

Nfxl1 Cas9-KO Strategy

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Project Overview

Project Name

Nfxl1

Project type

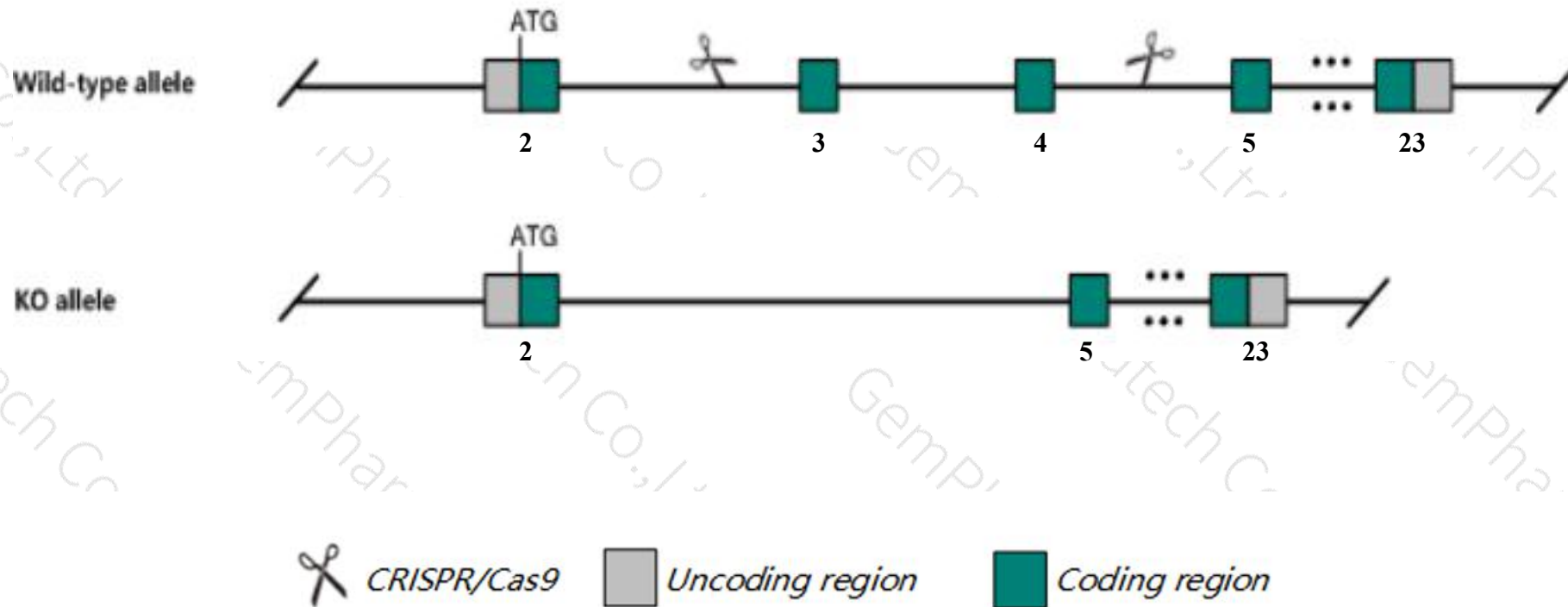
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Nfxl1* gene. The schematic diagram is as follows:



- The *Nfxl1* gene has 9 transcripts. According to the structure of *Nfxl1* gene, exon3-exon4 of *Nfxl1*-202(ENSMUST00000087216.11) transcript is recommended as the knockout region. The region contains 284bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Nfxl1* 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 *Nfx11* gene is located on the Chr5. 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)

Nfxl1 nuclear transcription factor, X-box binding-like 1 [Mus musculus (house mouse)]

Gene ID: 100978, updated on 20-Mar-2020

Summary



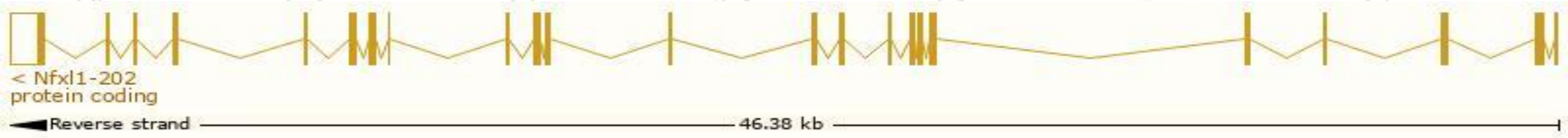
Official Symbol	Nfxl1 provided by MGI
Official Full Name	nuclear transcription factor, X-box binding-like 1 provided by MGI
Primary source	MGI:MGI:1923646
See related	Ensembl:ENSMUSG00000072889
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1700012H24Rik, AW538212, D430033A06Rik, DNABF, GCF, Gm1058, TCF9
Expression	Ubiquitous expression in CNS E11.5 (RPKM 9.0), limb E14.5 (RPKM 7.9) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

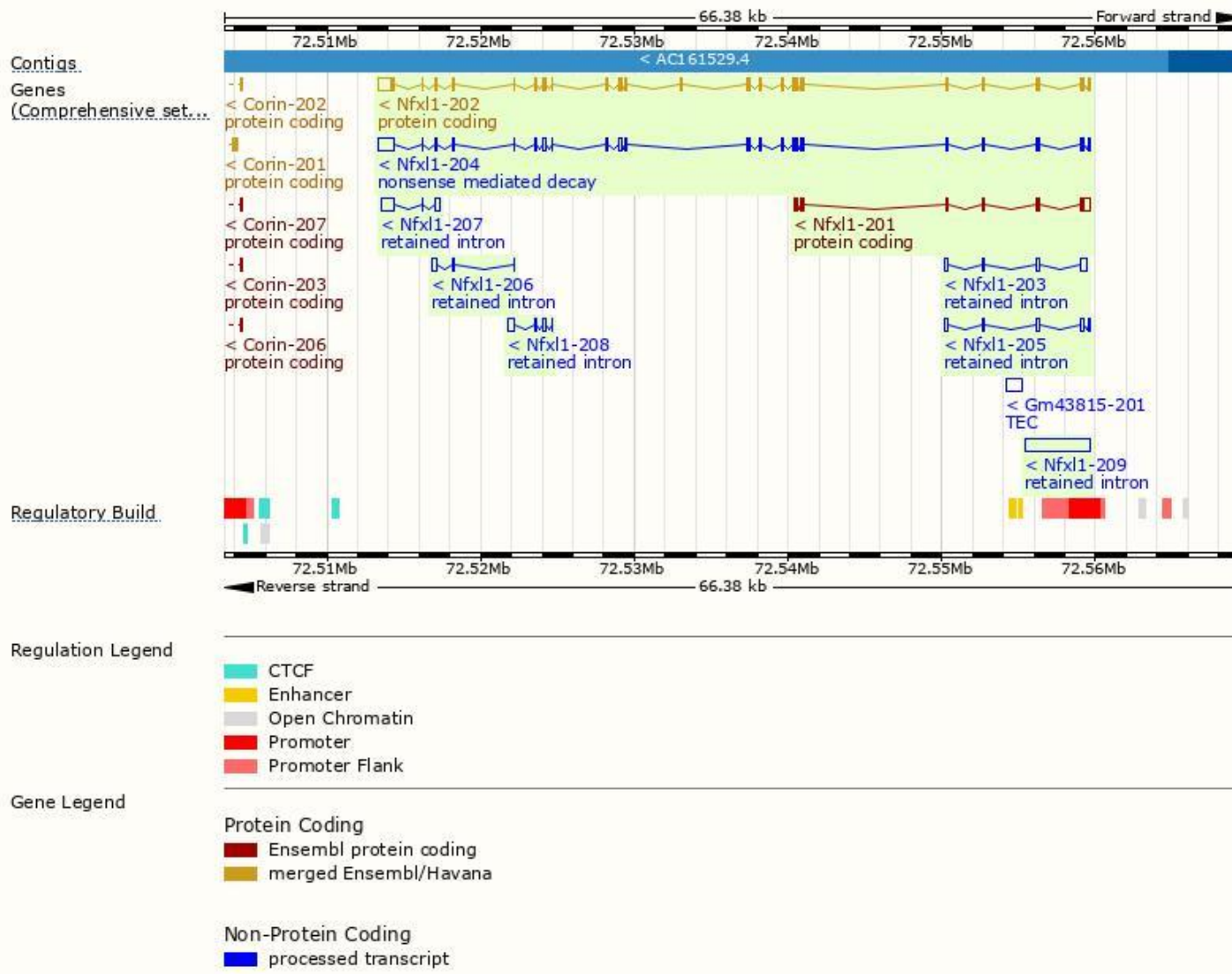
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Nfxl1-202	ENSMUST00000087216.11	3712	918aa	Protein coding	CCDS39109	E9Q8I7	TSL:5 GENCODE basic APPRIS P1
Nfxl1-201	ENSMUST00000074948.4	1373	346aa	Protein coding	-	E9Q3K1	CDS 3' incomplete TSL:1
Nfxl1-204	ENSMUST00000135318.7	3579	500aa	Nonsense mediated decay	-	E9PZN0	TSL:1
Nfxl1-209	ENSMUST00000198977.1	4172	No protein	Retained intron	-	-	TSL:NA
Nfxl1-207	ENSMUST00000149393.1	1193	No protein	Retained intron	-	-	TSL:1
Nfxl1-203	ENSMUST00000134452.7	884	No protein	Retained intron	-	-	TSL:1
Nfxl1-208	ENSMUST00000153882.1	800	No protein	Retained intron	-	-	TSL:3
Nfxl1-205	ENSMUST00000146761.1	798	No protein	Retained intron	-	-	TSL:1
Nfxl1-206	ENSMUST00000149340.1	416	No protein	Retained intron	-	-	TSL:3

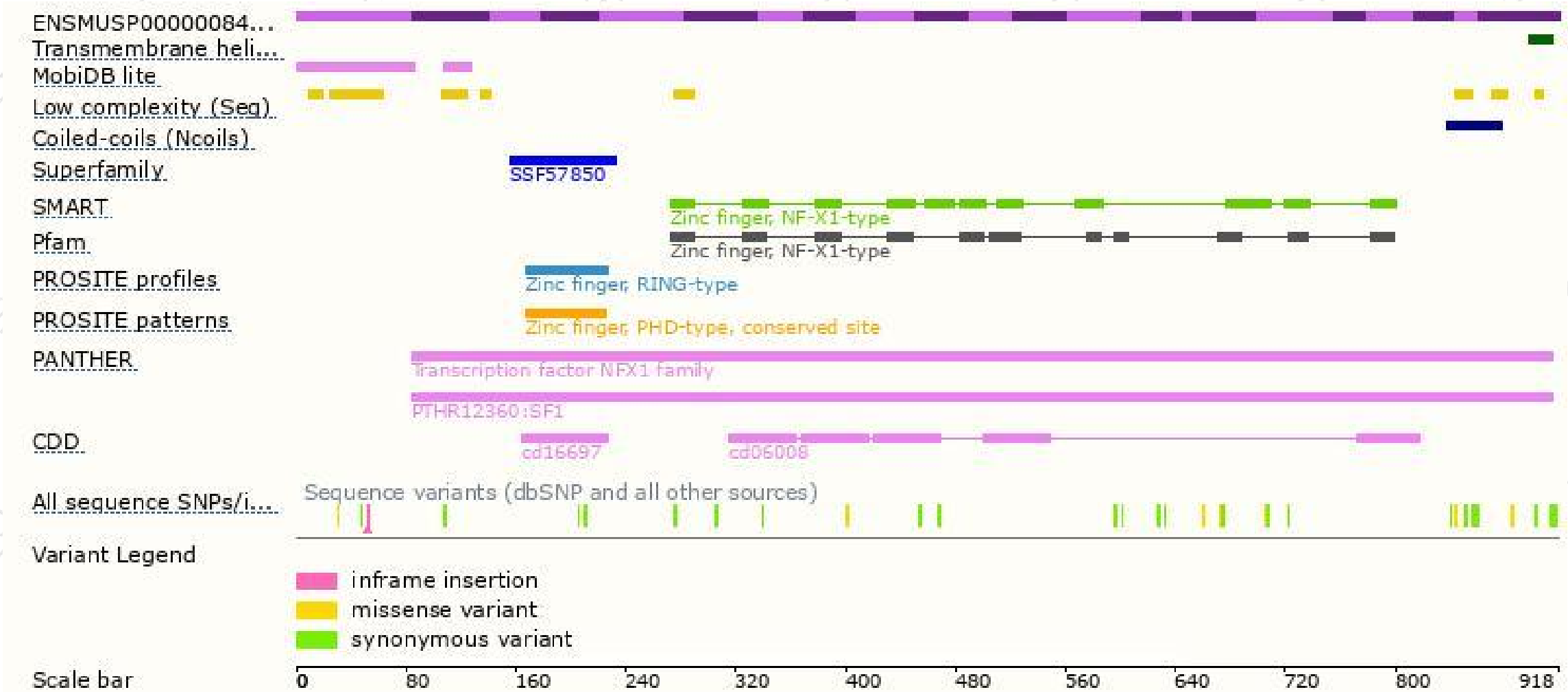
The strategy is based on the design of *Nfxl1-202* transcript,the transcription is shown below:



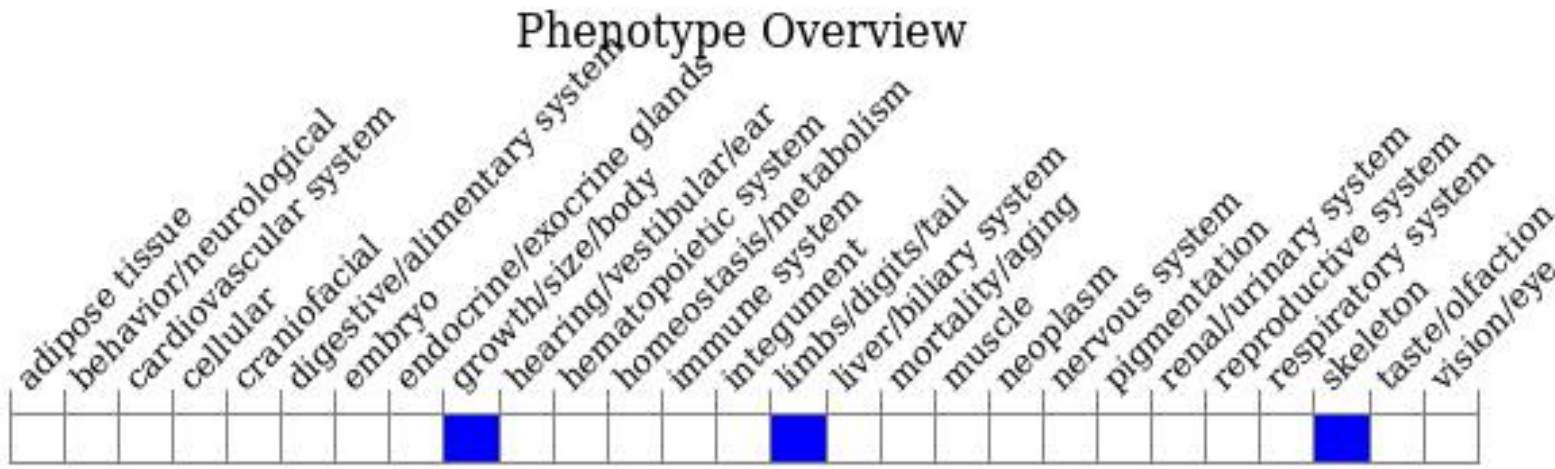
Genomic location distribution



Protein domain



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

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

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