

Snrnp70 Cas9-KO Strategy

Designer: Xueting Zhang

Reviewer: Yanhua Shen

Date: 2019-10-17

Project Overview

Project Name

Snrnp70

Project type

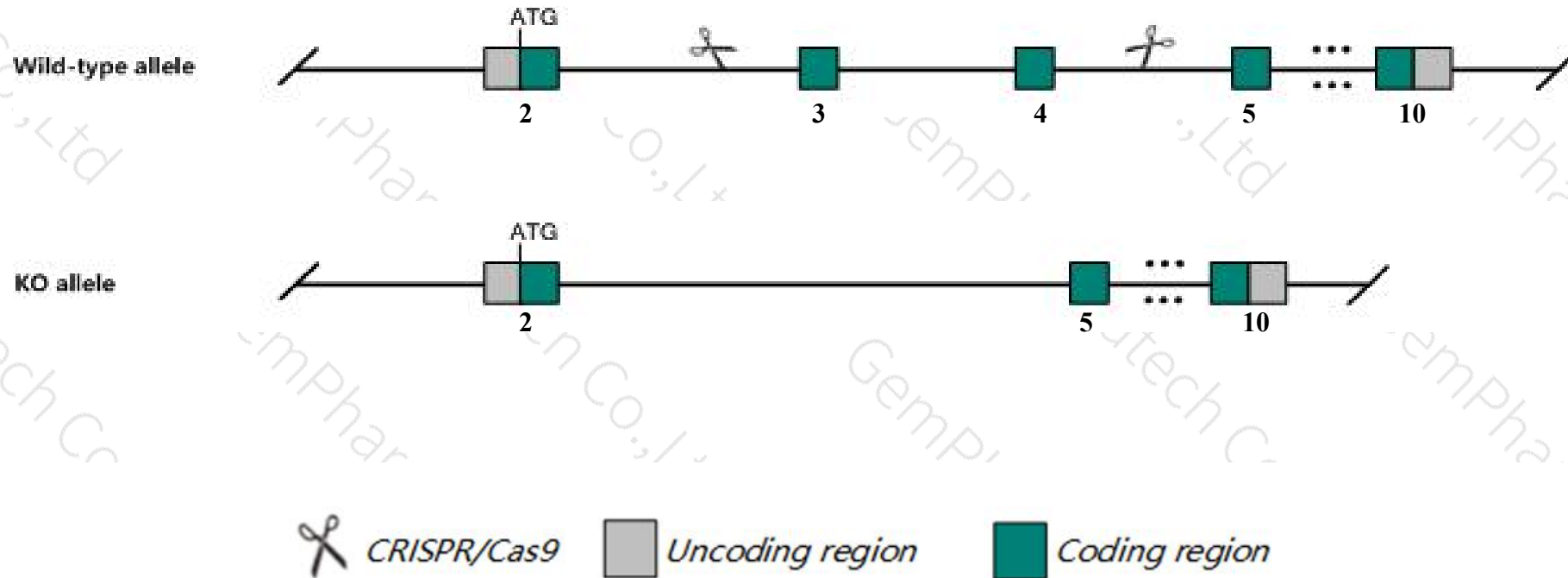
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Snrnp70* gene. The schematic diagram is as follows:



- The *Snrnp70* gene has 17 transcripts. According to the structure of *Snrnp70* gene, exon3-exon4 of *Snrnp70-201* (ENSMUST00000074575.10) transcript is recommended as the knockout region. The region contains 118bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Snrnp70* gene. The brief process is as follows: CRISPR/Cas9 system

- Transcript *Snrnp70*-209&213 may not be affected. And the effect on transcript *Snrnp70*-207&214 is unknown.
- The *Snrnp70* gene is located on the Chr7. 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)

Snrnp70 small nuclear ribonucleoprotein 70 (U1) [*Mus musculus* (house mouse)]

Gene ID: 20637, updated on 10-Oct-2019

Summary

- Official Symbol** Snrnp70 provided by MGI
- Official Full Name** small nuclear ribonucleoprotein 70 (U1) provided by MGI
- Primary source** MGI:MGI:98341
- See related** Ensembl:ENSMUSG00000063511
- Gene type** protein coding
- RefSeq status** REVIEWED
- Organism** *Mus musculus*
- Lineage** Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
- Also known as** U1-70; R74807; Snrp70; Smp70; U1-70K; Rnu1p70; Rnulp70; AI325098; 2700022N21Rik; 3200002N22Rik
- Summary** This gene encodes a subunit of the U1 snRNP (small nuclear ribonucleic particle), one of at least five snRNPs to comprise the spliceosome, which functions in processing of pre-mRNAs. The U1 snRNP has been shown to be important in defining the 5' splice site. Alternative splicing results in multiple transcript variants. [provided by RefSeq, Nov 2014]
- Expression** Ubiquitous expression in CNS E11.5 (RPKM 132.4), thymus adult (RPKM 114.9) and 28 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

Genomic context

Location: 7 B3; 7 29.28 cM See Snrnp70 in [Genome Data Viewer](#)

Exon count: 14

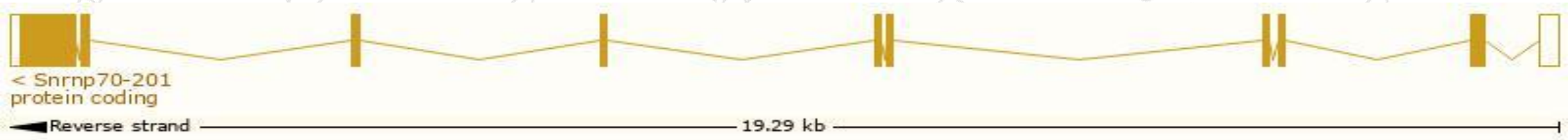
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	7	NC_000073.6 (45376454..45395742, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	7	NC_000073.5 (52631824..52651017, complement)

Transcript information (Ensembl)

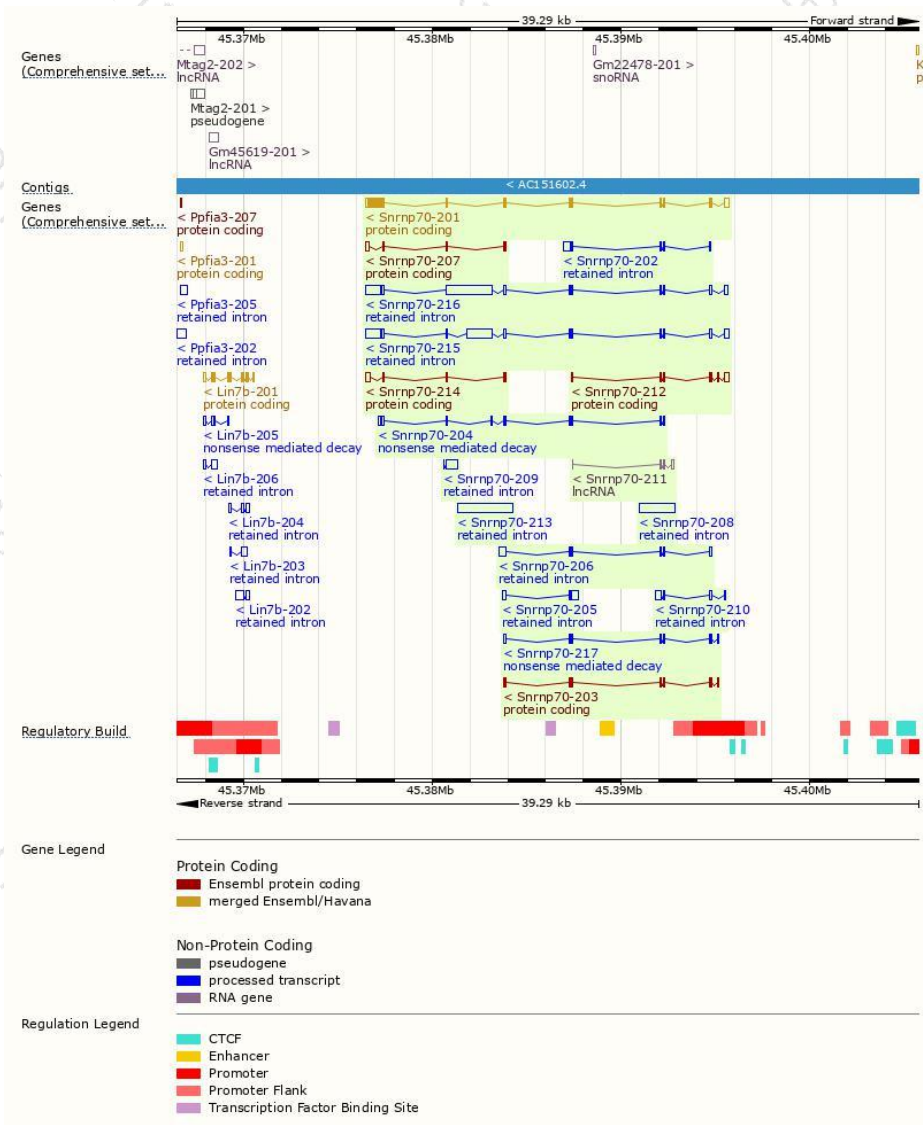
The gene has 17 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Snrrnp70-201	ENSMUST00000074575.10	1735	448aa	Protein coding	CCDS21240	A2RS68 Q62376	TSL:1 GENCODE basic APPRIS P1
Snrrnp70-212	ENSMUST00000211121.1	620	109aa	Protein coding	-	A0A1B0GR69	CDS 3' incomplete TSL:3
Snrrnp70-203	ENSMUST00000209858.1	618	168aa	Protein coding	-	A0A1B0GRR8	CDS 3' incomplete TSL:5
Snrrnp70-214	ENSMUST00000211211.1	462	84aa	Protein coding	-	A0A1B0GSX5	CDS 5' incomplete TSL:3
Snrrnp70-207	ENSMUST00000210514.1	451	86aa	Protein coding	-	A0A1B0GR50	CDS 5' incomplete TSL:3
Snrrnp70-204	ENSMUST00000209993.1	707	116aa	Nonsense mediated decay	-	A0A1B0GR44	CDS 5' incomplete TSL:3
Snrrnp70-217	ENSMUST00000211378.1	616	111aa	Nonsense mediated decay	-	A0A1B0GRV8	TSL:5
Snrrnp70-216	ENSMUST00000211366.1	4008	No protein	Retained intron	-	-	TSL:1
Snrrnp70-215	ENSMUST00000211290.1	3035	No protein	Retained intron	-	-	TSL:1
Snrrnp70-213	ENSMUST00000211178.1	2922	No protein	Retained intron	-	-	TSL:NA
Snrrnp70-208	ENSMUST00000210583.1	1897	No protein	Retained intron	-	-	TSL:NA
Snrrnp70-206	ENSMUST00000210495.1	733	No protein	Retained intron	-	-	TSL:2
Snrrnp70-205	ENSMUST00000210374.1	623	No protein	Retained intron	-	-	TSL:2
Snrrnp70-209	ENSMUST00000210661.1	618	No protein	Retained intron	-	-	TSL:3
Snrrnp70-202	ENSMUST00000209237.1	601	No protein	Retained intron	-	-	TSL:2
Snrrnp70-210	ENSMUST00000210808.1	579	No protein	Retained intron	-	-	TSL:2
Snrrnp70-211	ENSMUST00000210970.1	212	No protein	lncRNA	-	-	TSL:5

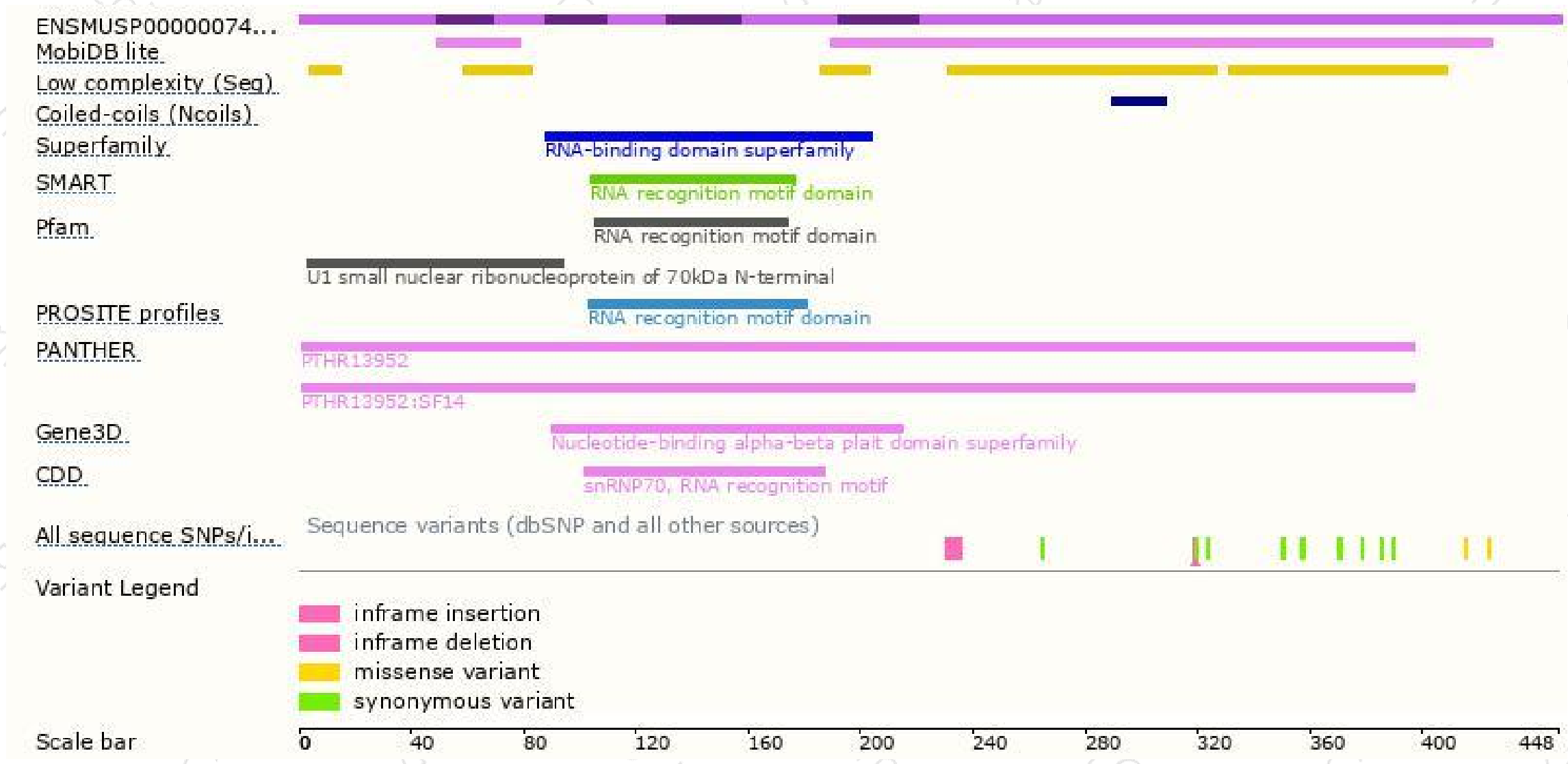
The strategy is based on the design of *Snrrnp70-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

Tel: 400-9660890

