

Sf3b1 Cas9-CKO Strategy

Designer: JiaYu

Project Overview

Project Name

Sf3b1

Project type

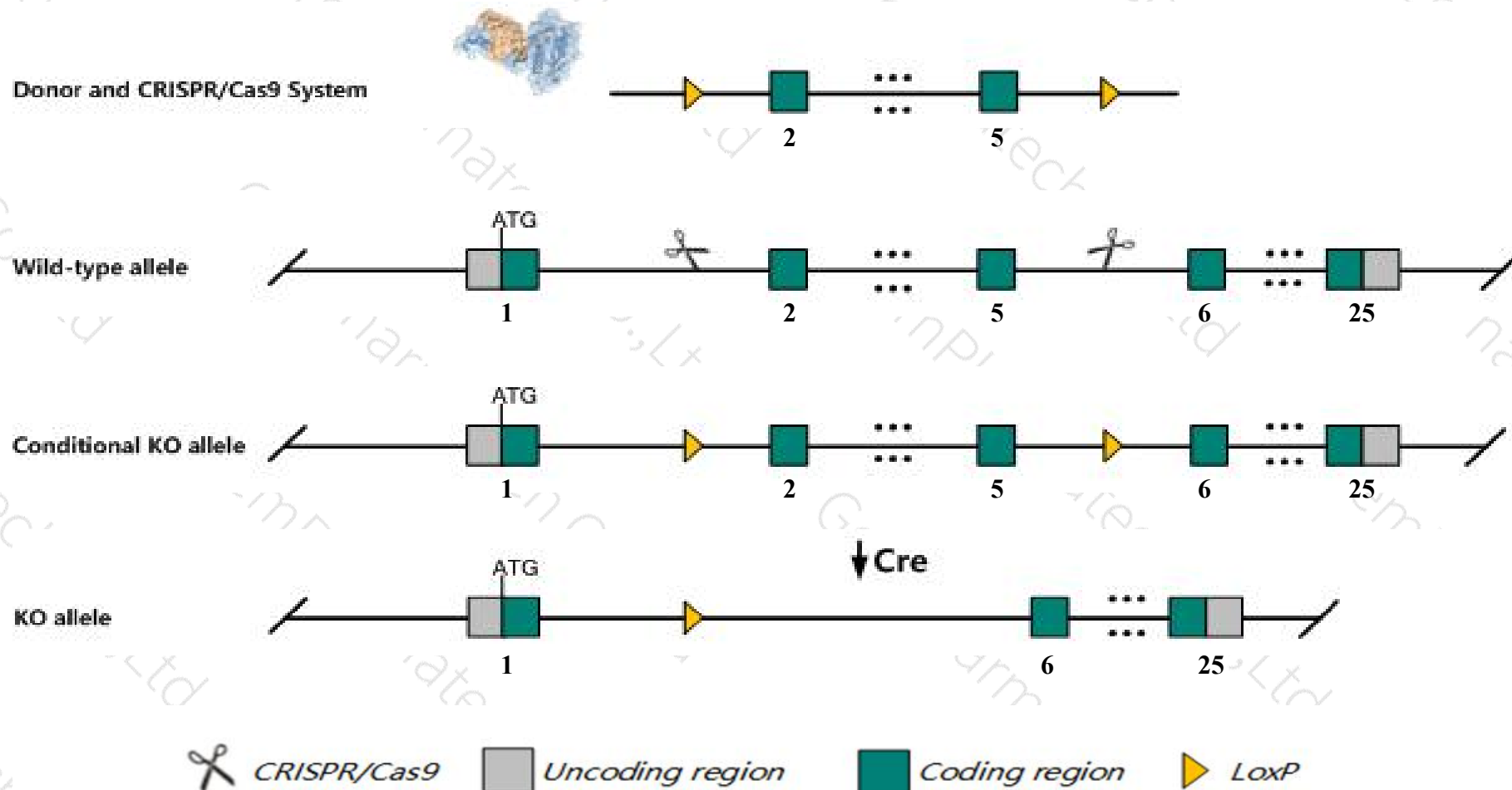
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Sf3b1* gene. The schematic diagram is as follows:



Technical routes

- The *Sf3b1* gene has 8 transcripts. According to the structure of *Sf3b1* gene, exon2-exon5 of *Sf3b1-201* (ENSMUST00000027127.13) transcript is recommended as the knockout region. The region contains 467bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Sf3b1* 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.

- According to the existing MGI data, Homozygous null embryos die around the 16- to 32-cell stage. Heterozygous mice exhibit various skeletal transformations.
- The *Sf3b1* gene is located on the Chr1. 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)

Sf3b1 splicing factor 3b, subunit 1 [Mus musculus (house mouse)]

Gene ID: 81898, updated on 26-Feb-2019

Summary



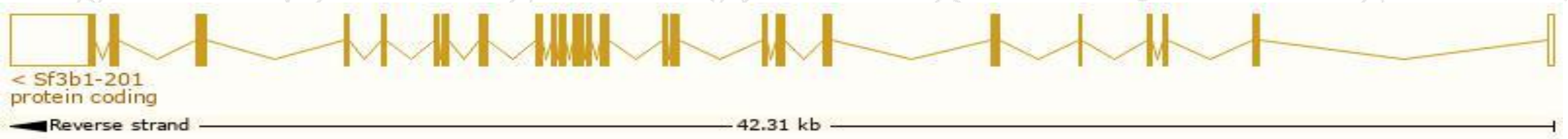
Official Symbol	Sf3b1 provided by MGI
Official Full Name	splicing factor 3b, subunit 1 provided by MGI
Primary source	MGI:MGI:1932339
See related	Ensembl:ENSMUSG00000025982
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	155kDa, 2810001M05Rik, AA409119, Prp10, SAP155, SF3b155, TA-8, Targ4
Expression	Ubiquitous expression in CNS E14 (RPKM 50.4), CNS E11.5 (RPKM 49.8) and 25 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

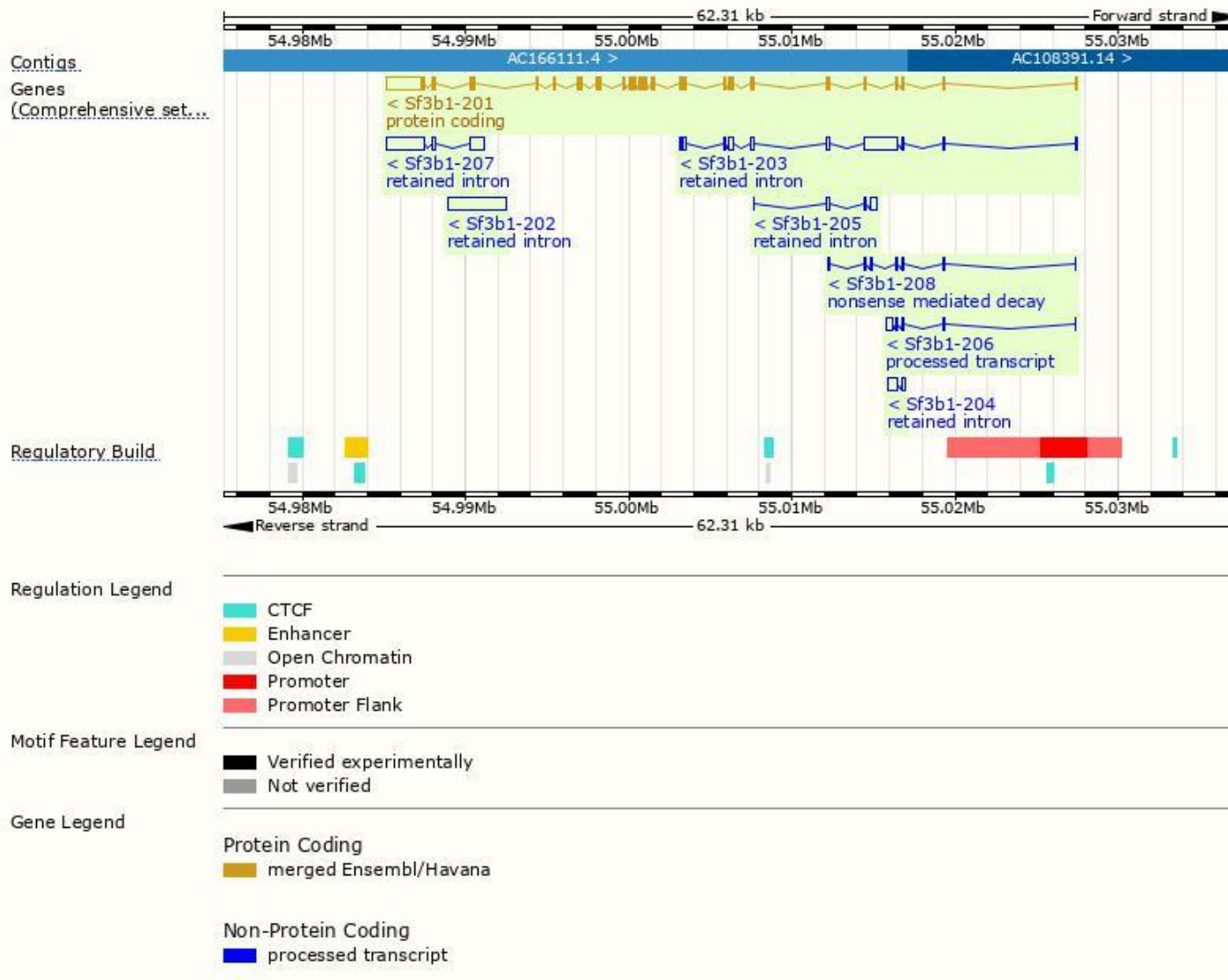
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Sf3b1-201	ENSMUST00000027127.13	6195	1304aa	Protein coding	CCDS35567	G5E866	TSL:1 GENCODE basic APPRIS P1
Sf3b1-208	ENSMUST00000191303.1	600	144aa	Nonsense mediated decay	-	A0A087WNS2	TSL:5
Sf3b1-206	ENSMUST00000189051.1	804	No protein	Processed transcript	-	-	TSL:3
Sf3b1-202	ENSMUST00000185429.1	3589	No protein	Retained intron	-	-	TSL:NA
Sf3b1-203	ENSMUST00000187500.6	3403	No protein	Retained intron	-	-	TSL:2
Sf3b1-207	ENSMUST00000190175.1	3350	No protein	Retained intron	-	-	TSL:2
Sf3b1-204	ENSMUST00000188419.1	711	No protein	Retained intron	-	-	TSL:2
Sf3b1-205	ENSMUST00000188859.6	628	No protein	Retained intron	-	-	TSL:2

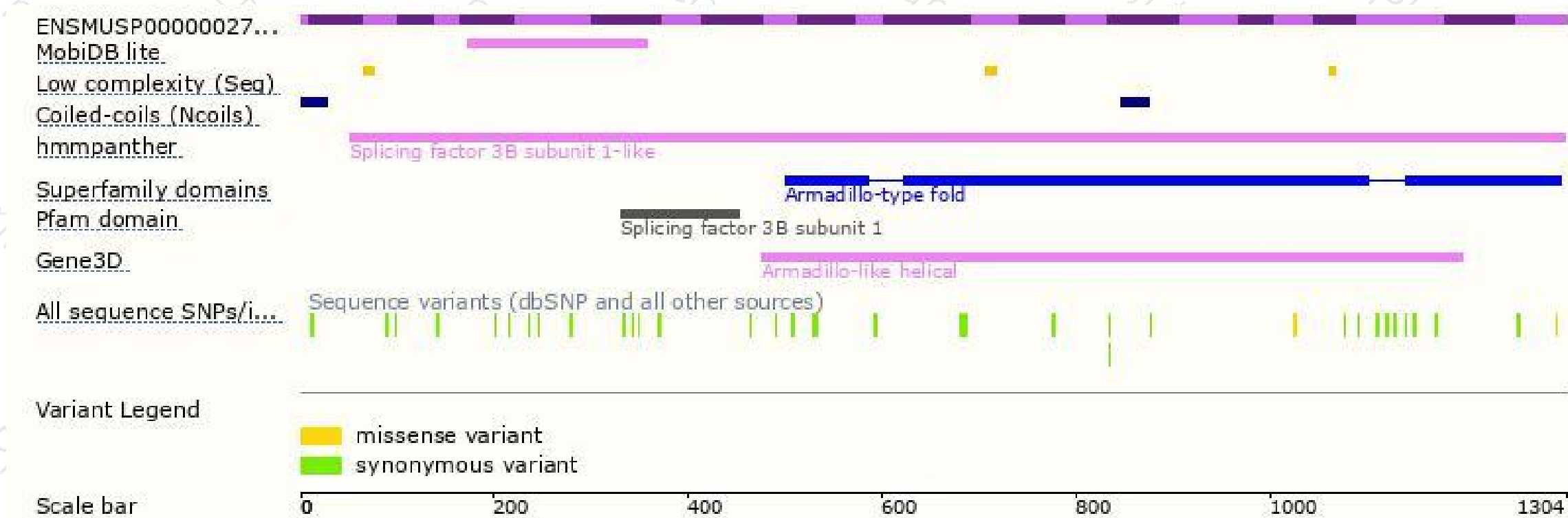
The strategy is based on the design of *Sf3b1-201* transcript,The transcription is shown below



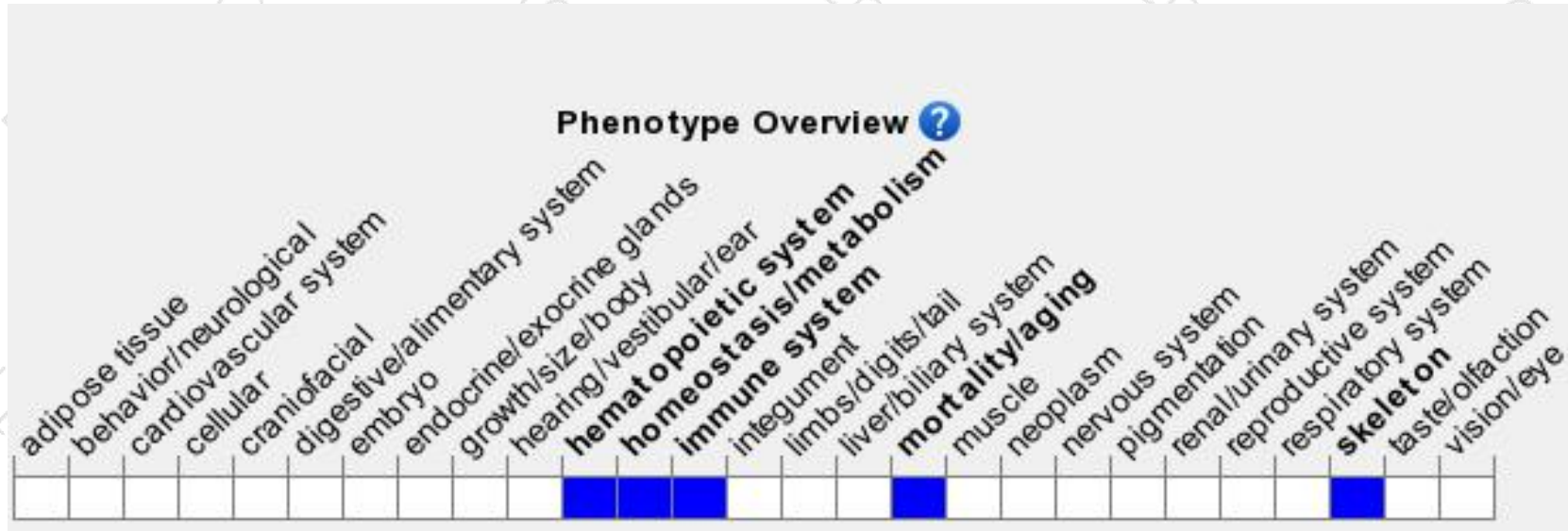
Genomic location distribution



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, Homozygous null embryos die around the 16- to 32-cell stage. Heterozygous mice exhibit various skeletal transformations.

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

Tel: 400-9660890

