Nfic Cas9-KO Strategy

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Project Overview

Project Name	***Nfic***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

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

Technical routes

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- The *Nfic* gene has 7 transcripts. According to the structure of *Nfic* gene, exon2 of *Nfic-203* (ENSMUST00000105321.9) transcript is recommended as the knockout region.The region contains 532bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Nfic* gene. The brief process is as follows: CRISPR/Cas9 system w

Notice

- According to the existing MGI data,Mice homozygous for a targeted null allele have abnormal incisor and molar root development, show reduced alveolar bone formation, and exhibit impaired feeding leading to severe runting and premature death when reared on standard laboratory chow.

- The *Nfic* gene is located on the Chr10. 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）

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Nfic nuclear factor I/C [Mus musculus (house mouse)]

Gene ID: 18029, updated on 31-Jan-2019

Summary

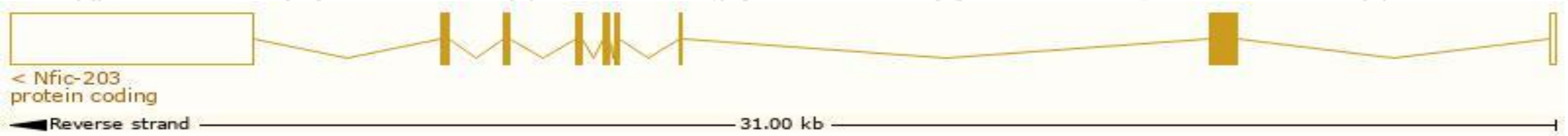
Official Symbol	Nfic provided by MGI
Official Full Name	nuclear factor I/C provided byMGI
Primary source	MGI:MGI:109591
See related	Ensembl:ENSMUSG00000055053
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1110019L22Rik, 1500041O16Rik, AA589446, AI746521, NF1-C
Expression	Broad expression in adrenal adult (RPKM 27.2), lung adult (RPKM 13.1) and 19 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

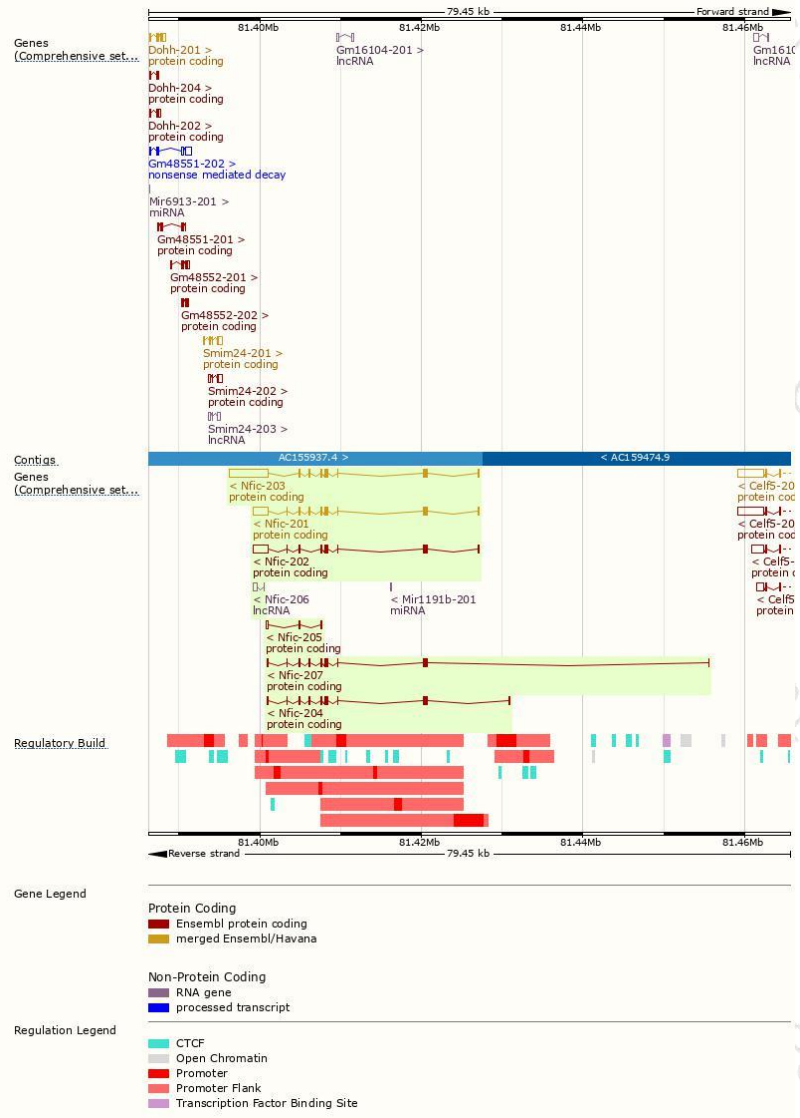
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Nfic-203	ENSMUST00000105321.9	6237	428aa	Protein coding	CCDS35999	P70255 Q3UHA6	TSL:1 GENCODE basic APPRIS ALT1
Nfic-201	ENSMUST00000020461.14	3348	439aa	Protein coding	CCDS24058	P70255	TSL:1 GENCODE basic APPRIS P3
Nfic-202	ENSMUST00000078185.13	3163	397aa	Protein coding	-	P70255	TSL:5 GENCODE basic
Nfic-204	ENSMUST00000117966.1	1655	430aa	Protein coding	-	P70255	TSL:1 GENCODE basic
Nfic-207	ENSMUST00000221817.1	1531	461aa	Protein coding	-	A0A1Y7VK55	TSL:5 GENCODE basic
Nfic-205	ENSMUST00000140916.7	575	96aa	Protein coding	-	F6XYU7	CDS 5' incomplete TSL:3
Nfic-206	ENSMUST00000152670.1	476	No protein	lncRNA	-	-	TSL:1

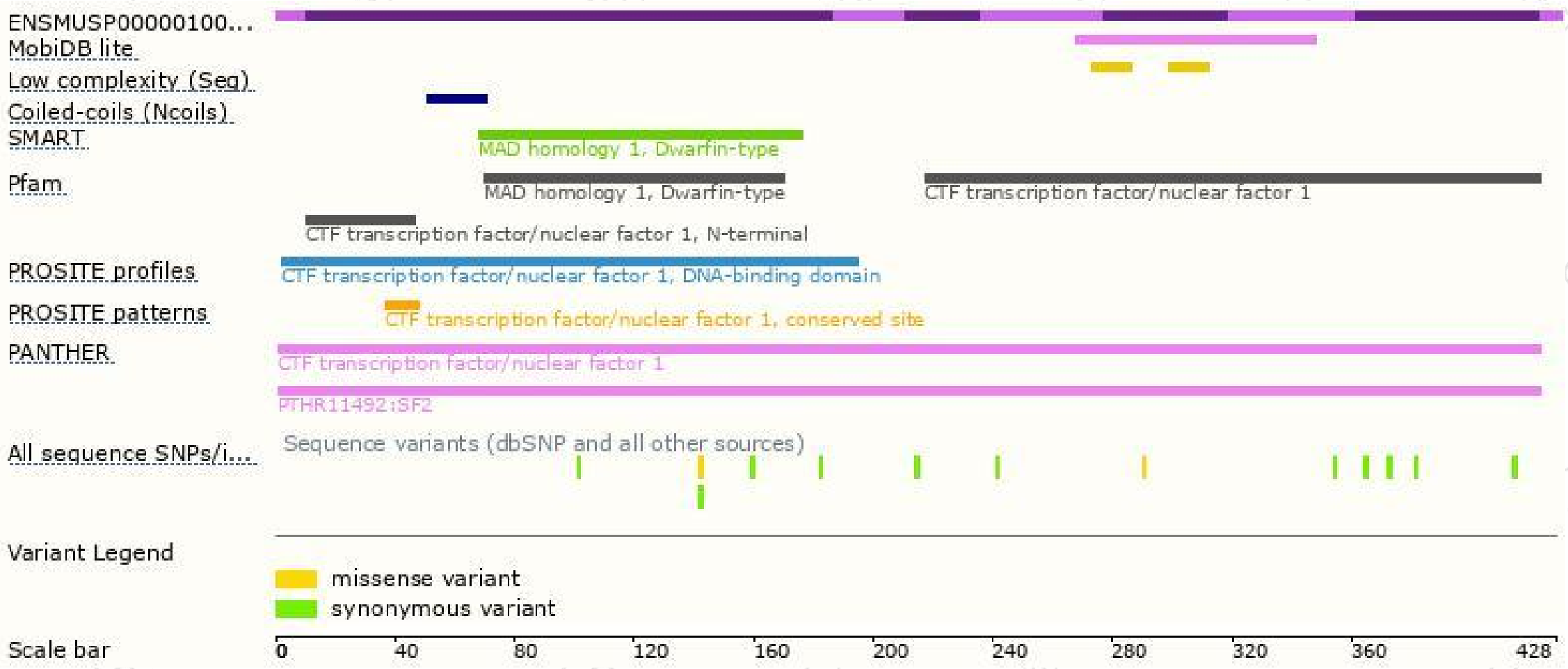
The strategy is based on the design of *Nfic-203* transcript,The transcription is shown below



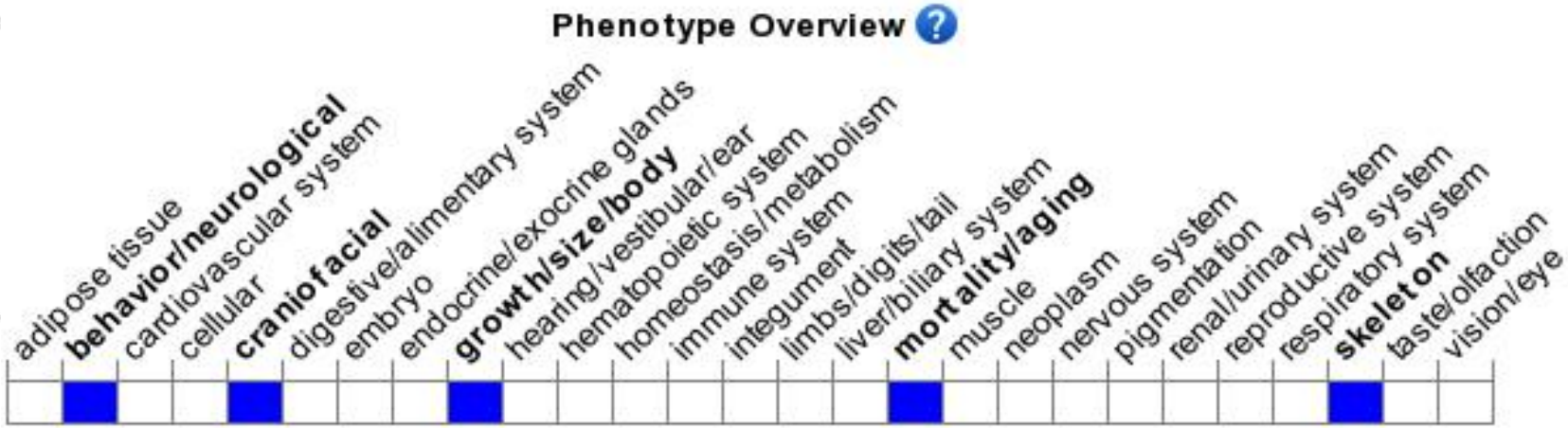
Genomic location distribution



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/).

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