

Phrf1 Cas9-KO Strategy

Designer: Zihe Cui

Reviewer: Daohua Xu

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Project Overview

Project Name

Phrf1

Project type

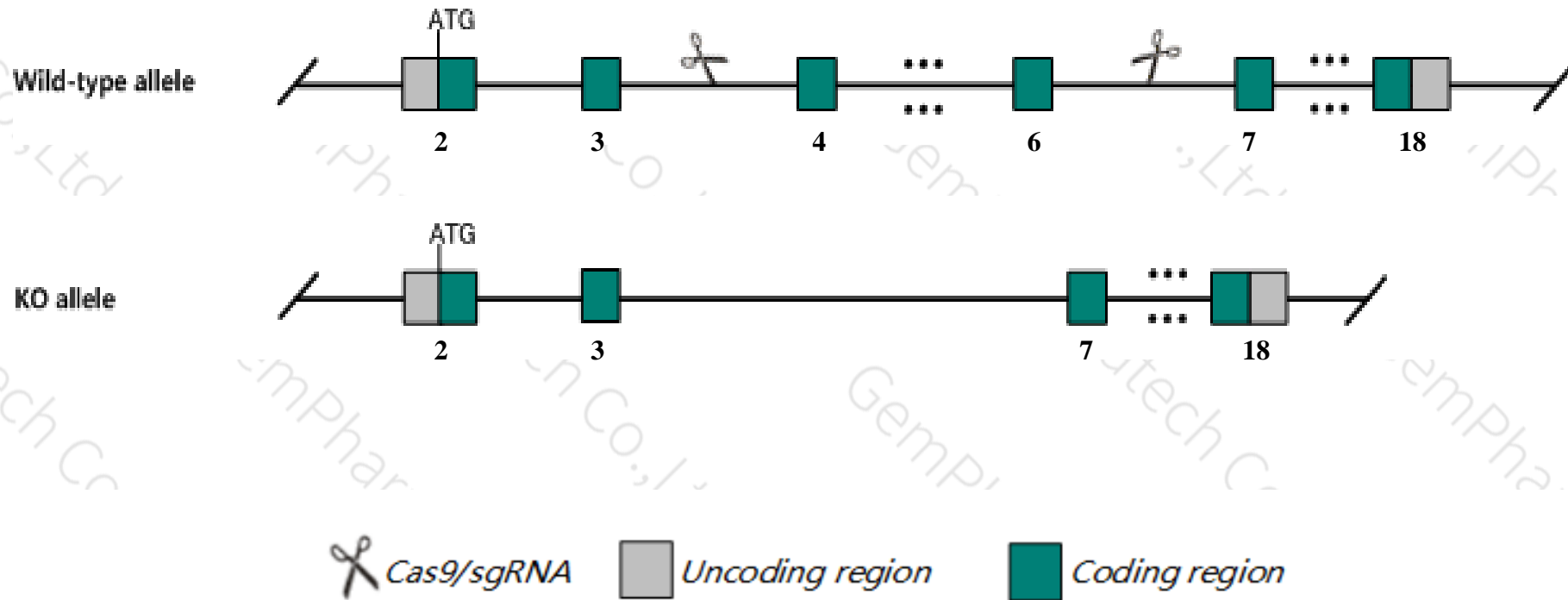
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Phrf1* gene. The schematic diagram is as follows:



- The *Phrf1* gene has 10 transcripts. According to the structure of *Phrf1* gene, exon4-exon6 of *Phrf1*-201(ENSMUST00000106027.8) transcript is recommended as the knockout region. The region contains 409bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Phrf1* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA 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.

- Transcript *Phrf1*-204, *Phrf1*-207 may not be affected.
- The *Phrf1* gene is located on the Chr7. 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)

Phrf1 PHD and ring finger domains 1 [Mus musculus (house mouse)]

Gene ID: 101471, updated on 13-Mar-2020

Summary



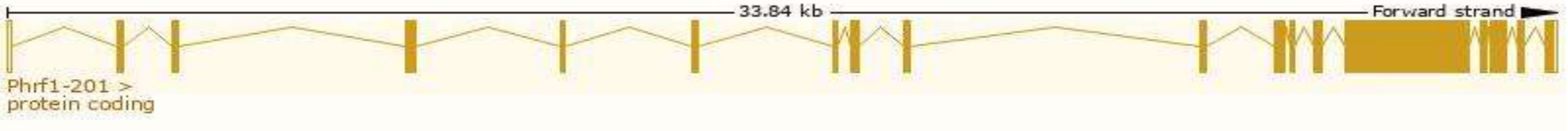
Official Symbol	Phrf1 provided by MGI
Official Full Name	PHD and ring finger domains 1 provided by MGI
Primary source	MGI:MGI:2141847
See related	Ensembl:ENSMUSG00000038611
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AA673488
Expression	Ubiquitous expression in thymus adult (RPKM 11.5), CNS E11.5 (RPKM 7.5) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

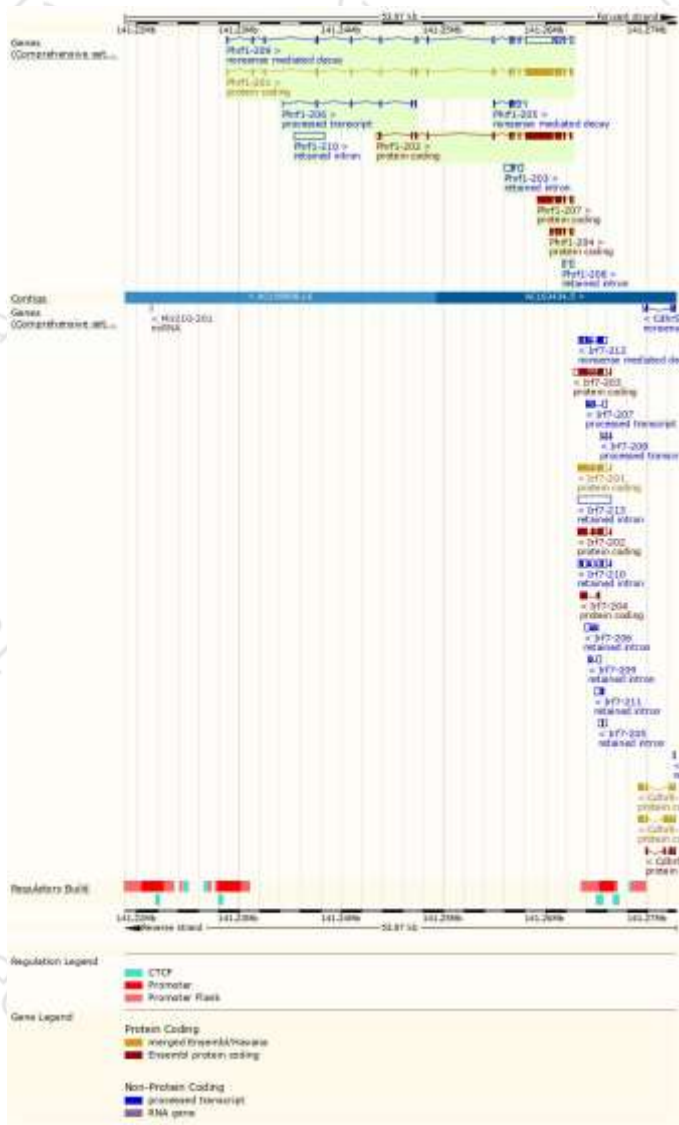
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Phrf1-201	ENSMUST00000106027.8	5248	1682aa	Protein coding	CCDS52441	A6H619	TSL:5 GENCODE basic APPRIS P1
Phrf1-202	ENSMUST00000122143.7	4864	1523aa	Protein coding	-	A6H619	TSL:1 GENCODE basic
Phrf1-207	ENSMUST00000142572.7	2519	773aa	Protein coding	-	F7ANA1	CDS 5' incomplete TSL:1
Phrf1-204	ENSMUST00000130687.1	1189	331aa	Protein coding	-	F6WXS6	CDS 5' incomplete TSL:1
Phrf1-209	ENSMUST00000155123.7	5271	214aa	Nonsense mediated decay	-	D6RI35	TSL:5
Phrf1-205	ENSMUST00000132540.7	668	127aa	Nonsense mediated decay	-	A0A1B0GR47	CDS 5' incomplete TSL:3
Phrf1-206	ENSMUST00000134057.7	650	No protein	Processed transcript	-	-	TSL:3
Phrf1-210	ENSMUST00000211144.1	2934	No protein	Retained intron	-	-	TSL:NA
Phrf1-203	ENSMUST00000122868.1	1283	No protein	Retained intron	-	-	TSL:1
Phrf1-208	ENSMUST00000144250.1	518	No protein	Retained intron	-	-	TSL:2

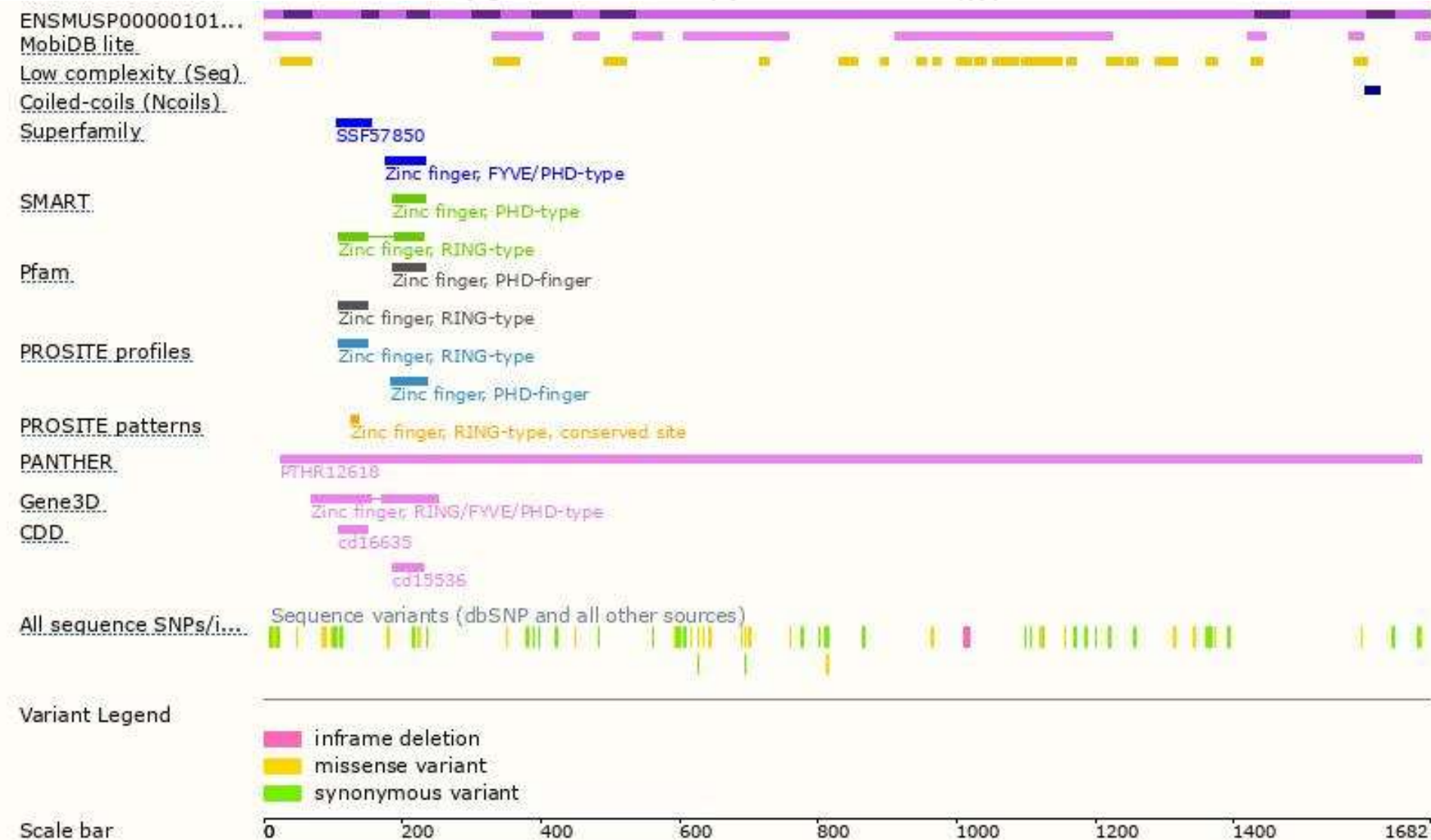
The strategy is based on the design of *Phrf1-201* transcript,the transcription is shown below:



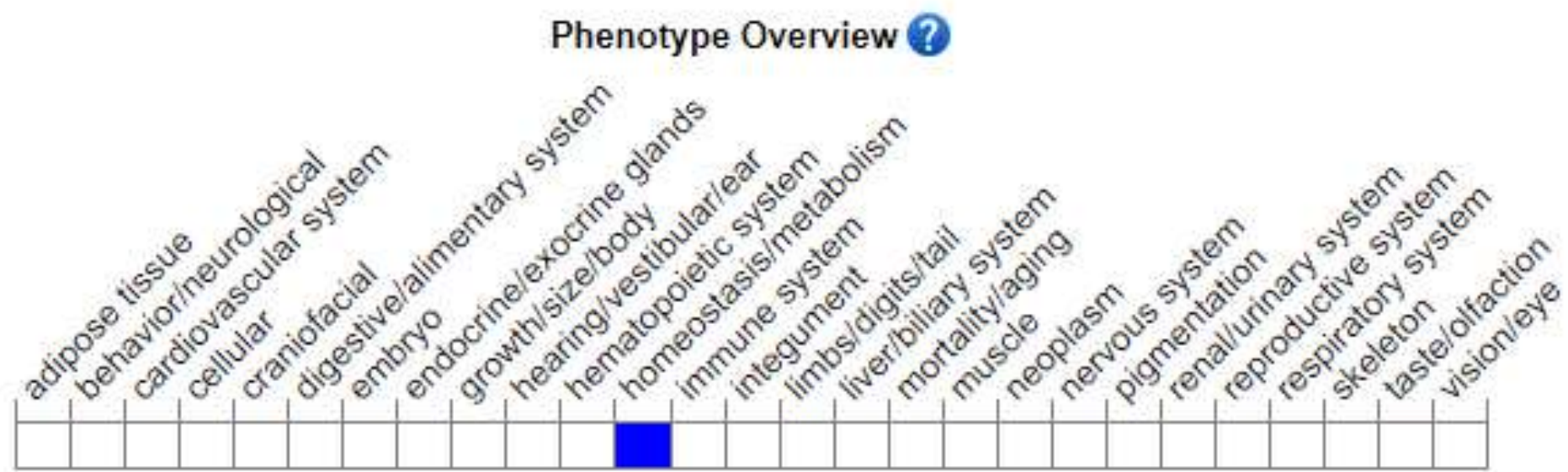
Genomic location distribution



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.

Tel: 025-5864 1534

