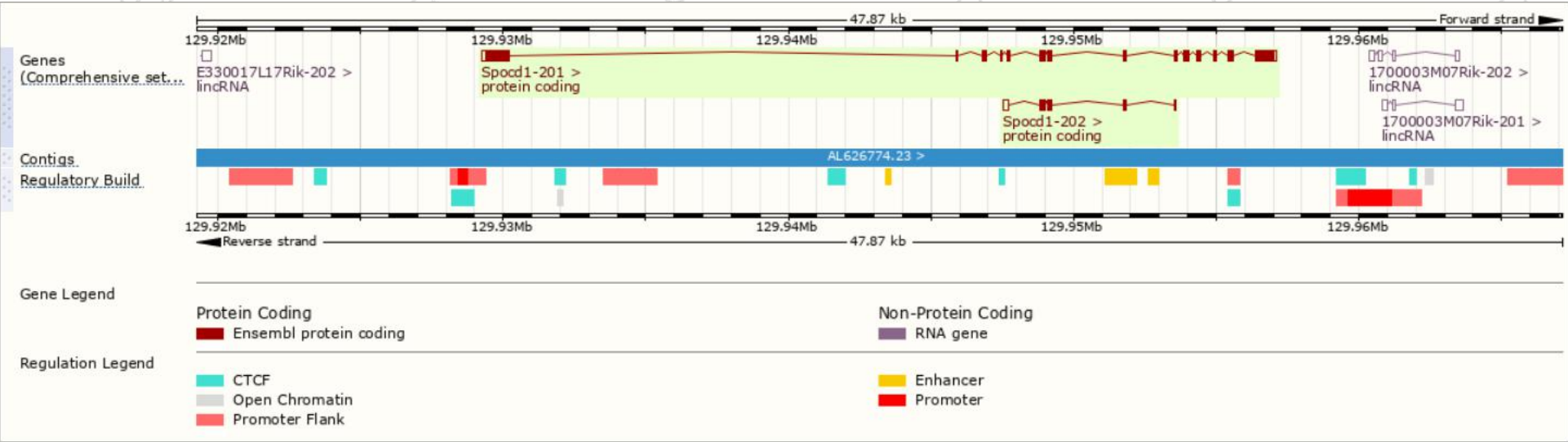
The gene has 2 transcripts, and all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Spocd1-201	ENSMUST00000084263.5	3096	936aa	Protein coding	-	B1ASB6	TSL:5 Gencode basic APPRIS P1
Spocd1-202	ENSMUST00000128007.7	626	158aa	Protein coding	-	B1ASB5	CDS 3' incomplete TSL:5

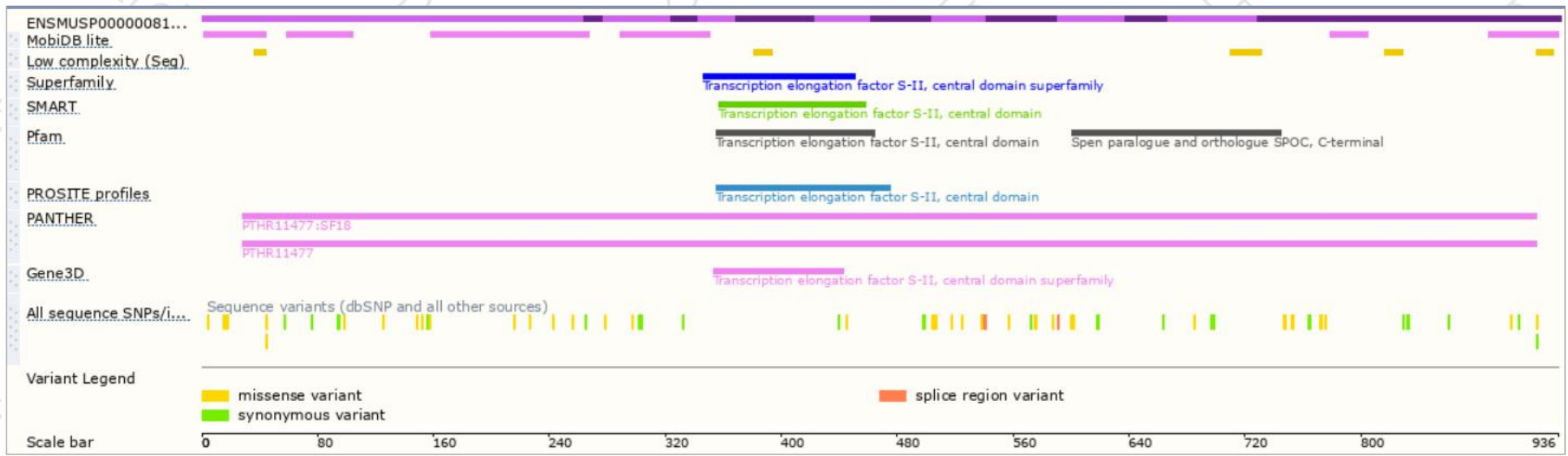
The strategy is based on the design of *Spocd1*-201 transcript, The transcription is shown below:



Genomic location distribution



Protein domain



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