

Spink13 Cas9-KO Strategy

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Project Overview

Project Name

Spink13

Project type

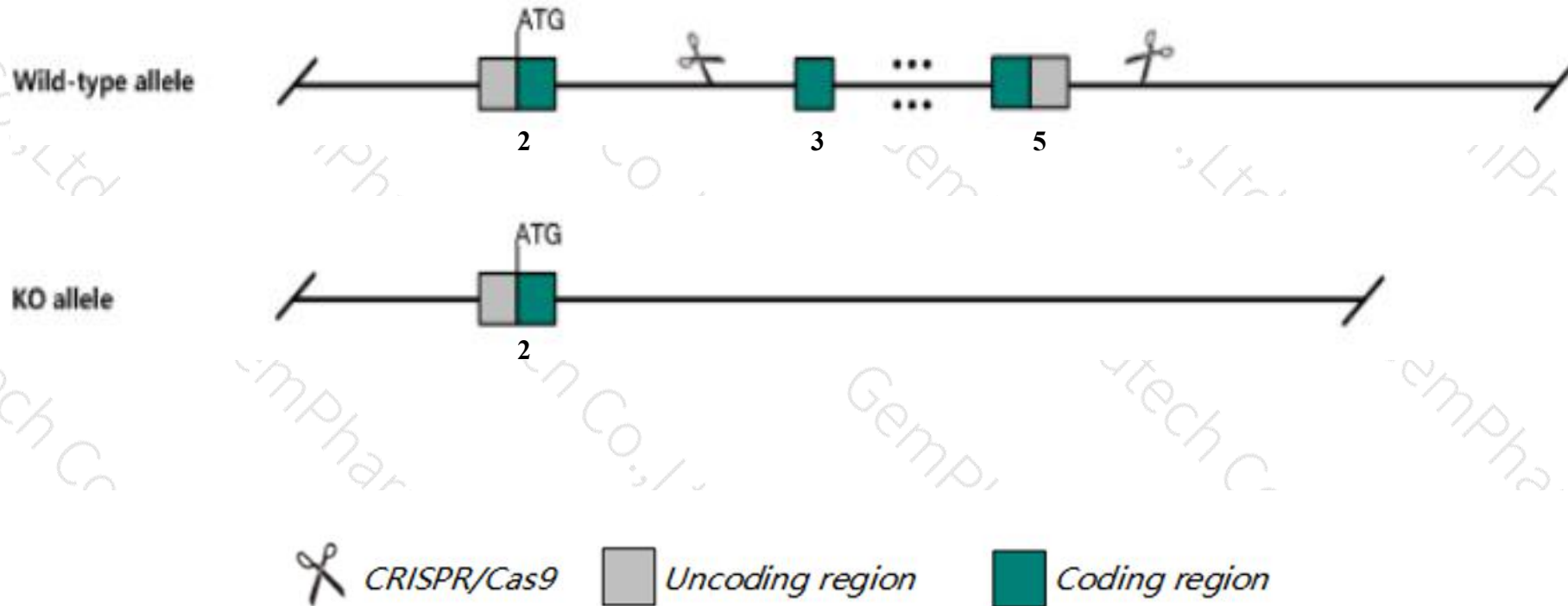
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Spink13* gene. The schematic diagram is as follows:



- The *Spink13* gene has 2 transcripts. According to the structure of *Spink13* gene, exon3-exon5 of *Spink13*-201(ENSMUST00000097557.4) transcript is recommended as the knockout region. The region contains most of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Spink13* 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.

- The KO region overlaps with *Spink10* gene. Knockout the region may affect the function of *Spink10* gene.
- The *Spink13* gene is located on the Chr18. 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)

Spink13 serine peptidase inhibitor, Kazal type 13 [*Mus musculus* (house mouse)]

Gene ID: 100038417, updated on 26-Sep-2020

Summary

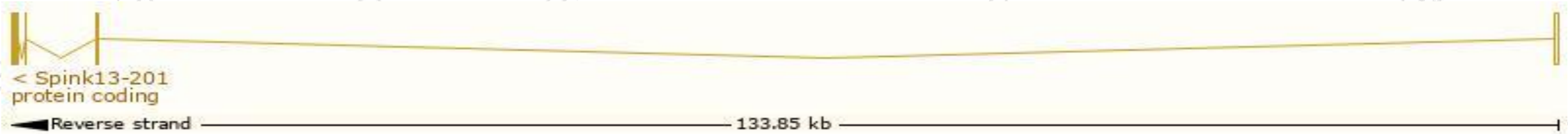
Official Symbol	Spink13 provided by MGI
Official Full Name	serine peptidase inhibitor, Kazal type 13 provided by MGI
Primary source	MGI:MGI:3642511
See related	Ensembl:ENSMUSG00000073551
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Gm10534; Spink5l3
Expression	Biased expression in genital fat pad adult (RPKM 1.5) and testis adult (RPKM 0.1) See more
Orthologs	human all

Transcript information (Ensembl)

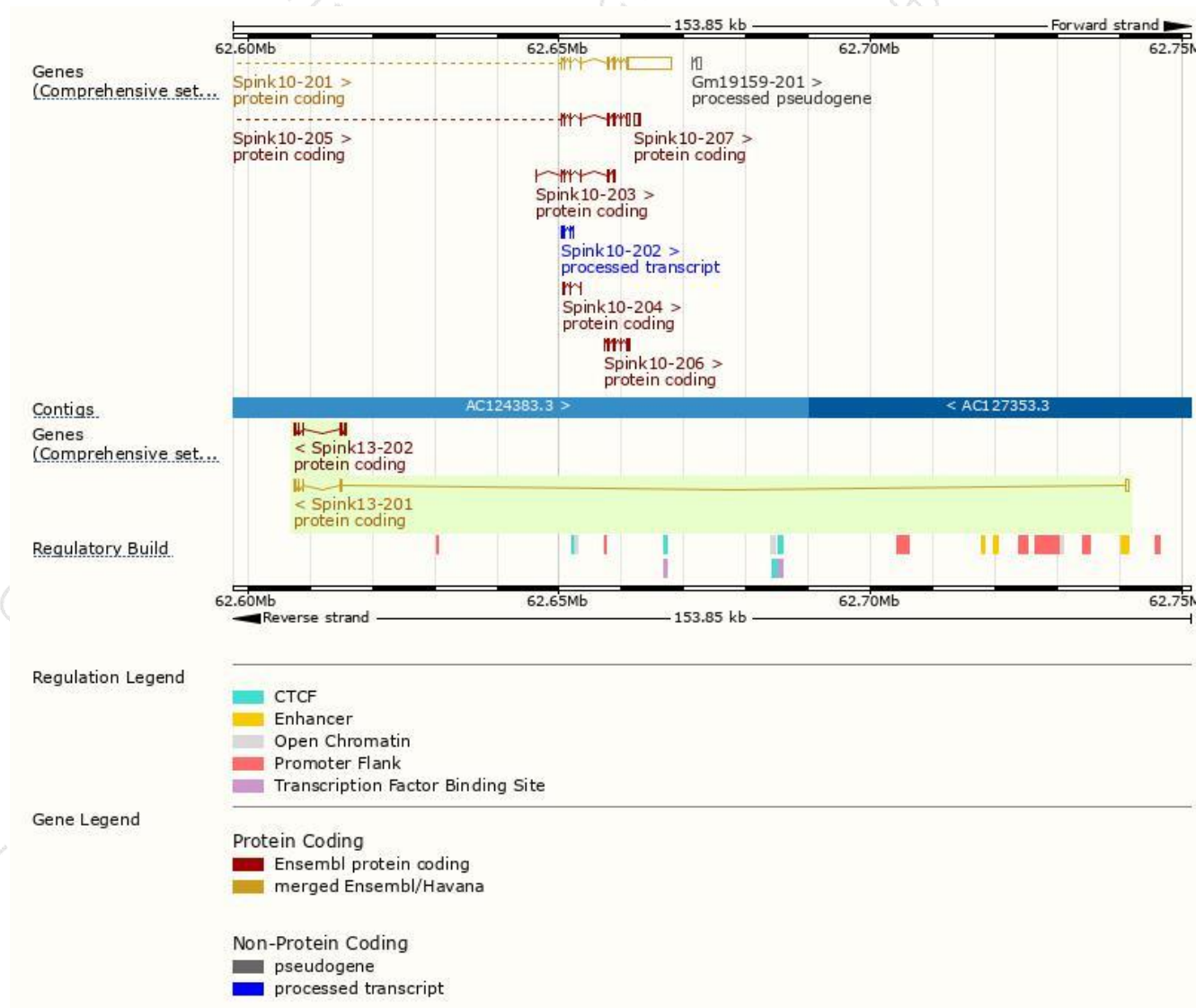
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Spink13-201	ENSMUST00000097557.4	796	97aa	Protein coding	CCDS50305	Q3UTS8	TSL:1 GENCODE basic APPRIS P1
Spink13-202	ENSMUST00000235190.1	721	97aa	Protein coding	CCDS50305	Q3UTS8	GENCODE basic APPRIS P1

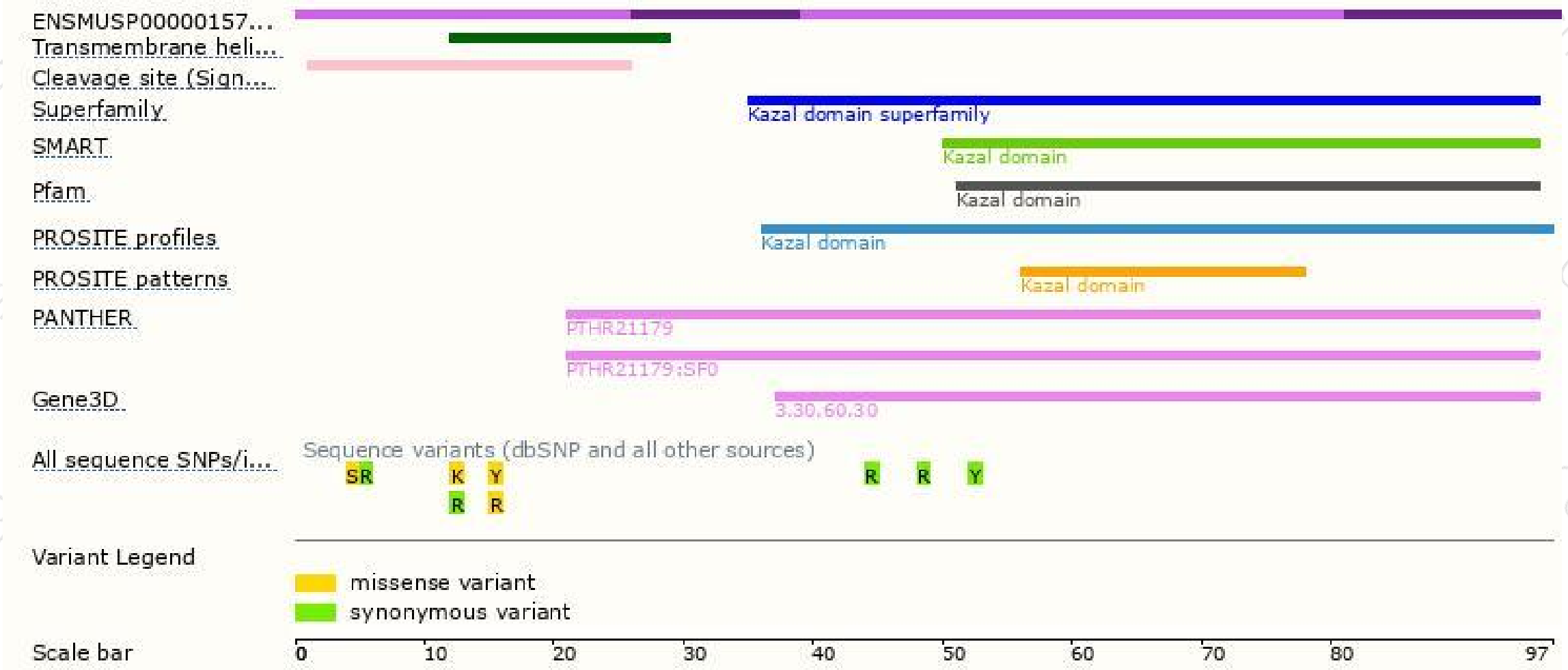
The strategy is based on the design of *Spink13-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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