

Snrnp40 Cas9-CKO Strategy

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Project Overview

Project Name

Snrnp40

Project type

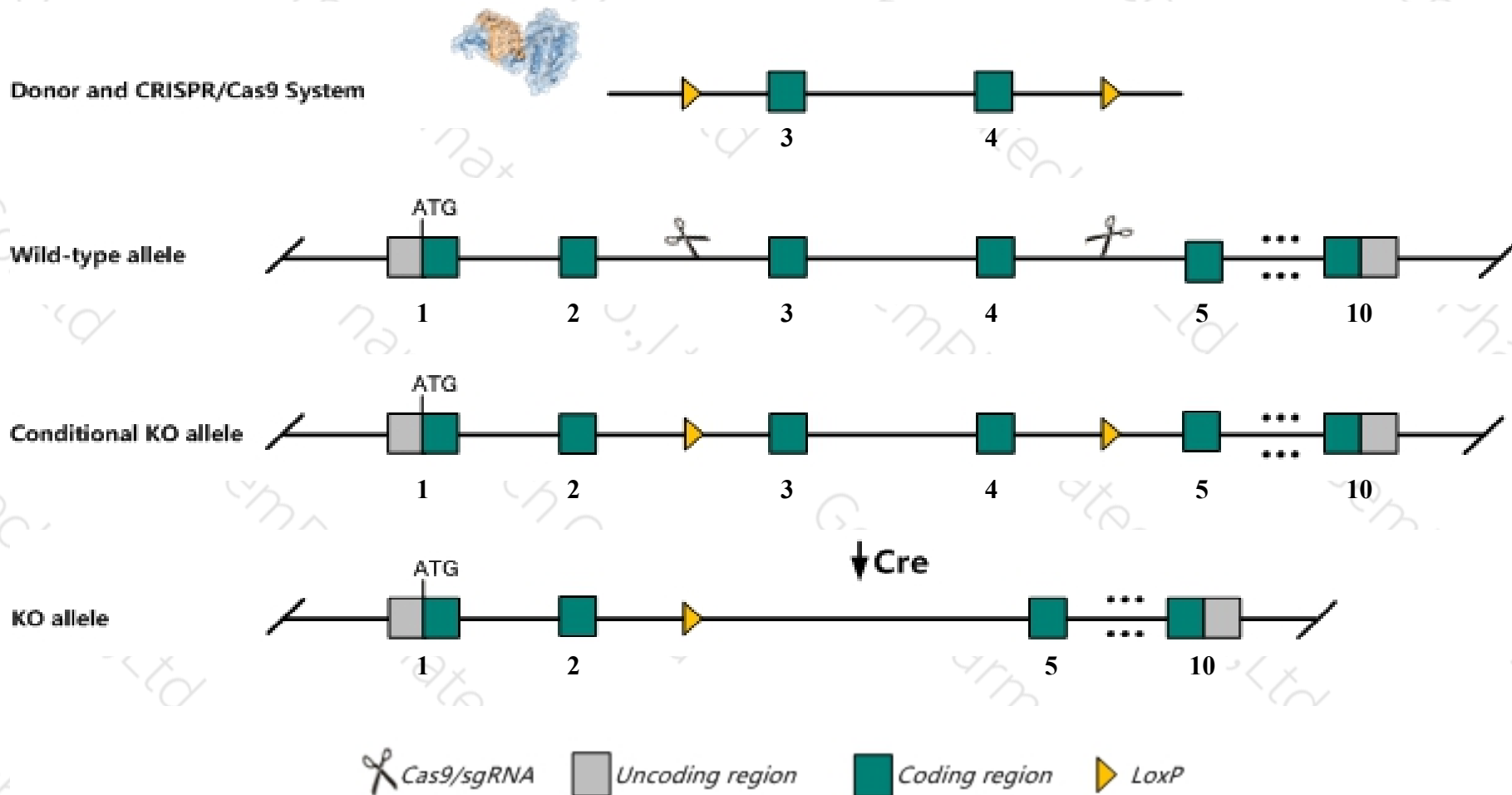
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Snrnp40* gene. The schematic diagram is as follows:



- The *Snrnp40* gene has 4 transcripts. According to the structure of *Snrnp40* gene, exon3-exon4 of *Snrnp40-201*(ENSMUST00000105994.3) transcript is recommended as the knockout region. The region contains 260bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Snrnp40* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was 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.

- The *Snrnp40* gene is located on the Chr4. 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)

Snrnp40 small nuclear ribonucleoprotein 40 (U5) [Mus musculus (house mouse)]

Gene ID: 66585, updated on 13-Mar-2020

Summary



Official Symbol	Snrnp40 provided by MGI
Official Full Name	small nuclear ribonucleoprotein 40 (U5) provided by MGI
Primary source	MGI:MGI:1913835
See related	Ensembl:ENSMUSG00000074088
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	0610009C03Rik, Prp8bp, Wdr57
Expression	Ubiquitous expression in CNS E11.5 (RPKM 42.3), limb E14.5 (RPKM 31.2) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

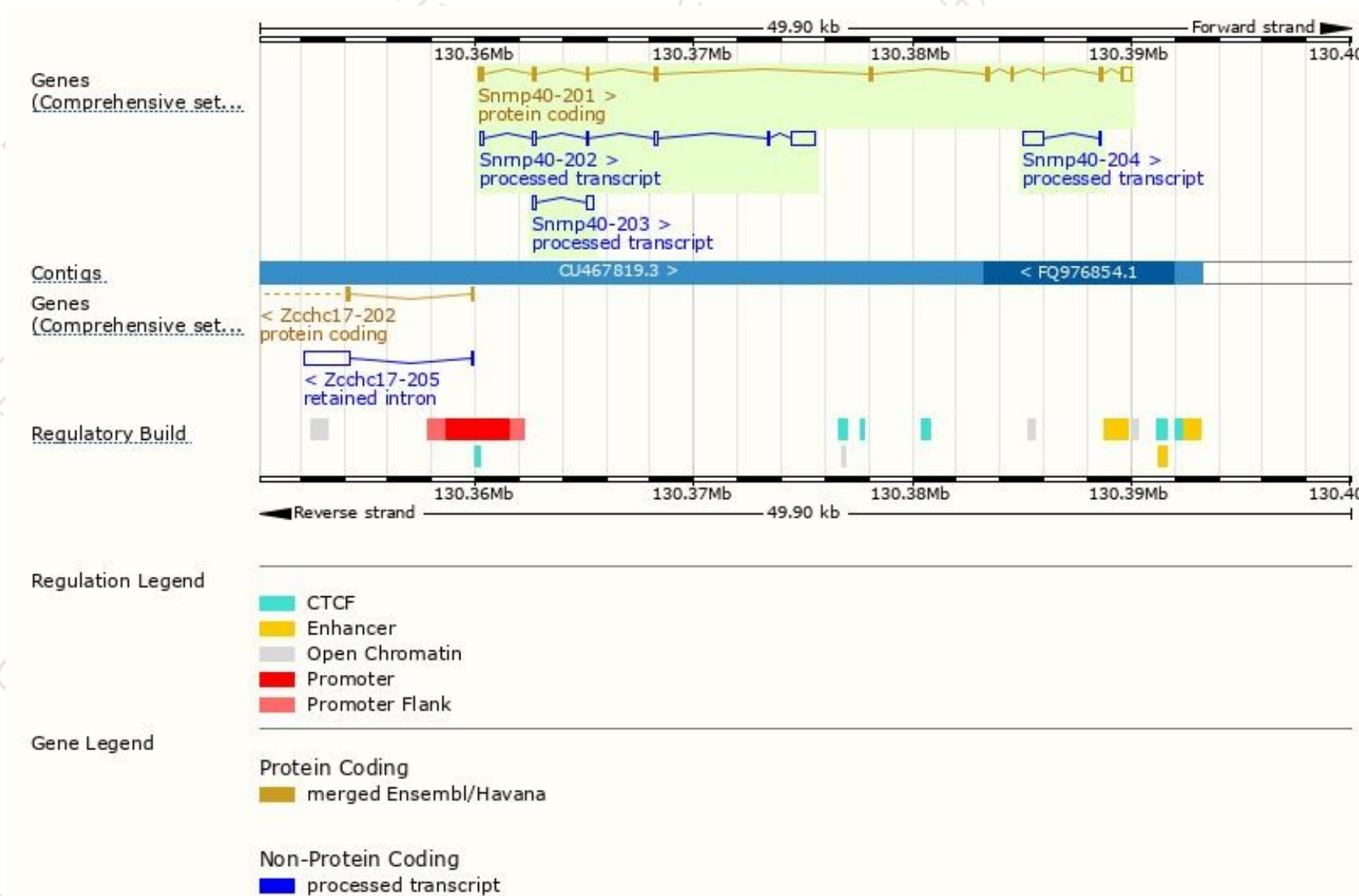
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Snrnp40-201	ENSMUST00000105994.3	1584	358aa	Protein coding	CCDS38892	Q6PE01	TSL:1 GENCODE basic APPRIS P1
Snrnp40-202	ENSMUST00000180577.1	1752	No protein	Processed transcript	-	-	TSL:1
Snrnp40-204	ENSMUST00000181560.1	1048	No protein	Processed transcript	-	-	TSL:5
Snrnp40-203	ENSMUST00000181161.1	489	No protein	Processed transcript	-	-	TSL:3

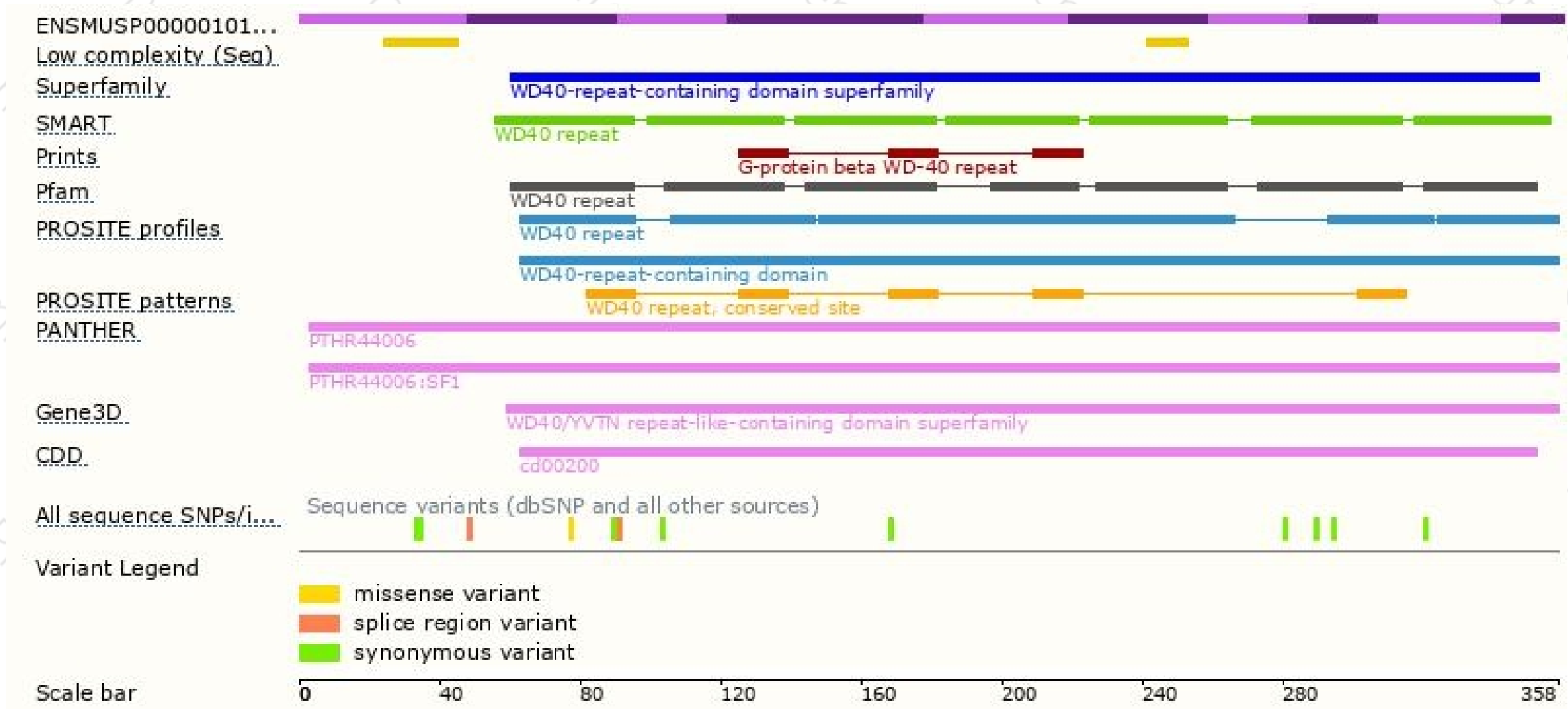
The strategy is based on the design of *Snrnp40-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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