

Nup93 Cas9-CKO Strategy

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Design Date: 2022-8-25

Project Overview

Project Name

Nup93

Project type

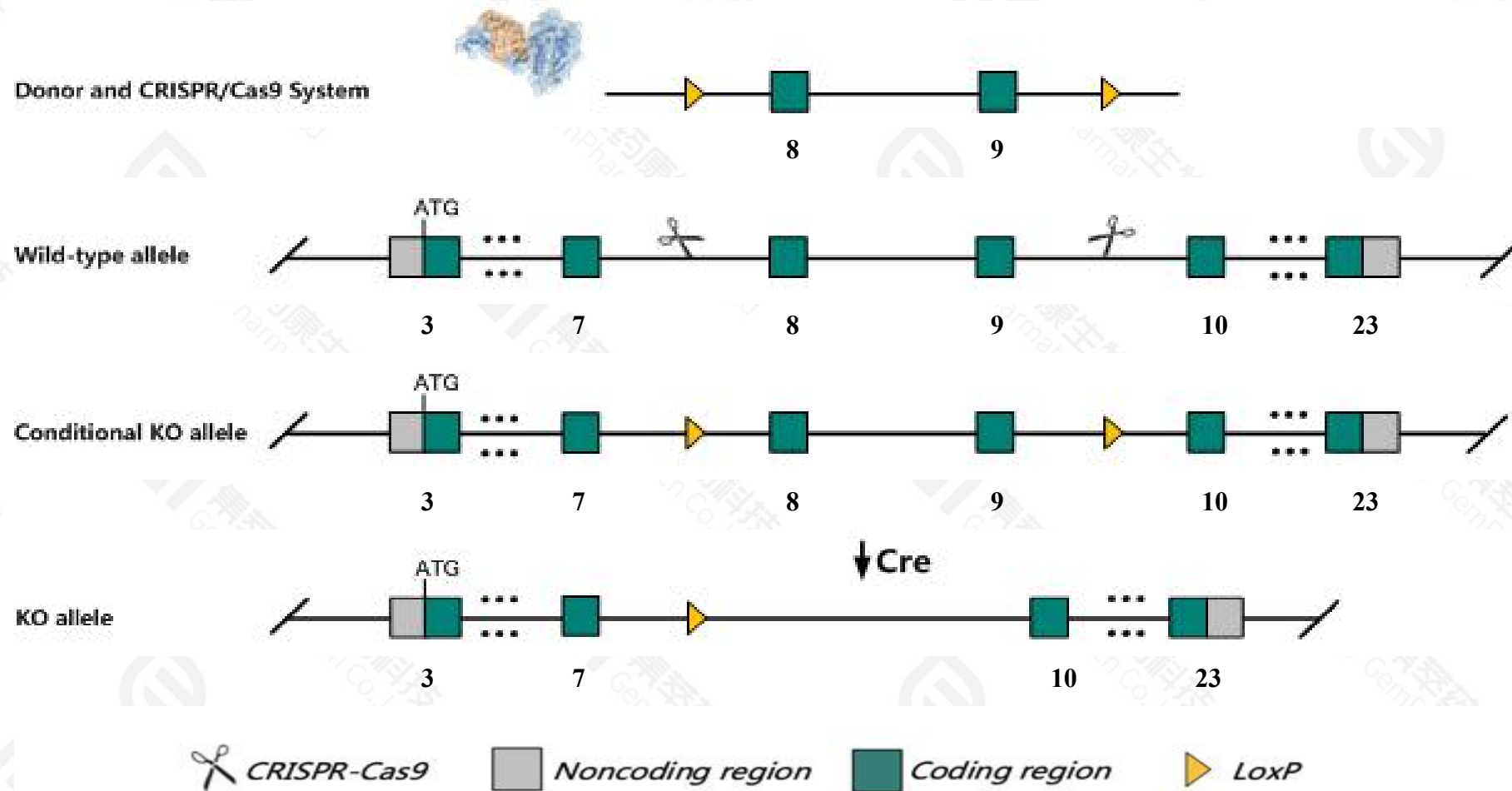
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional 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, exon8-exon9 of *Nup93*-207(ENSMUST00000212824.2) transcript is recommended as the knockout region. The region contains 230bp 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 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 will be 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 *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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Nup93 nucleoporin 93 [Mus musculus (house mouse)]

Gene ID: 71805, updated on 24-Apr-2022

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)

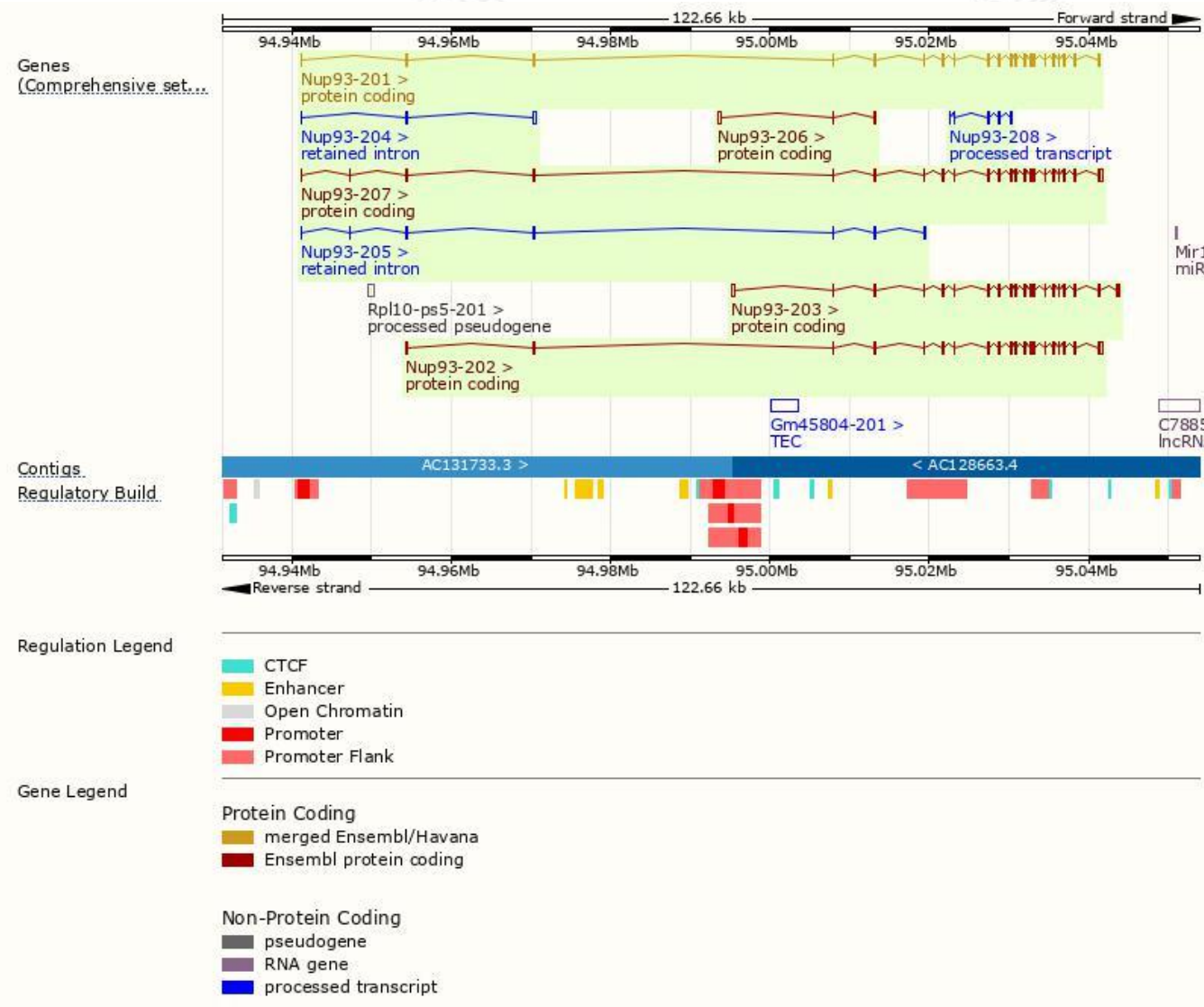
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Nup93-207	ENSMUST00000212824.2	2928	819aa	Protein coding	CCDS22540		TSL:1 , GENCODE basic , APPRIS P1 ,
Nup93-202	ENSMUST00000109547.2	2847	819aa	Protein coding	CCDS22540		TSL:5 , GENCODE basic , APPRIS P1 ,
Nup93-201	ENSMUST00000079961.14	2707	819aa	Protein coding	CCDS22540		TSL:1 , GENCODE basic , APPRIS P1 ,
Nup93-203	ENSMUST00000211822.2	2674	699aa	Protein coding	-		TSL:1 , GENCODE basic ,
Nup93-206	ENSMUST00000212167.2	504	18aa	Protein coding	-		CDS 3' incomplete , TSL:3 ,
Nup93-208	ENSMUST00000212984.2	623	No protein	Processed transcript	-		TSL:2 ,
Nup93-205	ENSMUST00000212062.2	730	No protein	Retained intron	-		TSL:3 ,
Nup93-204	ENSMUST00000212039.2	647	No protein	Retained intron	-		TSL:2 ,

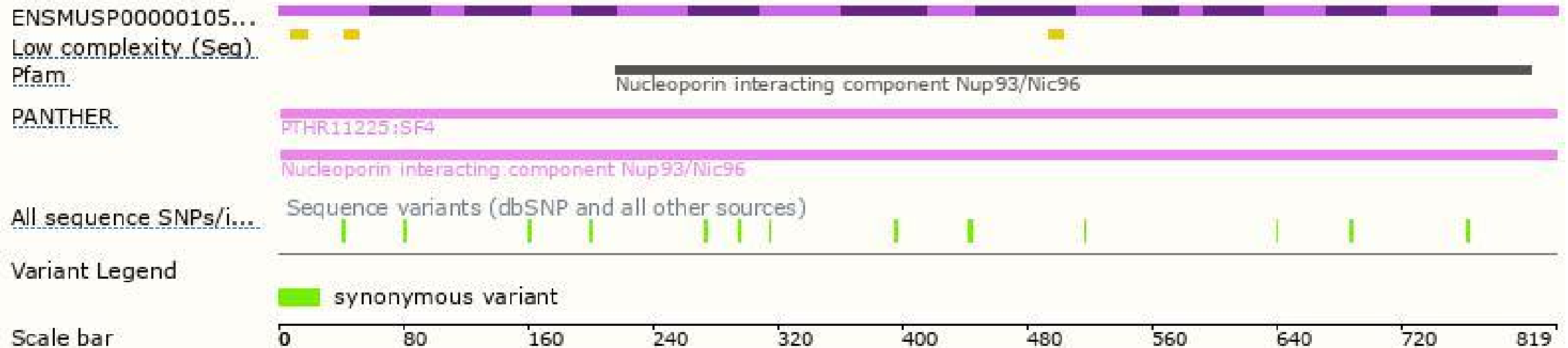
The strategy is based on the design of *Nup93-207* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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