

Spc24 Cas9-CKO Strategy

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Project Overview

Project Name

Spc24

Project type

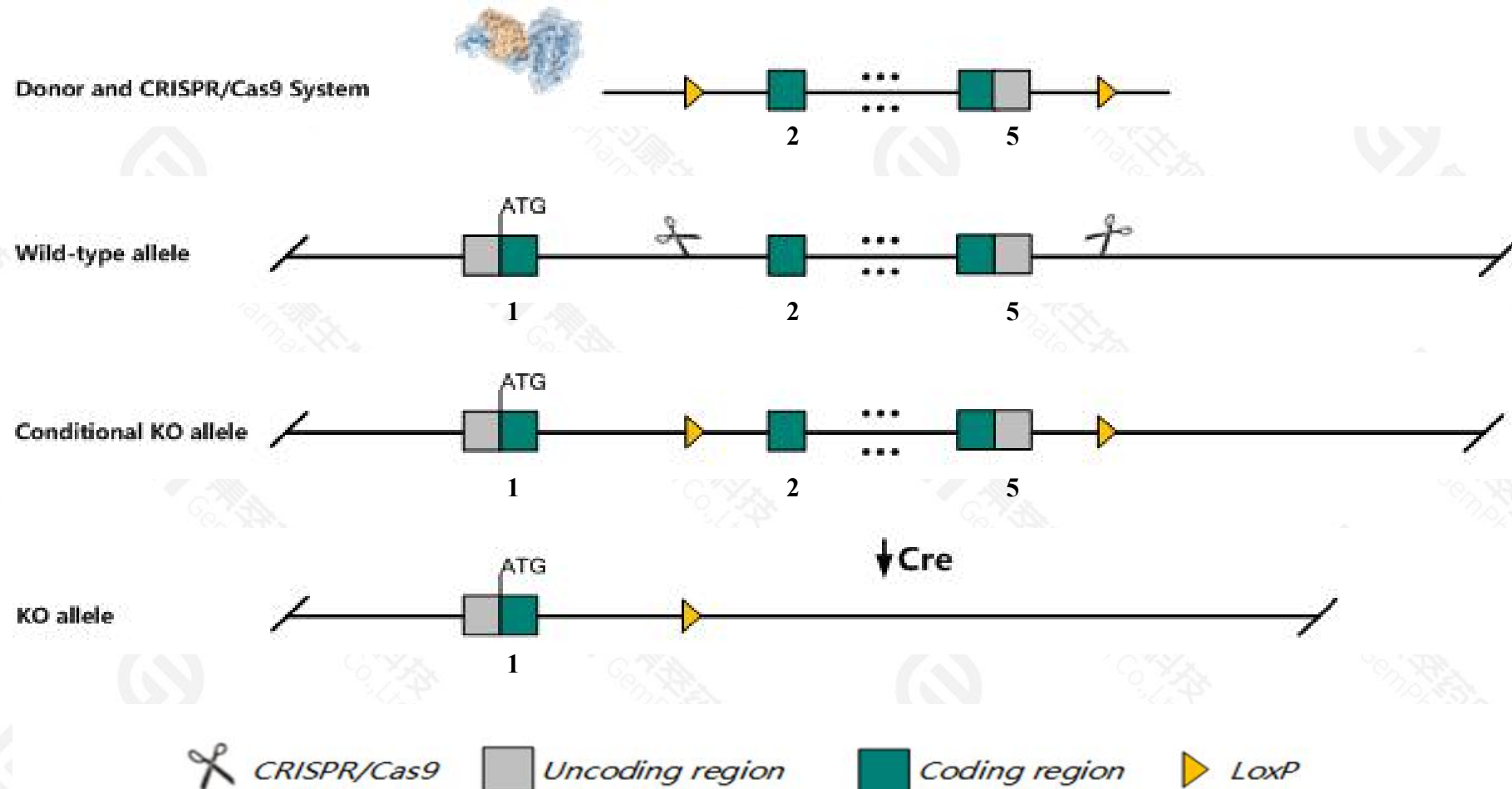
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Spc24* gene. The schematic diagram is as follows:



Technical routes

- The *Spc24* gene has 5 transcripts. According to the structure of *Spc24* gene, exon2-exon5 of *Spc24-201*(ENSMUST00000098942.6) transcript is recommended as the knockout region. The region contains 446bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Spc24* 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.

- The *Spc24* gene is located on the Chr9. 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)

Spc24 SPC24, NDC80 kinetochore complex component, homolog (S. cerevisiae) [Mus musculus (house mouse)]

Gene ID: 67629, updated on 25-Sep-2020

Summary



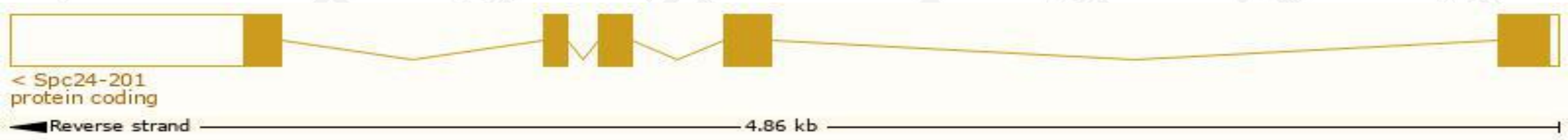
Official Symbol	Spc24 provided by MGI
Official Full Name	SPC24, NDC80 kinetochore complex component, homolog (S. cerevisiae) provided by MGI
Primary source	MGI:MGI:1914879
See related	Ensembl:ENSMUSG00000074476
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2410030K01Rik, AV109292, Spbc, Spbc24
Expression	Broad expression in liver E14 (RPKM 17.7), liver E14.5 (RPKM 17.5) and 20 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

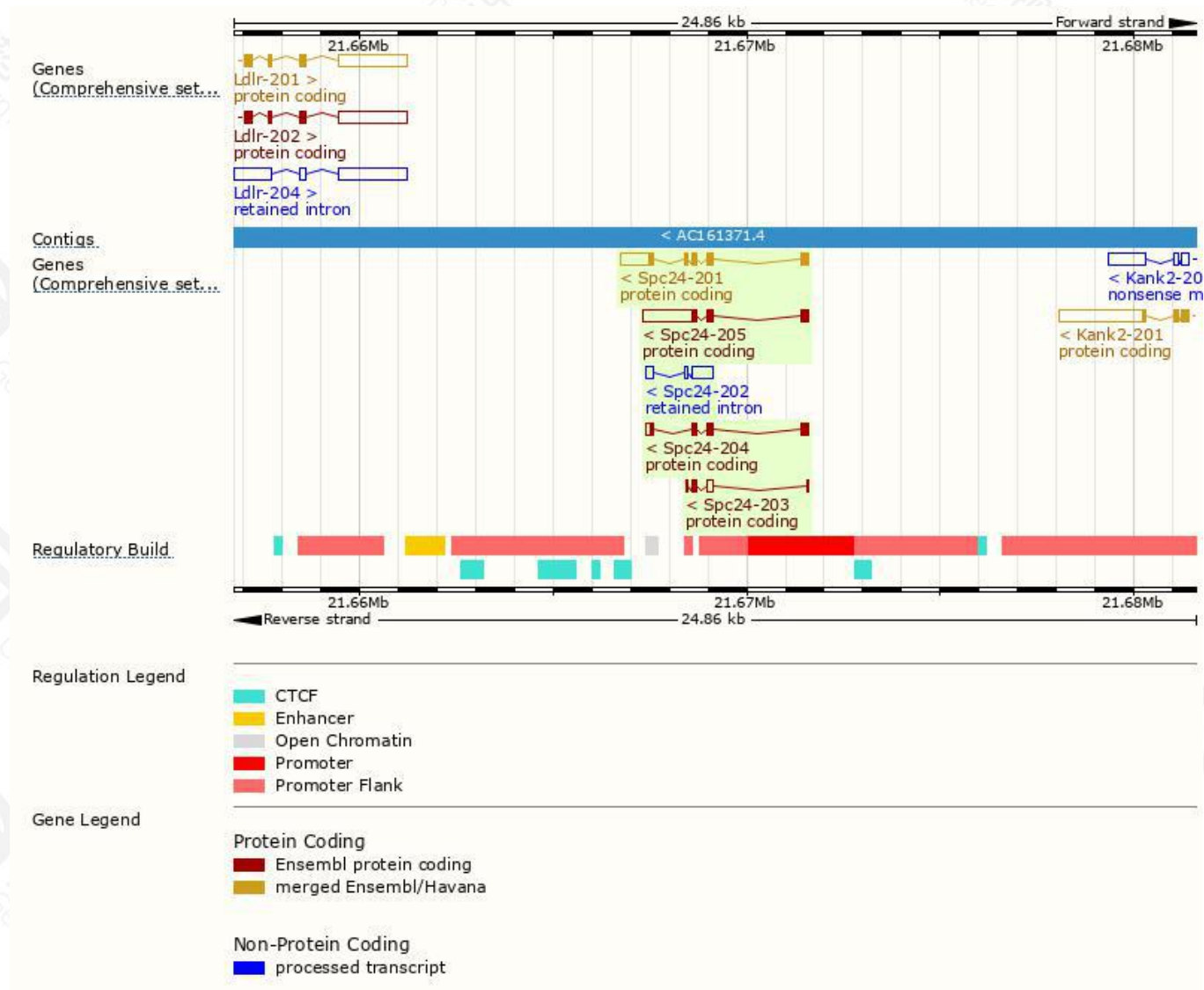
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Spc24-201	ENSMUST00000098942.6	1366	201aa	Protein coding	CCDS40554		TSL:1 , GENCODE basic , APPRIS P1 ,
Spc24-205	ENSMUST00000217382.2	1696	137aa	Protein coding	-		TSL:1 , GENCODE basic ,
Spc24-204	ENSMUST00000216057.2	627	160aa	Protein coding	-		TSL:1 , GENCODE basic ,
Spc24-203	ENSMUST00000214149.2	356	42aa	Protein coding	-		CDS 3' incomplete , TSL:3 ,
Spc24-202	ENSMUST00000213665.2	801	No protein	Retained intron	-		TSL:2 ,

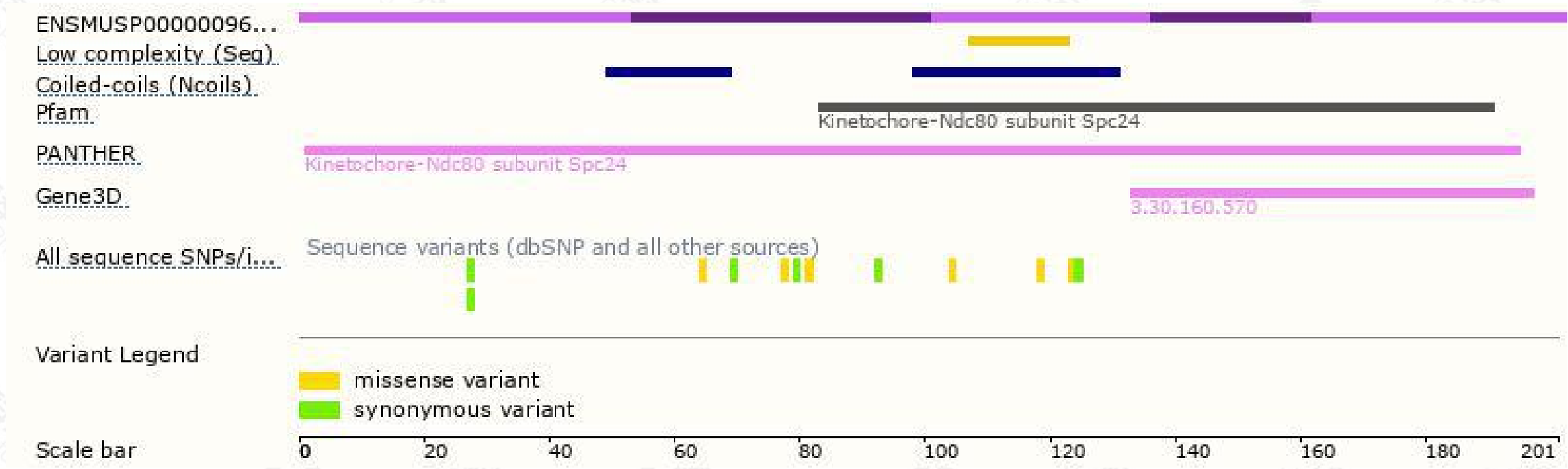
The strategy is based on the design of *Spc24-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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