

Nfu1 Cas9-CKO Strategy

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Project Overview

Project Name

Nfu1

Project type

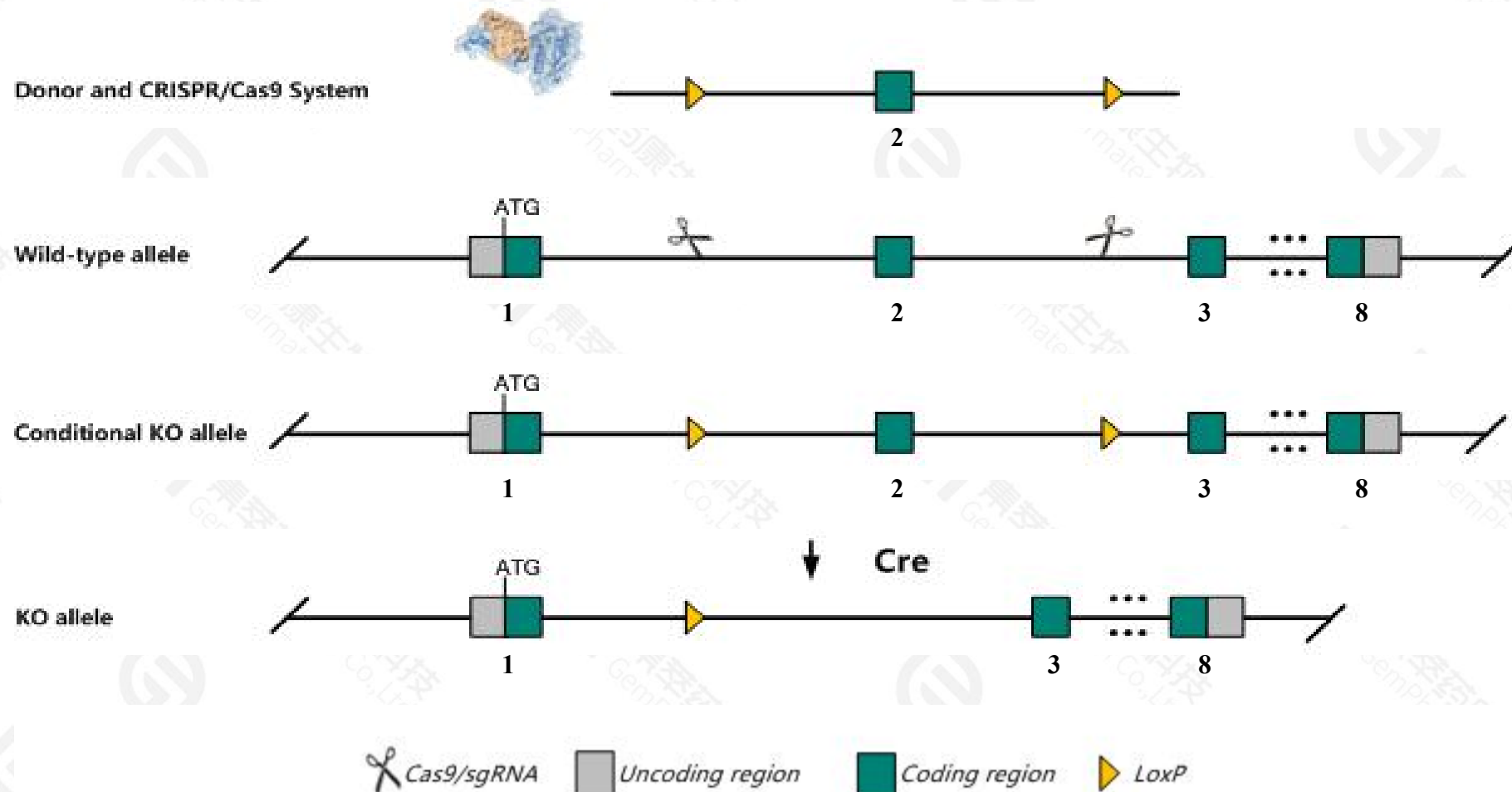
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Nfu1* gene. The schematic diagram is as follows:



Technical routes

- The *Nfu1* gene has 9 transcripts. According to the structure of *Nfu1* gene, exon2 of *Nfu1-201*(ENSMUST00000032060.15) transcript is recommended as the knockout region. The region contains 101bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Nfu1* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor 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 *Nfu1* gene is located on the Chr6. 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)

Nfu1 NFU1 iron-sulfur cluster scaffold [Mus musculus (house mouse)]

Gene ID: 56748, updated on 10-Oct-2020

Summary



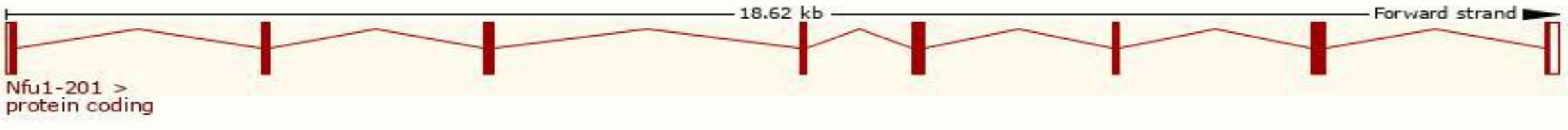
Official Symbol	Nfu1 provided by MGI
Official Full Name	NFU1 iron-sulfur cluster scaffold provided by MGI
Primary source	MGI:MGI:1913290
See related	Ensembl:ENSMUSG00000029993
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	0610006G17Rik, CGI-3, CGI-33, Hi, Hirip5
Expression	Ubiquitous expression in kidney adult (RPKM 20.2), CNS E18 (RPKM 18.7) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

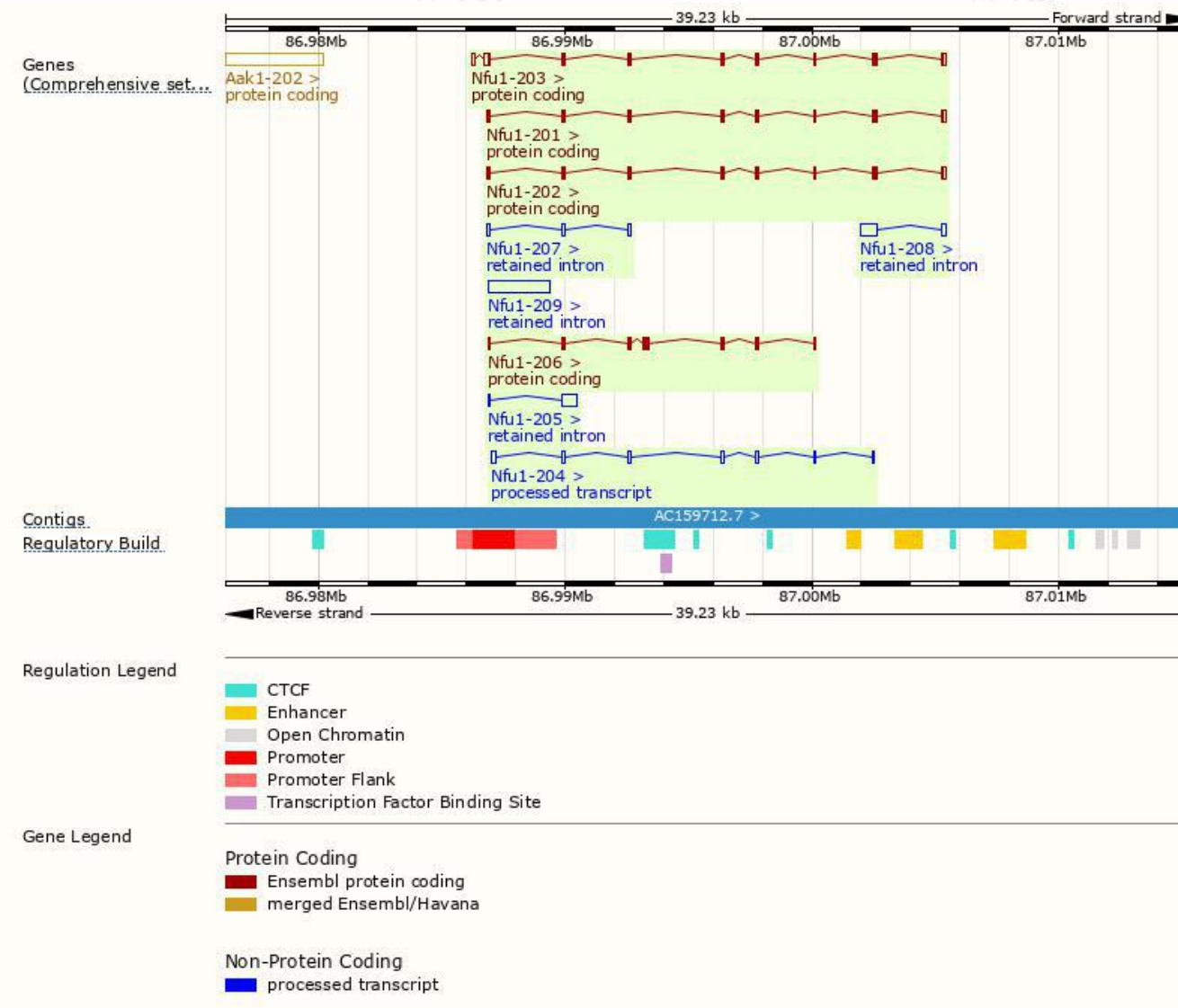
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Nfu1-203	ENSMUST00000120240.8	1195	256aa	Protein coding	CCDS51836		TSL:5 , GENCODE basic , APPRIS P3 ,
Nfu1-202	ENSMUST00000117583.8	950	255aa	Protein coding	CCDS85088		TSL:1 , GENCODE basic , APPRIS ALT2 ,
Nfu1-201	ENSMUST00000032060.15	948	256aa	Protein coding	CCDS51836		TSL:1 , GENCODE basic , APPRIS P3 ,
Nfu1-206	ENSMUST00000144776.7	777	255aa	Protein coding	-		CDS 3' incomplete , TSL:3 ,
Nfu1-204	ENSMUST00000127819.2	716	No protein	Processed transcript	-		TSL:3 ,
Nfu1-209	ENSMUST00000205018.2	2508	No protein	Retained intron	-		TSL:NA ,
Nfu1-208	ENSMUST00000204103.2	829	No protein	Retained intron	-		TSL:2 ,
Nfu1-205	ENSMUST00000140343.3	655	No protein	Retained intron	-		TSL:2 ,
Nfu1-207	ENSMUST00000203512.3	371	No protein	Retained intron	-		TSL:2 ,

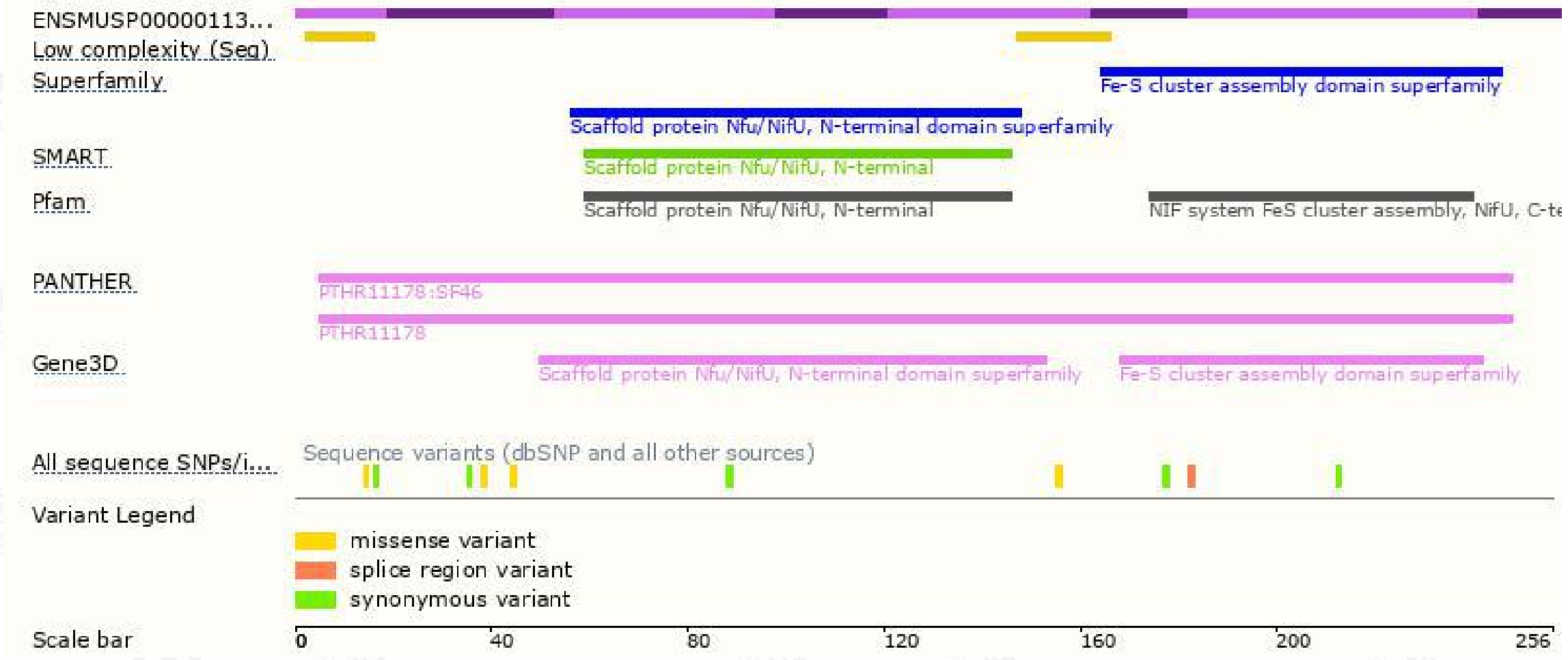
The strategy is based on the design of *Nfu1-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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