

Phf24 Cas9-CKO Strategy

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Project Overview

Project Name

Phf24

Project type

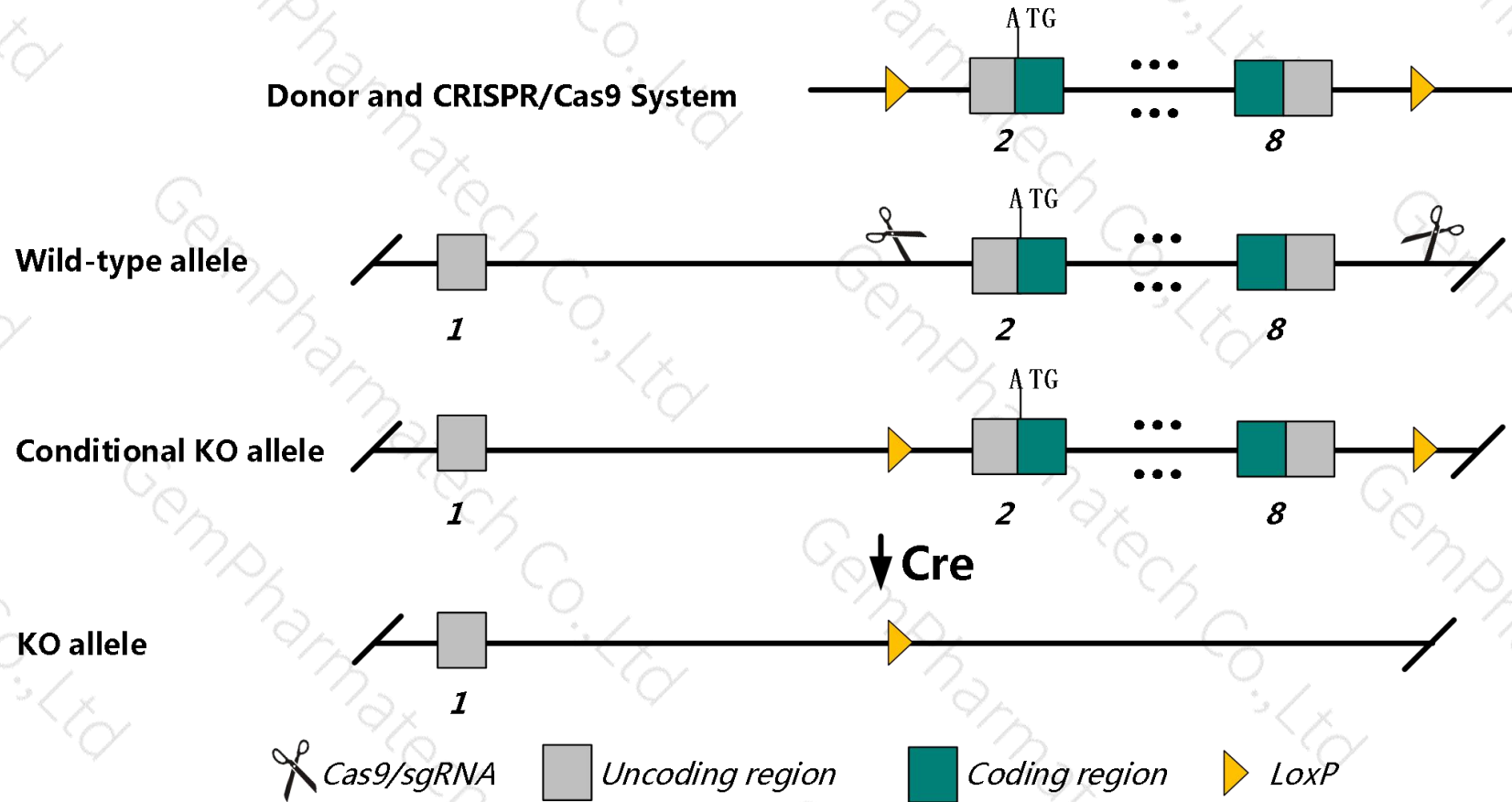
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Phf24* gene. The schematic diagram is as follows:



Technical routes

- The *Phf24* gene has 9 transcripts. According to the structure of *Phf24* gene, exon2-exon8 of *Phf24*-202(ENSMUST00000107975.7) transcript is recommended as the knockout region. The region contains all of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Phf24* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector 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.

- According to the existing MGI data, mice homozygous for a knock-out allele develop a selective and prolonged mechanical hypersensitivity in models of inflammation and neuropathy and show impaired baclofen-mediated analgesia following nerve injury.
- The floxed region is near to the N-terminal of *Dnajb5* gene, this strategy may influence the regulatory function of the N-terminal of *Dnajb5* gene.
- The *Phf24* gene is located on the Chr4. 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)

Phf24 PHD finger protein 24 [Mus musculus (house mouse)]

Gene ID: 230085, updated on 13-Mar-2020

Summary



Official Symbol	Phf24 provided by MGI
Official Full Name	PHD finger protein 24 provided by MGI
Primary source	MGI:MGI:2140712
See related	Ensembl:ENSMUSG00000036062
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	GINIP, N28178
Expression	Biased expression in cortex adult (RPKM 28.7), frontal lobe adult (RPKM 19.6) and 4 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

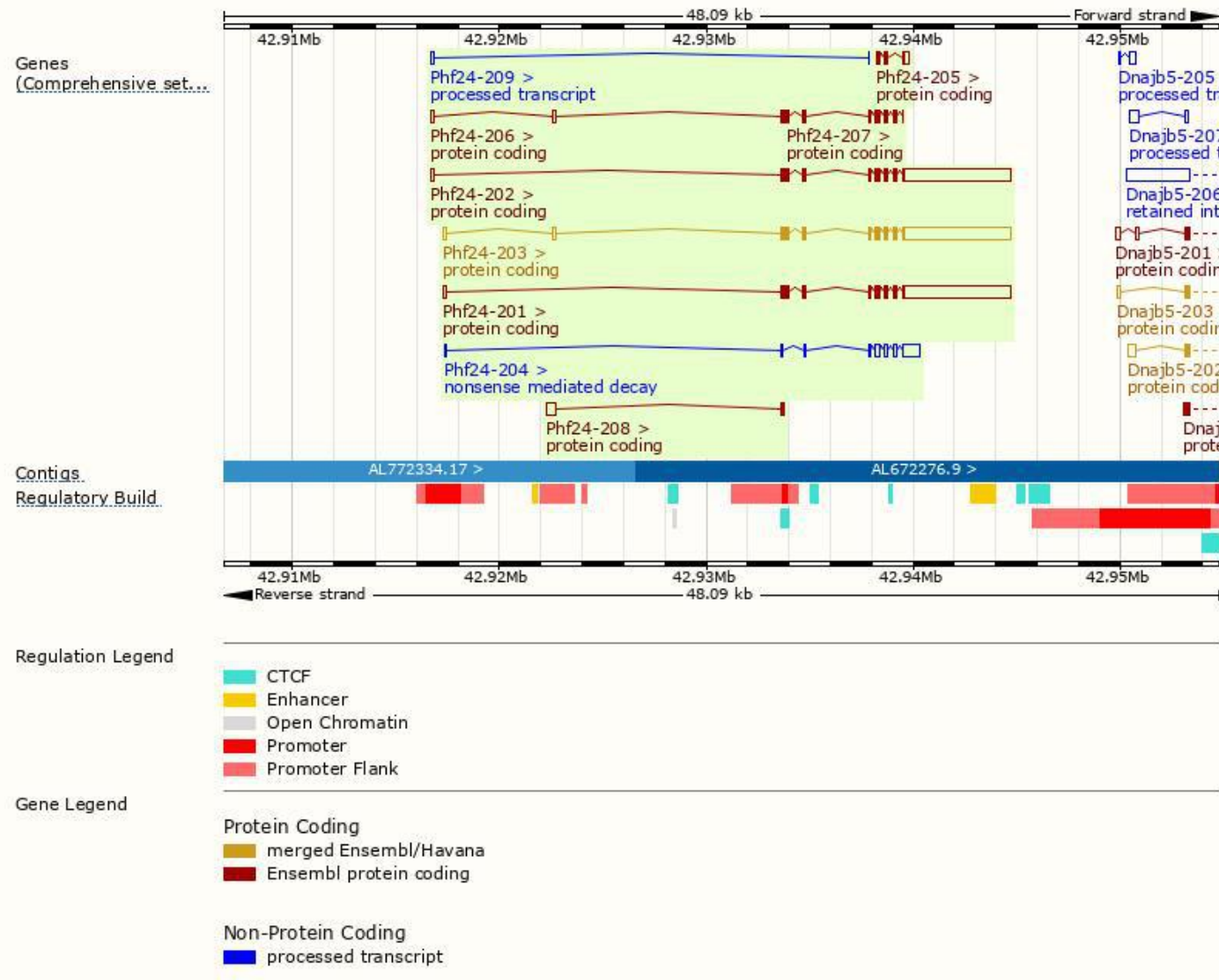
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Phf24-203	ENSMUST00000107976.8	6538	363aa	Protein coding	CCDS18083	Q80TL4	TSL:1 GENCODE basic
Phf24-202	ENSMUST00000107975.7	6494	400aa	Protein coding	CCDS84719	Q80TL4	TSL:2 GENCODE basic APPRIS P1
Phf24-201	ENSMUST00000069184.8	6392	363aa	Protein coding	CCDS18083	Q80TL4	TSL:1 GENCODE basic
Phf24-207	ENSMUST00000138425.7	768	256aa	Protein coding	-	F6SBE4	CDS 5' and 3' incomplete TSL:3
Phf24-205	ENSMUST00000131234.1	615	127aa	Protein coding	-	S4R1R0	CDS 5' incomplete TSL:5
Phf24-208	ENSMUST00000139100.1	608	59aa	Protein coding	-	S4R193	CDS 3' incomplete TSL:3
Phf24-206	ENSMUST00000132173.7	492	70aa	Protein coding	-	S4R202	CDS 3' incomplete TSL:2
Phf24-204	ENSMUST00000124380.1	1649	42aa	Nonsense mediated decay	-	S4R2C8	TSL:5
Phf24-209	ENSMUST00000151824.1	230	No protein	Processed transcript	-	-	TSL:5

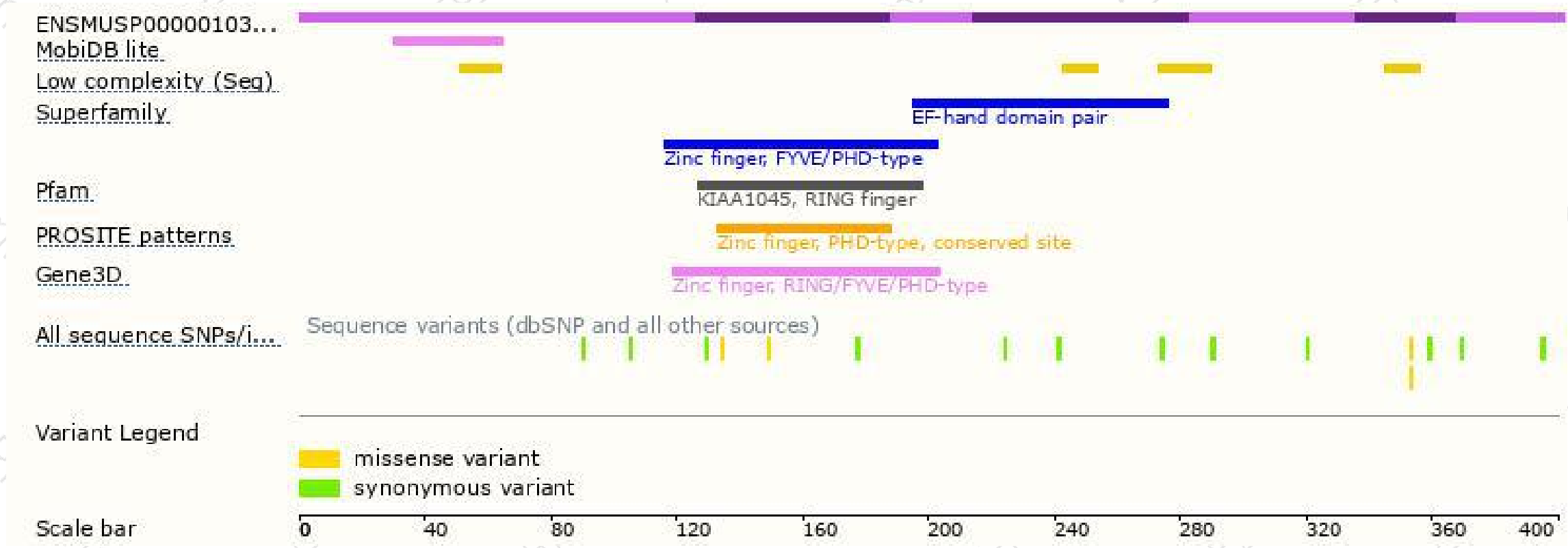
The strategy is based on the design of *Phf24-202* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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