

Rnf24 Cas9-KO Strategy

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Project Overview

Project Name

Rnf24

Project type

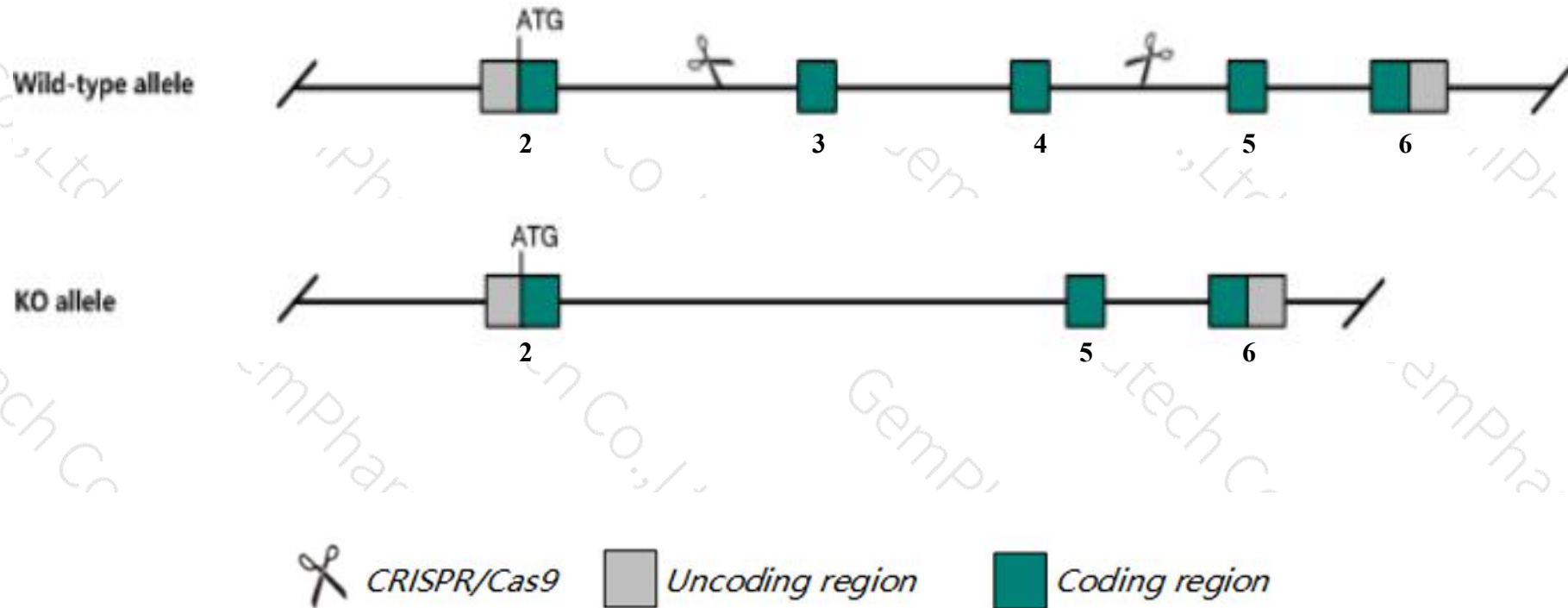
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rnf24* gene. The schematic diagram is as follows:



- The *Rnf24* gene has 5 transcripts. According to the structure of *Rnf24* gene, exon3-exon4 of *Rnf24-201*(ENSMUST00000059372.10) transcript is recommended as the knockout region. The region contains 85bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Rnf24* 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 *Rnf24* gene is located on the Chr2. 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)

Rnf24 ring finger protein 24 [Mus musculus (house mouse)]

Gene ID: 51902, updated on 13-Mar-2020

Summary



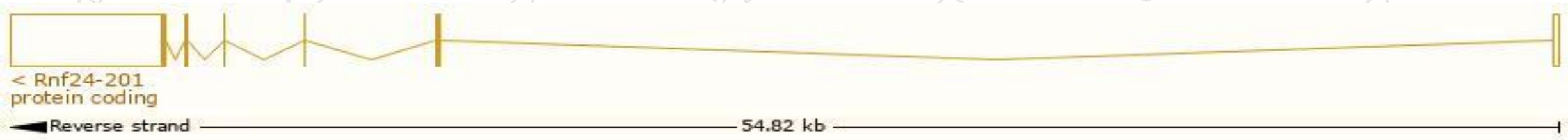
Official Symbol	Rnf24 provided by MGI
Official Full Name	ring finger protein 24 provided by MGI
Primary source	MGI:MGI:1261771
See related	Ensembl:ENSMUSG00000048911
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2810473M14Rik, 4930505A13Rik, AI317164, C86507, D2Ertd504e
Expression	Broad expression in testis adult (RPKM 10.0), whole brain E14.5 (RPKM 9.9) and 25 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

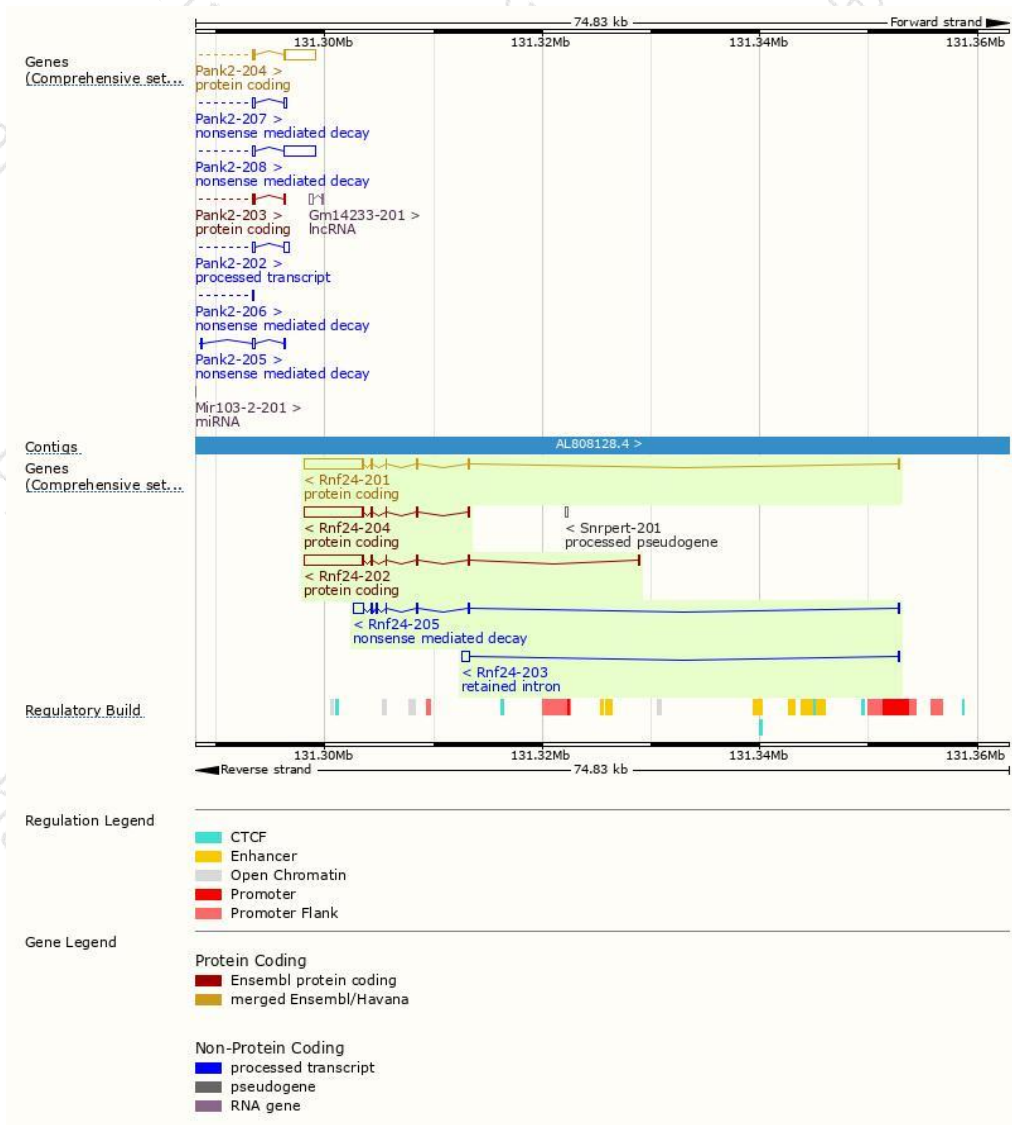
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rnf24-201	ENSMUST00000059372.10	5978	148aa	Protein coding	CCDS16762	Q4VA59 Q8BGI1	TSL:1 GENCODE basic APPRIS P1
Rnf24-202	ENSMUST00000110194.7	5944	148aa	Protein coding	CCDS16762	Q4VA59 Q8BGI1	TSL:1 GENCODE basic APPRIS P1
Rnf24-204	ENSMUST00000165420.7	5833	148aa	Protein coding	CCDS16762	Q4VA59 Q8BGI1	TSL:3 GENCODE basic APPRIS P1
Rnf24-205	ENSMUST00000183902.1	1466	95aa	Nonsense mediated decay	-	V9GXF9	TSL:1
Rnf24-203	ENSMUST00000142982.1	913	No protein	Retained intron	-	-	TSL:2

The strategy is based on the design of *Rnf24-201* transcript,the transcription is shown below:



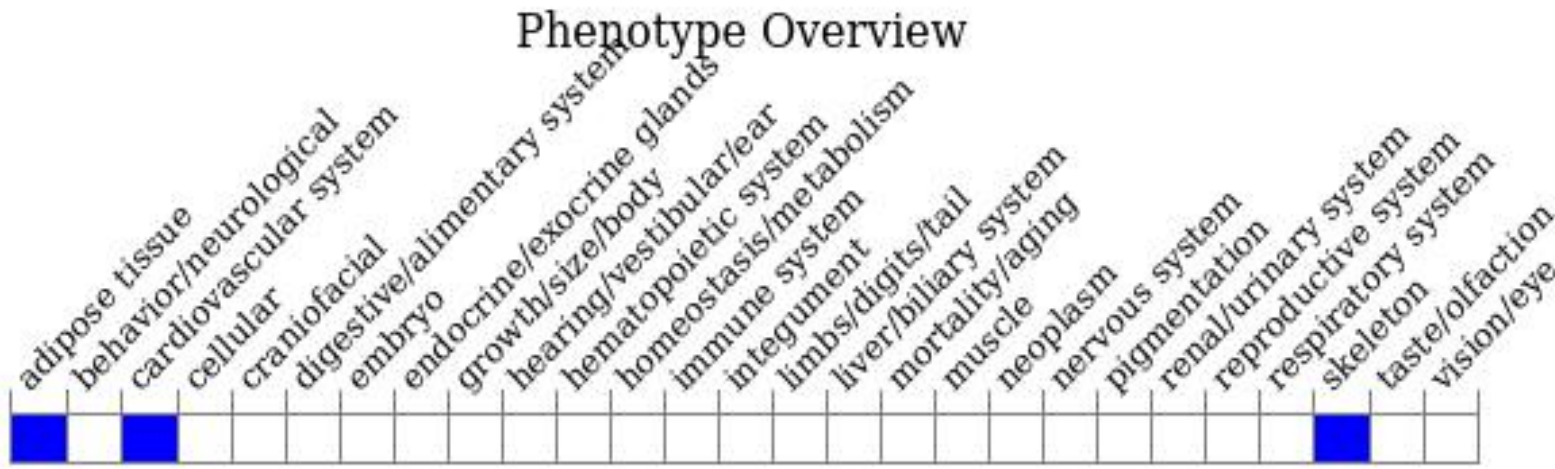
Genomic location distribution



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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