

***Msantd2* Cas9-CKO Strategy**

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Project Overview

Project Name

Msantd2

Project type

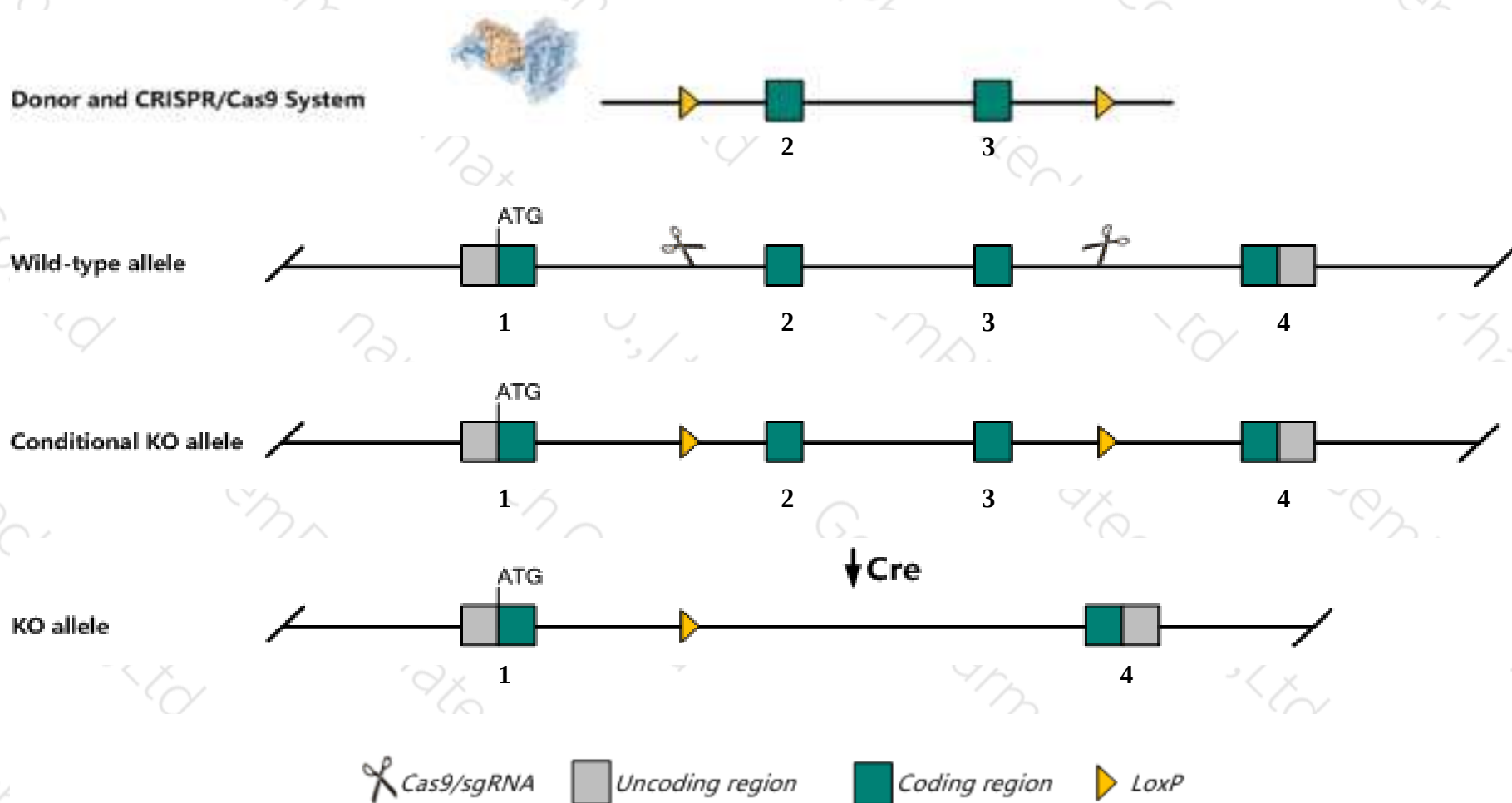
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Msantd2* gene. The schematic diagram is as follows:



- The *Msantd2* gene has 8 transcripts. According to the structure of *Msantd2* gene, exon2-exon3 of *Msantd2*-201(ENSMUST00000048604.7) transcript is recommended as the knockout region. The region contains 317bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Msantd2* 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 and cell types.

- The *Msantd2* 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)

Msantd2 Myb/SANT-like DNA-binding domain containing 2 [Mus musculus (house mouse)]

Gene ID: 235184, updated on 13-Mar-2020

Summary



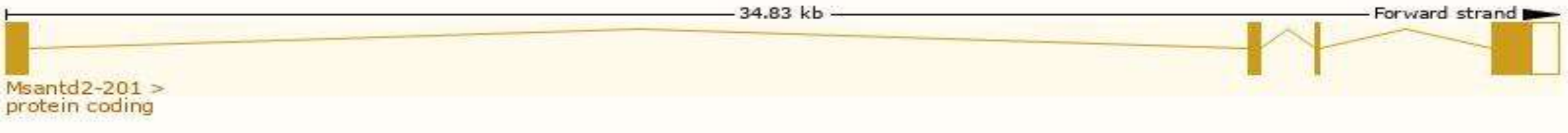
Official Symbol	Msantd2 provided by MGI
Official Full Name	Myb/SANT-like DNA-binding domain containing 2 provided by MGI
Primary source	MGI:MGI:2384579
See related	Ensembl:ENSMUSG00000042138
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2810450G17Rik, 9530092B10Rik
Expression	Ubiquitous expression in CNS E11.5 (RPKM 5.8), CNS E14 (RPKM 5.1) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

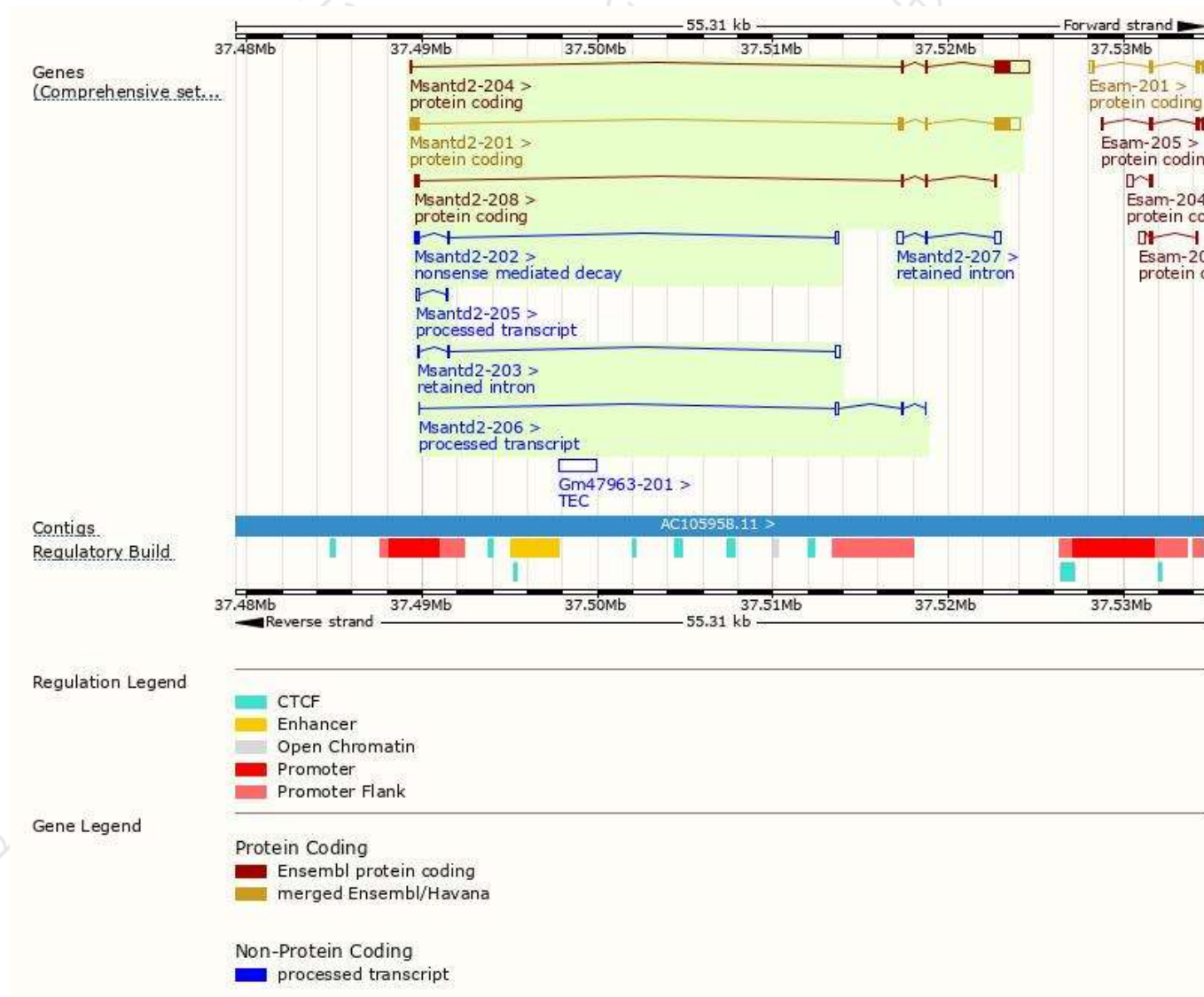
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Msantd2-201	ENSMUST00000048604.7	2291	559aa	Protein coding	CCDS22978	Q6NZR2	TSL:1 GENCODE basic APPRIS P1
Msantd2-204	ENSMUST00000211060.1	2165	358aa	Protein coding	-	A0A1B0GT46	TSL:3 GENCODE basic
Msantd2-208	ENSMUST00000214298.1	423	141aa	Protein coding	-	A0A1L1SQ33	CDS 5' and 3' incomplete TSL:2
Msantd2-202	ENSMUST00000209391.1	442	94aa	Nonsense mediated decay	-	A0A1B0GSY8	CDS 5' incomplete TSL:2
Msantd2-205	ENSMUST00000211224.1	243	No protein	Processed transcript	-	-	TSL:5
Msantd2-206	ENSMUST00000211792.1	231	No protein	Processed transcript	-	-	TSL:1
Msantd2-207	ENSMUST00000213411.1	742	No protein	Retained intron	-	-	TSL:1
Msantd2-203	ENSMUST00000209769.1	460	No protein	Retained intron	-	-	TSL:2

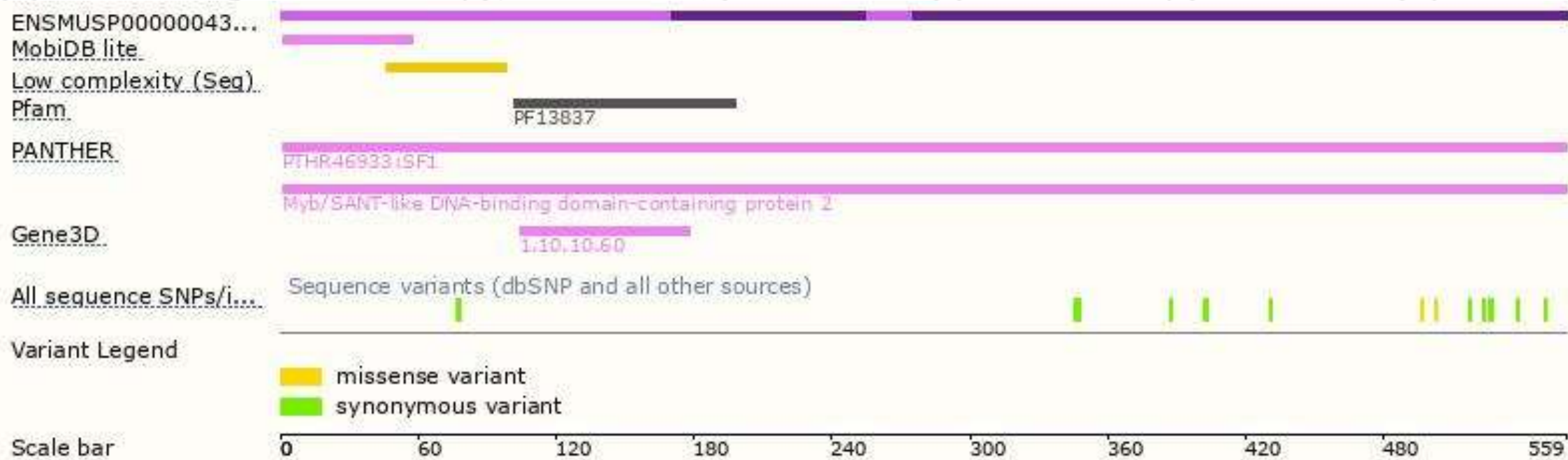
The strategy is based on the design of *Msantd2-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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