

***Nup93* Cas9-KO Strategy**

Designer: Huan Wang

Reviewer: Wenjing Li

Design Date: 2020-8-1

Project Overview

Project Name

Nup93

Project type

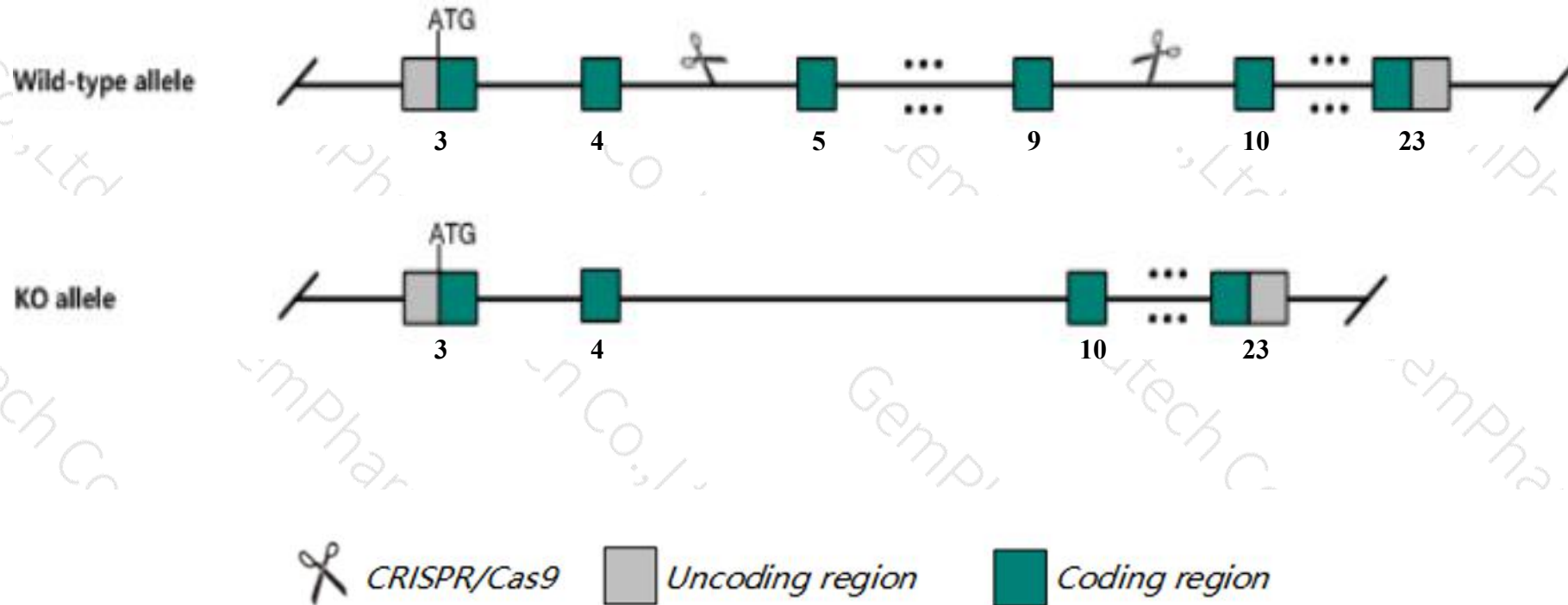
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Nup93* gene. The schematic diagram is as follows:



- The *Nup93* gene has 8 transcripts. According to the structure of *Nup93* gene, exon5-exon9 of *Nup93*-207(ENSMUST00000212824.1) transcript is recommended as the knockout region. The region contains 497bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Nup93* gene. The brief process is as follows: CRISPR/Cas9 system 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 *Nup93* gene is located on the Chr8. 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)

Nup93 nucleoporin 93 [Mus musculus (house mouse)]

Gene ID: 71805, updated on 13-Mar-2020

Summary



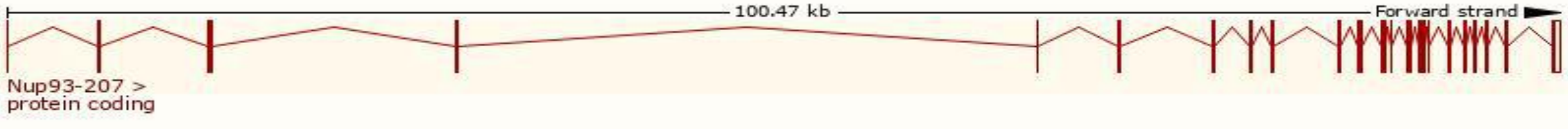
Official Symbol	Nup93 provided by MGI
Official Full Name	nucleoporin 93 provided by MGI
Primary source	MGI:MGI:1919055
See related	Ensembl:ENSMUSG00000032939
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2410008G02Rik
Expression	Ubiquitous expression in CNS E11.5 (RPKM 18.5), limb E14.5 (RPKM 14.8) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

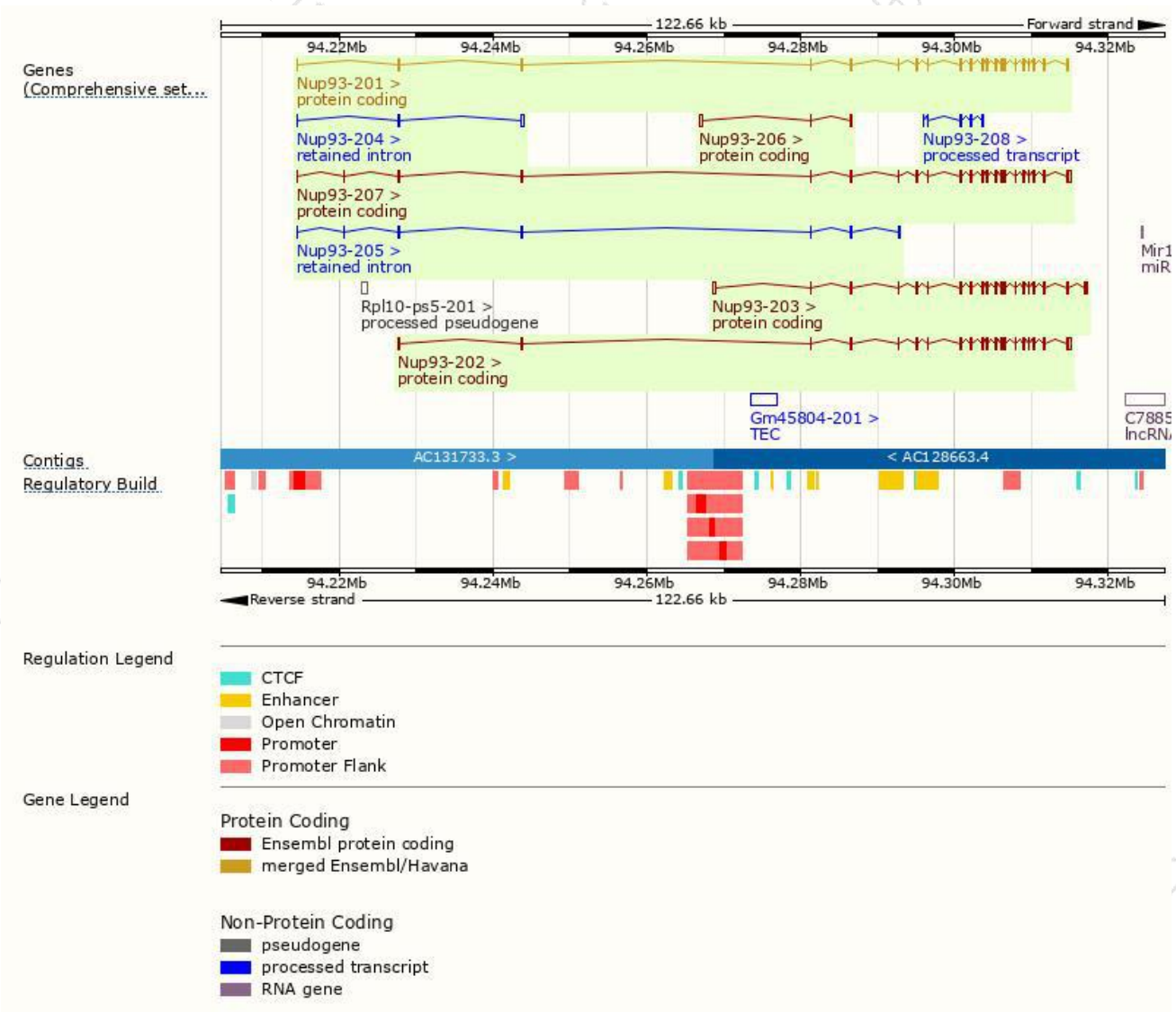
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Nup93-207	ENSMUST00000212824.1	2928	819aa	Protein coding	CCDS22540	Q8BJ71	TSL:1 GENCODE basic APPRIS P1
Nup93-202	ENSMUST00000109547.1	2847	819aa	Protein coding	CCDS22540	Q8BJ71	TSL:5 GENCODE basic APPRIS P1
Nup93-201	ENSMUST00000079961.13	2707	819aa	Protein coding	CCDS22540	Q8BJ71	TSL:1 GENCODE basic APPRIS P1
Nup93-203	ENSMUST00000211822.1	2674	699aa	Protein coding	-	A0A1D5RLQ0	TSL:1 GENCODE basic
Nup93-206	ENSMUST00000212167.1	504	18aa	Protein coding	-	A0A1D5RM86	CDS 3' incomplete TSL:3
Nup93-208	ENSMUST00000212984.1	623	No protein	Processed transcript	-	-	TSL:2
Nup93-205	ENSMUST00000212062.1	730	No protein	Retained intron	-	-	TSL:3
Nup93-204	ENSMUST00000212039.1	647	No protein	Retained intron	-	-	TSL:2

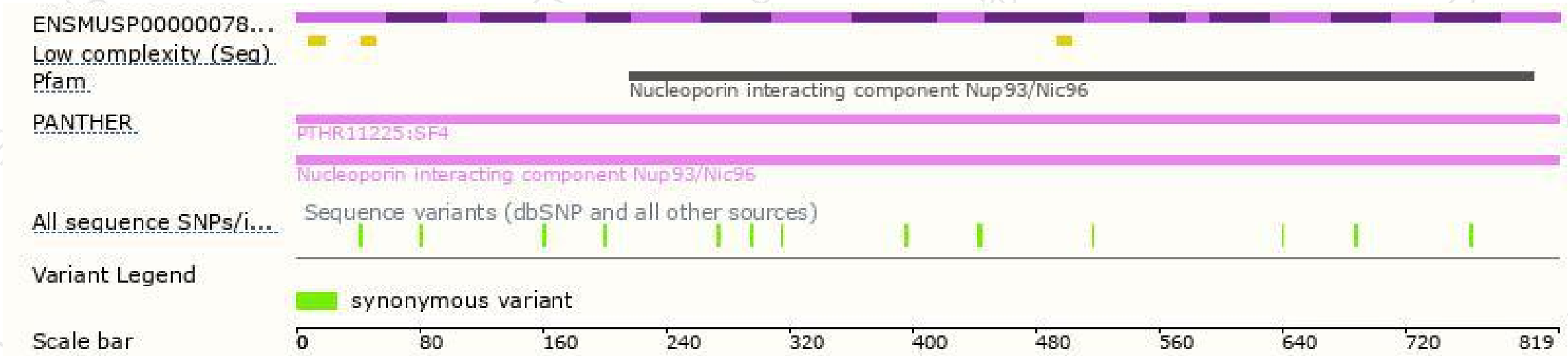
The strategy is based on the design of *Nup93-207* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

Tel: 400-9660890

