

***Sun2* Cas9-KO Strategy**

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Project Overview

Project Name

Sun2

Project type

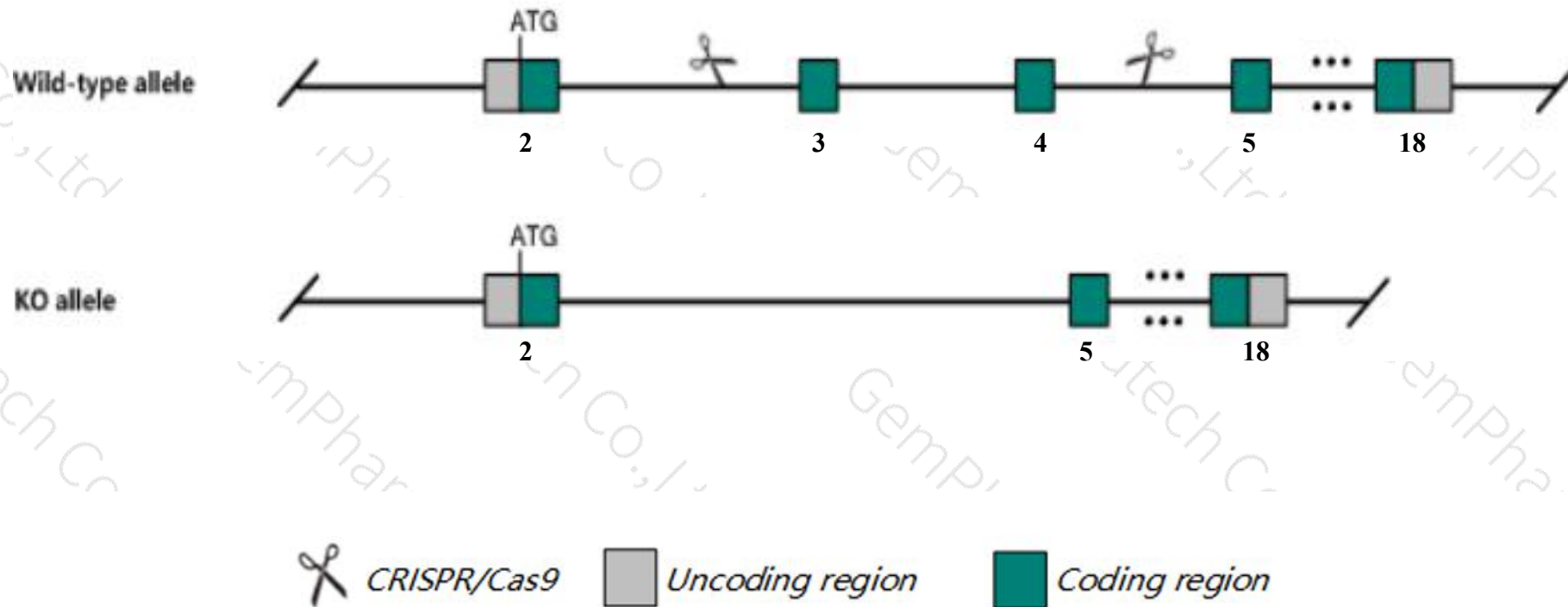
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Sun2* gene. The schematic diagram is as follows:



- The *Sun2* gene has 10 transcripts. According to the structure of *Sun2* gene, exon3-exon4 of *Sun2*-201(ENSMUST00000046259.13) transcript is recommended as the knockout region. The region contains 332bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Sun2* 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.

- According to the existing MGI data, mice homozygous for a null allele exhibit no gross abnormalities.
- The *Sun2* gene is located on the Chr15. 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.
- Transcripts *Sun2-206/209* may not be affected.

Gene information (NCBI)

Sun2 Sad1 and UNC84 domain containing 2 [Mus musculus (house mouse)]

Gene ID: 223697, updated on 13-Mar-2020

Summary



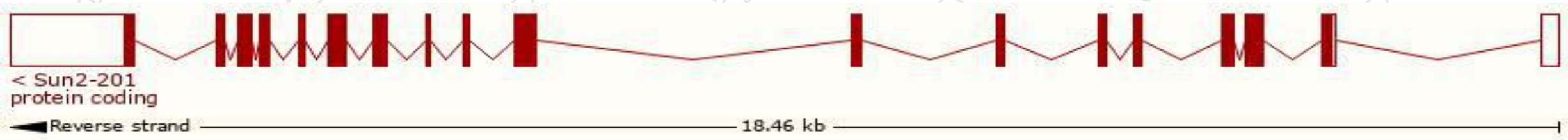
Official Symbol	Sun2 provided by MGI
Official Full Name	Sad1 and UNC84 domain containing 2 provided by MGI
Primary source	MGI:MGI:2443011
See related	Ensembl:ENSMUSG00000042524
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	B230369L08Rik, C030011B15, Unc84b
Expression	Ubiquitous expression in thymus adult (RPKM 77.8), spleen adult (RPKM 46.2) and 26 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

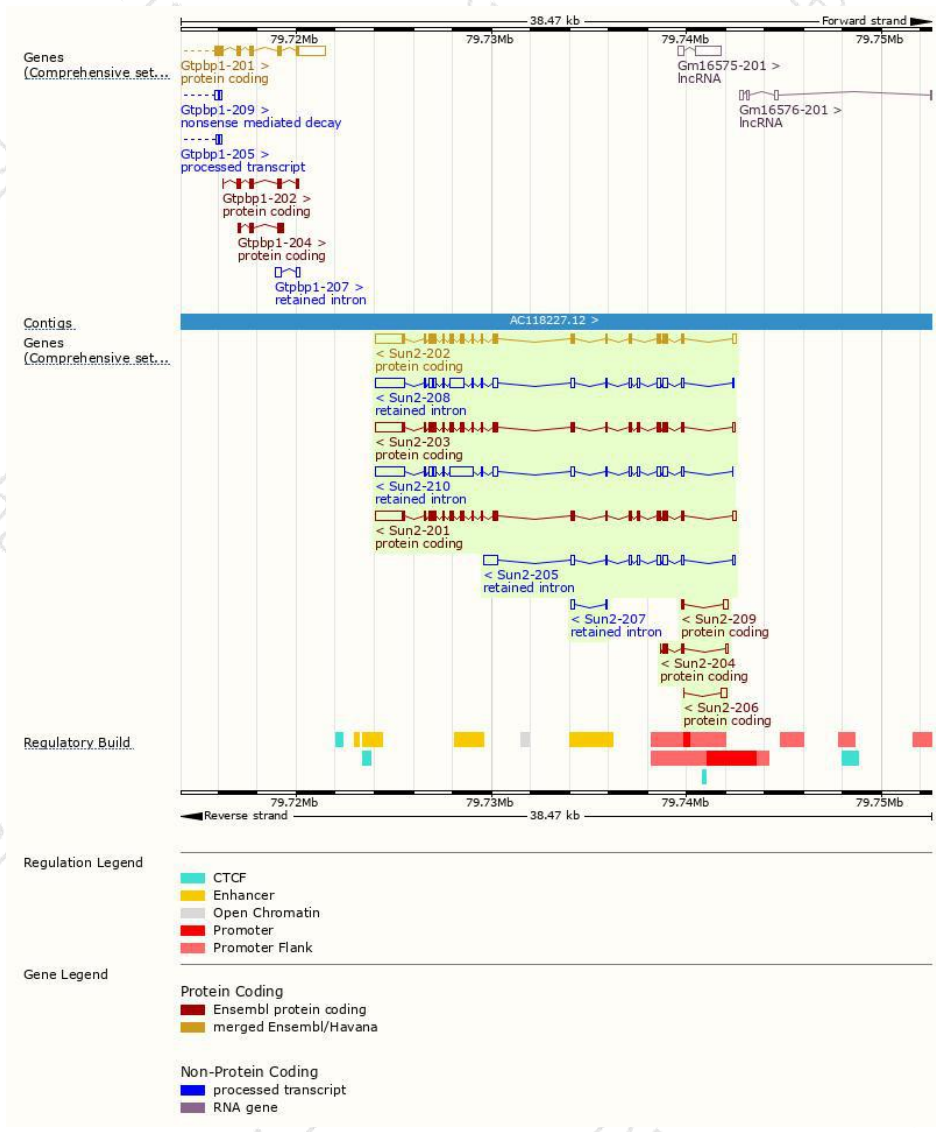
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Sun2-201	ENSMUST00000046259.13	3804	731aa	Protein coding	CCDS56993	Q8BJS4	TSL:1 GENCODE basic APPRIS ALT2
Sun2-203	ENSMUST00000100439.9	3768	729aa	Protein coding	CCDS56992	Q8BJS4	TSL:1 GENCODE basic APPRIS ALT2
Sun2-202	ENSMUST00000089311.10	3709	699aa	Protein coding	CCDS27649	Q8BJS4	TSL:1 GENCODE basic APPRIS P3
Sun2-204	ENSMUST00000159660.1	476	109aa	Protein coding	-	E0CY39	CDS 3' incomplete TSL:5
Sun2-209	ENSMUST00000162499.1	355	38aa	Protein coding	-	E0CY32	CDS 3' incomplete TSL:2
Sun2-206	ENSMUST00000160355.2	348	2aa	Protein coding	-	E0CY44	CDS 3' incomplete TSL:3
Sun2-210	ENSMUST00000231189.1	4413	No protein	Retained intron	-	-	
Sun2-208	ENSMUST00000162392.7	4052	No protein	Retained intron	-	-	TSL:2
Sun2-205	ENSMUST00000159762.7	1783	No protein	Retained intron	-	-	TSL:5
Sun2-207	ENSMUST00000162064.1	234	No protein	Retained intron	-	-	TSL:3

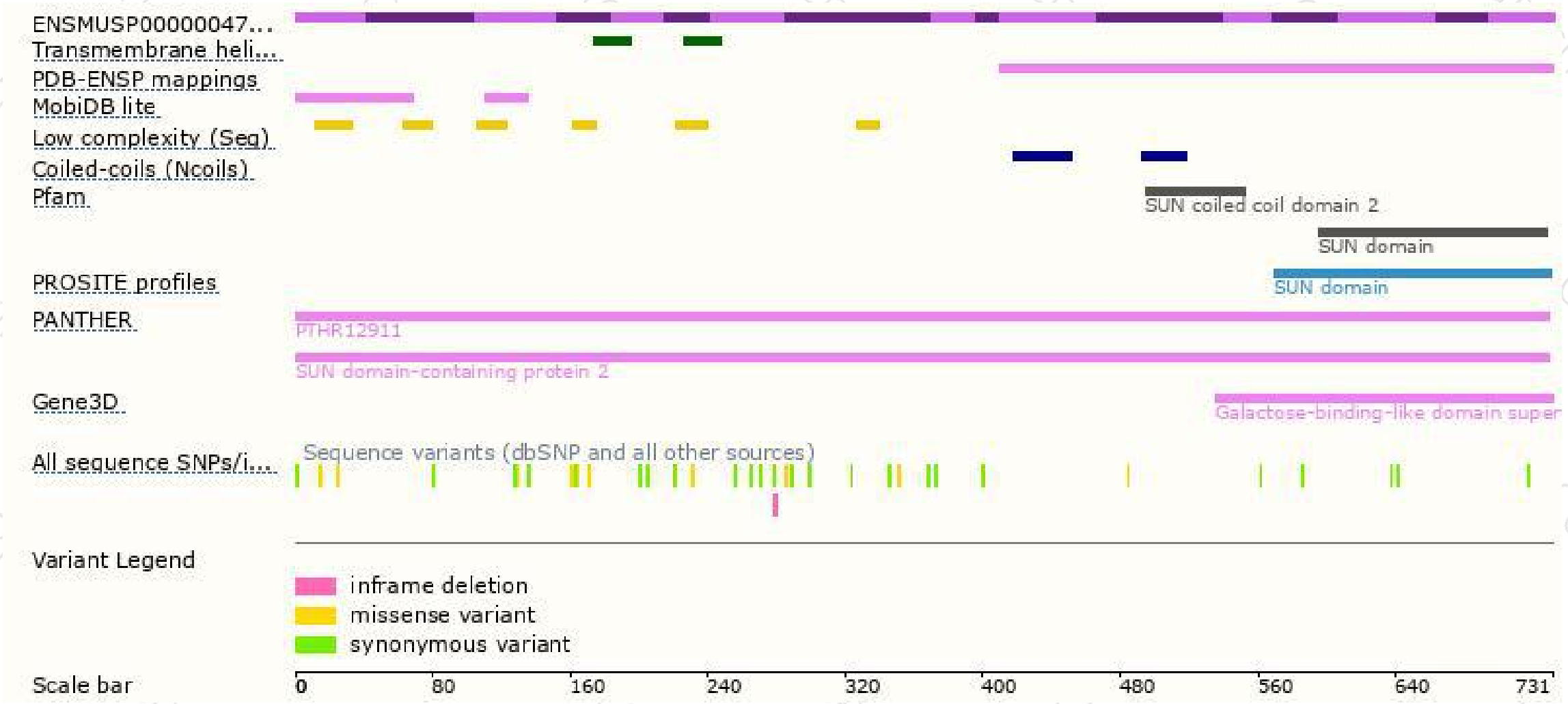
The strategy is based on the design of *Sun2-201* transcript,the transcription is shown below:



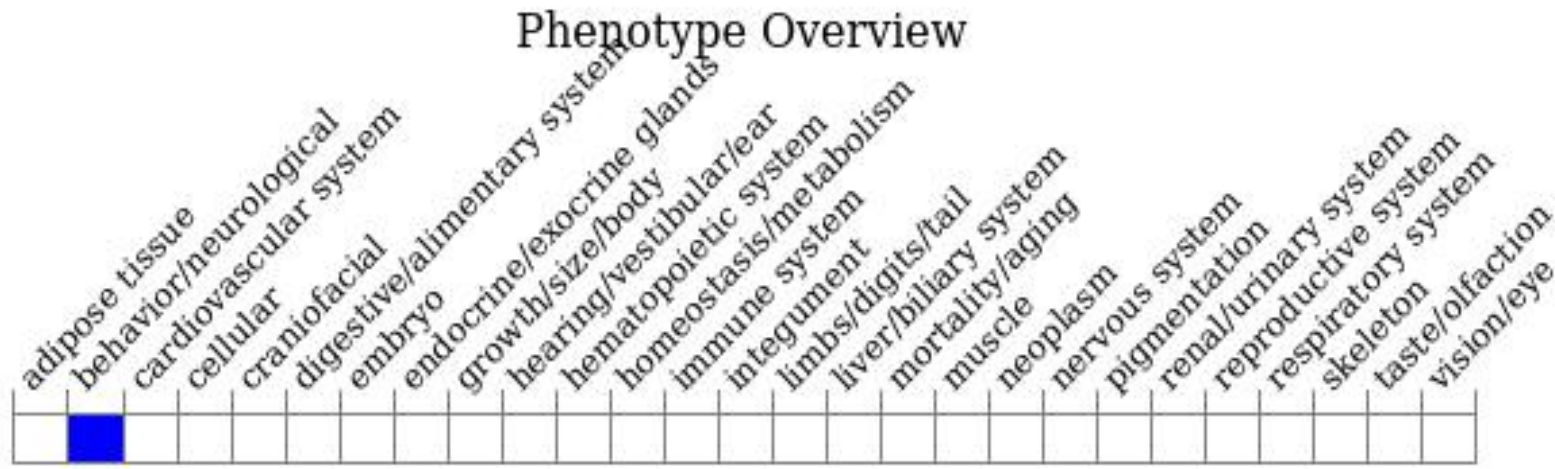
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue.Data quoted from MGI database(<http://www.informatics.jax.org/>).

According to the existing MGI data,mice homozygous for a null allele exhibit no gross abnormalities.

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

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