

# ***Snrpa*** **Cas9-KO Strategy**

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# Project Overview

**Project Name**

***Snrpa***

**Project type**

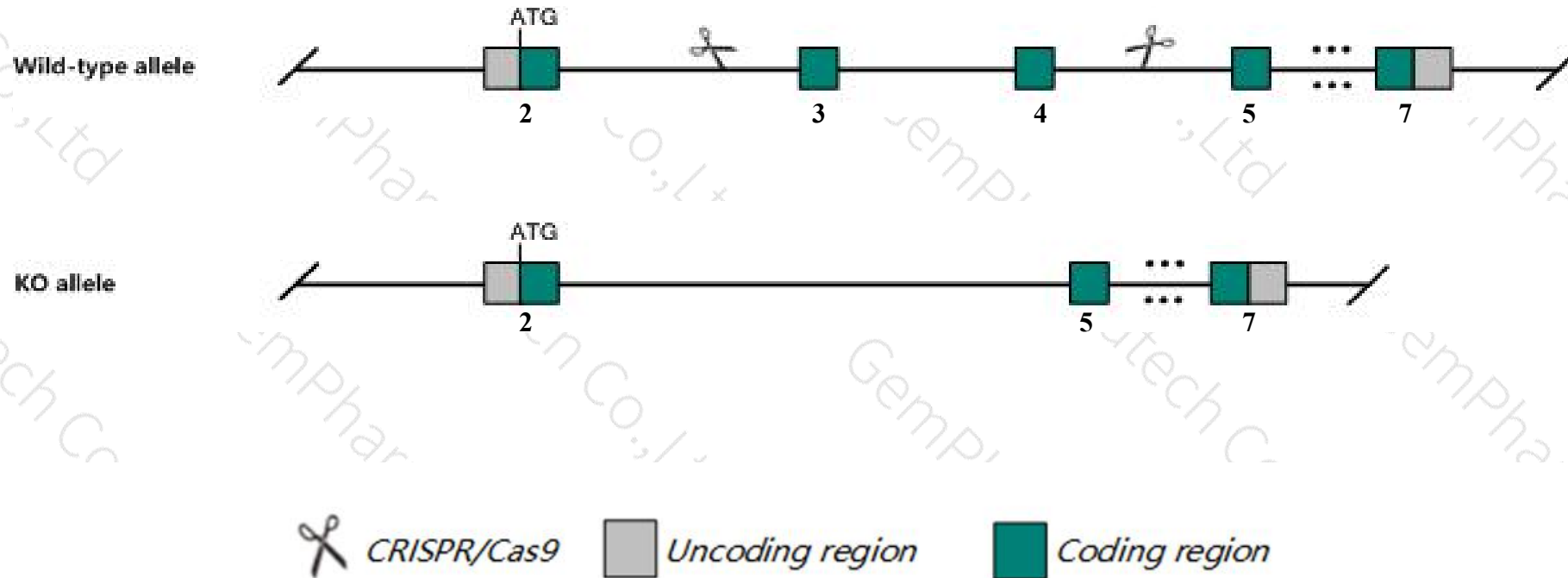
**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

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



- The *Snrpa* gene has 7 transcripts. According to the structure of *Snrpa* gene, exon3-exon4 of *Snrpa-201* (ENSMUST00000080356.9) transcript is recommended as the knockout region. The region contains 350bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Snrpa* gene. The brief process is as follows: CRISPR/Cas9 system

- The knockout region is near to the N-terminal of *BC024978* gene, this strategy may influence the regulatory function of the N-terminal of *BC024978* gene.
- Transcript *Snrpa*-205&207 may not be affected.
- The *Snrpa* 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)

## Snrpa small nuclear ribonucleoprotein polypeptide A [ *Mus musculus* (house mouse) ]

Gene ID: 53607, updated on 12-Aug-2019

### Summary

Official Symbol	Snrpa provided by <a href="#">MGI</a>
Official Full Name	small nuclear ribonucleoprotein polypeptide A provided by <a href="#">MGI</a>
Primary source	<a href="#">MGI:MGI:1855690</a>
See related	<a href="#">Ensembl:ENSMUSG000000061479</a>
Gene type	protein coding
RefSeq status	VALIDATED
Organism	<a href="#">Mus musculus</a>
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	U1A; U1-A; Rnu1a1; Rnu1a-1; C430021M15Rik
Expression	Ubiquitous expression in ovary adult (RPKM 95.1), limb E14.5 (RPKM 88.1) and 28 other tissues <a href="#">See more</a>
Orthologs	<a href="#">human</a> <a href="#">all</a>

### Genomic context

Location: 7; 7 A3

[See Snrpa in Genome Data Viewer](#)

Exon count: 7

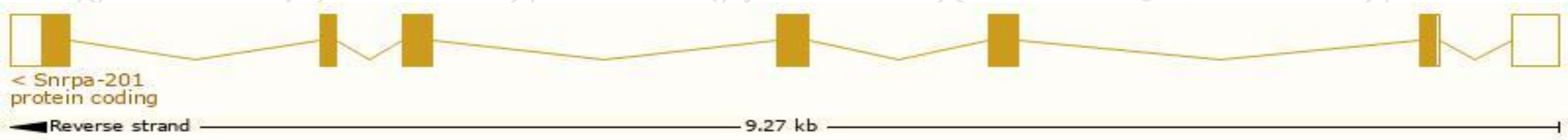
Annotation release	Status	Assembly	Chr	Location
<a href="#">108</a>	current	GRCm38.p6 ( <a href="#">GCF_000001635.26</a> )	7	NC_000073.6 (27187006..27196271, complement)
Build 37.2	previous assembly	MGSCv37 ( <a href="#">GCF_000001635.18</a> )	7	NC_000073.5 (27972025..27981290, complement)

# Transcript information (Ensembl)

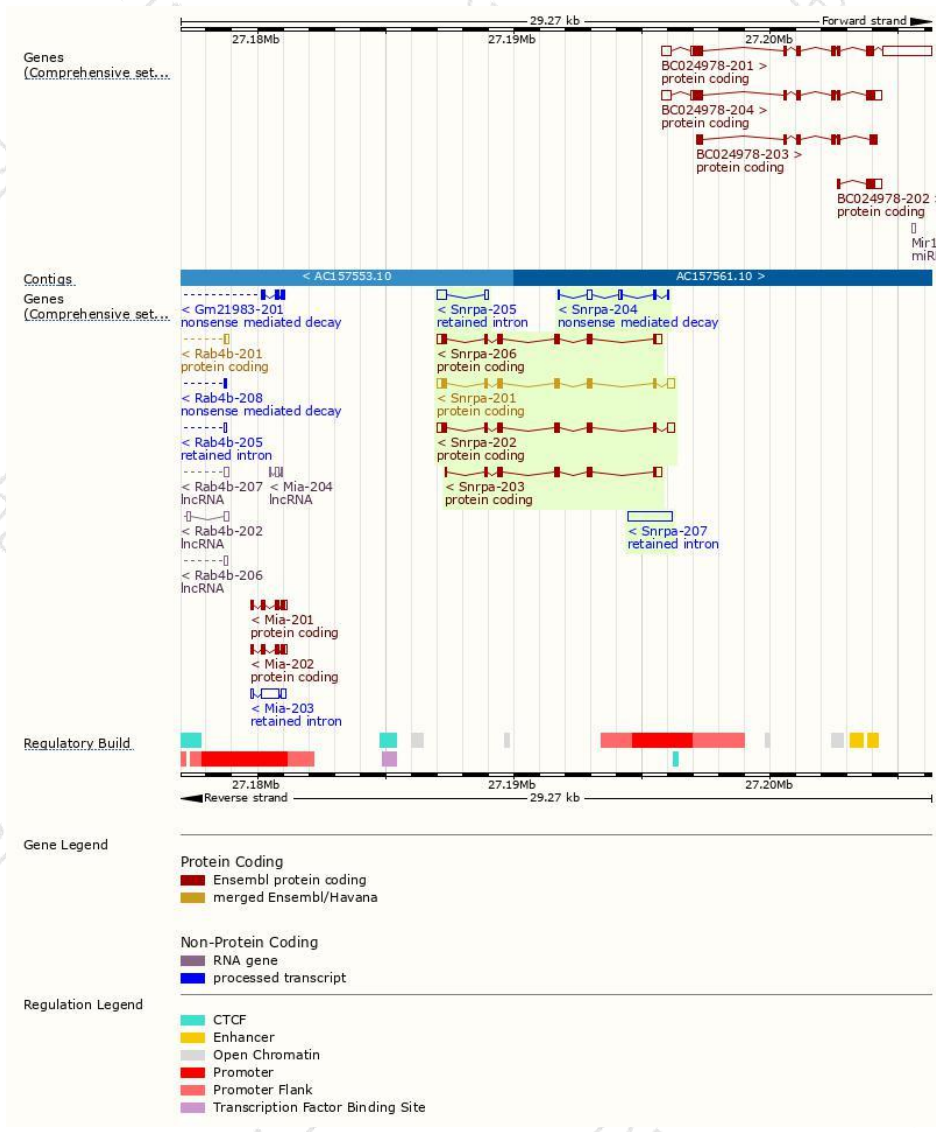
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
<b>Snrpa-201</b>	<a href="#">ENSMUST00000080356.9</a>	1365	<a href="#">287aa</a>	Protein coding	<a href="#">CCDS21014</a>	<a href="#">Q62189</a>	TSL:1 GENCODE basic APPRIS P1
<b>Snrpa-202</b>	<a href="#">ENSMUST00000122202.7</a>	1336	<a href="#">287aa</a>	Protein coding	<a href="#">CCDS21014</a>	<a href="#">Q62189</a>	TSL:1 GENCODE basic APPRIS P1
<b>Snrpa-206</b>	<a href="#">ENSMUST00000163311.8</a>	1288	<a href="#">287aa</a>	Protein coding	<a href="#">CCDS21014</a>	<a href="#">Q62189</a>	TSL:2 GENCODE basic APPRIS P1
<b>Snrpa-203</b>	<a href="#">ENSMUST00000126211.1</a>	968	<a href="#">247aa</a>	Protein coding	-	<a href="#">D3Z0S6</a>	CDS 3' incomplete TSL:2
<b>Snrpa-204</b>	<a href="#">ENSMUST00000141378.1</a>	510	<a href="#">44aa</a>	Nonsense mediated decay	-	<a href="#">D6RI83</a>	TSL:3
<b>Snrpa-207</b>	<a href="#">ENSMUST00000206439.1</a>	1690	No protein	Retained intron	-	-	TSL:NA
<b>Snrpa-205</b>	<a href="#">ENSMUST00000148491.1</a>	509	No protein	Retained intron	-	-	TSL:1

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

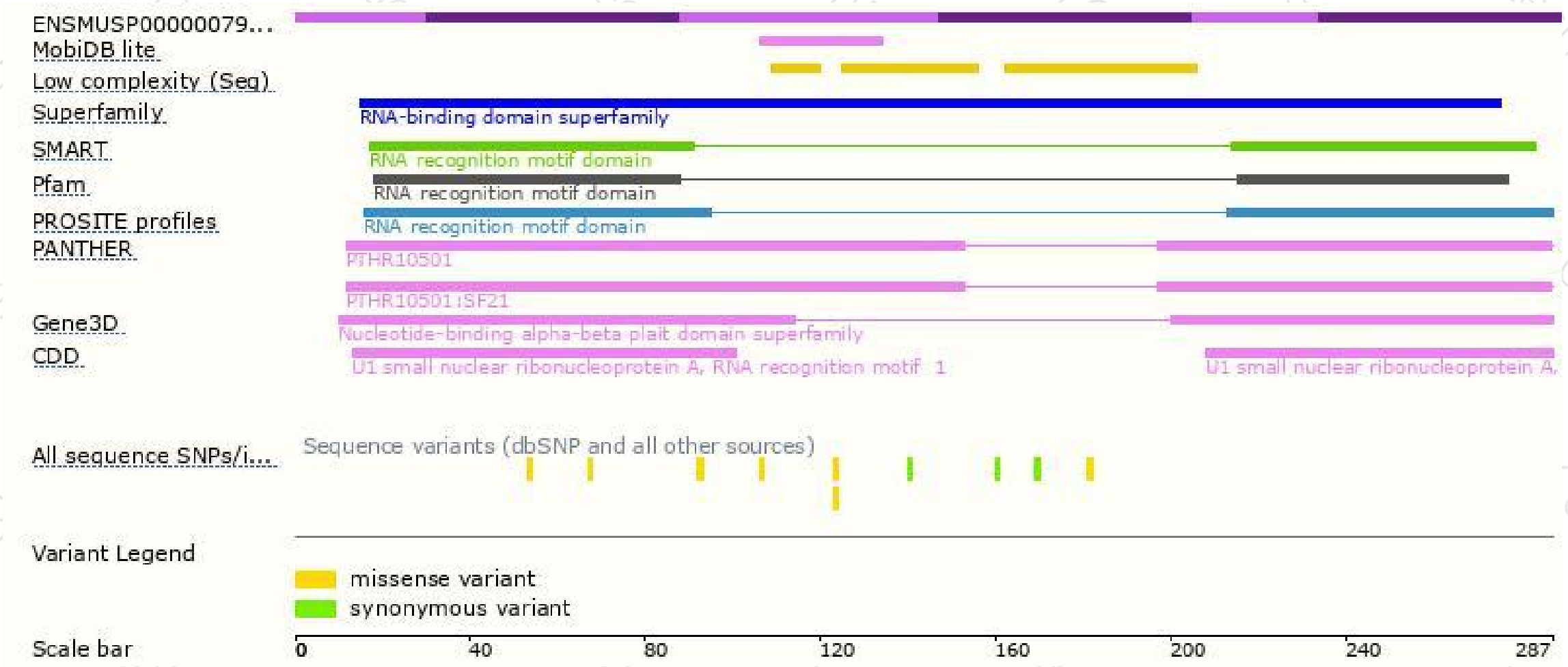


# Genomic location distribution





# Protein domain



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

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