

Sfmbt1 Cas9-KO Strategy

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Project Overview

Project Name

Sfmbt1

Project type

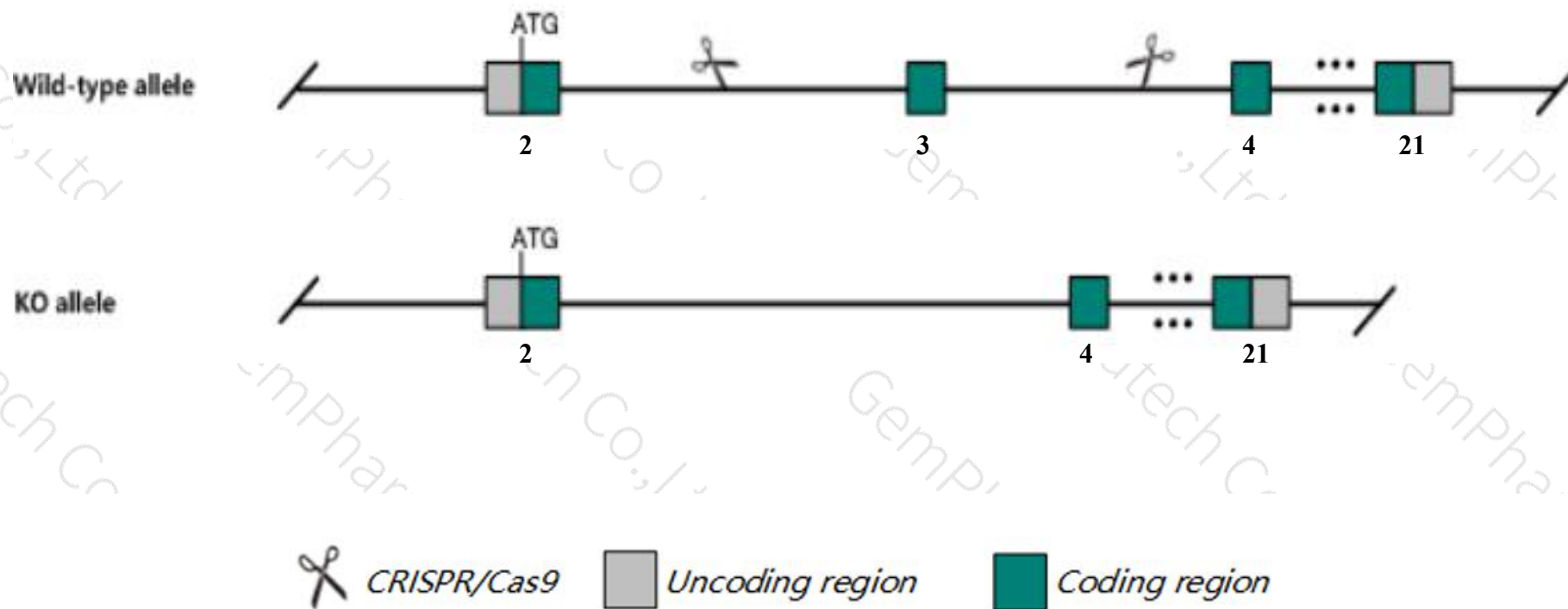
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Sfmbt1* gene. The schematic diagram is as follows:



- The *Sfmbt1* gene has 6 transcripts. According to the structure of *Sfmbt1* gene, exon3 of *Sfmbt1*-201(ENSMUST00000054230.11) transcript is recommended as the knockout region. The region contains 95bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Sfmbt1* 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 *Sfmbt1* gene is located on the Chr14. 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)

Sfmbt1 Scm-like with four mbt domains 1 [Mus musculus (house mouse)]

Gene ID: 54650, updated on 13-Mar-2020

Summary



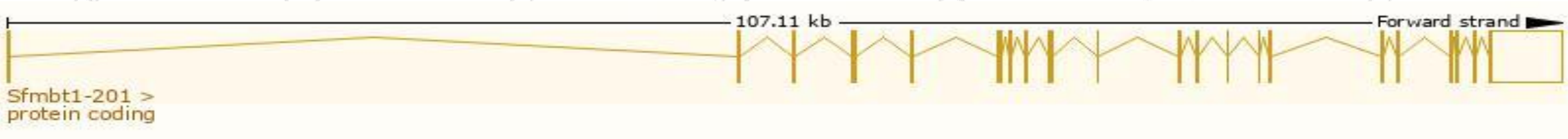
Official Symbol	Sfmbt1 provided by MGI
Official Full Name	Scm-like with four mbt domains 1 provided by MGI
Primary source	MGI:MGI:1859609
See related	Ensembl:ENSMUSG00000006527
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	4930442N21Rik, 9330180L21Rik, AA536974, Sfmbt, Smr
Expression	Broad expression in testis adult (RPKM 3.7), placenta adult (RPKM 2.4) and 24 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

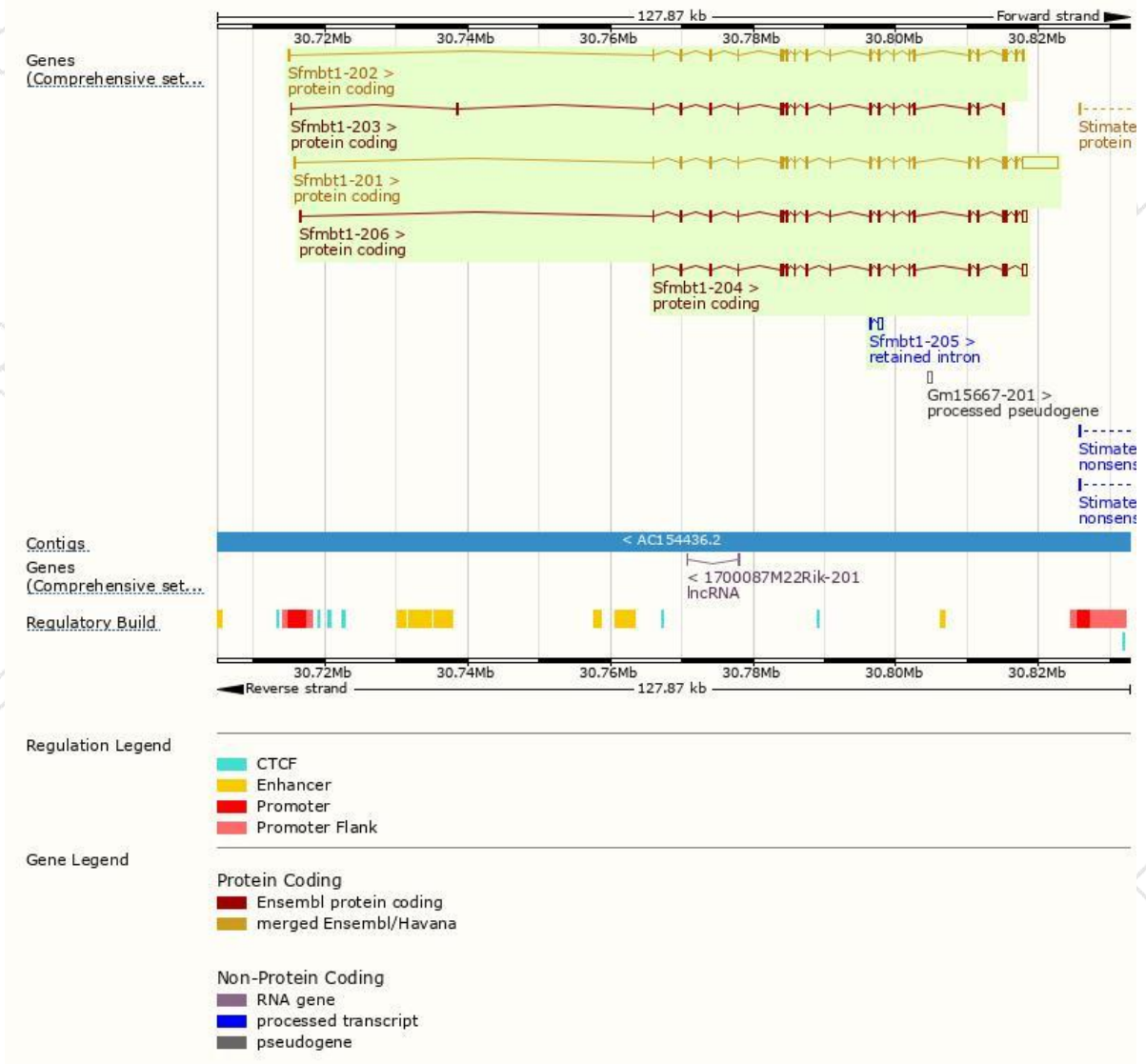
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Sfmbt1-201	ENSMUST00000054230.11	7837	863aa	Protein coding	CCDS26897	Q9JMD1	TSL:5 GENCODE basic APPRIS P1
Sfmbt1-206	ENSMUST00000228006.1	3299	863aa	Protein coding	CCDS26897	Q9JMD1	GENCODE basic APPRIS P1
Sfmbt1-202	ENSMUST00000112184.9	2936	863aa	Protein coding	CCDS26897	Q9JMD1	TSL:5 GENCODE basic APPRIS P1
Sfmbt1-204	ENSMUST00000227303.1	2960	820aa	Protein coding	-	A0A2I3BPX6	GENCODE basic
Sfmbt1-203	ENSMUST00000227201.1	2186	636aa	Protein coding	-	A0A2I3BRX3	CDS 3' incomplete
Sfmbt1-205	ENSMUST00000227445.1	633	No protein	Retained intron	-	-	

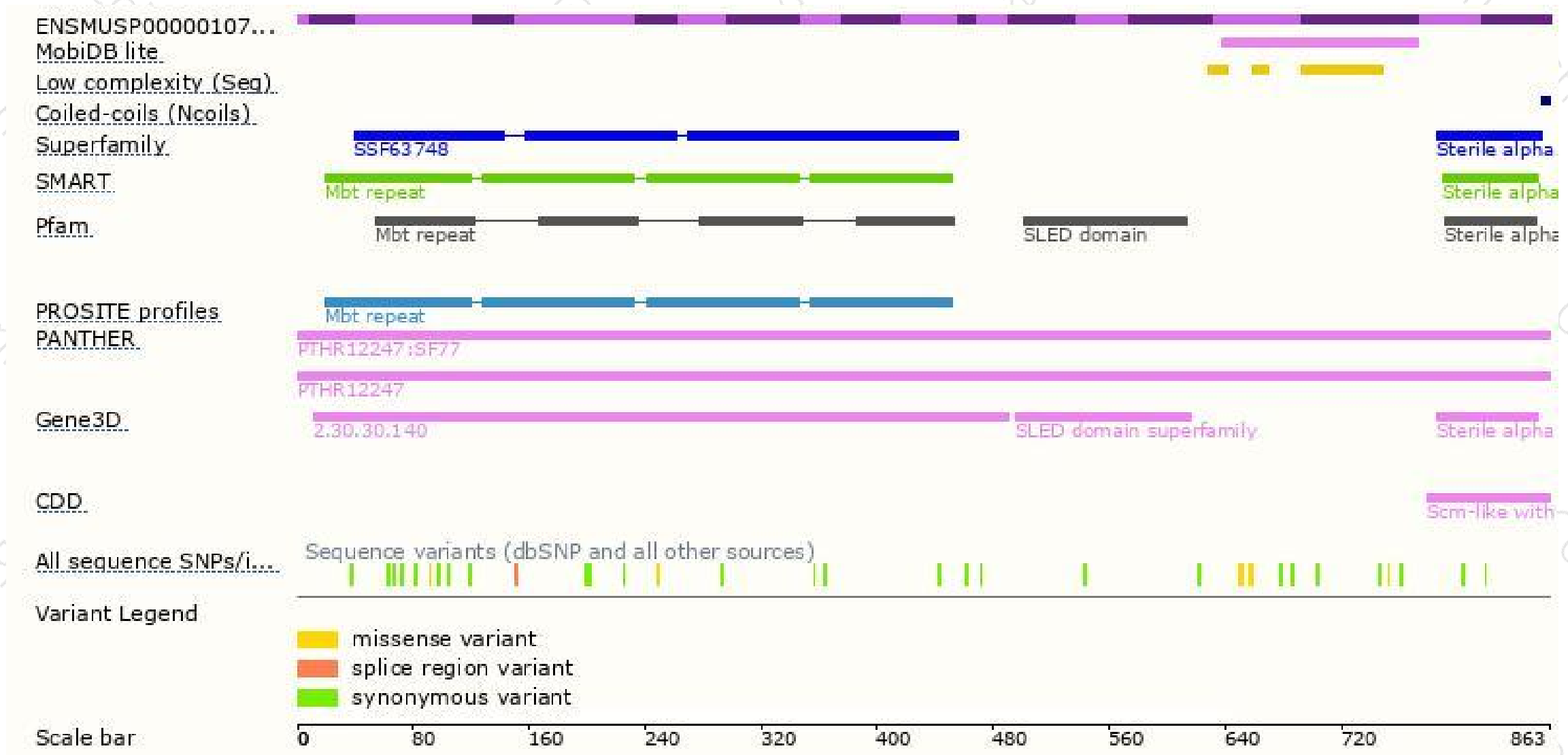
The strategy is based on the design of *Sfmbt1-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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