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Sf3b2 Cas9-KO Strategy

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Reviewer: Yanhua Shen

Design Date: 2022/11/7

Overview

Target Gene Name

- Sf3b2

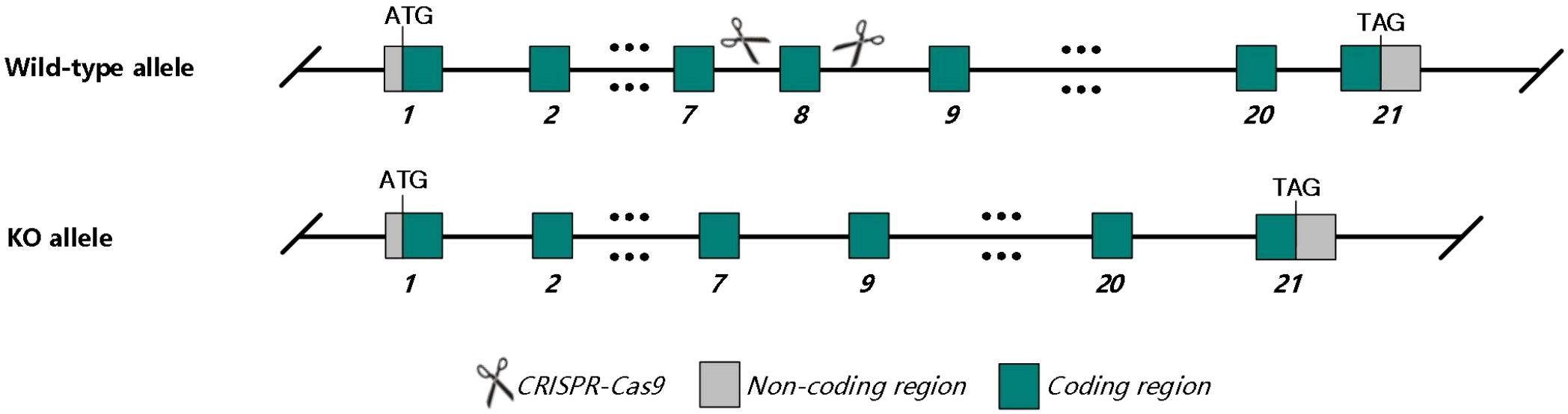
Project Type

- Cas9-KO

Genetic Background

- C57BL/6JGpt

Strain Strategy

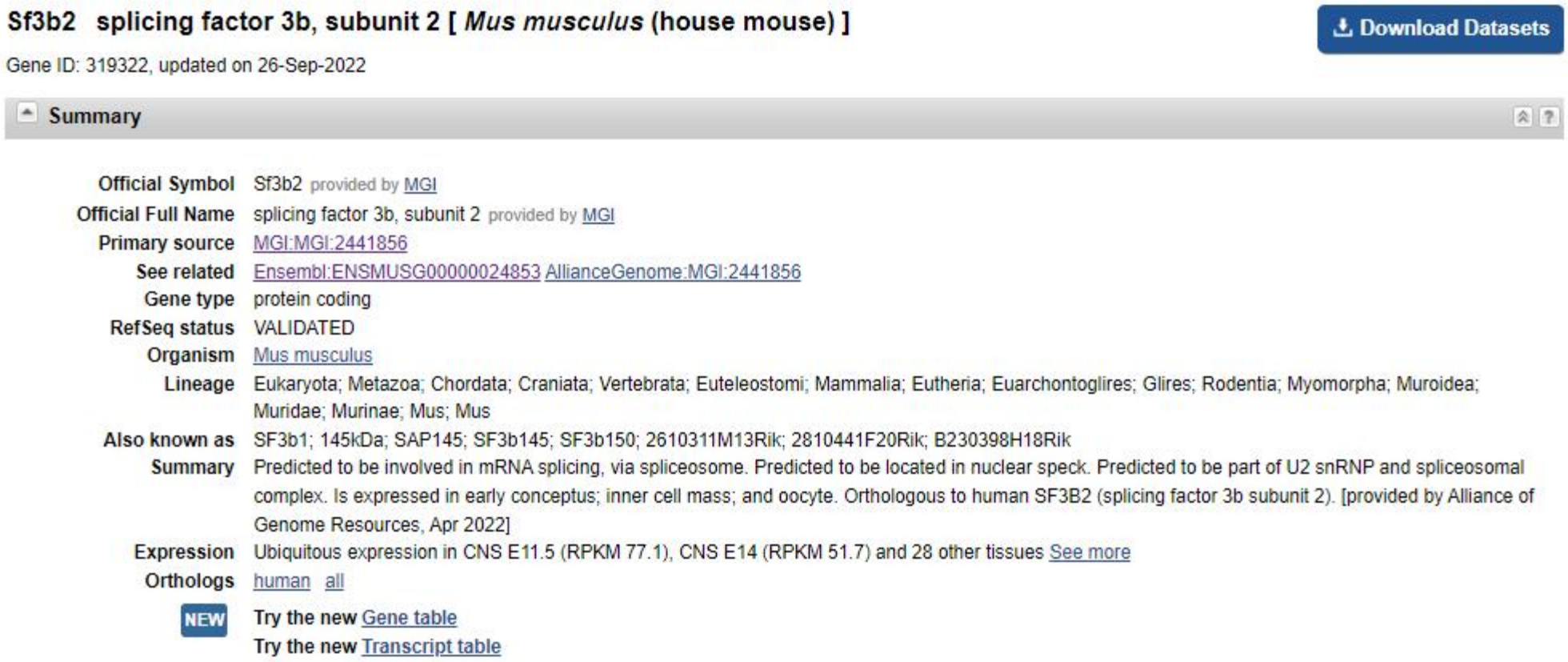


Schematic representation of CRISPR-Cas9 engineering used to edit the *Sf3b2* gene.

Technical Information

- The *Sf3b2* gene has 8 transcripts. According to the structure of *Sf3b2* gene, exon 8 of *Sf3b2*-201 (ENSMUST00000025774.11) transcript is recommended as the knockout region. The region contains 92 bp of coding sequences. Knocking out the region will result in disruption of protein function.
- In this project we use CRISPR-Cas9 technology to modify *Sf3b2* gene. The brief process is as follows: gRNAs were transcribed in vitro. Cas9 and gRNAs 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 on-target amplicon sequencing. A stable F1-generation mouse strain was obtained by mating positive F0-generation mice with C57BL/6JGpt mice and confirmation of the desired mutant allele was carried out by PCR and on-target amplicon sequencing.

Gene Information



Sf3b2 splicing factor 3b, subunit 2 [*Mus musculus* (house mouse)]

Download Datasets

Gene ID: 319322, updated on 26-Sep-2022

Summary

Official Symbol	Sf3b2 provided by MGI
Official Full Name	splicing factor 3b, subunit 2 provided by MGI
Primary source	MGI:MGI:2441856
See related	Ensembl:ENSMUSG00000024853 AllianceGenome:MGI:2441856
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	SF3b1; 145kDa; SAP145; SF3b145; SF3b150; 2610311M13Rik; 2810441F20Rik; B230398H18Rik
Summary	Predicted to be involved in mRNA splicing, via spliceosome. Predicted to be located in nuclear speck. Predicted to be part of U2 snRNP and spliceosomal complex. Is expressed in early conceptus; inner cell mass; and oocyte. Orthologous to human SF3B2 (splicing factor 3b subunit 2). [provided by Alliance of Genome Resources, Apr 2022]
Expression	Ubiquitous expression in CNS E11.5 (RPKM 77.1), CNS E14 (RPKM 51.7) and 28 other tissues See more
Orthologs	human all

NEW Try the new Gene table

Try the new Transcript table

Source: https://https://www.ncbi.nlm.nih.gov/gene/319322

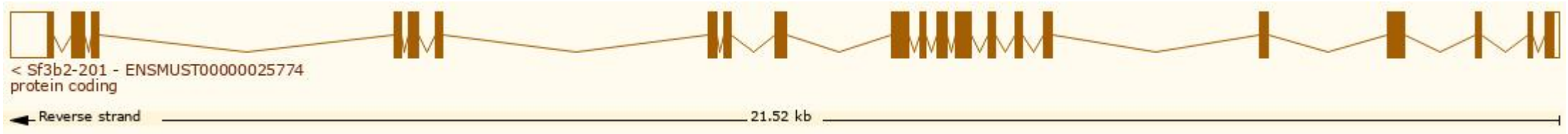
Transcript Information

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

Show/hide columns (1 hidden) Filter

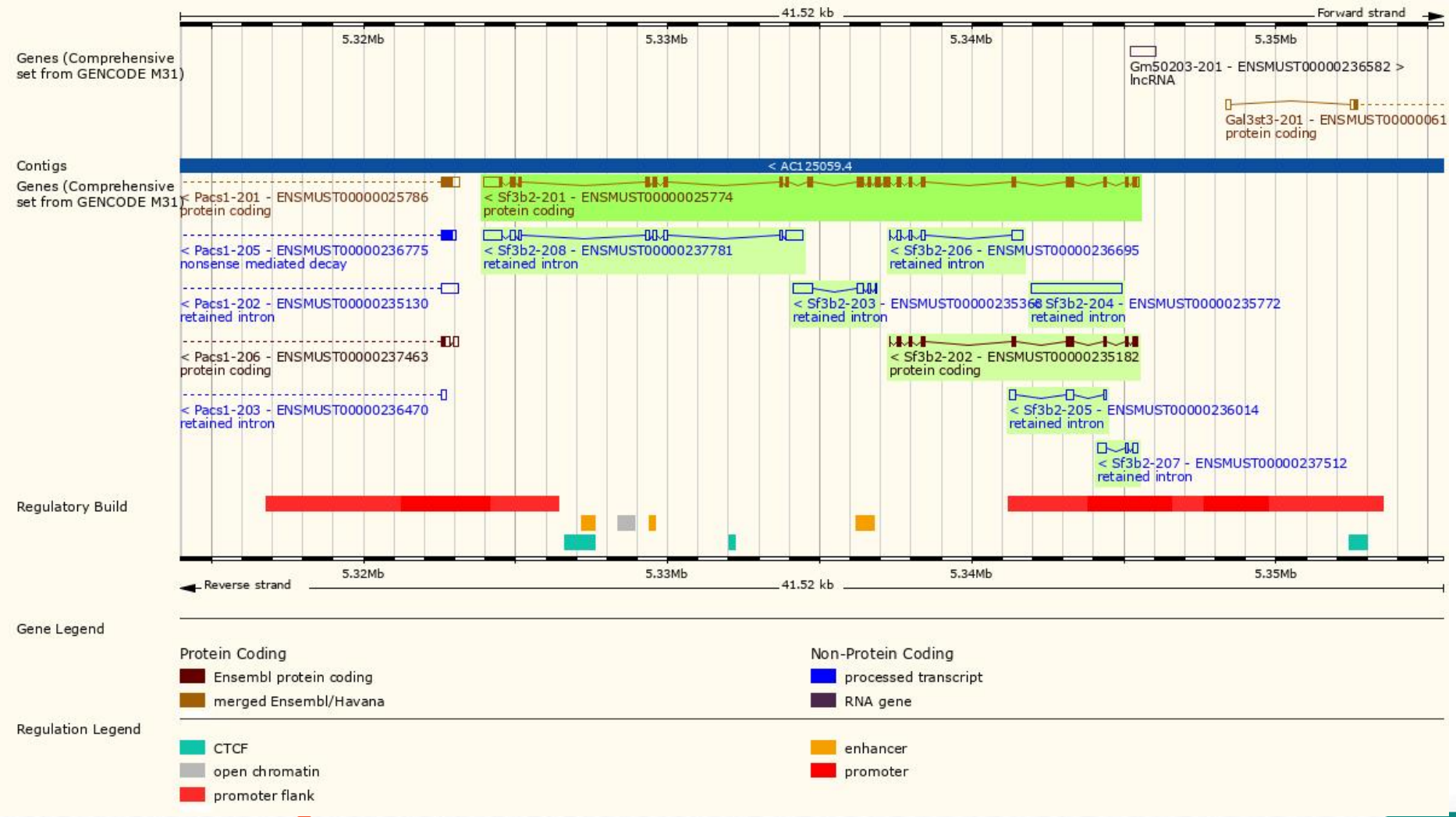
Transcript ID	Name	bp	Protein	Biotype	CCDS	UniProt Match	Flags
ENSMUST00000025774.11	Sf3b2-201	3222	878aa	Protein coding	CCDS29454	Q3UJB0	Ensembl Canonical, GENCODE basic, APPRIS P1, TSL:1
ENSMUST00000235182.2	Sf3b2-202	933	308aa	Protein coding		A0A494B9S9	CDS 3' incomplete
ENSMUST00000235772.2	Sf3b2-204	2950	No protein	Retained intron		-	-
ENSMUST00000237781.2	Sf3b2-208	1894	No protein	Retained intron		-	-
ENSMUST00000235368.2	Sf3b2-203	963	No protein	Retained intron		-	-
ENSMUST00000236695.2	Sf3b2-206	673	No protein	Retained intron		-	-
ENSMUST00000236014.2	Sf3b2-205	539	No protein	Retained intron		-	-
ENSMUST00000237512.2	Sf3b2-207	455	No protein	Retained intron		-	-

The strategy is based on the design of *Sf3b2*-201 transcript, the transcription is shown below:



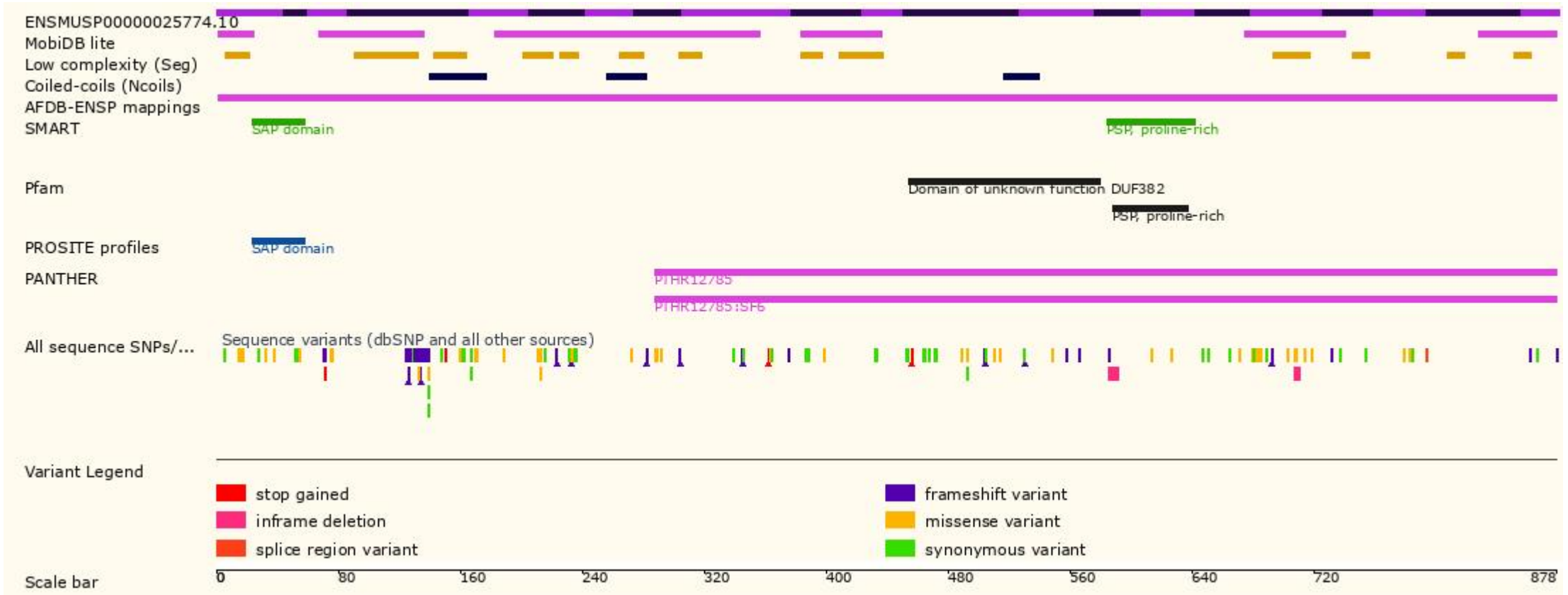
Source: https://www.ensembl.org

Genomic Information



Source: : https://www.ensembl.org

Protein Information



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Source: : https://www.ensembl.org

Important Information

- *Sf3b2* is located on Chr19. If the knockout mice are crossed with other mouse strains to obtain double homozygous mutant offspring, please avoid the situation that the second gene is on the same chromosome.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risks of the mutation on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.